

Lucent Technologies
Bell Labs Innovations



***WaveStar*[®] Network Management System (NMS)**

Release 4.2 (Topaz)

Administration Guide

365-309-245
Issue 1
October 2001



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Administration Guide
365-309-245 Issue 1 October 2001

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Contents

About this information product

<u>Purpose</u>	<u>xix</u>
<u>Reason for reissue</u>	<u>xix</u>
<u>Safety labels</u>	<u>xix</u>
<u>Intended audience</u>	<u>xix</u>
<u>How to use this information product</u>	<u>xix</u>
<u>Conventions used</u>	<u>xxii</u>
<u>Related documentation</u>	<u>xxii</u>
<u>How to comment</u>	<u>xxiii</u>
<u>How to order</u>	<u>xxiii</u>

1 Administration overview

<u>Overview</u>	<u>1-1</u>
<u>What is administration?</u>	<u>1-3</u>
<u>Who performs administration tasks?</u>	<u>1-4</u>
<u>Administer various hardware configurations</u>	<u>1-5</u>
<u>Run levels</u>	<u>1-6</u>

2 Platform Administration

[Overview](#) [2-1](#)

Section I: Power on servers and MC/ServiceGuard configurations

[Overview](#) [2-4](#)

[Power on an HP server \(single-server configuration\)](#) [2-5](#)

[Power on HP servers \(MC/ServiceGuard cluster - local redundancy configuration\)](#) [2-6](#)

[Power on an HP server \(geographic redundancy configuration\)](#) [2-7](#)

[Power on a Windows terminal server](#) [2-8](#)

Section II: Power on HP and Windows workstations

[Overview](#) [2-9](#)

[Power on an HP-UX workstation](#) [2-10](#)

[Power on a Windows workstation](#) [2-11](#)

Section III: Configuration tasks

[Overview](#) [2-12](#)

[Add a workstation to the WaveStar NMS host](#) [2-13](#)

[TIM TCP/IP configuration setup](#) [2-14](#)

[Asynchronous port setup for TIM interface](#) [2-17](#)

[Asynchronous port setup on datakit](#) [2-19](#)

[Configuring a LAN Interface](#) [2-20](#)

Section IV: Administering users

[Overview](#) [2-21](#)

[Add an OS user on an HP-UX workstation using SAM](#) [2-22](#)

[Create an OS user ID through the sam terminal-based program](#) [2-25](#)

<u>Assign user privileges to a user on a Windows PC</u>	<u>2-29</u>
<u>Assign system administrator privileges on a Windows PC</u>	<u>2-31</u>
<u>Add a user on the server</u>	<u>2-33</u>
Section V: Administer SAGE desktop integration users	
<u>Overview</u>	<u>2-34</u>
<u>Add a user to a SAGE workstation</u>	<u>2-35</u>
<u>Delete a user from a SAGE workstation</u>	<u>2-37</u>
Section VI: Printer Administration	
<u>Overview</u>	<u>2-38</u>
<u>Install a networked printer on a WaveStar NMS server</u>	<u>2-39</u>
<u>Add a network printer</u>	<u>2-41</u>
<u>Add a local serial printer</u>	<u>2-43</u>
<u>Set up the Common Desktop Environment (CDE) printer icon</u>	<u>2-44</u>
Section VII: Power down workstations	
<u>Overview</u>	<u>2-46</u>
<u>Power down an HP-UX workstation</u>	<u>2-47</u>
<u>Power down a Windows workstation</u>	<u>2-48</u>
Section VIII: Power down servers and MC/ServiceGuard configurations	
<u>Overview</u>	<u>2-49</u>
<u>Power down a single server</u>	<u>2-50</u>
<u>Power down MC/ServiceGuard cluster (local redundancy configuration)</u>	<u>2-51</u>
<u>Power down a server (geographic redundancy configuration)</u>	<u>2-53</u>
<u>Power down an Windows server</u>	<u>2-55</u>

3 System administration

[Overview](#) 3-1

Section I: Start WaveStar NMS server applications

[Overview](#) 3-4

[Start WaveStar NMS on a single server](#) 3-5

[Start WaveStar NMS on a server with a geographic redundancy configuration](#) 3-7

[Start WaveStar NMS on a Windows terminal server](#) 3-8

Section II: Start WaveStar NMS User Interface (UI) applications

[Overview](#) 3-9

[Start WaveStar NMS on a MC/ServiceGuard Cluster](#) 3-10

[Start WaveStar NMS on a Windows terminal server](#) 3-12

[Start WaveStar NMS on an HP-UX workstation](#) 3-13

[Start WaveStar NMS on a Windows workstation \(PC\)](#) 3-14

Section III: Stop WaveStar NMS

[Overview](#) 3-15

[Stop WaveStar NMS](#) 3-16

[Stop WaveStar NMS on a single server](#) 3-17

[Stop WaveStar NMS on a server with a geographic redundancy configuration](#) 3-19

[Stop WaveStar NMS package](#) 3-20

[Stop WaveStar NMS application on a MC/ServiceGuard cluster](#) 3-21

[Stop the WaveStar NMS application on a Windows terminal server](#) 3-22

[Stop WaveStar NMS on a specific node using sam](#) 3-23

[Stop WaveStar NMS on an HP-UX workstation](#) 3-24

<u>Stop WaveStar NMS on a Windows workstation</u>	<u>3-25</u>
<u>Stop WaveStar NMS with UPS</u>	<u>3-26</u>
Section IV: Administer the system cron file	
<u>Overview</u>	<u>3-27</u>
<u>View the system cron file</u>	<u>3-28</u>
<u>Edit the system cron file</u>	<u>3-29</u>
Section V: Local redundancy configuration	
<u>Overview</u>	<u>3-30</u>
<u>Switch to a standby server</u>	<u>3-31</u>
<u>Enable automatic package switching</u>	<u>3-32</u>
<u>Disable automatic package switching</u>	<u>3-33</u>
<u>Re-add the server to a cluster</u>	<u>3-34</u>
<u>View the cluster status information</u>	<u>3-35</u>
Section VI: Restart and stop the Oracle database	
<u>Overview</u>	<u>3-36</u>
<u>Restart the Oracle database</u>	<u>3-37</u>
<u>Stop the Oracle database</u>	<u>3-38</u>
Section VII: Administer performance monitoring data export	
<u>Overview</u>	<u>3-39</u>
<u>Performance monitoring data export</u>	<u>3-40</u>
Section VIII: Monitor space	
<u>Overview</u>	<u>3-42</u>
<u>Monitor space</u>	<u>3-43</u>
Section IX: Network Map	
<u>Overview</u>	<u>3-44</u>

<u>Install a new background map for all users</u>	<u>3-45</u>
<u>Install a new background map for HP-UX client machines</u>	<u>3-47</u>
<u>Install a new background map for Windows PC/Windows terminal server machines</u>	<u>3-48</u>
<u>Update a network element position</u>	<u>3-49</u>
<u>Modify a description of a noncontrollable network element</u>	<u>3-50</u>
<u>Delete a network element from the database</u>	<u>3-52</u>
Section X: Set Filtering Criteria	
<u>Overview</u>	<u>3-54</u>
<u>Set filtering criteria for WaveStar NMS alarms</u>	<u>3-55</u>
Section XI: Set Preferences	
<u>Overview</u>	<u>3-56</u>
<u>Set event indications preferences</u>	<u>3-57</u>
<u>Set map preferences</u>	<u>3-58</u>
<u>Set alarm preferences</u>	<u>3-59</u>
<u>Set Fault Management (FM) operational preferences</u>	<u>3-60</u>
Section XII: Miscellaneous system administration	
<u>Overview</u>	<u>3-61</u>
<u>Check the status of X.25 links</u>	<u>3-62</u>
<u>Search for location-type information for a specific network element</u>	<u>3-64</u>
<u>Search for controlled network elements</u>	<u>3-65</u>

4 User and Domain Administration

<u>Overview</u>	<u>4-1</u>
---------------------------------	----------------------------

Section I: Administer users in WaveStar NMS

<u>Overview</u>	<u>4-3</u>
---------------------------------	----------------------------

<u>Add a user</u>	<u>4-4</u>
<u>Modify a user</u>	<u>4-6</u>
<u>Delete a user</u>	<u>4-8</u>
<u>Add a user profile</u>	<u>4-9</u>
<u>Modify a user profile</u>	<u>4-10</u>
<u>Delete a user profile</u>	<u>4-12</u>
Section II: Geographic domain user administration	
<u>Overview</u>	<u>4-13</u>
<u>Add user(s) or network element(s) to a geographic domain</u>	<u>4-14</u>
<u>List users assigned to geographic domains</u>	<u>4-16</u>
<u>List users assigned to a network element</u>	<u>4-18</u>
<u>List network elements assigned to user</u>	<u>4-19</u>
<u>Delete user(s) or network element(s) from a geographic domain</u>	<u>4-20</u>
Section III: Service domain user administration	
<u>Overview</u>	<u>4-22</u>
<u>Add a user to a service domain</u>	<u>4-23</u>
<u>List service domain user(s)</u>	<u>4-25</u>
<u>Delete user(s) from a service domain</u>	<u>4-26</u>
Section IV: WaveStar SNMS cut-through user ID	
<u>Overview</u>	<u>4-28</u>
<u>Set up a user ID for cut-through to WaveStar SNMS</u>	<u>4-29</u>

5 Domain partitioning for provisioning operations

<u>Overview</u>	<u>5-1</u>
---------------------------------	----------------------------

Section I: Geographic domain partitioning

Overview	5-3
Add a geographic domain	5-7
List geographic domain	5-9
Delete a geographic domain	5-10
Modify a geographic domain	5-11
List network elements assigned to geographic domains	5-13

Section II: Service domain partitioning

Overview	5-14
List trails assigned to a service domain	5-17
List channels assigned to a service domain	5-18
List ports assigned to a service domain	5-19
Add a service domain	5-20
Modify the trails assigned to a service domain	5-21
Modify the channels assigned to a service domain	5-23
Modify the ports assigned to a service domain	5-25
Delete a service domain	5-27

6 Provisioning administration

Overview	6-1
--------------------------	---------------------

Section I: Aggregates

Overview	6-3
Add an aggregate	6-4
Delete an aggregate	6-6
Add an aggregate member	6-7

Remove an aggregate member	6-9
Specify an aggregate's acronym	6-11
Section II: Areas	
Overview	6-12
Add an area	6-13
Modify an area	6-15
Delete an area	6-17
Section III: Scheduled entities	
Overview	6-18
View a list of scheduled entities	6-19
Delete a scheduled entity	6-20
Modify a scheduled entity	6-21
Filter the display of scheduled entities on the Scheduled List	6-22
View successful/failed scheduled entities through the Scheduled History List	6-24
Section IV: User Defined Area Map	
Overview	6-25
Add a user defined area map	6-26
Display/modify a user defined area map	6-27
Delete a user defined area map	6-28
Section V: User Defined Submap	
Overview	6-29
Add a user defined submap	6-30
Display/modify a user defined submap	6-31
Delete a user defined submap	6-32

Section VI: Provisioning maintenance tool

Overview	6-33
Virtual disconnect tool description	6-34

7 Reliability and service recovery

Overview	7-1
--------------------------	-----

Section I: Perform backups

Overview	7-3
Perform a hot backup	7-5
Perform a cold backup	7-6

Section II: Perform recoveries

Overview	7-8
Recovering Hot or Cold Backups	7-9
Perform a hot backup recovery	7-10
Perform a cold backup recovery	7-11
Recover the database to a different server	7-13

Section III: Delete history

Overview	7-15
About this tool	7-16

Section IV: Miscellaneous reliability and service recovery tasks

Overview	7-17
Obtain mirroring status	7-18

Section V: Redundancy

Overview	7-19
EMS switchovers	7-23

Restart WaveStar NMS communication with EMS servers	7-26
Restart WaveStar NMS communication with WaveStar SNMS local redundancy servers	7-27
Restart WaveStar NMS's ability to communicate with WaveStar SNMS geographic redundancy servers	7-28
Restart WaveStar NMS's ability to communicate with ITM-SC servers	7-29
Switch the roles of WaveStar NMS servers (simplified or full geographic redundancy configuration)	7-30
Section VI: Geographic Redundancy configuration	
Overview	7-31
View which server is running the WaveStar NMS application	7-32

8 Off-line tool concepts

Overview	8-1
Section I: Auto-Discovery Tool	
Overview	8-3
Add or migrate networks to WaveStar NMS management using the auto-discovery tool	8-13
Specify auto-discovery tool parameters	8-15
Section II: Rename network element tool	
Overview	8-17
Change the name of an existing network element	8-18
Section III: INSERTNODE and REMOVENODE tools	
Overview	8-23
Insert an ITM-SC controlled node into a digital link using INSERTNODE	8-26
Insert a WaveStar SNMS controlled node into a digital link using INSERTNODE	8-32

[Delete an ITM-SC controlled node from a digital link using REMOVE NODE](#) 8-37

[Delete a WaveStar SNMS controlled node from a digital link using REMOVE NODE](#) 8-40

Section IV: Network element reparenting tool

[Overview](#) 8-42

[Reparenting ITM-SC controlled Network Elements](#) 8-43

[Reparenting WaveStar SNMS controlled network elements](#) 8-45

[Reparenting WaveStar NMS EMS resources to another WaveStar NMS](#) 8-48

Section V: Upgrade WaveStar OLS 400G to WaveStar OLS 800G

[Overview](#) 8-50

[Upgrade WaveStar OLS 400G to WaveStar OLS 800G](#) 8-51

Section VI: Upgrade WaveStar OLS 400G's network element's from CMISE mode to TL1 mode

[Overview](#) 8-53

[Use the CMISE to TL1 upgrade tool for WaveStar OLS 400G](#) 8-54

Section VII: Connection renaming tool

[Overview](#) 8-56

[Rename network connections with the connection renaming tool](#) 8-58

Section VIII: Bulk circuit provisioning tool

[Overview](#) 8-60

[Bulk circuit provisioning tool task](#) 8-61

Section IX: Bulk link provisioning tool

[Overview](#) 8-63

[Bulk link provisioning tool task](#) 8-64

Section X: Network element tools

Overview	8-66
Add a new network element to an established ring	8-67
Delete a network element from a ring	8-70
Configure a network element for an X.25 network	8-71

Section XI: Virtual disconnect tool

Overview	8-73
Virtual disconnect tool task	8-74

9 EMS management

Overview	9-1
--------------------------	---------------------

Section I: Interact with ITM-SCs

Overview	9-3
Add a new ITM-SC	9-4
Synchronize the WaveStar NMS database with an ITM-SC database	9-7

Section II: Interact with WaveStar SNMSs

Overview	9-9
Add a new WaveStar SNMS	9-10
Synchronize the WaveStar NMS database with a WaveStar SNMS database	9-13
Refederate a WaveStar SNMS server	9-15

Section III: Interact with EMSs

Overview	9-18
Add a new element management system (EMS)	9-19
Add a new ITM-XM	9-21
Add a new NSU	9-23

[Add External WaveStar NMS to ITM-XM](#) [9-25](#)

[Add a new ITM-IDM](#) [9-27](#)

[Synchronize the WaveStar NMS database with an EMS](#) [9-28](#)

Section IV: Miscellaneous management communication tasks

[Overview](#) [9-29](#)

[View LAN status information](#) [9-30](#)

Section V: ITM-XM EMSs

[Overview](#) [9-31](#)

[Resource management functions](#) [9-32](#)

[WaveStar DACS](#) [9-33](#)

[WaveStar DACS frame display](#) [9-35](#)

[WaveStar DACS shelf display](#) [9-37](#)

[WaveStar DACS cross-connect management](#) [9-39](#)

[Alarm Database Audit](#) [9-40](#)

[WaveStar DACS database synchronization](#) [9-41](#)

10 Trouble clearing

[Overview](#) [10-1](#)

[Troubleshoot X.25 links](#) [10-3](#)

[Create a trace file on a server](#) [10-4](#)

[Create a trace file on an HP-UX workstation or on a PC](#) [10-6](#)

[View the core file](#) [10-7](#)

[View the log files](#) [10-8](#)

[View the log file on an HP workstation](#) [10-10](#)

[View the console.log file on a Windows PC](#) [10-11](#)

[Start WaveStar NMS on a specific MC/ServiceGuard node](#) [10-12](#)

11 Patch and Software Upgrade Tasks

[Overview](#) [11-1](#)

[Patch information](#) [11-2](#)

A [WaveStar NMS Filesystems](#) [A-1](#)

[WaveStar NMS file systems](#) [A-1](#)

B [WaveStar NMS Parameters](#) [B-1](#)

[Overview](#) [B-1](#)

[WaveStar NMS Parameter Table](#) [B-3](#)

GL [Glossary](#) [GL-1](#)

IN [Index](#) [IN-1](#)



About this information product

Purpose	<p>This chapter is a preface that provides an overview of this information product.</p> <p>The purpose of this Administration Guide is to instruct users how to administer <i>WaveStar</i>[®] Network Management System (NMS) Release 4.2.</p>
Reason for reissue	<p>This Administration Guide, Issue 1, is a revised document that supports WaveStar NMS, Release 4.2.</p>
Safety labels	<p>N/A</p>
Intended audience	<p>This guide is written primarily for operations personnel who administer WaveStar NMS.</p>
How to use this information product	<p>This section provides information to help users of this information product.</p>

Chapter descriptions

The following table describes the information in each chapter of this document.

Section	Title	Description
Preface	About this information product	Describes this document's purpose and intended audience, how to use the document, and how to comment on it.
Chapter 1	Chapter 1, "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"	Describes how to start and stop WaveStar NMS, set preferences, restart the database and how to perform other system administration tasks.
Chapter 4	Chapter 4, "User and Domain Administration"	Describes how to assign user privileges and restrict access to WaveStar NMS.

Section	Title	Description
Chapter 5	Chapter 5, “Domain partitioning for provisioning operations”	Contains procedures on how to list network elements, how to add and delete domains, and how to add channels to domains.
Chapter 6	Chapter 6, “Provisioning administration”	Contains tasks on managing areas, aggregates, and scheduled entities.
Chapter 7	Chapter 7, “Reliability and service recovery ”	Provides instructions on how to perform hot and cold backups.
Chapter 8	Chapter 8, “Off-line tool concepts”	Contains tasks for WaveStar NMS’s off-line tools.
Chapter 9	Chapter 9, “EMS management ” —	Describes how to add new element management systems, perform a database synchronization, and view LAN status information.
Chapter 10	Chapter 10, “Trouble clearing”	Contains troubleshooting procedures.
Chapter 11	Chapter 11, “Patch and Software Upgrade Tasks”	Will provide specific instructions on how to upgrade the WaveStar NMS.
Appendix	Appendix A, “WaveStar NMS Filesystems”	Contains a list of file systems.

Section	Title	Description
Appendix	Appendix B, “WaveStar NMS Parameters”	Contains general information about WaveStar NMS installation parameters.
Index	Index	Enables the user to quickly find information on specific topics.

Conventions used

This document uses the following typographical conventions to distinguish between computer input and output.

- When describing the WaveStar 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 information product is part of a set of documents that supports WaveStar NMS.

List of documents

The document set that supports WaveStar NMS includes:

1. *WaveStar NMS Getting Started Guide*, (365-309-241) - provides information needed as you learn how to use the WaveStar NMS software. It describes how to start and stop WaveStar NMS, how to use the software, and how to interpret the graphical user interface. This document includes tasks and conceptual information.
2. *WaveStar NMS Applications and Planning Guide*, (365-309-242) - describes the WaveStar 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.

3. *WaveStar NMS Administration Guide*, (365-309-245) - instructs users on how to administer WaveStar NMS and the network. This document includes tasks and conceptual information.
4. *WaveStar NMS Maintenance Guide*, (365-309-244) - instructs users on how to maintain WaveStar NMS and the network. This document includes tasks and conceptual information.
5. *WaveStar NMS Provisioning Guide*, (365-309-243) - instructs users how to use WaveStar NMS to provision and manage a network. This document includes tasks and conceptual information.

On-line documentation

An online version, in HTML format, of this document set is provided with WaveStar NMS.

Screen help

The WaveStar NMS software includes screen help for each window, which describes the purpose of the window, each of the fields, and each of the buttons.

Window help

The WaveStar NMS software includes window help for each form, which describes the purpose of the form, each of the fields, and each of the buttons.

How to comment

Customer satisfaction is extremely important to Lucent Technologies. All users are encouraged to provide feedback on the WaveStar NMS information products.

A customer comment form appears immediately after the title page of this document. Please fill out the form and submit it as instructed on the form.

How to order

To order WaveStar NMS information products, contact your Lucent Technologies customer team representative or contact the Lucent Technologies Customer Information Center (CIC):

- From the United States, call 1-888-LUCENT8 (1-888-582-3688), prompt 1.
- From Canada, call 1-317-322-6619.

- From Europe, the Middle East, and Africa, call 1-317-322-6416.
- From Asia, the Pacific Region, China, the Caribbean, and Latin America, call 1-317-322-6411.



1 Administration overview

Overview

Purpose This chapter provides an overview of the WaveStar Network Management System (NMS) administration process.

Platform Administration and WaveStar NMS Administration

This document contains the administrative operations on WaveStar NMS.

It covers the following administration categories:

- ***Platform Administration***, which contains critical platform setup tasks that are performed outside of the WaveStar NMS application. This category includes tasks for powering on or powering off workstations, adding users to workstations, and assigning user privileges.
- ***WaveStar NMS Administration***, which includes tasks and concepts specific to this application.

Important Note

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.

Contents

<u>What is administration?</u>	<u>1-3</u>
<u>Who performs administration tasks?</u>	<u>1-4</u>
<u>Administer various hardware configurations</u>	<u>1-5</u>
<u>Run levels</u>	<u>1-6</u>

What is administration?

Introduction WaveStar NMS administration covers the following areas:

- Security administration
- Geographic Domain administration
- Service Domain administration

Administration Process The administration process can be broken down into three areas.

Three areas The administration process provides the following type of support to the WaveStar NMS and the network:

- Security management support
- Provisioning support
- System support

Security management *Security management support* includes tasks associated with how to add and delete user IDs and profiles.

Provisioning support *Provisioning support* includes tasks used to add or delete geographic domains or to list network elements.

System Support *System support* includes system-related tasks, such as how to backup or recover the system.



Who performs administration tasks?

Introduction Administrative tasks are performed by users with system administrator permissions.

System administrator user types There are several administrator user types available which define the operating systems and platforms to which a system administrator may access.

These user type levels include:

- **Operating System (OS) Superuser**, or the highest, privileged user, for example, **root** on UNIX or **Administrator** on Windows.
- **OS Administrator**, which is created by the **OS Superuser**. This user type is typically configured with access to specific OS administrator-level tools and system-packaged tools. This user type may typically use standard OS tools, such as UNIX **vi**, configured with access to OS admin and system-specific tools. **OS Users** are typically **dacscan** on all server platforms (UNIX) and **sa** on client (GUI) platforms (UNIX and Windows).
- **OS User**, which may be created or deleted by the **OS Superuser** or **OS Administrator** user.
- **System Administrator**, a user type which performs day-to-day tasks using system administrative tools. Typically the **System Administrator** user also has **OS User** privileges.

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

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



Administer various hardware configurations

Introduction WaveStar 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

Refer to Chapter 5 (Hardware Platforms) of the *WaveStar NMS Applications and Planning Guide*.



Run levels

- Introduction** Certain tasks in this guide require the system administrator to change the run level of the WaveStar NMSapplication 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 on, this causes the system to run level 3 which shuts down the WaveStar 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 on an HP-UX machine, this causes the system to run level 4, which starts up the WaveStar NMS application. The **init 4** command would be entered, for example, after a trace file has been created.





2 Platform Administration

Overview

Purpose

This chapter contains information on how to:

- power on HP and Windows servers and MC/ServiceGuard configurations
- power on HP and Windows workstations
- perform configuration setup tasks
- manage users on client/server workstations residing on HP-UX and Windows platforms
- create and delete SAGE workstation users
- add a printer
- power down HP and Windows workstations
- power down HP and Windows servers

Contents

<u>Section I: Power on servers and MC/ServiceGuard configurations</u>	<u>2-4</u>
<u>Power on an HP server (single-server configuration)</u>	<u>2-5</u>
<u>Power on HP servers (MC/ServiceGuard cluster - local redundancy configuration)</u>	<u>2-6</u>

Power on an HP server (geographic redundancy configuration)	2-7
Power on a Windows terminal server	2-8
Section II: Power on HP and Windows workstations	2-9
Power on an HP-UX workstation	2-10
Power on a Windows workstation	2-11
Section III: Configuration tasks	2-12
Add a workstation to the WaveStar NMS host	2-13
TIM TCP/IP configuration setup	2-14
Asynchronous port setup for TIM interface	2-17
Asynchronous port setup on datakit	2-19
Configuring a LAN Interface	2-20
Section IV: Administering users	2-21
Add an OS user on an HP-UX workstation using SAM	2-22
Create an OS user ID through the sam terminal-based program	2-25
Assign user privileges to a user on a Windows PC	2-29
Assign system administrator privileges on a Windows PC	2-31
Add a user on the server	2-33
Section V: Administer SAGE desktop integration users	2-34
Add a user to a SAGE workstation	2-35
Delete a user from a SAGE workstation	2-37
Section VI: Printer Administration	2-38
Install a networked printer on a WaveStar NMS server	2-39
Add a network printer	2-41
Add a local serial printer	2-43
Set up the Common Desktop Environment (CDE) printer icon	2-44

<u>Section VII: Power down workstations</u>	<u>2-46</u>
<u>Power down an HP-UX workstation</u>	<u>2-47</u>
<u>Power down a Windows workstation</u>	<u>2-48</u>
<u>Section VIII: Power down servers and MC/ServiceGuard configurations</u>	<u>2-49</u>
<u>Power down a single server</u>	<u>2-50</u>
<u>Power down MC/ServiceGuard cluster (local redundancy configuration)</u>	<u>2-51</u>
<u>Power down a server (geographic redundancy configuration)</u>	<u>2-53</u>
<u>Power down an Windows server</u>	<u>2-55</u>



Section I: Power on servers and MC/ServiceGuard configurations

Overview

- Purpose** This section contains information on how to power on:
- Single-servers (with or without disk mirroring)
 - Geographic Redundancy servers (simplified or full)
 - Local Redundancy servers
 - Windows servers

Contents

Power on an HP server (single-server configuration)	2-5
Power on HP servers (MC/ServiceGuard cluster - local redundancy configuration)	2-6
Power on an HP server (geographic redundancy configuration)	2-7
Power on a Windows terminal server	2-8



Power on an HP server (single-server configuration)

Purpose Use the following task to power on an HP server that has a single-server hardware configuration, with or without mirrored disks.

Important! When the system is powered on, it *does not* automatically start the WaveStar NMS application.

Task Use this task to power on the HP server (single-server configuration).

- 1 Switch on all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.
 - 2 Switch on the HP server (press the power switch or turn 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.

