Optical Management System (OMS)

Release 6.3.1

Network Element Management Guide

365-315-146R6.3.1
Issue 1
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About this information product

Purpose

This preface provides an overview of this information product, which is the *Optical Management System Network Element Management Guide* .

The purpose of this *OMS Network Element Management Guide* is to explain to users how to use OMS to manage a network.

Reason for reissue

Issue 1 of this *OMS Network Element Management Guide* is a revised document that supports OMS Release 6.3.1

Intended audience

This *OMS Network Element Management Guide* is written primarily for network planners, engineers, operators, and sales teams. It can be used by anyone who needs specific information about the features, applications, and operations of OMS.

Safety information

This document does not contain any safety information or warnings because OMS is a software product.

How to use this information product

In the broadest sense, this *Network Element Management Guide* contains:

- *Conceptual* information, which is specific data related to the tasks
- *Task* information, which includes user tasks (that is, step-by-step instructions)

The conceptual information complements and enhances the step-by-step instructions that are found in each task. Use the conceptual information to broaden your general knowledge of the management system. It is best if you read all conceptual information and have a good understanding of the concepts being presented before undertaking the step-by-step instructions given in any task.

The task information is based on a user needs analysis that has been performed for each management system user job; therefore, use the task information to get the job at hand done quickly and with minimal system impact.

The conceptual and task information portions of the document have extensive hyperlinks. Use these links to toggle between the two types of information presented so you can access all pertinent information related to particular concepts and tasks.

This document can be used in its online versions (HTML/PDF) or in paper version (print PDF). The on-line HTML document version has a search capability, a full table of contents in the front matter of the document and a partial table of contents in each chapter, and an index for each document and for the entire management system library. Use all of these tools to help find information quickly. However, be aware that the index for each document in the management system library and the index for the entire management system library are the preferred search tools.

Important! This document contains information on the complete line of network elements (NEs) that the OMS product supports. For a list of NEs that are supported in Release 6.3.1 of the management system, refer to the Summary of Supported NEs that is provided in Chapter 1 of this document.

In addition, this document may contain information that is related to service packs (SPs) or maintenance releases that the OMS product is to support in the near future. This material may not yet be visible or operable on the management system servers and/or GUI and has been added only as a convenience for our OMS customers. This material is subject to change.

This document supports the three hardware platforms on which OMS currently functions, which are the OMS HP® PA-RISC Server Platform (often referred to as the *Server Platform*), the OMS HP® Itanium® Server Platform (often referred to as the *Server Platform*), and the OMS PC Platform (often referred to as the *PC Platform*). Because the features that each platform supports vary, the variations of support are indicated in the text of this document where appropriate. In addition, the document library is offered on two CD-ROMs, depending on the platform on which OMS functions. Refer to “Related documentation”, which is in this section of the document for details regarding the two CD-ROMs that are available.

Conventions used

The conceptual information typically introduces each chapter or section of each chapter. The information presented in this area varies according to the topic being explained—sections, subsections, tables, figures, and screen captures can be commonly found.

The task information is presented as series of tasks that follows the conceptual information. These tasks are typically presented in the following functional order, depending on the nature of the subject being explained:

- *View a List of . . .*
- *View the Details of . . .*
- *Add . . .*
- *Create . . .*
- *Modify . . .*
- *Delete . . .*

Each task consists of sections that are called *When to use*, *Before you begin*, *Related information*, and *Task*.

The intent of the When to use, Before you begin, and Related information sections is self-explanatory—they explain when a task is to be used, what needs to be considered or done before you begin the task, and any related information that you would need to know while doing the task.

When a task does not have any conditions that must be considered before it is started, the Before you begin section for that task states: *This task does not have any preconditions.*

Each Task section consists of any number of steps. The completion of all steps, which are sequentially numbered, are required for the entire task to be completed successfully. In some instances, a step might be prefaced with the wording *Optional*, which indicates that the step can be skipped and the task can still be successfully completed. A task is considered to be completed when all of its steps are completed and when the wording **End of Steps** appears.

Many times, the management system affords the user with multiple ways to accomplish the same task. In these instances, one task can present the user with several **Methods** of how to accomplish the same set of steps successfully.

In addition, this *OMS Network Element Management Guide* relies on the following typographical conventions to distinguish between user input and computer output.

- When describing the OMS 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`.

This *OMS Network Element Management Guide* uses the following convention to indicate a *path* of pages that should be navigated through to arrive at a destination page:

- **Network > Submaps**

This same convention is also used to show a path through a series of menu items, for example:

- Click the filtering tool, and select **Node > Node Type**.

Occasionally, a set of management system features is not supported for all NEs or for both operating environments. This set of features is clearly marked to show these exceptions.

Related documentation

This *OMS Network Element Management Guide* is part of a set of documents that supports the OMS.

For the Server Platform, this document set is available on CD-ROM. The *OMS User Documentation CD-ROM* (365-315-144R6.3.1) includes the full set of documents listed below for the Server Platform in HTML and PDF formats.

Documentation

The document set that supports the OMS is comprised of the following documents:

1. *OMS Getting Started Guide* (365-315-145R6.3.1), which instructs new users how to use OMS. This document contains a glossary of terms.
2. *OMS Connection Management Guide* (365-315-150R6.3.1), which instructs users how to use OMS to provision and manage network connections.
3. *OMS Network Element Management Guide* (365-315-146R6.3.1), which instructs users how to use OMS to provision and manage network elements.
4. *OMS Ethernet Management Guide* (365-315-147R6.3.1), which instructs users on how to use the Ethernet Management feature to provision and manage Ethernet connections in a network.
5. *OMS Service Assurance Guide* (365-315-148R6.3.1), which instructs users on how to manage and interpret fault information collected from the network.
6. *OMS Administration Guide* (365-315-149R6.3.1), which instructs users on how to administer and maintain OMS and the network.

Help products

OMS includes an extensive help system that is designed to consider the task the user is performing and help that user successfully perform the task. The five help products described in the following table can be accessed from the Help menu on the top navigation bar of every page.

Help Product	Help Menu Item	Description
Task Help	**How do I ...**	Provides a list of tasks that can be performed from the current page. Clicking a task in the list presents the actual task. In addition, access is provided to the **Index**, which is the preferred search tool for the help system.
Page Help	**About this page**	Describes the purpose of the page, the toolbar tools, and a description of each field on the page. In addition, access is provided to the **Index**, which is the preferred search tool for the help system.
On-line Document Library	**On-line docs**	Presents the library of user documents, in both HTML and PDF formats. A search engine is included. *Note:* Access to the index of each document is provided. The index for the help system, which is the preferred search tool, is accessed from **How do I...**, **About this Page**, or **Technical Support** pages.
Technical Support Help	**Technical Support**	Provides technical support contact information. In addition, access is provided to the **Index**, which is the preferred search tool for the help system.
Product Help	**About OMS**	A popup window shows the version of the management system, along with links to the copyright and the OMS product pages. This page also contains information to acknowledge the open source software that OMS uses.

How to order

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1 Introduction

Overview

Purpose

This document instructs users on how to provision with OMS.

Contents

Product Overview

Definition

OMS is an integrated, modular system that offers a range of network element (NE), network connection, and service/order management functions. It links the management of traditional network equipment with next-generation technology and offers distribution options that can grow with network expansion. OMS controls service-restoration properties within the network, and complements this service-quality management with its own high-availability configurations.

OMS offers the benefits of fast service activation, state-of-the-art provisioning, reduced operating and equipment costs, accurate record keeping, fault management, and fast problem resolution.

About the software

OMS is run through an Internet browser-based Graphical User Interface (GUI). The GUI is a *weblication* that runs through a browser. It supports the standard web features that a browser offers, such as bookmarks, back, forward, reload, and print.

In addition, the management system provides standard machine-to-machine interfaces so it can be easily integrated into the embedded operations environment of the service provider.

Support for transport structures and transmission technologies

The management system supports both the Synchronous Optical Network (SONET) and the Synchronous Digital Hierarchy (SDH) transport structures. The particular transport structure to be used is controlled by an installation parameter; refer to the *OMS Administration Guide* for details.

In addition, the management system supports both Time Division Multiplexing (TDM) and Dense Wavelength Division Multiplexing (DWDM) as its transport technologies.

User role profiles

When a user account is created, it is assigned a user role profile, which restricts the tasks that the user login can perform. The management system offers these three predefined user role profiles, which are referred to as *factory-defined user role profiles*:

- NOC Administrator
- NOC Expert Operator
- NOC Operator

In addition, the management system allows the creation of a *user-defined user role profile*, which is a user role profile that consists of a customized list of tasks that is specific to the job responsibilities of the user.

Refer to the *OMS Administration Guide* for details.

Installation parameters

An installation parameter is a parameter that is set during installation of the management system and can control the behavior of a feature.

Refer to the *OMS Administration Guide* for more information about installation parameters.

User Activity Log

All provisioning changes done using the management system are logged in the User Activity Log. For detailed information about the User Activity Log, refer to the *OMS Network Element Management Guide*.

Although it is not stated as part of the results for every task in this document, you can assume that all tasks that result in a provisioning change are logged to the User Activity Log.

□

OMS as an MST for OMC-RAN

Interworking with OMC-RAN

OMC-RAN, which offers element management for the mobility back haul networks, provides an integrated network view and overall network surveillance, which includes fault management (FM) for an entire network. OMC-RAN offers a cut-through to OMS for the configuration management of the Mobility Aggregationccess Transport System (MATS) and general access to configure appropriate NEs. When OMC-RAN users cut-through to OMS, they view a tree-like hierarchal GUI, and not the traditional GUI of OMS.

When deployed in this capacity, OMS functions as a subtending element management system (EMS) under Alcatel-Lucent's OMC-RAN; and, in this capacity, the OMS is known as MST, or the *Management System for Transport*, to OMS-RAN users.

Platform and license

To interwork with OMC-RAN and to function as an MST, OMS and OMC-RAN must be co-located on a single SUN Netra v1280 server running the Sun Solaris operating system. Each management system, meaning OMC-RAN and OMS, runs independently on this single server.

In addition, to enable the cut-through, the OMS_NE_MATS license must be installed and enabled on the OMS/MST management system.

Additional Details

When the OMS functions as an MST for OMC-RAN, refer to the *Management System for Transport (MST) User Guide*, which is part of this documentation library, and the OMC-RAN documentation for additional details.

□

Getting Started

Overview

This section describes how network operators should prepare themselves to begin using OMS to perform provisioning tasks.

Ensure the system is operational

Ensure that the management system is installed and operational.

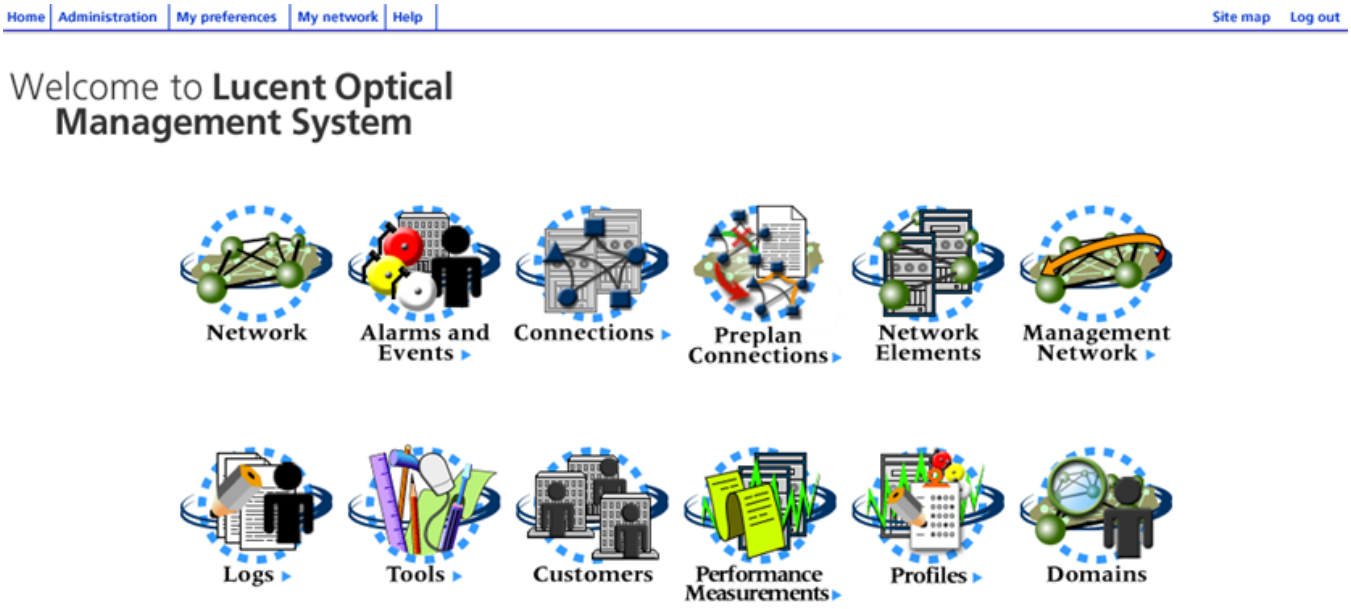
Familiarize yourself with the GUI

It is important to understand the software conventions used within the GUI of OMS. Read the *OMS Getting Started Guide*, which provides a product definition, teaches users how to use the GUI and navigate through its pages, and teaches users how to use the help system. In particular, network operators need a good understanding of how to use the Network Map.

Know how to find information in this document

The information in this document is presented so that it corresponds to the main sections of the management system software.

The home page of the management system shows the main sections of the management system software.



The following table describes how to find documentation about each of the main sections of the management system software.

Section of Management System Software	Location of User Information
Network	Covered throughout this document
Alarms and Events	Covered in the *OMS Service Assurance Guide*
Connections	Covered in the OMS Connection Management Guide and the OMS Ethernet Management Guide
Network Elements	Chapter 3, “Manage Individual Network Elements”, Chapter 4, “NE Management Functions for TL1 NEs” and Chapter 5, “NE Management Functions for CMISE NEs”
Management Network	Chapter 2, “Manage Network Infrastructure”
Logs	Chapter 6, “Logs”
Tools	Chapter 7, “Tools”
Customers	Covered in the OMS Connection Management Guide

Section of Management System Software	Location of User Information
Optical Network Navigator System (ONNS)	Covered in the OMS Connection Management Guide
Performance Measurements	Covered in the OMS Service Assurance Guide

Within each chapter, conceptual information is located in the front, and tasks follow. Some of the chapters are divided into sections based upon topic.

Important! Refer to the *OMS Administration Guide* for details regarding any UNIX® and/or server based task that must be performed from the command line. For example, the task that explains the insertion and removal of CD-ROMs can be found in the *OMS Administration Guide*.

Use the glossary

For a complete listing of OMS related terms, refer to the Glossary located at the back of the OMS Getting Started Guide.

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Supported Network Elements

The management system and its supported NEs

OMS supports Alcatel-Lucent's family of optical NEs. To accommodate the world of optical transmission standards, these Alcatel-Lucent NEs operate using different transport structures and they support different native command languages. Refer to "Summary of supported NEs" (p. 1-9) for a list of the particular NEs and the releases of those NEs that the management system supports.

Supported transport structures

Alcatel-Lucent's NEs are designed to operate in the Synchronous Digital Hierarchy (SDH) operating environment, the Synchronous Optical Network (SONET) operating environment, or both environments. The Mobility Aggregation and Transport System (MATS) NE is an Ethernet NE that operates using Ethernet transport structure. Refer to "Summary of supported NEs" (p. 1-9) for a list of the transport structure of each supported NE.

Native command languages

Each NE supports a native command language that is used to control the NE at the network-element-level via the Craft Interface Terminal (CIT).

The management system supports NEs that are controlled with the following three different native command languages:

- TL1, which is Transaction Language 1
- CMISE, which is Common Management Information Service Element
- Simple Network Management Protocol (SNMP)/Command Line Interface (CLI) Note: SNMP is generally used to retrieve information from the NE; CLI is generally used for provisioning of the NE.

The management system uses the native command language of the NE to implement some of its features; consequently, differences in management system behavior can be attributed to one native command language or another, which is why this categorization is significant. The management system also indirectly manages CBX-3500 NEs via a TMF-814 interface to the management system of the CBX-3500 NEs called CBGX-EMS. Therefore, throughout this document, references are made to *TL1 NEs*, *CMISE NEs*, or *SNMP/CLI NEs*.

Refer to "Summary of supported NEs" (p. 1-9) for a list of the native command language of each supported NE.

Summary of supported NEs

The following table summarizes each supported NE and its release, along with its transport structure and its native command language.

Important! Each release of OMS supports certain NEs within Alcatel-Lucent's family of optical NEs. Mention of NEs or specific NE features in the text of this document that are not supported in this particular release of the management system apply to prior releases of the management system. Such material may not be currently visible or operable on the management system GUI and has been added only as a convenience for our OMS customers.

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
ISM-ADM 1	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM-ADM 4	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM Repeater 1	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM Repeater 4	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM TM 1	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM TM 4	R2.5[4] R3.5[4]	SDH	CMISE	TDM
1675 Lambda Unite MultiService Switch (MSS)	R10.0, R9.0.2, R9.0.3	SONET / SDH	TL1	TDM
LambdaXtreme® Transport	R7.0.1, R5.1.1	SONET / SDH[2]	TL1	DWDM
Metropolis® ADM MultiService Mux (Compact Shelf)	R5.0.3 R3.1, R3.2, R3.3[4]	SDH	CMISE	TDM
1663 Add Drop Multiplexer-universal (ADMu)	R6.0 R5.0.1	SDH	CMISE	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
1643 Access Multiplexer (AM)	R7.2 R6.1H R3.0, R3.1, R3.2[4] R2.2[4]	SDH	CMISE	TDM
1643 Access Multiplexer Small (AMS)	R7.2 R7.1 R6.1H	SDH	CMISE	TDM
1655 Access Multiplexer Universal (AMU)	R4.1.1 R4.0 R3.0	SDH	CMISE	TDM
1665 DMX Access Multiplexer	R7.1 R7.0.1 R6.0.1 R5.1.3	SONET	TL1	TDM
Metropolis® DMXplore Access Multiplexer	R2.1	SONET	TL1	TDM
1665 DMXtend Access Multiplexer	R5.1 R5.0.1 R4.0.1 R3.1.3	SONET	TL1	TDM
Metropolis® Enhanced Optical Networking (EON)	R8.8 R8.6.3	SONET / SDH[2]	TL1	DWDM
Metropolis® Wavelength Services Manager (WSM)	R6.0	SONET / SDH[2]	TL1	DWDM
PHASE ADM 4/4	R5.0[4]	SDH	CMISE	TDM
PHASE ADM 16/4	R5.0[4]	SDH	CMISE	TDM
PHASE LR 4	R5.0 [4]	SDH	CMISE	TDM
PHASE LR 16	R5.0 [4]	SDH	CMISE	TDM
PHASE LXC 4/1	R5.0 [4]	SDH	CMISE	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
PHASE LXC 16/1	R5.0[4]	SDH	CMISE	TDM
PHASE TM 4/4	R5.0[4]	SDH	CMISE	TDM
PHASE TM 16/4	R5.0[4]	SDH	CMISE	TDM
SLM ADM 16	R5.0[4]	SDH	CMISE	TDM
SLM MS Protected TM 4	R5.0[4]	SDH	CMISE	TDM
SLM MS Protected TM 16	R5.0[4]	SDH	CMISE	TDM
SLM Regenerator 4	R5.0[4]	SDH	CMISE	TDM
SLM Regenerator 16	R5.0[4]	SDH	CMISE	TDM
SLM Unprotected TM 4	R5.0[4]	SDH	CMISE	TDM
SLM Unprotected TM 16	R5.0[4]	SDH	CMISE	TDM
WaveStar® ADM 4/1	V5 R4[4]	SDH	CMISE	TDM
WaveStar® ADM 16/1	R8.0.3 R7.0.1 R6.2.5[4] R6.1, R6.0[4]	SDH	CMISE	TDM
WaveStar® AM 1	R3.1[4]	SDH	CMISE	TDM
WaveStar® Bandwidth Manager	R4.1.6[3]	SONET	TL1	TDM
WaveStar® DACS 4/4/1	R3.1[4], R3.0[4]	SDH	CMISE	TDM
WaveStar® OLS 1.6T	R8.0[3] , R7.1[6], R6.2.2[6]	SDH	CMISE	DWDM
WaveStar® TDM 10G (STM64)	R5.0[5], R4.0 [5]	SDH	TL1	TDM
1645 Access Multiplexer Compact (AMC)	R8.0	SDH	CMISE	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology

1. Also supports the Unknown NE type, the Non-managed NE, and the Unmanaged Device.
2. Carries SONET/SDH transparently.
3. Releases listed are supported via cut-through to Optical EMS R10.3.2. Domain and network level support is also provided via the EMS G7 interface by the management system's OMS GUI.
4. Release listed is supported via cut-through to ITM-SC R10.2 and NE is considered to be indirectly managed. Domain and network level support is also provided by the management system's OMS GUI via the XML interface between ITM-SC and the management system.
5. Releases 5.0 and 4.0 are supported directly by OMS R6.1. Release 5.0 is also supported indirectly via Optical EMS R10.3.1.
6. Releases listed are supported via cut-through to Optical EMS R10.3.1.

Indirectly Managed NEs

Overview

Management system support for indirectly managed NEs is provided through a subset of the management system graphical user interface (GUI) pages. For features not supported in this subset of features, NEs are managed via the graphical user interface of the element management system controllers. The controller interface is opened from either the Network Map or the Network Elements page.

Element management system controllers

Controllers are standalone element management systems that have an interface to the management system that allows the management system to indirectly manage some or all of the NEs supported by the controller. The Controller applications run on servers separate from the main management system server similar to the separate servers for network adapters in the distributed management system architecture.

An interface from the main management system server to each controller server must be provisioned. Therefore, as with network adapters, the data communications network must be designed to allow for this configuration. It is assumed that the data communications network already exists that allows the controllers to interface with the NEs they are managing. Since the management system does not have a direct interface with these indirectly managed NEs, the addition of the management system should not have any impact on that part of the data communications network.

The following element management system controller provide indirect management of NEs:

- WaveStar® ITM-SC R10.2 and R11.4 - allows the management system to indirectly manage certain CMISE NEs in place of CNA. **Note:** This controller is not supported in this release.
- Optical EMS R10.3.2 - allows the management system to indirectly manage certain TL1 NEs in place of TNA.
- CBGX EMS - allows the management system to indirectly manage CBX-3500 NEs.

These controllers are not co-resident on the same servers as the management system. Management is provided from the management system via an XML interface to WaveStar® ITM-SC and via a G7 interface to Optical EMS.

For a list of indirectly supported NEs and the controllers through which they are managed, see “Summary of supported NEs” (p. 1-9) .

Important! These element management systems are referred to as **controllers** throughout this documentation set.

Note for SLM Regenerator 4 and SLM Regenerator 16

SLM Regenerator NEs are reported as neighbors by Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs. If these NEs report the SLM Regenerator NE is managed by WaveStar® ITM-SC, the SLM Regenerator NE will be an indirectly managed NE. If these NEs report the SLM Regenerator NE is managed by a CMISE network adapter, the SLM Regenerator NE will be a directly managed NE. The CMISE network adapter however, does not directly connect to the SLM Regenerator NE and the level of support for a directly managed SLM Regenerator NE is equivalent to that provided for an indirectly managed SLM Regenerator NE. The only difference between an indirectly managed and a directly managed SLM Regenerator NE is that cut-through to the WaveStar® ITM-SC controller is provided for indirectly managed NEs and the NE Management Functions (for CMISE NEs) is provided for directly managed NEs.

Indirect management of WaveStar® OLS 1.6T NEs

When Optical EMS is used as a controller to indirectly manage WaveStar® OLS 1.6T NEs, that controller can only be managing WaveStar® OLS 1.6T NEs. No other NEs types may be managed by that Optical EMS controller.

Management system support for indirectly managed NEs

Indirectly managed NEs are fully supported by the management system on the following pages:

- Network Map - indirectly managed NEs are displayed on the Network Map. Additionally, connections between two indirectly managed NEs or between an indirectly managed NE and a directly managed NE are displayed. Indirectly managed NEs can be included in management system areas and aggregates.
- Network Element page - the Network Elements page allows users to search for and view any NEs indirectly managed by the management system.
- Fault management pages - alarms and events from indirectly managed NEs are displayed on the management system Alarm List and Network Event Summary (NES) pages. Additionally displayed are host alarms related to element management system controllers, such as the loss of communications between the management system host and an EMS/SC controller.
- Connection provisioning pages - automatic routing, manual routing, and cross-connection-based connection provisioning for indirectly managed NEs is supported for only indirectly managed NEs, only directly managed NEs, and a mix of indirectly and directly managed NEs.

- Graphical Layout - connections consisting of only indirectly managed NEs, only directly managed NEs, and a mix of indirectly and directly managed NEs are displayed on the Graphical Layout.
- Performance Monitoring pages - the management system queries the applicable EMS/SC controller database for the PM data. This means current performance management data is not available for indirectly managed NEs from the management system. Additionally, the management system allows the user to provision from the points from which the EMS/SC controllers collect PM data from indirectly managed NEs.

Indirectly managed NEs are partially supported by the management system on the following pages:

- OMS to NE Connections pages - indirectly managed NEs can be viewed and deleted.
- Protection Switch page - to view the protection switch status.
- Database Synchronizations page - subset of the management system database is synchronized with the EMS/SC controllers.
- Scheduled Tasks page - the user is able to schedule database synchronizations against indirectly managed NEs.

Indirectly supported NEs are not shown on the management system pages other than those listed here.

For further information about support for indirectly managed NEs in each of the functional areas of the management system, refer to the applicable sections of this documentation set.

Opening the element management system controllers

For those management system functions not supported for indirectly managed NEs, the user can open the appropriate controller from the Network Map, Network Elements and Controllers pages. The cut-through is not context sensitive. Therefore, when the user opens the controller, the login page to the controller which manages the indirectly managed NE is opened. The user is then responsible for entering a login and password to the controller. Once the controller application is opened, the user must navigate via the application to the desired function.

Domain partitioning for indirectly managed NEs

Each indirectly managed NE is required to be assigned to a Geographic Domain. Management system users are only able to view indirectly managed NEs that are included in the Geographic Domain to which they are assigned.

When a management system user cuts through to the EMS/SC controller, the Domain Partitioning features of the EMS/SC controller is used rather than the management system Domain Partitioning feature. Therefore, it is the responsibility of the user to align consistently for each user the Domain Partitioning features of an EMS/SC controller to match the management system Domain Partitioning feature.

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List of Supporting NE Documentation

Overview

In addition to this Provisioning Guide, the user must also have on-hand the set of documentation that supports the NE. From the NE documentation, the user can find critical information necessary to manage NEs, such as prerequisites, sequence of steps, and the particular NE's command set.

Important! The list of documentation per NE release may vary. Not all documentation is available for individual NE releases.

The following table lists the supporting documentation set for each TL1 NE.

Network Element	List of Supporting Documentation
1675 Lambda Unite MultiService Switch (MSS)	1675 Lambda Unite MultiService Switch (MSS) Applications and Planning Guide 1675 Lambda Unite MultiService Switch (MSS) Installation Guide 1675 Lambda Unite MultiService Switch (MSS) User Operations Guide 1675 Lambda Unite MultiService Switch (MSS) Alarms, Messages and Trouble Clearing Guide 1675 Lambda Unite MultiService Switch (MSS) Operations and System Engineering Guide (TL1 Reference Manual)
LambdaXtreme® Transport	LambdaXtreme™ Transport Applications and Planning Guide LambdaXtreme™ Transport User Operations Guide LambdaXtreme™ Transport Alarms, Messages and Trouble Clearing Guide LambdaXtreme™ Transport Installation Manual and system Turn-up Services LambdaXtreme™ Transport TL1 Command Guide
Metropolis® Enhanced Optical Networking (EON)	Metropolis® Enhanced Optical Networking (EON) Applications and Planning Guide Metropolis® Enhanced Optical Networking (EON) Installation Manual Metropolis® Enhanced Optical Networking (EON) User Operations Guide Metropolis® Enhanced Optical Networking (EON) Operations Systems Engineering Guide Metropolis® Enhanced Optical Networking (EON) Alarm Messages and Trouble Clearing Guide

The following table lists the supporting documentation set for each CMISE NE.

Network Element	List of Supporting Documentation
1663 Add Drop Multiplexer-universal (ADMu)	1663 Add Drop Multiplexer-universal (ADMu) Applications and Planning Guide 1663 Add Drop Multiplexer-universal (ADMu) Installation Guide 1663 Add Drop Multiplexer-universal (ADMu) Alarm Messages and Trouble Clearing Guide 1663 Add Drop Multiplexer-universal (ADMu) User Operations Guide
1643 Access Multiplexer (AM)	1643 Access Multiplexer (AM) Applications and Planning Guide 1643 Access Multiplexer (AM) Installation Guide 1643 Access Multiplexer (AM) Alarm Messages and Trouble Clearing Guide 1643 Access Multiplexer (AM) User Operations Guide
1643 Access Multiplexer Small (AMS)	1643 Access Multiplexer Small (AMS)Applications and Planning Guide 1643 Access Multiplexer Small (AMS) Installation Guide 1643 Access Multiplexer Small (AMS) Alarm Messages and Trouble Clearing Guide 1643 Access Multiplexer Small (AMS) User Operations Guide
1645 Access Multiplexer Compact (AMC)	1645 Access Multiplexer Compact (AMC) Applications and Planning Guide 1645 Access Multiplexer Compact (AMC) Installation Guide 1645 Access Multiplexer Compact (AMC) Alarm Messages and Trouble Clearing Guide 1645 Access Multiplexer Compact (AMC) User Operations Guide
1655 Access Multiplexer Universal (AMU)	1655 Access Multiplexer Universal Applications and Planning Guide 1655 Access Multiplexer Universal Installation Guide 1655 Access Multiplexer Universal Alarm Messages and Trouble Clearing Guide 1655 Access Multiplexer Universal User Operations Guide

Network Element	List of Supporting Documentation
WaveStar® OLS 1.6T	WaveStar® OLS 1.6T Applications and Planning Guide WaveStar® OLS 1.6T Operations System Engineering Guide WaveStar® OLS 1.6T Applications Ordering Guide WaveStar® OLS 1.6T User/Service Manual WaveStar® OLS 1.6T Installation Manual WaveStar® OLS 1.6T System Turn-up Services (STS) WaveStar® OLS 1.6T Long Single Span Application and Raman Shelf Offering WaveStar® OLS 1.6T Software Release Description
1665 DMX Access Multiplexer	1665 DMX Access Multiplexer Applications and Planning Guide 1665 DMX Access Multiplexer Installation Guide 1665 DMX Access Multiplexer Alarm Messages and Trouble Clearing Guide 1665 DMX Access Multiplexer User Operations Guide
1665 DMXtend Access Multiplexer	1665 DMXtend Access Multiplexer Applications and Planning Guide 1665 DMXtend Access Multiplexer Installation Guide 1665 DMXtend Access Multiplexer Alarm Messages and Trouble Clearing Guide 1665 DMXtend Access Multiplexer User Operations Guide

WaveStar® ITM-SC documentation

Also use the WaveStar® ITM-SC documentation to manage the following indirectly managed NEs.

- ISM family of products
- PHASE family of products
- SLM family of products
- WaveStar® ADM 4/1
- WaveStar® AM1
- WaveStar® ADM 16/1
- WaveStar® DACS 4/4/1

Applications and Planning Guide (APG)
Installation Guide (IG)

Alarm Messages and Trouble Clearing Guide (AMTCG)
Maintenance Guide (MG)
Administration Guide (AG)
Software Release Description (SRD)

Optical EMS documentation

The following lists the documentation for Optical EMS:

Provisioning Guide
Administration Guide
Maintenance Guide

NE Features Supported by the Management System

Overview

Network elements vary by size, equipage, function, communications protocol supported, signalling/transmission rates, interoperability, number and types of physical/electrical interfaces (ports), and cross-connection capabilities.

This section describes the network element (NE) features that can be supported by the management system.

1675 Lambda Unite MultiService Switch (MSS) (SONET transport structure)

The following table describes the 1675 Lambda Unite MultiService Switch (MSS) features that can be supported by the management system.

Supported Physical Network Connections	OC-768 OC-192 OC-48 OC-48T OC-12 OC-3 (Optical) OC-3 (Electrical) EC-1 (Release 6.1 forward) T3 (Release 5.0 forward)
Supported Logical Network Connections	STS-192c STS-48c STS-12c STS-3c STS-1 HO-VC-3 (Release 5.0 forward) VT1.5
Supported Ethernet Transport	1000Base-X (Gb Ethernet) VCG

Supported Logical Port Rates Contained by VCGs	STS192c STS48c STS12c STS-3c STS-1
Supported Connection Shapes	Simple (bi) Simple (uni) Add-drop (bi) Double add-drop (bi) Add-drop A (uni) Add-drop Z (uni) Double add-drop (uni)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi) Double add-drop (bi) Double add-drop D (uni) Double add-drop D (bi) Add-drop A (uni) Add-drop Z (uni) Interconnect (bi) Interconnect-W (bi) Interconnect-P (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Modes	1+1 APS (OC-192, OC-48, OC-12, OC-3) 1xN APS (OC-192, OC-48, OC-12, OC-3) 2F BLSR 4F BLSR Path-DRI
2-Fiber BLSR	OC-768 OC-192 OC-48

4-Fiber BLSR	OC-192 OC-48
Path-DRI	STS-192c STS-48c STS-12c STS-3c STS-1 LO-VT-1
UPSR Ring Dual-homed UPSR Ring	OC-768 OC-192 OC-48 OC-12 OC-3
2-Fiber BLSR Ring 4-Fiber BLSR Ring	OC-768 (2-Fiber only) OC-192 OC-48
Transmission parameters	AZ trail trace ZA trail trace Trail trace display mode Trail trace mismatch detection mode Trail trace format Frame format

1675 Lambda Unite MultiService Switch (MSS) (SDH transport structure)

The following table describes the 1675 Lambda Unite MultiService Switch (MSS) features that can be supported by the management system.

Supported Physical Network Connections	STM-256 STM-64 STM-16 STM-16T STM-4 STM-1 (Optical) STM-1 (Electrical) EC-1 (Release 6.1 forward) T3 (Release 5.0 forward)
Supported Logical Network Connections	VC-4-64c VC-4-16c VC-4-4c VC-4 VC-3 LO-VC-3 VC-12 VC-11
Supported Ethernet Transport	1000Base-X (Gb Ethernet) VCG
Supported Logical Port Rates Contained by VCGs	VC-4 VC-3
Supported Connection Shapes	Simple (bi) Simple (uni) Add-drop (bi) Double add-drop (bi) Add-drop A (uni) Add-drop Z (uni) Double add-drop (uni)

Supported Cross-connection Shapes	Simple (bi) Simple (uni) Double add-drop D (uni) Double add-drop D (bi) Add-drop (bi) Add-drop A (uni) Add-drop Z (uni) Interconnect (bi) Interconnect-W (bi) Interconnect-P (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Modes	1+1 MSP (STM-64, STM-16, STM-4, STM-1) 1x1 MSP (STM-64, STM-16, STM-4, STM-1) 2F MS-SPring 4F MS-SPring Path-DRI
2-Fiber MS-SPRing	STM-256 STM-64 STM-16
4-Fiber MS-SPRing	STM-64 STM-16
Path-DRI	VC-4-64c VC-4-16c VC-4-4c VC-4 VC-3 LO-VC-3 LO-VC-12

SNCP Ring Dual-homed SNCP Ring	STM-256 STM-64 STM-16 STM-4 STM-1
Transmission parameters	AZ trail trace ZA trail trace Trail trace display mode Trail trace mismatch detection mode Trail trace format Frame format

LambdaXtreme® Transport

The following table describes the LambdaXtreme® Transport features that can be supported by the management system.

Supported Physical Network Connections	OS OTS
Supported Contained Logical Port Rates	OCH STS-768rs STS-192rs STS-48rs DSR ODU1 ODU2 ODU3
Supported Connection Shapes	Double-simple (uni)
Supported Cross-connection Shapes	Double simple (uni) Add-drop Z (uni) Add-drop A (uni)
Supported Routing Mode	Cross-connection based Manual
Supported Protection Groups	UPSR (DSR)

Transmission parameters	AZ trail trace ZA trail trace Trail trace format Trail trace display mode

1663 Add Drop Multiplexer-universal (ADMu)

The following table describes the 1663 Add Drop Multiplexer-universal (ADMu) features that can be supported by the management system.

Supported Physical Network Connections	STM-64 STM-16 STM-4 STM-1 (Optical) STM-1 (Electrical) T3 T1 E3 E1
Supported Logical Network Connections	VC-4-16c VC-4-4c VC-4 VC-3 LO-VC-3 VC-12
Supported Ethernet Transport	10/100Base-T (Ethernet/Fast Ethernet) 1000Base-X (Gb Ethernet) VCG
Supported Logical Port Rates Contained by VCGs	VC-4

Supported Connection Shapes	Simple (bi) Simple (uni) Double add-drop (bi) Add-drop A (uni) Add-drop Z (uni) Add-drop A (bi) Add-drop Z (bi)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi) Double add-drop (bi) Double add-drop S (bi) Add-drop A (uni) Add-drop Z (uni) Interconnect-W (bi) Interconnect-P (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Groups	1+1 MSP ITU / ETSI Mode (Annex A) 1+1 MSP ITU 1+1 Optimized Mode (Annex B) 2F MS-SPRing SNCP
1+1 MSP ITU/ETSI Mode (Annex A)	STM-64 STM-16 STM-4 STM-1 (Optical)
1+1 MSP ITU 1+1 Optimized Mode (Annex B)	STM-4 STM-1
2-Fiber MS-SPRing (Includes Unprotected and Preemptible Traffic Support attributes for the NPPA/NUT feature)	STM-64 STM-16

SNCP	VC-4-16c VC-4-4c VC-4 VC-3 VC-12
SNCP Ring Dual-homed SNCP	STM-16 STM-4 STM-1
Supported Transmission Parameters	AZ trail trace ZA trail trace Trail trace mismatch detection mode Trail trace format Trail trace display mode 2Mb signal mapping TS0 monitoring

1643 Access Multiplexer (AM)

The following table describes the 1643 Access Multiplexer (AM) features that can be supported by the management system.

Supported Physical Network Connections	STM-4 STM-1 (Optical) E3 E1 T3 T1 X.21
Supported Logical Network Connections	VC-4 VC-12 LO-VC-3
Supported Ethernet Transport	10/100/1000Base-T (Triple rate Ethernet) 10/100Base-T (Ethernet/Fast Ethernet) VCG

Supported Logical Port Rates Contained by VCGs	LO-VC-3 VC-12
Supported Connection Shapes	Simple (bi) Add-drop A (bi) Add-drop Z (bi)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Groups	1+1 MSP ITU / ETSI Mode (Annex A) SNCP
1+1 MSP ITU / ETSI Mode (Annex A)	STM-1
SNCP	VC-4 VC-3 VC-12
SNCP Ring Dual-homed SNCP Ring	STM-4 STM-1
Supported Transmission Parameters	AZ trail trace ZA trail trace Trail trace mismatch detection mode Trail trace format Trail trace display mode ISDN mode Line coding

1643 Access Multiplexer Small (AMS)

The following table describes the 1643 Access Multiplexer Small (AMS) features that can be supported by the management system.

Supported Physical Network Connections	STM-1 (Optical) STM-1 (Electrical) T3 E3 T1 E1 X.21
Supported Logical Network Connections	VC-4 LO-VC-3 VC-12
Supported Ethernet Transport	10/100/1000Base-T (Triple rate Ethernet) 10/100Base-T (Ethernet/Fast Ethernet) VCG
Supported Logical Port Rates Contained by VCGs	LO-VC-3 VC-12
Supported Connection Shapes	Simple (bi) Add-drop A (bi) Add-drop Z (bi)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Groups	1+1 MSP ITU / ETSI Mode (Annex A) SNCP
1+1 MSP ITU / ETSI Mode (Annex A)	STM-1 (Optical) STM-1 (Electrical)
SNCP	VC-3 VC-12

SNCP Ring Dual-homed SNCP Ring	STM-1
Supported Transmission Parameters	AZ trail trace ZA trail trace Trail trace mismatch detection mode Trail trace format Trail trace display mode ISDN mode Line coding

1655 Access Multiplexer Universal (AMU)

The following table describes the 1655 Access Multiplexer Universal (AMU) features that can be supported by the management system.

Supported Physical Network Connections	STM-16 STM-4 STM-1 (Optical) T3 E3 T1 E1
Supported Logical Network Connections	VC-4-4c VC-4 LO-VC-3 VC-12
Supported Ethernet Transport	10/100/1000Base-T (Triple rate Ethernet) 1000Base-X (Gb Ethernet) 10/100Base-T (Ethernet/Fast Ethernet) VCG
Supported Logical Port Rates Contained by VCGs	VC-3 LO-VC-3 VC-12

Supported Connection Shapes	Simple (bi) Add-drop A (bi) Add-drop Z (bi)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Supported Protection Groups	1+1 MSP ITU / ETSI Mode (Annex A) SNCP
1+1 MSP ITU / ETSI Mode (Annex A)	STM-16 STM-4 STM-1
SNCP	VC-4 VC-3 VC-12
SNCP Ring Dual-homed SNCP Ring	STM-16 STM-4 STM-1
Supported Transmission Parameters	AZ trail trace ZA trail trace Trail trace mismatch detection mode Trail trace format Trail trace display mode ISDN mode Line coding

Metropolis® Enhanced Optical Networking (EON)

The following table describes the Metropolis® Enhanced Optical Networking (EON) features that can be supported by the management system.

Supported Physical Network Connections	OS OTS
Supported Contained Logical Port Rates	OCH DSR ODU2
Supported Connection Shapes	Simple (uni) Double simple (uni) Add-drop Z (uni) Add-drop A (uni)
Supported Cross-connection Shapes	Simple (uni) Double simple (uni) Add-drop Z (uni) Add-drop A (uni)
Supported Routing Modes	Manual Cross-connection based
Supported Protection Groups	UPSR (OCHT)
Transmission Parameters	AZ trail trace ZA trail trace Trail trace format

WaveStar® OLS 1.6T

The following table describes the WaveStar® OLS 1.6T features that can be supported by the management system. **Note:** All rates and connections, with the exception or external OS to a TDM NE, can only be discovered and not manually provisioned via the management system GUI.

Supported Physical Network Connections	OS

Supported Logical Network Connections	OMS OCH OC-n/STM-n RS/DSR (terminates on TDM) OC-n/STM-n RS/DSR (terminates on WDM)
Supported Connection Shapes	Simple (bi)
Supported Cross-connection Shapes	Simple (bi) Add-drop (bi)
Supported Protection Groups	UPSR SNCP

1645 Access Multiplexer Compact (AMC)

The following table describes the 1645 Access Multiplexer Compact (AMC) features that can be supported by the management system.

Supported Physical Network Connections	OS
Supported Logical Network Connections	VC-12 LO-VC-3 VC-4
Supported Connection Shapes	Simple (bi) Add-drop A (bi) Add-drop Z (bi)
Supported Cross-connection Shapes	Simple (bi) Simple (uni) Add-drop (bi)
Supported Routing Modes	Auto Manual Cross-connection based
Transmission Parameters	AZ trail trace ZA trail trace Trail trace format
Supported Protection Groups	1+1 MSP SNCP

1+1 MSP	STM-4 STM-1
SNCP	VC-4 VC-3 VC-12

1665 DMX Access Multiplexer

The following table describes the 1665 DMX features that can be supported by the management system.

Supported Physical Network Connections	OS DSR OCH ODU10G OMS ODU10G_DSR
Supported Connection Shapes	Simple (bi) Simple (uni)
Supported Cross-connection Shapes	Simple (uni) Simple (bi) Add-drop A (uni) Add-drop Z (uni) Add-drop (bi) Double Add/Drop-S (uni) Double Add/Drop-S (bi) Interconnect-W (bi)
Supported Routing Modes	Manual Cross-connection based
Supported Protection Groups	2F BLSR UPSR
2F BLSR	OC-192 OC-48

UPSR	OC-192 OC-48 OC-12 STS-48C STS-12C STS-3C STS-1 VT1.5

1665 DMXtend Access Multiplexer

The following table describes the 1665 DMXtend features that can be supported by the management system.

Supported Physical Network Connections	OS DSR OCH ODU10G OMS ODU10G_DSR
Supported Connection Shapes	Simple (bi) Simple (uni)
Supported Cross-connection Shapes	Simple (uni) Simple (bi) Add-drop A (uni) Add-drop Z (uni) Add-drop (bi) Double Add/Drop-S (uni) Double Add/Drop-S (bi) Interconnect-W (bi)
Supported Routing Modes	Manual Cross-connection based
Supported Protection Groups	1+1 MSP UPSR

1+1 MSP	OC-192 OC-48 OC-12 OC-3
UPSR	OC-192 OC-48 OC-12 STS-48C STS-12C STS-3C STS-1 VT1.5

General Order of Provisioning

Overview

This section describes the general order of provisioning activities. The management system is set up differently for CMISE NEs, TL1 NEs and indirectly managed NEs.

Network adapters (NAs)

Network adapters (NAs) manage the communications between the management system and groups of NEs. The management system supports configurations where the NAs are detached from the main server, and running on separate dedicated servers. These dedicated servers can be either CMISE network adapters (CNAs), which support CMISE NEs or TL1 network adapters (TNAs), which support TL1 NEs.

Since NAs must be configured before provisioning, the design of the data communications network must be carefully considered. For more information about NA configurations, set-up and maintenance, see the *OMS Administration Guide.*

Element management system controllers

The management system also supports indirect management for some NE types via graphical user interface cut-through to element management system controllers. For more information, see “Indirectly Managed NEs” (p. 1-13).

Controllers must be added to the management system before indirectly managed NEs can be supported. For more information about controller configurations, set-up, and maintenance, see the *OMS Administration Guide*.

Set up the management system for CMISE NEs

The following list of activities is performed in the described order to set up the management system for CMISE NEs.