END OF STEPS



Power on HP servers (MC/ServiceGuard cluster - local redundancy configuration)

Purpose Use the following task to power on an MC/ServiceGuard cluster hardware configuration, which consists of HP servers in a local redundancy configuration, with or without mirrored disks.

Important! When the system is powered on, it *does not* automatically start the WaveStar NMS application.

Task Use this task to power on the *primary* server and *standby* HP server(s) using a local redundancy configuration.

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

2 Switch on the *primary* HP server (press the power switch or turn 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 Switch on the *standby* HP server(s) (press the power switch or turn 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 an HP server (geographic redundancy configuration)

Purpose Use the following task to power on an HP server that has a simplified or full geographic redundancy configuration, with or without mirrored disks.

Important! When the system is powered on, it *does not* automatically start the WaveStar 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 Use this task to power on the HP server using a simplified or full geographic redundancy configuration.

1 Start the primary server. See [“Power on an HP server \(single-server configuration\)” \(2-5\)](#).

2 Start the standby server. See [“Power on an HP server \(single-server configuration\)” \(2-5\)](#).

END OF STEPS



Power on a Windows terminal server

Purpose Use the following task to power on a Windows terminal server.

Task Use this task to power on a Windows terminal server.

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

2 Switch on the server (press the power switch or turn 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 on HP and Windows workstations

Overview

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

Contents

Power on an HP-UX workstation	2-10
Power on a Windows workstation	2-11



Power on an HP-UX workstation

Purpose Use the following task to power on an HP-UX workstation.

Task Use this task to power on the HP-UX workstation.

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

- 2** Switch on the workstation (press the power switch or turn 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 workstation

Purpose Use the following task to power on a Windows workstation.

Task Use this task to power on a Windows workstation.

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

2 Switch on the workstation (press the power switch or turn 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 III: Configuration tasks

Overview

Purpose This section contains tasks that explain how to configure WaveStar NMS hardware and how to set up supporting processes.

Contents

Add a workstation to the WaveStar NMS host	2-13
TIM TCP/IP configuration setup	2-14
Asynchronous port setup for TIM interface	2-17
Asynchronous port setup on datakit	2-19
Configuring a LAN Interface	2-20



Add a workstation to the WaveStar NMS host

Purpose Use this task to add a workstation to the WaveStar NMS host.

Task Perform the steps below to add a workstation to the WaveStar NMS host.

1 Log in to the WaveStar 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 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.

END OF STEPS



TIM TCP/IP configuration setup

Purpose Use this task to set up a TIM TCP/IP configuration.

Task Perform the steps below to set up a TIM TCP/IP configuration.

1 Log into the host as root.

2 At the prompt, enter `init 3`

Result:

WaveStar NMS application is stopped.

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

```
touch .tim
```

```
chmod 666 .tim
```

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.  
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** View the menu until you see 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 the ITM-XM.

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

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:

You are prompted to enter the TIM hostname.

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

Result:

You are prompted to confirm your entry.

- 13** 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 following messages should display 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 and then type q and press **Enter** and type n and press **Enter**.

Result:

You have exited the menu.

-
- 16** Log into the host as dacscan.

-
- 17** 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.

-
- 18** Log into the host as root.

-
- 19** At the prompt, enter `init 4`

Result:

WaveStar NMS application is started.

END OF STEPS



Asynchronous port setup for TIM interface

Purpose Use this task to set up an asynchronous port for the TIM interface.

Task Perform the steps below to set up an asynchronous port.

1 Log into the host as root.

2 At the prompt, enter `sam` then press **Enter**

Result:

The `sam` program begins.

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 will take place and eventually return 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** Write down 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 **a0:2:respawn:/etc/getty -h ttyd0p3 9600** then change the line to **a0:24:respawn:/etc/getty -h ttyd0p3 9600**
-
- 15** Write and exit the file.
- Result:**
- The file is saved.
-
- 16** At the prompt, enter **init q** then press **Enter**.

END OF STEPS



Asynchronous port setup on datakit

Purpose Use this task to set up an asynchronous port for datakit

Task Perform the steps below to set up an asynchronous port for datakit.

- 1 To configure an asynchronous device with a service type of host, respond to the following prompts:
 - For CCO, enter ty and press **Enter**.
 - For TTY Type, enter 12 and press **Enter**.
 - For COMMENT, enter TIMIF for itm and press **Enter**.
 - For SERVICE TYPE, enter host and press **Enter**.
 - For GROUP, enter dacscan and press **Enter**.
 - For BAUD RATE, EXTERNAL BAUD RATE, PARITY, FLOW CONTROL OF TY-12, and AT&T..., enter +.
 - For ENDPOINT NUMBER OF RANGE, enter + and press **DELETE**.
 - For CCO, enter restore ty and press **Enter**.
 - For MODULE ADDRESS, enter 42 and press **Enter**.
 - For PORT NUMBER, enter 3 and press **Enter**.

END OF STEPS



Configuring a LAN Interface

Purpose Use this task to configure a LAN interface for WaveStar NMS.

Task Perform the steps below to configure a LAN interface.

1 Log in to WaveStar NMS as root.

2 At the prompt, enter `/etc/dscan/ConfigWaveStarLan`

Result:

The following prompt displays: Which interface is the WaveStar Lan connected to (default is lan1) ?

3 Enter `WAVESTAR LAN INTERFACE` from the checklist and press **Enter**.

Result:

A confirmation displays.

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

Result:

The following message displays: Verifying lan interface configuration. Please wait.... followed by a second message requesting the Internet address for the server on the WaveStar LAN.

5 Enter the WaveStar NMS Host WaveStar NMS IP address from the checklist, then press **Enter**.

Result:

You are prompted to confirm your entry.

6 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.

END OF STEPS



Section IV: Administering users

Overview

Purpose This section contains tasks to create user IDs using a GUI-based or terminal-based version of the System Administration **sam** program. It also includes tasks for assigning user or administrator privileges on a Windows PC.

Contents

Add an OS user on an HP-UX workstation using SAM	2-22
Create an OS user ID through the sam terminal-based program	2-25
Assign user privileges to a user on a Windows PC	2-29
Assign system administrator privileges on a Windows PC	2-31
Add a user on the server	2-33



Add an OS user on an HP-UX workstation using SAM

Purpose Use this task to create an OS user ID through the GUI-based version of the **sam** program using an HP-UX workstation.

Task Perform the steps below to create an OS user ID 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 At the prompt, enter **sam** and then press **Enter**.

Result:

The System Administration Manager window's SAM Areas display.

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

Result:

The Accounts for User and Groups icons display.

5 Double click the **Users** icon.

Result:

A **Displaying All Users** 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-z), numbers (0-9), 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 users.

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

Important! The remaining information is optional.

-
- 11 Optionally complete the remaining fields then click **OK** to continue.

Result:

The Set User Password dialog box is displayed.

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

Result:

A verification message displays.

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

Result:

A message displays that the user ID has been added.

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

Result:

The Accounts for Users and Groups form displays.

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

- 16** 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.
-

- 17** For each user entered in the **Login Name** field in [Step 7](#) of this task, use the [“Add a user” \(4-4\)](#) task to add the user to the WaveStar NMS application.

END OF STEPS



Create an OS user ID through the sam terminal-based program

Purpose Use this task to create an OS user ID through the terminal (non-GUI) version of the **sam** program, which may be accessed through a **telnet** session.

Task Perform the steps below to create a 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 Run dialog box's **Open** field, enter **telnet <ip_address>** and log into a machine that contains the **sam** program as **root**.

4 At the prompt, type **sam** and press **Enter**.

Result:

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

5 Press **Enter**.

Result:

The **Sam Administration Manager** menu is displayed.

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-z), numbers (0-9), 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 Tab to the **Create Home Directory** check box, then press **Enter** if the box is not already checked.

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 Tab to the **Primary Group Name** field, type users and press **Enter**.
-

-
- 13** In the **Start-Up Program** field, enter `/usr/bin/ksh` and press **Enter**.
Important! The remaining information is optional.
-
- 14** Tab to **OK** and press **Enter**.
Result:
The Set User Password dialog box displays.
-
- 15** Enter a password for the user ID, tab to **OK** then press **Enter**.
Result:
A verification message displays.
-
- 16** Re-enter a password for the user ID, tab to **OK** then press **Enter**.
Result:
A message displays that the login has been added.
-
- 17** To exit the **Add a User Account** form, tab to the **File** menu, highlight **Exit** then press **Enter**.
Result:
The **Accounts for Users and Groups** form is displayed.
-
- 18** To exit the **Accounts for Users and Groups** form, tab to the **File** menu, highlight **Exit SAM** then press **Enter**.
-
- 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** At the prompt, type `exit`.
Result:
A `logout root and telnet` status message is displayed.

-
- 21** For each user entered in the **Login Name** field in [Step 10](#) of this task, perform the [“Add a user” \(4-4\)](#) task to add the user to the WaveStar NMS application.

END OF STEPS



Assign user privileges to a user on a Windows PC

Purpose Use this task 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 Perform the steps below 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 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 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 system administrator privileges on a Windows PC

Purpose Use this task 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 Perform the steps below 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 the server

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



Section V: Administer SAGE desktop integration users

Overview

Purpose This section describes how to administer the Secure Access Gateway for Enterprises (SAGE) Desktop Integration feature.

Definition: SAGE Desktop Integration SAGE Desktop Integration is an optional feature for NMS applications that allows users to access multiple WaveStar NMS systems through a web browser.

A system administrator may 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 also needs to support users with how to log into SAGE, how to change passwords, how to modify user attributes, and how to interpret and respond to system messages.

Related information For more detailed system administration instructions, see the *Secure Access Gateway for Enterprises (SAGE) Manual*.

Contents

Add a user to a SAGE workstation	2-35
Delete a user from a SAGE workstation	2-37



Add a user to a SAGE workstation

Purpose Use this task to add a user to a SAGE workstation.

Task Perform the steps below 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 **WaveStar NMS Network Module** icon.

Result:

The **WaveStar NMS Network Module** form is displayed.

4 Select **Administration > Security > Security Privileges**.

Result:

The **Controller: Security Privilege Query Box #1** form is displayed.

5 At the **Work Group ID** field, type **sawg** then click **OK**.

6 Select **Action**, and **Add User to Work Group**.

Result:

The **Add User to Work Group** form is displayed.

7 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, “Domain partitioning for provisioning operations”](#) in this document.

Result:

The user ID is added to the SAGE workstation.

END OF STEPS



Delete a user from a SAGE workstation

Purpose Use this task to delete a user from a SAGE workstation.

Task Perform the steps below to delete a user from a SAGE 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 **WaveStar NMS Network Module** icon.

Result:

The **WaveStar NMS Network Module** form is displayed.

4 Select **Administration>Security>Security Privileges**.

Result:

The **Controller: Security Privilege Query Box** form is displayed.

5 At the **Work Group ID** field, type **sawg** and click **OK**.

6 Select the user ID to be deleted then select **Action** and **Delete User**.

Result:

The selected user ID is deleted from the workstation.

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 networked printer on a WaveStar NMS server	2-39
Add a network printer	2-41
Add a local serial printer	2-43
Set up the Common Desktop Environment (CDE) printer icon	2-44



Install a networked printer on a WaveStar NMS server

Purpose Use this task to install a networked printer on a WaveStar NMS server.

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 Perform the steps below to add a networked printer on a WaveStar NMS 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 Use this task 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 Perform the steps below 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 Use this task to add a local serial printer.

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

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

Task Perform the steps below 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 Common Desktop Environment (CDE) printer icon

Purpose Use this task to configure the workstation to print WaveStar NMS forms to a local printer.

The workstation can be configured to enable the CDE printer icon to be used to print WaveStar NMS forms to a local printer.

Task Perform the steps below 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



Section VII: Power down workstations

Overview

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

Contents

Power down an HP-UX workstation	2-47
Power down a Windows workstation	2-48



Power down an HP-UX workstation

Purpose Use the following task to power down an HP-UX workstation.

Before you begin Before you begin this task, be sure that the WaveStar NMS application has been shut down. (See [“Stop WaveStar NMS on an HP-UX workstation” \(3-24\)](#).)

Task Use this task 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 now`

Result:

The shutdown process initiates and eventually displays the following message:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
  printed above
```

4 Switch off the workstation (press the power switch or turn key, as appropriate).

Result:

The workstation is powered off.

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

END OF STEPS



Power down a Windows workstation

Purpose Use the following task to power down a Windows workstation.

Before you begin Before you begin this task, be sure that the WaveStar NMS application has been shut down. See [“Stop WaveStar NMS on a Windows workstation” \(3-25\)](#).

Task Use this task 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...** radio button then select **Yes**.

Result:

The Windows workstation powers down.

4 Switch off the workstation (press the power switch or turn key, as appropriate).

Result:

The workstation is powered off.

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

END OF STEPS



Section VIII: Power down servers and MC/ServiceGuard configurations

Overview

- Purpose** This section contains information on how to power down:
- Single-servers and Geographic Redundancy servers (simplified or full)
 - an MC/ServiceGuard cluster
 - Local Redundancy servers
 - Windows servers

Contents

Power down a single server	2-50
Power down MC/ServiceGuard cluster (local redundancy configuration)	2-51
Power down a server (geographic redundancy configuration)	2-53
Power down an Windows server	2-55



Power down a single server

Purpose Use the following task to power down a single server, with or without mirrored disks.

Before you begin Before you begin this task, be sure that the WaveStar NMS application has been shut down. See [“Stop WaveStar NMS on a single server” \(3-17\)](#).

Task Complete the following task to power down a single server.

1 On the control terminal, log in as root.

2 At the prompt, type `cd /`

Result:

The directory is changed.

3 At the prompt, type `shutdown -h -y now`

Result:

The shutdown process initiates and eventually displays the following message:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
  printed above
```

4 Switch off the HP server (press the power switch or turn key, as appropriate).

Result:

The HP server is powered off.

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

END OF STEPS



Power down MC/ServiceGuard cluster (local redundancy configuration)

Purpose Use the following task to power down an MC/ServiceGuard cluster hardware configuration, which contains HP servers in a local redundancy configuration, with or without mirrored disks.

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

Task Perform the steps below to bring the server down when the local redundancy hardware configuration is used.

1 Log into any server in the cluster as root.

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

Result:

The System Administration Manager window's SAM Areas display.

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:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
printed above
```

5 Switch off the HP server (press the power switch or turn key, as appropriate).

Result:

The HP server is powered off.

-
- 6** Repeat [Step 3](#) through [Step 5](#) until all cluster servers are off.
-

- 7** Switch 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 a server (geographic redundancy configuration)

Purpose Use the following task to power down an HP server that has a simplified or full geographic redundancy configuration, with or without mirrored disks.

Before you begin Before you begin this task, be sure that the WaveStar NMS application has been shut down. (See [“Stop WaveStar NMS on a server with a geographic redundancy configuration” \(3-19\).](#))

Task Complete the following task to power down a server with a geographic redundancy configuration.

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

2 At the prompt, type `cd /`

Result:

The directory is changed.

3 At the prompt, type `shutdown -h -y now`

Result:

The shutdown process initiates and eventually displays the following message:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
printed above
```

4 Switch off the HP server (press the power switch or turn key, as appropriate).

Result:

The HP server is powered off.

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

-
- 6 Log in on the control terminal of the *secondary* server as root.
-

- 7 At the prompt, type `cd /`

Result:

The directory is changed.

.....

- 8 At the prompt, type `shutdown -h -y now`

Result:

The shutdown process initiates and eventually displays the following message:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
  printed above
```

.....

- 9 Switch off the HP server (press the power switch or turn key, as appropriate).

Result:

The HP server is powered off.

.....

- 10 Switch off all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

END OF STEPS

.....



Power down an Windows server

Purpose Use the following task to power down a Windows server.

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

Task Use this task to power down a Windows 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...** radio button.

Result:

The Shutdown Computer dialog box displays.

5 Select the **OK** radio button.

Result:

The Windows server powers down.

6 Switch off the terminal server (press the power switch or turn key, as appropriate).

Result:

The terminal server is powered off.

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

END OF STEPS





3 System administration

Overview

Purpose This chapter describes tasks performed to administer WaveStar NMS.

Contents

<u>Section I: Start WaveStar NMS server applications</u>	<u>3-4</u>
<u>Start WaveStar NMS on a single server</u>	<u>3-5</u>
<u>Start WaveStar NMS on a server with a geographic redundancy configuration</u>	<u>3-7</u>
<u>Start WaveStar NMS on a Windows terminal server</u>	<u>3-8</u>
<u>Section II: Start WaveStar NMS User Interface (UI) applications</u>	<u>3-9</u>
<u>Start WaveStar NMS on a MC/ServiceGuard Cluster</u>	<u>3-10</u>
<u>Start WaveStar NMS on a Windows terminal server</u>	<u>3-12</u>
<u>Start WaveStar NMS on an HP-UX workstation</u>	<u>3-13</u>
<u>Start WaveStar NMS on a Windows workstation (PC)</u>	<u>3-14</u>
<u>Section III: Stop WaveStar NMS</u>	<u>3-15</u>
<u>Stop WaveStar NMS</u>	<u>3-16</u>
<u>Stop WaveStar NMS on a single server</u>	<u>3-17</u>

Stop WaveStar NMS on a server with a geographic redundancy configuration	3-19
Stop WaveStar NMS package	3-20
Stop WaveStar NMS application on a MC/ServiceGuard cluster	3-21
Stop the WaveStar NMS application on a Windows terminal server	3-22
Stop WaveStar NMS on a specific node using sam	3-23
Stop WaveStar NMS on an HP-UX workstation	3-24
Stop WaveStar NMS on a Windows workstation	3-25
Stop WaveStar NMS with UPS	3-26
Section IV: Administer the system cron file	3-27
View the system cron file	3-28
Edit the system cron file	3-29
Section V: Local redundancy configuration	3-30
Switch to a standby server	3-31
Enable automatic package switching	3-32
Disable automatic package switching	3-33
Re-add the server to a cluster	3-34
View the cluster status information	3-35
Section VI: Restart and stop the Oracle database	3-36
Restart the Oracle database	3-37
Stop the Oracle database	3-38
Section VII: Administer performance monitoring data export	3-39
Section VIII: Monitor space	3-42
Section IX: Network Map	3-44
Install a new background map for all users	3-45
Install a new background map for HP-UX client machines	3-47
Install a new background map for Windows PC/Windows terminal server machines	3-48
Update a network element position	3-49

<u>Modify a description of a noncontrollable network element</u>	<u>3-50</u>
<u>Delete a network element from the database</u>	<u>3-52</u>
<u>Section X: Set Filtering Criteria</u>	<u>3-54</u>
<u>Set filtering criteria for WaveStar NMS alarms</u>	<u>3-55</u>
<u>Section XI: Set Preferences</u>	<u>3-56</u>
<u>Set event indications preferences</u>	<u>3-57</u>
<u>Set map preferences</u>	<u>3-58</u>
<u>Set alarm preferences</u>	<u>3-59</u>
<u>Set Fault Management (FM) operational preferences</u>	<u>3-60</u>
<u>Section XII: Miscellaneous system administration</u>	<u>3-61</u>
<u>Check the status of X.25 links</u>	<u>3-62</u>
<u>Search for location-type information for a specific network element</u>	<u>3-64</u>
<u>Search for controlled network elements</u>	<u>3-65</u>



Section I: Start WaveStar NMS server applications

Overview

Purpose This section describes how to start WaveStar NMS server applications.

Background The initial step to start WaveStar NMS is to power on the server. (See the “power on” tasks in [Chapter 2, “Platform Administration”](#).) There are a few possible configurations users can have with the server, but the configurations fall into three main categories — local redundancy, geographic redundancy, and single-server. Within single-server, the configuration may or may not contain mirrored disks.

Start the host application The host application starts when the WaveStar NMS application is set to run level 4. See [“Run level 4” \(1-6\)](#) for additional details.

Contents

Start WaveStar NMS on a single server	3-5
Start WaveStar NMS on a server with a geographic redundancy configuration	3-7
Start WaveStar NMS on a Windows terminal server	3-8



Start WaveStar NMS on a single server

Purpose Use this procedure to start the WaveStar NMS application on a single server.

Before you begin Before you begin this task, be sure that the single server has been powered up. See [“Power on an HP server \(single-server configuration\)” \(2-5\)](#).

Start WaveStar NMS on a single server Complete the following steps to start the WaveStar 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
<code>run-level</code> is 3,	proceed to the next step to continue.
<code>run-level</code> is 4,	the application is already running; no further action is necessary.
<code>run-level</code> is not 3 or 4,	contact the system support staff. (See the <i>Technical support</i> information located at the beginning of this document for details).

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 WaveStar NMS on a server with a geographic redundancy configuration

Purpose Use this procedure to start the WaveStar NMS application on a simplified or full geographic redundancy server.

Before you begin Be sure that the simplified or full geographic redundant server has been powered up. See [“Power on an HP server \(geographic redundancy configuration\)” \(2-7\)](#).

Task Perform the following step to start WaveStar NMS on a server with a simplified or full geographic redundancy configuration.

1 Log in to the primary server as root.

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

Result:

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

END OF STEPS



Start WaveStar NMS on a Windows terminal server

Overview Once the Windows terminal server is powered on, (see [“Power on a Windows terminal server” \(2-8\)](#)), it is not necessary to start the WaveStar NMS application on a Windows terminal server, therefore no steps are required.



Section II: Start WaveStar NMS User Interface (UI) applications

Overview

Purpose This section describes how to start WaveStar NMS user interface applications.

Background Once the servers are powered up, (as described in the previous section of this chapter), users may start WaveStar NMS:

- using the MC/ServiceGuard cluster configuration
- on an HP-UX workstation
- on a Windows workstation

Contents

Start WaveStar NMS on a MC/ServiceGuard Cluster	3-10
Start WaveStar NMS on a Windows terminal server	3-12
Start WaveStar NMS on an HP-UX workstation	3-13
Start WaveStar NMS on a Windows workstation (PC)	3-14



Start WaveStar NMS on a MC/ServiceGuard Cluster

Purpose Use this procedure to start WaveStar NMS on a MC/ServiceGuard cluster configuration (local redundancy).

Before you begin Be sure that the servers within the cluster have been powered up. See [“Power on HP servers \(MC/ServiceGuard cluster - local redundancy configuration\)” \(2-6\)](#).

Task Perform the following step to start WaveStar NMS on a MC/ServiceGuard cluster.

- 1 Log into any server within the cluster as root.
- 2 To determine if the package is running on a member of the cluster, view the cluster/package status (see [“View the cluster status information” \(3-35\)](#) for details) then continue with one of the following options.

IF	THEN
the package <i>is not running</i> on a member of the cluster,	proceed to the next step to continue.
the package <i>is running</i> on a member of the cluster,	no further action is necessary.

- 3 Start the WaveStar NMS package.

Result:

WaveStar NMS package is started.

- 4 Repeatedly perform a status check to view the cluster/package status (see [“View the cluster status information” \(3-35\)](#) for details) until a Running status displays.

Result:

Application status will move from Halted to Starting to Running. Since the status changes take several minutes to

complete, the status check is performed repeatedly until the
desired results display.

END OF STEPS



Start WaveStar NMS on a Windows terminal server

Overview Once the Windows terminal server is powered on, (see [“Power on a Windows terminal server” \(2-8\)](#)), it is not necessary to start the WaveStar NMSapplication on a Windows terminal server, therefore no steps are required.



Start WaveStar NMS on an HP-UX workstation

Purpose Use this procedure to start WaveStar NMS on an HP-UX workstation.

Before you begin Before you begin, be sure that the HP-UX workstation is powered on. See [“Power on an HP-UX workstation” \(2-10\)](#).

Task Complete the following steps to start WaveStar NMS on an HP-UX workstation.

- 1 Log in to the HP-UX workstation.

Result:

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

- 2 Double-click the icon.

Result:

The WaveStar NMS Network Map displays.

END OF STEPS



Start WaveStar NMS on a Windows workstation (PC)

Purpose Use this procedure to start the WaveStar NMS application on a Windows workstation (PC).

Before you begin Before running WaveStar NMS on a Windows workstation, the workstation must be powered on (see [“Power on a Windows workstation” \(2-11\)](#)) and the WaveStar NMS application must be loaded on the workstation. This task assumes that the application has been already loaded on the workstation.

Task Complete the following steps to start WaveStar NMS on a Windows workstation.

- 1 Log into the Windows workstation.

Result:

The Windows desktop displays.

- 2 Locate the icon on the desktop, then double-click the icon.

Result:

The WaveStar NMS Network Map displays.

END OF STEPS



Section III: Stop WaveStar NMS

Overview

Purpose This section describes how to stop WaveStar NMS.

Stop the host application The host application stops when WaveStar NMS is brought to run level 3 (multi-user mode).

Under certain circumstances, it may be necessary to bring the WaveStar NMS application to run level 3, for example, if the system needs a new software load.

See [“Run level 3” \(1-6\)](#) for additional details.

Contents

Stop WaveStar NMS	3-16
Stop WaveStar NMS on a single server	3-17
Stop WaveStar NMS on a server with a geographic redundancy configuration	3-19
Stop WaveStar NMS package	3-20
Stop WaveStar NMS application on a MC/ServiceGuard cluster	3-21
Stop the WaveStar NMS application on a Windows terminal server	3-22
Stop WaveStar NMS on a specific node using sam	3-23
Stop WaveStar NMS on an HP-UX workstation	3-24
Stop WaveStar NMS on a Windows workstation	3-25
Stop WaveStar NMS with UPS	3-26



Stop WaveStar NMS

Purpose Use this procedure to stop the WaveStar NMS application on PCs and workstations.

Other tasks are required to support stopping the WaveStar NMS application on servers with single, local redundancy, and geographic redundancy configurations. For example,

- to stop the WaveStar NMS application on single servers, see [“Stop WaveStar NMS on a single server” \(3-17\)](#).
- to stop the WaveStar NMS application on servers running a local redundancy configuration, see [“Stop WaveStar NMS application on a MC/ServiceGuard cluster” \(3-21\)](#).
- to stop the WaveStar NMS application on servers running a geographic redundancy configuration, see [“Stop WaveStar NMS on a server with a geographic redundancy configuration” \(3-19\)](#).

Task Complete the following task to stop the WaveStar NMS application.

- 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 appears.

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

Result:

The Controller session ends. You are logged off the WaveStar NMS server. The Login form displays.

END OF STEPS



Stop WaveStar NMS on a single server

Purpose Use this procedure to stop the WaveStar NMS application on a single server.

Start WaveStar NMS on a single server Complete the following steps to stop the WaveStar 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
<code>run-level</code> is 4,	proceed to the next step to continue.
<code>run-level</code> is 3,	the application is not running; no further action is necessary.
<code>run-level</code> is not 3 or 4,	contact the system support staff. (See the <i>Technical support</i> 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 WaveStar NMS on a server with a geographic redundancy configuration

Purpose Use this procedure to stop WaveStar NMS on a simplified or full geographic redundancy server.

Task Perform the following step to stop WaveStar NMS on a server with a simplified or full server geographic redundancy configuration.

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 WaveStar NMS application is stopped.

END OF STEPS



Stop WaveStar NMS package

Purpose Use this procedure to stop the WaveStar NMS package using the **sam** application.

This task is specific to MC/ServiceGuard cluster configurations

Task Perform the following step to stop the WaveStar NMS package.

1 Log into the cluster as root.

2 At the prompt, enter **sam** and then press **Enter**.

Result:

The System Administration Manager window's SAM Areas display.

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:

```
System has halted
OK to turn off power or reset system
UNLESS 'wait for UPS to turn off power' message was
  printed above
```

END OF STEPS



Stop WaveStar NMS application on a MC/ServiceGuard cluster

Purpose Use this procedure to stop the WaveStar NMS application on a MC/ServiceGuard cluster.

Task Perform the following step to stop the WaveStar NMS application on a cluster.

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

- 2 To determine if the package is running on a member of the cluster, view the cluster/package status (see [“View the cluster status information” \(3-35\)](#) for details) then continue with one of the following options.

IF	THEN
the package <i>is running</i> on a member of the cluster,	proceed to the next step to continue.
the package <i>is not running</i> on a member of the cluster,	no further action is necessary.

- 3 Stop the WaveStar NMS package. See [“Stop WaveStar NMS package” \(3-20\)](#).

Result:

WaveStar NMS is stopped.

- 4 Repeatedly perform a status check to view the cluster/package status (see [“View the cluster status information” \(3-35\)](#) for details) until a Halted status displays.

Result:

Application status will move from Running to Stopping to Halted. Since the status changes take several minutes to complete, the status check is performed repeatedly until the desired results display.

END OF STEPS



Stop the WaveStar NMS application on a Windows terminal server

Overview Since the WaveStar NMS application is not run on a Windows terminal server, no steps are required.



Stop WaveStar NMS on a specific node using sam

Purpose Use this procedure to stop the WaveStar NMS application on a specific node using the sam application.

Task Perform the steps below to stop the WaveStar NMS application on a specific node.

1 Log into either the primary or the standby machine as root.

2 Enter `sam` at the prompt.

Result:

The sam application displays.

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 WaveStar NMS on an HP-UX workstation

Purpose Use this procedure to stop the WaveStar NMS application on an HP-UX workstation.

StopWaveStar NMS on an HP-UX workstation Complete the following steps to stop the WaveStar NMS application on an HP-UX workstation.

- 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 appears.

- 2 At the dialog box, select OK.

Result:

The WaveStar NMS session is terminated.

END OF STEPS



Stop WaveStar NMS on a Windows workstation

Purpose Use this procedure to stop the WaveStar NMS application on a Windows workstation.

StopWaveStar NMS on a Windows workstation Complete the following steps to stop the WaveStar NMS application on a Windows workstation.

- 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 appears.

- 2 At the dialog box, select OK.

Result:

The WaveStar NMS session is terminated.

END OF STEPS



Stop WaveStar NMS with 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 WaveStar 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: 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 and, again, one minute past the 23rd hour, every day, every month and every day of the week.
- The cron files can be edited. Once the file is created/edited, it must be loaded into the cron.

Contents

View the system cron file	3-28
Edit the system cron file	3-29



View the system cron file

Purpose Use this procedure to view the system cron file.

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

Task Perform the steps below to view the system 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 Use this procedure to change the desired execution times of commands in the system cron file.

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

Task Perform the steps below to edit the system cron file.

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

2 Enter `cd /usr/spool/cron/crontabs <CR>` at the # prompt.

3 Enter `ls -l <Enter>` at the # prompt.

Result:

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

4 Open the **root** or **dacscan** file using the vi editor.

5 Edit the desired parameter.

6

IF...	THEN...
The root file is being edited.	Log in as root and enter <code>crontab root <Enter></code> at the # prompt. Result: The root file is read into the system cron.
The dacscan file is being edited.	Log in as dacscan and enter <code>crontab dacscan <Enter></code> at the # prompt. Result: The dacscan file is read into the system cron.

END OF STEPS



Section V: Local redundancy configuration

Overview

Purpose This section describes how to switch to a backup server using a local redundancy configuration using MC/ServiceGuard. It also includes package switching tasks and information on how to administer clusters.

A switchover may need to occur in the case of a hardware failure, software upgrade, or for general maintenance. If the primary server fails, the standby server takes over.

A configuration that has server redundancy enhances the availability of the system. Since WaveStar NMS supports *single-server* (with or without disk mirroring), *local redundancy*, and *geographic redundancy* configurations, it has several tasks to support the configuration being used. There are no switchover tasks for the single-server configurations since they cannot be switched.

Monitoring the switchover It is recommended to ensure that the monitoring process is present. 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 for the standby server.

Contents

Switch to a standby server	3-31
Enable automatic package switching	3-32
Disable automatic package switching	3-33
Re-add the server to a cluster	3-34
View the cluster status information	3-35



Switch to a standby server

Purpose Use this procedure to switch to a standby server when using the local redundancy configuration.

Before you begin If package switching is disabled, the user must first start up the application and then enable switching.

Task Perform the steps below to switch to a standby server (for local redundancy configuration).

1 Log into either the primary or the standby machine as root.

2 Enter `sam` at the prompt.

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

Purpose Use this procedure to enable package switching (local redundancy configuration).

Task Perform the steps below to enable package switching.

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

2 Enter `sam` at the prompt.

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

Purpose Use this procedure to disable automatic package switching (local redundancy configuration).

Task Perform the steps below to disable package switching.

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

2 Enter `sam` at the prompt.

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 server to a cluster

Purpose Use this procedure to re-add the server to a cluster (local redundancy configuration).

Task Perform the steps below 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.

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 the cluster status information

Purpose Use this procedure to view the cluster status information (local redundancy configuration).

Task Perform the steps below to view the cluster status information.

1 Using the system console, log into either 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	3-37
Stop the Oracle database	3-38



Restart the Oracle database

Purpose Use this procedure to restart the Oracle database.

Important! This procedure is only performed at the direction of Lucent Customer Support.

Task Perform the steps below 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 Use this procedure to stop the Oracle database.

Task Perform the steps below 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 WaveStar NMS” \(3-16\)](#), 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 performance monitoring data export

Overview

Purpose This section describes how to administer the performance monitoring data export feature.



Performance monitoring data export

Definition: Performance monitoring data export

The Performance monitoring data file export is an optional feature.

Performance monitoring data file export enables the automatic capture of all 24-hour performance monitoring data for all network elements controlled by WaveStar NMS and ITM-SC. When it executes, it requests that all 24-hour performance monitoring data collected for the previous day is transferred to an ASCII file—one per Element Management System (EMS)—on a workstation or PC specified at the time of installation.

To change the runtime of the file transfer process, see Chapter 2 of the *WaveStar NMS Maintenance Guide*.

Set up performance monitoring data file transfer

The performance monitoring data file export feature executes according to the values specified by certain environment variables, which control how this feature operates:

- ***\$PM_LOG_WKST***: The workstation to which performance monitoring data is exported.
\$PM_LOG_DIR: The directory on the above workstation to store the exported data.
The user must create in this directory one subdirectory for each day of the week: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, and Yesterday.
- ***\$PM_DATA_FILE***: The file on the above workstation that contains the exported performance monitoring data.
- ***\$PM_DATA_FILE_DIR***: 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***: 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.
- Given these environment variables, the most recently transferred performance monitoring data file is found at:
Example:
`$PM_LOG_WKST:$PM_LOG_DIR/<yesterday>/$PM_DATA_FILE`

Scheduled run time The performance monitoring data file export process is scheduled to run daily. By default, it is scheduled to run at 02:10 a.m. local time.

Execute the performance monitoring data export tool The performance monitoring data export tool is accessible by any user from the host server. It is located in **/usr/dacscan/toolbin** and allows a host user to view the relevant log information, as well as to view the current environment associated with this feature. This tool also provides the means for a host user to reissue the request to transfer 24-hour performance monitoring data associated with the previous day.



Section VIII: Monitor space

Overview

Purpose WaveStar 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 describes WaveStar NMS's script which produces warning and recovery messages as required.

□

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**)
- Warning messages** If a controller file is over 60% full, Spacewatch provides a warning message to the system event log. The warning message is in the form of: "Log file" running low on space - clean up immediately!
- Recovery messages** Specific recovery actions are provided for **/dacscan/trace**, **dacscan/log**, **dacscan/dbarch**, and **dacscan/users** files, if its percentage fill is over 80%. The recovery message for the **dacscan/dbarch** controller file is: "Logfile" removed database archive file - back up database immediately!
- The recovery message for the **dacscan/trace** and **dacscan/log** files is: Removed log files - Archives may be incomplete!
- The recovery message for the **dacscan/users** file is: "Logfile" is running low on space, clean up immediately!



Section IX: Network Map

Overview

Purpose This section contains tasks for installing a new background map using the map scanning feature.

Choosing a background map A new background map must be selected carefully so that it does not obscure the icons and text displayed with it. For example, a map that is largely white will hide 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.

Contents

Install a new background map for all users	3-45
Install a new background map for HP-UX client machines	3-47
Install a new background map for Windows PC/Windows terminal server machines	3-48
Update a network element position	3-49
Modify a description of a noncontrollable network element	3-50
Delete a network element from the database	3-52



Install a new background map for all users

Purpose Use this task to install a new background map for all users. 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 may be an image (**.gif**) file scanned by the user and stored in the host machine's **\$DEST/jnm/itm/data/customer** directory.

Task Perform the steps below to install a new background map for all users.

1 Log into the WaveStar Network Management System as root on the primary server via the system console.

2 To change to the directory containing the original background map, enter `cd /usr/dacscan/ui/jui/jnm/itm/data/customer` at the prompt.

3 Enter `mv defaultGIS.bshp ../.` at the prompt.

Important! If the **defaultGIS.bshp** file is missing at run time, the GUI will search for the **defaultGIS.bshp** file in the same directory as the background **.gif** image in the map window.

Result:

The original background map is moved and saved into another directory.

4 Enter `cp earth.gif /usr/dacscan/ui/jui/jnm/itm/data/customer/defaultGIS.gif`

Result:

The new map is copied into the directory.

5 Continue with one of the following:

Install a new background map for all users

IF	THEN
the map is for HP-UX GUI client machines,	download the <i>defaultGIS.gif</i> file to /user/add-on/ui/jui/jnm/itm/data/customer
the map is for Windows machines,	download the <i>defaultGIS.gif</i> file to \jui\jnm\itm\data\customer

-
- 6 At the prompt, type `guiinstall`

Result:

The server tool is run to rebuild the configuration downloads the new map to each of the workstation.

-
- 7 Start the WaveStar NMS GUI.

Result:

The new map displays in the background.

END OF STEPS



Install a new background map for HP-UX client machines

Purpose Use this task to install a new background map for HP-UX client machines.

Task Perform the steps below to install a new background map for HP-UX client machines.

- 1** Log into each HP-UX client machine that needs a new map background as root.

- 2** To change to the directory containing the original background map, enter `cd /usr/add-on/ui/jui/jnm/itm/data/customer` at the prompt.

- 3** Enter `mv defaultGIS.bshp ../.` at the prompt.

Result:

The original background map is moved and saved into a into another directory.

- 4** Enter `cp earth.gif /usr/add-on/ui/jui/jnm/itm/data/customer/defaultGIS.gif`

Result:

The new map is copied into the directory.

- 5** Start the WaveStar NMS GUI.

Result:

The new map displays in the background.

END OF STEPS



Install a new background map for Windows PC/Windows terminal server machines

Purpose Use this task to install a new background map for Windows PC/Windows Terminal Server users.

Task Perform the steps below to install a new background map for Windows PC/Windows Terminal Server users.

1 Log into each client machine that needs a new map background as administrator for the Windows PC/Windows Terminal Server machines.

2 To change to the directory containing the original background map, enter `cd \jui\jnm\itm\data\customer` at the prompt.

3 Enter `mv defaultGIS.bshp ..\.` at the prompt.

Result:

The original background map is moved and saved into a into another directory.

4 Enter `cp earth.gif
\jui\jnm\itm\data\customer\defaultGIS.gif`

Result:

The new map is copied into the directory.

5 Start the WaveStar NMS GUI.

Result:

The new map displays in the background.

END OF STEPS



Update a network element position

Purpose Use the following procedure to update a network element's position on the Network Map.

Before you begin Be sure that you have *Configuration management, Element Management*, or *system administrator* privileges to permit you to save the updated network element positions on the Network Map. See [“System administrator user types” \(1-4\)](#) for a description of what is allowable for system administrator users.

Task Complete the following task to permanently move a node to a new position on the Network Map.

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

2 Drag and drop the node to the new location.

Result:

The node and its connecting links are repositioned.

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

Result:

The network element's location is updated.

END OF STEPS



Modify a description of a noncontrollable network element

Purpose Use this procedure to modify the description or administration information of an existing noncontrollable network element.

Task Complete the following task to modify the description or administrative information of a noncontrollable 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, select the appropriate existing noncontrollable network elements.

Important! You can use the wildcard character * to aid in your search.

- 3 (*Optional*) In the **Additional Information** field, enter any additional information.
-

- 4 Select the **Area** from the drop-down menu.
-

- 5 Select the **Node Type** from the drop-down menu..
-

- 6 Click **OK**.

Result:

The Location Reference Table is displayed.

- 7 If you would like 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 a description of a noncontrollable network element

modify the information. You may modify rows in the following columns:

- **Admin Area**
- **Description**
- **Acronym**
- **Additional Information**

8 Select **Actions > Update**.

9 Select **File > Close**.

Result:

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

END OF STEPS



Delete a network element from the database

Purpose Use this procedure to delete a network element from the database.

Important! Off-line scripts are required to delete EMSs, equipment, regenerators, and nodes within a subnet or ring.

Before you begin Before you delete a controlled network element, consider the following items:

- A network element should only be deleted if there are no in-effect or pending circuits connected to it. If there are links/paths/circuits associated with the network element, the corresponding network element will not be deleted (but will turn gray). Note that users cannot back out of the pending delete state.
- No commands, such as delete cross-connect or port re-provisioning, will be sent to a network element once it is in a pending delete state. Any associated network elements are left in an indeterminate state.

Task Perform the following steps to delete a network element from the database.

- 1 On the Network Map, right-click the network element to be deleted.

Result:

The Node menu is displayed.

- 2 Select **Node Operations > Delete Node**.

Result:

A confirmation box is displayed.

- 3

IF	THEN
You want to delete the network element.	Select Yes . Result: The network element is deleted from the system database.

IF	THEN
You want to cancel the network element's deletion.	Select No . Result: The deletion is cancelled.

END OF STEPS



Section X: Set Filtering Criteria

Overview

Purpose This section defines how to set filtering criteria for WaveStar NMS alarms to be sent to the TNM Integration Module (TIM) northbound alarm interface.

Contents

Set filtering criteria for WaveStar NMS alarms	3-55
--	----------------------

Set filtering criteria for WaveStar NMS alarms

Purpose Use this task to set filtering criteria for WaveStar NMS alarms to be sent to the TIM northbound alarm interface.

Task Perform the steps below to set filtering criteria for WaveStar NMS alarms.

- 1 Start the Wavestar NMS application.

Reference:

For instructions, see the section [“Start WaveStar NMS on an HP-UX workstation” \(3-13\)](#), 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 WaveStar NMS’s service-affecting and non-service affecting alarms to the TIM northbound alarm interface, select **Both** then click **OK**. To send WaveStar NMS’s service-affecting alarms only to the TIM northbound alarm interface, select **SA** then click **OK**.

Result:

The filtering criteria is set to send either WaveStar NMS’s service-affecting and non-service affecting alarms or service-affecting alarms to the TIM northbound alarm interface.

- 4 Start the WaveStar NMS GUI.

Result:

The new map displays in the background.

END OF STEPS



Section XI: Set Preferences

Overview

Purpose This section defines how to set preferences in WaveStar NMS.

Contents

Set event indications preferences	3-57
Set map preferences	3-58
Set alarm preferences	3-59
Set Fault Management (FM) operational preferences	3-60



Set event indications preferences

Purpose Use this procedure to set event indications preferences for the Network Event Summary.

Task Perform the steps below 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 form to Foreground .

4 Select **OK**.

Result:

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

END OF STEPS



Set map preferences

Purpose Use this procedure to set map preferences.

Task Perform the steps below 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.

- 3

IF	THEN
You want to select a different map	highlight an entry in the first tab's drop down list.
You want to specify area or select no area,	highlight an entry in the second tab's drop down list.

- 4 Select **OK**.

Result:

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

END OF STEPS



Set alarm preferences

Purpose Use this procedure to set alarm preferences on forms.

Task Perform the steps below 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. Changes to the selected forms will take effect during the next and subsequent sessions.

END OF STEPS



Set Fault Management (FM) operational preferences

Purpose Use this procedure to set FM operational preferences.

Task Perform the steps below 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** and on the Fault Management Operational Mode form, select **OK**

Result:

The dialog box and Fault Management Operational Mode form close.

END OF STEPS



Section XII: Miscellaneous system administration

Overview

Purpose This section describes some miscellaneous system administration tasks.

Contents

Check the status of X.25 links	3-62
Search for location-type information for a specific network element	3-64
Search for controlled network elements	3-65



Check the status of X.25 links

Purpose Use this task to check the status of the X.25 links.

A utility is available to the system administrator to check the status of the X.25 links.

Sample output Links that have not been installed or activated will appear to be down. A sample output of this utility is shown below:

```
P8_card 2 P1_card 0 P8_link_m0 8 P8_link_m1 8 P1_link 0
/dev/zx25m0p0 0
/dev/zx25m0p1 0
/dev/zx25m0p2 0
/dev/zx25m0p3 1 5
/dev/zx25m0p4 0
/dev/zx25m0p5 0
/dev/zx25m0p6 0
/dev/zx25m0p7 0
/dev/zx25m1p0 0
/dev/zx25m1p1 0
/dev/zx25m1p2 0
/dev/zx25m1p3 0
/dev/zx25m1p4 0
/dev/zx25m1p5 0
/dev/zx25m1p6 1 4
/dev/zx25m1p7 0
```

In the above report:

- All ports designated as *zx25m0pX* are the eight X.25 ports connected to slot 5 of the server, where *X=0* to *7*.
- All ports designated as *zx25m1pX* are the eight X.25 ports connected to slot 6 of the server, where *X=0* to *7*.

Check the status of X.25 links

- In the second column, a *0* after the port designation indicates that the link is DOWN and a *1* indicates that the link is UP.
- The third column corresponds to all the *1*s in the second column. The number indicates the total number of sessions that are active on that link.

Task Perform the steps below to check the status of the X.25 links.

.....
1 Log in as dacsan on the primary server via the system console.

.....
2 Enter `cd /tmp` at the prompt.

.....
3 Enter `ncstat <Enter>` at the prompt.

.....
4 Enter `cat ncstat.tab <Enter>`.

Important! Links that have not been installed or activated will appear to be down.

Result:

The status of all available x.25 links on the system is displayed.

.....
5 Enter the command `init 4` to bring the application up to run level 4.

END OF STEPS



Search for location-type information for a specific network element

Purpose Use this procedure to search for location-type information for a specific network element.

Important! The search is limited to network elements that are controlled or cataloged by WaveStar NMS.

Task Perform the steps below 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 Enter the location type information in the **Office Location/NE ID** field.

4 Enter criteria in **Additional Information**, if desired.

5 Select the **Area ID** from the drop-down list.

6 Select **OK**.

Result:

The Location Reference Table appears and displays location-type information.

END OF STEPS



Search for controlled network elements

Purpose Use this procedure to search for a list of network elements (NEs) with which WaveStar NMS works and for information about the digital cross-connect systems that are part of the network.

Task Perform the steps below to search for controlled network elements and digital cross-connect systems that are part of the network.

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

2 Select **Location Reference Table**.

Result:

The Location Reference Table Query Box is displayed.

3 Enter the network element information in the **Office Location/NE ID** field.

4 Enter criteria in **Additional Information**, if desired.

5 Select the **Area ID** from the drop-down list.

6 Select **OK**.

Result:

The Location Reference Table form with the queried information is displayed.

END OF STEPS





4 User and Domain Administration

Overview

Purpose This chapter describes tasks performed to assign privileges and restrict access to WaveStar NMS, network elements, and the Configuration Management (CM), Fault Management (FM), Provisioning Management (PM), Pre-Plan, and administrative capabilities in WaveStar NMS.

Contents

<u>Section I: Administer users in WaveStar NMS</u>	<u>4-3</u>
<u>Add a user</u>	<u>4-4</u>
<u>Modify a user</u>	<u>4-6</u>
<u>Delete a user</u>	<u>4-8</u>
<u>Add a user profile</u>	<u>4-9</u>
<u>Modify a user profile</u>	<u>4-10</u>
<u>Delete a user profile</u>	<u>4-12</u>
<u>Section II: Geographic domain user administration</u>	<u>4-13</u>
<u>Add user(s) or network element(s) to a geographic domain</u>	<u>4-14</u>
<u>List users assigned to geographic domains</u>	<u>4-16</u>
<u>List users assigned to a network element</u>	<u>4-18</u>

<u>List network elements assigned to user</u>	<u>4-19</u>
<u>Delete user(s) or network element(s) from a geographic domain</u>	<u>4-20</u>
<u>Section III: Service domain user administration</u>	<u>4-22</u>
<u>Add a user to a service domain</u>	<u>4-23</u>
<u>List service domain user(s)</u>	<u>4-25</u>
<u>Delete user(s) from a service domain</u>	<u>4-26</u>
<u>Section IV: WaveStar SNMS cut-through user ID</u>	<u>4-28</u>
<u>Set up a user ID for cut-through to WaveStar SNMS</u>	<u>4-29</u>



Section I: Administer users in WaveStar NMS

Overview

Purpose This section describes how to administer users and user profiles in WaveStar NMS.

Background Administrators are responsible for adding, modifying, and deleting WaveStar user IDs. They also define the tasks to which users may or may not access by assigning a user profile to a user ID.

Contents

Add a user	4-4
Modify a user	4-6
Delete a user	4-8
Add a user profile	4-9
Modify a user profile	4-10
Delete a user profile	4-12



Add a user

Purpose Use this procedure to add a Regular User, Service Domain User, or Geographic Domain user to WaveStar NMS.

Permissions You must be authorized to perform this task.

Important! Before you perform this task, the user ID must first be created in the **sam** program. See [“Add an OS user on an HP-UX workstation using SAM” \(2-22\)](#) and [“Create an OS user ID through the sam terminal-based program” \(2-25\)](#) for details.

Task Complete the following steps to add a Regular User, Service Domain User, or Geographic Domain user to WaveStar NMS.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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 no user profile is 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

Purpose Use this procedure to modify user ID information.

Permissions You must be authorized to perform this task.

Task Complete the following steps to modify a user:

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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

Purpose Use this procedure to delete a Regular User, Service Domain User, or Geographic Domain user.

Permissions You must be authorized to perform this task.

Complete the following steps to delete a user:

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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

Purpose Use this procedure to add a user profile.

Permissions You must be authorized to perform this task.

Task Complete the following steps to add a user profile:

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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

Purpose Use this procedure to modify a user profile.

Permissions You must be authorized to perform this task.

Task Complete the following steps to modify a user profile:

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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

Purpose Use this procedure to delete a user profile.

Permissions You must be authorized to perform this task.

Task Complete the following steps to delete a user profile:

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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

Section II: Geographic domain user administration

Overview

Purpose This section describes how to add a user to or to delete a user from a geographic domain, or to list geographic domain information.

Background Geographic Domain Partitioning is an optional feature. If this feature is not installed, the following entry is grayed out on the Network Map:

Administration > Domain Partitioning > Geographic Domain

Contents

Add user(s) or network element(s) to a geographic domain	4-14
List users assigned to geographic domains	4-16
List users assigned to a network element	4-18
List network elements assigned to user	4-19
Delete user(s) or network element(s) from a geographic domain	4-20



Add user(s) or network element(s) to a geographic domain

Purpose Use this procedure to add user(s) or network element(s) to 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.

Important! When adding a user to a geographic domain, that user ID must first be defined as a **Geo Domain User** in WaveStar NMS. See the [“Add a user” \(4-4\)](#) task in this chapter for details.

Task Complete the following procedure to add a user or a network element to a geographic domain.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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.

Add user(s) or network element(s) to a geographic domain

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



List users assigned to geographic domains

Purpose Use this procedure to list 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 the following procedure to list assigned users, their geographic domains and assigned network elements.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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.
-

List users assigned to geographic domains

Result:

The domains and network elements associated with the user are displayed.

END OF STEPS



List users assigned to a network element

Purpose Use this procedure to list users assigned to a network element.

Task Complete the following procedure to display a list of all the 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



List network elements assigned to user

Purpose Use this procedure to list network elements assigned to a user.

Task Complete the following procedure to list the network elements 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**
 - **Domain**
 - **Inter-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 user(s) or network element(s) from a geographic domain

Purpose Use this procedure 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 the following procedure to delete user(s) or network element(s) from a geographic domain.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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.

Delete user(s) or network element(s) from a geographic domain

- 5** Do one of the following:
- 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



Section III: Service domain user administration

Overview

Purpose This section describes how to add, modify, and delete users from service domains.

Background Service Domain Partitioning is an optional feature. If this feature is not installed, the following entry is grayed out on the Network Map:

Administration > Domain Partitioning > Service Domain

Contents

Add a user to a service domain	4-23
List service domain user(s)	4-25
Delete user(s) from a service domain	4-26



Add a user to a service domain

Purpose Use this procedure to add a user 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 WaveStar NMS. See the [“Add a user” \(4-4\)](#) task in this chapter for details.

Task Complete the following procedure to add users to a service domain.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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** 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.
-

Add a user to a service domain

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



List service domain user(s)

Purpose Use this procedure to list members assigned to a service domain.

Task Complete the following procedure to list service domain users.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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** 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 user(s) from a service domain

Purpose Use this procedure to delete user(s) 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 the following task to delete user(s) from a service domain.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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** 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



Section IV: WaveStar SNMS cut-through user ID

Overview

Purpose This section describes how to set up a user ID for WaveStar SNMS cut-through purposes.

Background In releases of WaveStar SNMS prior to Release 4.2, a default **itm** user ID was hardcoded into the interface to support WaveStar NMS cut-through connections to WaveStar SNMS. For WaveStar SNMS Release 4.2 and greater, a cut-through user ID (other than the default **itm** user ID) may be created and used for WaveStar NMS to WaveStar SNMS cut-through connections.

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

Use the following task to create a WaveStar SNMS cut-through user ID.

Contents

Set up a user ID for cut-through to WaveStar SNMS	4-29
---	----------------------

Set up a user ID for cut-through to WaveStar SNMS

Purpose Use this task to set up a user ID (other than the default **itm** user ID) for cut-through to WaveStar SNMS Release 4.2 and later releases.

Task Use the following steps to add a cut-through user ID to WaveStar SNMS.

- 1** Add a cut-through user ID to WaveStar SNMS. (See the “Add a User” task in the Security Management chapter of the *WaveStar Subnetwork Management System (SNMS) 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) Manual*.

END OF STEPS





5 Domain partitioning for provisioning operations

Overview

Purpose This chapter describes tasks performed to administer the provisioning environment. In particular, this chapter discusses the administration of geographic domain partitioning and service domain partitioning.

Contents

<u>Section I: Geographic domain partitioning</u>	<u>5-3</u>
<u>Add a geographic domain</u>	<u>5-7</u>
<u>List geographic domain</u>	<u>5-9</u>
<u>Delete a geographic domain</u>	<u>5-10</u>
<u>Modify a geographic domain</u>	<u>5-11</u>
<u>List network elements assigned to geographic domains</u>	<u>5-13</u>
<u>Section II: Service domain partitioning</u>	<u>5-14</u>
<u>List trails assigned to a service domain</u>	<u>5-17</u>
<u>List channels assigned to a service domain</u>	<u>5-18</u>
<u>List ports assigned to a service domain</u>	<u>5-19</u>
<u>Add a service domain</u>	<u>5-20</u>
<u>Modify the trails assigned to a service domain</u>	<u>5-21</u>
<u>Modify the channels assigned to a service domain</u>	<u>5-23</u>

Modify the ports assigned to a service domain	5-25
Delete a service domain	5-27

Section I: Geographic domain partitioning

Overview

Purpose This section describes how to administer geographic domains. Geographic domain partitioning is an optional feature. If this feature is not installed, **Geographic Domain** is grayed out on the Domain Administration menu.

At installation, geographic domain can be set with one of the following options:

- View ALL option
- Restricted user option

Geographic domain partitioning Geographic domain partitioning allows you to group network elements into domains that are directly under the control of:

- WaveStar NMS, (such as digital cross-connect system frames)
- ITM-SC (such as SLMs)
- ITM-XM (such as digital cross-connect system frames)
- WaveStar SNMS

Geographic domain partitioning facilitates:

- Grouping network elements into domains
- Assigning specific user access to the domains.

Managing geographic domains A network element may be assigned to only one geographic domain. User access is limited to only those network elements that are assigned to domains to which the user has access on WaveStar NMS. A user can be assigned to one or more domains; however, a network element may be assigned to only one domain.

Users who are assigned to more than one geographic domain are called *inter-domain* users.

These associations are set by system administrators.

To implement a circuit that crosses geographic domains for a user who is not an inter-domain user, the user implements that portion of the circuit that is in the user's graphical domain. The user then refers

the work item to another work group or to a user who has access to the remaining network elements of the other domain(s).

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 a user to have greater coverage during out-of-hours or weekend assignments using one login and the more restricted access during normal working hours by using a second login.

The Geographic Domain Administration form facilitates geographic domain partitioning by permitting a user with the proper security privileges, such as an WaveStar NMS privileged user, to control the assignment of network elements and users to domains.

The network elements and users must first exist in the WaveStar 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.

Users with correct privileges can view a list of:

- All users
- All network elements
- All geographic domains
- Users that have access to a particular geographic domain
- Network elements that are assigned to a particular geographic domain
- Users that are not assigned to any geographic domain
- Network elements that are not assigned to any geographic domain
- Network elements are assigned to geographic domains
- Users are assigned to geographic domains
- Users that have access to a particular network element

In the discussion that follows, the term network elements includes EMSs such as ITM-SCs, WaveStar SNMSs, and ITM-XMs.

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 WaveStar 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.

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

- **Geographic Domain Admin User**, generally an WaveStar 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
- **Geographic Domain User**, who has permission to:
 - Control assigned network elements in the geographic domain (if this is a restricted geographic domain user).
 - Provision network element ports
 - View only the network elements and links within the user's assigned geographic domain (if this is a restricted geographic domain user).
- **Geographic Inter-Domain User**, who 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 is a restricted geographic domain user). A user with **View All** option sees all, but can only perform operations on nodes assigned in their geographic domain.

Note that none of the users listed above may add a service domain.

Important! The ability to view network elements and links is dependent upon the setup of the DBP variable **readall** at installation. If this variable is selected, the geographic domain/inter-domain users

can view network elements, however, these users will only be allowed to perform operations on network elements assigned to the geographic domain.

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

Multiple logins A user can have multiple logins (user IDs). Each login can have access to different domains only if it is assigned to the geographic domain. This permits users to have greater coverage during out of hours or weekend assignments using one login, and more restricted access during normal work hours by using a second login. These associations are accomplished by use of the Domains form.

Contents

Add a geographic domain	5-7
List geographic domain	5-9
Delete a geographic domain	5-10
Modify a geographic domain	5-11
List network elements assigned to geographic domains	5-13



Add a geographic domain

Purpose Use this procedure 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 the following procedure to add a geographic domain.

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

Result:

The Geographic 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 or removed from the domain.
-

-
- 5** Select the appropriate arrow button to add or delete the highlighted selection.

-
- 6** Select **OK**.

Result:

The domain is created and its selected users and 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



List geographic domain

Purpose Use this procedure 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 the following procedure to list a geographic domain and its assigned users and network elements.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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



Delete a geographic domain

Purpose Use this procedure to delete a domain from geographic domain partitioning.

Task Perform the steps below 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



Modify a geographic domain

Purpose Use this procedure to modify a geographic domain. This procedure is used to:

- Add users to a geographic domain
- Delete users from a geographic domain
- Add network elements to a geographic domain
- Delete users from a geographic domain.

Task Perform the steps below 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

IF	THEN
You want to modify the users that are assigned to the domain.	Select the Users tab.

IF	THEN
You want to modify the network elements assigned to the domain.	Select the NEs tab.

.....

6 Highlight the user or network element that is to be added or removed 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

.....



List network elements assigned to geographic domains

Purpose Use this procedure to list 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 the following procedure to list network elements, their geographic domains and assigned users.

- 1 Start WaveStar NMS. See [“Section I: Start WaveStar NMS server applications” \(3-4\)](#) 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



Section II: Service domain partitioning

Overview

Purpose This section describes how to administer service domains. Service domain partitioning is an optional feature. If this feature is not installed, Service Domain is grayed out on the Domain Administration menu.

Service domain partitioning Service domain partitioning groups trails, channels, and ports into service domains and assigns specific users access to the service domains. Through the Virtual Private Network (VPN) feature, system administrators may now restrict a user's ability to assign channels. This restriction is made during the creation of the service domain.

Service domains are created in one of the following modes:

- Dedicated mode
- Shared mode

Either mode is selected in the *Add a Service Domain* process.

Dedicated mode When Dedicated mode is selected, the user may group channels, trails, and ports into service domains. As a result, the user may assign channels and assign ports for trail provisioning purposes or assign trails, for example, to monitor fault and performance.

Shared mode When Shared mode is selected, the VPN feature is implemented therefore no channel assignment is permitted, therefore the user may only group trails and ports into service domains. As a result, the user may assign ports for trail provisioning purposes or assign trails for monitoring purposes.

Manage service domains In the Shared mode, a channel may be assigned to only one Service Domain.

- Channels belong to either the Public Domain or a specific Service Domain. A Public Domain is a channel that does not belong to a Service Domain.

A trail may be assigned to only one Service Domain.

- A circuit assigned to a Service Domain consists of a circuit made up of channels that are a part of the Service Domain.

Service Domain Administration is accomplished by use of the Service Domain Administration form, which is accessed from the Administration menu of the map. Only a person with proper security permissions can create, delete, or modify a domain.

Assign users to a service domain

Service domain partitioning recognizes two types of users:

- **Service Domain Admin User**, generally an WaveStar NMS system administrator with superuser privileges
- **Service Domain User**

A **Service Domain User** cannot be a geographic domain user.

Only a person with proper security permissions can create, delete, and modify domains. Users with the user type, **Service Domain User** can access the Service Domain forms.

A user may only be assigned to one Service Domain and **generally** may not 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.

The channels and users must first exist in the controller database before they can be assigned to any domain. The domain forms do not create users or network elements.

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

All users can complete the form to view the following lists:

- All users
- All network elements

Contents

List trails assigned to a service domain	5-17
List channels assigned to a service domain	5-18
List ports assigned to a service domain	5-19
Add a service domain	5-20

<u>Modify the trails assigned to a service domain</u>	<u>5-21</u>
<u>Modify the channels assigned to a service domain</u>	<u>5-23</u>
<u>Modify the ports assigned to a service domain</u>	<u>5-25</u>
<u>Delete a service domain</u>	<u>5-27</u>

□

List trails assigned to a service domain

Purpose Use this procedure to list trails that are assigned to a service domain.

Task Complete the following steps to list trails that are assigned to a service domain:

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the *Service Domain* field, select the domain name from the drop-down list.
-

- 3 Select the **Trails** tab.
-

- 4 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



List channels assigned to a service domain

Purpose Use this procedure to list the channels assigned to a service domain.

Task Complete the following steps to list the channels assigned to a service domain:

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the **Service Domain** field, select the domain name from the drop-down list.
-

- 3 Select the **Channels** tab.
-

- 4 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



List ports assigned to a service domain

Purpose Use this procedure to list ports that are assigned to a service domain.

Task Complete the following steps to list ports that are assigned to a service domain:

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the **Service Domain** field, select the domain name from the drop-down list.
-

- 3 Select the **Ports** tab.
-

- 4 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



Add a service domain

Purpose Use this procedure 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 the following procedure 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** 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



Modify the trails assigned to a service domain

Purpose Use this procedure 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 the following task to modify the trails assigned to a service domain.

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the **Service Domain** field, select the domain name from the drop-down list.
-

- 3 Select the **Trails** tab.
-

- 4 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 Use this procedure 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 the following task to modify the channels assigned to a service domain.

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the **Service Domain** field, select the domain name from the drop-down list.
-

- 3 Select the **Channels** tab.
-

- 4 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 Use this procedure 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 the following task to modify the ports assigned to a service domain.

- 1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Trails/Channels/Ports**.

Result:

The Service Domain Query form is displayed.

- 2 In the **Service Domain** field, select the domain name from the drop-down list.
-

- 3 Select the **Ports** tab.
-

- 4 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.

-
- 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



Delete a service domain

Purpose Use this procedure 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 the following task 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** field, select the domain name from the drop-down list.
-

- 3 Select **Apply**.

Result:

A form displays for you 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





6 Provisioning administration

Overview

Purpose This chapter contains topology and provisioning tasks performed to administer WaveStar NMS.

Contents

<u>Section I: Aggregates</u>	<u>6-3</u>
<u>Add an aggregate</u>	<u>6-4</u>
<u>Delete an aggregate</u>	<u>6-6</u>
<u>Add an aggregate member</u>	<u>6-7</u>
<u>Remove an aggregate member</u>	<u>6-9</u>
<u>Specify an aggregate's acronym</u>	<u>6-11</u>
<u>Section II: Areas</u>	<u>6-12</u>
<u>Add an area</u>	<u>6-13</u>
<u>Modify an area</u>	<u>6-15</u>
<u>Delete an area</u>	<u>6-17</u>
<u>Section III: Scheduled entities</u>	<u>6-18</u>
<u>View a list of scheduled entities</u>	<u>6-19</u>
<u>Delete a scheduled entity</u>	<u>6-20</u>
<u>Modify a scheduled entity</u>	<u>6-21</u>

Filter the display of scheduled entities on the Scheduled List	6-22
View successful/failed scheduled entities through the Scheduled History List	6-24
Section IV: User Defined Area Map	6-25
Add a user defined area map	6-26
Display/modify a user defined area map	6-27
Delete a user defined area map	6-28
Section V: User Defined Submap	6-29
Add a user defined submap	6-30
Display/modify a user defined submap	6-31
Delete a user defined submap	6-32
Section VI: Provisioning maintenance tool	6-33
Virtual disconnect tool description	6-34



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 may contain other aggregates.

This section discusses the provisioning tasks associated with aggregates as they relate to managing the topology of the WaveStar NMS Network Map.

Contents

Add an aggregate	6-4
Delete an aggregate	6-6
Add an aggregate member	6-7
Remove an aggregate member	6-9
Specify an aggregate's acronym	6-11



Add an aggregate

Purpose Use this procedure to add an aggregate to the WaveStar NMS Network Map.

Task Complete the following task to add an aggregate to the WaveStar NMS Network Map.

- 1 On the Network Map, select **Administration > Aggregate > Add**.

Result:

The Aggregate Add form is displayed.

- 2 In the **Aggregate ID** field, enter the Aggregate ID.
-

- 3 In the **Acronym** field, enter the Aggregate Acronym.
-

- 4 From the **Non-Member List**, select the network element or elements you wish to add to the aggregate.

Important! To select more than one node, press the Control key. There is no limit on the number of network elements that can be selected at one time.

- 5 Left-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.

- 6 Left click **Apply**.

Result:

A confirmation window is displayed.

- 7 Left click **OK**.
-

Result:

You are returned to the Aggregate Add Form.

8 Left-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 Use this procedure to delete an aggregate from the WaveStar NMS Network Map.

Task Complete the following task to delete an aggregate from the WaveStar NMS Network Map.

- 1 From the Network Map, select **Administration > Aggregate > Delete...**

Result:

The Aggregate List is displayed.

- 2 Left-click the **Aggregate** to be deleted.
-

- 3 Left click **Apply**.

Result:

A confirmation window is displayed.

- 4 Left click **OK**.

Result:

You are returned to the Aggregate Add Form.

- 5 Left-click **OK**.

Result:

The aggregate is deleted and is no longer displayed on the Network Map.

END OF STEPS



Add an aggregate member

Purpose Use this procedure to add 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 Modify form appears.

- 2 In the **Aggregate ID** pull-down menu, left-click the aggregate to be modified.

Result:

The aggregate members are displayed in the **Members** column.

- 3 In the **Non-members** column, left-click the network element to be added to the aggregate.

Result:

The network element is highlighted.

- 4 Left-click the **left-pointing arrow**.

Result:

The network element is moved to the **Members** column.

- 5 Left click **Apply**.

Result:

A confirmation window is displayed.

6 Left click **OK**.

Result:

You are returned to the Aggregate Add Form.

7 Left click **Close**.

Result:

The screen closes and the network element becomes a new member of the aggregate.

END OF STEPS



Remove an aggregate member

Purpose Use this procedure to remove a member from an existing aggregate. A *member* can be defined as a network element, which constitute an aggregate.

Before you begin Before removing a member from an aggregate, note the following items:

- The aggregate must have at least one member.
- You cannot delete the last aggregate member 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 aggregate members 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 Left-click the **right-pointing arrow**.

Result:

The network element is moved to the **Non-members** column.

- 5 Left-click **Apply**.
-

Result:

A confirmation window is displayed.

- 6** Click **OK**.

Result:

You are returned to the Aggregate Add Form.

- 7** Left click **Close**.

Result:

The screen closes. The member is removed from the aggregate.

END OF STEPS



Specify an aggregate's acronym

Purpose Use this procedure to specify an aggregate's on-screen *acronym* (title formed from the initial letters or parts of the aggregate's full name).

Related information For related information, refer to the *WaveStar NMS Application and Planning Guide*.

Task Complete the following task to modify an aggregate's on-screen acronym.

- 1 From the Network Map, select **Configuration > Aggregate > Display/Modify**.

Result:

The Aggregate Modify 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 aggregate acronym is modified. The change will dynamically appear on-screen.

END OF STEPS

Section II: Areas

Overview

Purpose This section describes areas and describes the tasks related to areas.

Background Networks managed by WaveStar NMS can be subdivided into smaller, manageable networks called *areas*. When the network is subdivided into areas containing a limited set of nodes/aggregates and associated links, the potential to overcrowd the display is reduced and the system performance is improved as a smaller amount of information is exchanged by the subsystems.

Areas may be a:

- Set of nodes/aggregates dedicated to a subscriber
- Set of nodes/aggregates, which are or are not connected
- Set of nodes/aggregates in a geographic location or building.

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 a smaller amount of information is exchanged by the subsystems.

Only a system administrator can create areas.

Definition: area An area is a collection of nodes, 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.

There is no restriction in the number of network elements that can be included in an area, however a limit of 300 network elements in an area is recommended to avoid a cluttered display and performance problems.

Contents

Add an area	6-13
Modify an area	6-15
Delete an area	6-17



Add an area

Purpose Use this procedure to add an area.

Permissions You must be authorized to perform this task.

Task Perform the steps below to add an area.

- 1 On the Network Map, select **Administration > Area > Add...**

Result:

The Area Create form is displayed.

- 2 In the **Area Name** 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

For more information For instructions on how to add members to the area that was created with this task, see the following task, [“Modify an area” \(6-15\)](#)



Modify an area

Purpose Use this procedure to modify an area.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 Do one of the following:

- 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 Use this procedure to delete an area.

Permissions You must be authorized to perform this task.

Task Perform the steps below to delete an area:

- 1 On the Network Map, select **Administration > Area > Delete...**

Result:

The Area Delete form is displayed.

- 2 In the **Area Name** field, select the area from the drop-down menu.
-

- 3 Select **OK**.

Result:

The area is deleted. Note that 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: Scheduled entities

Overview

Purpose This section describes the administration of scheduled entities.

Definition: scheduled entity A scheduled entity is a scheduled event.

Contents

View a list of scheduled entities	6-19
Delete a scheduled entity	6-20
Modify a scheduled entity	6-21
Filter the display of scheduled entities on the Scheduled List	6-22
View successful/failed scheduled entities through the Scheduled History List	6-24



View a list of scheduled entities

Purpose Use this procedure to view a list of scheduled entities.

Before you begin The active form must be the Network Map.

Task Perform the steps below 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 Use this procedure to delete a scheduled entity.

Task Perform the steps below 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 Use this procedure to modify a scheduled entity.

Task Perform the steps below 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 Use this procedure to filter the display of the scheduled entities on the Scheduled List.

Task Perform the steps below 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 Use this procedure to query for a historical list of scheduled entities that were successfully completed or that failed during reinstatement.

Task Perform the steps below 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



Section IV: User Defined Area Map

Overview

Purpose This section describes how to add, display/modify, or delete user defined area maps.

Contents

Add a user defined area map	6-26
Display/modify a user defined area map	6-27
Delete a user defined area map	6-28



Add a user defined area map

Purpose Use this procedure to add a user defined area map.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 a name for 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 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 area map is added and the Add User Defined Area Map form closes.

END OF STEPS



Display/modify a user defined area map

Purpose Use this procedure to display/modify a user defined area map.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 Use this procedure to delete a user-defined area map.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 V: User Defined Submap

Overview

Purpose This section describes how to add, display/modify, or delete user defined submaps.

Contents

Add a user defined submap	6-30
Display/modify a user defined submap	6-31
Delete a user defined submap	6-32



Add a user defined submap

Purpose Use this procedure to add a user defined submap.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 Use this procedure to display/modify a user defined submap.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 Use this procedure to delete a user-defined submap.

Permissions You must be authorized to perform this task.

Task Perform the steps below 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 VI: Provisioning maintenance tool

Overview

Purpose This section describes the paper or virtual disconnect tool.

Contents

Virtual disconnect tool description	6-34
---	----------------------



Virtual disconnect tool description

Overview The virtual disconnect tool is used to clean up the WaveStar 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 WaveStar NMS, or circuits can be partially provisioned and in need of cleanup before a re-attempt is executed.

The virtual disconnect tool is a means to clean up the NMS database when circuits are disconnected at the EMS or network element level, or when circuits are partially provisioned and in need of cleanup before a re-attempt is executed.

This script would need to be run, for example, in the unlikely event that an operator incorrectly assigned a circuit to a wrong black box location when provisioning the circuit in WaveStar NMS. The result of this script is to cause change to the WaveStar NMS database without interacting with the network elements.

For more information, see [“Virtual disconnect tool task” \(8-74\)](#).

□



7 Reliability and service recovery

Overview

Purpose This chapter describes tasks performed to insure the reliability of WaveStar NMS and procedures for system recovery if WaveStar NMS becomes unavailable. It also includes tasks associated with redundancy configurations.

Contents

<u>Section I: Perform backups</u>	<u>7-3</u>
<u>Perform a hot backup</u>	<u>7-5</u>
<u>Perform a cold backup</u>	<u>7-6</u>
<u>Section II: Perform recoveries</u>	<u>7-8</u>
<u>Recovering Hot or Cold Backups</u>	<u>7-9</u>
<u>Perform a hot backup recovery</u>	<u>7-10</u>
<u>Perform a cold backup recovery</u>	<u>7-11</u>
<u>Recover the database to a different server</u>	<u>7-13</u>
<u>Section III: Delete history</u>	<u>7-15</u>
<u>Section IV: Miscellaneous reliability and service recovery tasks</u>	<u>7-17</u>
<u>Obtain mirroring status</u>	<u>7-18</u>
<u>Section V: Redundancy</u>	<u>7-19</u>

EMS switchovers	7-23
Restart WaveStar NMS communication with EMS servers	7-26
Restart WaveStar NMS communication with WaveStar SNMS local redundancy servers	7-27
Restart WaveStar NMS's ability to communicate with WaveStar SNMS geographic redundancy servers	7-28
Restart WaveStar NMS's ability to communicate with ITM-SC servers	7-29
Switch the roles of WaveStar NMS servers (simplified or full geographic redundancy configuration)	7-30
Section VI: Geographic Redundancy configuration	7-31
View which server is running the WaveStar NMS application	7-32



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 WaveStar Network Management System (NMS) is shutdown (cold). The hot backup takes longer to complete than the cold backup, but the hot backup can be initiated while the WaveStar 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” \(7-19\)](#) within this chapter for details.

The system is required to be at run level 4 for hot backup. See [“Run level 4” \(1-6\)](#) for more information on this run level.

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 scratch 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. See [“Run level 3” \(1-6\)](#) for more information on this run level.

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	7-5
Perform a cold backup	7-6



Perform a hot backup

Purpose A hot backup occurs when the system is up and running.

Task Perform the steps below to perform a hot backup.

1 Using the system console, log into the system as root.

2 Insert a tape into the tape drive.

Important! Wait until the lights on the tape drive stop flashing.

3 Enter `cd /usr/dacscan/bin`

4 Enter `/bin/ksh ./hot_backup`

Result:

The hot backup begins. This will take 60-180 minutes to complete. The # prompt is issued to the system console once the backup is complete.

5 Remove the tape.

6 Label the tape with the current date, and store the tape in a safe place.

Result:

The hot backup is complete.

END OF STEPS



Perform a cold backup

Purpose A cold backup occurs when the NMS is shutdown (cold).

Task Perform the steps below to perform a cold backup.

1 Using the system console, log into the system as root.

2 Stop the WaveStar NMS application.

Reference:

For instructions, see the section [“Stop WaveStar NMS on a specific node using sam” \(3-23\)](#), in [Chapter 3, “System administration”](#).

3 Log in to the WaveStar NMS server as root.

4 Insert a tape into the tape drive.

5 Wait until the lights on the tape drive stop flashing.

6 Enter `cd /usr/dacscan/bin`

7 Enter `/bin/ksh cold_backup`

Result:

The cold backup begins. This will take approximately 40 minutes to complete. The # prompt is issued to the system console once the backup is complete.

8 Remove the tape.

9 Label the tape with the current date, and store the tape in a safe place.

Result:

The cold backup is complete.

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	7-9
Perform a hot backup recovery	7-10
Perform a cold backup recovery	7-11
Recover the database to a different server	7-13



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. WaveStar NMS must be shut down to perform this procedure.

Recovering a Cold Backup Cold backups are recovered using the “cold_recover” script. WaveStar NMS 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 (such as ITM-SCs), and network elements. This connectivity establishes a disaster recovery site.
- The systems have been installed with an identical release of WaveStar NMS application software (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)
 - **/etc/x25/*acc_config** (specifically the X.121 Network Telephone Numbers (NTNs)) Virtual Craft Interface Terminal (VCIT) device files (use the HP-UX system administration tool “sam”)
 - user’s accounts (use the HP-UX system administration tool “sam”).

□

Perform a hot backup recovery

Purpose Use this procedure to perform a hot backup recovery.

Task Perform the steps below to perform a hot backup recovery.

1 Using the system console, log into the system as root.

2 Stop the WaveStar NMS application.

Reference:

For instructions, see the section [“Stop WaveStar NMS on a specific node using sam” \(3-23\)](#), in [Chapter 3, “System administration”](#).

3 Insert the backup tape into the tape drive.

4 Wait until the lights on the tape drive stop flashing.

5 Enter `cd /usr/dacscan/bin`

6 Enter `/bin/ksh ./hot_recover`

Result:

The hot backup recovery begins. This will take approximately 90 minutes to complete. The # prompt is issued to the system console once the hot backup recovery is complete.

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.

END OF STEPS



Perform a cold backup recovery

Purpose Use this procedure to perform a cold backup recovery.

Task Perform the steps below to perform cold backup recovery.

1 Using the system console, log into the system as root.

2 Stop the WaveStar NMS application.

Reference:

For instructions, see the section [“Stop WaveStar NMS on a specific node using sam” \(3-23\)](#), 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 Enter `cd /usr/dacscan/bin`

6 Enter `/bin/ksh ./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. This will take approximately 90 minutes to complete. The # prompt is issued to the system console once the backup is complete.

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.

END OF STEPS



Recover the database to a different server

Purpose Use this procedure to recover the database to a different server. This task can only be performed after a hot backup has been completed.

Before You Begin

- Create a hot backup tape at the site which has the source database, using the task [“Perform a hot backup” \(7-5\)](#), earlier in this chapter.
- Ensure that the destination system is at run level 3.
- Recover the hot backup tape at the destination site, using the task [“Perform a hot backup recovery” \(7-10\)](#), earlier in this chapter.
- On each workstation:
 - Ensure that the hostnames/IP addresses for both WaveStar NMS systems (source and destination) are in `/etc/hosts`.
 - Ensure that the hostnames for both WaveStar NMS systems (source and destination) are present in `/.rhosts`.
 - Ensure that the hostnames for both WaveStar NMS systems (source and destination) are present in `/home/dacscan/.rhosts`.

Task Perform the steps below to recover the database to a different server.

1 Using the system console, log in as `dacscan` on the WaveStar 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 documentation for procedures to enable the ITM-SCs to accept connection requests from the new WaveStar NMS host.

-
- 4 For any network elements that require knowledge of the connecting manager, refer to their documentation for procedures to enable connections.
-

- 5 For each user on each workstation, reset the name of the WaveStar NMS system to which the user should connect.
-

- 6 Enter the command `init 4` to bring the system to run level 4.

Result:

The WaveStar NMS application is started.

END OF STEPS

.....



Section III: Delete history

Overview

Purpose This section describes the delete history tool.



About this tool

Background Whenever a circuit is rearranged, the data from the previous circuit is retained in the WaveStar 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 history data associated with each circuit, and deletes all unnecessary history data from the database.

The Delete History script consists of two parts:

- A script that automatically runs once, when upgrading the database. If you need to refer to any circuits listed in the history that are not the most recent non-RS, non-RI 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: Miscellaneous reliability and service recovery tasks

Overview

Purpose This section describes how to perform miscellaneous reliability and service recovery tasks.

Contents

Obtain mirroring status	7-18
---	----------------------



Obtain mirroring status

Purpose Use this procedure to obtain mirroring status. This task 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 Perform the steps below 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



Section V: Redundancy

Overview

Purpose This section describes redundancy configurations available to support WaveStar NMS and Element Management System (EMS) failures.

This section describes how the redundancy process is supported with simplified geographic redundancy, full geographic redundancy, and local redundancy configurations.

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 WaveStar NMS server connected to a standby WaveStar 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 WaveStar 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 's support to EMS and WaveStar NMS servers

When a failure occurs to WaveStar 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 WaveStar NMS-EMS connectivity.

WaveStar NMS geographic redundancy commands

Several WaveStar 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 standby database after physical structure of primary database was altered.
- **CleanGRARCH.sh** - cleans geographic redundancy archive file system.

WaveStar 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 WaveStar NMS local redundancy configurations.

Local redundancy configuration switches to the standby server (MC/ServiceGuard)

The local redundancy configuration is supported by a 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 of the machines in the cluster. When one of the machines 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 an “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. WaveStar NMS geographic redundancy configurations require manual switchover processing, while its local redundancy configurations feature automatic switchover.

WaveStar NMS supports manual switchovers for the ITM-SC EMS and manual and automatic switchovers in WaveStar SNMS. (See [“EMS switchovers” \(7-23\)](#) for details). The support is designed to assure maximum availability of WaveStar 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 WaveStar SNMS (for example, R5.0) while WaveStar SNMS R5.1 supports both manual and automatic switchovers.

For example, in WaveStar SNMS releases earlier than R5.1, a command is entered to initiate switchover. Newer releases of WaveStar SNMS (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.

WaveStar SNMS Cluster Administration GUI

The WaveStar SNMS 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 WaveStar SNMS. The 'X' clears once communication is re-established to the server.

In order to provide an instant status to WaveStar NMS personnel, it is recommended that the GUI is placed on a convenient workstation at the WaveStar NMS work center.

Supporting EMS/WaveStar NMS server failures

When failures occur to the WaveStar SNMS and ITM-SC EMS servers, they are either *automatically* resolved through redundancy software intervention methods in place, or must be resolved *manually* through the EMS system administrator's intervention.

Manual intervention varies by EMS server type, release number, and redundancy type. It also differs depending upon whether or not the failure occurs on the EMS side versus if it occurs on the WaveStar NMS side.

The following tasks define the steps that need to be performed by WaveStar NMS system administrators after any switchover occurs to an EMS server.

Contents

EMS switchovers	7-23
Restart WaveStar NMS communication with EMS servers	7-26
Restart WaveStar NMS communication with WaveStar SNMS local redundancy servers	7-27
Restart WaveStar NMS's ability to communicate with WaveStar SNMS geographic redundancy servers	7-28
Restart WaveStar NMS's ability to communicate with ITM-SC servers	7-29
Switch the roles of WaveStar NMS servers (simplified or full geographic redundancy configuration)	7-30



EMS switchovers

WaveStar SNMS switchover behavior (for geographic redundancy configurations)

During the initial installation of the complex containing WaveStar SNMS servers in a geographic redundancy configuration, the `add.controller` command is entered *twice* in WaveStar NMS. More specifically, the command is entered one time per WaveStar SNMS server.

Before a switchover occurs, the WaveStar SNMS primary and standby servers in a geographic redundancy configuration display on the WaveStar 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 WaveStar SNMS Server A fails, its icon turns to magenta while Server B's icon remains green. Once the WaveStar SNMS switchover occurs, about 7 minutes elapse between Server A's failure and Server B's new status. When Server A is repaired by the WaveStar SNMS staff, Server A's icon becomes green again, and two green icons display on the WaveStar NMS Network Controller Map.

At this point, there is no WaveStar NMS manual re-synchronization action required. Note that when the switchover occurred, WaveStar NMS had interrupted communications to WaveStar SNMS Server A, however it held the orders during the 7 minute timeframe and then resumed communication with WaveStar SNMS Server B.

WaveStar SNMS switchover behavior (for local redundancy configurations)

In WaveStar SNMS local redundancy configurations, the WaveStar SNMS MC/ServiceGuard cluster is assigned an arbitrary designation name, such as `<C_arbitrary_designation_name>` which serves as a floating IP address.

During the initial installation of WaveStar SNMS servers in a local redundancy configuration, the `add.controller` command must be used to uniquely support the floating IP address representing the cluster.

The actual WaveStar SNMS primary and standby servers within the cluster (for example, Server A and Server B) are designated in the `/etc/hosts` file of the WaveStar NMS server with their fully-qualified name, such as `<servername>.<full_name>.com`.

Before a switchover occurs, the WaveStar SNMS cluster in a local redundancy configuration displays on the WaveStar 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 WaveStar SNMS Server A fails, the icon turns to magenta for a period of 3-5 minutes, after which the WaveStar SNMS local redundancy switchover occurs. Once switchover is complete, the icon turns back to green and WaveStar NMS operation continues as usual with WaveStar SNMS Server B as *Active*.

At this point, there is no WaveStar NMS manual re-synchronization action required. Note that when the switchover occurred, WaveStar NMS had interrupted communications to WaveStar SNMS Server A, however it held the orders during the 3-5 minute timeframe and then resumed communication with WaveStar SNMS 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 WaveStar NMS has lost communications with the failed machine. WaveStar 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 WaveStar 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 restoral 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 WaveStar SNMS through the Cluster Administration GUI. This process notifies WaveStar 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 WaveStar SNMS, 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 WaveStar NMS communication with EMS servers

Restart WaveStar 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 WaveStar SNMS servers in a local redundancy configuration, see [“Restart WaveStar NMS communication with WaveStar SNMS local redundancy servers” \(7-27\)](#).
- To restart communication to WaveStar SNMS servers in a geographic redundancy configuration, see [“Restart WaveStar NMS’s ability to communicate with WaveStar SNMS geographic redundancy servers” \(7-28\)](#).
- To restart communication to ITM-SC servers, see [“Restart WaveStar NMS’s ability to communicate with ITM-SC servers” \(7-29\)](#).

For additional information, see the *Database Maintenance* chapter in the *WaveStar SubNetwork Management System (SNMS) Administration Guide* or the *Geographic Redundancy* chapter of the *ITM-SC Release 7.0 Administration Guide*.

□

Restart WaveStar NMS communication with WaveStar SNMS local redundancy servers

Purpose This task explains how to restart WaveStar NMS communication with WaveStar SNMS servers residing in a local redundancy configuration. This task would be performed if the color of the icon representing the WaveStar SNMS cluster does not change from magenta to green after a period of 5 minutes.

Task Use the following steps to restart communication to WaveStar SNMS 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 WaveStar SNMS 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 WaveStar SNMS local redundancy servers.

END OF STEPS



Restart WaveStar NMS's ability to communicate with WaveStar SNMS geographic redundancy servers

Purpose This task explains how to restart WaveStar NMS's ability to communicate with WaveStar SNMS servers residing in a geographic redundancy configuration. This task would be performed if the color of the icon representing a WaveStar SNMS server does not change from magenta to green after a period of time exceeding 7-15 minutes.

Task Use the following steps to restart WaveStar NMS's ability to communicate with WaveStar SNMS 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 WaveStar SNMS 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 WaveStar SNMS geographic redundancy servers.

END OF STEPS



Restart WaveStar NMS's ability to communicate with ITM-SC servers

Purpose This task explains how to restart WaveStar 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 WaveStar 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 WaveStar NMS servers (simplified or full geographic redundancy configuration)

Purpose Use this procedure to switch the roles of WaveStar NMS 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 VI: 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 WaveStar NMS application	7-32
---	----------------------



View which server is running the WaveStar NMS application

Purpose Use this procedure to view which server is running the WaveStar NMS application.

This task is a geographic redundancy-only issue.

Task Perform the steps below 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 WaveStar NMS icon.

END OF STEPS





8 Off-line tool concepts

Overview

Purpose This chapter describes off-line script tools provided with WaveStar NMS. It also contains tasks associated with off-line tools.

Contents

<u>Section I: Auto-Discovery Tool</u>	<u>8-3</u>
<u>Section II: Rename network element tool</u>	<u>8-17</u>
<u>Change the name of an existing network element</u>	<u>8-18</u>
<u>Section III: INSERTNODE and REMOVE NODE tools</u>	<u>8-23</u>
<u>Insert an ITM-SC controlled node into a digital link using INSERTNODE</u>	<u>8-26</u>
<u>Insert a WaveStar SNMS controlled node into a digital link using INSERTNODE</u>	<u>8-32</u>
<u>Delete an ITM-SC controlled node from a digital link using REMOVE NODE</u>	<u>8-37</u>
<u>Delete a WaveStar SNMS controlled node from a digital link using REMOVE NODE</u>	<u>8-40</u>
<u>Section IV: Network element reparenting tool</u>	<u>8-42</u>
<u>Reparenting ITM-SC controlled Network Elements</u>	<u>8-43</u>

<u>Reparenting WaveStar SNMS controlled network elements</u>	<u>8-45</u>
<u>Reparenting WaveStar NMS EMS resources to another WaveStar NMS</u>	<u>8-48</u>
<u>Section V: Upgrade WaveStar OLS 400G to WaveStar OLS 800G</u>	<u>8-50</u>
<u>Upgrade WaveStar OLS 400G to WaveStar OLS 800G</u>	<u>8-51</u>
<u>Section VI: Upgrade WaveStar OLS 400G's network element's from CMISE mode to TL1 mode</u>	<u>8-53</u>
<u>Use the CMISE to TL1 upgrade tool for WaveStar OLS 400G</u>	<u>8-54</u>
<u>Section VII: Connection renaming tool</u>	<u>8-56</u>
<u>Rename network connections with the connection renaming tool</u>	<u>8-58</u>
<u>Section VIII: Bulk circuit provisioning tool</u>	<u>8-60</u>
<u>Bulk circuit provisioning tool task</u>	<u>8-61</u>
<u>Section IX: Bulk link provisioning tool</u>	<u>8-63</u>
<u>Bulk link provisioning tool task</u>	<u>8-64</u>
<u>Section X: Network element tools</u>	<u>8-66</u>
<u>Add a new network element to an established ring</u>	<u>8-67</u>
<u>Delete a network element from a ring</u>	<u>8-70</u>
<u>Configure a network element for an X.25 network</u>	<u>8-71</u>
<u>Section XI: Virtual disconnect tool</u>	<u>8-73</u>
<u>Virtual disconnect tool task</u>	<u>8-74</u>



Section I: Auto-Discovery Tool

Overview

- Purpose** The Auto-Discovery Tool is a UNIX script that is used off-line from WaveStar 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 WaveStar NMS.
 - When existing WaveStar NMS customers who already have part of their network managed by WaveStar NMS, wish to move another part of their network under WaveStar NMS management.

Auto-Discovery tool performs two different tasks, which users can combine or run singly:

- Discover the network's connection layout based on input files. Auto-Discovery tool uses input files provided by the EMS to discover a 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. 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 WaveStar NMS. For each discovered assignable path, the tool can automatically provision a circuit to ride exactly on the path.

Initially, Auto-Discovery tool is run to discover and provision paths. It is then run to provision the circuits riding atop 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.

- Prerequisites** Before using this tool:
1. All of the digital links belonging to the “migrated or discovered” network must be (manually) provisioned in the WaveStar NMS first 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 of the EMSs. These extractions are provided by running a script file in the EMS. See the topic [“Data import interface” \(8-9\)](#) in this chapter for details.

Using the tool The tasks which 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 WaveStar NMS host is running.
 - While the tool is running, do not continue operational and provisioning procedures through WaveStar 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.
 - No commands are 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** Auto-Discovery tool supports the following network elements:
- Intelligent Synchronous Multiplexers (ISMs) [all Ring Drop Insert (RDI) models]
 - Synchronous Line Multiplexers (SLMs) all models

- WaveStar ADM 155 E
- WaveStar ADM 4/1 STM-1 and WaveStar ADM 4/1 STM-4
- LXC 4/1
- LXC 16/1
- WaveStar ADM 16/1 and WaveStar ADM16/1 Compact
- WaveStar AM 1
- WaveStar TM 1
- WaveStar DACS
- WaveStar BandWidth Manager
- TDM 10G

**Supported connections
types**

Auto-Discovery tool supports the following connection types:

- Circuits
 - 1920N circuits
 - 480N circuits
 - 672N circuits
 - 30N circuits
 - 24N circuits
- Combos
 - VC4-1920N combo
 - AU3-480N combo
 - AU3-672N combo
 - VC3-480N combo
 - VC3-672N combo
 - VC12-30N combo
 - TU12-VC11-24N combo
- Paths
 - VC4-4c paths
 - VC-4 paths
 - AU3 paths
 - VC-3 paths
 - VC-2 paths

- VC-12 paths
- TU12-VC11 paths

Bidirectional: The tool supports bidirectional connection discovery.

CTP and TTP: The tool supports connections that terminate on a CTP (non-assignable port for both extremities) or TTP (assignable port on one or both extremities).

MS-SPRING and SNC Protected: The tool supports both MS-SPRING and SNC protected paths. The connections can be either 1+1 or ring-protected.

Y-Protected: The tool supports Y-protected connections.

VC-4 paths: The tool supports both the structured and unstructured VC-4 (carrying 140-Mb PDH). For the VC-4 structured connection, the tool will only discover those VC-4 paths which carry at least one low order connection.

Unsupported connection types

The following connections are *not* supported by the Auto-Discovery tool:

- Loopback on WaveStar 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

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). **WAIT_TIME** is the waiting period (in seconds) between two connection provisioning commands sent to WaveStar NMS from the Auto-Discovery tool. It prevents WaveStar 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/modelslst**.
- *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 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 a connection is discovered by Auto-Discovery tool, 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 NMS if there was an error during provisioning. It is possible to reapply the pending connections through WaveStar NMS.

Provisioned connections logs

When a discovered connection is provisioned in 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 provisioned in WaveStar 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 will also log any layout inconsistencies and unsupported connection configurations.

Tool files The following files affect the auto-discovery and connection renaming tools' use:

- Network element model file
- Network element file
- Rate file

The Network element model file

The model file restricts the Auto-Discovery tool's domain. Auto-Discovery tool will only discover the connections that run through network elements whose models are specified within this file. The following models are allowed in the file:

- ISMs
- SLMs
- ADM 155E
- WaveStar ADM 4/1 STM-1 and WaveStar ADM 4/1 STM-4
- LXC 4/1
- LXC 16/1
- WaveStar ADM 16/1 and WaveStar ADM16/1 Compact
- WaveStar AM 1
- WaveStar TM 1
- WaveStar DACS
- WaveStar BandWidth Manager
- TDM 10G

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 [“Supported network elements” \(8-4\)](#) earlier in this chapter, for a list of supported network elements.

The Rate file

The rate file restricts the connection types discoverable by the Auto-Discovery tool. The following rates are allowed in the file:

- VC4-4c
- VC-4
- C3
- DS3
- C1
- DS1

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.

ITM-SC

For ITM-SC, the interface is applicable to the following network elements:

- ADM 155E
- ISMs
- LXC 4/1
- LXC 16/1
- SLMs
- WaveStar ADM 4/1 STM-1
- WaveStar ADM 4/1 STM-4
- WaveStar ADM 16/1
- WaveStar AM 1
- WaveStar TM 1
- WaveStar DACS Release 2.1

WaveStar SNMS

For WaveStar SNMS, the interface is applicable for the following network elements:

- WaveStar BandWidth Manager
- TDM 10G

Note

- 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.

The Cross-connect file

The cross connect file contains the supported rates for the cross-connects. The file is applicable to the following rates:

- VC4-4c
- VC-4
- 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 ADM 16/1, 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.

In the case of 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 8-1 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

Table 8-1 Cross-Connect File Field Descriptions (continued)

Field	Description
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)

The Port file

The port file contains the rates supported by the interface for ports. The interface is applicable to the following rates:

- VC-4 (140 Mb or VC-4 substructured)
- C3 (34 Mb)
- DS3 (45 Mb)
- C1 (2 Mb)
- DS1 (1.5 Mb)

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.

Table 8-2 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	Param 1
Field 6	Param 2
Field 7	pti_t
Field 8	pti_e

Table 8-2 Port File Field Descriptions (continued)

Field	Description
Field 9	pti_mode
Field 10	rate (C1, C3, DS3, DS1, VC4)



Add or migrate networks to WaveStar NMS management using the auto-discovery tool

Purpose Use this task to add or migrate networks to WaveStar 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 WaveStar NMS.
- When existing WaveStar NMS customers, who already have a part of their network managed by WaveStar NMS, wish to include another part of a live network under WaveStar 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.

Task Use the following procedure to either migrate an existing live network to WaveStar NMS management or to add another part of a live network already under WaveStar NMS management to a WaveStar 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 WaveStar NMS disk.

- 3 Merge the EMS files into two files (the port and cross-connect files).

- 4 Log in as dacscan.

Add or migrate networks to WaveStar NMS management using the auto-discovery tool

-
- 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” \(8-15\)](#) 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 WaveStar 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 endpoints used by the discovered connections. The network is then added or migrated to WaveStar 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 will then prompt you to confirm the following parameters:

- **Function [-f y/d/p]** - if set to *y* (WaveStar NMS), the tool will discover connections and provision them in WaveStar NMS.
 - If set to *d*, the tool will discover connections but will not provision them.
 - If set to *p*, the tool will just provision the already discovered connections.
- **Trail Type [-t path/ckt]** - specifies the connection type to discover. Must be set to *path* (default) if *combo* was set as an installation.
- **Send EMS [-s y/n]** - if set to *y* (default), will check provisioned connections against the element management system databases. If set to *n*, the connections will not be checked.
- **Rate [-r VC-2/VC-3/VC-12/VC-4/VC4-4c]** - 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, etc.) is elected. 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 the connections described in the input files without restriction, ignoring the existing model and network element files.

3 Confirm the *WAIT_TIME* variable.

Result:

The complete command line will discover the VC-4 connections and provision them into the WaveStar NMS database using the element management system data.

END OF STEPS



Section II: Rename network element tool

Overview

Purpose This section describes how to change the identification of an existing network element using the rename network element tool.

Renaming Tool This tool is used to change the identification of an existing network element.

Contents

Change the name of an existing network element	8-18
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Change the name of an existing network element

Purpose This task describes how to change the identification of an existing network element using the rename network element tool. This tool is first run on an ITM-SC server using the **ems_db_gnrt** command (which resides on the ITM-SC server in the **/opt/itm/sc/diag/bin** directory) and then run on the WaveStar NMS server.

Before you begin Before you change the name of an existing network element, consider the following items:

- Changing a network element's name should be first done in the ITM-SC that controls the network element. It is recommended that users perform an ITM-SC on-line archive before changing the network element's name.
- The user must ensure the uniqueness of the new network element name.
- Shut down the ITM-SC before running the off-line script. The WaveStar NMS user will not be able to communicate with the ITM-SC at this time.
- The user should remove the geographic redundancy in the ITM-SC for the network elements being changed.
- WaveStar 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 WaveStar NMS will not dynamically update any current screen with the new network element ID name. The user must restart the WaveStar NMS user interface to display the new name.
- When renaming a network element, users must abide by a strict naming convention. Refer to [“Section VII: Connection renaming tool” \(8-56\)](#) for details.

- Users should 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 will 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 WaveStar NMS user interface.
 - If a network element is deleted, has its name changed, or its Office identification does not have an associated TID name, it will remain 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.

Task Important! Because the ITM-SC portion of this script may change, please refer to the ITM-SC user documentation for updated information on how to run this script on the ITM-SC system.

Perform the following steps to change the identification of an existing network element. Note that the steps used in the first part of this task apply to the ITM-SC server while the remaining steps apply to the WaveStar NMS server.

.....

- 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, type `. itmsc_setup`

Result:

The ITM-SC set up begins.

- 4 At the prompt, enter `cd /opt/itm/sc/diag/bin`.

Result:

The prompt resides at the specified directory.

- 5 Use a text editor to create a **node_mapping** file.

Be sure that the **node_mapping** file contains one line each, in `old_name|new_name` format separated by a `|` character. A carriage return must separate each line.

- 6 At the prompt, enter `ems_stop`.

Result:

The ITM-SC is stopped.

- 7 At the prompt, enter `./ems_db_gnrt -n`

This command checks existing network elements in the ITM-SC database.

- 8 Continue with one of the following steps:

- *If you know the value* assigned to the network element to be renamed, proceed to the next step to continue.
 - *If you do not know the value* assigned to the network element to be renamed, and would like to display a list of values, enter `./ems_db_gnrt` then proceed to the next step.
-

- 9 At the prompt, enter `./ems_db_gnrt -D <network_element_value>
-N node_mapping`

Result:

The tool is initiated.

-
- 10 At the prompt, enter `y` to confirm the actions.

Result:

The renaming tool is executed and runs until successful completion.

- 11 While the ITM-SC is still down, log into the WaveStar NMS host as `root`.
-

- 12 At the prompt, enter `cd /usr/dacscan/toolbin`

Result:

The prompt resides at the directory where the `change_neid` tool is located.

- 13 Use a text editor to create an **nm.node** file.

This file has the same format as the **node_mapping** file. Note that the last line of the **nm.node** file *must not* contain a carriage return. (See [Step 5](#).)

- 14 At the prompt, enter `su -dacscan`.

Result:

This logs the user into the WaveStar NMS host as the `dacscan` user.

- 15 At the prompt, enter