1. A network communications group is added using the Add Network Communications Group page in the management system.
2. Each NE in the network is added using the Add OMS-to-NE Connection page in the management system.
3. After an NE is added, it is automatically inventoried and the equipment found in each NE is added to the pages of the management system.
4. Any physical network connections are added manually using the Add Connection page.

5. The management system consolidates the network topology that results from the previous steps into a working view that is presented to users throughout the pages of the management system, most obviously in the Network Map.
6. For large networks, NEs should be placed into logical groups called areas.
   Note: For large networks, the area feature *must* be used to optimize system performance. Refer to the *OMS Getting Started Guide* for more information about areas.

Set up the management system for TL1 NEs

The following list of activities is performed in the described order to set up the management system for TL1 NEs.

1. A network communications group is added using the Add Network Communications Group page in the management system.
2. The first NE in the Network Communications Group, which is the Gateway Network Element (GNE) for the other NEs in that network communications group, is added using the Add OMS-to-NE Connection page in the management system.
3. When the first NE (GNE) in a subnetwork is added, the management system performs an NE configuration database synchronization, which causes the auto-discovery process to run. This process discovers the remaining TL1 NEs in the subnetwork and the physical network connections between TL1 NEs. Network communication groups that are connected to the first network communication group by an NE are discovered as part of the auto-discovery process.
4. Steps 1-3 are repeated for any other network communication groups in the network that are not connected to the first network communication group.
5. Any NEs that were not automatically discovered are added using the Add OMS-to-NE Connection page.
6. After an NE is added, it is automatically inventoried and the equipment found in each NE is added to the pages of the management system.
7. Any physical network connections that were not discovered are added manually using the Add Connection page.
8. The management system consolidates the network topology that results from the previous steps into a working view that is presented to users throughout the pages of the management system, most obviously in the Network Map.
9. For large networks, NEs should be placed into logical groups called areas.
   Note: For large networks, the area feature *must* be used to optimize system performance. Refer to the *OMS Getting Started Guide* for more information about areas.

Set up the management system for indirectly managed NEs

The following list of activities is performed in the described order to set up the management system for indirectly managed NEs

1. One network communications group per controller is added using the Add Network Communications Group page before communications with the controller is activated. If this step is not done, when indirectly managed NEs are being added to the management system, the management system automatically creates a Network Communications Group, name it based on the controller name, and associate it with the controller.
2. Upon initial connection of a new controller to the management system, the management system automatically queries the controller to determine which NEs from the controller are indirectly managed by the management system. Note that, if communications between the management system and a controller go down, upon restoration of communications, the management system automatically initiate a query to the controller to synchronize the NEs in the management system and the controller.
3. Each indirectly managed NE automatically discovered by the management system is added to the Network Communications Group associated with the controller.
4. After an indirectly managed NE is added to the management system, the management system automatically initiates a database synchronization between the management system database and the controller database related to NE alarms/events and NE configuration data. Note that, if communications between the management system and a controller go down, upon restoration of communications, the management system automatically synchronizes its view of active alarms and events for all indirectly managed NEs.
5. If any physical network connections are not automatically determined by synchronizing with the controller database, these physical network connections are manually added using the Add Connection page.
6. For large networks, NEs should be placed into logical groups called areas. Both NEs directly managed by Network Adapters and NEs indirectly managed by controllers can be mixed into the same set of areas. Note that, for large networks, the area feature must be used to optimize system performance. Refer to the *OMS Getting Started Guide* for more information about areas.

Perform provisioning or monitoring tasks

Once the management system is set up, the network topology is presented to users throughout the pages of the management system. At this point, the management system can be used to control the network.

Users who are to perform provisioning activities are able to perform tasks such as add a network connection, add a protection group, run a database synchronization, or download a new version of software to an NE.

Users who are to perform monitoring activities are able to perform tasks such as view alarms, view the equipment view of an NE, view a list of network connections, or view the User Activity Log.

The complete set of provisioning and monitoring tasks that can be performed using the management system are described in the remaining sections of this document.

Important! For information about support for indirectly managed NEs in each of the functional areas of the management system, see "Management system support for indirectly managed NEs" (p. 1-14).

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Command Deployment Feature

Functionality description

The Command Deployment feature provides status of each command sent from the management system including those that are related to connection provisioning, loopback, ports, or the Ethernet Management feature.

The Command Deployment page can be accessed from various pages including the connection List and Graphical Layout, and is commonly used to diagnose and repair failed orders. Additionally, some provisioning actions can be executed from this page including a mechanism to forcibly complete a request without sending the commands to the network. The user can also implement or resend the commands in a per-request basis.

Important! Each release of OMS supports certain NEs within Alcatel-Lucent's family of optical NEs. Mention of NEs in the text of this document that are not supported in this particular release of the management system apply to prior releases of the management system.

Command list

The command list is presented as a tree in order to show the three-layer hierarchical relationships of requests, command groups, and commands.

- A *request* is a task completed by a user of the management system, such as Add a Network Connection.
- Commands are grouped into *command groups* so commands within each group can be executed simultaneously and the command groups can be executed sequentially.
- A *command* is the smallest component part of a command group.

Command status

The status of commands listed on the Command Deployment page is indicated by an icon.

The following table defines the command status icons.

Status	Icon Color
Completed	Green
Failed	Red
In Progress	Orange
Created	Blue
Timed Out	Red

Status	Icon Color
Force Complete This Step	Red

Other pages used for troubleshooting

The following is a list of other pages, besides the Command Deployment page, which may be helpful in troubleshooting a failed connection.

- Cross-Connections page - to identify if there is an uncorrelated cross-connection that is causing the problem.
- Link Connections page - to determine if the problem is caused by inadequate bandwidth.
- Equipment page - to view the ports and ensure that suitable ports are being used.
- Ports page - to view the ports and ensure that suitable ports are being used.

Command Deployer in Stepwise Modify Mode

If the user indicates that they want to utilize the Stepwise Modify mode, the Command Deployer generates all required requests, but only deploys specific command sets. If all commands in the group are successful, the management system waits for user input before continuing to deploy commands in the next command set. The user can indicate whether the management system should deploy the next command set and then wait for additional user input, or to deploy all remaining command sets.

In the Stepwise Modify mode, the Move Forward One Command Set and Move Backward One Command Set actions allow the user to move forward and backward; however, the forward action does not allow the user to leave the Implementation Order Step, but the backward action will move the Order to the Local Design Order Step once the first command set has been de-provisioned. These actions appear on the Command Deployer Go menu if the user has enabled the Stepwise Modify parameter on the order.

If the request has stopped prior to completing all command groups, an action to move to another step (that is, forward to In Effect, or backward to Local Design or Planned) causes the management system to proceed through all command groups when the previous command group is successfully completed without stopping in between command groups for user input.

For more information

For information on how to use the Command Deployment feature, see one of the following:

- "View the Commands and the Status of the Commands for a Port" (p. 3-93)
- View the Commands and the Status of the Commands for a Connection task in the OMS Connection Management Guide.

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Job Updates Feature

Functionality description

The Job Updates page is used to monitor the progress of orders you have created, and to monitor the progress of background tasks that are in the process of running.

Accessing the Job Updates page

The Job Updates page is accessed by clicking the **My network** hyperlink on the top navigation bar on each page of the management system, and clicking the **Job updates** menu item. The page can be left open while you are performing multiple tasks, so you can monitor the progress of each task.

The Job Updates page may also be set up to display automatically upon login, each time the user moves an order to a different step, or each time a background task is completed. These options can be selected on the **My preferences** page. For more information see *OMS Getting Started Guide.*

Job Updates page panels

The Job Updates page contains two panels:

- **Order Status** - monitors the progress of orders you have created. This panel shows the changing status for an order as it progresses through the order steps.
- **Background Task Status** - monitors the progress of jobs that are running, such as database synchronizations, port provisioning, protection switching, or software management tasks.

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Domain Partitioning Management

Domain partitioning definition

Partitioning Management is the ability to partition network resources into a domain and the ability to restrict a user's access based on this partitioning. With Domain Partitioning Management, a network operating company can partition its network hierarchically by its organizational structure or its geographical regions.

A Domain is a logical association of network resources and users. The domain users are defined as Domain Administrators and Domain Operators. The network resources that can be partitioned are limited to the entire NE.

Domain partitioning allows a network operating company to partition its network according to:

- Organizational structure of the company with hierarchical structure, where one domain may include other domains.
- Geographical regions, also with a hierarchical structure.

Domains can be hierarchically arranged in multi-level parent/child relationships. The entire network under the management system is considered to be a global domain. The management system administrators and operators are global domain users.

Domain categories

There are two domain categories:

- **Global domain** - includes all network resources under management system control. Initially, when the domain partitioning feature is installed, the Global domain is created automatically and cannot be modified or deleted. Network resources from the global domain can be assigned to user-created domains.
- **User-created domains** - domains that were created manually. User-created domains can be modified and deleted.

Domain user categories

All management system users are domain users. The following list describes the types of domain partitioning user categories. All users are subject to the security restrictions as defined in their user-role profile. Any user may be assigned the “Domain Administrator” which allows a user to create/modify/delete domains.

- Not restricted users - Global Domain users. A user in the global domain with the “Domain Administration” task in his/her profile is able to create domains and assigned network resources.
- Restricted users - users not having been assigned to any specific user-created domain.
- Users assigned to a specific user-created domain. Multi-domain users are users that are assigned to more than one domain.

Domain hierarchies

Domains can be arranged into multi-level parent/child/grandchild/... hierarchies. The global domain is a parent or grand-parent of all domains. Any domain can have multiple children. However, a child domain can only have one parent. A parent domain can view and manage all network resources that are contained in its children/grandchildren/... domains.

Domain user management system operations and capabilities

Provided that domain users have the appropriate tasks in their user-role profiles, the domain user can perform any of the network element operations in the management system as follows.

- Network Map - The Network Map limits the display to those NEs that belong to the domain user network. The parent domain users can see NEs that belongs to their children domains.
- Network Event Summary - The Alarm and TCA counters displayed for a domain user are specific to the events that have occurred in the domain network where a user has login(s), not including children domains.
- Fault Management, Performance Monitoring, and Profiles - Fault Management alarms are filtered based on the network elements that have been assigned to the user’s domain and to the children/grand-children domains in all levels of the domain tree.
- Network Elements functions - All functions are available to the domain user. The following pages limit display to those network elements assigned to the domain user network.
  - Download software
  - NE Management Functions (TL1 command access)
  - View equipment

  - Modify ports
  - Create/Modify/Delete Protection groups
- OMS to NE Management functions - The following pages limit display to those network elements assigned to the domain user network.
  - Create/Modify/Delete/Deactivate OMS to NE connections.
  - Create/Modify/Delete Network Communications Groups
- Logs - the following logs limit display to those network elements assigned to the domain user network.
  - Command and Response Log
  - NE Notification Log
  - Alarm Log

  The User Activity Log has no change in relation to Domain Partitioning.
- Tools - all functions limit display to those network elements assigned to the domain user network.
- Customers - the domain user creates their own customers. Domain users can create a customer that belongs to their domain or to any of their children/grandchildren in any layer of the domain tree structure. A single customer can belong to one or more domains.

Create, modify and delete domains

The following rules apply to creating, modifying and deleting domains.

- The Create, Modify, Delete Domain functions are available to a domain user with “Domain Administration” task in its user profile.
- In creating and modifying domains, the domain administrator can assign network resources and users from any of the domains in its domain user network.
- When Modifying a domain, the domain administrator can modify its own domain and any of its children domains within its domain user network. The domain administrator cannot modify its parent domain.
- The domain administrator cannot create, modify or delete the Global Domain.
- The domain administrator can delete any of its children domains within the scope of its domain user network. The domain administrator cannot delete itself or its parent domain.
- When a domain is deleted all network resources revert to the immediate parent domain.
- Customers that have been created by a subsequently deleted domain user is reassigned to the parent domain.

□

View Domains

When to use

Use this task to view domains.

Related information

See the following topic:

- “Domain Partitioning Management” (p. 1-47)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view domains.

1 Use the icons or the object links to follow this path: **Domains**

Result: The Search Domain page is displayed. The domain tree display area in the left-side panel appears pre-populated with the domain tree.

2 To view the details of a domain, expand the domain tree in the left-side panel, and click on the domain in the tree in the left panel.

Result: In the right side of the table, the Domain Name, Domain Details, Network Elements page hyperlink, and Domain user list hyperlink are displayed.

3 Do the following:

1. To display the list of network elements assigned to the selected domain, click the **Network Elements** hyperlink.
2. To display the list of users assigned to the selected domain, click the **Users** hyperlink.
3. To display the list of links assigned to the selected domain, click the **Link Connections** hyperlink.
4. To display the list of connections assigned to the selected domain, click the **Network Connections** hyperlink.

Result: The selected page is displayed. The list of NEs or users is limited to only those NEs or users that are currently assigned to the selected domain.

END OF STEPS

□

Add a Domain

When to use

Use this task to add a domain.

This task has multiple parts.

Related information

See the following topic:

- “Domain Partitioning Management” (p. 1-47)

Before you begin

This task has no preconditions.

Task, Part 1 of 5: Specify the Domain parameters

Complete the following steps to add a domain.

1 Do one of the following:

- “View Domains” (p. 1-50), as described in an earlier task. Click the **New** tool.
- Open the Network Map. Click the **New** tool. From the displayed list select **Domain**.

  Result: The Create Domain page is displayed. This page includes a Network Map and a series of provisioning panels. The Domain parameters panel is displayed at the bottom of the Network Map.

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

3 In the **Domain information** field, enter any user-defined information about this domain.

END OF STEPS

Task, Part 2 of 5: Specify the Order parameters

Complete the following steps to provision Parent/Child assignment for a domain.

1 Click the number 2 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the Parent/Child assignment panel.

Result: The Parent/Child assignment panel is displayed.

2 In the **Available Domains** field, click the domain name which will be the parent of this newly created domain.

Result: The domain name appears in the **Selected Domain** field.

END OF STEPS

Task, Part 3 of 5: Specify the Network resource assignments

Complete the following steps to provision the Network resource assignments of a domain.

1 Click the number 3 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the Network resource assignments panel.

Result: The Network resource assignments panel is displayed.

2 In the **Available Network Elements** field, click the NEs that will be included in this domain.

Result: The NE names appear in the **Selected Network Elements** panel indicating inclusion in the domain.

END OF STEPS

Task, Part 4 of 5: Specify the user assignments

Complete the following steps to provision the user assignments of a domain.

1 Click the number 4 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the User assignments panel.

Result: The User assignments panel is displayed.

2 Double click the user name, or click the user name and user the arrow keys to move the user name from the **Available users** panel, to the **Selected users** panel.

Result: The user names appear in the **Selected Users** panel indicating inclusion in the domain.

END OF STEPS

Task, Part 4 of 4: Review and submit the domain

Complete the following steps to review and submit a domain.

1 Review the summary for this domain. Do one of the following:

- If you wish to return to a panel to change a selection, click the step number or the step text on the navigation aid, click the **Edit** button for that panel, or click the hyperlink for that panel. Change the appropriate information, and then return to this step.
- If the selections are all correct, click the **Submit** button.

  Result: The domain is created.

END OF STEPS

□

Modify a Domain

When to use

Use this task to modify a domain.

This task has multiple parts.

Related information

See the following topic:

- “Domain Partitioning Management” (p. 1-47)

Before you begin

This task has no preconditions.

Task, Part 1 of 5: Modify the Domain parameters

Complete the following steps to modify a domain.

1 “View Domains” (p. 1-50), as described in an earlier task.

Result: The Search Domains page is displayed.

2 Expand the domain tree in the left-side panel, and click on the domain you wish to modify in the tree in the left panel.

Result: The domain is selected.

3 Click the **Modify** button.

Result: The Modify Domain page is displayed. This page includes a Network Map and a series of provisioning panels. The Domain parameters panel is displayed at the bottom of the Network Map.

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

5 In the **Domain information** field, enter any new user-defined information about this domain, or change the existing information.

6 Select the **Next** button to modify the Parent/child assignments or select the **Finish** button to complete this task.

END OF STEPS

Task, Part 2 of 5: Modify the Parent/child assignments

Complete the following steps to modify Parent/Child assignment for a domain.

1 Click the number 2 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the Parent/Child assignment panel.

Result: The Parent/Child assignment panel is displayed.

2 In the **Available Domains** field, click the domain name which will be the new parent of this domain.

Result: The domain name appears in the **Selected Domain** field.

3 Select the **Next** button to modify the Network resource assignments or select the **Finish** button to complete this task.

END OF STEPS

Task, Part 3 of 5: Modify the Network resource assignments

Complete the following steps to modify the Network resource assignments of a domain.

1 Click the number 3 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the Network resource assignments panel.

Result: The Network resource assignments panel is displayed.

2 In the **Available Network Elements** field, click the new NEs that will be included in this domain.

To remove NEs from the domain, click the NE name in the **Selected Network Elements** panel.

Result: The NE names appear in the **Selected Network Elements** panel indicating inclusion in the domain. NE names appearing the **Available Network Elements** indicate they are not included in the domain.

3 Select the **Next** button to modify the User assignments or select the **Finish** button to complete this task.

END OF STEPS

Task, Part 4 of 5: Modify the user assignments

Complete the following steps to Modify the user assignments of a domain.

1 Click the number 4 or the step text link in the navigation aid, or use the Next button at the bottom right of the panel, to move to the User assignments panel.

Result: The User assignments panel is displayed.

2 To add users to the domain, double click the user name, or click the user name and user the arrow keys to move the user name from the **Available users** panel, to the **Selected users** panel.

To remove users to the domain, double click the user name, or click the user name and user the arrow keys to move the user name from the **Selected users** panel, to the **Available users** panel.

Result: The user names appear in the **Selected Users** panel indicating inclusion in the domain.

3 Select either the **Next** button or the **Finish** button to complete this task.

END OF STEPS

Task, Part 4 of 4: Review and submit the domain

Complete the following steps to review and submit a domain modification.

1 Review the summary for this domain. Do one of the following:

- If you wish to return to a panel to change a selection, click the step number or the step text on the navigation aid, click the **Edit** button for that panel, or click the hyperlink for that panel. Change the appropriate information, and then return to this step.
- If the selections are all correct, click the **Submit** button.

  Result: The domain is modified.

END OF STEPS

□

Delete a Domain

When to use

Use this task to delete a domain.

Related information

See the following topics:

- “Domain Partitioning Management” (p. 1-47)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a domain.

1 View a list of domains, using the “View Domains” (p. 1-50) task.

Result: The Search Domain page is displayed. The domain tree display area in the left-side panel appears pre-populated with the domain tree.

2 In the domain tree display area in the left-side panel, click the domain you wish to delete and select the **Delete** button.

Result: A confirmation window is displayed.

3 Confirm that you want to proceed with the deletion.

Result: A confirmation is issued in the Messages panel, and the domain is deleted from the management system. The message indicates that any network resources in this domain will become property of the parent domain. Click the **Refresh** button on the browser to view the new domain structure.

END OF STEPS

□

2 Manage Network Infrastructure

Overview

Purpose

This chapter contains provisioning tasks that are used to establish the infrastructure of the network, including tasks associated with OMS to NE connections, network communications groups, and NEs.

Important! Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to the current release.

Contents

Section I: Network Communications Groups

Overview

Purpose

This section discusses network communications groups.

Contents

Network Communications Group Concepts

Overview

The following is conceptual information about network communications groups. This information is meant to complement the tasks presented later in this section.

Important! Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to the current release.

Definition: network communications group

A network communications group is a group of interconnected and interrelated NEs that use a common data communications protocol, either Open Systems Interconnection (OSI), or TCP/IP for directly managed NEs, or the G7 interface for NEs indirectly managed through the Optical EMS controller, or the XML interface for NEs indirectly managed through the WaveStar® ITM-SC controller.

The NEs in a network communications group communicate with each other using one of the following inter-NE communications techniques:

- Time Division Multiplexing (TDM) NEs communicate via the Data Communications Network (DCC).
- Dense Wavelength Division Multiplexing (DWDM) NEs communicate via a supervisory channel.

The concept of a network communications group is of particular importance when setting up TCP/IP communications interfaces. For more information, see "TCP/IP Communications Interface Concepts" (p. 2-40).

In the case of indirectly managed NEs, the management system creates a network communication group for each controller, and these network communications groups contain only the NEs that are managed by the Optical EMS or WaveStar® ITM-SC controller. For more information on indirectly managed NEs, see "Element management system controllers" (p. 1-13)

Functionality description

The management system is used to view, add, and delete network communications groups.

Types of network communications groups

There are four types of network communications groups:

- TCP/IP - contains NEs that use TCP/IP data communications protocol
- OSI - contains NEs that use OSI data communications protocol
- EMS - contains NEs that are indirectly managed via Optical EMS controller
- SC - contains NEs that are indirectly managed via WaveStar® ITM-SC controller
- EMS-CBGX

Add network communications groups

When adding a Network Communications Group to the system, the user specifies a network adapter or controller server in the **Network adapter/controller server** field. In a single network adapter server configuration, this field is fixed a single network adapter server name and does not support controller servers. In a multiple/distributed network adapter/controller configuration, this field contains a list of network adapters/controller servers from which to choose. All network adapter/controller servers must be previously added by the system administrator. For more information, see the *OMS Administration Guide*.

All NEs in an NCG must use the same inter-NE communications technique (DCC or supervisory channel). It is the responsibility of the user that all NEs assigned to a Network Communications Group use the same inter-NE communications technique, because the management system cannot validate this information automatically.

For indirectly managed NEs, one NCG per controller is added using the Add Network Communications Group page before communications with the controller is activated. If this step is not done, when indirectly managed NEs are being added to the management system, the management system automatically creates a NCG, names it based on the controller name, and associates it with the controller.

Rule for adding NEs to network communications groups

NEs with a TL1 interface, such as 1675 Lambda Unite MultiService Switch (MSS), cannot be placed in the same network communications group as NEs with a CMISE interface, such as 1663 Add Drop Multiplexer-universal (ADMu). If OMS is managing a mix of TL1 NEs and CMISE NEs, at least one NCG must be added to OMS for the TL1 NEs and at least one other NCG must be added to OMS for the CMISE NEs.

For indirectly managed NEs, one NCG per controller is allowed, which contains all the NEs managed by that controller.

Indirectly managed NEs cannot be manually added to the management system.

Modify network communications groups

Network communications groups can be modified only in multiple network adapter configurations. The user may change the Network Adapter server of the network communications group to any Network Adapter server. In a single network adapter configuration, the network communications group can not be modified.

If the NCG type is TCP/IP or OSI, the Network Adapter/Controller Server can be modified to be any Network Adapter Server other than the Secondary Network Adapter Server (if there is a Secondary Network Adapter).

If the NCG type is EMS or SC, the Network Adapter/Controller Server can be modified from the current controller server to another controller server only if there are no indirectly managed NEs in the NCG.

Delete network communications groups

Network communications groups can be deleted when they are no longer needed, that is, when the network communications group no longer contains any OMS to NE connections.

Network adapter/controller server

A network adapter/controller server manages the communications between the management system and a group of NEs. On the pages of the management system for network communications groups, the field **Network adapter/controller server** specifies the network adapter or controller server for the specified network communications group. Only one primary network adapter or controller server can be chosen per network communications group.

Failed network adapter server/controller recovery

For directly managed NEs, network communications groups should be created so the NEs within the network communications groups can be managed from an alternative network adapter server in the case of a failure. The design of the data communications network must be carefully considered in order for this to be done.

If a network adapter server fails, the Network adapter/controller server field on the Modify Network Communications Group page would be changed to the name of the planned alternate network adapter server. The user would manually move the NEs to the alternate network adapter/controller server by changing the Network adapter/controller server field on the OMS-to-NE Communications General Information page to the alternate network adapter/controller server.

Once this is done, the management system automatically transfers the NEs in the modified network communications group to the alternate network adapter/controller server, reconnects to each of the transferred NEs, and performs a database synchronization. For more information, see the *OMS Administration Guide*.

If an EMS/ITM-SC controller is in a redundant configuration and switches over due to a failure in the currently active controller, the user must manually switch to communicate with the new active EMS/ITM-SC controller. For information on manually adding an EMS/ITM-SC controller to the management system see the *OMS Administration Guide*.

Managing network communications groups

Under certain circumstances which are expected to rarely occur, the management system may place one or more NEs into a temporary NCG which will have a name in the format of **Unassigned-<NCG Type>-<Unique #>**, where **<NCG Type>** is either OSI or TCP/IP and where **<Unique #>** is a digit or digits. If this occurs, the NE needs to be manually moved back into its original NCG using the "Modify a Network Communications Group" (p. 2-15) task. Note that GNEs must be moved before RNEs.

□

Guidelines for GNE/RNE Assignments for DWDM NEs

Overview

The following guidelines are provided to enable the design of reliable GNE/RNE assignments for network monitoring from the management system. These guidelines are based on DWDM NEs with consideration for maximized reliability and simplicity. These guidelines are strictly from the management system perspective. For TDM NEs, these guidelines may be slightly different, so please contact your Alcatel-Lucent representative for further information.

Rules for GNE/RNE assignment

The following are the recommended rules to follow when designing GNE and RNE assignments.

- From the NE perspective, any NE with LAN connection can be configured as GNE. To be a GNE, the IP address should be assigned to the NE and the LAN cable should be connected
- For each GNE in the management system, the primary GNE designation is automatically assigned to itself. The next available GNE on either side of the configuration can be assigned as a secondary GNE, but depending on the network size, the designated assignment can be different. For further information on GNE/RNE assignment guidelines, see “Guidelines for GNE/RNE assignment” (p. 2-8).
- For each RNE, it is recommended to assign the primary GNE and the secondary GNE on a different direction, for example, one on the east and the other on the west. This is true for linear configurations as well as ring configurations for simplicity of the rule, although this rule may not be necessarily applied to ring configurations.

Guidelines for GNE/RNE assignment

Depending on the size of the network, the following are guidelines for GNE/RNE assignment.

GNE/RNE assignment guidelines for networks less than 15 nodes

The following describes the GNE/RNE assignment guidelines for networks containing less than 15 nodes.

- Assign two NEs as GNEs, one as the primary GNE and the other as the secondary GNE. It is not important which GNE is primary or secondary. Ideally, these GNEs are two end nodes in a linear configuration or two NEs on opposite sides in a ring configuration.
- Assign each RNE between the primary and secondary GNE the same primary GNE and secondary GNE. This is done, so if the primary GNE goes down, they are switched to same secondary GNE.
- If another NE between primary and secondary GNE has a LAN connection and an IP address, add it initially as an RNE. This RNE can be called a standby GNE, because it can be upgraded to GNE manually in case of an emergency. For the upgrade procedure, refer to "Modify an OMS to NE connection" (p. 2-58).
- If both primary and secondary GNEs are down or lines for both directions are cut down, the standby GNE can be activated as the GNE and the GNE assignment for the RNEs must be updated.

GNE/RNE assignment guidelines for networks containing 15 - 35 nodes

The following describes the GNE/RNE assignment guidelines for networks containing 15 - 35 nodes. In this type of network, more than one primary or secondary GNE is available to group some NEs together.

- Designate two end nodes as primary GNEs, each one will cover half of the nodes.
- Assign one GNE in the middle as the secondary GNE for both primary GNEs.
- RNEs between one end primary GNE and the middle secondary NE should be assigned to the end GNE as the primary GNE and the middle GNE as the secondary.
- RNEs between the other end primary GNE and the middle secondary NE should be assigned to the other end GNE as the primary GNE and the middle GNE as the secondary GNE.
- If another NE between primary and secondary GNE has a LAN connection and an IP address, add it initially as an RNE. This RNE can be called a standby GNE, because it can be upgraded to GNE manually in case of an emergency. For the upgrade procedure, refer to "Modify an OMS to NE connection" (p. 2-58).
- If both primary and secondary GNEs are down or lines for both directions are cut down, the standby GNE can be activated as the GNE and the GNE assignment for the RNEs must be updated.

GNE/RNE assignment guidelines for networks containing more than 35 nodes

The following describes the GNE/RNE assignment guidelines for networks containing more than 35 nodes. In this type of network, NEs are grouped together for primary and secondary GNEs.

- Designate one end node as the primary GNE. Designate a secondary GNE with 10 and 25 NEs in between the both GNEs.
- Those NEs between the two NEs should be assigned with same primary GNE and secondary GNE.
- For the next group of 10- 25 NEs, the secondary NE of the first group is assigned as the primary GNE. The last NE in the group is assigned as the secondary GNE.
- This assignment of groups of NEs continues. For the last group of NEs, the end node should be assigned as the primary GNE.
- Other NEs between primary and secondary GNEs that have a LAN connection and an IP address, are added initially as RNEs. These RNEs can be called a standby GNEs, because they can be upgraded to GNEs manually in case of an emergency. For the upgrade procedure, refer to “Modify an OMS to NE connection” (p. 2-58).

□

View a List of Network Communications Groups

When to use

Use this task to view a list of network communications groups.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)
- “TCP/IP Communications Interface Concepts” (p. 2-40)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of network communications groups.

1 Use the icons or the object links to follow this path:

- **Management Network > Network Communications Groups**.

  Result: The search panel of the Network Communications Groups page is displayed.

2 Make selections in the following fields in the search panel:

- In the **Network communications group type** field select the type of network communications group.
- In the **Network communications group name** field, select the name of a network communications group.
- In the **Network adapter/controller server** field, select the network adapter server or controller server for this network communications group. If only one choice is available, leave this field set to the default.

3 Click the **Search** button.

Result: The list at the bottom of the Network Communications Groups page is populated with a list of the network communications groups in the network that meet your search criteria.

END OF STEPS

□

Add a Network Communications Group

When to use

Use this task to add a network communications group.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add a network communications group.

1. Use the icons or the object links to follow this path:
   - **Management Network > Network Communications Groups**.

     Result: The search panel of the Network Communications Groups page is displayed.

2. Click on the **New** tool in the search panel.

   Result: The Add Network Communications Group page is displayed.

3. In the **Network communications group** field, enter a name for the NCG name. The number of characters is 1 to 20, and the allowable characters are capital letters, numbers, and hyphen (-).

4. In the **Network communications group type** field, select the type of network communications group.

5. In the **Network adapter / controller server** field, choose the network adapter server or controller server for this network communications group. If only one choice is available, leave this field set to the default.

6. Click the **Submit** button.

Result: The network communications group is added.

END OF STEPS

□

Modify a Network Communications Group

When to use

Use this task to modify the primary network adapter server field of the network communications group. If only one primary network adapter server is available, no modifications can be made to the network communications group. This task allows the NEs communicating with a network adapter server to begin communicating with a different network adapter server.

Related information

See the following topics:

- "Network Communications Group Concepts" (p. 2-4)

Before you begin

Do the following:

- Ensure at least one network communications group is created.
- Before modifying a network communications group, the new network adapter server must be able to communicate with the NEs of the previous network adapter server. For more information about OMS-to-NE communications, see "Section II: OMS to NE connections" (p. 2-29).

Task

Complete the following steps to modify a network communications group.

1 View a list of network communications groups, using the "View a List of Network Communications Groups" (p. 2-11) task.

Result: The list at the bottom of the Network Communications Groups page is populated with a list of network communications groups that meet your search criteria.

2 The **NCG name** column of the table lists the names of the network communications groups. Do one of the following

- Click the radio button next to the network communications group you wish to modify. From the Go menu, select **Modify** and click the **Go** button.
- Click the hyperlink NCG name column of the network communications group you wish to modify.

Result: The Modify network communications group page appears.

3 In the **Network adapter/controller server** field, select a new network adapter server or controller server for this network communications group.

4 Click the **Submit** button.

Result: The system notes the progress in the **Messages** panel, and the network communications groups is modified.

END OF STEPS

□

Delete a Network Communications Group

When to use

Use this task to delete a network communications group.

Note that a network communications group cannot be deleted if it includes any OMS to NE connections.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a network communications group.

1 View a list of network communications groups, using the “View a List of Network Communications Groups” (p. 2-11) task.

Result: The list at the bottom of the Network Communications Groups page is populated with a list of network communications groups that meet your search criteria.

2 The **NCG name** column of the table lists the names of the network communications groups. Click the radio button next to the network communications group you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: A confirmation window appears.

3 Click **Yes**.

Result: The system notes the progress in the **Messages** panel, and the network communications groups is deleted.

The network communications group is deleted from the pages of the management system after a refresh is executed.

END OF STEPS

□

View a Network Communications Group (TCP/IP NEs)

When to use

Use this task to view the list of TCP/IP GNEs and RNEs within a TCP/IP Network Communications Group.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)
- “TCP/IP Communications Interface Concepts” (p. 2-40)
- “Assign an NE to Primary GNE” (p. 2-22)
- “Assign an NE to Secondary GNE” (p. 2-23)
- “Unassign an NE from a Primary GNE” (p. 2-25)
- “Unassign an NE from a Secondary GNE” (p. 2-26)
- “Switch the Active GNE for an NE” (p. 2-27)

Important! This task only applies to TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the list of TCP/IP GNEs and RNEs within a TCP/IP Network Communications Group.

1 View a list of network communications groups, using the “View a List of Network Communications Groups” (p. 2-11) task.

Result: The list at the bottom of the Network Communications Groups page is populated with a list of network communications groups that meet your search criteria.

2 The **NCG name** column of the table lists the names of the network communications groups. Click the radio button next to the network communications group you wish to view. From the Go menu, select **View NCG** and click the **Go** button.

Result: The View Network Communications Group page is displayed, and lists the NEs in the network communications group and the GNE/RNE role assignments of the NEs.

END OF STEPS

□

View a List of NEs in a Network Communications Group

When to use

Use this task to view a list of NEs in a network communications group. This task is to enable the user to view CMISE NEs in an NCG.

Related information

See the following topic:

- "Network Communications Group Concepts" (p. 2-4)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NEs in a network communications group.

1 Use the icons or the object links to follow this path:

- **Management Network > OMS to NE connections**.

  Result: The search panel of the OMS to NE connections page is displayed.

2 In the **Network communications group** field, either enter the NCG name, or select the NCG from the drop-down list.

  Result: The Network Communications Group Selection pop-up window is displayed.

3 Select the name of the network communications group from the drop down list and click the **OK** button.

  Result: The network communications group is selected and the pop-up window closes.

4 Click the **Search** button.

Result: The list at the bottom of the page is populated with a list OMS to NE connections, which also includes the list of NEs in the selected network communications group.

END OF STEPS

□

Assign an NE to Primary GNE

When to use

Use this task to assign an NE to a primary GNE.

Related information

See the following topics:

- "Network Communications Group Concepts" (p. 2-4)
- "TCP/IP Communications Interface Concepts" (p. 2-40)

Before you begin

For LambdaExtreme® Transport NEs, no GNE should be assigned as primary or secondary GNE for more than 150 NEs.

Task

Complete the following two steps to assign an NE to a primary GNE.

1 View a list of NEs in the network communications group for which you wish to add a primary GNE, using the "View a Network Communications Group (TCP/IP NEs)" (p. 2-18) task.

Result: The View Network Communications Group page is displayed. This page lists all of the NEs that are in the network communications group, and indicates their Active GNE, Primary GNE, and Secondary GNE.

2 The **NE name** column of the table lists the names of the NEs in the network communications group. Click the check box next to the NE you wish to assign to a primary GNE. From the Go menu, select **Assign NE to primary GNE** and click the **Go** button.

Result: The Choose GNE pop-up window is displayed.

3 Select a GNE, and click the **Submit** button.

Result: The NE is assigned to the selected GNE as its primary GNE.

END OF STEPS

□

Assign an NE to Secondary GNE

When to use

Use this task to assign an NE to a secondary GNE.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)
- “TCP/IP Communications Interface Concepts” (p. 2-40)

Before you begin

For LambdaExtreme® Transport NEs, no GNE should be assigned as primary or secondary GNE for more than 150 NEs.

Task

Complete the following two steps to assign an NE to a secondary GNE.

1 View a list of NEs in the network communications group for which you wish to add a secondary GNE, using the “View a Network Communications Group (TCP/IP NEs)” (p. 2-18) task.

Result: The View Network Communications Group page is displayed. This page lists all of the NEs that are in the network communications group, and indicates if they are a GNE or an RNE.

2 The **NE name** column of the table lists the names of the NEs in the network communications group. Click the check box next to the NE you wish to assign to a secondary GNE. From the Go menu, select **Assign NE to secondary GNE** and click the **Go** button.

Result: The Choose GNE pop-up window is displayed.

3 Select a GNE, and click the **Submit** button.

Note: If Domain Partitioning is in use, only those GNEs in the user’s domain are listed.

Result: The NE is assigned to the selected GNE as its secondary GNE.

END OF STEPS

□

Unassign an NE from a Primary GNE

When to use

Use this task to unassign an NE from a primary GNE.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)
- “TCP/IP Communications Interface Concepts” (p. 2-40)

Before you begin

This task does not have any preconditions.

Task

Complete the following two steps to unassign an NE from a primary GNE.

1 View a list of NEs in the network communications group using the “View a Network Communications Group (TCP/IP NEs)” (p. 2-18) task.

Result: The View Network Communications Group page is displayed. This page lists all of the NEs that are in the network communications group, and indicates if they are a GNE or an RNE.

2 The **NE name** column of the table lists the names of the NEs in the network communications group. Click the check box next to the NE you wish to unassign from a primary GNE. From the Go menu, select **Unassign NE to primary GNE** and click the **Go** button.

Result: The NE is unassigned from the primary GNE.

END OF STEPS

□

Unassign an NE from a Secondary GNE

When to use

Use this task to unassign an NE from a secondary GNE.

Related information

See the following topics:

- “Network Communications Group Concepts” (p. 2-4)
- “TCP/IP Communications Interface Concepts” (p. 2-40)

Before you begin

This task does not have any preconditions.

Task

Complete the following two steps to unassign an NE from a secondary GNE.

1 View a list of NEs in the network communications group using the “View a Network Communications Group (TCP/IP NEs)” (p. 2-18) task.

Result: The View Network Communications Group page is displayed. This page lists all of the NEs that are in the network communications group, and indicates if they are a GNE or an RNE.

2 The **NE name** column of the table lists the names of the NEs in the network communications group. Click the check box next to the NE you wish to unassign from a secondary GNE. From the Go menu, select **Unassign NE to secondary GNE** and click the **Go** button.

Result: The NE is unassigned from the secondary GNE.

END OF STEPS

□

Switch the Active GNE for an NE

When to use

Use this task to switch the active GNE for an NE. If the primary GNE is the active GNE, this task is used to make the secondary GNE the active GNE. If the secondary GNE is the active GNE, this task is used to make the primary GNE the active GNE.

Note: While switching the active NE, communication with the NE will be temporarily lost.

Related information

See the following topics:

- "Network Communications Group Concepts" (p. 2-4)
- "TCP/IP Communications Interface Concepts" (p. 2-40)

Before you begin

This task does not have any preconditions.

Task

Complete the following two steps to switch the active GNE for an NE.

1 View a list of NEs in the network communications group that contains the NE for which you wish to switch the active GNE, using the "View a Network Communications Group (TCP/IP NEs)" (p. 2-18) task.

Result: The View Network Communications Group page is displayed. This page lists all of the NEs that are in the network communications group, and indicates if they are a GNE or an RNE.

2 The **NE name** column of the table lists the names of the NEs in the network communications group. Click the check box next to the NE for which you wish to switch the active GNE. From the Go menu, select **Switch active GNE** and click the **Go** button.

Result: If the NE you selected was an RNE, and if the primary GNE was the active GNE, the secondary GNE becomes the active GNE. If the secondary GNE was the active GNE, the primary GNE becomes the active GNE.

If the NE you selected was a GNE, and if the primary GNE was the active GNE, the secondary GNE becomes the active GNE, and all of the RNEs using that GNE as their primary GNE also switch to their secondary GNE. If the secondary GNE was the active GNE, the primary GNE becomes the active GNE, and all of the RNEs using that GNE as their primary GNE switch back to their primary GNE.

END OF STEPS

□

Section II: OMS to NE connections

Overview

Purpose

This section discusses OMS to NE connections.

Contents

OMS to NE connections Concepts

Overview

The following is conceptual information about OMS to NE connections. This information is meant to complement the tasks presented later in this section.

Important! Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to the current release.

Definition: OMS to NE connection

An OMS to NE connection is the communications connection between the management system and an NE. This connection is established when the NE is added to the management system. OMS to NE connections exist only in the management system; the addition of an OMS to NE connection has no impact on an NE.

Functionality description

The management system is used to establish and manage OMS to NE connections. An OMS to NE connection is established when an NE is added to the management system. When an OMS to NE connection is established, the communications interface that will be used for communication from the NE to the management system is selected.

Indirectly managed NEs are not managed directly by the management system. They are managed through controllers which are standalone element management systems that have an interface to the management system. The interface allows the management system to indirectly manage some or all of the NEs supported by the controller. Therefore, not all OMS-to NE functions are available for indirect NEs.

In a High Availability configuration, if any NE is manually added to the primary management system using the management system's graphical user interface, in the same way, the NE must also be manually added to the secondary management system. Similarly, any NE that is auto-discovered by the primary management system will be auto-discovered by the secondary management system.

Domain partitioning

The management system displays in the OMS to NE Communications pages only those NEs that belong to the user's domain.

Preconditions

A minimum subset of provisioning must be done before NEs can be added to the management system so that the NE is ready to be managed by a management system, such as OMS. The craft interface terminal (CIT) must be used to provision certain information when the NE is set up.

Consult the NE user documentation for instructions on how to provision an NE so it is ready to be managed by a management system such as OMS.

NEs that use TCP/IP communications

For NEs that use TCP/IP communications, the following information should be provisioned in the NE:

- The NE must be named with a TID.
- The IP address of the management system must be added to the access list of the NE so the NE can communicate with the management system.

NEs that use OSI communications

For NEs that use OSI communications, the following information should be provisioned in the NE:

- The NSAP address of the management system must be added to the access list of the NE so the NE can communicate with the management system.
  Note: For automatically discovered Metropolis® Enhanced Optical Networking (EON) NEs that use an OSI interface with the management system, the OMS-NE Connection page will display a blank NSAP address field. This is due to the NSAP address not being present in the TL1 response from the NE. The NSAP address can be added to the management system using the Modify OMS to NE Connections page.

NEs that required a user ID and password

For NEs that required a user ID and password, the management system supports a Primary NE Login/Password and a Secondary NE Login/Password.

The Primary/Secondary NE login/password feature provides a mechanism to guard against the NE login/password being used by management system becoming unusable. An example of this is if a CIT user changes the password without informing the management system user, the secondary NE login/password provides an alternative login.

The Primary NE login/password is mandatory and the Secondary login/password is optional. When the management system attempts to log into the NE, it uses the Primary login/password first. If the login attempt fails, the Secondary login/password is attempted, if it exists. The management system continually retries the Primary if there is no Secondary. The Primary and Secondary NE login/passwords are attempted alternately until a successful login occurs.

The Primary and Secondary NE login/password should be the super user ones provided by the NE. This is because The management system itself needs to be able to use all commands on the NE. Additionally, the management system provides for allowing different privileges for the its users. Therefore the management system does not need to use the NE login privileges feature to do so.

Indirectly managed NEs

For indirectly managed NEs, an interface from the main management system server to each controller server must be provisioned. It is assumed that the data communications network already exists that allows the controllers to interface with the NEs they are managing. For more information on controller interfaces, see "Element management system controllers" (p. 1-13).

Add NEs and OMS to NE connections

An OMS to NE connection is established when the NE is added to the management system.

There are two methods for adding NEs and their corresponding OMS to NE connections to the management system:

- Automatically through the auto-discovery process (For a description of the auto-discovery process, see "Auto-discovery Concepts (Subnetworks)" (p. 2-45).)
- Manually, using the management system. NEs are manually added to the management system using the Add OMS to NE connection page. For more information, see "Add an OMS to NE connection" (p. 2-52).

The following table describes how NEs can be added:

Category of NE	How NEs Are Added to Management System
CMISE NEs	Manually, using the management system **Note:** CMISE NEs can be added automatically discovered via auto-discovery if the NE is fibered to a TL1 NE that has already been added to the management system.
TL1 NEs	Automatically via auto-discovery OR Manually, using the management system
Indirectly managed NEs	Added only through the controller and, once successfully added, the management system is notified of the new NE over the interface between management system and the controller

Situations when NEs must be added manually

NEs *must* be added manually in the following situations:

- When a new Network Communications Group is added to the management system, the first NE in the subnetwork, which is the GNE, must be added manually.
- When an NE is a non-managed NE in the middle of the managed domain. For more information on non-managed NEs, see "Non-Managed NEs" (p. 3-12).
  Note: Non-managed NEs in the middle of the managed domain, also known as black boxes, are supported only in the SDH environment.
- When an NE is not discovered by the auto-discovery process (for example, a CMISE NE, which cannot be discovered by the auto-discovery process).
- When an NE is indirectly managed.

Node types

For LambdaXtreme® Transport, Metropolis® Wavelength Services Manager (WSM), and Metropolis® Enhanced Optical Networking (EON) NEs, the management system supports various node types, such as single-ended terminals and repeaters. When adding these NEs, the user will only need to specify the NE type. The user will not need to specify the node type. The management system automatically determines the node type when it does a database synchronization with the NE. The Network Map provides different icons for the different node types. For more information on supported node types, see "Section II: Equipment" (p. 3-25).

Adding indirectly managed NEs

Indirectly managed NE cannot be added via the OMS-to-NE Communication pages. Indirectly managed NEs are added to the controller, which sends notification of the NE to the management system.

The management system performs the following validations upon notification from the controller:

- Ensures that the NE type and release are supported as indirectly managed NEs. If the NE type and release are not supported as indirectly managed NEs, the NE is converted to an unmanageable device.
- Ensures that the NE name is not already indirectly managed by via another controller or directly managed by a network adapter. If the NE name is already in use, and the NE is in the Pending Delete activity state plus it is determined that this is the same NE, for example, the NE type is the same, the NE is moved into the Active activity state. If the NE name is already in use and the NE is in the Pending Delete activity state but it is determined that this is not the same NE, the new NE notification is ignored without an indication provided to the users. If the NE name is already in use but the NE is not in the Pending Delete activity state, the management system procedures for modifying an indirectly managed NE are followed.