```
cd ../toolbin
./change_neid nm.node
```

Result:

The renaming tool is executed and runs until the process is complete.

- 16 Upon completion, log into the ITM-SC server as `i2kadmin`.
-

Result:

The ITM-SC server will request a password.

- 17** Enter the ITM-SC password for the i2kadmin login.

Result:

The user is logged into the ITM-SC host.

- 18** At the prompt, type:

```
. itmsc_setup
ems_start
```

Result:

The ITM-SC application is restarted.

- 19**

IF	THEN
The renamed network element <i>is a WaveStar DACS 4/4/1</i> ,	Use the following steps. <ol style="list-style-type: none"> 1. Login to the WaveStar DACS 4/4/1 network element via CIT. 2. Select Provision > SystemID. 3. At the SystemID field, enter the new network element name. 4. In the FrameID field, enter a value, for example, 0. 5. Select the Change button. The network element name has been changed. 6. Perform a MIB-Upload to ITM-SC for the renamed WaveStar DACS network elements.
The renamed network element <i>is not a WaveStar DACS 4/4/1</i> ,	Perform a MIB download for all renamed network elements. It is normal for this download to take a long period of time to complete.

- 20** Restart the WaveStar NMS GUI and synchronize its database with the ITM-SC 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 WaveStar NMS. These tools automatically update the WaveStar 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 WaveStar 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 in case trails or ports involved in the procedure are alarmed.
- 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.

Using the tool The tasks which utilize these tools are located after this description.

Supported network elements The INSERTNODE and REMOVENODE tools support the following network elements:

- Intelligent Synchronous Multiplexers (ISMs) [all Ring Drop Insert (RDI) models]
- Synchronous Line Multiplexers (SLMs) all models
- WaveStar ADM 155 E
- WaveStar ADM 4/1 STM-1 and WaveStar ADM 4/1
- ADM 4/1 STM 1
- PHASE ADM 4/4
- PHASE ADM 16/4
- LXC 4/1
- LXC 16/1
- WaveStar ADM 16/1 and WaveStar ADM 16/1 Compact
- WaveStar DACS
- WaveStar AM 1
- WaveStar AM 1 Plus

Supported WaveStar SNMS network elements The INSERTNODE and REMOVENODE tools support the following WaveStar SNMS managed network elements:

- WaveStar BandWidth Manager
- WaveStar LambdaRouter
- WaveStar OLS 400G

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

<u>Insert an ITM-SC controlled node into a digital link using INSERTNODE</u>	<u>8-26</u>
<u>Insert a WaveStar SNMS controlled node into a digital link using INSERTNODE</u>	<u>8-32</u>
<u>Delete an ITM-SC controlled node from a digital link using REMOVENODE</u>	<u>8-37</u>
<u>Delete a WaveStar SNMS controlled node from a digital link using REMOVENODE</u>	<u>8-40</u>



Insert an ITM-SC controlled node into a digital link using INSERTNODE

Purpose Use this procedure 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 WaveStar NMS database.

Before you begin Before you insert an ITM-SC controlled network element into a digital link, consider the following items.

- Be sure that the network element to be inserted on the database of the WaveStar NMS is correctly installed on the network and is already known by WaveStar NMS, that is, it displays on the WaveStar NMS Network Map. This occurs when all ports are provisioned and all cross connections are made on the EMS being managed by WaveStar NMS.
- When inserting a node, the network element has to be pre-provisioned; all ports are provisioned and cross connected as needed to provide services.
- This task can be used before or after the fibers are physically reconnected to insert or remove a node.
- The advantage of using the tool before reconnecting the fibers is that if the process succeeds, this will ensure that the reconnection of the fiber will minimize the risk of interrupting any logical paths carried by the physical layer.
- The EMS will provide a file with port provisioning and cross connect status. This file should be created just before the tool is executed. A user will transfer this file to the WaveStar NMS host and will specify the full path at the beginning of the task.
- If more cross connections than needed is reported by the EMS, this is not an error. These cross connections will be displayed in the Uncorrelated cross connect forms after a DBSynch is done by the user.
- The user has to provide the connection ID for those connections that have to be merged or replaced by two new ones.

Insert an ITM-SC controlled node into a
digital link using INSERTNODE

- The physical link where the node is inserted or removed should be in the in-effect state. There should not be any scheduled paths riding on the digital link to be updated.
- 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. Note that PM on the path going through the inserted node does not have to be stopped.
- The regenerators or amplifiers with OMS must be removed from the digital links before running this tool. After the task is completed, a user will put back the regenerators/amplifiers on the new physical links.
- The WaveStar 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.
- There is no time slot or frequency interchange in the cross connects on the inserted/removed node. Cross connections with timeslot or frequency interchange will not be reported by the EMS. SNCP cross connects in the inserted/removed node will also not be reported by the EMS.

Task Perform the following 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.

Insert an ITM-SC controlled node into a
digital link using INSERTNODE

Result:

The user is logged into the ITM-SC host.

- 3** At the prompt, enter

```
. 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 WaveStar NMS host
/usr/dacscan/data then record the path name on the WaveStar NMS
host.
-

- 5** Log into the WaveStar 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 WaveStar NMS host as
root.

- 7** At the prompt, enter `cd /usr/dacscan/data`
-

- 8** At the prompt, enter

```
chmod 777 db_sc_xc_ddmmyyyy_hhmm
```

```
chmod 777 db_sc_pp_ddmmyyyy_hhmm
```

-
- 9** At the prompt, enter
- ```
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 **CL0/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 link's terminations will be the original digital link's A location on the <new_node_name>.

Insert an ITM-SC controlled node into a
digital link using INSERTNODE

-
- 16** At the Digital Link 2 CKT ID prompt, enter the circuit ID for the second new digital link.

Result:

This link's terminations will be the original digital link's 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)

Insert an ITM-SC controlled node into a
digital link using INSERTNODE

IF	THEN
<p>an older version of Fault Management (FM) is being used in WaveStar NMS:</p>	<p>generate a CCL file with the following steps.</p> <ul style="list-style-type: none"> • Log into the WaveStar 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_<datemonthyear_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: <pre>. itmsc_setup chmod 775 db_nm_ccl_datemonthyear_ hourminute db_nm_ccl_datemonthyear_ hourminute</pre> <p>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.</p>

END OF STEPS



Insert a WaveStar SNMS controlled node into a digital link using INSERTNODE

Purpose Use this task to insert a WaveStar SNMS 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 WaveStar NMS database.

Before you begin Before you insert an WaveStar SNMS controlled network element into a digital link, consider the following items.

- Be sure that the network element to be inserted on the database of the WaveStar NMS is correctly installed on the network and is already known by WaveStar NMS, that is, it displays on the WaveStar NMS Network Map. This occurs when all ports are provisioned and all cross connections are made on the EMS being managed by WaveStar NMS.
- When inserting a node, the network element has to be pre-provisioned; all ports are provisioned and cross connected as needed to provide services.
- This task can be used before or after the fibers are physically reconnected to insert or remove a node.
- The advantage of using the tool before reconnecting the fibers is that if the process succeeds, this will ensure that the reconnection of the fiber will minimize the risk of interrupting any logical paths carried by the physical layer.
- The EMS will provide a file with port provisioning and cross connect status. This file should be created just before the tool is executed. A user will transfer this file to the WaveStar NMS host and will specify the full path at the beginning of the task.
- If more cross connections than needed is reported by the EMS, this is not an error. These cross connections will be displayed in the Uncorrelated cross connect forms after a DBSynch is done by the user.
- 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. There should not be any scheduled paths riding on the digital link to be updated.

Insert a WaveStar SNMS controlled node
into a digital link using INSERTNODE

- 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. Note that PM on the path going through the inserted node does not have to be stopped.
- The regenerators or amplifiers with OMS must be removed from the digital links before running this tool. After the task is completed, a user will put back the regenerators/amplifiers on the new physical links.
- The WaveStar 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.
- There is no time slot or frequency interchange in the cross connects on the inserted/removed node. Cross connections with timeslot or frequency interchange will not be reported by the EMS. SNCP cross connects in the inserted/removed node will also not be reported by the EMS.

Task Perform the following steps to insert a WaveStar SNMS controlled node into a digital link using the **INSERTNODE** tool.

.....

1 Log into WaveStar SNMS 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
```

Insert a WaveStar SNMS controlled node
into a digital link using INSERTNODE

/tmp/db_snms_pp_ddmmyyyy_hhmm

-
- 3 Use **ftp** or **rcp** to get these two files to the WaveStar NMS host
/usr/dacscan/data then record the path name on the WaveStar NMS
host.

-
- 4 Log into the WaveStar NMS host machine as root.

Result:

A password is requested.

-
- 5 Enter the password for the root login.

Result:

The user is logged into the into the WaveStar NMS host as
root.

-
- 6 At the prompt, enter `cd /usr/dacscan/data`

-
- 7 At the prompt, enter

```
chmod 777 db_snms_xc_ddmmyyyy hhmm
```

```
chmod 777 db_snms_pp_ddmmyyyy hhmm
```

-
- 8 Log into the WaveStar NMS host machine as dacscan.

Result:

A password is requested.

-
- 9 Enter the password for the dacscan login.

Result:

The user is logged into the into the WaveStar NMS host as
dacscan.

-
- 10 At the prompt, enter

Insert a WaveStar SNMS controlled node
into a digital link using INSERTNODE

```
cd /usr/dacscan/bin
```

Result:

The prompt displays in the requested directory.

- 11** At the prompt, enter

```
INSERTNODE
```

Result:

The INSERTNODE tool is initiated.

- 12** At the CLO/Order Number prompt, enter the value of the digital link where the new node will be inserted.
-

- 13** At the Network Element Name prompt, enter the name of the network element that will be inserted.
-

- 14** 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.
-

- 15** 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.
-

- 16** At the Digital Link 1 CKT ID prompt, enter the circuit ID for the first new digital link.

Result:

This link's terminations will be the original digital link's A location on the <new_node_name>.

- 17** At the Digital Link 2 CKT ID prompt, enter the circuit ID for the second new digital link.
-

Insert a WaveStar SNMS controlled node
into a digital link using INSERTNODE

Result:

This link's terminations will be the original digital link's Z
location on the <new_node_name>.

.....
18 At the EMS Port Provision File prompt, enter the full path name
of the EMS port provisioning file.

.....
19 At the EMS Cross Connect File prompt, enter the full path name of
the EMS cross connect file.

.....
20 At the Is this all correct prompt, enter Y or N.

.....
E N D O F S T E P S
.....



Delete an ITM-SC controlled node from a digital link using REMOVENODE

Purpose Use this task 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.
 - The advantage of using the tool before reconnecting the fibers is that if the process succeeds, this will ensure that the reconnection of the fiber will minimize the risk of interrupting any logical paths carried by the physical layer.
 - The EMS will provide a file with port provisioning and cross connect status. This file should be created just before the tool is executed. A user will transfer this file to the WaveStar NMS host and will specify the full path at the beginning of the task.
 - If more cross connections than needed is reported by the EMS, this is not an error. These cross connections will be displayed in the Uncorrelated cross connect forms after a DBSynch is done by the user.
 - 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. There should not be any scheduled paths riding on the digital link to be updated.
 - There should not be preplan paths associated with any of the paths carried by the physical link to be updated.
 - The regenerators or amplifiers with OMS must be removed from the digital links before running this tool. After the task is completed, a user will put back the regenerators/amplifiers on the new physical links.

Delete an ITM-SC controlled node from a
digital link using REMOVENODE

- The WaveStar 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.
- There is no time slot or frequency interchange in the cross connects on the inserted/removed node. Cross connections with timeslot or frequency interchange will not be reported by the EMS. SNCP cross connects in the inserted/removed node will also not be reported by the EMS.

Task Perform the following steps to remove an ITM-SC controlled node from a digital link.

.....
1 Log into the WaveStar 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.

Delete an ITM-SC controlled node from a
digital link using REMOVENODE

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.

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 WaveStar NMS:	generate a CCL file with the following steps. <ul style="list-style-type: none"> • Log into the WaveStar 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_<datemonthyear_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: <pre>. itmsc_setup chmod 775 db_nm_ccl_datemonthyear_ hourminute db_import_ccl db_nm_ccl_datemonthyear_ hourminute db_ian_wrapper</pre> 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 WaveStar SNMS controlled node from a digital link using REMOVENODE

Purpose Use this task to remove a WaveStar SNMS controlled network element from a digital link using the **REMOVENODE** tool.

Before you begin Before you remove a WaveStar SNMS 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.
- The advantage of using the tool before reconnecting the fibers is that if the process succeeds, this will ensure that the reconnection of the fiber will minimize the risk of interrupting any logical paths carried by the physical layer.
- The EMS will provide a file with port provisioning and cross connect status. This file should be created just before the tool is executed. A user will transfer this file to the WaveStar NMS host and will specify the full path at the beginning of the task.
- If more cross connections than needed is reported by the EMS, this is not an error. These cross connections will be displayed in the Uncorrelated cross connect forms after a DBSynch is done by the user.
- 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. There should not be any scheduled paths riding on the digital link to be updated.
- There should not be preplan paths associated with any of the paths carried by the physical link to be updated.
- The regenerators or amplifiers with OMS must be removed from the digital links before running this tool. After the task is completed, a user will put back the regenerators/amplifiers on the new physical links.

Delete a WaveStar SNMS controlled node
from a digital link using REMOVENODE

- The WaveStar 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.
- There is no time slot or frequency interchange in the cross connects on the inserted/removed node. Cross connections with timeslot or frequency interchange will not be reported by the EMS. SNCP cross connects in the inserted/removed node will also not be reported by the EMS.

Task Perform the following steps to remove an WaveStar SNMS controlled node from a digital link.

.....
1 Log into the WaveStar 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 WaveStar NMS to another WaveStar NMS.

Reparenting Tool This tool supports *Network Element Reparenting*, which is reparenting network elements between two ITM-SCs or two WaveStar SNMSs and *WaveStar NMS Reparenting*, or transferring EMS resources from one WaveStar NMS to another WaveStar NMS. Both processes are covered in the following tasks.

Contents

Reparenting ITM-SC controlled Network Elements	8-43
Reparenting WaveStar SNMS controlled network elements	8-45
Reparenting WaveStar NMS EMS resources to another WaveStar NMS	8-48



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.
- There are no pending circuits connected to target network element(s).
- Network element alarms are cleared from the ITM-SC.

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 <i>display</i> ,	end this task.
pending circuits <i>do not display</i> ,	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 WaveStar 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 WaveStar NMS that the network elements have been created.
 - alarms are sent to WaveStar NMS.

In WaveStar NMS, clear alarms associated with this process. Refer to the *WaveStar NMS Maintenance Guide* for details.

END OF STEPS



Reparenting WaveStar SNMS controlled network elements

Purpose This section describes how to reparent WaveStar SNMS 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.
- there are no pending circuits connected to target network element(s).

Task Complete the following steps to run the reparenting tool:

1 Log into the old WaveStar SNMS 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 WaveStar SNMS GUI, delete the network element(s). See the *Delete a Network Element* task in the *WaveStar SubNetwork Management System (SNMS) 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 WaveStar SNMS to the new WaveStar SNMS.

Important! Be sure to retain the files in `$TMFA_DATA_DIR`.

-
- 6 Physically move the network element connections from the old WaveStar SNMS to the new WaveStar SNMS.
-
- 7 Log into the new WaveStar SNMS as `ems`.
-
- 8 On the new WaveStar SNMS, use the WaveStar SNMS 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 *WaveStar SubNetwork Management System (SNMS) 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 many network elements are involved.

-
- 10 Using `ftp`, send the `ne_snc_ids.dat` file from the new WaveStar SNMS to the WaveStar NMS host under the `/tmp/reparent` directory.

Result:

The `ne_snc_ids.dat` file is sent to the WaveStar NMS host.

-
- 11 On the WaveStar NMS host in the `/tmp/reparent` directory, create a one-line, `ems_map.dat` file in `<OLD_SNMS_NAME>|<NEW_SNMS_NAME>` format.

Important! Note that the WaveStar SNMS 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 WaveStar NMS server as dacscan, then enter **cd /usr/dacscan/toolbin/reparent.**

Result:

The user logs into the WaveStar 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 WaveStar NMS Controller Map, synchronize both of the WaveStar SNMSs. See [“Synchronize the WaveStar NMS database with a WaveStar SNMS database” \(9-13\)](#).

END OF STEPS



Reparenting WaveStar NMS EMS resources to another WaveStar NMS

Purpose This section describes how to reparent WaveStar NMS EMS resources to another WaveStar NMS (that is, one EMS at a time) using the reparenting tool.

- Before you begin** Before you use this tool, be sure that:
- the WaveStar 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.

Task Complete the following steps to run the tool:

1

IF	THEN
<i>there are</i> circuits/digital links that are connected beyond the EMS domain,	disconnect them then proceed to the next step.
<i>there are not</i> 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 WaveStar 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 WaveStar NMS, then re-add the EMS

Reparenting WaveStar NMS EMS resources
to another WaveStar NMS

and its managed network elements to the target WaveStar NMS (see
[“Add a new ITM-SC” \(9-4\)](#)).

- 5** Run the import data tool.

Result:

Data is imported to the target WaveStar NMS.

- 6** [“Virtual disconnect tool task” \(8-74\)](#).

Result:

This cleans up circuit provisioning information that was stored
in the old WaveStar NMS and is now successfully transferred to
the target WaveStar NMS.

- 7** Run the clean up tool.

Result:

This cleans up all remaining data that was stored in the old
WaveStar NMS and is now successfully transferred to the target
WaveStar NMS.

- 8** Perform a database synchronization with the new WaveStar NMS and
ITM-SC.

Result:

This is performed to ensure that data is consistent between the
new WaveStar 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	8-51
--	----------------------



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 WaveStar SNMS which may be detected by WaveStar NMS after receiving a second *State Change* alarm from WaveStar SNMS.

Task Complete the following steps to run the upgrade tool.

- 1 After receiving an alarm notification from WaveStar SNMS that the upgrade is complete, back up the WaveStar NMS database. See [“Section I: Perform backups” \(7-3\)](#).
- 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* WaveStar SNMS however the script must be run separately when network elements reside under *different* WaveStar SNMSs.

- 4 Once the run is complete, select **View > Network View Reset** to refresh the GUI and display the upgraded network elements.

-
- 5** Synchronize WaveStar NMS with WaveStar SNMS. See [“Synchronize the WaveStar NMS database with a WaveStar SNMS database” \(9-13\)](#)

END OF STEPS



Section VI: Upgrade WaveStar OLS 400G's network element's 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 WaveStar NMS.

Before running the script, the WaveStar OLS 400G network element(s) must first be upgraded to R6.0 in WaveStar SNMS. Note that WaveStar OLS 400G R4.0 network elements *cannot* be upgraded to R6.0.

Contents

Use the CMISE to TL1 upgrade tool for WaveStar OLS 400G	8-54
---	----------------------



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 WaveStar NMS.

Before you begin Before you use this tool, be sure that:

- the WaveStar 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 WaveStar SNMS. See the "In Service Upgrade of WaveStar OLS 400G Software from Release 5.0 to Release 6.0 TL1 Mode" task in the *WaveStar SubNetwork Management System (SNMS) Provisioning Guide*.

Task Complete the following steps to run the upgrade tool:

- 1 After the Network Event Summary form displays a network element software upgrade event , backup the WaveStar NMS database. See ["Section I: Perform backups" \(7-3\)](#).
 - 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* WaveStar SNMS however the script must be run separately when network elements reside under *different* WaveStar SNMSs.

Use the CMISE to TL1 upgrade tool for
WaveStar OLS 400G

- 4 Once the run is complete, synchronize WaveStar NMS with WaveStar SNMS. See [“Synchronize the WaveStar NMS database with a WaveStar SNMS database” \(9-13\)](#)

.....
E N D O F S T E P S
.....



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 WaveStar 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 WaveStar 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 WaveStar 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 WaveStar 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 WaveStar 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, ITM-XM, and WaveStar SNMS.

Contents

Rename network connections with the connection renaming tool	8-58
--	----------------------



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 WaveStar is running.
- Although not recommended, it is possible to continue operation procedures through the WaveStar NMS interface while the tool is running.

Task Use the following procedure to rename network connections using the Connection Renaming tool.

1 Log in as dacscan.

2 Specify and confirm the port input file location. By default, the file is located at */tmp/userinput.port*.

Important! The port input file 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: Trail ID of the network element.
- Field 2: Port address, using the EMS format.
- Field 3: rate.
- Field 4: Trail ID.

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 WaveStar NMS database.

-
- 3** 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 circuit provisioning tool

Overview

Purpose This section describes the bulk circuit provisioning tool.

Contents

Bulk circuit provisioning tool task	8-61
---	----------------------



Bulk circuit provisioning tool task

Purpose This task describes how to use the bulk circuit provisioning tool.

Before you begin Before you run the bulk circuit provisioning tool, be sure to create a VC-12 from the Network Map.

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 *WaveStar 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** directory, create and save an index file that contains the directory path of the **data_file**, e.g., **/usr/dacscan/toolbin/data_file**.

-
- 6** At the prompt, enter **/usr/dacscan/toolbin/group_prov**
<indexfilename> -p

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 IX: 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 WaveStar NMS. This off-line tool abstracts the topological links into a bulk process then performs a bulk add of the links to WaveStar NMS as if they were added individually through the WaveStar NMS GUI.

About this tool Before running this tool, an input file is created which contains one line per WaveStar 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 WaveStar 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	8-64
--	----------------------



Bulk link provisioning tool task

Purpose This section describes how to perform bulk link provisioning in WaveStar 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.

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`**.

2 In the `/usr/dacscan/toolbin` directory, create an input file.

3 In the input file, add one row of the following data, separated by the | character for each WaveStar 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 that 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 <i>without</i> provisioning links,	enter linkgroup_prov 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 <i>In-Effect</i> links,	enter linkgroup_prov NM_links -p Result: A group of links are provisioned.
You want to take the latest provisioning run and audit the WaveStar NMS database against the input file,	enter linkgroup_prov NM_links -a Result: The run is audited and any non- <i>In-Effect</i> links are noted in the link_audit.log error file.

END OF STEPS



Section X: Network element tools

Overview

Purpose This section contains tools for adding a network element to or deleting a network element from an established ring or for configuring a network element for a network using an X.25 protocol.

Contents

Add a new network element to an established ring	8-67
Delete a network element from a ring	8-70
Configure a network element for an X.25 network	8-71



Add a new network element to an established ring

Purpose Use this procedure to add a new network element to an established ring. You will use the WaveStar NMS ADDNODE utility to complete this task.

Before you begin Before you add a new network element to an established ring, ensure the following items are completed:

1. Perform a database backup.
2. Determine whether the SCMNODE server is running by performing the following task:

1 Login to dacscan.

2 Enter: `ps -eaf | grep 'SCMNODE' <CR>`

3

IF	THEN
The output is one line.	The server is not running. Perform a tmboot (see below).
The output is more than one line.	The server is running.

END OF STEPS

- If the SCMNODE server is not running, perform the following task:

- 1 Login to dacscan.
.....
- 2 Change the present working directory to: /usr/dacscan/bin <CR>
.....
- 3 Enter: tmboot -s SCMNODE <CR>

Result:

The SCMNODE server should begin running.

.....
E N D O F S T E P S
.....

1. Delete the following files from the /dacscan/trace directory:
 - addnode_ntfy.txt
 - addnode_lkup.txt
 - addnode_ctrl.txt

Task Complete the following task to add a new network element to an established ring.
.....

- 1 At a UNIX prompt, change to the following directory:
/usr/dacscan/bin
.....
- 2 Enter the following command: /ADDNODE <CR>

Result:

The ADDNODE executable is invoked.
.....

- 3 Enter the Order No (CLO) of the digital link that connects the two end network elements between which the new network element will be added.
.....
- 4 Enter the new network element's name.

-
- 5 Enter the left side of the Port/Frame address of the new network element that is being connected to the A end of the digital link.

Result:

All the unprotected VC-4 and VC-12 links are displayed.

.....

- 6 Enter Y.
-

- 7 Specify the PPC options of all the VC-4 paths on the digital link that is being connected between the two existing network elements.

Important! You have a choice of selecting the DROP_PPC option for only two VC-4s. The remaining VC-4s have to be BYPASS_PPC.

.....

- 8 Enter 1 for BYPASS_PPC **OR** enter 2 for DROP_PPC.
-

- 9 At the final confirmation, enter Y.

Result:

The SCMNODE server is invoked to add the new network element to the ring.

END OF STEPS

.....



Delete a network element from a ring

Purpose Use this procedure to use the system's DELETENODE utility to delete a network element from a ring.

Before you begin Refer to the "Add a new network element to an established ring" procedure for important information to consider before attempting to delete a network element from a ring.

Task Complete the following task to delete a node from an established ring.

1 At a UNIX prompt, change to the following directory: /usr/dacscan/bin

2 Enter the following command: ./DELETENODE <CR>.

Result:

The DELETENODE executable is invoked.

3 Enter the name of the node which is being deleted.

Result:

The system displays all unprotected VC-4s and VC-12s. The system waits for your confirmation to proceed.

4 Enter Y.

Result:

When you enter Y, the SMNODE server is invoked and the node is deleted from the ring. The Network Map displays the ring without the deleted node.

END OF STEPS



Configure a network element for an X.25 network

Purpose Use this procedure to configure network elements that use the X.25 protocol.

Important! This procedure is only for networks containing a DACS VI network element.

Task Perform the following steps to configure a network element for an X.25 network.

- 1 Set up the X.25 configuration by executing the following command at the root command prompt (#): `/etc/osiadmin <CR>`.

Result:

The OSI Administration main menu appears.

- 2 Set up the parameters for CONS over X.25 by performing the following steps:
 1. From the OSI Administration main menu, select **OTS**.
 2. From the OTS menu, select **Configure OTS**.
 3. Select **Set Configuration Mode**.
 4. From the Subnetwork Configuration menu, select **Subnetworks: Configure**.
 5. Select **CONS over X.25: Add**.
 6. Enter the specified parameters for:
 - Subnetwork name
 - Local network address (NSAP)
 - Subaddress
 - X.25 Programmatic access name
 7. Return to the OSI Administration main menu.
 - 3 Set up the parameters for Destination System by performing the following steps:
 1. From the OSI Administration main menu, select **OTS**.
 2. From the OTS main menu, select **Configure OTS**.
-

3. Select **Set Configuration Mode**.
4. Select **Destination System > Add**.
5. Enter the specified parameters for:
 - Network address
 - Physical address (IEEE MAC or X.121) for the WaveStar NMS host
 - Outgoing subnetwork name
 - End system, intermediate system, or both
 - Request reverse charge
6. Repeat the previous two steps to add connections for other network elements.
7. Return to the OSI Administration main menu.

.....

4 Set up the parameters for Transport Parameters over CONS with the following steps:

1. From the OSI Administration main menu, select **OTS**.
2. From the OTS main menu, select **Configure OTS**.
3. Select **Set Configuration Mode**.
4. From Layers, select **Transport Layer Parameter over CONS**.
5. Enter the specified parameters for:
 - Maximum TPDU size (octets): 128
 - Window size (TPDUs): 7
 - Force Transport class: 0
 - Preferred multiplexing class (2 or 4): 2
 - Class 2 flow control? (y/n): y
 - Multiplex network connections? (y/n): y
 - Maximum inbound multiplexed connections: 10
 - Maximum outbound multiplexed connections: 5
6. Return to the OSI Administration main menu.

Result:

The network element is configured for an X.25 network.

.....

END OF STEPS



Section XI: Virtual disconnect tool

Overview

Purpose This section contains the Virtual disconnect tool task.

Contents

Virtual disconnect tool task	8-74
--	----------------------



Virtual disconnect tool task

Purpose Run this tool (also referred to as the “paper disconnect”) when there is a need to virtually disconnect circuits. This function may also be performed through the Graphical Layouts form available from the Configuration menu on the Network Map. (Refer to the *WaveStar NMS Provisioning Guide* for details.)

Prerequisites Be sure to have a list of each circuit name to be virtually disconnected. You must also 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. The **patch.install** program automatically sets the correct permissions and ownership and installs the files into the corresponding directories. If the files are transmitted electronically, the permissions need to 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 will not be disconnected if it has a pending order on the stack or if it has lower order facilities riding on it.

Task Perform the steps below to run the disconnect circuit script.

1 Log into the machine as **dacscan**.

2 At the prompt, type `cd /usr/dacscan/data`.

Result:

You are changed to the **/data** directory.

3 Create a file named **disc_ckt**, and add the name of each circuit to be disconnected.

-
- 4 At the prompt, type `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 could not be disconnected are listed in the **tmp/disc_order.err** file.

END OF STEPS





9 EMS management

Overview

Purpose This chapter describes tasks performed to interact with subsystems in the network.

Contents

<u>Section I: Interact with ITM-SCs</u>	<u>9-3</u>
<u>Add a new ITM-SC</u>	<u>9-4</u>
<u>Synchronize the WaveStar NMS database with an ITM-SC database</u>	<u>9-7</u>
<u>Section II: Interact with WaveStar SNMSs</u>	<u>9-9</u>
<u>Add a new WaveStar SNMS</u>	<u>9-10</u>
<u>Synchronize the WaveStar NMS database with a WaveStar SNMS database</u>	<u>9-13</u>
<u>Refederate a WaveStar SNMS server</u>	<u>9-15</u>
<u>Section III: Interact with EMSs</u>	<u>9-18</u>
<u>Add a new element management system (EMS)</u>	<u>9-19</u>
<u>Add a new ITM-XM</u>	<u>9-21</u>
<u>Add a new NSU</u>	<u>9-23</u>
<u>Add External WaveStar NMS to ITM-XM</u>	<u>9-25</u>
<u>Add a new ITM-IDM</u>	<u>9-27</u>

<u>Synchronize the WaveStar NMS database with an EMS</u>	<u>9-28</u>
<u>Section IV: Miscellaneous management communication tasks</u>	<u>9-29</u>
<u>View LAN status information</u>	<u>9-30</u>
<u>Section V: ITM-XM EMSs</u>	<u>9-31</u>
<u>Resource management functions</u>	<u>9-32</u>
<u>WaveStar DACS</u>	<u>9-33</u>
<u>WaveStar DACS frame display</u>	<u>9-35</u>
<u>WaveStar DACS shelf display</u>	<u>9-37</u>
<u>WaveStar DACS cross-connect management</u>	<u>9-39</u>
<u>Alarm Database Audit</u>	<u>9-40</u>
<u>WaveStar DACS database synchronization</u>	<u>9-41</u>



Section I: Interact with ITM-SCs

Overview

Purpose This section describes the administration of ITM-SCs.

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.

Contents

Add a new ITM-SC	9-4
Synchronize the WaveStar NMS database with an ITM-SC database	9-7



Add a new ITM-SC

Purpose Use this task to create a new ITM-SC on the WaveStar 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 WaveStar NMS configuration 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 a new ITM-SC.

1 Log in as root to the WaveStar NMS host.

2 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press Enter.

Result:

The following prompt is displayed:

```
Which Controller do you want to add?
```

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 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.

- 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** Enter `quit` to exit the script then continue with one of the following steps.
- If you are using an HP machine, open an hpterm window and type `vi /etc/hosts`.
 - If you are using a Windows machine, use an editor to access the `..\etc\Hosts` file.
-
- 13** Add the host name and the IP address of the new EMS to the `hosts` or `Hostsfile` (if the hostname and IP address are not already present) then save the file.
-
- 14** If a second ITM-SC host is applicable, for example if geographic redundancy configuration is in place, repeat [Step 13](#), otherwise proceed to the next step.
-
- 15** Using the system console, log in to the new EMS as `root`.
-
- 16** Enter `/opt/itm/sc/toolbox/bin/itm_sc_set_itmnm_name` to configure the EMS to communicate with WaveStar NMS.

Result:

The new ITM-SC is added.

END OF STEPS



Synchronize the WaveStar NMS database with an ITM-SC database

Purpose Use this procedure to synchronize the WaveStar NMS database with an ITM-SC database.

Task Complete the following task to synchronize the WaveStar NMS database with an ITM-SC database.

1 Access the Network Controller map.

2 On the Network Controller map, right-click the desired ITM-SC node.

3 Select **Session > Start EMS Synchronization**.

Result:

The Database Synchronization form is displayed. The **EMS ID** field is pre-populated with the name of the EMS.

4 From the Type menu, select one of the following node types:

- **Alarm**
 - **NE**
 - **All**
-

5 Select **OK**.

Result:

A confirmation form appears.