- Ensures that the NE type is licensed by the user. If the NE type is not licensed by the user, the NE is converted to an Unmanageable Device.
- Ensure that adding this new NE would not exceed the maximum number of NEs of that type which are licensed by the user. If adding this NE would result in the user exceeding the maximum number licensed, the NE is converted to an Unmanageable Device.

If the new NE passes all of the above validations, the NE is added to the appropriate NCG if one has been created by the user and assigned to the applicable controller. If there is no NCG associated with the controller, one is automatically created.

After the NE is successfully added to the NCG, following occurs to inform the user of a new indirectly managed NE:

- An icon for the NE is added to the Network Map.
- The NE information is added to the Network Elements page.

When this process is completed by the management system, it initiates a database synchronization with the controller to synchronize the management database with the controller database.

If the NE was added to a controller while there is no communication link to OMS, then the NE will be discovered and added automatically as a result of the NE list synchronization when OMS is connected. However, in this case the full NE synchronization must be invoked manually.

Modifying OMS to NE connections

The same pages are used to modify an OMS to NE connection as are used to add an OMS to NE connection, however, only a subset of the OMS to NE connection information is able to be modified

The NE type field on the Modify OMS to NE connection General Information page can be modified to manually convert an NE from an unmanageable device to one of the supported managed NE types. All of the mandatory information, other than the NE name, is required to be entered to add the new managed NE type to the system. The NE name of the unmanageable device becomes the NE name for the managed NE. The management system treats this modification of the unmanageable device NE to a managed NE type as if the NE is being added initially. If the management system database contains information related to the unmanageable device (such as network connections), the information is reassociated in the management system database with the NE when it is successfully converted to a managed NE.

The main purpose of this feature is to provide a method to convert back into a managed NE, an NE that was inadvertently converted from a managed NE to an unmanageable device. For example, after a system upgrade, certain NEs managed by the older system release are no longer supported by the new release. This results in a number of managed NEs automatically converted to unmanageable devices.

Modifying OMS to NE connections for indirectly managed NEs

Indirectly managed NEs are modified by performing a NE List Synchronization against the controller to which the NE is assigned. After completing a NE List Synchronization against a controller, if it is detected that an existing indirectly managed NE has moved from one controller to another, the system modifies the NCG of the indirectly managed NE from that associated with the old controller to that associated with the new controller.

The management system indicates the communication status for the modified indirectly managed NE based on the status value reported from the new controller. Finally, a Fault - Alarms and Events database synchronization is initiated against the modified indirectly managed NE.

Delete NEs and OMS to NE connections

When an NE is deleted, its corresponding OMS to NE connection is also deleted. An NE should only be deleted when it is to be physically removed from the network.

NEs and their OMS to NE connections can be deleted from the management system as follows:

- Delete the OMS to NE connection from the OMS to NE connection page. For more information see “Delete an OMS to NE connection” (p. 2-65).
- Delete the NE from the Network Elements page or the Network Map. For more information see “Delete an NE” (p. 2-67).

An NE and its corresponding OMS to NE connection cannot be deleted in the following situations:

- When the NE is a GNE for a Network Communications Group, and it has RNEs assigned to it.
- When the NE has cross-connections being used in network connections (For information about how to delete a network connection, see the OMS Connection Management Guide.)
- When the NE is being used as an FTP/FTAM gateway.
- When a database synchronization is in progress for that NE.
- When a software download is in progress for that NE.
- If the management system cannot delete the NE from the primary network adapter.
- When a backup or restore is in progress for that NE.

Deleting indirectly managed NEs

Indirectly managed NEs can be deleted in two ways:

- **Automatically** - automatic deletion occurs upon notification from the controller only if the NE is not involved in any management system connection(s). If the indirectly managed NE is involved in one or more management system connections, the NE will transition to the "Pending Delete" activity state upon notification from the controller that the NE was deleted. Once all applicable connections are manually deleted, the indirectly managed NE must be manually deleted via the OMS to NE connection page.
- **Manually** - via the OMS to NE Communications page.

Supported communications interfaces

The communications interface is used to communicate between the management system and the NE.

The management system supports the following communications interfaces:

- **OSI** — Communication occurs via a direct connection between the management system and each of the NEs.
- **TCP/IP GNE** — The management system communicates with a subnetwork of NEs through one NE that has been designated as the gateway. An NE using a communications interface of TCP/IP GNE has been designated as the gateway NE (GNE), which means it is the gateway for communications between the management system and the other NEs in a network communications group.
  For more information about this communications interface, see "TCP/IP Communications Interface Concepts" (p. 2-40).
- **TCP/IP RNE** - The management system communicates with a subnetwork of NEs through one NE that has been designated as the gateway. An NE using a communications interface of TCP/IP RNE is has been designated as a remote NE (RNE), which means it is *not* the gateway for communications with the subnetwork.
  For information about this communications interface, see "TCP/IP Communications Interface Concepts" (p. 2-40).
- **Controller interfaces** -
  For information on controller interfaces for indirectly managed NEs, see "Element management system controllers" (p. 1-13). Provisioning GNE/RNE assignments related to indirectly managed NEs is not supported.

The following table shows the communication interfaces that are supported for each NE type. The communication interface for an NE is selected when the NE is added to the management system.

Network Element	Communications Interfaces
1671 Service Connect (SC)	TCP/IP GNE
Mobility Aggregation and Transport System (MATS)	TCP/IP GNE
1675 Lambda Unite MultiService Switch (MSS)	OSI TCP/IP GNE TCP/IP RNE
LambdaXtreme® Transport	TCP/IP GNE TCP/IP RNE
1663 Add Drop Multiplexer-universal (ADMu)	OSI
1643 Access Multiplexer (AM)	OSI
1643 Access Multiplexer Small (AMS)	OSI
1645 Access Multiplexer Compact (AMC)	OSI
1655 Access Multiplexer Universal (AMU)	OSI
1665 DMX Access Multiplexer	TCP/IP GNE TCP/IP RNE
1665 DMXtend Access Multiplexer	TCP/IP GNE TCP/IP RNE
Metropolis® Enhanced Optical Networking (EON)	OSI TCP/IP GNE TCP/IP RNE
1695 Wavelength Services Manager (WSM)	TCP/IP GNE TCP/IP RNE
WaveStar® ADM 16/1	OSI
WaveStar® TDM 10G (STM-64)	OSI
Unknown	OSI TCP/IP RNE **Note:** This NE type cannot be manually added.

Network Element	Communications Interfaces
Non-managed NE	None (does not communicate with management system)
Unmanageable device	None (does not communicate with management system)

Managing OMS to NE connections

Certain conditions may apply in managing OMS to NE communications.

Connection remains in Down communications state or Pending Add activity state

If an OMS to NE connection remains in the **Down** communications state or the **Pending Add** activity state, when there does not appear to be any issues with the data communications network connecting OMS to the NE, it is recommended that the user deactivate and then immediately activate the OMS-NE Connection to attempt to move the NE into the **Up** Communications State.

Connection remains in Sync Failed activity state

For CMISE NEs, if the activity state is **Sync Failed**, and the network element has never been successfully managed at that NE version, the described user action of manually initiating a database synchronization will have no effect. This condition indicates that the management system and NE have some form of incompatibility. To resolve this condition, it is recommended that the user perform maintenance on the NE, and then deactivate and immediately activate the OMS-NE Connection to attempt to move the NE into the **Up** communications state.

For more information see:

- “Communications status” (p. 3-8)
- “Deactivate an OMS to NE connection” (p. 2-61)
- “Activate an OMS to NE connection” (p. 2-63)

NE version information if NE in maintenance mode

For 1665 DMX Access Multiplexer R6.0 and 1665 DMXtend Access Multiplexer R4.0 NEs, after adding the OMS to NE connection and successfully logging into the NE, if the management system determines that the NE is in maintenance mode, the NE version information stored by the system is not updated. If the management system has not previously logged into the NE, the management system uses the default NE version. If the system has previously logged into the NE, the system retains the current NE version it is storing for that NE.

NE version information for version upgrades

For 1665 DMX Access Multiplexer R6.0 and 1665 DMXtend Access Multiplexer R4.0 NEs, after adding the OMS to NE connection and successfully logging into the NE, if the management system determines the NE that had been managed by the system at a release prior to these releases is now at that release or at a later release, the management system performs the following steps:

- Automatically update all NE names stored in the system database to conform with the new NE name structure of the respective NE.
- Automatically initiate a full configuration database synchronization.

The system does not support returning NE names to the older NE name structure if the NE subsequently reverts to releases prior to 1665 DMX Access Multiplexer R6.0 or 1665 DMXtend Access Multiplexer R4.0 respectively.

□

TCP/IP Communications Interface Concepts

Overview

The following is conceptual information about the TCP/IP communications interface. This information is meant to complement the tasks presented later in this section.

Functionality description

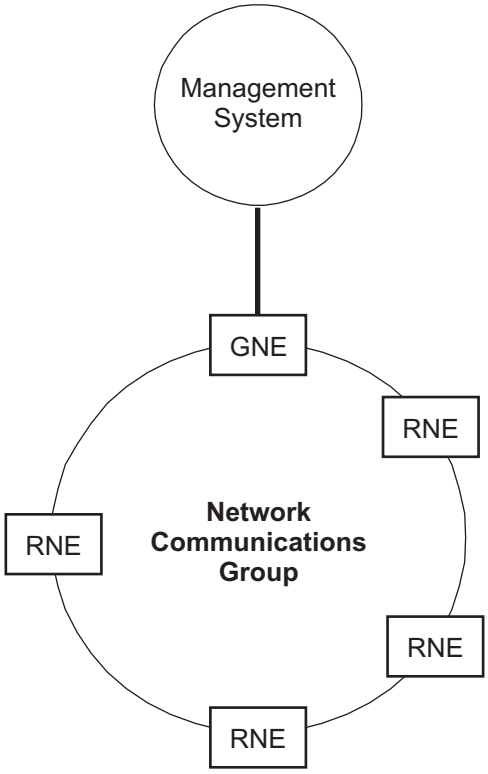
The management system supports two TCP/IP communications interfaces. With both, the management system communicates with a subnetwork (called a network communications group) of NEs through one NE that has been designated as the gateway. (For more information about network communications groups, see "Network Communications Group Concepts" (p. 2-4).)

The management system supports the following TCP/IP communications interfaces:

- **TCP/IP GNE** — The management system communicates with a subnetwork of NEs through one NE that has been designated as the gateway. An NE using a communications interface of TCP/IP GNE has been designated as the gateway NE (GNE), which means it is the gateway for communications between the management system and the other NEs in a network communications group. The GNE is used by the management system to communicate with all NEs in a network communications group.
- **TCP/IP RNE** — The management system communicates with a subnetwork of NEs through one NE that has been designated as the gateway. An NE using a communications interface of TCP/IP RNE has been designated as a remote NE (RNE), which means it is *not* the gateway for communications with the subnetwork. An RNE is an NE in a network communications group that the management system accesses through a GNE.

NEs in a network communications group serve as either a GNE or an RNE. The management system allows you to list all NEs in a network communications group, to see the role of each NE (GNE or RNE), and to manage the roles of the NEs in a network communications group.

The following figure illustrates a network communications group.



The management system communicates with a GNE using TCP/IP, while the managed NEs in a network communications group communicate with each other using OSI.

FTP/FTAM gateway

The management system communicates with a GNE using TCP/IP, while the managed NEs communicate with each other using OSI. An FTP/FTAM gateway converts FTP, which is the file transfer protocol used in TCP/IP networks, to FTAM, which is the file transfer protocol used in OSI networks.

Every RNE and GNE must have an FTP/FTAM gateway defined because the following features of the management system utilize file transfer protocol:

- Backup NE database version
- Restore NE database version
- Download NE Generic to NE

If it is not done already, the user must, either via the CIT or the management system NE Management Functions page, provision the NE selected as the FTP/FTAM gateway to serve that role before any file transfer activity is attempted. File transfer attempts will fail if the NE is not enabled for that role.

When adding a NE to the management system, the user must specify the FTP/FTAM gateway designations using the "Add an OMS to NE connection" (p. 2-52) task. If the NE is automatically discovered without the FTP/FTAM gateway designations the operator can establish the designations using the "Modify an OMS to NE connection" (p. 2-58) task.

Important! If an NE is designated as an FTP/FTAM, the user must either manually add the NSAP address or allow OMS to automatically populate it. In case of inconsistent or no data from the system, perform manual System Parameter Synchronization.

FTP proxy

The management system also supports FTP proxy for Metropolis® Wavelength Services Manager (WSM) NEs. The FTP proxy is necessary to facilitate the software download and NE backup/restore features for Metropolis® Wavelength Services Manager (WSM) RNEs. FTP proxy is similar to the FTP/FTAM capability supported by the other TL1 NEs except the conversion between FTP and FTAM is not necessary because the Metropolis® Wavelength Services Manager (WSM) supervisory channel uses TCP/IP, not OSI.

If it is not done already, the user must, either via the CIT or the management system NE Management Functions page, provision the NE selected as the FTP proxy to serve that role before any file transfer activity is attempted. File transfer attempts will fail if the NE is not enabled for that role.

The NE is designated as a FTP proxy or an existing FTP proxy is designated as the FTP proxy for that NE because the following features of the management system utilize FTP proxy:

- Backup NE database version
- Restore NE database version
- Download NE Generic to NE

Important! If an NE is designated as an FTP proxy, the user must either manually add the IP address or allow OMS to automatically populate it. In case of inconsistent or no data from the system, perform manual System Parameter Synchronization.

How roles are defined

When an NE is added to the management system, it is established which of the following roles the NE will have:

- GNE
- RNE

- FTP/FTAM gateway
- FTP proxy - this is used only for Metropolis® Wavelength Services Manager (WSM) NEs.

Every network communications group must have at least one GNE designated as an FTP/FTAM gateway.

Every RNE must identify the FTP/FTAM gateway it uses.

When NEs are auto-discovered, the management system automatically establishes it as an RNE. In order to get a TCP/IP NE to be a GNE, it must be manually added as a GNE. If the TCP/IP NE has already been automatically established as an RNE, and the user wants it to be a GNE, the user must manually delete the RNE and re-add it as a GNE.

The management system cannot automatically establish the FTP/FTAM gateway designations for an NE, so these must be established manually using the "Modify an OMS to NE connection" (p. 2-58) task.

For Metropolis® Wavelength Services Manager (WSM) with a communications type of either TCP/IP GNE of TCP/IP RNE, the user may provision an additional NE in the network communications group as an FTP proxy. If the NE communications type is TCP/IP GNE, the NE may be designated as an FTP proxy.

Multiple GNEs in a subnetwork

When there is more than one GNE in a subnetwork initially, all the GNEs must be added manually. When a NE is manually added, the management system asks if a database synchronization should be initiated. It is recommended that all GNEs be added first, and then a full database synchronization be manually initiated against all the GNEs using the "Perform a Full Database Synchronization" (p. 7-22) task. This results in each GNE discovering an equal number of RNEs, balancing the load between the GNEs.

Primary and secondary GNEs

The management system supports a second, optional GNE in a network communications group. The primary and secondary GNEs operate in an active/standby arrangement. This arrangement enables the management system to continue to communicate with the NEs in a network communications group if the active GNE fails.

A GNE can act as the primary GNE for some RNEs and as the secondary GNE for other RNEs. This allows for load-balancing of the communications traffic through the two GNEs in a network communications group.

The primary GNE for a GNE is always itself; however, a GNE can also have a secondary GNE.

Automatic switchover between primary and secondary GNEs

If the management system is communicating with an RNE via the primary GNE and the primary GNE fails, the management system automatically switches over to communicate with the RNE via the secondary GNE. If the management system is communicating with the RNE via the secondary GNE and the secondary GNE fails, the management system automatically switches over to communicate with the RNE via the primary GNE.

An installation parameter controls whether or not the management system automatically switches its communications back to the primary GNE after the primary GNE is restored.

Secure communications

For LambdaXtreme® Transport NEs with the communications type of TCP/IP GNE or TCP/IP RNE, the user can enable secure communications.

If secure communications are enabled the management system attempts to establish communications to the NE using Transport Layer Security (TLS) Version 1.0 and Secure Sockets Layer (SSL) Version 3.0. If the secure communications feature is not enabled on the NE itself, the system fails the communication attempt and does not attempt to automatically log into the NE until the user modifies the OMS-NE Connection to disable secure communications.

This field enables secure TL1 message exchange communications for LambdaXtreme® Transport NEs. Additionally, this field controls whether the management system uses secure file transfer for NE software downloads, NE backups and NE restores of LambdaXtreme® Transport R6.0 and later NEs.

□

Auto-discovery Concepts (Subnetworks)

Overview

This section describes the auto-discovery process for subnetworks.

Important! CMISE NEs are not automatically discovered via auto-discovery. CMISE NEs must be manually added to the management system.

Note: CMISE NEs can be automatically discovered via auto-discovery if the NE is fibered to a TL1 NE that has already been added to the management system.

Auto-discovery process

Auto-discovery is the process by which the management system "discovers" the topology of a subnetwork, and ultimately a network.

When the auto-discovery process is run, the management system logs into the first NE in the subnetwork, which is the GNE, inventories the GNE, and discovers its neighbors in the subnetwork. The management system then logs into the neighbor NEs and inventories them. The management system continues to log into neighbor NEs until all of the NEs in the subnetwork are discovered and inventoried. The auto-discovery process also "discovers" the physical network connections connected to the NEs in the subnetwork.

This process is repeated for each of the subnetworks in the network.

The management system consolidates the discovered network topology into a working view that is presented to users throughout the pages of the management system, most obviously in the Network Map. The ability of the management system to "discover" network information, instead of having it be manually entered, is significant because it minimizes effort for the network operator and reduces the risk of errors.

Auto-discovery can only be run on NEs that are connected to the other NEs in the network communications group by the data communications channel (DCC). For some NE types, the DCC is called the supervisory channel.

To log into an NE, the management system uses the default login/passwords that are set up for each NE type. The management system assumes that neighbors of an NE are the same NE type as the NE through which they were discovered.

Once a number of NEs within a ring are auto-discovered, the management system automatically determines that they comprise a ring. For more information on the auto-discovery of rings, see the OMS Connection Management Guide.

When auto-discovery runs

Auto-discovery is initiated whenever a full database synchronization is run. Adding an NE to the management system initiates a full database synchronization, which in turn invokes auto-discovery.

When auto-discovery is blocked

When the management system cannot log into an NE, any further auto-discovery on that NE is blocked. The management system may be blocked from logging in to an NE for the following reasons:

- The NE is a non-managed NE. The management system cannot log into non-managed NEs. Non-managed NEs are also known as black boxes.
- The NE is a unmanageable device. The management system cannot log into unmanageable devices.
- The management system cannot log into a managed NE because some of its NE information is incorrect (typically the NE login/password information).

Auto-discovery of NEs

When an NE is discovered, the NE type is assumed to be “unknown”. The management system attempts to login to the discovered NE using the login and password associated with the NE type of the NE through which the NE was discovered.

If that is not successful, one of the following happens:

- If the discovered NE *is* of the same NE type as the NE through which it was discovered, the login and password are valid and the management system is able to log into the discovered NE. When the management system begins to communicate with the NE, the correct NE type is reported and the management system updates the NE type from “unknown” to the correct NE type.
- If the discovered NE *is not* of the same NE type as the NE through which it was discovered, the login and password are not valid and the management system is not able to log into the discovered NE.

  One of the following happens:

  – If the NE is of a supported NE type, the user can manually provide the management system with the correct login and password for this NE using the “Modify an OMS to NE connection” (p. 2-58) task. Once this is done, the management system can log in to the discovered NE. When the management system begins to communicate with the NE, the correct NE type is reported and the management system updates the NE type from “unknown” to the correct NE type.

  – If the NE is not of a supported NE type, the user can change the NE type to either “non-managed NE” or “unmanageable device.” Non-managed NEs are also known as black boxes.

Note that when an NE type is “unknown,” an alarm condition occurs because the management system is attempting to communicate with the NE, but cannot because it cannot log into the NE. Once the NE type is changed from “unknown,” the problem is resolved and the host alarm is cleared. This situation can be avoided if the user manually enters all non-managed devices (supported only in the SDH environment) and unmanageable devices in the subnetwork before auto-discovery is initiated.

Auto-discovery of supported NEs

During auto-discovery, NEs are discovered and added to the management system.

As each NE is discovered, it is inventoried, and the following information about each NE is gathered and added to the management system. **Note:** This is full list of possible information that may be discovered. The type of information discovered for each NE depends on the NE type.

- Cross-connections
- Equipment
- Network Connections - ONNS
- Optical Connections
- Port parameters
- Protection groups
- System parameters
- Subnetwork Discovery
- Fault - Alarms and Events

Auto-discovery of non-managed NEs and unmanageable devices

The management system discovers non-managed NEs (supported only in the SDH environment) and unmanageable devices during the auto-discovery process. However, the management system cannot log into them during auto-discovery, so they are discovered with an NE type of “unknown.” The user must use the management system to change the NE type to “non-managed NE” or “unmanageable device”, via the “Modify an OMS to NE connection” (p. 2-58) page. Non-managed NEs display on the Network Map, but unmanageable devices do not display on the Network Map.

Auto-discovery of physical network connections

During auto-discovery, physical network connections between NEs are discovered and added to the management system.

For NEs that return the following information, the management system can construct the physical network connection without having to query its neighbor(s):

- Local Port AID
- TID of the terminating neighbor
- Neighbor Port AID

Although the management system does not have to query the neighbor NE to construct the physical network connection, the management system verifies the neighbor's physical network connection port ID by conducting a database synchronization on the neighbor NE in order to auto-discover the physical network connection port ID if the port ID is not already in the management system database.

Scheduling subnetwork discovery

The management system allows searching for and scheduling subnetwork discovery using the Scheduled Tasks function. For more information see "Scheduled Tasks Concepts" (p. 7-39).

Auto-discovery of VCGs

The Connection Auto Discovery command-line tool is used to auto discover Virtual Concatenation Groups (VCGs), along with their server connections, in the network. The Connection Auto Discovery command-line tool allows the management system to discover the connections used for Ethernet transport even if they are provisioned with a tool other than OMS.

For more information about the Connection Auto Discovery command-line tool, see the *OMS Administration Guide*.

Auto-discovery of CMISE NEs

CMISE NEs may be automatically discovered when a CMISE NE is reported as a neighbor of a TL1 NE in the TL1 response used by the management system for subnetwork discovery. Through this TL1 response, the management system cannot determine that the reported NE is a CMISE NE, therefore the management system assumes that the NE has a TL1 interface and attempts to log into it by sending TL1 commands. Since the CMISE NE does not understand TL1 commands, the management system never successfully logs into the CMISE NE and the NE remains an unknown NE in the management system database for an indefinite period of time.

Use the following procedures to prevent the management system from auto-discovery of CMISE NEs.

- If CMISE NEs are connected to a TL1 NE with DCC connectivity and will be managed by the management system, these CMISE NEs should be manually added to the management system before running subnetwork discovery. This will ensure that the management system does not attempt to add these CMISE NEs since the management system will recognize the NE name as belonging to a managed CMISE NE.
- If these CMISE NEs will not be managed by the management system, turn off DCC connectivity between any TL1 NEs neighbors of these CMISE NEs before running subnetwork discovery. This ensures that the TL1 NEs managed by the management system, do not report the CMISE NEs as neighbors in the TL1 response.

If the management system does auto-discover a CMISE NE, the CMISE NE will appear as an unknown NE and will remain as an unknown NE indefinitely since the management system will never be able to log into the CMISE to discover its NE type. If this occurs, and the CMISE NE will be managed by the management system, delete the unknown NE representing the CMISE NE and add it to the management system as a managed CMISE NE. If the CMISE NE will not be managed by the management system, modify the NE type from unknown to either non-managed NE or unmanageable device so that the management system will not auto-discover the CMISE NE at a later time.

□

View a List of OMS to NE connections

When to use

Use this task to view a list of OMS to NE connections.

Related information

See the following topics:

- “OMS to NE connections Concepts” (p. 2-30)
- “TCP/IP Communications Interface Concepts” (p. 2-40)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of OMS to NE connections.

1 Use the icons or the object links to follow this path:

- **Management Network > OMS to NE connections**.

  Result: The search panel of the OMS to NE connections page is displayed.

2 Make selections in one or more of the following fields in the search panel:

- In the **NE type** field, select the type of NE.
- Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. Alternatively, in the **NE name(s)** field, the **Available** table contains all NEs of the selected NE type available on the management system. The **Selected** table contains the NEs that are to be considered in the search. Click an NE and use the arrow buttons to move one or more NEs from the **Available** table to the **Selected** table, or click the double arrows to move all the NEs to the **Available** table.
- In the **Communications Type** field, select a type of communication interface between the NE and the management system.
- In the **Network communications group name** field select the NCG name from the drop-down list. The NCG names displayed depend on the selection in the Communications Type field.

3 Click the **Search** button.

Result: The list at the bottom of the OMS to NE connections page is populated with a list of the OMS to NE connections in the network that meet your search criteria.

END OF STEPS

□

Add an OMS to NE connection

When to use

Use this task to add an NE and establish an OMS to NE connection between the management system and the new NE.

Note: Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this task, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to this release.

Important! Indirectly managed NEs cannot be added using this task.

Related information

See the following topics:

- "OMS to NE connections Concepts" (p. 2-30)
- "TCP/IP Communications Interface Concepts" (p. 2-40)
- "Adding indirectly managed NEs" (p. 2-33)

Before you begin

Do the following:

- Gather the following information about the NE to be added: NE name, NE type, communications type, the network communications group to which the NE will be assigned, IP address or NSAP information, the login and password.
- Ensure that the network communications group to which the NE will be assigned exists.
- Adding the FTP/FTAM Gateway or FTP Proxy via the management system only provisions information in the management system itself. The user must provision the NE to be a FTP/FTAM Gateway or FTP Proxy using either the CIT or the NE Management Functions pages.

Task

Complete the following steps to add an NE and establish an OMS to NE connection between the management system and the new NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Click on the **New** tool in the toolbar and select **Network element** from the drop-down list.
- Use the icons or the object links to follow this path: **Network Elements**. Click on the **New** tool in the toolbar.
- Use the icons or the object links to follow this path: **Management Network > OMS to NE connections**. Click on the **New** tool in the search panel.

Result: The Add OMS to NE connection page is displayed.

2 In the **NE name** field, enter a name that will be used by the management system to identify this NE. This field accepts a maximum of 20 characters. For TL1 NEs, the NE name must be the Target Identifier (TID) of the NE, which was provisioned during installation of the NE. For CMISE NEs, non-managed NEs, and unmanageable devices see the *OMS Getting Started Guide* for a list of allowable characters.

3 In the **NE type** field, enter an NE type.

Result: The **Communications Type** box dynamically alters to reflect choices based upon your selection. If Non-managed NE or Unmanageable device is selected, the Communications Type is set to **N/A**.

4 In the **Communications Type** field, select a communications interface to be used between the NE and the management system.

5 Move to the OMS to NE connections Details panel by clicking the number 2 in the navigation aid or selecting the Next button.

Result: The OMS to NE connection Details panel is displayed.

6 In the **Network communications group** field, select the NCG name from the drop-down list.

7

If the Communications type is	then
OSI *and* the NE supports a single NSAP format	Enter the NSAP address of the NE in the **NSAP address** fields. When completed, Go to Step 15.
OSI *and* the NE supports multiple NSAP formats	Go to Step 8.
TCP/IP GNE	Go to Step 9.
TCP/IP RNE	Go to Step 12.

8 Follow these steps if you are adding an OSI NE that supports multiple NSAP formats

1. Select one of the following NSAP formats:
   - **Fixed 20-byte address structure**
   - **Fixed 10-byte address structure**
   - **Flexible address structure**
2. Enter the NSAP address of the NE in the **NSAP address** fields. Depending on the selected NSAP format, different fields will be available for entry.

   Result: The NSAP address is designated for the OSI NE that supports multiple NSAP formats. Go to Step 15.

9 Follow these steps if you are adding a TCP/IP GNE

- In the **Primary IP address** field, enter the IP address of the Primary GNE.
- In the **Secondary GNE** field, select the NE which will be designated as the secondary GNE, if applicable.

10 In the **FTP/FTAM gateway:** field select one of the following three options:

- **This NE does not use a FTP/FTAM gateway**
- **This NE is a FTP/FTAM gateway**. If this option is chosen, you may change any of the fields in the **Controller #1 NSAP address**. The management system retrieves the NSAP address directly from the FTP/FTAM Gateway NE when it successfully logs into the NE. Any NSAP address information manually entered is overwritten.
  - AFI
  - IDI = pad
  - DFI
  - Operator ID
  - RD

  - Area
  - System ID
- **This NE uses the following FTP/FTAM gateway**. If this option is chosen, select the FTP/FTAM gateway from the list.

  Important! These fields are populated when the Management System logs into the NE first time and these fields will not be updated automatically when the NSAP address is changed. The NSAP address changes when the controller card is changed. The changed NSAP address can be updated by performing partial database synchronization for system parameters, see "Perform a Partial Database Synchronization for System Parameters" (p. 3-67).

  Result: For all NEs except Metropolis® Wavelength Services Manager (WSM), the FTP/FTAM is designated for the TCP/IP GNE. Go to Step 15.

  If the NE is Metropolis® Wavelength Services Manager (WSM), Go to Step 11.

11 This step is for Metropolis® Wavelength Services Manager (WSM).

In the **FTP proxy provisioning:** field select one of the following three options:

- **This NE does not use a FTP proxy**
- **This NE is a FTP proxy**
- **This NE uses the following FTP proxy** - If this option is chosen, select the FTP proxy NE from the drop down list.

  Result: The FTP proxy is provisioned. Go to Step 15.

12 Follow these steps if you are adding a TCP/IP RNE.

- In the **Primary GNE to connect through** field, select the NE that is to be the primary NE for this RNE.
- In the **Secondary GNE to connect through**, select the NE that is to be the secondary NE for this RNE, if applicable.

13 In the **FTP/FTAM gateway:** field select one of the following two options:

- **This NE does not use a FTP/FTAM gateway**
- **This NE uses the following FTP/FTAM gateway**. If this option is chosen, select the FTP/FTAM gateway from the list.

  Result: For all NEs except Metropolis® Wavelength Services Manager (WSM), the FTP/FTAM is designated for the TCP/IP RNE. Go to Step 15.

  If the NE is Metropolis® Wavelength Services Manager (WSM), Go to Step 14.

14 This step for Metropolis® Wavelength Services Manager (WSM).

In the **FTP proxy provisioning:** field select one of the following three options:

- **This NE does not use a FTP proxy**
- **This NE uses the following FTP proxy**. If this option is chosen, select the FTP proxy NE from the type ahead list.

Result: The FTP proxy is provisioned.

15 Go to the OMS to NE connection Security Information panel by clicking the number 3 in the navigation aid or selecting the **Next** button.

Note that this panel is skipped for CMISE NEs. If this panel is skipped, Go to Step 16.

Result: The OMS to NE connection Security Information panel is displayed.

16 This step only applies to TL1 NEs.

Specify the NE primary login and NE primary password. If necessary, also specify the NE secondary login and the NE secondary password. **Note:** The NE login and password information entered in this field must be exactly as previously provisioned at the NE itself.

If the NE type is LambdaXtreme® Transport and the communications type is TCP/IP GNE or TCP/IP RNE, in the **Enable secure communications** field, select one of the option from the drop-down list to enable secure communications.

Result: The security information is provisioned for TL1 NEs.

17 Go to the OMS to NE connection Summary panel by clicking the number 4 in the navigation aid or selecting the **Next** button.

Result: The OMS to NE connection Summary panel is displayed.

18 Review the summary for this OMS to NE connection. Do one of the following:

- If you wish to return to a panel to change a selection, either click the panel number on the navigation aid, or click the **Edit** button for that panel, or click the hyperlink for that panel. Change the appropriate information, and then return to this step.
- If the selections are all correct, click the **Submit** button to complete the addition of the OMS to NE connection.

Result: The NE is added to the management system and a communications connection is established between the management system and the new NE. The addition of an NE to the management system initiates a full database synchronization. The NE is automatically added to the Network Map. The NE is added to the remaining pages of the management system after a refresh is executed.

If the OMS to NE connection being added is a GNE a message is displayed: “The system will be unable to perform most management functions until the full database synchronization with the NE is completed. Do you want to activate the automatic database synchronization after the NE is added?”. The user can choose “Yes” or “No”. If the user chooses “Yes”, the system initiates a full database synchronization after the OMS to NE connection is successfully added. If the user chooses “No”, the system does not initiate a full database synchronization after the OMS to NE connection is successfully added.

Initially, the color of the NE icon will be magenta, which indicates a loss of communications. Once the NE addition is complete, the color of the NE icon will change to green, indicating Normal status, or another color that indicates the presence of an alarm.

END OF STEPS

□

Modify an OMS to NE connection

When to use

Use this task to modify an OMS to NE connection.

Important! This task does not apply to indirectly managed NEs.

Related information

See the following topics:

- "OMS to NE connections Concepts" (p. 2-30)
- "TCP/IP Communications Interface Concepts" (p. 2-40)

Before you begin

Modifying the FTP/FTAM Gateway or FTP Proxy via the management system only provisions information in the management system itself. The user must provision the NE to be a FTP/FTAM Gateway or FTP Proxy using either the CIT or the NE Management Functions pages.

Task

Complete the following steps to modify an OMS to NE connection.

1 **Important!** For an FTP/FTAM Gateway the NSAP address is automatically populated when the NE is added. Perform partial database synchronization for system parameters if you need to modify the NSAP address when the controller card is changed, see "Perform a Partial Database Synchronization for System Parameters" (p. 3-67).

View a list of OMS to NE connections, using the "View a List of OMS to NE connections" (p. 2-50) task.

Result: The list at the bottom of the OMS to NE connections page is populated with a list of OMS to NE connections that meet your search criteria.

2 The **NE name** column of the table lists the names of the OMS to NE connections. The name in this column is a hyperlink.

Do one of the following:

- Click the name of the OMS to NE connection you wish to view.
- Click the radio button next to the OMS to NE connection you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The OMS to NE connection General Information page is displayed.

3 On the OMS to NE connection General Information panel the **NE type** field is able to be modified in the following ways:

- from Unknown to either Unmanageable device or Non-managed NE
- from Unmanageable device to Non-managed NE
- from Non-managed NE to Unmanageable device (allowable only if there are no connections using the Non-managed NE)

The Comm type field can be modified from TCP/IP RNE to TCP/IP GNE.

4 Move to the OMS to NE connection Details panel by clicking the number 2 in the navigation aid.

Result: The OMS to NE connection Details panel is displayed.

5 Modify the fields of the OMS to NE connection Details panel.

6 Move to the OMS to NE connection Security panel by clicking the number 3 in the navigation aid.

Result: The OMS to NE connection Security Information panel is displayed. Note that this panel is skipped for CMISE NEs.

7 Modify the fields of the OMS to NE connection Security Information panel.

8 Move to the OMS to NE connection Summary panel by clicking the number 4 in the navigation aid.

Result: The OMS to NE connection Summary panel is displayed.

9 Review the summary for this OMS to NE connection.

10 Do one of the following:

- If you wish to return to a panel to change a selection, either click the panel number on the navigation aid, or click the **Edit** button for that panel, or click the hyperlink for that panel. Change the appropriate information, and then return to this step.
- If the selections are all correct, click the **Submit** button to complete the modification of the OMS to NE connection.

  Result: The management system provides status in the Messages panel, and the OMS to NE connection is modified.

END OF STEPS

□

Deactivate an OMS to NE connection

When to use

Use this task to deactivate the communications connection between the management system and an NE. When you deactivate an OMS to NE connection, the NE is not communicating with the management system.

Important! This task does not apply to indirectly managed NEs.

Related information

See the following topics:

- "OMS to NE connections Concepts" (p. 2-30)

Before you begin

In order to deactivate an OMS to NE connection, the NE communications status must be either **Up** (the NE is communicating with the management system) or **Down** (the NE is not communicating with the management system and the management system is attempting to regain communications).

Task

Complete the following steps to deactivate an OMS to NE connection.

1 View a list of OMS to NE connections, using the "View a List of OMS to NE connections" (p. 2-50) task.

Result: The list at the bottom of the OMS to NE connections page is populated with a list of OMS to NE connections that meet your search criteria.

2 The **NE name** column of the table lists the names of the OMS to NE connections. Click the radio button next to the OMS to NE connection you wish to deactivate. From the Go menu, select **Deactivate** and click the **Go** button.

Result: A confirmation appears in the message zone.

3 Confirm the confirmation window.

Result: The management system logs out of the NE and sets the communications status to **Deactivated**.

If the OMS-NE Connection being deactivated is associated with a GNE the management system does the following:

- If the GNE that is active for a RNE is deactivated, the Communications Status of the RNE is changed to “Down” if it is currently “Up”.
- If there is another GNE provisioned for that RNE, the management system attempts to switch the RNE to the other non-deactivated GNE.

END OF STEPS

□

Activate an OMS to NE connection

When to use

Use this task to activate the communications connection between the management system and an NE. When you activate an OMS to NE connection, the NE is not communicating with the management system.

Important! This task does not apply to indirectly managed NEs.

Related information

See the following topic:

- “OMS to NE connections Concepts” (p. 2-30)

Before you begin

In order to activate an OMS to NE connection, the NE communication status must be **Deactivated**. The NE is not communicating with the management system because the user manually deactivated the OMS to NE connection.

Task

Complete the following steps to activate an OMS to NE connection.

1 View a list of OMS to NE connections, using the “View a List of OMS to NE connections” (p. 2-50) task.

Result: The list at the bottom of the OMS to NE connections page is populated with a list of OMS to NE connections that meet your search criteria.

2 The **NE name** column of the table lists the names of the OMS to NE connections. Click the radio button next to the OMS to NE connection you wish to activate. From the Go menu, select **Activate** and click the **Go** button.

Result: A confirmation appears in the message zone.

3 Confirm the confirmation window.

Result: The management system sets the communications status to **Down** and initiates procedures to log into the NE. After successfully communicating with the NE, the communication status is set to **Up**.

END OF STEPS

□

Delete an OMS to NE connection

When to use

Use this task to delete the communications connection between the management system and an NE. When you delete an OMS to NE connection, its corresponding NE is also deleted.

Related information

See the following topics:

- “OMS to NE connections Concepts” (p. 2-30)
- “Deleting indirectly managed NEs” (p. 2-36)

Before you begin

Check that non of the following preconditions exits:

See the following topic:

- “Delete NEs and OMS to NE connections” (p. 2-35)

Task

Complete the following steps to delete an OMS to NE connection.

1 View a list of OMS to NE connections, using the “View a List of OMS to NE connections” (p. 2-50) task.

Result: The list at the bottom of the OMS to NE connections page is populated with a list of OMS to NE connections that meet your search criteria.

2 The **NE name** column of the table lists the names of the OMS to NE connections. Click the radio button next to the OMS to NE connection you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: A confirmation window appears.

3 Confirm the confirmation window.

Result: The system notes the progress in the **Messages** panel, and the OMS to NE connection is deleted. The NE is automatically deleted from the Network Map. The NE is deleted from the remaining pages of the management system after a refresh is executed.

END OF STEPS

□

Delete an NE

When to use

Use this task to delete an NE. When you delete an NE, its corresponding OMS to NE connection is also deleted.

There are two methods for this task.

Related information

See the following topic:

- “OMS to NE connections Concepts” (p. 2-30)

Before you begin

If an indirectly managed NE is in the Pending Delete state, remove any connections before manually deleting the NE.

Task, Method 1: from the Network Elements page

Complete the following steps to delete an NE from the Network Elements page.

1 Use the icons or the object links to follow this path:

- **Network Elements**.

  Result: The Network Elements page is displayed. It includes a table that lists all NEs.

2 The **NE name** column of the table lists the names of the NEs. Click the radio button next to the NE you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

  Result: A confirmation box is displayed. It asks you to confirm the deletion.

3 Click the **OK** button.

  Result: The NE is deleted.

  If the management system finds that the NE to be deleted has cross-connections in that NE that are being used in network connections, a failure notice is displayed.

END OF STEPS

Task, Method 2: from the Network Map

Complete the following steps to delete an NE from the Network Map.

1 On the Network Map, right-click the NE icon that represents the NE you wish to delete.

Result: The Node menu is displayed.

2 Select **Delete**.

Result: A confirmation box is displayed. It asks you to confirm the deletion.

3 Click the **OK** button.

Result: The NE is deleted.

If the management system finds that the NE to be deleted has cross-connections in that NE that are being used in network connections, a failure notice is displayed.

END OF STEPS

□

Section III: Controllers

Overview

Purpose

This section discusses controllers.

Contents

Controllers Concepts

Overview

The following is conceptual information about controllers. This information is meant to complement the tasks presented later in this section.

Definition: controllers

Controllers are management systems or other servers that have an interface with the host server.

Functionality description

The management system is used to view a list of controllers and activate/deactivate controllers.

The management system supports the Non-managed NE and the Unmanageable device. A Non-managed NE is displayed on the Network Map and can be used for connection provisioning. An Unmanageable Device is not displayed on the Network Map and is used to inhibit the NE from being discovered (or re-discovered) via Subnetwork Discovery.

Note for SLM Regenerator 4 and SLM Regenerator 16

SLM Regenerator NEs are reported as neighbors by Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs. If these NEs report the SLM Regenerator NE is managed by WaveStar® ITM-SC, the SLM Regenerator NE will be an indirectly managed NE. If these NEs report the SLM Regenerator NE is managed by a CMISE network adapter, the SLM Regenerator NE will be a directly managed NE. The CMISE network adapter however, does not directly connect to the SLM Regenerator NE and the level of support for a directly managed SLM Regenerator NE is equivalent to that provided for an indirectly managed SLM Regenerator NE. The only difference between an indirectly managed and a directly managed SLM Regenerator NE is that cut-through to the WaveStar® ITM-SC controller is provided for indirectly managed NEs and the NE Management Functions (for CMISE NEs) is provided for directly managed NEs.

Controller List

The Controllers page is used to view information about management systems or other servers that have an interface with the host server, such as those list below.

Additionally, from this page, you can activate or deactivate a controller, perform database synchronizations, search for the network communications group to which a controller belongs and open the Optical EMS controller GUI. Network Adapters (NAs) supporting directly managed NEs and Network Controller supporting indirectly managed NEs appear on the Controller list.

Types of controllers

The following is a list of controller types:

- **WaveStar® ITM-SC**- indirectly manages NEs via the WaveStar® ITM-SC controller.
- **PM-MRP** - provides Ethernet information to the management system.
- **TNA** - TL1 network adapter
- **Optical EMS** - indirectly manages NEs via the Optical EMS controller.
- **CNA** - CMISE network adapter
- **NMA** - Network Management Adapter for 1671 Service Connect (SC) NEs only

Communications status controllers

The following list describes the communications status for controllers other than PM-MRP.

- **Up** - the management system is currently communicating with the controller.
- **Down** - the management system is currently not communicating with the controller but the system is attempting to reestablish communications with the controller.
- **Deactivated** - the management system is currently not communicating with the controller and the system is not attempting to reestablish communications with the controller.

The following list describes the communications status for the PM-MRP controller

- **Up** - the last poll of PM-MRP by the management system was successful.
- **Down** - the last poll of PM-MRP by the management system failed.
- **Deactivated** - polling of PM-MRP by the management system has been suspended and will not be attempted until polling is manually reactivated.

Activate/deactivate controllers

The Controllers page is also used to activate controller connections with the management system. Controller connections can be activated only if the connection was previously deactivated. Likewise, controller connections can be deactivated only if the connection was previously activated.

Cut-through to controller GUI

When the user selects a Controller that supports cut-through from the Search Results table and selects **Open Controller GUI** from the Go menu, the management system opens the login page of the selected Optical EMS or WaveStar® ITM-SC server. The controller prompts for the user name and password information in order to allow the user to log into the controller application. Multiple controller applications can be open simultaneously, with no limit on the maximum number of controller applications that can be open simultaneously.

View a List of Controllers

When to use

Use this task to view a list of controllers.

Related information

See the following topic:

- “Controllers Concepts” (p. 2-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of controllers.

1 Use the icons or the object links to follow this path:

- **Management Network > Controllers**.

  Result: The search panel of the Controllers page is displayed.

2 Make selections in the following fields in the search panel:

- In the **Controller type** field select one of the following from the drop down list: **All**, **WaveStar® ITM-SC**, **PM-MRP**, **TNA**, **Optical EMS**, **CNA** or **NMA**.
- In the **Controller name** field, type a name in the type ahead text box or select the name of the controller from the scrolling list.
- In the **Comms Status** field, select the communications status of the controller with the management system from the drop down list.
- In the **Last outage time: to:** and **Last outage time: from** fields, manually enter a date followed by a time in the text box or click the calendar icon next to the text box to choose the date and time information. This is the last date and time the management system lost communications with the controller.

3 Click the **Search** button.

Result: The list at the bottom of the Controllers page is populated with a list of the controllers in the network that meet your search criteria.

END OF STEPS

□

Activate or Deactivate Controllers

When to use

Use this task to activate/deactivate a controller connection to the management system.

Related information

See the following topic:

- "Controllers Concepts" (p. 2-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to activate/deactivate a controller connection.

1 View a controllers using the "View a List of Controllers" (p. 2-72) task.

Result: The Controllers page is displayed.

2 The **Controller Name** column of the table lists the names of the controllers for which you have entered search criteria. Click the radio button next to the controller for which you wish to activate/deactivate the controller connection.

3 From the **Go** menu, do one of the following:

- Select **Activate** to activate a previously deactivated controller connection. This option is displayed if the **Comms Status** of the selected controller is **Deactivated**.
- Select **Deactivate** to deactivate a currently activated controller connection. This option is displayed if the selected controller is activated.

4 Click the **Go** button.

Result: The selected controller is activated/deactivated. The management system indicates the success or failure of the task.

END OF STEPS

□

3 Manage Individual Network Elements

Overview

Purpose

This chapter contains provisioning tasks that allow the user to manage NEs in the network.

Organization of this chapter

The sections of this chapter correspond to the main sections of the Network Elements section of the management system software.

The following table describes how to find documentation about each of the main features related to network elements.

Network Elements Features	Location of User Information
Add and delete NEs	Chapter 2, “Manage Network Infrastructure”
View NEs	“Section I: Network Elements” (p. 3-5)
Equipment	“Section II: Equipment” (p. 3-25)
Ports	“Section III: Ports” (p. 3-69)
Protection Groups	“Section IV: Protection Groups” (p. 3-99)
Central Offices	“Section V: Central Offices” (p. 3-124)
Software	“Section VI: Software Management” (p. 3-130)

Contents

Section I: Network Elements

Overview

Purpose

This section discusses network elements (NEs).

Contents

Network Element (NE) Concepts

Overview

This section contains conceptual information about network elements (NEs). This information is meant to complement the tasks presented later in this section.

Important! Each release of the management system supports a certain set of NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, information about NEs other than those listed in this table, applies to previous releases of the management system and is not applicable.

Definition of an NE

An NE is a unit of equipment within a network that performs specific transport and/or switching functions. Examples of transport and switching functions are amplification, regeneration, cross-connection, multiplexing, and packet switching.

NE types

The NE types supported by the management system fall into two categories:

- Supported NEs (including indirectly managed NEs)
- Other NE types

Supported NEs

For a description of the supported NEs, see "Supported Network Elements" (p. 1-8).

Other NE types

The management system supports the following other types of NEs:

- **Non-managed NE** is an NE that is not managed by the management system, but that the management system can make connections to or through. Non- managed NEs are also known as black boxes. For more information see "Non-Managed NEs" (p. 3-12).
  Once an NE is designated as a non-managed NE, its NE type cannot be changed. To change the NE type of a non-managed NE, the NE must be deleted and added in again with a different NE type.
- **Unmanageable device** is an NE that does not appear on the Network Map, and is used to prevent the NE from being discovered, or re-discovered, by the subnetwork discovery process. Unmanageable devices do appear on the Network Element page in the list of NEs and are otherwise ignored by the management system. Unmanageable devices do not appear on any other pages of the management system. Examples of unmanageable devices are a router or a hub.

If the management system cannot manage an NE with a known NE type, the management system changes the NE type of the NE to "unmanageable device." This can occur if the management system has run out of licenses for that type of NE, or if the NE is an unsupported release of a supported NE, or if errors are encountered with the NE.

- **Unknown** is an NE that is used only during subnetwork discovery to designate NEs for which the management system has not yet logged into the NE to determine its true NE type.

Domain partitioning

Users are only able to view the NEs that are included in the Domain to which they are assigned.

Add NEs

NEs are added to the management system by using the Add OMS-to-NE Connection page. For more information, see "OMS to NE connections Concepts" (p. 2-30).

Delete NEs

When an NE is deleted, its corresponding OMS-to-NE connection is also deleted. An NE should only be deleted when it is to be physically removed from the network. For more information, see "OMS to NE connections Concepts" (p. 2-30).

An NE and its corresponding OMS-to-NE connection cannot be deleted in the following situations:

- When the NE is a GNE for a Network Communications Group, and it has RNEs assigned to it
- When the NE has cross-connections being used in network connections (For information about how to delete a network connection, see the OMS Connection Management Guide.)
- When the NE is being used as an FTP/FTAM gateway
- When a database synchronization is in progress for that NE
- When a software download is in progress for that NE
- If the management system cannot delete the NE from the primary network adapter
- When a backup or restore is in progress for that NE

For more information, see "Delete an NE" (p. 2-67).

NE deletion failure

When an attempt is made to delete a NE, some resources on that NE, such as ports, equipment, and connections, may be lost even if the NE deletion fails. If you wish to manage that NE after its deletion attempt fails, to regain any lost NE resources in the

management system database, you must perform a full database synchronization on the NE. If you wish to proceed with deleting the NE after resolving the problem with the NE deletion, there is no need perform a database synchronization with the NE.

Database synchronization

The database synchronization feature synchronizes the management system database with current configuration data from an NE in the network. For more information, see "Section II: Database Synchronization" (p. 7-15).

NE equipment

The management system allows you to view the equipment inventory for an NE in the network as well as a graphical representation of the equipment of the NE. For more information, see "Section II: Equipment" (p. 3-25).

NE alarms

The management system allows you to view the alarm status of all NEs in the network. For more information, see *OMS Service Assurance Guide*.

Network Elements page

The Network Elements page lists and describes one or more NEs, reports their status, and allows the user to perform tasks related to NEs from the Go menu.

Communications status

The management system reports on the communications status of each NE on a number of pages. Color is used to indicate communications state on maps and on the Network Elements page.

The possible values for communications status are described in the following table:

Communications Status	Definition	Color	Icon
Up	Communications with the NE are working.	Green	
Down	Loss of communications. The management system continues to attempt to communicate with the NE.	Magenta	

Communications Status	Definition	Color	Icon
Failed	Permanent loss of communications. The management system has stopped attempting to communicate with the NE.	Red	
Unknown	Communications status cannot be determined.	Magenta	
Deactivated	The NE is not communicating with the system because the OMS to NE connection was manually deactivated.	Grey	
NA	Not Applicable. For Non-managed NEs and Unmanageable Devices only.	Magenta	

Activity states

The management system reports on the activity state of each NE on the Network Elements page.

The possible values for activity state are described in the following table:

Activity State	Definition
Active	The NE is being managed normally.
Activate	The NE is in the process of a software activation (for example, an NE generic activation).
Backup	The NE is in the process of a backup (for example backup NE database version).
Download	The management system is downloading data to an NE (for example, NE restore or transfer of an NE generic to an NE).
Initial	The management system has added the NE into its database but has not yet successfully synchronized with the Management Information Base (MIB) of the NE (CMISE NEs only) or completed the initial database synchronization with the NE (CMISE and TL1 NEs).
NE Maintenance	The NE is currently in the Maintenance mode. (1675 Lambda Unite MultiService Switch (MSS) NEs only)

Activity State	Definition
Not Applicable	For Non-managed NEs and Unmanageable Devices only.
Out of Service	The NE is in the process of being deleted from the management system.
Out of Sync	The initial Database Synchronization against a managed NE has failed. Also, a user-initiated on-demand or scheduled Database Synchronization has failed after the initial Database Synchronization completes. For CMISE NEs the MIB upload has failed, or the start of the MIB upload is delayed and there is a time-out.
Pending Add	The NE is successfully added to the main database of the management system, but has not yet been added to a network adapter. This activity state is transparent to the user.
Pending Delete	The NE has been deleted from the controller, but the management system cannot delete the NE because it is currently being used in a network connection. (Indirectly managed NEs only)
Ready to Sync	The management system is communicating with the NE, but the initial database synchronization with the NE has not occurred yet because it has been deferred by the user.
Restore	The NE is in the process of a restore (for example, restore NE database version from the management system to the NE).
Sync Failed	A database synchronization was attempted and failed. User should manually initiate a database synchronization.
Upload	The management system is uploading data from the NE (for example, an NE backup or a database synchronization).

NE version

The NE version is the current version (release) of the NE generic software.

For TL1, MATS NEs, the NE version information is displayed in the X.Y.Z format where X is the major release number, Y is the minor release number, and Z is the point release number.

For CMISE NEs, both the X.Y.Z format and the native format of the NE version for NEs that support the native format are displayed. The native format of the NE version is displayed in parentheses below the X.Y.Z format.

For VLNC40, VLNC60, VLNC64, the NE version information is displayed in the W.X.Y.Z format where W is the major release number, X is the minor release number, Y is the maintenance release number and Z is the point release number.

For 1671 Service Connect (SC), the NE version information is displayed in the XX.YY.ZZ format where XX is the release number, YY is the point release number and ZZ is the maintenance revision of value..

For non-managed NEs and unmanageable devices, **Not Applicable** is displayed as the NE version.

□

Non-Managed NEs

Purpose

This section contains conceptual information about non-managed NEs. This information is meant to complement the tasks presented later in this section.

Description

Non-managed NEs are those NEs that are not managed by the management system, but that the management system can make connections to or through.

Types of non-managed NEs

The management system uses the **Non-managed NE type** field to identify two types of non-managed NEs. When manually adding a non managed NE, the Non-managed NE type field must be provisioned. The following list describes the types of non-managed NEs.

- **Non-managed NE in the managed domain** - an NE of this type is in the middle of the managed network. This type of non-managed NE corresponds to the Black Box type of NE that is supported by Network Management System.
- **Non-managed NE outside the managed domain** - an NE of this type is just outside the edge of the managed network and can represent an NE that is not managed by the management system because it is outside the managed domain but within the operator's network, in another operator's network or on end-customer premises. This type of non-managed NE corresponds to the Out of Domain Object (ODO) type of NE that is supported by Network Management System.

Methods of adding non-managed NEs

There are two methods of adding non-managed NEs.

Manually add non managed NEs

Non-managed NEs are added manually using the OMS to NE Connections page. When a non-managed NE is manually added the **Non-managed NE type** field is set to either **Non-managed NE in the managed domain** or **Non-managed NE outside the managed domain**. The default value is **Non-managed NE in the managed domain**.

When manually adding a non-managed NE outside the managed domain, the management system allows the NE name to be 1 to 24 characters in length. This is to enable the prefix of "ODO_" to be added to the NE name, which identifies it as the type of non-managed NE which corresponds to the Out of Domain Object (ODO) type of NE that is supported by Network Management System. Note that the maximum length of an NE name is 20 characters for all other managed NEs, indirectly managed NEs, and non-managed NEs in the managed domain.

Automatically add non managed NEs outside of the managed domain

Non-managed NEs outside of the managed domain are also automatically added to the management system. This only occurs based on a request received over the Northbound Interface with PM-MRP to add an inter-domain connection. An inter-domain connection is one that leaves the managed network.

When automatically adding a non-managed NE outside of the managed domain, , the management system provisions the NE name as “ODO_” followed by the 1 to 20 character NE name of the NE in the managed network that terminates the other end of the inter-domain connection. Additionally, the **Non-managed NE type** is set to **Non-managed NE outside the managed domain**.

Note that, if the non-managed NE had been previously manually created but had not been given the NE name of “ODO_” plus the NE name of the associated NE in the managed domain, the management system still automatically creates the new non-managed NE outside of the managed domain. Thus, it is possible for a single NE in the managed domain to be connected via a connection to multiple non-managed NEs outside the managed domain. In this case, the automatically created NE outside the managed domain is the one with the NE name of “ODO_” plus its NE name.

Modifying non-managed NEs

The name of a non-managed NE is changed using the NE Name Change Tool. If the NE Name Change Tool is used to change the name of a managed NE which has an associated automatically created non-managed NE outside of the managed domain, the management system automatically changes the name of the non-managed NE to match the updated managed NE name. Conversely, if the NE Name Change Tool is used to change the name of a non-managed NE outside of the managed domain which was automatically created, the management system does not change the name of the managed NE associated with that non-managed NE outside of the managed domain.

Additionally, the non-managed NE type cannot be modified.

Deleting non-managed NEs

Either type of non-managed NE can be deleted, as long as there are no network connections involving the NE. The management system does not provide a notification over its northbound interface of the deletion of a non-managed NE.

Management system support for non-managed NEs

The following list describes the support of non-managed NEs in the management system.

- Network Map -

Non-managed NE information is displayed on the Network Map in the following ways:

– Icon - both types of non-managed NEs are indicated with the following icon: 

– Node menu - the same node menu is displayed for the two types of non-managed NEs. For more information see the *OMS Getting Started Guide*.

□

Regenerator Management Concepts

Overview

This section contains conceptual information about regenerators. This information is meant to complement the tasks presented in this documentation set.

Description of regenerators

When digital signals go through long spans and many intermediate distribution frames, they get degraded to a point that the original digital signal cannot be recognized or retrievable by the receiving network element. In such cases, regenerators are used at some intermediate point(s) in those long spans to regenerate the digital signals.

The digital signals received by the regenerators are, in general, at the regenerator section (RS) layer and carry the regenerator section overhead in the SDH transport.

Types of regenerators

The management system manages the following types of regenerators:

- ISM-4 Regenerator
- SLM-4 Regenerator
- SLM-16 Regenerator
- PHASE LR-4 Regenerator
- PHASE LR-16 Regenerator

Management of regenerators

Regenerators are indirectly managed by the management system through the WaveStar® ITM-SC. All element layer screens, including port provisioning on the regenerator port, are accessed via cut- through to the WaveStar® ITM-SC. The management system allows direct management to allow the user to manually add, modify and remove regenerators from STM-4 and STM-16 connections.

Regenerator management system rules

The following rules apply to managing regenerators on the management system.

- Regenerators can be added or deleted to a connection without requiring a link at the regenerator section (RS) layer.
- Adding regenerators during or after provisioning a connection must strictly follow the sequence and ordering of how they were added. For example, the first regenerator selected will be the first regenerator closest to the A end NE of the connection.

- When modifying either the order of regenerators on the connection or the order of their line ports on the East and West side, they must be deleted and added back to the connection in the proper order.
- There is no limit to the number of regenerators that can be added to a connection, however, the same regenerator, except for PHASE regenerators which have two pairs of line ports, cannot be used for more than one connection.
- Commands to make any cross-connections between the line ports or to provision the ports are carried out from either the WaveStar® ITM-SC CIT or from the management system TL1 Command Center screens.
- Regenerators cannot be added to an Optical Section (OS) between a TDM NE and a DWDM NE even if the OS will be a server to an STM-n connection. Likewise, an optical layer cannot be inserted to a connection that has regenerators. The regenerators must be deleted before inserting an optical layer.

Display of regenerators in the management system

Regenerators are displayed in the following ways in the management system.

- **Network Map** - Regenerators are not displayed on the Network Map.
- **Graphical Layout** - The graphical layout of connections shows the regenerators in the same sequence from the A End NE as added during provisioning or added/modified later. The graphical layout is not dynamically updated when adding, deleting or modifying regenerators. The graphical layout must be refreshed to view changes for regenerators.
- **Add Connection page** - The Add Connection page contains a panel for adding regenerators during provisioning. From the Regenerator panel, the user can select a regenerator from a pop-up list and select the “from ports” and “to ports”.
- **Network Elements page** - Regenerators are listed on the Network Elements page.
- **NE Management Functions** - Allows regenerator management functions for SLM Regenerator Spans, including fault reporting and MDIs for WaveStar® ADM 16/1 and Metropolis® ADM (Compact Shelf) ports.
- **Modify Regen page** - From this page, you can add regenerators, rearrange the order of the regenerators or delete regenerators.

Adding regenerators

Regenerators are added during connection provisioning or afterwards through the Regenerator Management panel on the Add Connections page. From the Regenerator Management panel, the user can select a regenerator from a pop-up screen and select the “from ports” and “to ports”. It is not mandatory to add regenerators initially through this panel only. Regenerators can also be added after the connection goes In-Effect.

Deleting regenerators

Regenerators are able to be deleted.

Modifying regenerators

Regenerators can be moved to a different order from which they were previously provisioned or the ports can be modified on either side of the regenerator. These type of modifications are accomplished by deleting the regenerators and adding them back in the desired sequence or desired port configurations.

For more information

For more information on using the management system see the following:

- For managing SLM regenerators see "Section III: Alarms and Events" (p. 5-22) in this information product.
- For information on regenerator provisioning tasks see the *OMS Connection Management Guide* in this documentation set.

□

View a List of NEs

When to use

Use this task to view a list of NEs.

Related information

See the following topic:

- “Network Element (NE) Concepts” (p. 3-6)

Before you begin

This task does not have any preconditions.

Task

Complete the following step to view a list of NEs.

1 Use the icons or the object links to follow this path:

- **Network Elements**.

  Result: The Network Elements page is displayed with the Search panel open.

2 To display all NEs, click the **Search** button.

To search for a single NE, enter the NE name in the text box, or click on the NE name hyperlink to display the Network Elements pop up window. Select an NE in the window and click the **OK** button.

To display all NEs of a certain type, select the type of NE from the **NE type** drop down list.

To further refine the search criteria, click the **More** icon to display additional search fields.

3 Click the **Search** button.

Result: The list of NEs matching the search criteria is displayed in the search results table.

END OF STEPS

□

View Abnormal Condition on an NE

When to use

Use this task to view the current abnormal condition details for the selected NE.

Related information

See the following topics:

- “Network Element (NE) Concepts” (p. 3-6)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the abnormal condition details for the selected NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Network Element > Abnormal Condition**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to view the protection groups. From the Go menu, select **Abnormal Condition**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Abnormal Condition**.

  Result: The search panel of the Abnormal Condition page is displayed.

2 In the **NE type** field, select the type of NE.

3 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

4 Click the **Search** button.

Result: The list at the bottom of the Abnormal Condition page is populated with a list of the abnormal condition details of the selected NE that meet your search criteria.

END OF STEPS

□

View Assigned Ports on an NE

When to use

Use this task to view a list of ports that are assigned (that is, that are in use) on an NE. This task is used to monitor port usage on an NE.

Related information

See the following topics:

- “Network Element (NE) Concepts” (p. 3-6)

Before you begin

This task does not have any preconditions.

Task

Complete the following step to view assigned ports on an NE:

1 Do one of the following:

- On the Network Map, right-click the NE for which you wish to view assigned ports. From the Node menu, select **NE/Port assignment list**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to view assigned ports. From the Go menu, select **NE/Port assignment list**, and click the **Go** button.

  Result: The Assigned Port page is displayed. It includes a list of ports on the selected NE that are assigned (that is, that are in use).

END OF STEPS

□

Open Controller Application for Indirectly Managed NEs

When to use

Use this task to open the controller application for indirectly managed NEs. This allows the management system to indirectly manage NEs through the controller managing these NEs.

There are three methods for this task.

Related information

See the following topics:

- "Network Element (NE) Concepts" (p. 3-6)
- "Indirectly Managed NEs" (p. 1-13)

Before you begin

This task does not have any preconditions.

Task, Method 1: From the Network Map

Complete the following steps to open the controller application for indirectly managed NEs.

1. Use the icons of the object links to follow this path: **Home > Network**

   Result: The Network Map is displayed.

2. Right-click an NE that is indirectly managed by a controller.

   Result: The NE menu is displayed.

3. Select **Session > Open EMS/SC GUI**.

   Result: The Login page for the selected controller is displayed.

4. Enter the login ID and password for the controller.

   Result: The graphical user interface for the selected controller is displayed.

END OF STEPS

Task, Method 2: From the Network Elements page

Complete the following steps to open the controller application for indirectly managed NEs.

1 Use the icons of the object links to follow this path: **Home > Network Elements**

Result: The Network Elements page is displayed.

2 Select an NE that is indirectly managed by a controller.

3 From the Go menu, select **Open EMS/SC GUI**.

Result: The login/ID page of the controller is displayed.

4 Enter the login ID and password for the controller.

Result: The graphical user interface for the selected controller is displayed.

END OF STEPS

Task, Method 3: From the Controllers page

Complete the following steps to open the controller application for indirectly managed NEs.

1 Use the icons of the object links to follow this path: **Home > Management Networks > Controllers**

Result: The Controllers page is displayed.

2 View a list of controllers using the "View a List of Controllers" (p. 2-72) task.

Result: The controllers that match your search criteria as displayed in the Search Results table.

3 Select a controller that manages indirectly managed NEs.

4 From the Go menu, select **Open Controller GUI**.

Result: The login/ID page of the controller is displayed.

5 Enter the login ID and password for the controller.

Result: The graphical user interface for the selected controller is displayed.

END OF STEPS

□

Section II: Equipment

Overview

Purpose

This section discusses equipment.

Contents

Equipment Concepts

Overview

The following is conceptual information about equipment. This information is meant to complement the tasks presented later in this section.

Important! Each release of the management system supports a certain set of NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, information about NEs other than those listed in this table, applies to previous releases of the management system and is not applicable.

Definition of equipment

Equipment consists of the physical components of an NE, such as shelves and slots/circuit packs.

Functionality description

NE types vary in terms of complexity and configurability. They range from single-shelf NEs in a single location to multi-bay and multi-shelf NEs that are flexible in their arrangements and may be distributed between rooms and floors of a central office or even distributed across central office locations and remote sites.

When an NE is added to the management system, a database synchronization between the management system and the NE is run, which automatically retrieves the current equipment configuration of an NE and stores this information in the database of the management system. The equipment configuration of an NE includes all equipment items reported by the NE, such as shelves and circuit packs, and the inventory information for those items (for example, serial numbers and equipment version information).

The management system allows you to:

- View the equipment components of an NE in the network.
- View a graphical representation of the equipage of an NE in the network.
- View equipment- or transmission-related alarms on the Equipment View of shelves/subracks, slots/circuit packs, and subslots/subcircuit packs.
- Jump from the Equipment pages to the Ports page to allows provisioning of ports.

The management system database is automatically updated when an NE sends any equipment attribute value change notification.

Domain partitioning

Users are only able to view the equipment of the NEs that are included in the Domain to which they are assigned.

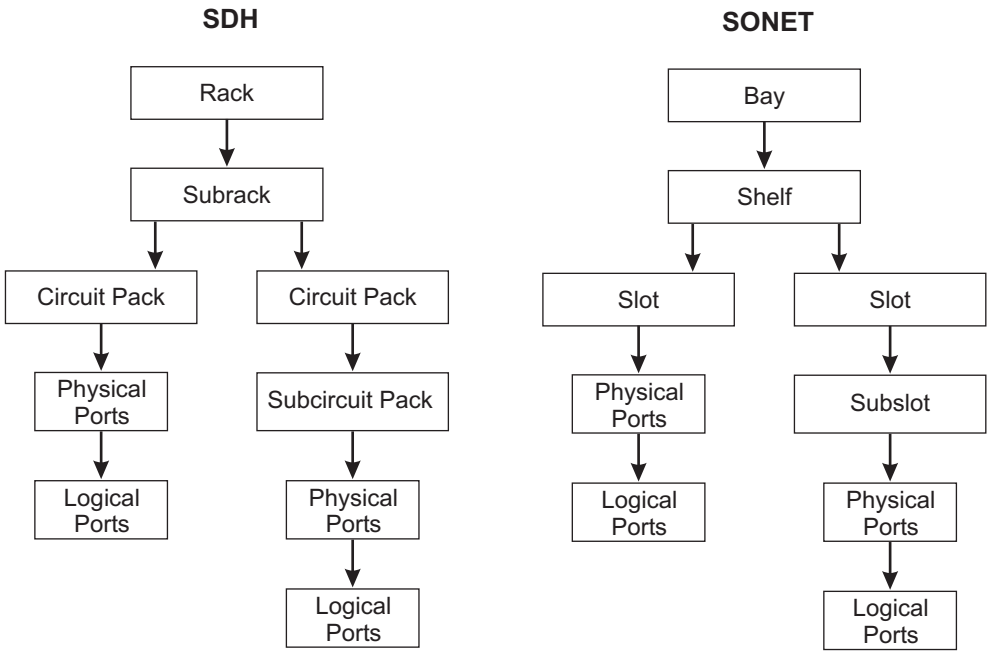
Indirectly managed NEs and equipment management

Equipment management for indirectly managed NEs is performed via cut-through from the management system to the controller application. For more information, see "Indirectly Managed NEs" (p. 1-13).

Hierarchy of equipment components

The equipment components of an NE are organized in a standard hierarchy. The terminology used to identify equipment components is different for the SDH and SONET operating environments.

The following figure shows the equipment components in the SDH and SONET operating environments.



Because NE types vary in terms of complexity and configurability, there are variations in the equipment hierarchy for different NE types. In particular, note the following:

- None of the NEs currently supported by the management system have bays/racks.

Form Factor Plug-ins

Small Form-Factor Plug-ins (SFPs) used in all supported NEs, and X-form Factor Plug-ins (XFPs) used in LambdaExtreme® Transport and Metropolis® Enhanced Optical Networking (EON) NEs are optical modular transceivers designed in compliance with industry specifications for use with compatible circuit packs. They offer high speed and physical compactness and are hot-swappable.

Because SFP and XFP modules can be easily interchanged, networks can be upgraded and maintained more conveniently than has been the case with traditional modules. Rather than replacing an entire circuit board containing several modules, a single SFP or XFP module can be removed and replaced for repair or upgrading. This also enables the single circuit pack to have several different types of transceivers. This can result in a substantial cost savings, both in maintenance and in upgrading efforts.

SFPs and XFPs are supported as additional objects in the equipment hierarchy. SFPs and XFPs are treated as their own equipment objects contained within a circuit pack and with their own inventory and status information. SFPs and XFPs add an additional level in the containment hierarchy but are treated the same as other equipment objects. The terms ″equipment″, ″SFP″, ″XFP″, ″module″ and ″sub-circuitpack″ are used interchangeably in the management system.

Equipment holders

When an NE is inventoried by the management system, the following information is collected and stored in the management system:

- Equipment that is present in the NE, such as a shelf or circuit pack.
- Any empty “holders” for equipment, such as an empty shelf or slot that are currently unoccupied.

In this way, the management system is able to present a complete description of an NE from an equipment point of view, including occupied and unoccupied slots.

View equipment in the network

The management system offers the ability to view equipment in the network in two ways:

- A list of shelves or slots/circuit packs presented as a data table, which is presented on the following pages:
  - Equipment - NE
  - Equipment - Bay
  - Equipment - Shelves/Subracks
  - Equipment - Sub-slot/Subcircuit Pack View
- A graphical representation of the equipage, known as the Equipment View, is presented on the following pages:
  - Equipment - Bay View
  - Equipment - Shelf View/Subrack View
  - Equipment - Slot View/ Circuit Pack View
  - Equipment - Sub-slot/Subcircuit Pack View

Display of alarms on equipment pages

The Equipment View pages provide alarm status on the graphical display. For more information, see the *OMS Service Assurance Guide*.

□

Equipment Overview of Supported NEs

Overview

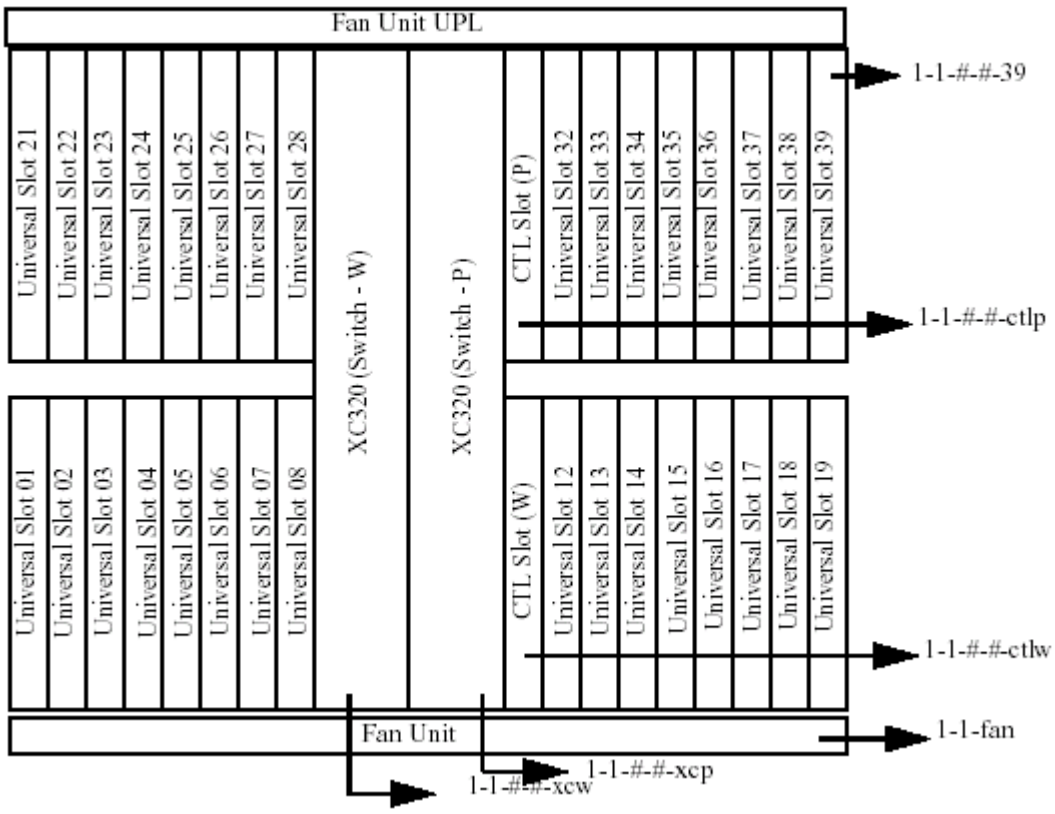
This section describes the equipment in each of the supported NEs. This information is meant to complement the tasks presented later in this section.

Note that the NE documentation should always be consulted for the latest information about NE equipment.

1675 Lambda Unite MultiService Switch (MSS)

1675 Lambda Unite MultiService Switch (MSS) is a single-shelf high speed 40G TDM NE that can be configured as a line repeater, terminal multiplexer, add-drop multiplexer, local cross-connect transparent multiplexer or transparent add-drop multiplexer. The NE supports higher line rates (up to OC-768/STM-256), higher tributary rates (up to STS-192C/VC4-64C), and supports 1G and 1G Ethernet LAN (data) interfaces. 1675 Lambda Unite MultiService Switch (MSS) can operate in both SONET and SDH modes.

The following figure shows the slot/circuit pack layout of the 1675 Lambda Unite MultiService Switch (MSS).

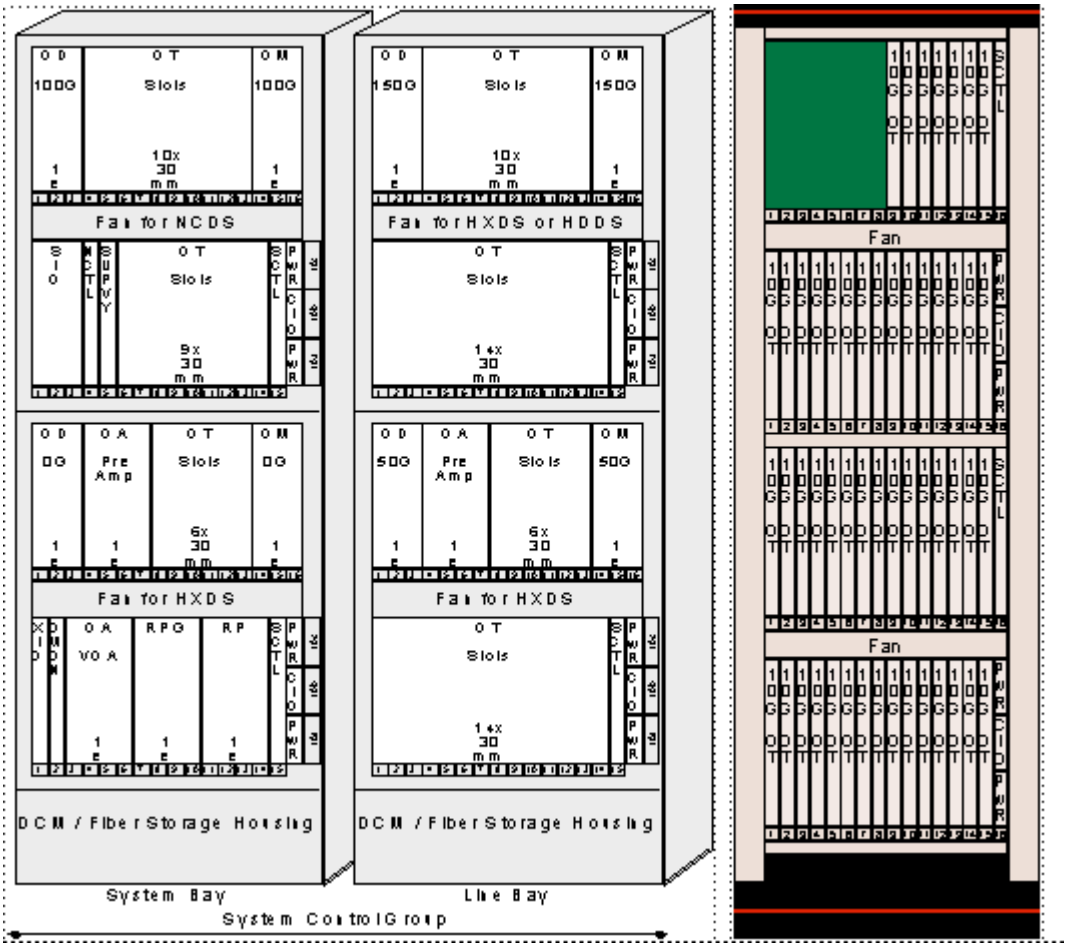


LambdaXtreme® Transport

LambdaXtreme® Transport is a third generation fiber optic transmission system that uses optical multiplexing, optical amplification, and optical demultiplexing to provide a very high capacity, ultra long haul, optical DWDM network element. LambdaXtreme® Transport is a 2 fiber system that provides up to 128 10G channels with 50/100/200 GHz spacing or 128 40G channels with 100 GHz spacing operating in extended L-band. LambdaXtreme also supports mixed of 10G and 40G (any combination with 40G on even channels). All LambdaXtreme® Transport node types support 128 channels.

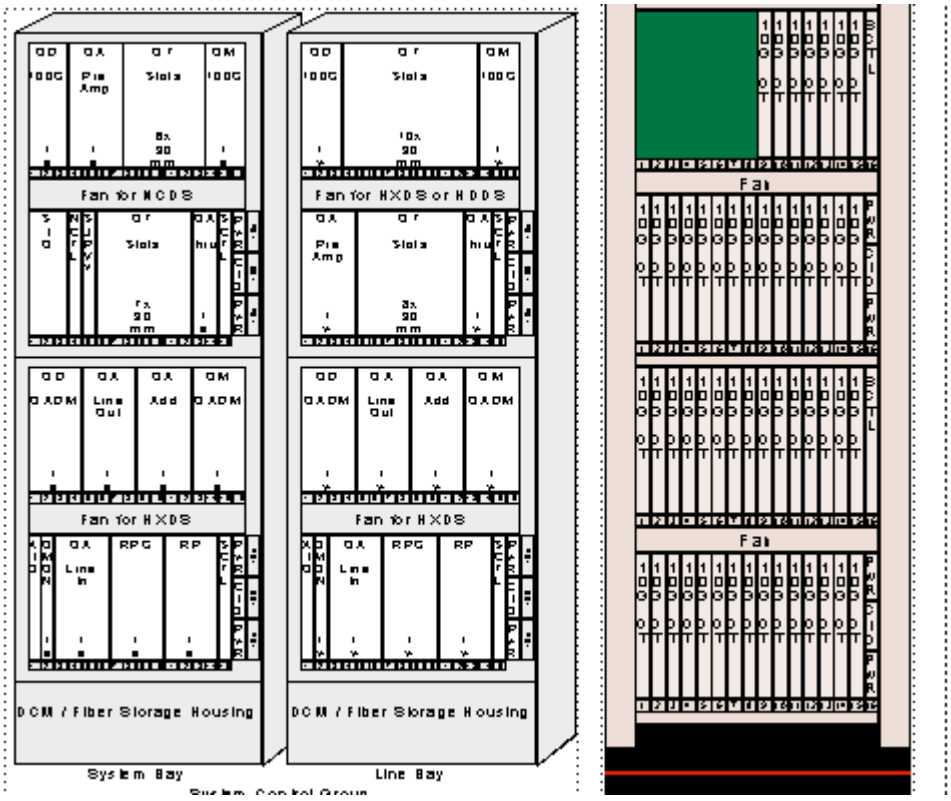
LambdaXtreme® Transport End Terminal Equipage Layout (System and Line Bays)

The following figure shows the LambdaXtreme® Transport end terminal equipage layout.



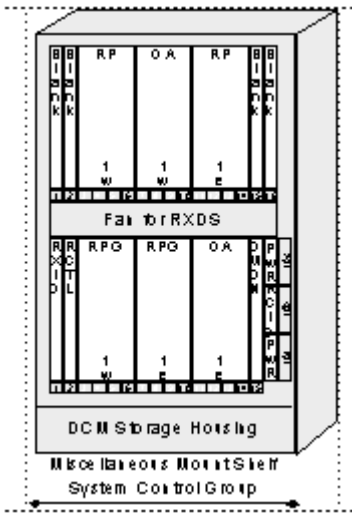
LambdaXtreme® Transport OADM Equipage Layout (System and Line Bays)

The following figure shows the LambdaXtreme® Transport OADM equipage layout.



LambdaXtreme® Transport Repeater Equipage Layout

The following figure shows the LambdaXtreme® Transport repeater equipage layout.

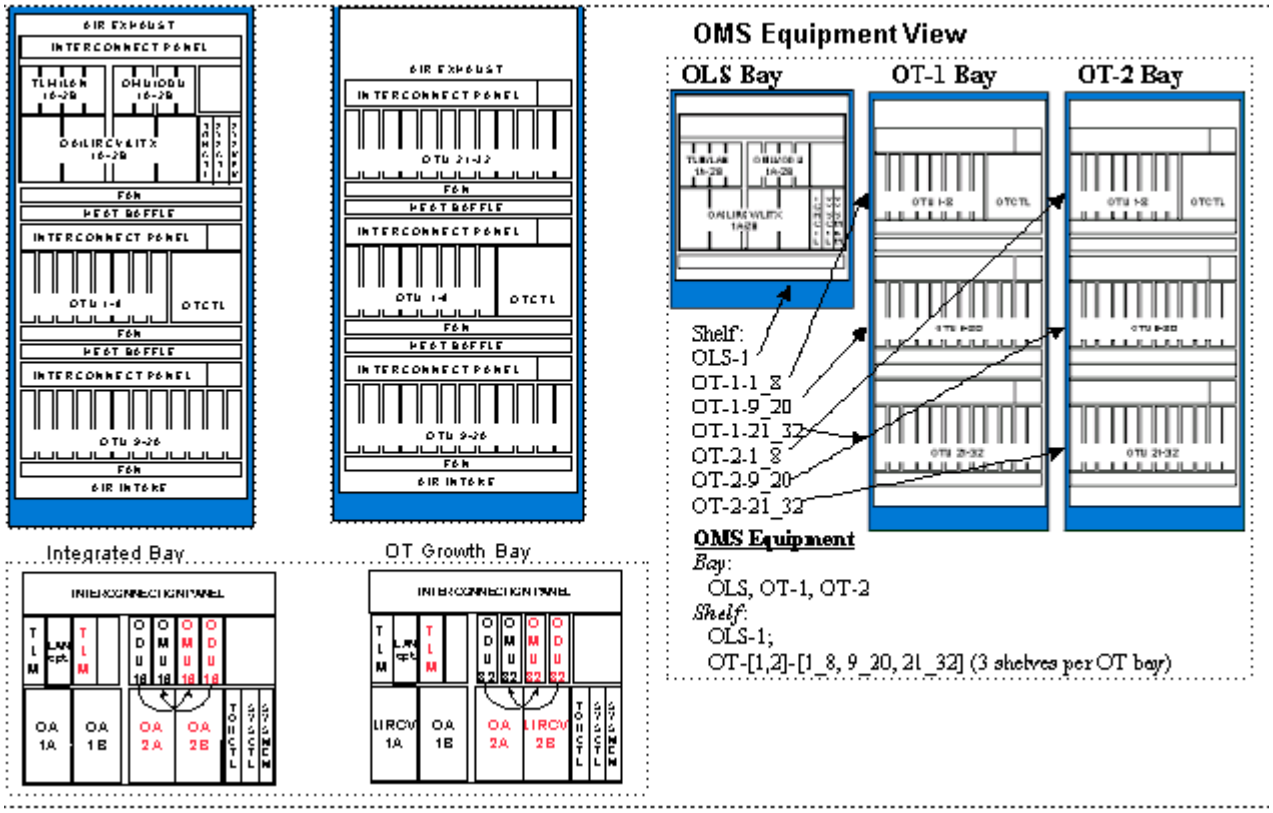


Metropolis® Enhanced Optical Networking (EON)

Metropolis® Enhanced Optical Networking (EON) is a Dense Wavelength Division Multiplexer (DWDM) NE that can multiplex up to 32 channels into a single optical line. The Metropolis® Enhanced Optical Networking (EON) architecture supports end terminal, ring terminal, and repeater configurations. Within these basic types the architecture is also scalable, supporting both 16 channel applications and 32 channel applications, and 32 channel applications with only 16 channels available to add/drop at a given node.

Metropolis® Enhanced Optical Networking (EON) OADM Equipage Layout (System and Line Bays)

The following figure shows the Metropolis® Enhanced Optical Networking (EON) equipment layout.



Metropolis® Enhanced Optical Networking (EON) Optical Video Broadcast feature

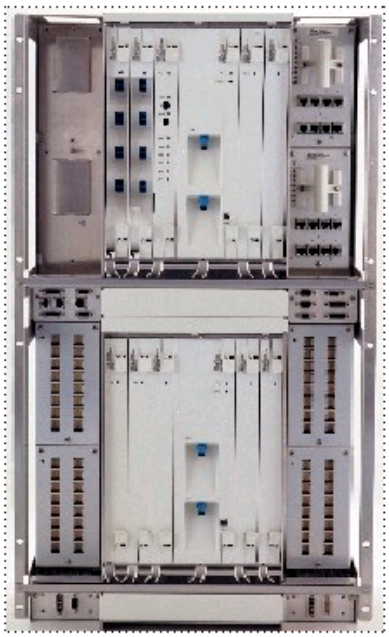
EON's Optical Video Broadcast feature is introduced in EON R8.7/8.8 and it is supported by OMS. Optical Video Broadcasting feature is supported with the Optical Drop and Continue (ODC) packs. One ODC carrier pack (ODC-C) can carry up to 3

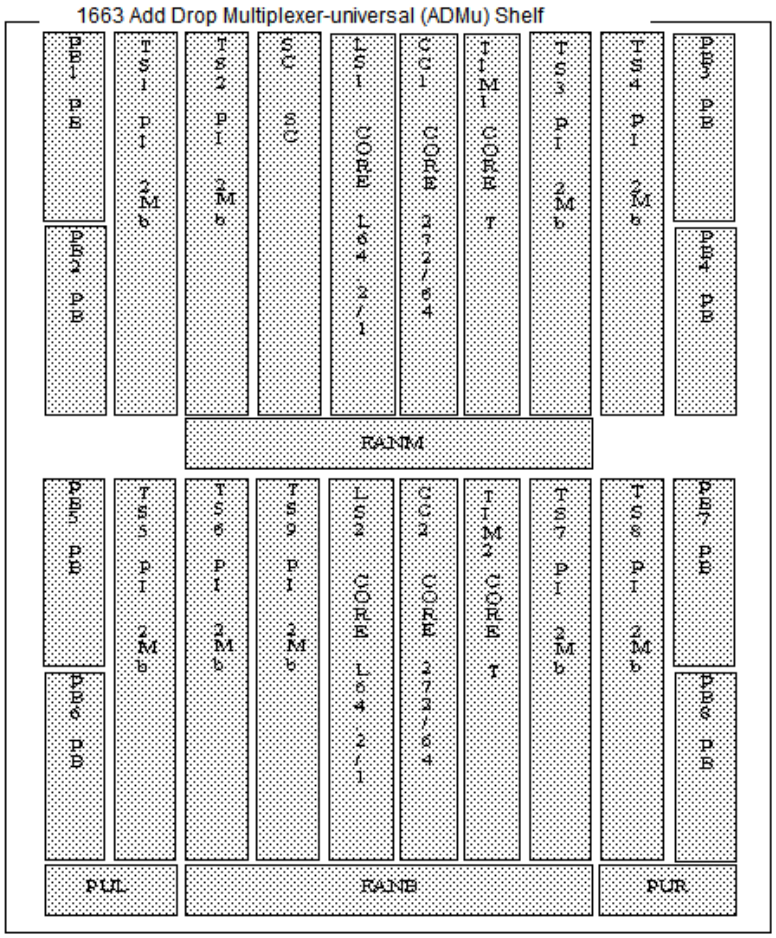
modules (2 ODCs, either ODC-A or ODC-P, and 1 OPS). The equippage of ODC is determined by the video broadcast service type. Optical associations need to be provisioned to support NE's alarm correlation.

1663 Add Drop Multiplexer-universal (ADMu) equipment

1663 Add Drop Multiplexer-universal (ADMu) is an SDH NE that supports a 2.5-G-based backplane and contains nine tributary slots.

The following figure shows the equipment layout of the 1663 Add Drop Multiplexer-universal (ADMu).



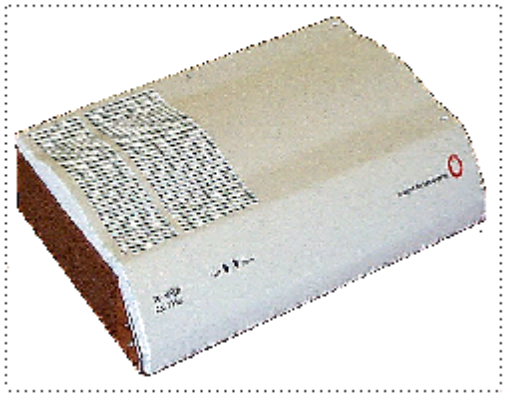


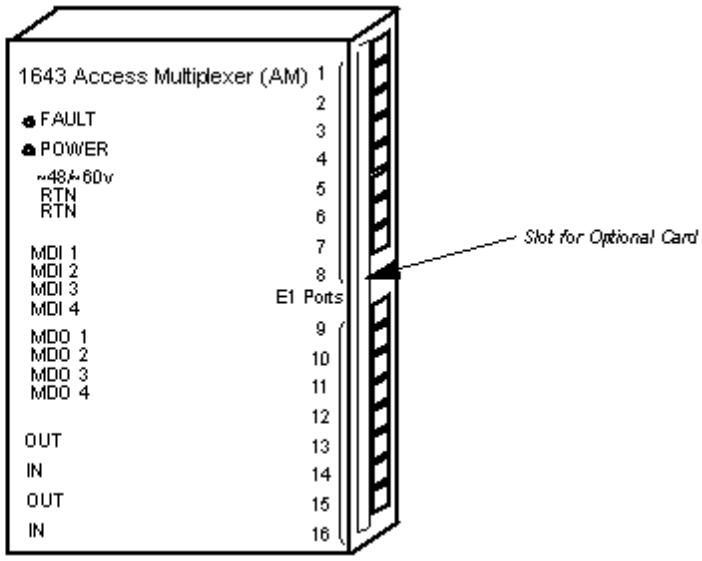
1643 Access Multiplexer (AM)

1643 Access Multiplexer (AM) is an SDH NE. It is an Add/Drop Multiplexer housed in a single unit. It is especially designed for low-filled STM-4 or STM-1 optical links from the customer premises to the access networks or for ring applications. 1643 Access Multiplexer (AM) provides 16 bidirectional E1 (2 Mbit/s) ports on the main

board and uses RJ48C connections via RJ45 connectors for access. It has optional add on cards which provide additional tributary interfaces. 1643 Access Multiplexer (AM) can be used as either an end-terminal or a line unit, therefore, it can be equipped by either one line card or two line cards accordingly.

The following figures show the equipment layout of the 1643 Access Multiplexer (AM).

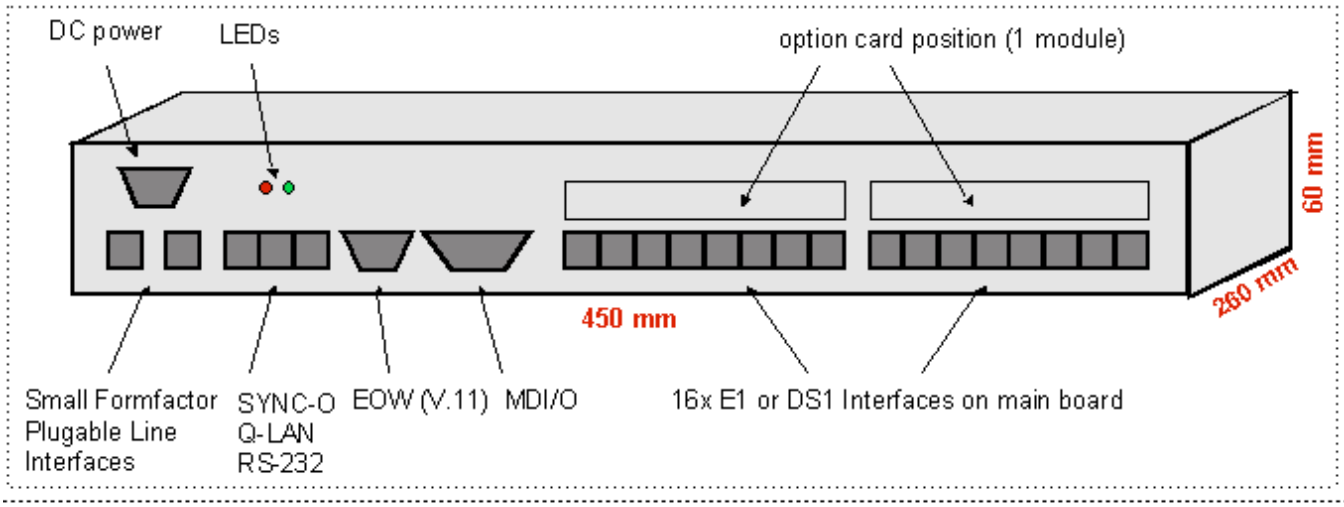


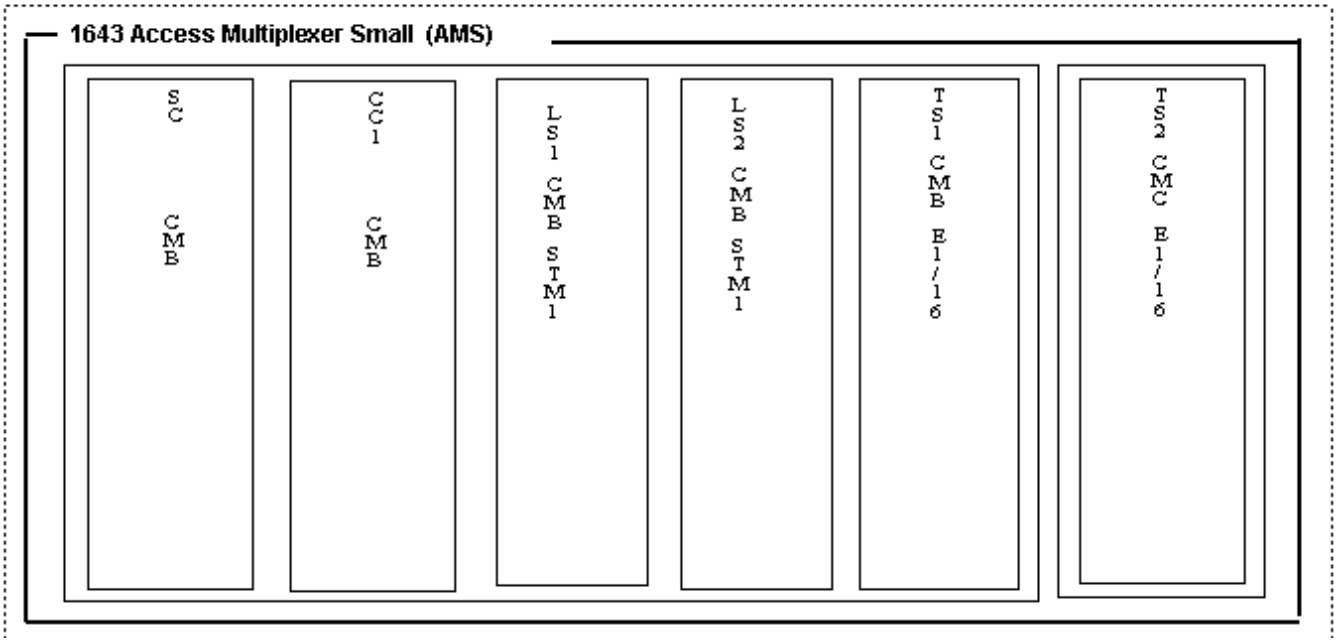


1643 Access Multiplexer Small (AMS)

1643 Access Multiplexer Small (AMS) is an STM-1 only version of the 1643 Access Multiplexer (AM). It maintains all the 1643 Access Multiplexer (AM) functionality, including 16xE1 (RJ45) on a motherboard, 1 option module and dual impedance support for E1s. The 1643 Access Multiplexer Small (AMS) reuses all the existing option cards except STM-1 versions and is for 48VDC version only, with the 100-240VAC/DC as the external module. Unlike the 1643 Access Multiplexer (AM), the 1643 Access Multiplexer Small (AMS) can only be used as a line unit. Therefore, it is always equipped by two line cards.

The following figures show the equipment layout of the 1643 Access Multiplexer Small (AMS).



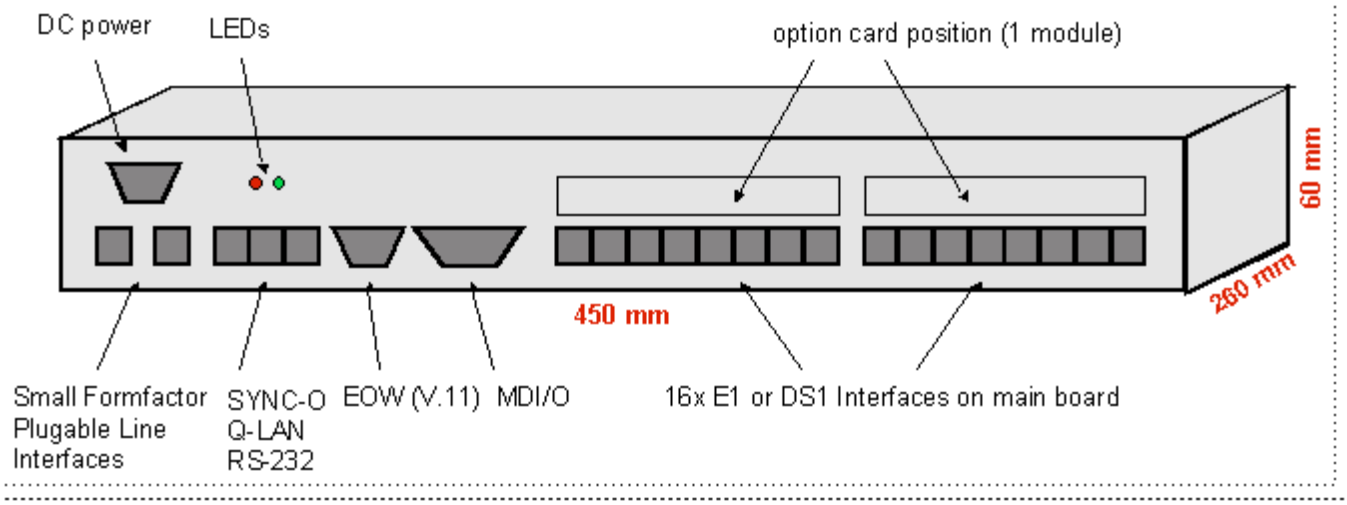


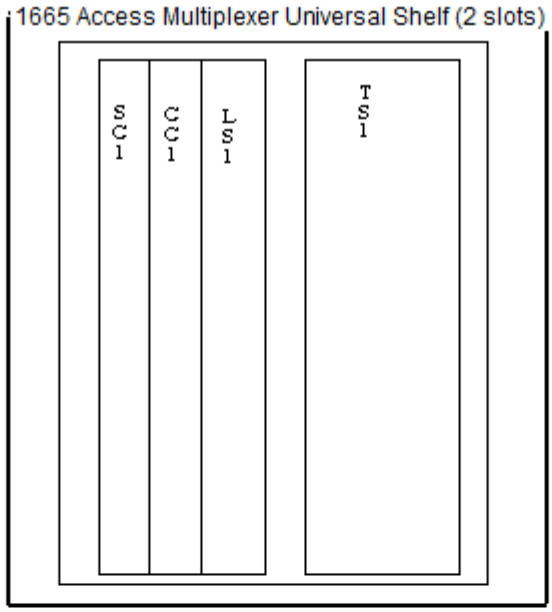
1655 Access Multiplexer Universal (AMU)

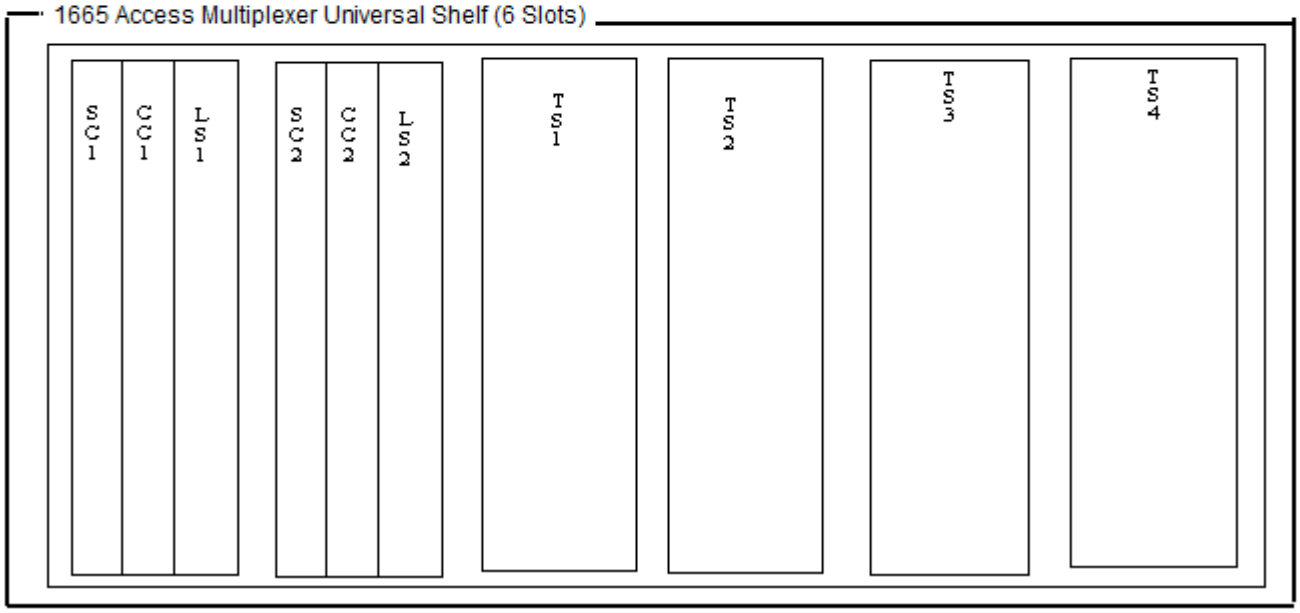
1655 Access Multiplexer Universal (AMU) is an intermediate capacity product in the TXS product portfolio designed to cost-effectively multiplex PDH, SDH, and Ethernet traffic to higher levels, up to STM-4. 1655 Access Multiplexer Universal (AMU), though physically larger and with higher capacity, shares an information model with 1643 Access Multiplexer Small (AMS).

1655 Access Multiplexer Universal (AMU) has two physical design options and is suitable for both CPE and central office applications. The 1655 Access Multiplexer Universal (AMU) can support terminal multiplexer, add/drop multiplexer, and multi-ring terminal applications. 1655 Access Multiplexer Universal (AMU) supports 1+1 line protection and UPSR path protection, and 1655 Access Multiplexer Universal (AMU) NEs may be deployed as 1+1 linear optical extensions, as nodes in unidirectional path switched rings, as nodes hosting single or dual homed UPSR ring extensions, or as nodes in single and dual-homed UPSR ring extensions.

The following figures show the equipment layout of the 1655 Access Multiplexer Universal (AMU).



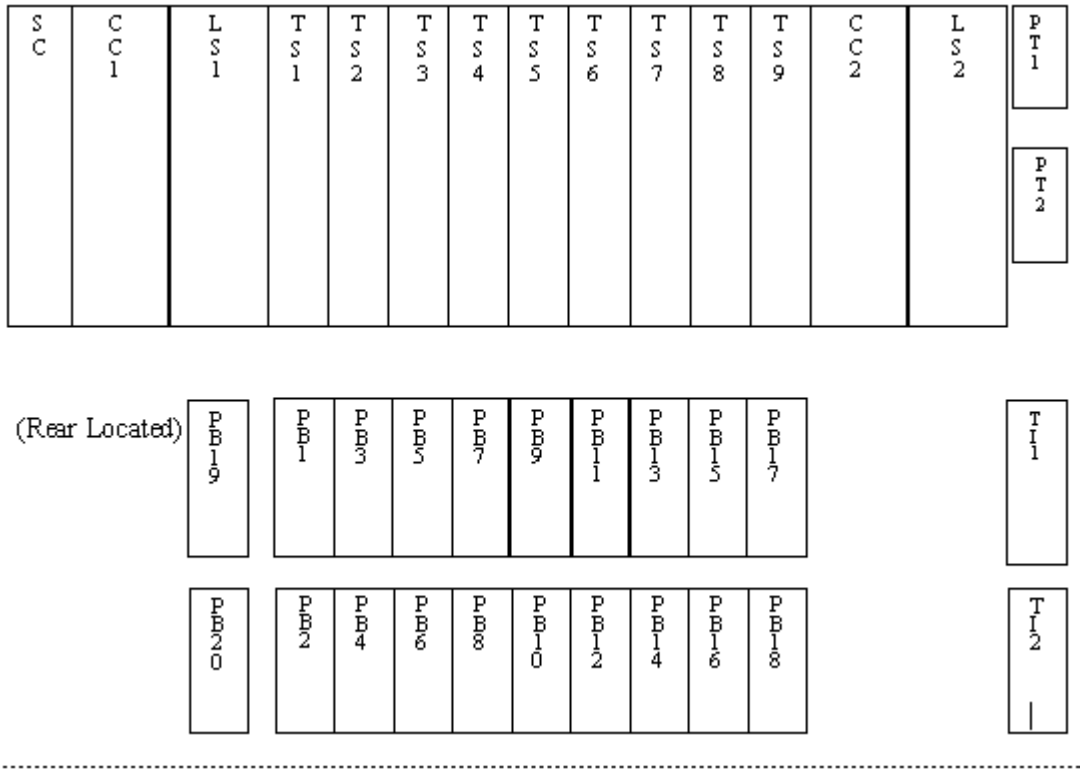




WaveStar® ADM 16/1

WaveStar® ADM 16/1 is a mature SDH NE. It supports 2.5 Gbps SDH 1+1 or 1+0 terminal, add/drop multiplexer and small local cross-connects. It contains 9 tributary slots and it is a cost-effective solution to multiplex PDH, SDH and Ethernet traffic up to 2.5 Gbps.

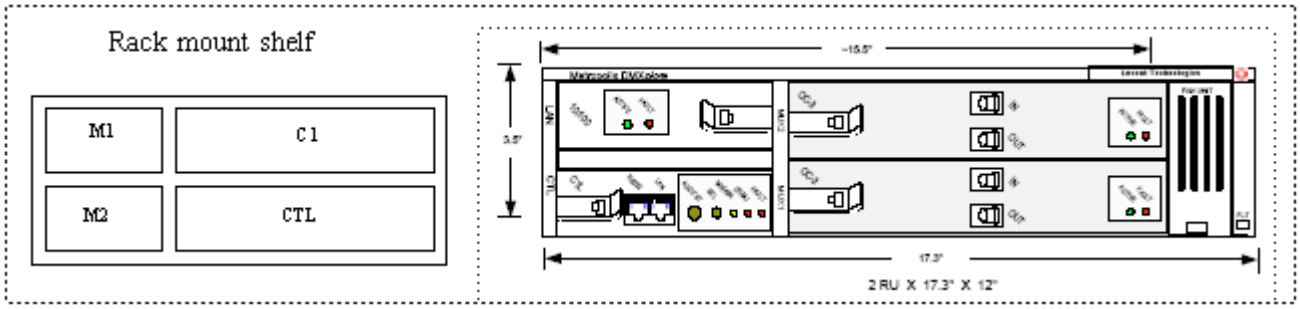
The following figures show the equipment layout of the WaveStar® ADM 16/1.



MATS

The MATS Ethernet Aggregator is a single Ethernet Interface Unit circuit pack (EIU CP) NE. The MATS NE is a rack mount DMXplore chassis with 1 EIU card in main slot 2.

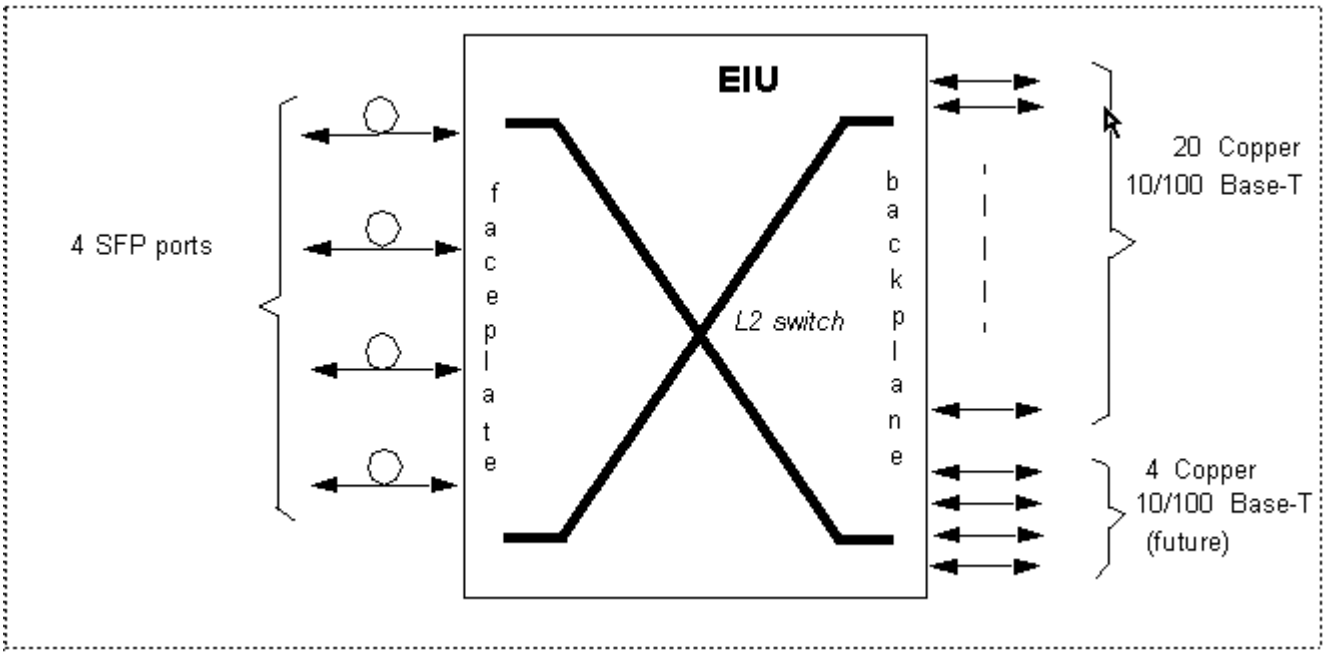
The MATS aggregates traffic from a set of host Ethernet ports (on the backplane) into one or more network Ethernet ports (on the faceplate). The initial version supports up to 20 100Mb host Ethernet ports and 4 network 1GbE/FE Ethernet ports. Support for pluggable devices (SFP) is required on the 4 faceplate ports. The SFP ports can be GbE or FE, optical or electrical as equipped. Support for electrical FE on these ports is not required. The 20 backplane Ethernet ports are electrical FE. Support for 10 base-T on these ports is not required. An additional 4 Ethernet backplane ports are set aside for future use (e.g. to connect to a security processor in a C-slot).



The Ethernet aggregator resides in a Wireless Base Station and collects Ethernet traffic (bearer, signaling and OAM) for transfer over an EATN.

It is possible to read the SFP EEPROM's and discover its characteristics (FE/GbE, optical/electrical, etc). SFPs are fully "plug-and-play" (i.e. there is no cross-checking against provisioned characteristics). Any SFP conforming to the multi-supplier agreement is accepted. SFPs otherwise do not have to be Alcatel-Lucent-sanctioned.

The following figures show the equipment layout of the MATS and Metropolis DMXplore Equipment View (Rack Mounted).



There are two additional circuit packs that are supported for MATS NEs.

- **the SONET Interface Unit (SIU)**: provides an Ethernet over SONET (EoS) capability.
- **the TDM Interface Unit (TIU)**: provides the capability to adapt traffic from legacy circuit based (e.g., T1-based) cell sites for transport over an Ethernet Access Transport Network (EATN).

  The TIU provides two methods for performing this adaption:

  – Circuit Emulation Service (CES) to emulate a wire (i.e., a pseudo-wire service) to transparently carry T1 (or E1) services across an Ethernet network, and

  – MultiLink Point-to-Point (ML-PPP) termination where the T1 (or E1) is terminated and the underlying MultiLink Group and Ethernet packets are recovered for direct transport across the EATN.

These CPs give the MATS additional flexibility in meeting the expanding backhaul needs of mobility solutions. As a stand-alone CP, the MATS-EIU collected Ethernet traffic from cell sites for transfer across an Ethernet Access Transport Network (EATN) to the Mobile Switching Centers (MSCs).

1671 Service Connect (SC)

The 1671 Service Connect (SC) Service Connect is a SONET NE supporting OC48, OC12, OC3, EC1, DS1.

The 1671 Service Connect (SC) consist of 18 bays.

- Common Control Bay - Bay 1
- IO with Matrix Bay - Bay 2.
- Dual IO Bay - Bay 3 - 18

The 1671 Service Connect (SC) has 5 different shelf types:

- IAS Shelf
- IO 5G Shelf
- IO 8G Shelf, IO 8G (with DS0G)
- IO 10G Shelf
- 80G VT Matrix Shelf
- Multiservice Matrix Shelf

The following figures show the equipment layout of the 1671 Service Connect (SC) NEs:

Figure 3-1 :Common Control Bay - Bay 1

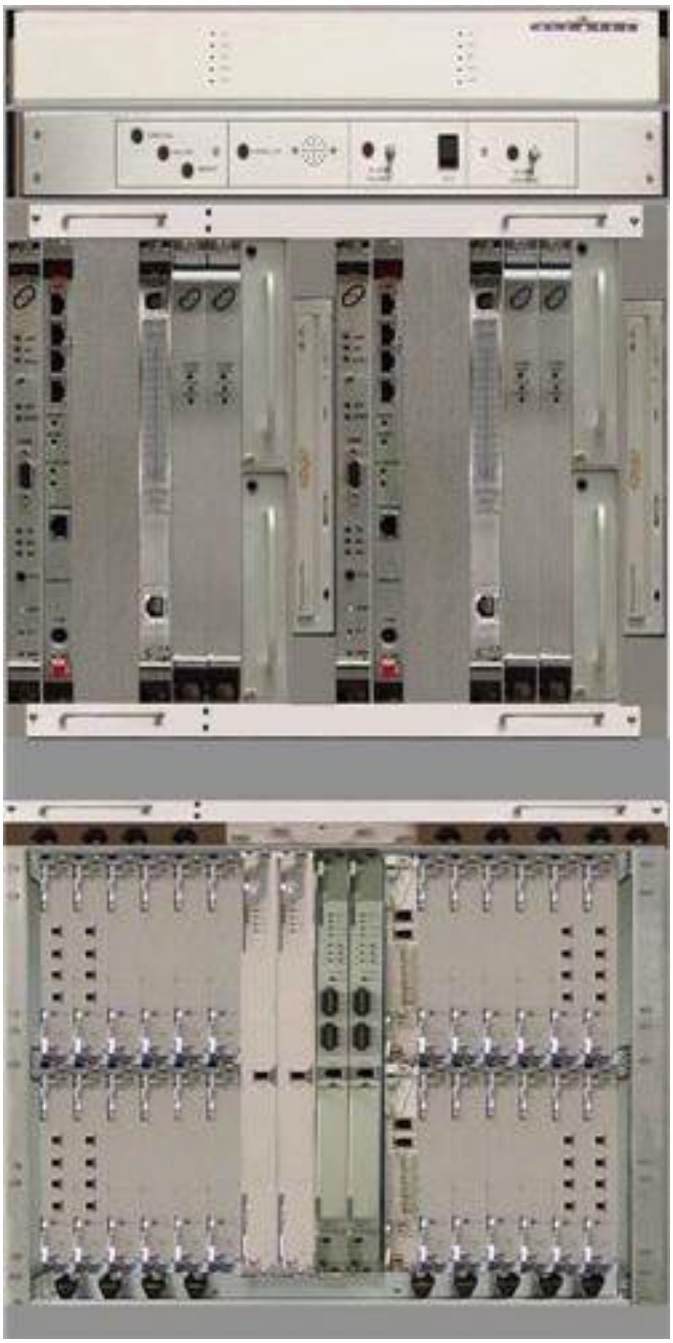


Figure 3-2 :IO with Matrix Bay - Bay 2

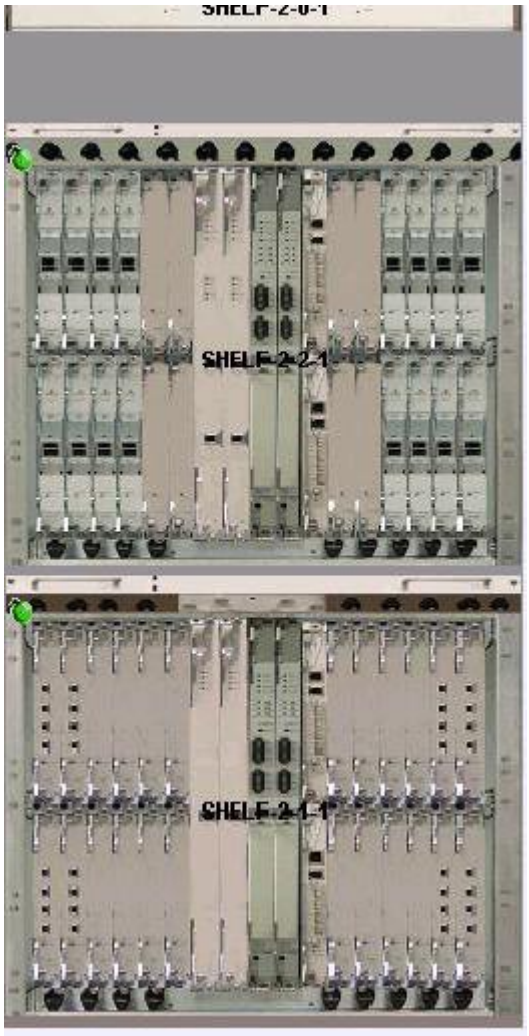


Figure 3-3 :Dual IO Bay - Bay 3 - 18

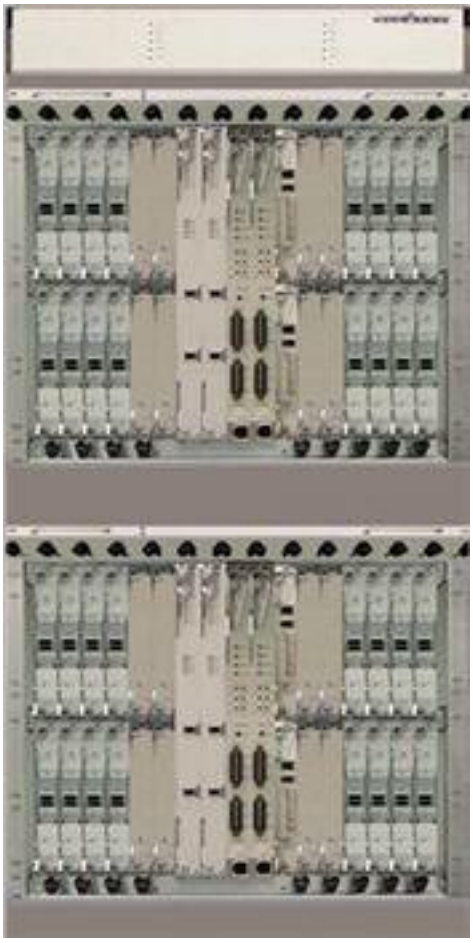


Figure 3-4 :IAS Shelf

Figure 3-5 :IO 5G Shelf

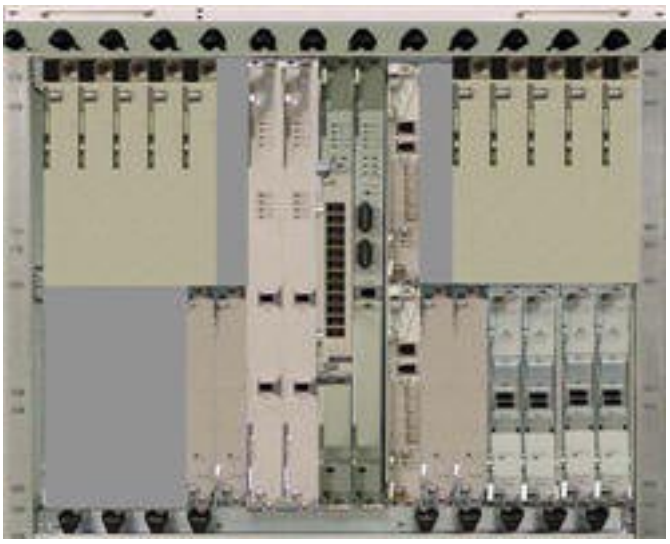


Figure 3-6 :IO 8G Shelf, IO 8G (with DS0G)

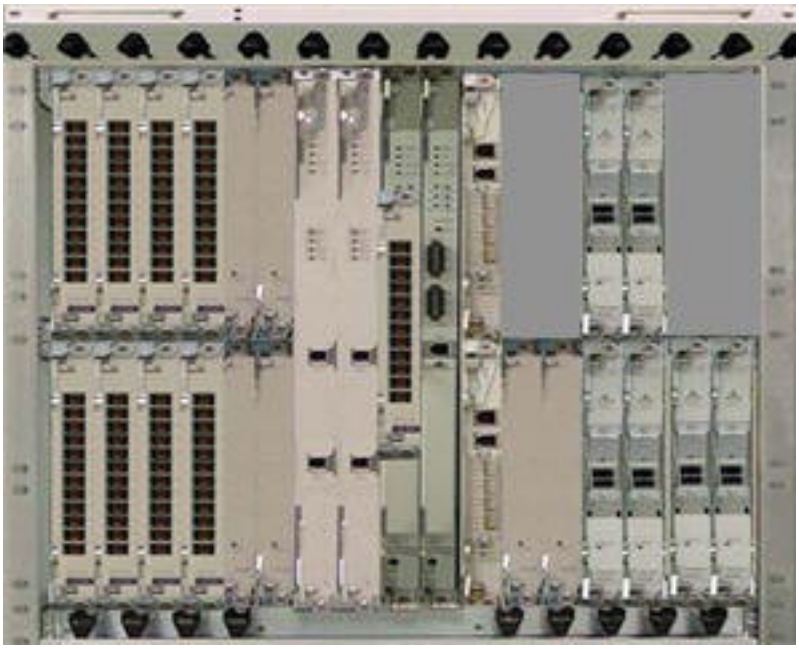


Figure 3-7 :IO 10G Shelf

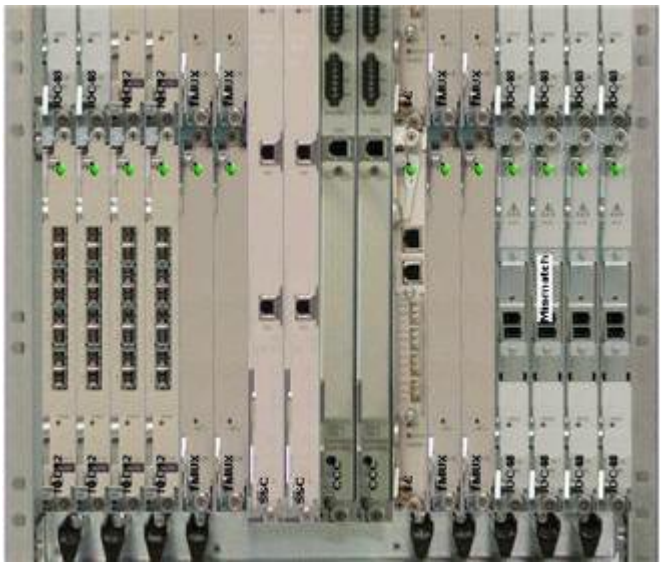


Figure 3-8 :80G VT Matrix Shelf

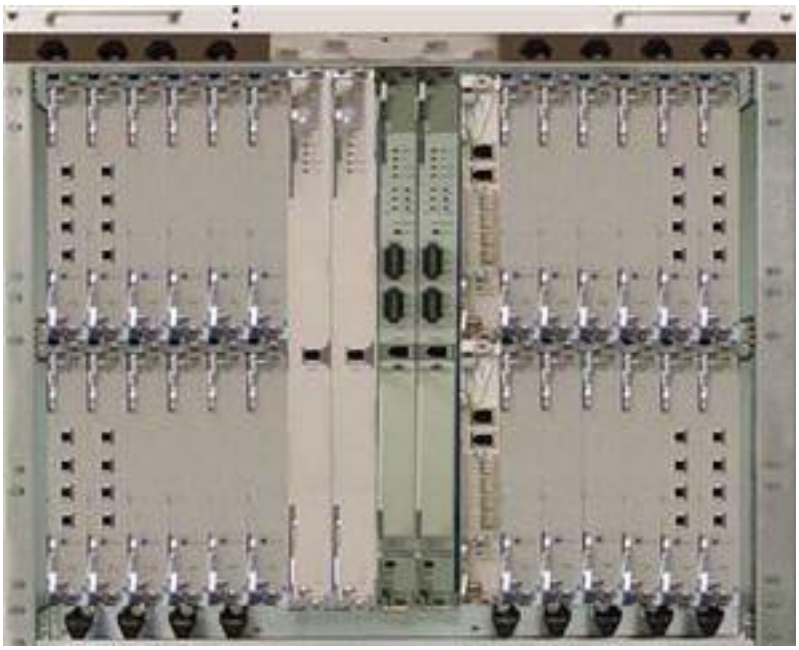
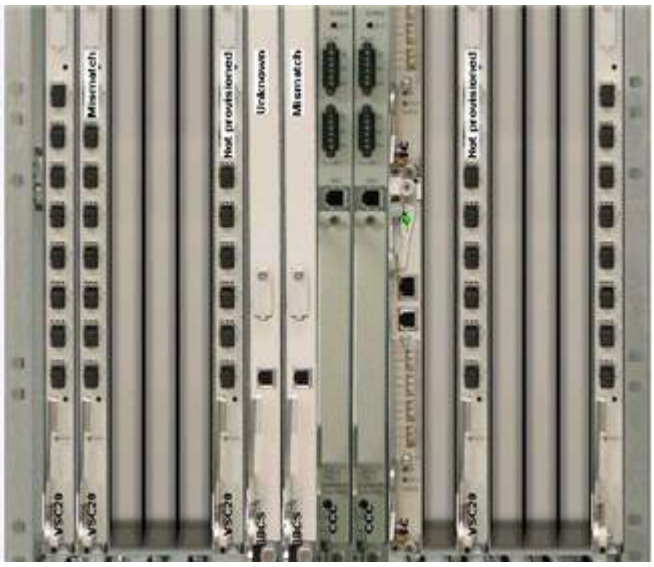


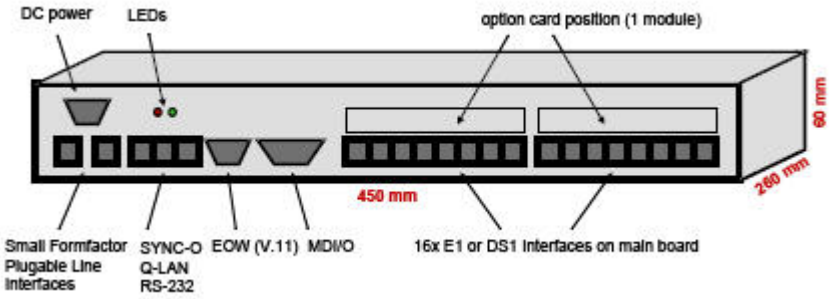
Figure 3-9 :Multiservice Matrix Shelf

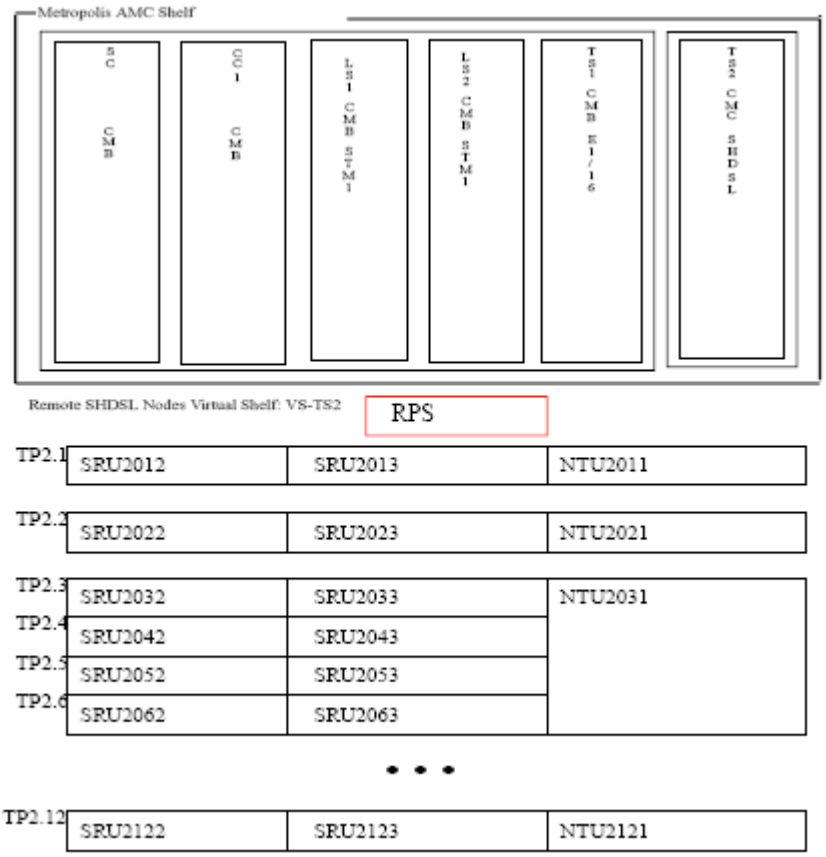


1645 Access Multiplexer Compact (AMC)

1645 Access Multiplexer Compact (AMC) is a new inclusion to the AM/AM-S family. It consists of a mother board that supports higher order cross-connections similar to the ADMs and AMU. It consists of a new STM-1 trib card and supports existing AM/AM-S trib cards such as X5IP, X8PL, X16E1, X12SHDSL, X16DS1 and X3E3DS3.

The following figures show the equipment layout of the 1645 Access Multiplexer Compact (AMC).

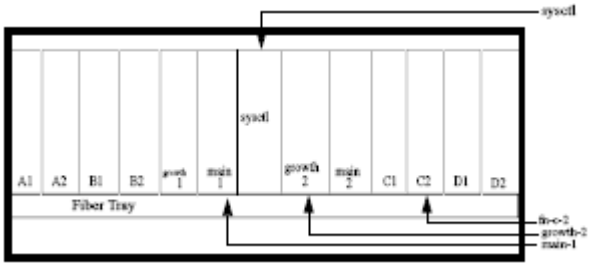




1665 DMX Access Multiplexer

1665 DMX Access Multiplexer is a single-shelf access multiplexer. It supports higher density and capacity rates upto OC192 due to larger number of interfaces. 1665 DMX Access Multiplexer is a SONET based NE and is built on the DDM-2000 software base.

The following figures show the equipment layout of the 1665 DMX Access Multiplexer.



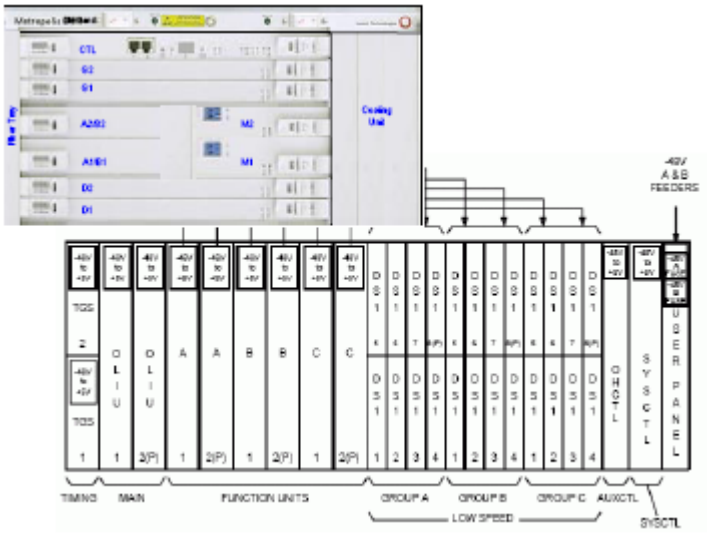
1665 DMXtend Access Multiplexer

1665 DMXtend Access Multiplexer is a member of DMX family NEs. 1665 DMXtend Access Multiplexer consist a single-shelf with seven circuit pack slots. It is a multi-service SONET transport system implemented on a seven slot shelf with all circuit packs horizontally mounted.

It consists of :

- two half-sized main slots containing OC-3, OC-12, and OC-48 interfaces.
- two half-sized TDM slots containing service access circuit packs.
- four full-sized slots for service access circuit packs (DS1, DS3, and Ethernet).

The following figures show the equipment layout of the 1665 DMXtend Access Multiplexer.



View a List of Equipment Components

When to use

Use this task to view a list of equipment components.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of equipment components.

1 Use the icons or the object links to follow this path:

- **Network Elements > Equipment**

  Result: The Search for Equipment page appears.

2 In the **NE type** field, select the type of NE.

3 Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

4 In the **Equipment type** field, select the type of equipment for which you wish to view a list of components. Available choices appear based on NE type selected.

5 Do one of the following:

- In the **Search by** field, select **Equipment ID**. In the **Equipment ID** field, enter the ID of the equipment type that was selected in Step 4.
- In the **Search by** field, select **Equipment hierarchy**. Use the resulting ID fields to “drill down” to the equipment component for which you want a list of equipment.

6 Click the **Search** button.

Result: The Equipment page is displayed and lists the equipment components that meet your search criteria.

END OF STEPS

□

View a List of Contained Equipment

When to use

Use this task to view a list of contained equipment, that is, equipment components contained by other equipment components.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of contained equipment.

1 View a list of equipment using the “View a List of Equipment Components” (p. 3-51) task.

Result: The Equipment page is displayed.

2 The **NE Name**, **Bay ID**, **Subrack ID**, **Shelf ID**, or **Slot ID** column of the table lists the IDs of the equipment components. Click the radio button next to the equipment component for which you wish to view contained equipment.

3 From the Go menu, do one of the following:

- From a list of an NE, select **Get contained shelves** or **Get contained bays**. Available choices appear based on NE type selected.
- From a list of a shelves, select **Get contained slots/circuit packs**.

Result: The Equipment page is displayed and lists the contained equipment.

END OF STEPS

□

View the Details of an Equipment Component

When to use

Use this task to view the details of an equipment component.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the details of an equipment component.

1 Do one of the following:

- View a list of equipment using the “View a List of Equipment Components” (p. 3-51) task.
- View a list of contained equipment using the “View a List of Contained Equipment” (p. 3-53) task.

Result: The Equipment page is displayed.

2 The **NE Name**, **Bay**, **Subrack ID**, **Shelf ID** or **Slot ID** column of the table lists the IDs of the equipment components. Click the details button next to the equipment component for which you wish to view details.

Result: The details of the equipment component are displayed below the table.

END OF STEPS

□

View a List of Ports Contained in a Slot/Circuit Pack

When to use

Use this task to view a list of ports contained in a slots/circuit pack.

There are two methods for this task.

Related information

See the following topic:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task, Method 1: Get contained ports

Complete the following steps to view a list of ports contained in a slot/circuit pack.

1 View a list of equipment using the “View a List of Equipment Components” (p. 3-51) task. Make choices in the search panel so a list of slots/circuit packs is displayed.

Result: The Equipment page is displayed.

2 The **Slot ID** column of the table lists the names of the slots/circuit packs. Click the radio button next to the slot/circuit pack for which you wish to view contained ports.

3 From the Go menu, select **Get contained ports** and click the **Go** button.

Result: The Ports page is displayed, and lists the ports contained in the slot/circuit pack.

END OF STEPS

Task, Method 2: View slot/circuit pack

Complete the following steps to view a list of ports contained in a slot/circuit pack.

1 View a list of equipment using the “View a List of Equipment Components” (p. 3-51) task. Make choices in the search panel so a list of slots/circuit packs is displayed.

Result: The Equipment page is displayed.

2 The **Slot ID** column of the table lists the names of the slots/circuit packs. Click the radio button next to the slot/circuit pack for which you wish to view contained ports.

3 From the Go menu, select **View slot/circuit pack** and click the **Go** button.

Result: The Equipment view of the slot/circuit pack is displayed.

4 From the Go menu, select **Get contained ports** and click the **Go** button.

Result: The Ports page is displayed and lists the ports contained in the slot/circuit pack.

END OF STEPS

□

View the Equipment View of an NE

When to use

Use this task to view the Equipment View of an NE.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task, Method 1: from the Network Map

Complete the following steps to view the equipment view of a bay.

1 On the Network Map, right-click on an NE icon.

Result: The Node menu is displayed.

2 Select **Network Element > Equipment**.

Result: The Equipment View of the NE is displayed.

END OF STEPS

□

View the Equipment View of a Bay/Rack

When to use

Use this task to view the Equipment View of a Bay/Rack.

There are two methods for this task.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Important! This task is supported for LambdaExtreme® Transport, Metropolis® Wavelength Services Manager (WSM), Metropolis® Enhanced Optical Networking (EON) and 1671 Service Connect (SC) only.

Before you begin

This task does not have any preconditions.

Task, Method 1: from the Network Map

Complete the following steps to view the equipment view of a bay/rack.

1 On the Network Map, right-click on a LambdaExtreme® Transport, Metropolis® Wavelength Services Manager (WSM) or Metropolis® Enhanced Optical Networking (EON) icon.

Result: The Node menu is displayed.

2 Select **Network Element > Equipment**.

Result: The Equipment View of the NE is displayed.

3 From the Go menu, select **Get contained bays** and click the **Go** button.

Result: The Equipment page is displayed and lists the contained bays.

4 Do one of the following:

- Click the radio button next to the bay for which you wish to view the Equipment View. From the Go menu, select **View bay** and click the **Go** button.
- In the Bay ID column, click on the **Bay ID** hyperlink for which you wish to view the Equipment View.

  Result: The Equipment View of the bay/rack is displayed.

END OF STEPS

Task, Method 2: from the Equipment page

Complete the following steps to view the equipment view of a bay.

1 View a list of equipment using the "View a List of Equipment Components" (p. 3-51) task. Make choices in the search panel so a list of bays is displayed.

Result: The Equipment page is displayed and includes a list of bays/racks in an NE.

2 Do one of the following:

- Click the radio button next to the bay for which you wish to view the Equipment View. From the Go menu, select **View bay** and click the **Go** button.
- In the Bay ID column, click on the **Bay ID** hyperlink for which you wish to view the Equipment View.

  Result: The Equipment View of the bay/rack is displayed.

END OF STEPS

□

View the Equipment View of a Shelf/Subrack

When to use

Use this task to view the Equipment View of a shelf/subrack.

There are two methods for this task.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task, Method 1: from the Network Map

Complete the following steps to view the equipment view of a shelf/subrack.

1 On the Network Map, right-click the NE icon.

Result: The Node menu is displayed.

2 Select **Network Element > Equipment**.

Result: The Equipment View of the shelf/subrack is displayed.

END OF STEPS

Task, Method 2: from the Equipment page

Complete the following steps to view the equipment view of a shelf/subrack.

1 View a list of equipment using the “View a List of Equipment Components” (p. 3-51) task. Make choices in the search panel so a list of shelves is displayed.

Result: The Equipment page is displayed and includes a list of shelves/subracks in an NE.

2 Do one of the following:

- Click the radio button next to the bay for which you wish to view the Equipment View. From the Go menu, select **View shelf** and click the **Go** button.
- In the Shelf ID column, click on the **Shelf ID** hyperlink for which you wish to view the Equipment View.

  Result: The Equipment View of the shelf/subrack is displayed.

END OF STEPS

□

View the Equipment View of a Slot/Circuit Pack

When to use

Use this task to view the Equipment View of a slot/circuit pack.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the equipment view of a slot/circuit pack.

1 View a list of slots/circuit packs using the “View a List of Equipment Components” (p. 3-51) task. Make choices in the search panel so a list of slots/circuit packs is displayed.

Result: The Equipment page is displayed.

2 Do one of the following:

- Click the radio button next to the slot/circuit pack for which you wish to view the Equipment View. From the Go menu, select **View slot** and click the **Go** button.
- In the Slot ID column, click on the **Slot ID** hyperlink for which you wish to view the Equipment View.

Result: The Equipment View of the slot/circuit pack is displayed.

END OF STEPS

□

View the Equipment View of a Subslot/Subcircuit Pack

When to use

Use this task to view the Equipment View of a subslot/subcircuit pack.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the equipment view of a subslot/subcircuit pack.

1 View a list of subslot/subcircuit packs using the “View a List of Equipment Components” (p. 3-51) task. Make choices in the search panel so a list of subslot/subcircuit packs is displayed.

Result: The Equipment page is displayed.

2 Do one of the following:

- Click the radio button next to the subslot/subcircuit pack for which you wish to view the Equipment View. From the Go menu, select **View sub-slot** and click the **Go** button.
- In the Sub-slot ID column, click on the **Sub-slot ID** hyperlink for which you wish to view the Equipment View.

Result: The Equipment View of the subslot/subcircuit pack is displayed.

END OF STEPS

□

View Equipment Parameters

When to use

Use this task to view equipment parameters.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view equipment parameters.

1 Perform one of the following tasks for the equipment component for which you wish to view the equipment parameters.

- “View the Equipment View of an NE” (p. 3-57).
- “View the Equipment View of a Bay/Rack” (p. 3-58).
- “View the Equipment View of a Shelf/Subrack” (p. 3-60).
- “View the Equipment View of a Slot/Circuit Pack” (p. 3-62).
- “View the Equipment View of a Subslot/Subcircuit Pack” (p. 3-63).

Result: The equipment view of the equipment component is displayed.

2 At the bottom of the page, open the **<Equipment component> parameters** panel.

Result: The equipment parameters of the selected equipment component are displayed.

END OF STEPS

□

Perform a Partial Database Synchronization for Equipment

When to use

Use this task to perform a partial database synchronization for equipment.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for equipment.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**. Click on the **New** tool.

Result: The Initiate Database Synchronizations page is displayed.

3 In the **Database synchronization type** field, select **Configuration - Equipment**.

4 In the **Per-NE for the following NEs** field select the radio button, and make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection pop-up window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements pop-up window. This window is used to select an NE from a list.

5 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page is displayed, and reports the status of the partial database synchronization.

END OF STEPS

□

Perform a Partial Database Synchronization for System Parameters

When to use

Use this task to perform a partial database synchronization for system parameters.

Related information

See the following topics:

- “Equipment Concepts” (p. 3-26)
- “Equipment Overview of Supported NEs” (p. 3-30)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for system parameters.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**. Click on the **New** tool.

Result: The Initiate Database Synchronizations page is displayed.

3 In the **Database synchronization type** field, select **Configuration - System Parameters**.

4 In the **Per-NE for the following NEs** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection pop-up window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements pop-up window. This window is used to select an NE from a list.

5 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page is displayed, and reports the status of the partial database synchronization.

END OF STEPS

□

Section III: Ports

Overview

Purpose

This section discusses ports.

Contents

Port Concepts

Overview

The following is conceptual information about ports. This information is meant to complement the tasks presented later in this section.

Important! Each release of the management system supports a certain set of NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, information about NEs other than those listed in this table, applies to previous releases of the management system and is not applicable.

Definition of port

A port is a connectable point that can terminate a physical or logical network connection.

There are two types of ports:

- A *physical port* is a physical connection point. Transmission lines attach to physical ports.
- A *logical port* is a logical connection point within a physical connection point. Logical ports are contained within physical ports. Logical ports can contain other logical ports.

Functionality description

The management system allows the user to view the physical and logical ports on an NE, and modify port parameters.

Domain partitioning

Users are only able to view the NEs that are included in the Domain to which they are assigned.

Indirectly managed NEs and port management

Complete port provisioning, including loopback management is supported by GUI cut-through to the WaveStar® ITM-SC or Optical EMS application. For more information, see "Indirectly Managed NEs" (p. 1-13).

Supported ports

All ports that carry port parameters are supported by the management system. These ports include physical ports or logical ports. For logical ports, typically the ports only carry parameters after being involved in a cross-connection. However, there are cases in which logical ports have parameters even when they are not used in a

cross-connection. For example, 1675 Lambda Unite MultiService Switch (MSS) NEs support logical port parameter provisioning for all high order logical ports regardless of whether they are used in a cross-connection or not.

Supported port rates

The following table describes the list of port rates supported by the management system.

Description	SONET System	SDH System	Rate Category	Port Type
Physical port rates:				
Optical OC-768/STM-256 physical port	OC-768	STM-256	SONET/SDH Physical	PTP
Optical OC-192/STM-64 physical port	OC-192	STM-64	SONET/SDH Physical	PTP
Optical OC-48/STM-16 physical port	OC-48	STM-16	SONET/SDH Physical	PTP
Optical OC-48T/STM-16T physical port (for Transparent Service)	OC-48T	STM-16T	SONET/SDH Physical	PTP
Optical OC-12/STM-4 physical port	OC-12	STM-4	SONET/SDH Physical	PTP
Optical OC-3/STM-1 physical port	OC-3	STM-1	SONET/SDH Physical	PTP
Electrical OC3/STM1E physical port	OC-3	STM-1	SONET/SDH Physical	PTP
Optical OC1/STM0	OC-1	STM-0	SONET/SDH Physical	PTP
Electrical EC1/STM0 physical port	EC-1	EC-1	SONET/SDH Physical	PTP
Electrical E4 physical port	E4	E4	PDH Physical	PTP

Description	SONET System	SDH System	Rate Category	Port Type
45Mb physical port	T3	T3	PDH Physical	PTP
34Mb physical port	E3	E3	PDH Physical	PTP
2Mb physical port	E1	E1	PDH Physical	PTP
2.3Mb physical port	DSL	DSL	PDH Physical	PTP
1.5Mb physical port	T1	T1	PDH Physical	PTP
X.21 physical port	X.21	X.21	PDH Physical	PTP
LAN port - Gigabit Ethernet	1 Gb Ethernet	1 Gb Ethernet	Physical	PTP
LAN port - Gigabit Ethernet	10 Gb Ethernet	10 Gb Ethernet	Physical	PTP
LAN port - Fast Ethernet	Fast Ethernet	Fast Ethernet	Physical	PTP
Fast Gigabit Ethernet	Fast/Gb Ethernet	Fast/Gb Ethernet	Physical	PTP
Link Aggregation Group	Link Aggregation Group	Link Aggregation Group	Physical	FTP
SAN data port - FICON	FICON	FICON	Physical	PTP
SAN data port - ESCON	ESCON	ESCON	Physical	PTP
WAN port	VCG	VCG	Physical	FTP
STS-3c/VC-4 FTP (CMISE only)	STS-3c	VC-4	Physical	FTP
Optical channel (not rate specific, DWDM only)	OS	OS	Physical	PTP
Optical line (not rate specific), DWDM only	OTS	OTS	Physical	PTP

Description	SONET System	SDH System	Rate Category	Port Type
STNA	STNA	STNA	PDH	PTP
Logical port rates:				
STS-192c/VC-4-64C	STS-192c	VC-4-64c	SONET/SDH Logical	CTP
STS-48c/VC-4-16C	STS-48c	VC-4-16c	SONET/SDH Logical	CTP
STS-12c/VC-4-4C	STS-12c	VC-4-4c	SONET/SDH Logical	CTP
STS-3c/VC-4	STS-3c	VC-4	SONET/SDH Logical	CTP
STS-1/(high order) VC-3	STS-1	HO-VC-3	SONET/SDH Logical	CTP
VC-3 (low order)	LO-VC-3	LO-VC-3	SONET/SDH Logical	CTP
VC-12	VT 2	VT-12	SONET/SDH Logical	CTP
VT1.5 logical port (VC11)	VT 1.5	VC-11	SONET/SDH Logical	CTP
Logical port rates contained by VCGs:				
STS-192C/VC-4-64C with VCG parent	STS-192C	VC-4-64C	SONET/SDH Logical	CTP
STS-12c/VC-4-4c with VCG parent	STS-12c	VC-4-4c	SONET/SDH Logical	CTP
STS-3c/VC-4 with VCG parent	STS-3c	VC-4	SONET/SDH Logical	CTP
STS-1/(high order) VC-3 with VCG parent	STS-1	HO-VC-3	SONET/SDH Logical	CTP
VC-3 (low order), CMISE only, 1643 Access Multiplexer Small (AMS) only, with VCG parent	LO-VC-3	LO-VC-3	SDH logical	FTP
VT1.5 logical port (VC11) with a VCG parent	VT-1.5	VC-11	SONET/SDH Logical	CTP

Description	SONET System	SDH System	Rate Category	Port Type
VC-12, CMISE only, 1643 Access Multiplexer Small (AMS) only, with VCG parent	VT-2	VC-12	SDH logical	FTP
40G, RS, DWDM only	OC-768RS	STM-256RS	SONET/SDH Logical	CTP
10G, RS, DWDM only	OC-192RS	STM-64RS	SONET/SDH Logical	CTP
2.5G, RS, DWDM only	OC-48RS	STM-16RS	SONET/SDH Logical	CTP
STS-12c, RS, DWDM only	OC-12RS	STM-4RS	SONET/SDH Logical	CTP
STS-3c, RS, DWDM only	OC-3RS	STM-1RS	SONET/SDH Logical	CTP
ODU3, DWDM only	ODU 40G	ODU 40G	SONET/SDH Logical	CTP
ODU2, DWDM only	ODU 10G	ODU 10G	SONET/SDH Logical	CTP except FTP for WSM
ODU1, DWDM only	ODU 2.5G	ODU 2.5G	SONET/SDH Logical	CTP except FTP for WSM
ODU1, DWDM only	OCH	OCH	SONET/SDH Logical	CTP except FTP for WSM
Optical DSR, DWDM only.	STS-dsr, DSR	VC-dsr, DSR	SONET/SDH Logical	CTP
1.5Mb Logical port	OC-n-T1	OC-n-T1	SONET/SDH Logical	CTP

Add and delete ports

Ports are automatically created in the management system when an NE is added to the management system or when a circuit pack is installed. Upon addition to the management system the port parameters are available for provisioning.

For logical ports, only the ones that exist on the NE and also have associated port parameters are supported in the management system. For the majority of NEs, logical ports are supported only when they are involved in cross-connects.

Ports are automatically deleted from the management system when an NE is deleted from the management system or when a circuit pack is removed.

Modify port parameters

Applicable port parameters are reported to the management system. Users can use the management system to modify the value of a port parameter.

Loopback

A loopback is a connection between the input and output of a bidirectional port. Two types of loopbacks are supported:

- **Facility loopback** - Facility loopback is a SONET transport structure term. In the SDH transport structure this is referred to as **Inloop loopback**. Facility/inloop loopback connects the incoming received signal to the transmitter in the return direction, as close to the receiver and transmitter as possible. The signal is passed back in its entirety without any modifications to the frame.

- **Terminal loopback** - Terminal loopback is a SONET transport structure term. In the SDH transport structure this is referred to as **Outloop loopback**. Terminal/outloop loopback connects the entire signal that is about to be transmitted to the associated incoming receiver.

Port ID formats

The management system supports two port ID formats and the ability to control which format is used:

- **Native Name —** This format is the default setting.
- **ITU-T G707 Format—** This format applies to certain logical ports.

The management system allows the user to select which format is used for port names throughout the management system. This is controlled on the Preferences page.

The management system also allows the user to select which format is used for port names on specific pages. This is controlled by a toggle button on the Add Connection, Graphical Layout, and Ports pages.

The following figure shows the Port ID Format toggle button set to the Native name format.

This following figure shows the Port ID Format toggle button set to the ITU-T G707 format.

Port User Label Concepts

Overview

The following is conceptual information about port user labels. This information is meant to complement the tasks presented later in this section.

Port user label description

This feature provides a means to specify, store and display a user defined port label as an attribute to the native port name (i.e. port address).

Port user labels are used for various purposes by network operators. One example of its use is to assign a port user label to an edge port of a management system domain to indicate that the port is connected to a specific network.

The port user label feature is enabled in the management system through a system parameter. The port user label can be assigned to any physical port that is either directly managed through the Network Adapters or indirectly managed through WaveStar® ITM-SC or Optical EMS or Black Boxes. Logical ports are assigned the same port user label as its physical port.

The port user label is used within the management system only. It is not used in commands sent to the NEs and it is not passed through the northbound interface.

Supported port types

The port user label can be assigned to any physical port that is either directly managed through the Network Adapters or indirectly managed through WaveStar® ITM-SC or Optical EMS or Black Boxes. Contained ports are assigned the same port user label as its physical port. Whenever a port user label for a physical port is deleted or modified, all the port user labels for its contained ports are also deleted or modified.

Modifying and deleting port user labels

The port user label can modified or deleted from the Modify Port User Label page. This page is accessed by selecting the **Modify port user label** option from the Go menu of the Port page or the NE/Port Assignment page.

□

View a List of Physical Ports

When to use

Use this task to view a list of physical ports.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “View a List of Loopback-enabled Ports” (p. 3-83)
- “View a List of Logical Ports” (p. 3-80)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of ports.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Network Element > Ports**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to provision a port. From the Go menu, select **Port**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Ports**.

  Result: The Ports page is displayed.

2 Complete the following steps to begin to specify the criteria for your search.

1. In the **NE type** field, select the type of NE.
2. In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
3. In the **Port type** field, select **Physical**.

3

IF ...	THEN ...
You want the search to return a single port	In the **Search by** field, select **Port ID.** In the **Port ID** field, enter the port ID. Click the **Search** button.
You want the search to return a list of multiple ports.	In the **Search by** field, select **Port list.** Select a port rate and/or a slot/circuit pack. Click the **Search** button.

Result: The list at the bottom of the Ports page is populated with a list of ports in the network that meet your search criteria.

END OF STEPS

□

View a List of Logical Ports

When to use

Use this task to view a list of logical ports.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “View a List of Loopback-enabled Ports” (p. 3-83)
- “View a List of Contained Logical Ports” (p. 3-82)
- “View a List of Physical Ports” (p. 3-78)
- “Supported ports ” (p. 3-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of logical ports.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Network Element > Ports**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to provision a port. From the Go menu, select **Port**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Ports**.

  Result: The Ports page is displayed.

2 Complete the following steps to begin to specify the criteria for your search.

1. In the **NE type** field, select the type of NE.
2. In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
3. In the **Port type** field, select **Logical**.

3

IF ...	THEN ...
You want the search to return a single port	In the **Search by** field, select **Port ID** In the **Port ID.** field, enter the port ID. Click the **Search** button.
You want the search to return a list of multiple ports.	In the **Search by** field, select **Port list.** Select a port rate, parent port rate, and a slot/circuit pack. Click the **Search** button.

Result: The list at the bottom of the Ports page is populated with a list of ports in the network that meet your search criteria.

END OF STEPS

□

View a List of Contained Logical Ports

When to use

Use this task to view a list of logical ports contained within a physical port.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “View a List of Loopback-enabled Ports” (p. 3-83)
- “View a List of Physical Ports” (p. 3-78)
- “View a List of Logical Ports” (p. 3-80)
- “Supported ports ” (p. 3-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of contained logical ports.

1 Do one of the following:

- View a list of physical ports using the “View a List of Physical Ports” (p. 3-78) task.

  Result: The list at the bottom of the Ports page is populated with a list of physical or logical ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the physical or logical ports. Click the radio button next to the port for which you wish to view contained logical ports.

3 From the Go menu, select **Display all contained ports** or one of the menu options to display contained ports of a certain rate, and click the **Go** button.

  Result: The list at the bottom of the Ports page is populated with a list of the logical ports contained in the physical or logical port.

END OF STEPS

□

View a List of Loopback-enabled Ports

When to use

Use this task to view a list of loopback-enabled ports.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Loopback” (p. 3-75)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of loopback-enabled ports.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Network Elements > Ports**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to provision a port. From the Go menu, select **Port**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Ports**

  Result: The Ports page is displayed.

2 Complete the following steps to begin to specify the criteria for your search.

1. In the **NE type** field, select the type of NE.
2. In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

3 In the **Search by** field, select **Port list** .

4 In the **Port type** field, select **Physical**.

5 Make a selection in the **Port rate** and **Slot/Circuit Pack** fields.

6 In the **Filter by** field, click the checkbox next to **Loopback provisioned**.

7 Click the **Search** button.

Result: The list at the bottom of the Ports page is populated with a list of loopback ports.

END OF STEPS

□

Provision a Loopback on a Port

When to use

Use this task to provision a loopback on a port.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Loopback” (p. 3-75)

Before you begin

Loopback is supported only on physical ports.

Task

Complete the following steps to provision a loopback on a port.

1 Do one of the following:

- View a list of ports using the “View a List of Physical Ports” (p. 3-78) task.

  Result: The list at the bottom of the Ports page is populated with a list of ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the ports. Click the radio button next to the port on which you wish to provision loopback.

3 From the Go menu, select **Provision loopback** and click the **Go** button.

  Result: The Loopback Provisioning page is displayed.

4 In the **Loopback type** field, click the radio button in either of the following fields:

- **Inloop/Facility Loopback**
- **Outloop/Terminal Loopback**

  Important! The terms **Inloop Loopback** and **Outloop Loopback** are terms used in the SDH transport structure. The terms **Facility Loopback** and **Terminal Loopback** are terms used in the SONET transport structure.

Result: The **Operation** field changes to **Provision** or **Deprovision**, depending on your selection, and whether a inloop/facility loopback or outloop/terminal loopback is provisioned on the port.

5 Click the**Submit** button to Provision or Deprovision.

Result: The loopback is provisioned or deprovisioned on the port.

END OF STEPS

□

Provision a Cross-connection Loopback on a Port

When to use

Use this task to provision a cross-connection loopback on a port.

Important! This task is for 1675 Lambda Unite MultiService Switch (MSS) NEs only.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Loopback” (p. 3-75)

Before you begin

Cross-connection loopbacks are supported only on logical ports.

Task, Method 1: From the Ports page

Complete the following steps to provision a cross-connection loopback on a port.

1 Do the following:

- View a list of ports using the “View a List of Logical Ports” (p. 3-80) task.

  Result: The list at the bottom of the Ports page is populated with a list of ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the ports. Click the radio button next to the port on which you wish to provision a cross-connection loopback.

3 From the Go menu, select **Provision loopback** and click the **Go** button.

  Result: The View/Modify port parameters page is displayed.

4 In the **Operation** field, select **Provision - normal**, **Provision - forced** or **Deprovision**.

  Result: The loopback is provisioned or deprovisioned on the port.

END OF STEPS

Task, Method 2: From the Port Parameters page

Complete the following steps to provision a cross-connection loopback on a port.

1 View a list of ports, using the "View a List of Logical Ports" (p. 3-80) task.

Result: The list at the bottom of the Ports page is populated with a list of ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the ports. Click the radio button next to the port on which you wish to provision a cross-connection loopback.

3 From the Go menu, select **View/Modify port parameters** and click the **Go** button.

Result: The Loopback Provisioning page is displayed.

4 In the Transmission panel, click the **Cross-connection loopback** hyperlink.

Result: The Loopback Provisioning page is displayed.

5 In the **Operation** field, select **Provision - normal** or **Provision - forced** and click the **Submit** button to **Deprovision**.

Result: The loopback is provisioned or deprovisioned on the port.

END OF STEPS

□

Add a Port to a Non-managed NE

When to use

Use this task to add a port to a non-managed NE.

Important! Non-managed NEs are also know as black boxes.

Related information

See the following topic:

- “Port Concepts” (p. 3-70)

Before you begin

The non-managed NE must be manually added to the management system.

Task

Complete the following steps to add a port to a non-managed NE.

1 Use the icons or the object links to follow this path: **Network Elements > Ports**. Click on the **New** icon on the page.

Result: The Add Port page is displayed.

2 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

3 In the **Port ID** field, enter the ID of the port.

4 In the **Port rate** field, select the rate of the port.

5 Click the **Submit** button.

Result: The port is added to the non-managed NE.

END OF STEPS

□

Delete a Port From a Non-managed NE

When to use

Use this task to delete a port from a non-managed NE.

Important! Non-managed NEs are also known as black boxes.

Related information

See the following topic:

- “Port Concepts” (p. 3-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a port from a non-managed NE.

1 View a list of ports on a non-managed NE, using the “View a List of Physical Ports” (p. 3-78) task.

Result: The list at the bottom of the Ports page is populated with a list of ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the ports. Click the radio button next to the port you wish to delete. From the Go menu, select **Delete port** and click the **Go** button.

Result: The system notes the progress in the **Messages** panel, and the port is deleted.

END OF STEPS

□

Modify the Parameters of a Physical or Logical Port

When to use

Use this task to modify the parameters of a port.

Related information

See the following topic:

- "Port Concepts" (p. 3-70)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the parameters of a port.

1 View a list of ports, using the "View a List of Physical Ports" (p. 3-78) task, or the "View a List of Logical Ports" (p. 3-80) task.

Result: The list at the bottom of the Ports page is populated with a list of ports that meet your search criteria.

2 The **Native name** column of the table lists the names of the ports. Each name is a hyperlink.

Do one of the following:

- Click the name of the port you wish to modify.
- Click the radio button next to the port you wish to modify. From the Go menu, select **View/modify port parameters** and click the **Go** button.

Result: The Port page is displayed.

3 Change the entries or selections for any modifiable port parameters.

The fields on this page vary based on the selected NE. See your NE documentation for field definitions.

4 Click the **Submit** button.

Result: The port parameters are modified, and a confirmation is issued in the Messages panel. The Job Updates page is displayed, and reports the status of the modification of the port parameters.

END OF STEPS

□

View the Commands and the Status of the Commands for a Port

When to use

Use this task to view the commands and the status of the commands that result from a request to modify port parameters.

The Command Deployment feature is used to view the commands issued for one of the following tasks:

- "Modify the Parameters of a Physical or Logical Port" (p. 3-91)

Related information

See the following topics:

- "Command Deployment Feature" (p. 1-43)
- "Port Concepts" (p. 3-70)

Important! This task is used only for ports where an attempt has been made to modify port parameters and failed.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the commands and the status of the commands that result from a request to modify port parameters.

1 Do one of the following:

- On the Modify Port page, in the message area that describes the failed port modification, click the hyperlink for the failed port modification.
- Access the Job Updates page and click the hyperlink for the failed port modification.

Result: The Command Deployment page is displayed, and provides a tree hierarchy that shows the requests, command groups, and command for the network connection, and the status of each request, command group, and command.

2 To view the details of a command, including its reason for failure, click the command in the left panel.

Result: The details of the command are displayed in the right panel.

END OF STEPS

□

Perform a Partial Database Synchronization for Port Parameters

When to use

Use this task to perform a partial database synchronization for port parameters.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for port parameters.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**. Click on the **New** tool.

  Result: The Database Synchronizations page is displayed.

3 In the **Database synchronization type** field, select **Configuration - Port parameters**.

4 In the **Per-NE for the following NEs** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection pop-up window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements pop-up window. This window is used to select an NE from a list.

5 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page is displayed, and reports the status of the partial database synchronization.

END OF STEPS

□

Modify the Port User Label

When to use

Use this task to modify a user defined port user label for a port(s).

Related information

See the following topic:

- "Port User Label Concepts" (p. 3-77)

Before you begin

Before modifying the port user label, the System parameter **Enable Port user label** must be set to **YES**.

Task

Complete the following steps to modify a port user label.

1 Do one of the following:

- View a list of ports using the "View a List of Physical Ports" (p. 3-78) task.
- View a list of assigned ports using the "View Assigned Ports on an NE" (p. 3-21) task

  Result: The list at the bottom of the selected page is populated with a list of ports that meet your search criteria.

2 Click the radio button or buttons next to the port(s) on which you wish to modify the port user label. From the Go menu, select **Modify port user label** and click the **Go** button.

  Result: The Modify Port User Label page is displayed.

3 In the **Port user label** field, enter or change the port user label. To delete the port user label, delete all characters from the field.

4 Click **Submit**.

Result: The port user label is modified for the selected port(s).

END OF STEPS

Section IV: Protection Groups

Overview

Purpose

This section discusses protection groups.

Contents

Protection Group Concepts

Overview

The following is conceptual information about protection groups. This information is meant to complement the tasks presented later in this section.

Important! Each release of the management system supports a certain set of NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, information about NEs other than those listed in this table, applies to previous releases of the management system and is not applicable.

Definition of protection group

A protection group is a set of units that jointly participate in a protection scheme. In the event of a failure, the protection units in the protection group take over for the failed unit(s).

Functionality description

The Protection feature covers both TL1 and CMISE NEs, and includes all interface standards such as SONET and SDH for the NEs that have protection and are managed by the management system.

NEs of different types support different protection schemes, such as protection group provisioning and ring provisioning. The management system allows the user to add, view, modify, or delete protection groups.

Protection groups include port and path protection groups.

The management system retrieves the current protection configuration for the transmission interfaces of an NE, and allows the user to configure the rate, the member ports, and the attributes of the protection groups for the NE. Protection group modifications are done per NE for its associated protection groups.

Note: For MATS NEs, OMS supports UPSR.

Domain partitioning

Users are only able to view the NEs that are included in the Domain to which they are assigned.

Indirectly managed NEs and protection groups management

The management system supports protection switch management for protection groups, displaying their current switch state and status and supporting manual protection switching. Complete protection group provisioning is supported by opening the

WaveStar® ITM-SC or Optical EMS application. This includes protection group creation, deletion, and modification for all protection groups, including equipment protection groups. For more information, see "Indirectly Managed NEs" (p. 1-13).

Management system support for equipment protection groups

Support for equipment protection groups is done through the NE Management Functions pages. For more information about equipment protection groups for CMISE NEs, see "Equipment Protection" (p. 5-210). For information about equipment protection groups for LambdaExtreme® Transport and 1665 DMX Access Multiplexer see "Equipment protection groups (TL1 NEs)" (p. 3-104).

Protection group discovery

Protection groups that are provisioned on the NE are discovered during the auto-discovery process and added to the management system.

Manual protection group discovery can be performed by using the "Perform a Partial Database Synchronization for Protection Groups" (p. 3-122) task.

Protection group terminology

There are many types of protection groups. Note that the names of the protection groups differ in the SONET and SDH operating environments, but that the definitions are the same. The following table describes the SONET and SDH protection group names.

SONET	SDH
1+1 APS	1+1 MSP
1xN APS	1xN MSP
2F BLSR	2F MS-SPRing
4F BLSR	4F MS-SPRing
UPSR	SNCP

Types of protection groups

The following sections describes the protection groups supported by the management system

1+1 MSP/1+1 APS protection groups

1+1 MSP/1+1 APS protection groups are protection architecture in which one physical port or line is protected by one standby physical port or line. The signal is transmitted on both the service (working) ports and lines and the protection ports and lines. The

receiving equipment monitors both lines using optical power level and performance criteria. If a switching condition is detected, the receiving equipment will perform a protection switch to the “other” line.

For information on supported protection groups and the rates at which the management system supports 1+1 MSP/1+1 APS protection groups for each NE see, “NE Features Supported by the Management System” (p. 1-21).

Important! For 1671 Service Connect (SC) NEs, the supported protection group is 1+1 MSP only.

1xN MSP protection groups

1xN MSP protection groups are a protection architecture which allows any one of the N working channels to be bridged to a single protection channel. Permissible value for N is “1”.

For information on supported protection groups and the rates at which the management system supports 1xN MSP protection groups for each NE see, “NE Features Supported by the Management System” (p. 1-21).

2F BLSR/MS-SPRing and 4F BLSR/MS-SPRing protection groups

2F BLSR/MS-SPRing and 4F BLSR/MS-SPRing protection groups are ring configurations in which traffic is bidirectional between each pair of adjacent NEs and is protected by redundant bandwidth on the bidirectional lines that inter-connect the NEs in the ring. Protection is provided by using ring loopback switching from the service to the protection logical ports using the opposite directions of the ring at the point of failure.

For information on supported protection groups and the rates at which the management system supports 2F BLSR/MS-SPRing and 4F BLSR/MS-SPRing protection groups for each NE see, “NE Features Supported by the Management System” (p. 1-21).

For more information on supported ring protection groups, see the *OMS Connection Management Guide*.

UPSR/SNCP path protection groups

UPSR/SNCP path protection groups area bridge configurations used to simultaneously transmit normal traffic signals onto the working and protection trails (CTPs via cross-connect). The receiver (the drop side) uses a switch to select the signal from the working trail under normal operating conditions.

For information on supported protection groups and the rates at which the management system supports path protection groups for each NE see, “NE Features Supported by the Management System” (p. 1-21).

For more information on supported path protection groups, see the *OMS Connection Management Guide*.

Important! For LambdaExtreme® Transport, Metropolis® Enhanced Optical Networking (EON) and Metropolis® Wavelength Services Manager (WSM) NEs, the supported protection group is UPSR, and protection group management is view only.

Add protection groups

When a protection group is added, the management system enforces all members (ports) of the protection group to be on the same shelf and bay and to be of the same transmission rate.

Manually add protection groups

All protection groups except UPSR/SNCP are added manually using the Add Protection Group page. For more information on UPSR/SNCP protection groups, see the OMS Connection Management Guide.

Modify protection groups

All protection groups, including UPSR/SNCP are modified via the Modify Protection Group page, except UPSR for DMX family NEs.

Delete protection groups

The deletion of a protection group from the management system deletes the protection group from the NE. All protection groups except UPSR/SNCP are deleted via the protection group pages. For more information on UPSR/SNCP protection groups, see the *OMS Connection Management Guide*.

Add, modify and delete UPSR/SNCP protection groups

UPSR/SNCP protection groups are added and deleted on creation of the path protected cross-connections on the NE. This is done on the management system via connection provisioning. Manual addition or deletion of UPSR/SNCP protection groups is not done via the protection group pages.

For more information on UPSR/SNCP protection groups, see the *OMS Connection Management Guide*.

UPSR/SNCP protection groups are modified via the Modify Protection Groups page, except UPSR for 1665 DMX Access Multiplexer.

Protection switch management

For all protection group types, the user performs protection switch operations via the Operate Protection Group page. For more information, see the “Operate a Protection Switch ” (p. 3-117) task.

Additionally, protection switch operations can be performed via the Graphical Layout page or the Graphical Layout for Cross-connections page. For more information, see *OMS Connection Management Guide*.

For most NEs the protection switch status of the NE is synchronized with the management system by performing a partial database synchronization for protection groups. For Metropolis® Wavelength Services Manager (WSM), LambdaExtreme® Transport and Metropolis® Enhanced Optical Networking (EON) NEs only, if the protection switch status becomes out of sync with the NE, it can be synchronized by performing a partial database synchronization for cross-connections.

Operate protection switch for constituent members of protection groups

For 1675 Lambda Unite MultiService Switch (MSS) NEs the physical termination point (PTP) is either in fixed mode or pipe mode. For PTPs in pipe mode that have contained termination points (CTPs) with a UPSR protection type, the Constituent Member Protection Groups page allows the user to view the constituent members, (CTPs) and operate a protection switch on all of the constituent members at once or one member at a time.

OP1P1 protection pack

For LambdaExtreme® Transport, when the OP1P1 circuit pack is automatically discovered, a UPSR protection group is reported to the management system. If an existing OP1P1 pack is removed, a manual cross-connection database synchronization must be performed in order to delete the cross-connections and protection groups from the management system.

Likewise, if the OP1P1 protection pack is added after the LambdaExtreme® Transport is discovered, a manual cross-connection database synchronization must be performed in order to create the cross-connections and protection groups on the management system.

For information on database synchronizations see “Section II: Database Synchronization” (p. 7-15).

Equipment protection groups (TL1 NEs)

The 1665 DMX family of NEs support equipment protection at the NE level, however in this release, the management system does not support equipment protection. Equipment protection groups are supported using the NE Management Functions pages.

The management system will only associate a port with one parent slot, however, when the slot or pack is equipment protected, this relationship cannot be dynamically established without equipment protection information. For example, when the active pack experiences a change such as active pack removal, or hardware problems of the

active pack, the management system associates the first slot/pack to its ports. If the pack is switched to the second slot, the management system does not support its ports while on the NE, these ports still do exist.

Ports on electrical circuit packs in slot 1 and slot 2 of the same function slot should only be assigned to slot 1. Slot 1 is the equipment protection of slot 2, and slot 2 is equipment backup of slot 1, or slot 2 is the protection pack and therefore should not have any ports assigned. If no equipment protection is used (only 1 circuit pack in the function slot), the circuit pack must be inserted in slot 1.

□

View a List of Protection Groups

When to use

Use this task to view a list of protection groups.

Related information

For information related to the View a List of Protection Groups task, see the following topic:

- "Protection Group Concepts" (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following five steps to view a list of protection groups.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Network Element > Protection Groups**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to view the protection groups. From the Go menu, select **Protection Group**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Protection Groups**.

  Result: The search panel of the Protection Groups page is displayed.

2 In the **NE type** field, select the type of NE.

3 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

4 In the **Protection group name** field, enter the name of the protection group in the text box. This is an optional field.

5 In the **Protection group type** field, select the type of protection group to be displayed. This is an optional field.

6 In the **Protection group rate** field, select the rate of protection group to be displayed. This is an optional field.

7 Click the **Search** button.

Result: The list at the bottom of the Protection Groups page is populated with a list of the protection groups that meet your search criteria.

END OF STEPS

□

Add a Protection Group

When to use

Use this task to add a protection group.

Related information

For information related to the Add a Protection Group task, see the following topic:

- “Protection Group Concepts” (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add a protection group.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Network Element > Protection Group**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to add a protection group. From the Go menu, select **Protection Group**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Protection Groups**.

  Result: The search panel of the Protection Groups page is displayed.

2 Click on the **New** tool in the search panel.

  Result: The Add Protection Group page is displayed.

3 In the **NE type** field, select the type of NE.

4 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

5 In the **Protection group type** field, select the type of protection group to be added.

6 In the **Protection group rate** field, select the rate of protection group to be added.

7 Depending on the **NE type** and **Protection group type** selected, additional fields will be displayed. Enter information in these fields as appropriate.

8 Click the **Submit** button.

Result: The protection group is added.

END OF STEPS

□

Modify a Protection Group

When to use

Use this task to view a protection group or modify the parameters of a protection group.

Related information

See the following topic:

- "Protection Group Concepts" (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following four steps to modify a protection group.

1. View a list of protection groups, using the "View a List of Protection Groups" (p. 3-106) task.

   Result: The list at the bottom of the Protection Groups page is populated with a list of protection groups that meet your search criteria.

2. The **Protection group name** column of the table lists the names of the protection groups. Click the check box next to the protection group you wish to modify. From the Go menu, select **Modify Protection group** and click the **Go** button.

   Result: The Modify Protection Group page is displayed.

3. Change the entries and selections in the fields on this page, as appropriate for the type of protection group being modified.

4. Click the **Submit** button.

   Result: Depending on the NE type and protection field being modified, confirmation windows are displayed.

5. Click the appropriate button in the confirmation window(s).

Result: The protection group is modified.

END OF STEPS

□

Delete a Protection Group

When to use

Use this task to delete a protection group.

Related information

For information related to the Delete a Protection Group task, see the following topics:

- "Protection Group Concepts" (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following two steps to Delete a Protection Group.

1 View a list of protection groups, using the "View a List of Protection Groups" (p. 3-106) task.

Result: The list at the bottom of the Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 The **Protection group name** column of the table lists the names of the protection groups. Click the check box next to the protection group you wish to delete. From the Go menu, select **Delete protection group** and click the **Go** button.

Result: A confirmation window is displayed.

3 Click the appropriate button in the confirmation window.

Result: The protection group is deleted.

END OF STEPS

□

Protection Group List SNC/Cascading/DNI

When to use

Use this task to view a list of protection groups.

Related information

For information related to the View a List of Protection Groups task, see the following topic:

- “Protection Group Concepts” (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following five steps to view a list of protection groups.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Network Element > Protection Groups**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE for which you wish to view the protection groups. From the Go menu, select **Protection Group**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Network Elements > Protection Groups**.

  Result: The search panel of the Protection Groups page is displayed.

2 From the Protection Groups page **Go** menu option, select **Retrieve/Set SNC Protection**or **Retrieve/Set Cascading Protection**or **Retrieve/Set DNI Protection**.

  Result: The SNC Protection Group or Cascading Protection Group or DNI Protection Group page is displayed.

3 From the Cross-connection List page **Go** menu option, select **SNC Protection**or **Cascading Protection**or **DNI Protection**

Result: The SNC Protection Group or Cascading Protection Group or DNI Protection Group search page is displayed.

4 Do the following in the SNC / Cascaging/ DNI Search panels:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name**field, select the NE name from the drop-down list.
3. In the **Shelf** field, select the shelf from the drop-down list.
4. In the **Slot** field, select the slot from the drop-down list.
5. In the **High order TP** field, select the High order TP from the drop-down list.
6. In the **Cross-connection rate** field, select the cross-connection rate for this cross-connection from the drop-down list.

5 Click the **Search** button.

Result: The list at the bottom of the SNC / Cascaging/ DNI Protection groups page is populated with a list of the protection group list that meet your search criteria.

6 The following fields are displayed in SNC / Cascading / DNI Protection groups the panels:

These fields **To Port Id 1**, **Type**, **From Port Id 1**, **Fail condition**, **From Port Id 2**, **Switch state**,**Switch mode**, **Active reference**, **SNCP type**, **Hold-off time (s)** and **Wait to restore time (m)** are displayed.

7 Do the following in the Go list option:

- Select **Modify** to open the Modify SNC or Cascading or DNI Protection groups pages for the selected protection group.
- Select **Clear** to clear the existing protection.
- Select **Forced to working (From Port Id 1)**to make a forced protection switch to the working TP (From Port Id 1).
- Select **Forced to protection (From Port Id 2)** to make a forced protection switch to the protection TP (From Port Id 2).
- Select **Manual to working (From Port Id 1)**to make a manual protection switch to the working TP (From Port Id 1).
- Select **Manual to protection (From Port Id 2)** to make a manual protection switch to the protection TP (From Port Id 2).
- Select **Lockout** to lockout the protection switch.

END OF STEPS

□

Modify Protection Group List SNC / Cascading / DNI

When to use

Use this task to view a list of protection groups.

Related information

For information related to the View a List of Protection Groups task, see the following topic:

- “Protection Group Concepts” (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a protection group list (SNC / Cascading / DNI).

1 From the **Go** menu options of the Protection Group List page, select **Modify** and click the **Go** button.

Result: The Modify Protection Groups page is displayed.

2 Do the following in the Protection group parameters panel:

1. In the **Switch mode** field, select the mode of protection switch associated with the protection group.
2. In the **Hold-off time (secs)** field, enter the Hold-off time in seconds.
3. In the **Wait to restore time (mins)** field, enter the Wait to restore time in minutes.

3 Click the **Submit** button.

Result: The protection group list page is modified.

END OF STEPS

□

Operate a Protection Switch

When to use

Use this task to operate a protection switch for all protection group types.

Related information

See the following topic:

- "Protection Group Concepts" (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to operate a protection switch for all protection group types.

1 View a list of protection groups, using the "View a List of Protection Groups" (p. 3-106) task.

Result: The list at the bottom of the Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 The **Protection group name** column of the table lists the names of the protection groups. Click the check box next to the protection group for which you wish to operate a protection switch. From the Go menu, select **Operate protection switch** and click the **Go** button.

Result: The Operate Protection Switch page is displayed.

Note: You can also select multiple protection group from the Protection Group page. Click the check box next to the protection groups. The Go menu options on this page vary based on the selected criteria.

Do one of the following from the Go menu:

- **Manual switch to working on multiple groups**: Use this option to manually switch the protection group to working status.
- **Manual switch to protection on multiple groups**: Use this option to manually switch the protection group to protection status.
- **Forced switch to working on multiple groups**: Use this option to force switch the protection group to working status.

- **Forced switch to protection on multiple groups**: Use this option to force switch the protection group to protection status.
- **Lockout on multiple groups**: Use this option to switch the protection group to lockout status.
- **Clear on multiple groups**: Use this option to clear the protection switch status.

3 In the **Switch type** field, select the type of protection switch from the drop-down list.

Note: This field is displayed depending on the protection group type and NE type.

4 In the **Destination side** field, select the destination side of the protection switch.

Note: This field is displayed depending on the protection group type and NE type.

Result: Based on your selection, the **Switch destination** field is populated.

5 In the **Switch operation** field, select the type of protection switch to be executed from the drop-down list.

6 Click the **Submit** button.

Result: The protection switch is executed. A warning message is displayed: `Protection switch may impact traffic. Do you want to continue?` Click **Yes**. The protection switch command is sent to the NE.

7 In order to view the protection switch changes, select the **Reload from NE** button.

Result: Executed protection switch information is updated from the NE and is viewable on the page.

END OF STEPS

□

View Constituent Members of a Protection Group

When to use

Use this task to view the constituent members of a UPSR protection group for 1675 Lambda Unite MultiService Switch (MSS) NEs in pipe mode.

Related information

See the following topic:

- “Protection Group Concepts” (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the constituent members of a UPSR protection group for 1675 Lambda Unite MultiService Switch (MSS) NEs in pipe mode.

1 View a list of protection groups, using the “View a List of Protection Groups” (p. 3-106) task.

Result: The list at the bottom of the Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 The **Protection group name** column of the table lists the names of the protection groups. Click the radio button next to the protection group for which you wish to view the constituent members. From the Go menu, select **View/operate protection switch on constituent members** and click the **Go** button.

Result: The Constituent Member Protection Groups page lists the constituent members of the protection group.

END OF STEPS

□

Operate Protection Switch on Constituent Members of a Protection Group

When to use

Use this task to operate a protection switch on the constituent members of a UPSR protection group for 1675 Lambda Unite MultiService Switch (MSS) NEs in pipe mode.

Related information

See the following topic:

- "Protection Group Concepts" (p. 3-100)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to operate a protection switch on the constituent members of a UPSR protection group for 1675 Lambda Unite MultiService Switch (MSS) NEs in pipe mode.

1 View a list of protection groups, using the "View a List of Protection Groups" (p. 3-106) task.

Result: The list at the bottom of the Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 The **Protection group name** column of the table lists the names of the protection groups. Click the radio button next to the protection group for which you wish to view the constituent members. From the Go menu, select **View/operate protection switch on constituent members** and click the **Go** button.

Result: The Constituent Member Protection Groups page lists the constituent members of the protection group.

3 The **Protection group name** column of the table lists the names of the constituent member protection groups. Click the radio button next to the constituent member protection group for which you wish to operate a protection switch. From the Go menu, select the type of protection switch to be executed and click the **Go** button.

Result: The protection switch operation is performed on the constituent member protection group.

END OF STEPS

□

Perform a Partial Database Synchronization for Protection Groups

When to use

Use this task to perform a partial database synchronization for protection groups.

Related information

See the following topics:

- “Equipment Overview of Supported NEs” (p. 3-30)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for protection groups.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**. Click on the **New** tool.

  Result: The Initiate Database Synchronizations page is displayed.

3 In the **Database synchronization type** field, select **Configuration - Protection groups**.

4 In the **Per-NE for the following NEs** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection pop-up window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements pop-up window. This window is used to select an NE from a list.

5 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page is displayed, and reports the status of the partial database synchronization.

END OF STEPS

□

Section V: Central Offices

Overview

Purpose

This section discusses central offices.

Contents

Central Office Concepts

Overview

The following is conceptual information about central offices. This information is meant to complement the tasks presented later in this section.

Definition of central office

A central office is a group of nodes that are associated with an actual central office location.

Functionality description

The central office concept is used by users to organize their NEs in the management system. This feature allows users to divide up the management responsibilities for their network on a per-central-office basis, and to monitor alarm conditions that may be unique to a certain geographic location.

For users who organize their NEs into central offices, the management system can interpret from the NE name to which central office an NE belongs. These NEs are organized throughout the management system by central offices. On the maps, central offices are shown as aggregates with the central office name.

For users who do not organize their NEs into central offices, the management system groups all NEs in their network into one default central office. On the maps, the default central office is shown as an aggregate.

Using the management system to organize NEs into central offices provides the following benefits:

- For some users, central offices are a logical way to organize NEs, and reduce the clutter on the network map.
- A user can quickly isolate the location of a problem and deploy a repair team.

The management system does not restrict a user's definition of a central office. Users may define it to be any group that is useful for their purposes. It can be a specific building or geographic location, or it does not have to be.

Domain partitioning

In case of a domain user, a Central Office is displayed to the user only when there is at least one NE contained in the Central Office that also belongs to the user's domain(s). The Central Office is not displayed to a domain user if it does not contain any NE that belongs to the user.

Central office name

The management system is able to interpret, from the NE name, the central office to which an NE belongs.

- In the SONET operating environment, the default central office name is the first 11 characters (counting from the left) of the NE name (that is, the TID). If there are 11 or less characters, the Central Office Name defaults to the NE name. A system parameter allows the user to choose the number of characters in the NE Name to be taken as the central office name. The current allowable range is 7 to 11, with the default as 11.
- In the SDH operating environment, the central office name is taken as the string separated by a delimiter from the NE name. The delimiter is defined as forward slash″ /″, or underbar ″_″, or hyphen ″-″ , or period ″.″. Whether it is the first delimiter (from left) or the last delimiter (from right) is controlled by an installation parameter. If the NE name does not contain any of the supported delimiters, the Central Office Name is the same as the NE name.

□

View a List of Central Offices

When to use

Use this task to view a list of central offices.

Related information

See the following topic:

- “Central Office Concepts” (p. 3-125)

Before you begin

This task does not have any preconditions.

Task

Complete the following step to view a list of central offices.

1 Use the icons or the object links to follow this path:

- **Network Elements > Central Offices**

  Result: The Central Offices page is displayed. It includes a list of all central offices in the network.

END OF STEPS

□

Modify a Central Office

When to use

Use this task to modify a central office.

Related information

See the following topic:

- "Central Office Concepts" (p. 3-125)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a central office.

1 View a list of central offices, using the "View a List of Central Offices" (p. 3-127) task.

Result: The Central Offices page is displayed. It includes a list of all central offices in the network.

2 The **Central office name** column of the table lists the names of the central offices. The name of the central office is a hyperlink.

Do one of the following:

- Click the name of the central office you wish to modify.
- Click the radio button next to the central office you wish to modify. From the Go menu, select **Modify Central Office** and click the **Go** button.

Result: The Modify Central Office page is displayed.

3 In the **Notes** field, change the notes that are associated with the central office.

4 Click the **Submit** button.

Result: The central office is modified.

END OF STEPS

□

View NEs Contained in a Central Office

When to use

Use this task to view NEs contained in a central office.

Related information

See the following topic:

- “Central Office Concepts” (p. 3-125)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view contained NEs.

1 View a list of central offices, using the “View a List of Central Offices” (p. 3-127) task.

Result: The Central Offices page is displayed. It includes a list of all central offices in the network.

2 Click the radio button next to the central office for which you wish to view contained NEs. From the Go menu, select **View Contained NE** and click the **Go** button.

Result: The Network Elements page is displayed. It includes a list of all NEs in the central office.

END OF STEPS

□

Section VI: Software Management

Overview

Purpose

This section discusses the management of NE software.

Contents

Software Management Concepts

Overview

This section contains conceptual information about software management. This information is meant to complement the tasks presented later in this section.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see "List of Supporting NE Documentation" (p. 1-17).

Important! Each release of the management system supports a certain set of NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this document, information about NEs other than those listed in this table, applies to previous releases of the management system and is not applicable.

Functionality description

The management system is able to manage the software of NEs in the network.

There are two types of NE software:

- Applications, such as NE generics
- Data files, such as NE database versions (These contain the configuration data of the NE. It is commonly known as a "backup.")

When an NE is automatically discovered or manually added to the management system database, the management system automatically retrieves all NE generics for that NE and maintains this information in the database.

The management system allows you to manage software in the following ways:

- Manage NE generics on the management system
- Manage NE generics on the NE
- Manage NE database on the management system
- Manage NE database on the NE

In addition, the management system is able to perform tasks associated with software management on a scheduled basis. The tasks can be scheduled to run as a one-time activity to be started on a specific day and time or as a periodic activity to be started on a recurring day and time.

Domain partitioning

The following rules apply to domain partitioning for the software pages.

- All fields which display a list of NE names are filtered to only show NEs which are in the user's domain.
- Whenever a software management task on an RNE is completed via a GNE, the user is able to complete the task if the RNE is in the user's domain but the GNE is outside of the user's domain.
- Whenever a software management task on an NE (GNE or RNE) is completed via a FTP/FTAM Gateway NE, the user is able to complete the task if the NE is in the user's domain but the FTP/FTAM Gateway NE is outside of the user's domain.
- Whenever a software management task on an RNE is completed via a FTP Proxy Gateway NE, the user is able to complete the task if the RNE is in the user's domain but the FTP Proxy Gateway NE is outside of the user's domain.
- Whenever a bulk grouping is selected, for example, All NEs in Ring or All NEs in NCG, only NEs in the bulk grouping AND in the user's domain are executed as part of the on demand or scheduled task.

Software management tasks for MATS NEs

A MATS NEs type is composed of one or two manageable circuit pack of the following types:

- **The VLNC40 Ethernet Aggregator Card**
- **The VLNC50 Ethernet over SONET Card** - requires a System Controller circuit pack to perform software management tasks.
- **The VLNC60 Circuit Emulation Card**
- **The VLNC64 Circuit Emulation Mini Hub Card**

The software tasks download/activation/backup/restore for MATS NEs are executed at the circuit level instead of the Network Element level. Each circuit pack requires a separate command to perform the download/activation/backup/restore tasks at the Network Element.

MATS NE can support a maximum of two circuit packs. Some circuit packs require TL1 commands and FTP for file transfer while others require CLI commands and TFTP for file transfer.

The VLNC40, VLNC60 and VLNC64 circuit packs use CLI commands and support software download and database backup and restore using file transfer.

Pending software management tasks

The management system allows software management tasks to run simultaneously. Once the maximum number of simultaneously running software tasks is reached, subsequent new software management tasks are placed into a pending queue. As

in-progress jobs complete, the queued software management tasks exit the pending queue and are executed by the management system. On-demand software management tasks are always placed ahead of scheduled software management tasks in the pending queue.

Important! Scheduled software management tasks are not placed in the pending queue until the task has started.

The following types of software management tasks can be placed in the pending queue.

- **Download**
  - "Download an NE Generic to an NE" (p. 3-164)
  - "Schedule a Download NE Generic to NE" (p. 3-175)
- **Activation**
  - "Activate an NE Generic on an NE" (p. 3-188)
  - "Schedule NE Generic Activation" (p. 3-198)
  - "Activate NE Database " (p. 3-239)
  - "Schedule NE Database Activation" (p. 3-241)
  - Activate NE Generic and Database- this functionality is accomplished via the Activate NE Generic Page - "Activate an NE Generic on an NE" (p. 3-188)
  - Schedule Activate NE Generic and Database - this functionality is accomplished via the Schedule Activate NE Generic Page - "Schedule NE Generic Activation" (p. 3-198)
- **Copy**
  - "Copy an NE Generic from NE to NE" (p. 3-203)
  - "Schedule a Copy from NE to NE" (p. 3-205)
- **Backup**
  - "Backup NE Database Versions onto the Management System" (p. 3-222)
  - "Schedule a Backup NE Database Version onto the Management System" (p. 3-225)
- **Restore**
  - "Restore an NE Database Version from the Management System to an NE" (p. 3-229)
- **Revert**
  - "Revert to an NE Generic on an NE" (p. 3-194)
- **Commit**
  - "Commit an NE Generic on an NE" (p. 3-192)
- **Download to Remote Device**
  - "Download an NE Generic from NE to Remote Device" (p. 3-208)
  - "Schedule a Download NE Generic from NE to Remote Device" (p. 3-211)

- **Activate Remote Device**
  - "Activate Remote Device" (p. 3-214)
  - "Schedule Remote Device Activation" (p. 3-216)
- **Restore Out of Service Disks**
  - "Restore Out of Service Disks" (p. 3-196)

  Important! Abort software management tasks and add NE generic to the management system tasks are not placed in the pending queue.

For scheduled tasks which fail and have retries, the job will not be retried immediately but instead will be put at the end of the queue. If an NE is deleted or an NE is moved from one Network Adapter to a second, any jobs in the pending queue will be deleted.

The position of tasks in the queue can increase over time based on other tasks being added to the queue. For example, if an on-demand task is added, the queue position for scheduled tasks will be increased because on demand jobs are given priority over scheduled tasks.

A user may see gaps in the numbering of tasks in the queue. The task numbering includes all NEs in all domains while a user will only see tasks for NEs in his/her domain(s).

Pending software management tasks for TL1 NEs

For pending software management tasks for TL1 NEs there are two queues for all types of software operations:

- File Transfer queue - includes jobs that require a file transfer and can take many minutes to complete, such as Backup, Restore and Download.
- TL1 queue - jobs that simply require a TL1 command to complete and complete quickly, not holding up other jobs. This includes jobs such as Activate, Copy, Revert, Commit and Abort of Software Operations in Progress at the NE.

The two queues are further subdivided into an on-demand and a pending queue. This is so that on-demand software operations are always performed prior to scheduled software operations.

Queueing is not applicable for Abort of Software Operations in the OMS pending queue.

Pending software management tasks for CMISE NEs

For CMISE NEs there is a single queue for all types of software operations. The queue is subdivided into an on-demand queue and a pending queue. This is so on-demand software operations are always performed prior to scheduled software operations

Queueing is not applicable for Abort of Software Operations in the OMS pending queue.

Pending software management tasks for MATS NEs

For pending software management tasks for MATS NEs there are two queues for all types of software operations:

- File Transfer queue - includes jobs that require a file transfer and can take many minutes to complete, such as Backup, Restore and Download.
- CLI Command queue - jobs that simply require a CLI command to complete and complete quickly, not holding up other jobs.

The two queues are further subdivided into an on-demand and a pending queue. This is so that on-demand software operations are always performed prior to scheduled software operations.

Queueing is not applicable for Abort of Software Operations in the OMS pending queue.

Scheduling software management tasks

The management system allows searching for and scheduling the following software management tasks.

- NE database backup
- Download NE generic to NE
- Download from NE to Remote Device
- Copy from NE to NE
- Activate NE generic
- Activate Remote Device
- Activate NE database
- Activate NE generic and database

When selecting a grouping of NEs that is not an explicit list of NEs, the scheduled task is stored with the grouping and not with a list of NEs. Which NEs are executed as part of the scheduled task are determined at the time the task is initiated. For a periodic task such as Backup, this means that the NEs that are backed up could be different each time the scheduled task is performed. This is because when selecting a grouping that is not an explicit list of NEs, the NEs in the group at the time the Backup is scheduled may not be the same as the NEs in the group when the backup is kicked off (for example if a network level backup is scheduled and afterwards an NE is added).

When selecting a grouping and not an explicit list of NEs, the NEs must be in the user’s domain. When initiating a scheduled task, the domain is the domain of the User Name stored with the scheduled task. This user name reflects the last user who created

or modified the scheduled task. Note that this means if a scheduled task is modified by a user with different domains that the creator of the scheduled task the domain associated with the scheduled task will be changed.

The domain(s) is the domain(s) which apply for the User Name when the scheduled task is initiated and not the domain(s) when the scheduled task was created or modified. If, when initiating a scheduled task, the User Name does not exist or the domain for a User Name cannot be determined, the scheduled task will fail.

> **Important!** It is strongly recommended that a Database Synchronization should be performed prior to a download task to insure the OMS database is synchronized with the Network Element.

Execution interval

The system uses the start date and time and the execution interval to determine if a job should exit the queue and be sent to the NE.

When the scheduled start date and time is reached, jobs begin to be sent to the NE. During the execution interval, jobs for the NEs in the scheduled task continue to exit the queue to be sent to the NEs. Once the current date and time plus the execution interval is reached, jobs for the NEs in the scheduled task can no longer exit the queue to be sent to the NEs. All jobs remaining in the queue, must wait until the scheduled start time is reached on the next day.

The jobs for the NEs in the scheduled task that can no longer exit the queue to be sent to the NEs are referred to as Suspended jobs. Suspended jobs retain their positioning in the queue, but are not able to exit the queue. Suspended jobs are not removed from the queue and re-added to the end of the queue when the scheduled start time is reached on the next day.

The Execution Interval is used for tasks with multiple NEs that span multiple days. For example, a user only wants to perform the Download from the Management System to NEs job between 1:00am and 6:00am and they have scheduled the start of the task for 4/1/2005. Jobs will begin being sent to the NEs at 1:00am on 4/1/2005. If commands have not been sent to all NEs by 6:00am on 4/1/2005 the system waits until 1:00am on 4/2/2005 to continue with the remaining NEs.

Job Updates page

Prior to running any software management task, open the Job Updates page to view the status of the task. To open the Job Updates page, from the My Network menu, select **Job Updates**. If the Job Updates page is not opened prior to initiating the task, the status of the task will not be shown and therefore will not be monitorable.

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Manage NE Generics on the Management System Concepts

Overview

This section contains conceptual information about managing NE generics on the management system. This information is meant to complement the tasks presented later in this section.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see "List of Supporting NE Documentation" (p. 1-17).

Manage NE generics on the management system

Software management for NE generics on the management system includes the following functions:

- Add an NE generic to the management system from a local removable media
- Delete an NE generic from the management system
- Download an NE generic from the management system to an NE
- Scheduled download an NE generic from the management system to an NE
- Support file management capabilities for the NE generics files from the management system
- View in-progress and pending NE generic transfers
- Abort in-progress NE generic transfers

Add NE generic to management system

The OMS system supports a capability to load NE generic software from the following media types to the OMS file system.

- **CD/DVD** - allows the user to load NE generic software from a local removable media to the OMS file system. This media type is supported for all NEs types.
- **Local File** - allows the user to download NE generic software from the Alcatel-Lucent Electronic Delivery web page to a local computer and then upload the file from the local computer to the OMS file system by using Local File media type.

  Important! The Local File media type is only supported for MATS NEs.

Download NE Generic to NE

An NE generic can be downloaded to one or more selected NEs. When multiple NEs are selected, all NEs must be of the same NE type. For all NE types except 1671 Service Connect (SC), an NE generic stored on the management system is be downloaded from the management system to the selected NE(s).

For 1671 Service Connect (SC), an NE generic on CD/DVD must be placed in the NE's Removable Media Device for each network element for which software is to be downloaded. The NE generic is then downloaded from the removable media device to the NE's inactive partition.

For LambdaExtreme® Transport NEs, if the "All NEs in Aggregate" option is selected, all NEs which match the selection criteria must be GNEs. All RNEs are excluded from the group download request.

1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs allow the download of a software generic for itself to the dormant database area. These NE types also allow download of a software generic of other compatible network element types. At most one software generic of the same NE type as the NE itself or one software generic for any other product type other than itself can be stored at a time.

Secure file transfer protocol

For LambdaExtreme® Transport R6.0 (and higher) and Metropolis® Wavelength Services Manager (WSM) R6.0 (and higher) NEs, if Secure Communications are enabled on the NE, the management system uses use Secure File Transfer Protocol (SFTP) over Secure Shell (SSH) for file download to a TL1 GNE. If Secure Communications are disabled on the NE, the management system uses FTP for file download to a TL1 GNE.

Maximum number of NE generics stored on the management system

For both TL1 NEs and CMISE NEs the maximum number of NE generics able to be stored on the management system is six. However for CMISE NEs supporting separate software load files for remote devices, both the software load files for the NE generics and the software load files for the remote devices are included in this maximum.

Reload if file being transferred is the same as the current inactive release

For TL1, MATS NEs, when transferring an NE generic to NE, the question "Reload if file being transferred is the same as the current inactive release" is displayed. If the user selects "No", the management system does not attempt to download software to any NE where the inactive release of the NE is the same as the NE generic being downloaded.

Reload if file being transferred is the same as the current active release

For TL1 NEs, MATS NEs, when transferring an NE generic to NE, the question "Reload if file being transferred is the same as the current active release" is displayed. If **No** is selected, the software is not downloaded to any NE where the active release of the NE is the same as the NE generic being downloaded.

Reload if file being transferred is the older than the current active release

For TL1, MATS NEs, when transferring an NE generic to NE, the question "Reload if file being transferred is older than the current active release" is displayed. If the user selects **No**, the software is not downloaded to any NE where the active release of the NE is older than the NE generic being downloaded.

Upgrade Type

For MATS NEs, the Upgrade Type option allows the user to specify the following type of circuit packs to which they want to download the NE Generic on the destination NE:

- System Controller
- VLNC40
- VLNC60
- VLNC64

Download for 1671 Service Connect (SC) NEs

For 1671 Service Connect (SC) NEs, two download options are supported:

- **Download** - allows the user to Download an NE generic from a removable media device to the network element.
- **Delete Download** - allows the user to delete an NE generic which was previously downloaded to the network element.

The **Delete Download** option is required because 1671 Service Connect (SC) NEs a Download will only be attempted by the network element, if the inactive partition is empty. For all other cases, the NE will reject the request. Therefore once an NE generic is successfully downloaded to a network element, it is not possible to perform another download until either:

- the Downloaded NE Generic is Deleted
- the Downloaded NE Generic is Activated and Committed
- the Downloaded NE Generic is Activated and Reverted

View In Progress NE Generic Transfers page

The View In Progress NE Generic Transfers page displays the list of in progress NE Generic transfers, including the following:

- Transfers initiated by an on demand request or a scheduled task
- Transfers in progress at the NE and in the pending queue in the management system
- Download NE Generic transfers
- Download from NE to Remote Device
- Copy from NE to NE
- NE Generic Activations
- Activate Remote Device
- NE Generic and Database activations
- Commit NE Generic actions
- Revert NE Generic actions
- Restore Out of Service Disk actions

If multiple NEs are included in the on demand or scheduled task, each NE included in the task is displayed in the table as one row for each NE. This is true for the NEs in the queue as well as actually started in the NE. Only those NEs in the user's domain will be included.

For Downloads of an NE Generic from the Management System to an NE and from NE to Remote Device, the **Percentage Completed** field on the View In Progress NE Generics Transfer Page reflects the percentage complete when the page is opened. For all other in progress jobs, the field is blank. The field is updated by selecting the row and the **Update Percent Complete** entry in the Go menu.

For Downloads of an NE Generic from an NE to Remote Device, if the user selects **Yes** for the **Continuously Monitor Percent Complete** field, the percentage complete is displayed when the View in Progress NE Generics Transfer Page is first displayed. If the user selects **No** for the **Continuously Monitor Percent Complete** field, the text Request is displayed when the View in Progress NE Generics Transfer Page is first displayed and the user must select the **Update Precentage Complete** from the Go List to obtain the percentage complete for the in progress Download NE Generic to Remote Device Task.

The **Update Status** field on the View In Progress NE Generics Transfer Page reflects the status of the in progress NE generic transfers, when the page is opened. The field is updated by selecting the row and the **Update Status** entry in the Go menu. This option is only applicable for 1671 Service Connect (SC) NEs.

In progress NE generic transfers queue

The following information is displayed in the **Queue** field on the In Progress NE Generic Transfers page.

- **Blank** - for jobs that are in progress at the NE
- **Waiting for retry** - for jobs which have failed and are waiting for retry
- **Waiting for retry suspended** - for jobs which failed and were waiting for retry when the execution interval ended. Jobs are retried when the execution interval is again reached.
- **Item <n> in <type of queue> queue on <name of NA>** - for all active jobs in the management system pending queue.
- **Item <n> in <type of queue> queue on <name of NA> Suspended** - for all suspended jobs in the management system pending queue.
- **File Transfer** or **TL1 command** - the type of queue for TL1 NEs.
- **File Transfer** - the type of queue for CMISE NEs.
- **File Transfer** or **CLI command** - the type of queue for MATS NEs.

Abort In Progress NE Generic Transfers page

The user can choose to select a task and abort the task for the selected NE by selecting the **Abort NE Generic Transfer** item from the Go menu. This selection aborts either a job in the software management pending queue or a job in progress at the NE. Jobs in the software management pending queue can always be aborted. Jobs in progress at the NE may be aborted only if the NE supports abort of the selected software management task.

Tasks can be aborted for multiple NEs by selecting the **Abort All Pending Jobs** action from the Go menu. Selection of any of these options aborts jobs in the management system pending queue. Jobs in progress at the NE are unaffected.

The **Abort All Pending Jobs** action includes deleting both on demand and scheduled jobs. For scheduled jobs the abort includes deleting the scheduled job and all its retries. Selection of **Abort All Pending Jobs** includes deleting active and suspended jobs. This action only deletes pending jobs for NEs in the user's domain. Pending jobs for NEs outside the user's domain are unaffected.

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Manage NE Generics on NEs Concepts

Overview

This section contains conceptual information about managing NE generics on NEs. This information is meant to complement the tasks presented later in this section.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see “List of Supporting NE Documentation” (p. 1-17).

Manage NE software generics on NEs

The management system displays the software generics and the attributes that are present on the NEs. Additionally, the user can download a software generic from the management system to an NE, download from NE to remote service, copy a software generic from NE to NE, activate a software generic on an NE, activate remote device, abort an in-progress software transfer, commit an NE generic and revert to the inactive NE generic.

The management system allows a user to select a specific NE generic and display a list of all network elements which have this NE generic as the active, inactive or other NE generic.

For all NE types except Metropolis® Wavelength Services Manager (WSM), 1671 Service Connect (SC) and 1675 Lambda Unite MultiService Switch (MSS), an upgrade of an NE generic occurs in three steps:

1. “Add an NE Generic to the Management System” (p. 3-159)
2. “Download an NE Generic to an NE” (p. 3-164)
or “Copy an NE Generic from NE to NE” (p. 3-203)
3. “Activate an NE Generic on an NE” (p. 3-188)

An NE generic can be added to the management system file system from a CD-ROM or by uploading a file stored on a local computer. For file transfer from CD-ROM, the user physically loads the CD-ROM because the management system can automatically mount the CD-ROM file system.

To Add an NE Generic to the Management System via the Local File option, the user needs to import the NE generic software from the Alcatel-Lucent Electronic Delivery web site to a local computer. The user then must transfer the NE generic software from the local computer onto the management system by using Add an NE Generic to the Management System option. Currently this option is only applicable for MATS NEs.

It is also possible to use other commonly available tools and applications to get software files into the management system file system (for example, use file transfer software, such as FTP, to transfer software to the management system over a network).

The management system can store a maximum of six NE generic releases per NE type. When the maximum is reached, one release must be deleted before another can be added. The management system does not automatically overwrite the oldest one.

NE generic management for 1665 DMXtend Access Multiplexer R4.0 and 1665 DMX Access Multiplexer R6.0 NEs

A 1665 DMX Access Multiplexer release prior to R6.0 may be copied to a 1665 DMX Access Multiplexer R6.0 NE. Since this NE prior to R6.0 cannot run on the R6.0 system controller (LNW2) it is downloaded to the other partition of the R6.0 NE and the other partition NE type is reported as “DMX”.

A 1665 DMXtend Access Multiplexer release prior to R4.0 may be copied to a 1665 DMXtend Access Multiplexer R4.0 NE. Since this NE release prior to R4.0 cannot run on the R4.0 system controller (LNW2) it is downloaded to the other partition of the R4.0 NE and the other partition NE type is reported as “DMXtend”.

NE generic management for Metropolis® Wavelength Services Manager (WSM) NEs

For Metropolis® Wavelength Services Manager (WSM), the following steps are required to upgrade the NE generic:

1. “Add an NE Generic to the Management System” (p. 3-159)
2. “Download an NE Generic to an NE” (p. 3-164)
3. “Activate an NE Generic on an NE” (p. 3-188)
4. If the activated NE generic is correct, “Commit an NE Generic on an NE” (p. 3-192).
5. If the activated NE generic is not correct, “Revert to an NE Generic on an NE” (p. 3-194). The revert allows the previously running NE generic to be switched back, in case of a problem with the activated NE generic. NE generic restores the last matching database as part of the Revert NE Generic action.

Warning: Revert of an NE generic does not restore the NE database. After performing a Revert it may be necessary to perform a Restore to NE Action.

Note: The transfer of an NE generic from the management system to an NE is a direct process if the NE is a GNE. If the NE is an RNE an FTP proxy gateway is required because the IP address of the RNE is unknown to the management system. For more information, see “Section II: OMS to NE connections” (p. 2-29).

NE generic management for 1675 Lambda Unite MultiService Switch (MSS) NEs

For 1675 Lambda Unite MultiService Switch (MSS), the following steps are required to upgrade the NE generic if the user does not require the ability to revert back to the previous software version in the event of a problem:

1. "Add an NE Generic to the Management System" (p. 3-159)
2. "Download an NE Generic to an NE" (p. 3-164)
3. "Activate an NE Generic on an NE" (p. 3-188) in Standard Mode.

Note: Every GNE and RNE must be associated with a FTP/FTAM Gateway to perform a download.

For 1675 Lambda Unite MultiService Switch (MSS), the following steps are required to upgrade the NE generic if the user requires the ability to revert back to the previous software version in the event of a problem:

1. "Add an NE Generic to the Management System" (p. 3-159)
2. "Download an NE Generic to an NE" (p. 3-164)
3. "Activate an NE Generic on an NE" (p. 3-188) in Trial Mode. When an NE is in trial mode, Download NE Generic and Restore to NE tasks cannot be performed. These actions cannot be performed until the active partition is committed.
4. If the activated NE generic is correct, "Commit an NE Generic on an NE" (p. 3-192).
5. If the activated NE generic is not correct, "Revert to an NE Generic on an NE" (p. 3-194). The revert allows the previously running NE generic to be switched back, in case of a problem with the activated NE generic.

Note: Every GNE and RNE must be associated with a FTP/FTAM Gateway to perform a download.

NE generic management for 1671 Service Connect (SC) NEs

For 1671 Service Connect (SC) NEs, the following steps are required to upgrade the NE generic:

1. Place the CD/DVD containing the NE Generic in the NE's Removable Media Device for each network element for which software is to be downloaded.
2. "Download an NE Generic to an NE" (p. 3-164) - for 1671 Service Connect (SC) NEs, the download task is only possible from a local removable media.
3. "Activate an NE Generic on an NE" (p. 3-188)
4. If the activated NE generic is correct, "Commit an NE Generic on an NE" (p. 3-192).
5. If the activated NE generic is not correct, "Revert to an NE Generic on an NE" (p. 3-194). The revert allows the previously running NE generic to be switched back, in case of a problem with the activated NE generic.
6. To place out of service disks in service, "Restore Out of Service Disks" (p. 3-196).

NE generic management for 1645 Access Multiplexer Compact (AMC) NEs

For 1645 AMC NEs, the following steps are required to upgrade the NE generic:

1. "Add an NE Generic to the Management System" (p. 3-159)
2. "Download an NE Generic to an NE" (p. 3-164)
3. "Activate an NE Generic on an NE" (p. 3-188)
4. If the activated NE generic is not correct, "Revert to an NE Generic on an NE" (p. 3-194). The revert allows the previously running NE generic to be switched back, in case of a problem with the activated NE generic.

Activate NE generics

This feature allows the user to retrieve the release number of the NE generic that is active on the NE, retrieve the release number of the NE generic on the NE that is the standby (that is, the NE generic that resides in the inactive partition of the NE), and activate the standby NE generic. When multiple NEs are requested, all NEs shall be of the same NE type.

For groupings of multiple NEs the user has the following options to control how activation requests are processed in the management system:

- Determine the order in which the NEs are placed in the management system queue. Possible choices are: User defined or System default.
- Determine if all activations requests are released from the queue at once for processing, or if only one NE in the grouping is allowed to have an NE generic activation in progress at a time.
- If an activation request fails, determine if all activation requests in the queue fail, or if the remaining requests proceed.

The following applies for individual NEs to activate an NE generic.

- For 1665 DMX Access Multiplexer family of NEs, the **Activate NE Generic** option is only available if the user has selected the Active or Inactive partitions. This option does not appear if the user has selected the Other partition.
  The following activation options are also available for the 1665 DMX Access Multiplexer family of NEs:
  - **Activate: Forced** - The NE upgrades the SYSCTL and all Smart Packs, even if the version of software on those circuit packs is the same as that included in the dormant software generic. This option is not recommended because it may unnecessarily affect service; however, it is provided as a fall-back in case of unexpected circumstances.
  - **Activate: Smart** - The NE only upgrades the SYSCTL and Smart Packs if the version of software on a circuit pack is different from the version included in the dormant software generic. This is the default.

  - **Activate: Smart with Alarm Override** - This option is supported by the Network Elements starting with 1665 DMX Access Multiplexer R7.0 and 1665 DMXtend Access Multiplexer R5.0. When the NE contains Smart OLIUs for which an upgrade will be service affecting an **Activate: Smart** request will be rejected by the NE. Instead for the NE to upgrade the SYSCTL and Smart Packs if the version of software on a circuit pack is different from the version included in the dormant software generic, including service affecting upgrades, the **Activate: Smart with Alarm Override** is used. When this option is chosen, if the user selects a bulk grouping of NEs for which to perform the activation, for DMX and DMXtend releases which do not support this option OMS will instead send an **Activate: Smart** request to the Network Element.
  - **Activation Time** - For 1665 DMX Access Multiplexer and Mobility Aggregation and Transport System (MATS) Family Network Elements this option allows the user to choose if the Activation will be executed by the Network Element 15 minutes after processing the activation request or immediately after processing the activation request. For MATS NEs, this only applies if Upgrade Type is System Controller.

- For 1675 Lambda Unite MultiService Switch (MSS) the option **Activate: Trial** activates the NE generic on a trial basis. This option allows the user to revert to an old NE generic. In the **Activate:Standard** mode, the user cannot downgrade the NE to an older NE generic.
- For WaveStar® TDM 10G (STM-64) the option **Install previous** allows the user to choose to activate an NE generic even if a new NE generic has not been downloaded to the inactive NE generic since the last activation. In this case, the inactive NE generic has been previously installed as the active NE Generic and by executing the activation the current NE generic will be replaced with the previous installed NE generic.
- For CMISE NEs, the options **MIB Clear** and **NO MIB Clear** allows the user to choose whether or not to download a new MIB as part of the activation process. These options are only available for an Instance Type of Main. When the user selects **MIB Clear** they must also select a value of Transform Name to indicate the NE upgrade being performed.
- For CMISE NEs, the options **Main** and **Remote Device** allows the user to specify whether to download the software load file to the Main Instance or the Remote Device Instance on the destination NE. This option is available only if the NE Generic downloaded is for an NE Type which supports Dual Stores.This is applicable for 1645 AMC NEs.
- For Mobility Aggregation and Transport System (MATS), the following activation options are available:

If the Upgrade Type is VLNC40, VLNC60 or VLNC64, the available options are:

- **Activate: NE Generic** - Upgrades the NE such that the inactive NE generic is installed as the active NE generic after the NE is rebooted. This is the default.
- **Activate: Update Bootcode** - Extracts the bootcode from the currently running NE generic and overrides the current bootcode in flash after the NE is rebooted.

If the Upgrade Type is System Controller, the available options are:

- **Activate: Forced** - The NE upgrades the SYSCTL and all Smart Packs, even if the version of software on those circuit packs is the same as that included in the dormant software generic. This option is not recommended because it may unnecessarily affect service; however, it is provided as a fall-back in case of unexpected circumstances.
- **Activate: Smart** - The NE only upgrades the SYSCTL and Smart Packs if the version of software on a circuit pack is different from the version included in the dormant software generic.
- **Activate: Smart with Alarm Override** - The NE only upgrades the SYSCTL and Smart Packs if the version of software on a circuit pack is different from the version included in the dormant software generic.

Continue if the inactive NE Generic is the same as current active NE generic

When activating an NE generic, the management system displays the question “Continue if the inactive NE generic is the same as the current active NE generic?” The default value is “no”. If the user selects “No”, then the management system will not attempt to activate software for any NE where the inactive release of the NE is the same as the active release of the NE.

Continue if inactive release is older than the active release

When activating an NE generic, the management system displays the question “Continue if the inactive NE generic is older than the current active NE generic?”. The default value is “no”. If the user selects “No”, then the management system will not attempt to activate software for any NE where the inactive release of the NE is older than the active release of the NE.

Warning

For LambdaExtreme® Transport, when activating a Mesh Node NE, the management system considers the activation successfully complete when the NE reboots, communications is established to the management system and the management system verifies that the NE is running the correct NE generic. At this point, if the master controller activation is complete, but the slave controller activation is not complete, the NE may not consider the activation complete.

Commit NE generics

The user can commit a previously activated software load on the NE and copy the active load to the inactive partition, thereby keeping both the active and inactive partitions in sync.

This task is for Metropolis® Wavelength Services Manager (WSM), 1671 Service Connect (SC) and 1675 Lambda Unite MultiService Switch (MSS) NEs only. For 1675 Lambda Unite MultiService Switch (MSS) NEs, only NEs activated in the Trial mode must be committed.

Revert NE generics

The user can revert to the previously installed software load on the NE. This task replaces the active software load with the previous running NE generic. Software loads that have been previously committed cannot be reverted. For Metropolis® Wavelength Services Manager (WSM) and 1675 Lambda Unite MultiService Switch (MSS) the previously installed software load is in the inactive partition. For 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer the previously installed software load is in the previous partition.

This task is for Metropolis® Wavelength Services Manager (WSM), 1671 Service Connect (SC), 1675 Lambda Unite MultiService Switch (MSS), 1665 DMX Access Multiplexer R6.0 (and higher releases), 1665 DMXtend Access Multiplexer R4.0 (and higher releases) .

For 1675 Lambda Unite MultiService Switch (MSS) NEs only network elements activated in Trial mode can be reverted.

The following applies to the individual NEs:

- For 1675 Lambda Unite MultiService Switch (MSS) NEs, the **Revert NE generic** option reverts back to the previous NE generic together with the restoration of the last matching database.
- For 1665 DMX Access Multiplexer R6.0 and higher releases and 1665 DMXtend Access Multiplexer R4.0 and higher releases, the **Revert NE generic** option reverts back to the previous NE generic together with the restoration of the last matching database. There is a 15 minute delay from when the NE accepts the revert request and when the NE initiates the revert action.
- For 1665 DMX Access Multiplexer R6.0 and higher releases and 1665 DMXtend Access Multiplexer R4.0 and higher releases, the **Revert NE generic: Install now** option reverts back to the previous NE generic together with the restoration of the last matching database. There is a no delay between when the NE accepts the revert request and when the NE initiates the revert action.
- For Metropolis® Wavelength Services Manager (WSM) NEs, the Revert NE generic option reverts back to the previous NE generic. No change to the NE database is included in the Revert NE generic option.

Copy NE generics - GNEs and RNEs

The following special cases apply for copying NE generics for GNEs and RNEs.

The following applies to the 1665 DMX family of NEs. The transfer of an NE generic from the management system to an NE is a direct process if the NE is a GNE. If the NE is an RNE, three different methods can be used to transfer an NE generic from the management system to the RNE:

- Use the FTP/FTAM gateway, which allows you to copy "through" the GNE to the RNE. For information about how to set up an FTP/FTAM gateway for an RNE, see "OMS to NE connections Concepts" (p. 2-30).
- Download the NE generic from the management system to the GNE, and then copy it from the GNE to the RNE using the task "Copy an NE Generic from NE to NE" (p. 3-203).
- Use IP tunneling. For more information on IP tunneling, see the NE documentation. NEs that use IP tunneling must have their setting for FTP/FTAM gateway set to **None**.

The following applies to Metropolis® Enhanced Optical Networking (EON).

- The transfer of an NE generic from the management system to an NE is a direct process if the NE is a GNE. If the NE is an RNE, use an FTP/FTAM gateway, which allows you to copy "through" the GNE to the RNE. For more information about how to set up an FTP/FTAM gateway for an RNE, see "Section II: OMS to NE connections" (p. 2-29). **Note:** This does not apply to Metropolis® Enhanced Optical Networking (EON) R8.4 NEs.
- Download the NE generic from the management system to the GNE, and then copy it from the GNE to the RNE using the task "Copy an NE Generic from NE to NE" (p. 3-203). **Note:** This does apply to Metropolis® Enhanced Optical Networking (EON) R8.4 NEs.

The following applies to LambdaExtreme® Transport.

- The transfer of an NE generic from the management system to an NE is a direct process if the NE is a GNE. If the NE is an RNE, download the NE generic from the management system to the GNE, and copy it from the GNE to the RNE using the task "Copy an NE Generic from NE to NE" (p. 3-203).

Copy NE generics - dissimilar software generics stored in the "other" partition

The following applies to 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs.

1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs contain an "other" partition, to which a software generic of a compatible but dissimilar type can be transferred. 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs allow download of a software generic of the same type as the NE in

the generic to the inactive partition. At most, either one software generic for the NE or one software generic for any other product type other than these NEs can be stored in an NE at a time.

Updating NE Remote Device Software

The upgrade of a Remote Device of a AM/AMS Network Element occurs in five steps:

1. Add an NE Generic to Management System - the user imports the new Remote Device Software.
2. Download NE Generic to NE - Select the **Remote Device** Instance to Download NE generic to the Inactive Remote Device Partition on the NE.
3. Activate NE Generic - select the **Remote Device** Instance to Activate the Inactive Remote Device Partition on the NE.
4. Download from NE to Remote Device - select one or more Remote Devices as the destination of the download.
5. Activate Remote Device - select one or more Remote Devices to activate.

Restore Out of Service Disks

For 1671 Service Connect (SC) NEs, after an In Service Upgrade is completed by Committing the NE Generic, the user must place all disks which were put Out of Service to complete the In Service Upgrade back in service.

The **Restore Out of Service Disks** option allows the user to place out of service disks in service. Refer to “Restore Out of Service Disks” (p. 3-196) for more details.

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Manage NE Database on the Management System Concepts

Overview

This section contains conceptual information about managing NE databases on the management system. This information is meant to complement the tasks presented later in this section.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see "List of Supporting NE Documentation" (p. 1-17).

Manage NE database on the management system

An NE database file is a binary image of the complete database of the NE. Copies of the NE database file can be backed up onto the management system and used to perform NE restoration.

The following describes the search results, when entering search criteria for database files for a single NE:

- When searching by a Backup status of All backups, the list of database files will include all backup files stored on the management system *for the NE*. If the last backup attempt is in progress or has failed, then the in progress/failed attempt also appears in the search results.
- When searching by a Backup Status of **All successful backups** the table includes all successful backup files created for the NE. If the last backup attempt is in progress or has failed, the in progress/failed attempt does NOT appear in the search results table. If there are no successfully created backup files for the NE, no backups files appear in the table.
- When searching by a Backup Status of **Last backup** the table includes only the most recent backup attempt for the NE. This attempt may be a failed attempt, a successful attempt or an in progress attempt. If there have been no backup attempts for the NE, no backups files appear in the table.

The following describes the search results, when entering search criteria for database files for multiple NEs:

- When searching by a Backup Status of **Last Successful Backups** the table includes only the most recent successfully created backup file created for each NE. If the most recent attempt for an NE was failed, the table will list the previous successful attempt. NEs with no successful created backup files or NEs for which no backups have been attempted do not appear in the table.
- When searching by a Backup Status of **Failed backups** the table includes only NEs for which the last backup attempt has failed.
- When searching by a Backup Status of **In Progress Backups** the table includes only NEs which have backup attempts in progress. Note that in progress includes backups in the queue and backups currently being executed on the NE.
- When searching by a Backup Status of **No Successful Backups** the table includes only NEs which have no successful backup files stored on the management system.
- When searching by a Backup Status of **Last Backups** the table includes only the most recent backup attempt for each NE. This attempt may be a failed attempt, a successful attempt or an in progress attempt. If there have been no backup attempts for an NE, the NE does not appear in the table.

NE database backup can be performed on-demand or per a schedule. The Scheduled Tasks page is used to schedule backups. A default of up to three backup files can be saved on the management system per NE. When this limit is reached, the oldest file is overwritten. For smaller networks, it is possible to have more than three backup files. See your Alcatel-Lucent representative for more information.

The management system displays the view of NE database stored on the management system. The user can view the software database files and their attributes. The user can also perform other software management tasks such as create an NE database backup on the management system, view in progress NE database transfers and restore NE database from a management system backup.

Secure file transfer protocol

For LambdaExtreme® Transport R6.0 (and above) and Metropolis® Wavelength Services Manager (WSM) R6.0 (and higher NEs), if Secure Communications are enabled on the NE, the management system uses Secure File Transfer Protocol (SFTP) over Secure Shell (SSH) for file download to a TL1 GNE. If Secure Communications are disabled on the NE, the management system uses FTP for file download to a TL1 GNE.

LambdaExtreme® Transport software database activation

Just as all NEs supported by the management system, LambdaExtreme® Transport supports activation of an NE generic. Additionally, LambdaExtreme® Transport also supports NE database activation. When a restore is performed for the other NE types,

the NE automatically activates the NE database. For LambdaExtreme® Transport however, after a restore is performed, the new file remains in the NE inactive database until an NE database activation is performed.

The same concepts also applies to the "Restore an NE Database Version from the Management System to an NE" (p. 3-229) task. For LambdaExtreme® Transport NEs, the restore process does not automatically activate the NE database. There are two methods to activate the LambdaExtreme® Transport database:

- Select and run the **Restore to NE** item from the Go menu and then select and run the **Activate** item from the Go menu.
- Select the **Restore to NE and activate** option from the Go menu.

1671 Service Connect (SC) software database activation

Just as all NEs supported by the management system, 1671 Service Connect (SC) supports activation of an NE generic. Additionally, 1671 Service Connect (SC) also supports NE database activation. When a restore is performed for the other NE types, the NE automatically activates the NE database. For 1671 Service Connect (SC) however, after a restore is performed, the new file remains in the NE inactive database until an NE database activation is performed.

The same concepts also applies to the "Restore an NE Database Version from the Management System to an NE" (p. 3-229) task. For 1671 Service Connect (SC) NEs, the restore process does not automatically activate the NE database. There are two methods to restore the1671 Service Connect (SC) database:

- Select and run the **Restore to NE** or **Restore to NE: Forced** item from the Go menu and then select and run the **Activate** item from the Go menu.
- Select the **Restore to NE and activate** or **Restore to NE and activate: Forced** option from the Go menu.
  The **Restore to NE and activate** option allows the user to restore a backup file stored on the management system on the NE, then initiate a swap between the databases in the active and inactive directories
  The **Restore to NE and activate: Forced** option allows the restore even if the backup date/time or the maintenance revision of the backup file do not match the values on the network element.
- Select the **Activate: NE database** or **Activate NE database: Forced** option from the Go menu.
  The **Activate: NE database** allows the user to initiates a swap between the databases in the active and inactive directories.
  The **Activate NE database: Forced** option allows the activation even if there is a mismatch of the database NE Name or the database release of the inactive partition or if the database being restored has not had any facility provisioning.

NE database management for Metropolis® Enhanced Optical Networking (EON) R8.4

The management system does not support database backup and restore for Metropolis® Enhanced Optical Networking (EON) R8.4 NEs because the NE does not support database backup and restore using file transfer of an image of the NE database.

View In Progress Database Transfers page

All in progress NE database transfers for selected NEs are able to be viewed on the View In Progress NE Database Transfers page, including the following:

- Transfers initiated by an on demand request or a scheduled task
- Transfers in progress at the NE and in the pending queue in the management system
- Backup NE database to the management system
- Restore NE database from the management system to the NE
- NE database activations

A user can only view in progress NE database transfers for NEs in their domain.

For Backup from NE of TL1, MATS NEs and Restore to NE for all NE types, the Percentage Completed field on the View In Progress NE Database Transfer Page reflects the percentage complete when the page is opened. For all other in progress jobs, the field is blank. The field is updated by selecting the row and the **Update Percent Complete** entry in the Go menu.

In progress NE database transfers queue

The following information is displayed in the **Queue** field on the In Progress NE Database Transfers page.

- **Blank** - for jobs that are in progress at the NE
- **Waiting for retry** - for jobs which have failed and are waiting for retry
- **Waiting for retry suspended** - for jobs which failed and were waiting for retry when the execution interval ended. Jobs will be retried when the execution interval is again reached.
- **Item <n> in <type of queue> queue on <name of NA>** - for all active jobs in the management system pending queue.
- **Item <n> in <type of queue> queue on <name of NA> Suspended** - for all suspended jobs in the management system pending queue.
- **File Transfer** or **TL1 command** - the type of queue for TL1 NEs.
- **File Transfer** - the type of queue for CMISE NEs.
- **File Transfer** or **CLI command** - the type of queue for MATS NEs.

Abort In Progress NE Generic Transfers page

The user can choose to select a task and abort the task for the selected NE by selecting the **Abort NE Generic Transfer** item from the Go menu. This selection aborts either a job in the software management pending queue or a job in progress at the NE. Jobs in the software management pending queue can always be aborted. Jobs in progress at the NE may be aborted only if the NE supports abort of the selected software management task.

Tasks can be aborted for multiple NEs by selecting the **Abort All Pending Jobs** action from the Go menu. Selection of any of these options aborts jobs in the management system pending queue. Jobs in progress at the NE are unaffected.

The **Abort All Pending Jobs** action includes deleting both on demand and scheduled jobs. For scheduled jobs, the abort includes deleting the scheduled job and all its retries. Selection of **Abort All Pending Jobs** includes deleting active and suspended jobs. This action only deletes pending jobs for NEs in the user's domain. Pending jobs for NEs outside the user's domain are unaffected.

Intelligent Backup

When performing a backup the user can select whether the backup should be performed only if the status for the NE has not changed since the last backup or if the backup should be performed regardless of any status change. Performing a backup only if the status has changed since the last back is known as intelligent backup. Intelligent backup is supported only the TL1 NEs. For all other NE types, backup is always performed regardless of any status change. OMS determines that the NE status has changed if that the system has either received an autonomous message from the NE reporting a database change or if OMS has lost communications with the NE at any time since the last database backup.

Note: This option is not applicable for 1671 Service Connect (SC) NEs.

□

Manage NE Database on NEs Concepts

Overview

This section contains conceptual information about managing NE databases on NEs. This information is meant to complement the tasks presented later in this section.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see “List of Supporting NE Documentation” (p. 1-17).

Manage NE database on the NE

The management system displays the view of NE database stored on an NE. It allows the user to view the NE software database files and their attributes. It also allows the user to perform other software management tasks as follows:

- Create an NE database backup on the management system
- Abort in progress NE database transfer
- Restore NE database from a management system backup
- Activate an NE database
- Activate NE Generic and Database
- Restore to NE and Activate

□

View a List of NE Generics Stored on the Management System

When to use

Use this task to view a list of NE generics stored on the management system.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE generics stored on the management system.

1 Use the icons or the object links to follow this path:

- **Network Elements > Software**

  Result: The search panel of the Software page is displayed.

2 In the **Software type** field, select **NE generic**.

3 In the **Software stored on** field, select **Management system**.

4 In the **NE type** field, select the type of NE or select All.

5 Click the **Search** button.

  Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the management system that meet your search criteria.

END OF STEPS

□

Add an NE Generic to the Management System

When to use

Use this task to add an NE generic to the management system.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task, Method 1: Using CD-ROM media type.

Complete the following steps to add an NE generic to the management system.

1 Insert the CD-ROM that contains the NE generic into the CD-ROM drive of the server.

2 Do one of the following:

- Use the icons of the object links to follow this path: **Network Elements > Software**. The Software page is displayed. Click on the **New** icon in the search panel.
- Use the icons of the object links to follow this path: **Network Elements > Software**. The Software page is displayed. Select **Add NE generic to management system** from the **Software operation** drop down list and click the **Go** button.
- View a list of NE generics stored on the management system, using the “View a List of NE Generics Stored on the Management System” (p. 3-158) task. Click on the **New** icon in the search results table toolbar.

  Result: The Add NE Generic to Management System page is displayed.

3 In the **NE type** field, select the type of NE.

4 If the **Media Type** field is editable, select the value **DVD/CD**.

5 In the **Software load file** field, select the software load file on the storage device which is to be added to the management system. This field is displayed for the NE types that support multiple software load files per external media.

Note: This step is for CMISE NEs only.

6 In the **NE generic** field, select the NE generic on the storage device which is to be added to the management system. This field is displayed for NE types which support NE generics per external media.

Note: This step is for Metropolis® Wavelength Services Manager (WSM) NEs only.

7 Click the **Submit** button.

Result: A confirmation is issued in the Messages panel, and the NE generic is added to the management system. The management system logs this activity in the User Activity Log. The CD-ROM is unmounted automatically, and the user can push the “Eject “ button to retrieve the CD/ROM from the drive.

END OF STEPS

Task, Method 2: Using Local File media type.

Important! The Local File media type is only supported for MATS NEs.

Complete the following steps to add an NE generic to the management system using Local File method.

1 Using Alcatel-Lucent Electronic Deliver option, download the software that needs to be added to the management system from the Alcatel-Lucent web page to your local computer.

2 Do one of the following:

- Use the icons of the object links to follow this path: **Network Elements > Software**. The Software page is displayed. Click on the **New** icon in the search panel.
- Use the icons of the object links to follow this path: **Network Elements > Software**. The Software page is displayed. Select **Add NE generic to management system** from the **Software operation** drop down list and click the **Go** button.
- View a list of NE generics stored on the management system, using the "View a List of NE Generics Stored on the Management System" (p. 3-158) task. Click on the **New** icon in the search results table toolbar.

  Result: The Add NE Generic to Management System page is displayed.

3 In the **NE type** field, select the type of NE.

4 In the **Media Type** field, select **Local File** from the drop-down list.

Result: The **Filename** field is populated on the screen.

5 In the **Filename** field, enter the full path of the filename (where you have stored the software in your local computer) or click the **Browse** button, to manually select the file from the local network.

The system supports importing NE software where the software uses one of the following formats:

- The MATS software is included as part of a single-file zip archive. A complete NE software image is a multiple files within the zip archive.
- The MATS software is included as part of a self extracting single-file zip archive. A complete NE software image is a multiple files within the zip archive.
- The MATS software is a single file standalone file of the format vlnc40_w_x_y_z.img.
- The MATS software is a single file standalone file of the format vlnc60_w_x_y_z.img.
- The MATS software is a single file standalone file of the format vlnc64_w_x_y_z.img.

Due to the amount of time to upload a file from the local computer to OMS it is not recommended to upload a file larger than 100 MB. If the user wishes to upload a self extracting single-file zip archive obtained from Alcatel-Lucent Electronic Delivery larger than this limit, it is recommended the user unzip the file on their local PC and

then select only the files and subdirectories of the /generics/p directory and zip these files. Then upload the created zip file. In this way, only the actual NE software files required for download from the Management System to the NE will be uploaded (for example some CIT files are included in the self extracting single-file zip archive but are not in the /generics/p directory).

6 Click the **Upload** button.

Result: The system reads the file and displays the filename on the screen.

7 Click the **Submit** button.

Result: A confirmation is issued in the Messages panel, and the NE generic is added to the management system. The management system logs this activity in the User Activity Log.

END OF STEPS

□

Delete an NE Generic from the Management System

When to use

Use this task to delete an NE generic from the management system.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete an NE generic from the management system.

1 View a list of NE generics stored on the management system, using the "View a List of NE Generics Stored on the Management System" (p. 3-158) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the management system that meet your search criteria.

2 Click the radio button next to the NE generic that you wish to delete. From the Go menu, select **Delete NE generic from management system** and click the **Go** button.

Result: A confirmation window is displayed.

3 Confirm that you want to proceed with the deletion.

Result: A confirmation is issued in the Messages panel, and the software is deleted from the management system. The management system logs this activity in the User Activity Log.

END OF STEPS

□

Download an NE Generic to an NE

When to use

Use this task to download an NE generic from the management system to an NE.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Important! The download of an NE generic from the management system to an NE is a lengthy process that may take up to a few hours to complete.

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see "List of Supporting NE Documentation" (p. 1-17).

Important! For 1671 Service Connect (SC) NEs, the database synchronization must be performed prior to a download to ensure the OMS database is synchronized with the network element.

Task, Method 1: from the list of NE generics stored on the management system

Complete the following steps to download an NE generic from the management system to an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on the management system, using the "View a List of NE Generics Stored on the Management System" (p. 3-158) task.

Result: The list at the bottom of the Software page is populated with a list of the stored NE generics that meet your search criteria.

3 Click the radio button next to the NE generic that you wish to transfer. From the Go menu, select **Download NE Generic to NE** and click the **Go** button.

Result: The Download NE Generic to NE page is displayed.

4 For the 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs only, in the **NE type** field, select the type of NE which will be downloaded to the selected NEs.

5 In the **Upgrade type** field, select the type of circuit pack to which you want to download the NE generic on the destination NE from the drop-down list. Options are: **Entire Network Element** (default), **System Controller**, **VLNC40**, **VLNC60**, **VLNC64**.

This field is displayed only for Mobility Aggregation and Transport System (MATS) NEs.

6 In the **Download Operation** field, select one of the download operation from the drop-down list. Options are: **Download**, **Delete Download**. This option is only applicable for 1671 Service Connect (SC) NEs.

The **Download** menu option allows you to specify an NE generic download from removable media to the network element.

The **Delete Download** menu option allows you to delete an NE generic which was previously downloaded to the network element.

7 In the **Removable Media Device** field, select the type of removable media device from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

8 In the **Remove Hard Disks** field, select Automatic or User Selected. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

9 In the **Copy 0 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs..

10 In the **Copy 1 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

11 In the **Encryption mode** field, select **Enable** or **Disable** (default). This field is displayed only for 1665 DMX Access Multiplexer family of NEs, Metropolis® Enhanced Optical Networking (EON) and Mobility Aggregation and Transport System (MATS).

Note: For Mobility Aggregation and Transport System (MATS) NEs, this field is displayed only if the Upgrade type field is set to **Entire Network Element** or **System Controller**.

12 In the **Force settings** field, select **Enable** or **Disable** (default). This field is displayed only for Metropolis® Wavelength Services Manager (WSM) NEs.

13 In the **Instance** field, select **Remote Device** or **Main** (default). This field is only applicable for 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs.

14 In the **Selected NEs** field, select one of the following radio buttons:

- **All NEs in Ring** - Type the ring name in the text box or click on the hyperlink to display the Ring Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in Aggregate** - Enter the aggregate name in the text box or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the aggregate you would like to include in your search criteria, and click the **OK** button.
- **NE List** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
  Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

15 For TL1, MATS NEs, when downloading the NE Generic to the inactive partition the following questions will be displayed:

- **Reload if file being transferred is the same as the current inactive release?**
  Note: This option is not applicable for 1671 Service Connect (SC) NEs.
- **Reload if file being transferred is the same as the current active release?**
- **Reload if file being transferred is the older than the current active release?**

Answer **Yes** or **No** (default) as appropriate. When all fields on this page are completed, click the **Submit** button.

16 Click the **OK** button.

Result: The system initiates the software download from the management system to the NE(s). The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

The following describes Results if there are failures when more than one NE is selected in the **Selected NEs** field:

- If some NEs pass and some NEs fail the management system validations and the user confirms they wish to proceed with the request, any NE which passes all management system validations or which only has warning messages are added to the management system pending queue to be sent to the NE. Any NE which fails the management system validations are not added to the pending queue or sent to the NE.
- NEs with failures occurring in the management system prior to being placed in the management system pending queue do *not* appear in the Job Updates page.
- Failures occurring in the management system for an NE after being placed in the pending queue do appear in the Job Updates page.

END OF STEPS

Task, Method 2: from the list of NE generics stored on an NE

Complete the following steps to download an NE generic from the management system to an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on an NE, using the "View a List of NE Generics Stored on an NE" (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the NE that meets your search criteria.

3 The **Release** column lists the NE generics on the NE. Click the radio button next to the NE to which you want to download the software. From the Go menu, select **Download NE Generic to NE** and click the **Go** button.

Result: The Download NE Generic to NE page is displayed.

4 For the 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs only, in the **Generic type** field, select the type of NE generic which will be downloaded to the selected NEs.

5 In the **New release** field, select the NE generic which will be downloaded to the selected NEs.

6 In the **Upgrade Type** field, select the type of circuit pack from the drop-down list. This option is only applicable for Mobility Aggregation and Transport System (MATS) NEs.

7 In the **Download Operation** field, select one of the download operation from the drop-down list. Options are: **Download**, **Delete Download**. This option is only applicable for 1671 Service Connect (SC) NEs.

The **Download** menu option allows you to specify an NE generic download from removable media to the network element.

The **Delete Download** menu option allows you to delete an NE generic which was previously downloaded to the network element.

8 In the **Removable Media Device** field, select the type of removable media device from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

9 In the **Remove Hard Disks** field, select Automatic or User Selected. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

10 In the **Copy 0 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

11 In the **Copy 1 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

12 For the 1665 DMX Access Multiplexer family of NEs, Mobility Aggregation and Transport System (MATS) and Metropolis® Enhanced Optical Networking (EON) only, in the **Encryption mode** field, select **Enable** or **Disable** (default).

13 For Metropolis® Wavelength Services Manager (WSM) only, in the **Force settings** field, select **Enable** or **Disable** (default).

14 For 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs only, in the **Instance** field, select **Remote Device** or **Main** (default).

15 In the **Selected NEs** field, select one of the following radio buttons. When downloading the NE generic to the inactive partition, the following options apply:

- **All NEs in Ring** - Type the ring name in the text box or click on the hyperlink to display the Ring Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in Aggregate** - Enter the aggregate name in the text box or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the aggregate you would like to include in your search criteria, and click the **OK** button.
- **NE List** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
  Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

16 For TL1, MATS NEs, when downloading the NE Generic to the inactive partition the following questions will be displayed:

- **Reload if file being transferred is the same as the current inactive release?**
  Note: This option is not applicable for 1671 Service Connect (SC) NEs.
- **Reload if file being transferred is the same as the current active release?**
- **Reload if file being transferred is the older than the current active release?**

Answer **Yes** or **No** (default) as appropriate. When all fields on this page are completed, click the **Submit** button.

Result: A confirmation box is displayed. It asks you to confirm the download of the NE generic from the management system to the NE.

17 Click the **OK** button.

Result: The system initiates the software download from the management system to the NE(s). The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

The following describes Results if there are failures when more than one NE is selected in the **Selected NEs** field:

- If some NEs pass and some NEs fail the management system validations and the user confirms they wish to proceed with the request, any NE which passes all management system validations or which only has warning messages are added to the management system pending queue to be sent to the NE. Any NE which fails the management system validations are not added to the pending queue or sent to the NE.
- NEs with failures occurring in the management system prior to being placed in the management system pending queue do *not* appear in the Job Updates page.
- Failures occurring in the management system for an NE after being placed in the pending queue do appear in the Job Updates page.

END OF STEPS

Task, Method 3: from the Software page

Complete the following steps to download an NE generic from the management system to an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Use the icons of the object links to follow this path: **Network Elements > Software**.

Result: The Software page is displayed.

3 Select **Download NE generic** from the **Software operation** drop down list and click the **Go** button.

Result: The Download NE Generic to NE page is displayed.

4 In the **NE type** field, select the type of NEs to which you wish to download software.

5 For the 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs only, in the **Generic type** field, select the type of generic which will be downloaded to the selected NEs.

6 In the **New release** field, select the NE generic which will be downloaded to the selected NEs.″

7 In the **Upgrade Type** field, select the type of circuit pack from the drop-down list. This option is only applicable for Mobility Aggregation and Transport System (MATS) NEs.

8 In the **Download Operation** field, select one of the download operation from the drop-down list. Options are: **Download**, **Delete Download**. This option is only applicable for 1671 Service Connect (SC) NEs.

The **Download** menu option allows you to specify an NE generic download from removable media to the network element.

The **Delete Download** menu option allows you to delete an NE generic which was previously downloaded to the network element.

9 In the **Removable Media Device** field, select the type of removable media device from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

10 In the **Remove Hard Disks** field, select Automatic or User Selected. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

11 In the **Copy 0 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

12 In the **Copy 1 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

13 For the 1665 DMX Access Multiplexer family of NEs, Mobility Aggregation and Transport System (MATS) and Metropolis® Enhanced Optical Networking (EON) only, in the **Encryption mode** field, select **Enable** or **Disable** (default).

14 For Metropolis® Wavelength Services Manager (WSM) only, in the **Force settings** field, select **Enable** or **Disable** (default).

15 For 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs only, in the **Instance** field, select **Remote Device** or **Main** (default).

16 In the **Selected NEs** field, select one of the following radio buttons:

- **All NEs in Ring** - Type the ring name in the text box or click on the hyperlink to display the Ring Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in Aggregate** - Enter the aggregate name in the text box or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the aggregate you would like to include in your search criteria, and click the **OK** button.
- **NE List** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
  Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

17 For TL1, MATS NEs, when downloading the NE Generic to the inactive partition the following questions will be displayed:

- **Reload if file being transferred is the same as the current inactive release?**
  Note: This option is not applicable for 1671 Service Connect (SC) NEs.
- **Reload if file being transferred is the same as the current active release?**
- **Reload if file being transferred is the older than the current active release?**

Answer **Yes** or **No** (default) as appropriate. When all fields on this page are completed, click the **Submit** button.

18 Click the **OK** button.

Result: The system initiates the software download from the management system to the NE(s). The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

The following describes Results if there are failures when more than one NE is selected in the **Selected NEs** field:

- If some NEs pass and some NEs fail the management system validations and the user confirms they wish to proceed with the request, any NE which passes all management system validations or which only has warning messages are added to the management system pending queue to be sent to the NE. Any NE which fails the management system validations are not added to the pending queue or sent to the NE.
- NEs with failures occurring in the management system prior to being placed in the management system pending queue do *not* appear in the Job Updates page.
- Failures occurring in the management system for an NE after being placed in the pending queue do appear in the Job Updates page.

END OF STEPS

□

Schedule a Download NE Generic to NE

When to use

Use this task to schedule a download NE generic to NE.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)
- “Execution interval” (p. 3-137)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a download NE generic to NE.

1 Do one of the following:

1.

- View a list of NE generics stored on the management system, using the “View a List of NE Generics Stored on the Management System” (p. 3-158) task.
- Click the radio button next to the NE generic to which you want to schedule the software download. From the Go menu, select **Schedule download NE generic to NE** and click the **Go** button. The Schedule download NE generic to NE page is displayed.
- If the selected NE generic is for the 1665 DMX Access Multiplexer family of NEs, in the **NE type** field, select the type of NE to be downloaded.

2.

- View a list of NE generics stored on an NE, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.
- Click the radio button next to the NE to which you want to schedule the software download. From the Go menu, select **Schedule download NE generic to NE** and click the **Go** button. The Schedule download NE generic to NE page is displayed.
- If the selected NE is a 1665 DMXtend Access Multiplexer or 1665 DMX Access Multiplexer only, in the **Generic type** field, select the type of NE generic to be downloaded.
- In the **New release** field, select the NE generic to be downloaded.

3.

- Use the icons or the object links to follow this path: **Tools > Scheduled Tasks**.
- From the Search panel, click the **New** button and select **Download NE generic from MS to NE** from the drop-down list. The Schedule download NE generic to NE page is displayed.
- In the **NE type** field, select the type of NE to which you want to schedule the software.
- If the selected NE is a 1665 DMXtend Access Multiplexer or 1665 DMX Access Multiplexer only, in the **Generic type** field, select the type of NE generic to be downloaded.
- In the **New release** field, select the NE generic to be downloaded.

2 In the **Upgrade type** field, select the type of circuit pack to which you want to download the NE generic on the destination NE from the drop-down list. Options are: **Entire Network Element** (default), **System Controller**, **VLNC40**, **VLNC60**, **VLNC64**.

This field is displayed only for Mobility Aggregation and Transport System (MATS) NEs.

3 In the **Download Operation** field, select one of the download operation from the drop-down list. Options are: **Download**, **Delete Download**. This option is only applicable for 1671 Service Connect (SC) NEs.

The **Download** menu option allows you to specify an NE generic download from removable media to the network element.

The **Delete Download** menu option allows you to delete an NE generic which was previously downloaded to the network element.

4 In the **Removable Media Device** field, select the type of removable media device from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

5 In the **Remove Hard Disks** field, select Automatic or User Selected. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

6 In the **Copy 0 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

7 In the **Copy 1 Disk** field, select one of the options from the drop-down list. This field is only applicable if the **Download** option is selected in the **Download Operation** drop-down list and if **User Selected** is selected in the **Remove Hard Disks** drop-down list. This option is only applicable for 1671 Service Connect (SC) NEs.

8 For the 1665 DMX Access Multiplexer family of NEs, Mobility Aggregation and Transport System (MATS) and Metropolis® Enhanced Optical Networking (EON) only, in the **Encryption mode** field, select **Enable** or **Disable** (default).

9 For Metropolis® Wavelength Services Manager (WSM) only, in the **Force settings** field, select **Enable** or **Disable** (default).

10 For 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs only, in the **Instance** field, select **Remote Device** or **Main** (default).

11 In the **Selected NEs** field, select one of the following radio buttons. When downloading the NE generic to the inactive partition, the following options apply:

- **All NEs in Ring** - Type the ring name in the text box or click on the hyperlink to display the Ring Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in Aggregate** - Enter the aggregate name in the text box or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the aggregate you would like to include in your search criteria, and click the **OK** button.
- **NE List** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
  Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

Note: When selecting a grouping and not an explicit list of NEs, the scheduled task is stored with the grouping and not a list of NEs. The NEs which will be executed as part of the scheduled task is determined at the time the task is initiated.

12 For TL1, MATS NEs, when downloading the NE Generic to the inactive partition the following questions will be displayed:

- **Reload if file being transferred is the same as the current inactive release?** **Note:** This option is not applicable for 1671 Service Connect (SC) NEs.
- **Reload if file being transferred is the same as the current active release?**
- **Reload if file being transferred is the older than the current active release?**

Answer **Yes** or **No** (default) to these fields as appropriate.

13 Click the **Schedule** button.

Result: The Schedule Download NE generic to NE page is displayed.

14 To schedule the frequency, click the calendar icon in the **One time starting on** field.

Result: A Date Chooser pop-up window displays. Select the scheduled start date.

15 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

16 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled task name cannot be modified once the task is created.

17 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours and **Continuous**.

18 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

19 In the **Retry interval** field, select the interval of time that will pass between retries.

20 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

View a List of In-progress Transfers of NE Generics

When to use

Use this task to view a list of in-progress transfers of NE generics.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of in-progress transfers of NE generics.

1 View a list of NE generics stored on the management system, using the "View a List of NE Generics Stored on the Management System" (p. 3-158) task.

Result: The list at the bottom of the Software page is populated with a list of the stored NE generics that meet your search criteria.

2 From the Go menu, select **View In Progress NE Generic Transfers** and click the **Go** button.

Result: The In-Progress NE Generic Transfers search panel is displayed with all NE generic transfers in progress.

3 If you wish to further filter the search results, expand the search form and enter the desired search criteria and click the **Search** button.

Result: The NE generic transfers that match the search criteria are displayed in the Search results table.

END OF STEPS

□

Abort In-progress NE Generic Transfer

When to use

Use this task to abort an in progress NE Generic transfer. In progress transfers include jobs that are in progress at an NE and those in the management system pending queue. Abort of jobs in progress at an NE is supported only for in progress Download from the Management System to an NE and the Copy from NE to NE tasks for 1665 DMX Access Multiplexer family of NEs, Metropolis® Wavelength Services Manager (WSM), Mobility Aggregation and Transport System (MATS) and CMISE NEs only. Abort of jobs in the management system pending queue is supported for all software tasks and all NE types.

There are three methods for this task.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Abort In Progress NE Generic Transfers page” (p. 3-142)

Before you begin

This task does not have any preconditions.

Task, Method 1: from the In-Progress NE Generic Transfers page

Complete the following steps to abort an in-progress NE generic transfer.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of in-progress transfers of NE generics, using the “View a List of In-progress Transfers of NE Generics” (p. 3-180) task.

Result: The In-Progress NE Generic Transfers page is displayed, and includes a list of NE generic transfers that are in-progress.

3 Click the radio button next to the transfer you wish to halt. From the Go menu, select one of the following options: and click the **Go** button. **Note:** depending on the NE type, not all options will be displayed.

- **Abort NE Generic Transfer**
- **Abort All Pending Jobs**

Result: A confirmation box is displayed. It asks you to confirm the halt of the NE generic transfer.

4 Click the **OK** button.

Result: One or more transfers may be halted. For example, if the user picks the Abort all Pending Tasks option, all jobs in the management system pending queue are aborted. This can involve more than one task.

Additionally, the management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

Task, Method 2: from the list of NE generics stored on an NE

Complete the following steps to abort an NE generic transfer.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on an NE, using the "View a List of NE Generics Stored on an NE" (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the NE that meets your search criteria.

3 Click the radio button next to the NE you wish to halt. From the Go menu, select the following option and click the **Go** button.

- **Abort In Progress NE Generic Transfer**

  Result: The Abort In Progress NE Generic Transfer page is displayed. It asks you to confirm the halt of the NE generic transfer.

4 Confirm the halt of the NE generic transfer, and click the **OK** button.

Result: The selected NE transfer is halted. The management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

Task, Method 3: from the Job Status page

Complete the following steps to abort an NE generic transfer.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed.

2 Click the hyperlink for the in progress generic transfer you wish to abort.

Result: The View In Progress NE Generic Transfer Page is displayed.

3 Click the radio button next to the NE for which you wish to halt. From the Go menu, select the following option and click the **Go** button.

- **Abort NE Generic Transfer**

4 Confirm the halt of the NE generic transfer, and click the **OK** button.

Result: The selected NE transfer is halted. The management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

□

View a List of NE Generics Stored on an NE

When to use

Use this task to view a list of NE generics stored on an NE.

Related information

See the following topics:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE generics stored on an NE.

1 Use the icons or the object links to follow this path:

- **Network Elements > Software**

  Result: The search panel of the Software page is displayed.

2 In the **Software type** field, select **NE generic**.

3 In the **Software stored on** field, select **NE**.

4 In the **NE type** field, select the type of NE.

5 In the **NE name** field, select **All** to select all NEs of this type, or select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

6 In the **NE generic partition** field, select the partition from the drop down list. The partition drop down list is used along with the NE generic field to determine which partitions to search for matches of the NE generic. This is an optional field.

7 In the **NE generic Type** field select either the **Release number** or the **Item Code** radio button. This is an optional field. The Item code option is applicable only for CMISE NEs.

8 In the **NE generic** field, click on the hyperlink to select the **Release number** or **Item code** from the NE generic selection pop up window or enter the software version or item code in the text box. This is an optional field. The Item code option is applicable only for CMISE NEs.

9 In the **NE group search** field, select either the **Ring** or the **Aggregate** radio button to search by either a ring name or aggregate name. Depending on this selection the hyperlink below this field will change to either Ring or Aggregate. This is an optional field.

10 Depending on the type of **NE group search** selected in the previous step, type either the aggregate name or the ring name in the text box or click on the hyperlink to display either the Aggregate Selection pop-up window or the Ring Selection pop-up window. After selecting a ring or an aggregate, click the **OK** button. This is an optional field.

11 Click the **Search** button.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the NE.

The following applies to the search results:

- If the search criteria is for a specific NE, the search results table includes matches in both the active and inactive NE partitions.
  If the search criteria is for a 1665 DMX Access Multiplexer or 1665 DMXtend Access Multiplexer NE, the Other partition is also displayed.
  If the search criteria is for 1665 DMX Access Multiplexer R6.0 or 1665 DMXtend Access Multiplexer R4.0, the Previous partition is also displayed, which contains the previously installed NE generic.
- If the search criteria is for 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs, the following four partitions active NE generic, inactive NE generic, active software of the remote devices and inactive software of the remote devices are displayed.

- If the search criteria is for 1671 Service Connect (SC) NEs the active NE generic, the inactive NE generic, and zero, one or two Removable Media partitions are displayed.
- If the search criteria is for a specific NE generic, the list of entries in the search results table include all NEs that contain a partition matching the search criteria, which includes generics found in all active, inactive, other or previous generic partitions.
  Additionally, the list includes all software generics on any NE that has a matching software generic in any partition. For example, if the software generic in the active version of the NE matches the search criteria but the generic in the inactive partition does not, both still appear in the search results table. This means that some rows of the table may have a different release than the selected search criteria.

END OF STEPS

□

Activate an NE Generic on an NE

When to use

Use this task to initiate software activation of the software generic(s) residing in the network element's inactive memory.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to activate an NE generic on an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

1.

- View a list of NE generics stored on NEs, using the "View a List of NE Generics Stored on an NE" (p. 3-185) task. The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.
- Click the radio button next to the NE for which you wish to activate the inactive NE generic. From the Go menu, select **Activate**.

2. From Go menu at the top of the Search panel of the Software page, select **Activate NE Generic**.
3. View a list of NE databases stored on NEs, using the "View a List of NE Database Versions Stored on an NE" (p. 3-237) task. From the Go menu, select **Activate NE Generic and Database**.

Result: The Activate NE Generic page is displayed.

3 In the **NE type** field, select the type of NE. When navigation is from the NE Generic on NE page or the NE Database on NE page, the NE type defaults to the value selected on the respective page.

4 In the **Upgrade Type** field, select the type of circuit pack from the drop-down list. This option is only applicable for Mobility Aggregation and Transport System (MATS) NEs.

5 In the **Selected NEs** field, select one of the following radio buttons. Depending on the NE type, not all fields will be displayed.

- **All NEs in Ring** - Type the ring name in the text box or click the **Ring** hyperlink which will open the Ring Selection pop-up window. Select the ring you wish to include in your selection criteria and click the **OK** button.
- **All NEs in Aggregate** - Type the aggregate name in the text box or click the **Aggregate** hyperlink which opens the Aggregate Selection pop-up window. Select the aggregate you wish to include in your selection criteria and click the **OK** button.
- **NE List for Network Adaptor** - Use the arrow keys to move NEs between the **Available** list and the **Selected** list. The **Available** list can be filtered by selecting a Network Adaptor form the drop-down list. When a Network Adaptor is selected, only network elements in that Network Adaptor are displayed in the **Available** list.

6 For 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs only, in the **Instance** field, select **Remote Device** or **Main** (default).

7 In the **Transform Name** field, select the transform name from the drop-down list.

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

- For the 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs, select the **Smart**, the **Smart with Alarm Override** or the **Forced** radio button.
- For the Metropolis® DMXplore NEs, select either the **Smart** or the **Forced** radio button.
- For CMISE NEs, select either the **MIB clear** or the **No MIB clear** radio button.
- For 1675 Lambda Unite MultiService Switch (MSS) NEs, select either the **Standard** or the **Trial** radio button.

- For LambdaExtreme® Transport NEs, select either the **NE Generic** or the **NE Generic and database** radio button.
- For Mobility Aggregation and Transport System (MATS) NEs, if the Upgrade Type is VLNC40, VLNC60 or VLNC64, select either the **NE Generic** or the **Update Bootcode** radio button.
  If the Upgrade Type is System Controller, select either the **Smart**, **Forced** or **Smart with Alarm Override** radio button.

9 For the 1665 DMX Access Multiplexer and the 1665 DMXtend Access Multiplexer and MATS NEs, in the **Activation Time** field, select either the **Install Now** or the **15 minute Delay** radio button. For MATS NEs, this only applies if Upgrade Type is System Controller.

10 For WaveStar® TDM 10G (STM64) NEs, in the **Install previous** field, select **No** to *exclude* from the installation any NE which has not had an NE Generic downloaded to it since the last installation. Select **Yes** to *include* all NEs in the installation regardless of if the NE has had an NE Generic downloaded to it since the last installation.

11 In the **Activation order** field, select the **System default** radio button to use the default rules for establishing the order of NEs within the grouping, or select the **User defined** radio button to place the NE in the queue using the order defined in the **Selected** NE list. See Step 4.

12 In the **Activate NEs** field, select the **In parallel** radio button to allow all NEs in a grouping to exit the queue at once to perform NE generic activations, or select the **In series** radio button to allow one NE in a grouping to have an NE generic activation in progress at a time.

13 In the **Stop on failure** field select the **Yes** radio button to fail all NE activation requests in the queue when any NE activation in the grouping fails, or select **No** to proceed with NE activation requests for all NEs in the grouping regardless of the activation results of other NEs in the grouping.

14 In the **Continue if the inactive NE generic is the same as the current active NE generic** field, select either the **Yes** or the **No** radio button.

15 In the **Continue if the inactive NE generic is older than the current active NE generic** field, select either the **Yes** or the **No** radio button.

16 Click the **Submit** button.

Result: A confirmation box asks you to confirm the activation process.

17 Click the **OK** button.

Result: The NE generics in the inactive partitions are installed in the active partition and the NE reboots to update the current running version of the software.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

The following describes Results if there are failures when more than one NE is selected in the **Selected NEs** field:

- If some NEs pass and some NEs fail the management system validations and the user confirms they wish to proceed with the request, any NE which passes all management system validations or which only has warning messages are added to the management system pending queue to be sent to the NE. Any NE which fails the management system validations are not added to the pending queue or sent to the NE.
- NEs with failures occurring in the management system prior to being placed in the management system pending queue do *not* appear in the Job Updates page.
- Failures occurring in the management system for an NE after being placed in the pending queue do appear in the Job Updates page.

END OF STEPS

□

Commit an NE Generic on an NE

When to use

Use this task to commit a previously activated software load on the NE.

This task is for Metropolis® Wavelength Services Manager (WSM), 1675 Lambda Unite MultiService Switch (MSS) and 1671 Service Connect (SC) NEs if the NE generic has been previously activated.

For Metropolis® Wavelength Services Manager (WSM) and 1675 Lambda Unite MultiService Switch (MSS) NEs, the commit task copies the active load to the inactive partition, thereby keeping both the active and inactive partitions in sync. For 1671 Service Connect (SC) NEs, the commit task removes the NE generic from the inactive partition.

For 1675 Lambda Unite MultiService Switch (MSS) NEs, only NEs activated in the Trial mode must be committed.

Note: For Metropolis® Wavelength Services Manager (WSM) NEs only, in order to revert the **Download status** must be **Await commit**. To check the **Download status** field, use the Detailed view button.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to activate an NE generic on an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 Click the radio button next to the NE for which you wish to commit the inactive NE generic. Select **Commit NE generic** and select the Go button.

Result: A confirmation box asks you to confirm the commit request.

4 Click the **OK** button.

Result: The NE generic in the active partition is committed to the inactive partitions.

For 1671 Service Connect (SC) NEs, the NE generic is committed and removed from the inactive partition.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

END OF STEPS

□

Revert to an NE Generic on an NE

When to use

Use this task to revert to the inactive software load on the NE. This task replaces the active software load with the previous running NE generic. Software loads that have been previously committed cannot be reverted.

This task is only applicable for Metropolis® Wavelength Services Manager (WSM), 1675 Lambda Unite MultiService Switch (MSS), 1665 DMX Access Multiplexer R6.0 and higher, 1665 DMXtend Access Multiplexer R4.0 and higher, and 1671 Service Connect (SC) NEs.

For 1675 Lambda Unite MultiService Switch (MSS) NEs only NEs activated in Trial mode can be reverted.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Revert NE generics” (p. 3-149)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to revert to an NE generic on an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 Click the radio button next to the NE for which you wish to revert to the inactive NE generic. From the Go menu, select **Revert NE generic** or **Revert NE generic: Install now** and select the Go button.

Note: For Metropolis® Wavelength Services Manager (WSM) NEs only, in order to revert, the **Download status** must be **Await commit**. To check the Download **status**, use the **Detailed view** button.

Result: A confirmation box asks you to confirm the revert process.

4 Click the **OK** button.

Result: The previously installed NE generic is installed in the active partition.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

The management system initiates a full database synchronization after each successful software revert on an NE.

Note: For Metropolis® Wavelength Services Manager (WSM) NEs, after the revert process is complete, it may be necessary to restore the NE database. For more information, see the "Restore an NE Database Version from the Management System to an NE" (p. 3-229) task.

END OF STEPS

□

Restore Out of Service Disks

When to use

Use this task to place out of service disks in service.

This task is only applicable for 1671 Service Connect (SC) NEs.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to place out of service disks in service.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 Click the radio button next to the NE for which you wish to place out of service disks in service. From the Go menu, select **Restore Out of Service Disks** and select the Go button.

Result: A confirmation box asks you to view the Job Updates page for task status.

4 Click the **OK** button.

Result: The system automatically determines which disks are out of service and places the out of service disks in service.

END OF STEPS

□

Schedule NE Generic Activation

When to use

Use this task to schedule a NE generic activation.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)
- “Execution interval” (p. 3-137)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a NE generic activation.

1 Do one of the following:

1.
   - View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.
   - Click the radio button next to the NE you wish to select. From the Go menu, select **Schedule Activate**.

2.
   - Use the icons or the object links to follow this path: **Tools > Scheduled Tasks**.
   - From the Scheduled Tasks page, select the **NE Generic Activation** button.

3. For LambdaXtreme® Transport NEs, from the NE Database on NE page, select **Schedule Activate: NE Generic and Database** from the **Go** menu and select the **Go** button.

   Result: The Schedule Activate NE Generic page is displayed.

2 In the **NE Type** field, select the type of NE. When navigating from the NE Generic on NE page or the NE Database on NE page, the **NE type** is defaulted to the value selected on the respective page.

3 In the **Upgrade Type** field, select the type of circuit pack from the drop-down list. This option is only applicable for Mobility Aggregation and Transport System (MATS) NEs.

4 In the **Selected NEs** field, select one of the following radio buttons. Depending on the NE type, not all fields will be displayed.

- **All NEs in Ring** - Type the ring name in the text box or click the **Ring** hyperlink, which will open the Ring Selection pop-up window. Select the ring you wish to include in your selection criteria and click the **OK** button.
- **All NEs in Aggregate** - Type the aggregate name in the text box or click the **Aggregate** hyperlink, which opens the Aggregate Selection pop-up window. Select the aggregate you wish to include in your selection criteria and click the **OK** button.
- **NE List** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
  Use the arrow keys to move NEs between the **Available** list and the **Selected** list. Note that the order in which the NEs are selected enables you to determine the order in which Activations are performed. This feature is activated by selecting **User defined** in the **Activation order** field.

Note: When selecting a grouping and not an explicit list of NEs, the scheduled task is stored with the grouping and not a list of NEs. The NEs which will be executed as part of the scheduled task is determined at the time the task is initiated.

5 For 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC NEs only, in the **Instance** field, select **Remote Device** or **Main** (default).

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

- For the 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs, select the **Smart**, the **Smart with Alarm Override** or the **Forced** radio button.
- For the Metropolis® DMXplore NEs, select either the **Smart** or the **Forced** radio button.
- For CMISE NEs, select either the **MIB clear** or the **No MIB clear** radio button.
- For 1675 Lambda Unite MultiService Switch (MSS) NEs, select either the **Standard** or the **Trial** radio button.

- For LambdaExtreme® Transport NEs, select either the **NE Generic**, the **NE Generic and database** or the **NE database** radio button.
- For Mobility Aggregation and Transport System (MATS) NEs, if the Upgrade Type is VLNC40, VLNC60 or VLNC64, select either the **NE Generic** or the **Update Bootcode** radio button.
  If the Upgrade Type is System Controller, select either the **Smart**, **Forced** or **Smart with Alarm Override** radio button.

7 In the **Transform Name** field, select the transform name from the drop-down list.

8 For WaveStar® TDM 10G (STM64) NEs, in the **Install previous** field, select **No** to *exclude* from the installation any NE which has not had an NE Generic downloaded to it since the last installation. Select **Yes** to *include* all NEs in the installation regardless of if the NE has had an NE Generic downloaded to it since the last installation.

9 For 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer and MATS NEs only, in the **Activation Time** field select either the **Install Now** or the **15 minute delay** radio button. For MATS NEs, this only applies if Upgrade Type is System Controller.

10 In the **Activation order** field, select the **System default** radio button to use the default rules for establishing the order of NEs within the grouping, or select the **User defined** radio button to place the NE in the queue using the order defined in the **Selected** NE list. See Step 3.

11 In the **Activate NEs** field, select the **In parallel** radio button to allow all NEs in a grouping to exit the queue at once to perform NE generic activations, or select the **In series** radio button to allow one NE in a grouping to have an NE generic activation in progress at a time.

12 In the **Stop on failure** field select the **Yes** radio button to fail all NE activations requests in the queue when any NE activation in the grouping fails, or select **No** to proceed with NE activation requests for all NEs in the grouping regardless of the activation results of other NEs in the grouping.

13 For all NE types, the following questions are displayed. Answer **Yes** or **No** (default) as appropriate:

- **Continue if the inactive NE generic is the same as the current active NE generic?**
- **Continue if the inactive NE generic is older than the current active NE generic?**

14 When all fields on this page are completed, click the **Schedule** button.

Result: The Schedule Activate NE Generic page is displayed.

15 To schedule the frequency, click the calendar icon in the **One time starting on** field.

Result: A Date Chooser pop-up window displays. Select the scheduled start date.

16 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

17 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled Task Name cannot be modified once the scheduled task is created.

18 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

19 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible choices are from **1** to **12** hours and **Continuous**.

20 In the **Retry interval** field, select the interval of time that will pass between retries.

21 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

Copy an NE Generic from NE to NE

When to use

Use this task to copy an NE generic from NE to NE.

This task is supported only for the 1665 DMX Access Multiplexer family of NEs, LambdaExtreme® Transport and Metropolis® Enhanced Optical Networking (EON).

Related information

For information related to the Copy an NE Generic from NE to NE task, see the following topics:

- “Software Management Concepts” (p. 3-132)
- “Manage NE Generics on NEs Concepts” (p. 3-143)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to transfer an NE generic from NE to NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 Click the radio button next to the partition of the NE from which you wish to transfer software. From the Go menu, select **Copy from NE generic to NE** and click the **Go** button.

Result: The Copy from NE generic to NE page is displayed.

4 For 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs only, in the **Destination NE type** field, select the type of NE the generic will be transferred to from the drop down list.

5 To select NEs, use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

6 Click the **Submit** button.

Result: The NE generic is copied from the NE to the specified NE(s).

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log. A separate status is provided for each destination NE in the Job Updates page and User Activity log.

END OF STEPS

□

Schedule a Copy from NE to NE

When to use

Use this task to schedule a copy from NE to NE.

This task is supported only for the 1665 DMX Access Multiplexer family of NEs, LambdaExtreme® Transport and Metropolis® Enhanced Optical Networking (EON).

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)
- “Execution interval” (p. 3-137)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a copy from NE to NE.

1 Do one of the following:

1.

- View a list of NE generics stored on NEs, using the “View a List of NE Generics Stored on an NE” (p. 3-185) task.
- Click the radio button next to the NE you wish to transfer the NE generic from. From the Go menu, select **Schedule copy from NE to NE**.

2.

- Use the icons or the object links to follow this path: **Tools > Scheduled Tasks**.
- From the Scheduled Tasks page, select the **Copy from NE to NE** button.

Result: The Schedule NE Generic from NE to NE page is displayed.

2 Select the **Source NE Type** and **Source NE Name** for the transfer. When navigating from the NE Generic on NE Page, these fields are defaulted to the values selected on the NE Generic on NE Page.

3 For 1665 DMX Access Multiplexer and 1665 DMXtend Access Multiplexer NEs only, perform the following steps:

- In the **Source partition** field, select the source partition. The value of the source partition determines the values of the **Destination NE type** field. When navigating from the NE Generic on NE page, the value is defaulted to the value selected on the NE Generic on NE page.
- In the **Destination NE type** field, select the type of NE the generic will be transferred to from the drop down list.

4 To select NEs, use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

5 Click the **Schedule** button.

Result: The Schedule Copy from NE Generic to NE page is displayed.

6 To schedule the frequency, click the calendar icon in the **One time starting on** field. This is the only scheduling option allowed for this task.

Result: A Date Chooser pop-up window displays. Select the scheduled start date.

7 In the **Scheduled time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

8 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled Task Name cannot be modified once the scheduled task is created.

9 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

10 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible choices are from **1** to **12** hours and **Continuous**.

11 In the **Retry interval** field, select the interval of time that will pass between retries.

12 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

Download an NE Generic from NE to Remote Device

When to use

Use this task to download an NE generic from an NE to one or more Remote Devices. This task is supported only for the 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC family of NEs.

Note: Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this task, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to this release.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

Because each type of NE has individual requirements (hardware and software) and the order in which certain steps must be performed is particular to the NE, the documentation for the NEs should be consulted for software installation and upgrade procedures. For a list of NE documentation, see "List of Supporting NE Documentation" (p. 1-17).

Task

Complete the following steps to download an NE generic from an NE to Remote Device.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the "View a List of NE Generics Stored on an NE" (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 Click the radio button next to the partition of the NE from which you wish to transfer software. From the Go menu, select **Download NE Generic from NE to Remote Device** and click the **Go** button.

Result: The Download NE Generic from NE to Remote Device NE page is displayed.

4 In the **Remote Device Type** field, select the remote device type from the drop-down list.

The Remote Device Types for AM/AMS R6.1 NEs are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function

The Remote Device Types for AMC NEs and AM/AMS NEs with release R7.1 and higher are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function
- Ethernet QD2 NTU with Bridge Function

5 The **Remote Device List** field displays the available remote devices for the selected Remote Device Type. In the Remote Device List field, select the name of the Remote Device from the list or enter a search string in the text box. The first item in the list that matches the search string is highlighted. If the item that matches the search string is not displayed in the list, click the **Find** button to locate the match.

6 To select Remote Devices, use the arrow keys to move Remote Devices between the **Available Remote Devices** list and the **Selected Remote Devices** list.

7 In the **