6 Select **Yes**.

Result:

The Database Synchronization Status form appears.

7 Wait for the synchronization to complete.

8 Select **Close**.

Result:

The WaveStar NMS database is synchronized with the ITM-SC database.

END OF STEPS



Section II: Interact with WaveStar SNMSs

Overview

Purpose This section describes the administration of WaveStar SNMSs.

Definition: WaveStar SNMS WaveStar SNMS 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.

Contents

Add a new WaveStar SNMS	9-10
Synchronize the WaveStar NMS database with a WaveStar SNMS database	9-13
Refederate a WaveStar SNMS server	9-15



Add a new WaveStar SNMS

Purpose Use this task to add a new WaveStar SNMS on the WaveStar NMS.

Important! The task below must be run for each WaveStar SNMS to be added.

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

- EMS system name
- EMS Internet address

Task Perform the steps below to add a new WaveStar SNMS.

1 Log in as root to the WaveStar NMS host.

2 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press Enter.

Result:

The following prompt is displayed:

```
Which Controller do you want to add?
```

3 At the prompt, enter 17 and press Enter.

Result:

The following prompt is displayed:

```
What is the name of the WaveStar SNMS?
```

4 Enter the name of the WaveStar SNMS 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 WaveStar SNMS.

- 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 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 WaveStar SNMS 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 WaveStar SNMSs to add, for example, if a geographic redundancy configuration is in place, repeat [Step 3](#) through [Step 9](#) to continue.
 - If you *do not have* additional WaveStar SNMSs to add, proceed to the next step.
-

- 11 Enter quit to exit the script.
-

Result:

The script is exited.

- 12** At the prompt, enter `chown dacscan /dacscan/log/orbixd.log*`

Result:

The owner of the `orbixd.log` file is changed.

- 13** Continue with one of the following steps.

- If you are using an HP machine, open an hpterm window and type `vi /etc/hosts`.
 - If you are using a Windows machine, use an editor to access the `..\etc\Hosts` file.
-

- 14** Add the full qualified machine name of the host and the IP address of the new EMS to the `hosts` or `Hostsfile` (if the hostname and IP address are not already present) then save the file.

Important! If the machine to be added is in a *local redundancy configuration*, the *floating/virtual* IP address should be entered.

- 15** If a second WaveStar SNMS host is applicable, for example if *geographic redundancy configuration* is in place, repeat [Step 14](#), otherwise proceed to the next step.
-

- 16** Using the system console, log in to the new EMS as `root`.
-

- 17** Enter `/opt/itm/sc/toolbox/bin/wavestarsnms_set_itmm_name`

Result:

The new WaveStar SNMS is configured to communicate with WaveStar NMS.

END OF STEPS



Synchronize the WaveStar NMS database with a WaveStar SNMS database

Purpose Use this procedure to synchronize the WaveStar NMS database with a WaveStar SNMS database.

Task Complete the following task to synchronize the WaveStar NMS database with a SNMS database.

1 Access the Network Controller map.

2 On the Network Controller map, right-click the desired *ITM-SNMS Node*.

3 Select **Session > Start EMS Synchronization**.

Result:

The Database Synchronization form is displayed. The **EMS ID** field is pre-populated with the name of the EMS.

4 From the Type menu, select one of the following node types:

- **Alarm**
 - **NE**
 - **All**
-

5 Select **OK**.

Result:

A confirmation form appears.

6 Select **Yes**.

Result:

The Database Synchronization Status form appears.

7 Wait for the synchronization to complete.

8 Select **Close**.

Result:

The WaveStar NMS database is synchronized with the WaveStar SNMS database.

END OF STEPS



Refederate a WaveStar SNMS server

Purpose When the WaveStar SNMS application is upgraded to a new release, there is a need to refederate WaveStar SNMS server(s), which involves re-establishing the association between the WaveStar NMS and WaveStar SNMS Orbix instances. Use this task to refederate a WaveStar SNMS server from a WaveStar NMS server.

Important! This task applies to WaveStar SNMS R4.2 (or greater). If the task is not run, communication would be severed between the WaveStar SNMS server(s) and the WaveStar 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, then refer to WaveStar NMS release notes.

Before you begin Before you begin this task, be sure that the WaveStar NMSserver is at run level 4. See [“Run level 4” \(1-6\)](#) for details.

Task Perform the steps below to refederate WaveStar SNMS server(s) from a WaveStar NMS server.

- 1 Using a terminal window on the WaveStar NMS server, log in as dacsan.

- 2 At the prompt, enter `/bin/ksh/install/refederate_snms <wavestarsnms_hostname>`

- 3 Using a terminal window on the WaveStar NMS server, log in as root.

- 4 Determine whether or not the version of the WaveStar SNMS has changed.
 - If the version of the WaveStar SNMS *has not changed*, proceed to [Step 15](#) to continue.
 - If the version of the WaveStar SNMS *has changed*, continue with the next step.

- 5 At the prompt, enter `init 3` to bring WaveStar NMS to run level 3.
- 6 At the prompt, enter `/usr/dacscan/bin/AddEMS.sh`
- 7 Select option **2** (for WaveStar SNMS server).
- 8 At the Enter the SNMS Server Name, then press [return]:? prompt, enter the hostname of the WaveStar SNMS.
- 9 At the Enter the Version of the SNMS <SNMS Name>, then press [return]: prompt, enter the WaveStar SNMS version.
- 10 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 WaveStar NMS and WaveStar SNMS GUIs are running on separate machines.
- 11 If `y` was selected in the last step, enter the IP address of the WaveStar NMS and WaveStar SNMS GUIs (when prompted). If `n` was selected in the last step, enter the IP address of the WaveStar NMS GUI, and then enter the IP address of the ITM-SC GUI.
- 12 Review the displayed prompt, then enter `y` if the information is correct.
- 13 Select `quit` from the displayed list.
- 14 At the prompt, enter `init 4` to bring WaveStar NMS to run level 4.
- 15 At the WaveStar NMS client GUI, click the desired WaveStar SNMS server icon, then select **Session > Start Communication**.

Result:

A dialog box containing the following text displays: START
SESSION COMMAND SENT FOR FRAME:<ems_ name>

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

Result:

Communication is re-established between the WaveStar SNMS and WaveStar NMS servers. The **emsmap.cfg** file is also automatically updated where necessary, therefore, no editing of this file is required.

If communication cannot be immediately established with the refederated WaveStar SNMS server, restart the WaveStar NMSapplication using the **init 3/init 4** commands. See *Start the host application* in [Chapter 3, “System administration”](#) for details.

- 17** For each WaveStar SNMS server to be refederated, repeat [Step 1](#) through [Step 15](#) of this task.

END OF STEPS



Section III: Interact with EMSs

Overview

Purpose This section describes the administration of EMSs.

Definition: EMS An EMS is a graphical user interface-based element manager used for network management.

Contents

Add a new element management system (EMS)	9-19
Add a new ITM-XM	9-21
Add a new NSU	9-23
Add External WaveStar NMS to ITM-XM	9-25
Add a new ITM-IDM	9-27
Synchronize the WaveStar NMS database with an EMS	9-28



Add a new element management system (EMS)

Purpose This task is used to initiate adding a new EMS on the WaveStar NMS Controller. The remaining add process is supported by subsequent tasks referenced in the last step of this task.

The following EMSs are supported:

- External ITM-XM (DACS machines)
- External ITM-NSU (Bosch Radio Relay)
- External WaveStar NMS to ITM-XM
- External ITM-PRM
- External ITM-IDM

Important! The number of EMSs that may be added varies with the WaveStar NMS configuration 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. The task below must be run for each EMS to be added.

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

- EMS system name
- EMS Internet address

Task Perform the steps below to add a new EMS.

- 1 Log in as root to the WaveStar 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 numbered list of EMSs:

```
Which Controller do you want to add?
```

.....
Important! The following lists only those entries supported by WaveStar NMS.

3

IF	THEN
you select 6 , and press Enter.	See “Add a new ITM-XM” (9-21) to continue.
you select 8 and press Enter,	See “Add a new ITM-SC” (9-4) to continue.
you select 11 and press Enter,	See “Add a new NSU” (9-23) to continue.
you select 13 and press Enter,	See “Add External WaveStar NMS to ITM-XM” (9-25) to continue.
you select 14 and press Enter,	Enter the ITM-PRM hostname at the prompt. (No other steps are necessary).
you select 15 and press Enter,	See “Add a new ITM-IDM” (9-27) to continue.
you select 17 and press Enter,	See “Add a new WaveStar SNMS” (9-10) to continue.

.....
E N D O F S T E P S



Add a new ITM-XM

Purpose Use this task to continue adding a new ITM-XM on the WaveStar NMS.

Before you begin Complete [“Add a new element management system \(EMS\)” \(9-19\)](#).

Task Perform the steps below to continue adding a new ITM-XM.

- 1 Complete [“Add a new element management system \(EMS\)” \(9-19\)](#) to select the controller to be added.

Result:

A message, beginning to set up external ITM-XM for DACSV displays followed by the following prompt:

What is the name of the ITM-XM?

- 2 Enter the name of the ITM-XM, then press **Enter**.

Result:

You are prompted to confirm your entry.

- 3 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-XM.

- 4 Enter the IP address 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:

The text, correcting XTNC/XTND entries in
/usr/dacscan/oam/config_data/cm/ccpm/ccpconfig
displays.

END OF STEPS



Add a new NSU

Purpose Use this task to continue adding a new NSU on the WaveStar NMS.

Before you begin Complete [“Add a new element management system \(EMS\)” \(9-19\)](#).

Task Perform the steps below to add a new NSU.

- 1 Complete [“Add a new element management system \(EMS\)” \(9-19\)](#) to select the controller to be added.

Result:

A message, beginning to set up external ITM-XM displays followed by the following prompt:

What is the name of the PRIMARY NSU?

- 2 Enter the name of the primary NSU, then press **Enter**.

Result:

You are prompted to confirm your entry.

- 3 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 primary NSU.

- 4 Enter the IP address 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 name of the standby NSU.

-
- 6 Enter the name of the standby NSU, 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 standby NSU.

- 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:

The following text displays adding BOSCH PRIMARY and STANDBY NSU entry to /usr/dacscan/oam/config_data/cm/ccpm/ccpconfig adding BOSCH NSU entries to DSCANenv file ... notifying workstations of new PRIMARY NSU... notifying workstations of new STANDBY NSU...

END OF STEPS



Add External WaveStar NMS to ITM-XM

Purpose Use this task to continue adding an external WaveStar NMS to ITM-XM.

Before you begin Complete [“Add a new element management system \(EMS\)” \(9-19\)](#).

Task Perform the steps below to add an external WaveStar NMS to ITM-XM.

- 1 Complete [“Add a new element management system \(EMS\)” \(9-19\)](#) to select the controller to be added.

Result:

A message, beginning to set up external ITM-NM displays followed by the following prompt:

What is the name of the ITM-NM/DACS-VI XM

- 2 Enter the name of the WaveStar NMS host name, then press **Enter**.

Result:

You are prompted to confirm your entry.

- 3 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-NM/DACS-VI XM ITM-NM/DACS-VI XM.

- 4 Enter the IP address 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:

The text, correcting TNC/TND entries in
/usr/dacscan/oam/config_data/cm/ccpm/ccpconfig
displays.

END OF STEPS



Add a new ITM-IDM

Purpose Use this task to continue adding a new ITM-IDM on the WaveStar NMS.

Before you begin Complete [“Add a new element management system \(EMS\)” \(9-19\)](#).

Task Perform the steps below to add a new ITM-IDM.

- 1 Complete [“Add a new element management system \(EMS\)” \(9-19\)](#) to select the controller to be added.

Result:

The following prompt displays:

Please enter IDM Hostname:

- 2 Enter the name of the IDM host name, then press **Enter**.

Result:

You are prompted to enter the IP address.

- 3 Enter the IP address then press **Enter**.

Result:

The message, Adding host to /etc/hosts displays.

END OF STEPS



Synchronize the WaveStar NMS database with an EMS

Purpose Use this procedure to synchronize the WaveStar NMS database with an EMS database.

Task Complete the following task to synchronize the WaveStar NMS database with an EMS database.

- 1 Select **Network Map -> File -> Network Controller Map -> select Node -> Session -> DB SYNC.**

Result:

The Database Synchronization form is displayed.

- 2 Select the name of the EMS node listed in the **EMS** field.
-

- 3

IF	THEN
You select Alarm,	An alarm synchronization occurs with all the network elements under control of this EMS.
You select NE,	A network element synchronization occurs with all the network elements under control of this EMS. This only determines which network elements are under the control of the EMS. To perform a database synchronization with a network element, it must be done directly from the Network Map.
You select All,	An alarm and equipment synchronization occurs with all the network elements under control of this EMS.
You select Clear,	The EMS field is cleared.

END OF STEPS



Section IV: Miscellaneous management communication tasks

Overview

Purpose This section describes miscellaneous management communication tasks.

Contents

View LAN status information	9-30
---	----------------------

View LAN status information

Purpose Use this procedure to view the status of any of the LANs that are connected to the machine, including the LAN that connects the WaveStar NMS to the EMS.

Task Perform the steps below 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



Section V: ITM-XM EMSs

Overview

Purpose This chapter describes the processor's resource management functional area's equipment and configuration records for digital cross connect system frames. It also includes a description on the alarm database audit and the database synchronization processes and their impact to stored data.

This chapter includes information on WaveStar DACS and DACS VI-2000 frames, which can be graphically displayed through one of the following methods.

If the DACS equipment has not been upgraded/migrated to WaveStar DACS R2.1, then the equipment is managed by the ITM-XM EMS and can be displayed directly through ITM-XM. If however, the equipment has been upgraded/migrated to WaveStar DACS R2.1, then the equipment is managed by the ITM-SC EMS and displayed through a cut-through to ITM-SC EMS.

Please refer to the ITM-SC User Documentation for resource diagrams of network elements managed by the ITM-SC.

Contents

Resource management functions	9-32
WaveStar DACS	9-33
WaveStar DACS frame display	9-35
WaveStar DACS shelf display	9-37
WaveStar DACS cross-connect management	9-39
Alarm Database Audit	9-40
WaveStar DACS database synchronization	9-41



Resource management functions

Overview Resource Management is a functional area of the Processor that maintains equipment and configuration records for the digital cross-connect system frames associated with the processor, such as WaveStar DACS.

For additional information, see the product documentation for the specific digital cross-connect.

These database records are created automatically by database synchronizations with the digital cross-connect system frames; they cannot be created or manipulated manually. Therefore, they are in agreement with the digital cross-connect system frames and not based on a manually created record of what we think is there.

The hierarchical levels of digital cross-connect system information are similar for all digital cross-connect systems. However, the terms vary depending upon the vendor or the digital cross-connect system. For WaveStar DACS the terminology is:

System/Rack/Subrack/Unit/Physical Port/Logical Port.

To support multiple vendors with different terminologies, in this manual the terms are used generically as: System (Frame)/Rack (Bay)/Subrack (Shelf)/Unit (Slot)/Port /Time Slot (Logical Port).

□

WaveStar DACS

Overview WaveStar DACS terminates STM-0 and STM-1 (SDH) signals and AU4/AU3/TU3/TU12 cross-connects.

WaveStar NMS supports WaveStar DACS Releases 2.0, R1.0 and R1.1 with Port Subrack A (PSA) and Port Subrack B (PSB) port units. Subracks are configured as either dual fiber or single fiber. Single fiber subracks support only odd numbered units; even numbered units must then be used for MSP protection of the odd numbered units.

The WaveStar NMS display of the WaveStar DACS resources is presented graphically in a cascading hierarchical sequence as follows:

- **Frame (System)** - The entire WaveStar DACS consisting of a number of racks identified by a digital cross connect ID, which identifies a particular digital cross-connect system.
- **Rack (Bay)** - Racks are physical hardware that exist only to hold subracks.
- **Subrack (Shelf)** - Subracks sometimes called shelves contain slots for plug-in units and interface hardware panels.
- **Unit (Slots)** - A component of the subrack, that accepts units (plug-ins) that combine to make a subrack (shelf).
- **Ports (Physical Ports)** - Ports are located on and are a component of the plug-ins in the slots, to physically terminate a signal from and to the external transmission systems. They serve as an interface between the digital cross connect and the external facilities.
- **Time Slot (Logical Port)** - These are the multiplexed or demultiplexed signal channels of a higher order transmission system terminated at a physical port. For a digital cross connect, these logical ports are associated with AU4, AU3, TU3, and TU12 time slots that are the virtual cross-connections on the frame.

WaveStar DACS display Resource display of the WaveStar DACS involves the Equipment display and the Resource Database Management Equipment display.

The user interface forms for the WaveStar DACS are:

- Frame Display
- STM0 PSB

- STM1 PSA
- Main Controller Subrack (MC)
- Matrix and Synchronization Subrack (MS)
- Physical Port Display
- Logical Port Display
- Cross Connection Management



WaveStar DACS frame display

Overview The graphical display of the WaveStar DACS frame includes a representation of all racks and subracks provisioned in the monitored system. The following figure shows an example of the WaveStar DACS frame with port racks (containing PSA and PSB subracks), and two core racks containing the MC subrack and the Matrix and Synchronization (MS) subrack. Note that the MS subrack is composed of three elements and spans two racks. However, it is possible to indicate that the Matrix elements are alarmed independent of the synchronization elements and it is possible to select the synchronization subrack independent of the matrix subracks.

Access If the DACS equipment has been upgraded/migrated to WaveStar DACS R2.1:

- refer to ITM-SC User Documentation.

Color conventions On the Frame Display, all the Subracks (shelves) are displayed. The color coding of each subrack indicates equipment provisioning and alarm information as follows.

Service affecting or non-service affecting port or equipment alarm information is indicated by color coded circle or square respectively, at the bottom of the displayed subrack. Placement does not indicate the location of the unit. Where as, provisioned subracks are indicated by color coding the entire displayed subrack in Clear display.

- **No Circle or Square:** - Provisioned and without service affecting or non service effecting equipment or signal alarms on any component of the subrack down at the port level.
- **Yellow Circle:** - Provisioned and non service affecting signal alarm on at least one component of the subrack down at the port or logical port level. No service affecting signal alarm exists on any component of the shelf.
- **Red Circle:** - Provisioned and service affecting signal alarm on at least one component of the subrack down at the port or logical port level. There may be some non-service affecting signal alarms also on some of the components of the shelf.

- **Yellow Square:** - Provisioned and non service affecting equipment alarm on at least one component of the subrack down at the slot level. No service affecting equipment alarm exists on any component of the shelf.
- **Red Square:** - Provisioned and service affecting equipment alarm on at least one component of the subrack down at the slot level. There may be some non-service affecting equipment alarms also on some of the components of the shelf.

Fields

Bay Information

NE ID: Network element identifier.

Model: Frame model.

Software Version: Version of the software application.

EMS Version: Version of EMS application.

Buttons

Close: Closes this form.

Help: Provides help for this form.



WaveStar DACS shelf display

Purpose The subrack display provides a display of the subrack fronts and backs. Because serviceable units are located in both the front and back of the port and synchronization subracks, both the front and the back of such subracks are graphically displayed when the user selects the subrack from the Frame Display.

WaveStar DACS has the following port subrack configurations:

- There can be up to two PSA subracks within a rack.
- There can be only one PSB subrack within a rack.
- Subracks can be “one-fiber” or “two-fiber” and “electrical” or “optical” in nature.
- A two-fiber subrack supports a capacity of 64 STM1s from the subrack to the cross-connect core. A one-fiber subrack supports 32 STM1 worth of capacity. Two-fiber subracks are ideally suited for unprotected ports and one-fiber subracks are ideally suited to MSP protected ports. Note that a two-fiber subrack can support MSP protected ports and a one-fiber subrack can support unprotected ports. The two-fiber and one-fiber nature of a subrack only reflects the amount of connectivity between the subrack and the cross-connect matrix.
- Each subrack supports two shelves.
- Units are placed both in the front and in the back of the subrack.
- Port units are placed in the front of the subrack and Interface Units (IUs) are placed along with the Bits Slice Interface Units (BSIUs) in the back of the subrack.
- The IUs determine the optical or electrical nature of the interface.
- STM1 IUs are available as either optical or electrical units.
- STM0s IUs are only available as optical units.
- Up to 8 STM0 port units per shelf.
- Up to 8 STM1 ports units per shelf plus one optional protection unit to support 1:8 equipment protection for electrical units.
- An interface unit must accompany each STM1 or STM0 port unit directly on the other side of the subrack.
- Note that protection units do not have a directly supporting interface unit but instead are wired to all interface units for that shelf.

- STM1 port/interface units support up to 4 STM1 ports.
- STM0 port/interface units support up to 12 STM0 ports.
- The STM1 and STM0 optical ports can be configured as Multiplex Section Protection (MSP) protected or as unprotected. Protected ports must be located on adjacent units and in the same relative position in each unit.

□

WaveStar DACS cross-connect management

Purpose WaveStar DACS supports two interface port units types, STM0 and STM1. These units are housed in the subrack type PSB and PSA, respectively. An STM1 unit can interface to an STM1 signal that is structured to carry one clear channel AU4 (VC4) signal or three clear channel AU3 (higher order VC3) signals or a structured VC4 (TU3s/TU12s). An STM0 unit interfaces to an STM0 signal provisioned as a clear channel AU3 signal.

The Cross Connections Management form displays a graphical representation of port cross-connections within a digital cross connect frame. The internal address of the From Port is displayed. The internal address of the To Port is displayed only when there is a cross-connection to the corresponding From Port. The alarm condition on the displayed ports may be viewed. The Cross Connection Management option may be selected from the graphical display of the selected digital cross connect frame by navigating to the physical or logical port display, or from the cross-connect cascaded menu off the Node Menu associated with the selected digital cross connect frame.

□

Alarm Database Audit

Overview To optimize certain searches, the WaveStar NMS Fault Management module has redundancy in its data storage, which leads to occasional deviation in data. The Alarm Database Audit feature corrects this deviation.

An alarm Database Audit for alarms is triggered by one of the following:

- A nightly cron job (according to the schedule defined during installation) that automatically triggers the audit at the scheduled time.

The cron job is not triggered if an alarm sync with an EMS is currently in progress.

- Automatic audit after a manually triggered alarm sync with an EMS (such as ITM-SC).

At the end of an Alarm Database Audit, a broadcast message is sent that indicates that the audit is completed. A broadcast message is not sent if the Alarm Database Audit does not find any discrepancies.

□

WaveStar DACS database synchronization

Overview The Database Synchronization form (described in an earlier chapter) is used to perform a synchronization between the Controller database and the database of an individual digital cross-connect system.

With the Synchronization function, the Controller database is synchronized with the database of an individual digital cross-connect system. The synchronization can be a partial or full synchronization based on your selection.

The Controller supports 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 Data-base Synchronization form.





10 Trouble clearing

Overview

Purpose This chapter describes how to turn on trace and view trace files. For information on fault management and performance monitoring tasks, refer to the WaveStar NMS Maintenance Guide.

WaveStar NMS home directory The home directory of WaveStar 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

Troubleshoot X.25 links	10-3
Create a trace file on a server	10-4
Create a trace file on an HP-UX workstation or on a PC	10-6

<u>View the core file</u>	<u>10-7</u>
<u>View the log files</u>	<u>10-8</u>
<u>View the log file on an HP workstation</u>	<u>10-10</u>
<u>View the console.log file on a Windows PC</u>	<u>10-11</u>
<u>Start WaveStar NMS on a specific MC/ServiceGuard node</u>	<u>10-12</u>



Troubleshoot X.25 links

Background Normally, if an X.25 link goes down, it restores itself automatically after the trouble on the link clears.

Task If an X.25 link goes down, do not attempt to restart it. For trouble resolution, the link should be called into the organization responsible for the packet network.



Create a trace file on a server

Purpose Use this procedure to turn on trace at a particular server and to create a trace file for capturing information.

Important! Trace files should never be removed.

Before you begin Before you begin this task, ensure that the application is at run level 3.

Task Perform the steps below 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 is called <servername>.<pid><host_name>.

.....

- 10** Verify that the trace file **/dacscan/trace/<servername>.<pid>** exists.

Result:

The file displays in the appropriate directory.

END OF STEPS

.....



Create a trace file on an HP-UX workstation or on a PC

Purpose Use this procedure to create a trace file for capturing information on an HP-UX workstation or a PC console.

Important! Trace files should never be removed.

Task Perform the steps below to turn create a trace file on an HP workstation or on an NT PC.

1 Using the system console, log in to the primary host as dacscan.

2

IF	THEN
<i>you want to</i> increase global tracing and turn on F-interface tracing <i>at an HP-UX</i> console,	edit the <code>/usr/add-on/ui/jui/bin/run_jnm</code> file by <code>gt=1</code> to <code>gt=4</code> <code>fint.tr=4</code>
<i>you want to</i> increase global tracing and turn on F-interface tracing <i>at a PC</i> console,	edit the <code><drive>:\jui\bin\run_jnm.bat</code> file and enter <code>set trace=5</code>

3 Save the edited `run_jnm` or `run_jnm.bat` file.

4 Shut down and restart the WaveStar NMS application.

For instructions, see the [“Stop WaveStar NMS” \(3-16\)](#), [“Start WaveStar NMS on an HP-UX workstation” \(3-13\)](#), and [“Start WaveStar NMS on a Windows workstation \(PC\)” \(3-14\)](#) tasks in this document.

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 core file

Purpose Use this procedure to view the core file created when a server dies.

Definition: core file The core file contains information that identifies which process died and caused the core dump. It is used during troubleshooting to help identify what caused the server to die.

About the core file When a server shuts down, a core file may be created in **/usr/dacscan/bin**. The core file reveals the identity of the server. Because the server is automatically restarted, service on that particular function of the system is only impacted for a brief period. Until it has restarted, information will not be lost because the system's bulletin board will buffer services requested upon that server.

Task Perform the steps below to view the core file.

1 Using the system console, log in to the primary host as dacscan.

2 At the prompt, type: `ls -l core`

Result:

The core name displays in the following file format:
`core.<PROCESS_NAME>.<process>`

3 Enter the following command: `file core`

Result:

A file is created which may be used for verification purposes. It is stored under the `/usr/dacscan/bin` directory and is named in the following format: `core.<PROCESS_NAME>.<process>`

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.

Log 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 #, and
- <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 Use this procedure to view the log file residing on an HP workstation.

Task Perform the steps below to view the log file.

1 Using the system console, log in to the primary host as dacsan.

2 Change to the directory containing the log file to be viewed. Type `cd /<full_directory_pathname>` **cd /<full_directory_path>**

For example, type `cd /home/<user>/NM/<workstation>.<pid>/
jui/logs/console.log`

3 Enter **pg <logfile>.log**

Result:

The contents of the log file is displayed.

END OF STEPS



View the console.log file on a Windows PC

Purpose Use this procedure to view the console.log file residing on a PC.

Task Perform the steps below 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



Start WaveStar NMS on a specific MC/ServiceGuard node

Purpose Use this task to start the WaveStar NMS application on a specific node using the sam application. This task may be used, for example, to isolate a problem on the node.

Start WaveStar NMS on a specific node Complete the following steps to start the WaveStar NMS application on a specific node.

1 Log into either the primary or the standby machine as root.

2 Enter sam at the prompt.

Result:

The sam application displays.

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 WaveStar NMS application starts on the specific node.

END OF STEPS





11 Patch and Software Upgrade Tasks

Overview

Purpose This chapter will provide WaveStar NMS patch and upgrade information.

Information Information not available.

Contents

Patch information	11-2
-----------------------------------	----------------------



Patch information

Description Information not available.





Appendix A: WaveStar NMS Filesystems

WaveStar NMS file systems

Introduction This appendix contains a list of the WaveStar NMS file systems.

List of file systems The following lists the directory structure supported within WaveStar 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. ITM_QA (**/ITM_QA**)





Appendix B: WaveStar NMS Parameters

Overview

Introduction This Appendix contains non-obsolete, WaveStar NMS configuration parameters to be set during the installation process. Most of these parameters are *STRING* type, however in many cases, these parameters are effectively of another type, for example, *boolean* or *integer*.

This section has a table that lists the parameters, their descriptions, and values. The table includes ranges, default values, and the time at which the parameter can be set or reset, for example, *at install time*, or *anytime*, where applicable.

Header Files There are three header files, two of which are auto-generated. The only maintained header file is **nms_param.h** which itself includes the relevant public auto-generated header file.

Parameter numbers **ParamNo** are defined as the name of the parameter, capitalized and prefixed by **SA_**. The parameter **BER** would have a ParamNo of **SA_BER**.

To obtain the value of a parameter, you need to know its **ParamNo** and type (i.e., Scalar or String). The **ParamNo** is unique across both types, to help detect calls to 'get' functions with the wrong type of **ParamNo**. Any process wishing to obtain the value of a parameter must include **nms_param.h**.

Values Certain 'well known' pre-defined values are defined in the maintained header file **nms_param.h**. If you need to use any other values, they must be added to this file. Currently defined values are **TRUE / FALSE, ON / OFF** and **YES / NO** which are all defined as **1 / 0** respectively. These values may be used as numeric entries in the tables below.



WaveStar NMS Parameter Table

Parameters

Parameter	Description and Values	Default Value
ALARMED_PATH_SUPPRESSION	Whether alarmed path suppression is on or off. Minimum value is False ; Maximum value is True .	False
ALM_DEL_OPTION	Configurable options for the deletion of persistent alarms. Values are UNACK_ACK, ACK, UNACK, ENF_CLR_ACK	UNACK_ACK
ALM_THRESHOLD	Keeps track of alarm aging period in seconds - for preplan only.	45
BILLING_INTERFACE	For billing interface feature. (1 = TRUE; 0 = FALSE)	0
BILL_COMPUTER	Name of the bill computer.	
BILL_DIRECTORY	Name of the bill directory.	
BROADCAST	Broadcast family function enabled. Values are off; on	off
CHANNEL_SELECTION	Determines the method to use for channel selection. Values are LOWEST_TIMESLOT_FIRST, BEST_USAGE	BEST_USAGE
CKTFMT	Describes the circuit and format. Values are: AZTYPEID, IDTYPEAZ, FREEFORMAT, AZTYPEID:FREE, IDTYPEAZ:FREE	AZTYPEID
CKTFMTSTR	Stores the format of the circuit ID. Values are: %s - %s %s %s, %s %s %s.%s, %s %s %s %s	%s %s %s %s
COMBO_PROVISIONING	Configures combo provisioning. Values are off and on .	off
COUNTRY	Country codes used during installation. Values are: FRANCE, GCL, GER, HOL, INDONESIA, JAPAN, KSA, MEX, PHILIPINES, PRC, SPAIN, TAIWAN, UK, USA	USA
CURR_ALM_STORAGE_LIMIT	Configurable record limit for current alarms. Minimum value is 10000 ; maximum is 20000 .	10000
CYCLIC	Cyclic scheduler function enabled. Values are off, on .	off

DATE_FORMAT	The format for the date. Values are AMERICAN, EUROPEAN, YYYYMMDD	EUROPEAN
DBPVAR	Geographical Domain Partitioning view. Values are " READALL " for see all nodes or "" for See-Own-Nodes.	
DNA_INCR_UPD	Controls the database trigger supporting the DNA incremental update feature. Values are OFF,ON	OFF
ENTERPRISE	The default service partitioning name. Values are ENTPRISE , user-supplied for Other or "" for none.	
FIX_TUG_STRUCT	Fixed TUG structure functionally enabled. Values are off, on .	off
FM_APPROACH	Two distinct modes identified for the operation of Fault Management (FM) which are Service approach (top down mode) and the Alarm approach (bottom up mode). They affect whether the NES or NEV form of the network event list is displayed and certain other behavior of the FM screens. Values are alarm, service	alarm
FM_EVENT_LIST_SIZE	The number of events (lines) to be displayed on the NEV/NES window. Min. value is 100 ; Max value is 500 .	100
FM_NASS_INTERVAL	Alarm summary update interval. (Range value; 1,300)	60
FM_POLLING_INTERVAL	The interval time (in seconds) for polling to update the counters on the NES or NEV. Minimum value is 30 ; maximum value is 60 .	60
FM_SYSTEM	Fault Management System Flag. Values are CORBA, NON-CORBA	CORBA
FRENCH	French language supported? Values are on, off	off
GERMAN	German language supported? Values are on, off	off
HIST_ALM_STORAGE_LIMIT	Configurable record limit for historical alarms. Minimum value is 10000 ; maximum value is 300000 .	100000
HIST_RM	Keep track of disconnect history orders. Values are 1 to 180	180

IMP_DISC_UN_XC	Improper disconnect/uncorrelated cross-connect function enabled. Values are off, on	off
INC_PPRSV_CHANS_IN_RTE	Defines whether to include pre-planned reserved channels in restoration order or not. Values are YES, NO	NO
INTEGER_PORT_ID	To determine if client uses TP IDs generated by ITM-NM to access the frame address and location. Values are TRUE for QNN interface; FALSE for PRM interface.	FALSE
INTEGER_SNC_ID	To determine if SNC_ID is integer or not. Values are TRUE for QNN interface; FALSE for PRM interface.	FALSE
KANJI	Kanji language supported? Values are off, on.	off
LB	Loop back functionality enabled. Values are off, on.	off
LOWER_LVL_CKT_PREEMPT	Lower level circuit pre-emption flag. Values are Y,YES,N,NO	N
MERGE_CIRCUIT	Merge circuit function enabled. Values are off, on	off
NB_ALARMS	Northbound alarms function enabled. Values are off, on	off
NB_CMISE	Northbound CMISE function enabled. Values are off, on	off
NB_CONFIG	Northbound configuration function enabled. Values are off, on	off
NB_EVTRCVR	Northbound event receiver. Values are CIPC for QNN interface; nbgw for PRM interface.	nbgw
NB_NOTIF	Northbound notification server. Values are CIPC for QNN interface; er for PRM interface.	er
NB_RSPMGR	Northbound response manager. Values are CIPC for QNN interface; nbgw for PRM interface.	nbgw
NMS_NB_NAME	A free-form field. Installation procedures should ensure that this is set to the UNIX host name of the primary machine in GR and ServiceGuard machine sets.	
NMS_PORT_TABLE	NMS Port Selection screen enabled? Values are y,n	n

NB_THR_SIZE	Value of thread stack size in kilobytes.	128
OFFICEDELIM	The location code delimiter (separates the physical office component from the NE equipment address in a location code).	/
PAMS	Is the PAMS interface enabled? Values are off , on	off
PAMS_ACCOUNT_NAME	The name of the PAMS account.	
PAMS_FILE_DIR	The directory in which PAMs auto-generated files are placed.	/ITM_QA/PAMS_NM
PAMS_PASSWORD	The password for the PAMS account (in clear).	
PAMS_SCHEDULE_AM	The time (HH:MM) scheduled for PAMS in the morning, i.e., 00:00 - 11:59 .	07:00
PAMS_SCHEDULE_PM	The time (HH:MM) scheduled for PAMS in the evening, i.e., 12:00 - 23:59 .	13:00
PCC	Path continuity check function enabled. Values are off , on	off
PM	Basic Performance Monitoring (PM) function enabled. Values are off , on	off
PM_LOG_DIR	PM remote directory	
PM_LOG_WKSTN	PM remote workstation	
PPALM	To check if user wants alarm triggered preplan. Values are YES , NO	NO
PP_COMBO_REST	Preplan combo flag. Values are Y , N	N
PREEMPT	Preemption function enabled. Values are off , on .	off
PRODSPLIT	Product ID for this installation (Values are NLS for R3T NLS only, ELS for R3T ELS only, JOINT for joint R3T NLS and ELS, JOINT_MULTI_ELS for one NLS to many ELS, or OTHER).	JOINT_MULTI_ELS
PRODUCT	Name of the product. Values are T30 , T30/VM , T30/JT	T30
READ_ONLY_VIEWING_FOR_GD_USERS	Geographic Domain users may have a view only for records not in their domain. Minimum value FALSE ; Maximum value TRUE .	FALSE
REUSE_CLO_FOR_RS	Reuse circuit order data for restoration circuits? Values are YES , NO	NO

RS	Basic restoration function enabled. Values are off, on	off
RS_SKIP_CHASS_VALID	RS customer can choose to skip class validation. Values are Y, N	N
RS_STOP_AT_LAY	To determine if the auto alarm triggered RS order needs to be stopped at LAY. Values are Y, N	Y
RS_STOP_AT_TEST	To determine if the user wants auto RS stop at TEST step. Values are Y, N .	N
SAVE_DISC_WKLOG	Is archive of Disconnect Orders enabled? Values are Y, N	N
SB_CORBA	Southbound CORBA function enabled. Values are off, on	on
SCHED_DISCONN	Scheduled disconnect function enabled. Values are off, on	off
SPANISH	Spanish language supported? Values are on, off	off
SWITCH_MSP	Switch MSP function enabled. Values are off, on	off
TANDEM_CONN	Tandem connection monitoring enabled. Values are off, on	off
TELCO	Name of the customer; user to set other parameters. Values are BT-GTN, CHT, DTAG, GCL, SDH	SDH
TIMESLOT_FORMAT	Timeslot format. Values are G707, SEQUENTIAL	G707
TIM_PORT	Keep track of TIM interface datakit port address (0 if TIM_TCP is “ Y ”, otherwise, user supplied).	
TIM_TCP	Keep track of TIM interface network type? Values are Y, “”	
TRENCH_ID_OPTION	Trench ID usage is on (TRUE) or (FALSE)	FALSE
TWOBYTECHAR	To identify if it is a double byte character language. Values are YES, NO	NO
UNALMUPP	User notification of alarms against unused preplan functionality enabled. Values are off, on	off
UNASGN_SRVDOM_ON_DISC	To unassign channels from service domain when service is disconnected. Values are Y,N	N

WORD_IP_ADDRESS	IP address of DNA serving Work Order Record Documents (WORDS)	
------------------------	---	--





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 WaveStar 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 WaveStar 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 WaveStar 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 WaveStar 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 WaveStar 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 WaveStar 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 *TUI2-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 *TUI2-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 WaveStar 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 WaveStar 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, WaveStar 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 WaveStar NMS database.

DCS

Display Construction Set

DD

Due date - Date when the work requested by the order is to be completed.

Default Weight

WaveStar 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 WaveStar 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 WaveStar 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 WaveStar NMS is managing, or within WaveStar 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 WaveStar 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 WaveStar NMS feature which uses nightly backups to update the database of the standby server.
- *full*, an optional WaveStar 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 WaveStar 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 WaveStar 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 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 WaveStar NMS displays on the Network Map and is monitored by the WaveStar 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 WaveStar 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 WaveStar 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

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 WaveStar NMS and WaveStar SNMS 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

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.

SI

Session indicator - Type of session between the WaveStar NMS and the DACS: DS (WaveStar NMS Session) or VS (VCIT Session).

Simplified Geographic Redundancy

See Geographic Redundancy.

SNCP

Subnetwork Connection Protection

SNMP

Simple Network Management Protocol

SNMS

See WaveStar Subnetwork Management System (SNMS).

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 WaveStar 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**.)

TP

Termination Point

Trail Termination Point

The transport, trail termination, and adaptation functions that terminate a trail.

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 WaveStar 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 WaveStar NMS.

Uncorrelated Event

An event that does not affect any trail provisioned in WaveStar NMS.

User ID

A login. Each user ID represents a person who has been granted access to use WaveStar 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 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 WaveStar Subnetwork Management System (SNMS)

SNMS 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.

Work Log

The history of a work item; a log of significant operations performed on work items.

X X.25

A protocol for communication between packet-switched public data networks and user devices in the packet-switched mode. Recommendations for this protocol were developed by a group formerly known as the International Telegraph and Telephone Consultative Committee (CCITT), now known as the International Telecommunication Union Telecommunication Standardization Sector (ITU-TSS).



Index

- A** Add
- an area, [6-13](#)
 - EMS, [9-19](#)
 - External WaveStar NMS, [9-25](#)
 - member to aggregate, [6-7](#)
 - network element to a geographic domain, [4-14](#)
 - node to established ring, [8-67](#)
 - user profile, [4-9](#)
 - user to a geographic domain, [4-14](#)
 - user to a service domain, [4-23](#)
 - WaveStar SNMS, [9-10](#)
- Add a user
- geographic domain user, [4-4](#)
 - on a server, [2-33](#)
 - regular user, [4-4](#)
 - service domain user, [4-4](#)
 - to a SAGE workstation, [2-35](#)
- Aggregate
- add, [6-7](#)
 - modify acronym, [6-11](#)
- Alarm database audit, [9-40](#)
- Area
- add, [6-13](#)
 - delete, [6-17](#)
 - modify, [6-15](#)
- Area Map, [6-25](#)
- add a user defined, [6-26](#)
 - delete a user defined, [6-28](#)
 - display/modify a user defined, [6-27](#)
- Areas, [6-12](#)
- Assign
- users to geographic domain, [4-13](#)
- asynchronous port for datakit, [2-19](#)
- asynchronous port for TIM interface, [2-17](#)
- Audience, [xix](#)
- Auto-Discovery Tool, [8-3](#)
- add or migrate networks, [8-13](#)
 - parameters, [8-15](#)
- automatic
- package switching, [3-32](#)
-
- B** Background Map
- install new for HP-UX machines, [3-47](#)
 - install new on machines running Windows, [3-48](#)
 - install new, all users, [3-45](#)
- Backups, [7-3](#)
- cold, [7-4](#), [7-6](#)
 - hot, [7-3](#), [7-5](#)
- Bulk circuit provisioning tool, [8-61](#)
- Bulk Link Provisioning tool, [8-64](#)
-
- C** CDE printer icon
- set up, [2-44](#)
- Change
- network element name, [8-18](#)
- Channel
- list assigned, [5-18](#)
 - modify, [5-23](#)
- Check
- X.25 links status, [3-62](#)

Clusters
 re-add server to, [3-34](#)
 view status, [3-35](#)
 CMISE, [8-54](#)
 Cold backup, [7-4](#), [7-6](#)
 Cold backup recovery, [7-11](#)
 Commands
 WaveStar NMS
 geographic
 redundancy, [7-20](#)
 Commenting on user
 documents, [xxiii](#)
 Comments, [xxiii](#)
 Communication
 restart, [7-26](#)
 Configure
 X.25 network, [8-71](#)
 Connection Renaming tool,
[8-58](#)
 Controller
 select, [9-19](#)
 Conventions
 typographical, [xxii](#)
 Core file, [10-7](#)
 Cron file
 edit, [3-29](#)
 view, [3-28](#)
 Cut-through
 assign WaveStar SNMS
 login ID, [4-28](#)

D Data export feature
 administer, [3-39](#)

Delete
 WaveStar SNMS
 controlled node from a
 digital link, [8-40](#)
 an area, [6-17](#)
 network element from a
 geographic domain,
[4-20](#)
 network element from
 ITM-SC digital link,
[8-37](#)
 node, [3-52](#)
 node from established
 ring, [8-70](#)
 user, [4-8](#)
 user from a geographic
 domain, [4-20](#)
 user profile, [4-12](#)
 user(s) from a service
 domain, [4-26](#)

Delete a user
 from SAGE
 workstation, [2-37](#)

Documentation
 font usage, [xxii](#)
 how to comment, [xxiii](#),
[xxiii](#)
 list of, [xxii](#)

E EMS
 add, [9-19](#)
 External WaveStar NMS
 add to ITM-XM, [9-25](#)

F File
 system cron, [3-28](#)

File systems, [A-1](#)
 Filtering criteria
 setting, [3-55](#)
 Font usage, [xxii](#)

G Geographic domain
 add a network element,
[4-14](#)
 add a user, [4-14](#)
 administration, [4-13](#)
 delete a network
 element, [4-20](#)
 delete a user, [4-20](#)
 list geographic domain,
[5-9](#)
 list network elements,
[5-13](#)
 list user-assigned
 network elements, [4-19](#)
 list users, [4-16](#)
 list users assigned to a
 network element, [4-18](#)

Geographic redundancy,
[7-19](#)
 geographic redundancy,
[7-32](#)
 Geographic Redundancy
 configuration, [7-31](#)

H Host database, [7-9](#)
 Hot backup, [7-3](#), [7-5](#)
 Hot backup recovery, [7-10](#)

I

- icon behavior
 - EMS, [7-23](#)
- Information products
 - font usage, [xxii](#)
 - how to comment, [xxiii](#), [xxiii](#)
 - how to order, [xxiii](#)
- init 3, [1-6](#)
- init 4, [1-6](#)
- Insert
 - ITM-SC controlled node into a digital link, [8-26](#)
 - ITM-SNMS controlled node into a digital link, [8-32](#)
- INSERTNODE tool, [8-23](#)
- Intended audience, [xix](#)
- ITM-IDM
 - add, [9-27](#)
- ITM-SC
 - add, [9-4](#)
- ITM-SC servers
 - restart WaveStar NMS communication with, [7-29](#)
- ITM-XM
 - add, [9-21](#)

L

- LAN Interface
 - configure, [2-20](#)
- LAN status
 - view, [9-30](#)

- local redundancy, [3-30](#)
- Location-type information
 - network element search, [3-64](#)
- Log file
 - management for joint workstations, [10-8](#)
 - view on an HP workstation, [10-10](#)
 - view on Windows PC, [10-11](#)
- Log files
 - renamed connections, [8-57](#)

M

- MC/ServiceGuard, [3-30](#)
- Messages
 - recovery, [3-42](#)
 - warning, [3-42](#)
- Mirroring status, [7-18](#)
- Modify
 - aggregate acronym, [6-11](#)
 - an area, [6-15](#)
 - noncontrollable network element, [3-50](#)
 - user ID information, [4-6](#)
 - user profile, [4-10](#)
- Monitoring space, [3-42](#)

N

- Network element
 - change name, [8-18](#)
 - update position on Network map, [3-49](#)
- Network element tools, [8-66](#)

- Network elements
 - search for, [3-65](#)
- Node
 - delete, [8-70](#)
 - update position, [3-49](#)
- NSU
 - add, [9-23](#)

O

- Off-line tools, [6-34](#), [8-23](#)
 - Auto-Discovery Tool, [8-3](#)
 - Bulk circuit provisioning, [8-61](#)
 - Bulk Link Provisioning, [8-64](#)
 - Connection Renaming, [8-58](#)
 - Rename network element, [8-18](#)
 - Reparenting ITM-SC Network Elements, [8-43](#)
 - Reparenting WaveStar SNMS Network Elements, [8-45](#)
 - Upgrade WaveStar OLS 400G from CMISE to TL1, [8-54](#)
 - Upgrade WaveStar OLS 400G to WaveStar OLS 800G, [8-50](#), [8-51](#)
 - Virtual disconnect, [8-74](#)
- Oracle database
 - restart, [3-37](#)
 - stop, [3-38](#)

Ordering
information products, [xxiii](#)
OS user ID
add, [2-22](#), [2-25](#)

P Package switching
disable automatic, [3-33](#)
enable automatic, [3-32](#)
Paper disconnect, [8-74](#)
Parameters, [B-1](#), [B-3](#)
Patch
software, [11-1](#)
Performance monitoring data
administer, [3-39](#)
Port
modify, [5-25](#)
service domain, [5-19](#)
Power down
geographic redundancy server, [2-53](#)
HP-UX workstation, [2-47](#)
MC/ServiceGuard cluster, [2-51](#)
server (local redundancy), [2-51](#)
single server, [2-50](#)
Windows server, [2-55](#)
Windows workstation, [2-48](#)
Power on
HP server (geographic redundancy), [2-7](#)

HP server (local redundancy), [2-6](#)
HP server (single-server), [2-5](#)
HP-UX workstation, [2-10](#)
MC/ServiceGuard cluster, [2-6](#)
Windows terminal server, [2-8](#), [2-8](#)
Windows workstation, [2-11](#)
Preferences
setting, [3-56](#)
Printer
add local printer, [2-43](#)
add network printer, [2-41](#)
install networked printer on a WaveStar NMS server, [2-39](#)
Privileges
system administrator, [2-31](#)
user, [2-29](#)

R Recover database to different server, [7-13](#)
Recoveries
cold backup, [7-11](#)
host database, [7-9](#)
hot backup, [7-10](#)
Redundancy
full, [7-19](#)
full geographic, [7-19](#)
geographic, [7-19](#)

local, [7-19](#)
simplified geographic, [7-19](#)
Refederate WaveStar SNMS server, [9-15](#)
Remove
member from aggregate, [6-9](#)
REMOVENODE tool, [8-23](#)
Reparent
WaveStar SNMS Network Elements, [8-45](#)
ITM-SC Network Elements, [8-43](#)
WaveStar NMS EMS resources, [8-48](#)
Resource management
functions, [9-32](#)
Restart
Oracle database, [3-37](#)
Run levels, [1-6](#)

S sam
create a user ID, [2-22](#)
create an OS user ID, [2-25](#)
Scheduled entities, [6-18](#)
delete, [6-20](#)
filter list, [6-22](#)
modify, [6-21](#)
view list of, [6-19](#)
view list of successful/failed, [6-24](#)

- Search
 - network element's location type, [3-64](#)
- Servers
 - adding a user, [2-33](#)
 - switch between, [3-30](#)
 - switching roles of, [7-30](#)
- Service Domain
 - add, [5-20](#)
- Service domain
 - add a user, [4-23](#)
 - administration, [4-22](#)
 - delete, [5-27](#)
 - delete user(s), [4-26](#)
 - list assigned users, [4-25](#)
- Service domain mode
 - dedicated, [5-14](#)
 - shared, [5-14](#)
- Service domain partitioning, [5-14](#)
- Set
 - alarm preferences on forms, [3-59](#)
 - event indications preferences, [3-57](#)
 - FM operational preferences, [3-60](#)
 - map preferences, [3-58](#)
- Set up
 - CDE printer icon, [2-44](#)
- Setting up
 - asynchronous port for datakit, [2-19](#)
 - asynchronous port for TIM interface, [2-17](#)
 - TIM TCP/IP configuration, [2-14](#)
- Space
 - monitoring, [3-42](#)
- Spacewatch program, [3-42](#)
- Start
 - WaveStar NMS server applications, [3-4](#)
 - WaveStar NMS user interface applications, [3-9](#)
- Start WaveStar NMS
 - on a geographic redundancy server, [3-7](#)
 - on a MC/ServiceGuard cluster, [3-10](#)
 - on a PC, [3-14](#)
 - on a single server, [3-5](#)
 - on a specific MC/ServiceGuard node, [10-12](#)
 - on a Windows terminal server, [3-8](#), [3-12](#)
 - on a Windows workstation, [3-14](#)
 - on an HP-UX workstation, [3-13](#)
- Stop
 - WaveStar NMS on a single server, [3-17](#)
- Stop WaveStar NMS
 - on a geographic redundancy server, [3-19](#)
 - on a MC/ServiceGuard cluster, [3-21](#)
 - on a PC, [3-16](#)
- on a simplified or full geographic redundancy server, [3-19](#)
- on a specific node using sam, [3-23](#)
- on a Windows terminal server, [3-22](#)
- on a Windows workstation, [3-25](#)
- on a workstation, [3-16](#)
- on an HP-UX workstation, [3-24](#)
- package, [3-20](#)
- with Uninterruptible Power System (UPS), [3-26](#)
- Submap, [6-29](#)
 - add a user defined, [6-30](#)
 - delete a user defined, [6-32](#)
 - display/modify a user defined, [6-31](#)
- Switch
 - to a standby server, [3-31](#)
- Switching servers, [7-30](#)
- Switchover
 - automatic, [7-21](#)
 - detection of, [7-25](#)
 - EMS icon behavior, [7-23](#)
 - manual, [7-21](#)
- Switchover behavior
 - ITM-SC, [7-24](#)
 - WaveStar SNMS geographic redundancy, [7-23](#)

WaveStar SNMS local
redundancy, [7-23](#)

Synchronize

WaveStar NMS
database, [9-28](#)

System administrator
privileges

assigning on a Windows
PC, [2-31](#)

T TIM TCP/IP configuration,
[2-14](#)

TL1, [8-54](#)

Tools

See: Off-line Tools

Trace

create on a server, [10-4](#)

create trace files on an
HP-UX, [10-6](#)

Trails

listing, [5-17](#)

modify, [5-21](#)

Typographical conventions,
[xxii](#)

U Update

node, [3-49](#)

Upgrade WaveStar OLS
400G to WaveStar OLS
800G, [8-50](#), [8-51](#)

User

add on a server, [2-33](#)

User defined area map,
[6-26](#)

User defined submap, [6-30](#)

User ID

alternate cut-through to
WaveStar SNMS, [4-29](#)

user ID

creating through sam's
GUI-based program,
[2-22](#)

User privileges

assigning on a Windows
PC, [2-29](#)

User profile

add, [4-9](#)

delete, [4-12](#)

modify, [4-10](#)

V View

cluster status
information, [3-35](#)

server running WaveStar
NMS, [7-32](#)

Virtual disconnect, [6-34](#)

Virtual disconnect tool,
[8-74](#)

Virtual Private Network,
[5-14](#)

VPN, [5-14](#)

W WaveStar DACS, [9-33](#)

cross-connect
management, [9-39](#)

database
synchronization, [9-41](#)

frame display, [9-35](#)

shelf display, [9-37](#)

WaveStar NMS database

synchronize with an
EMS, [9-28](#)

WaveStar SNMS

add a new, [9-10](#)

interact with, [9-9](#)

WaveStar SNMS
geographic redundancy
servers

restart WaveStar NMS
communication with,
[7-28](#)

WaveStar SNMS local
redundancy servers

restart WaveStar NMS
communication with,
[7-27](#)

Workstation

add to WaveStar NMS
host, [2-13](#)

SAGE, [2-35](#), [2-37](#)

X X.25 links

check status, [3-62](#)

clearing trouble, [10-3](#)

X.25 network

configuring, [8-71](#)
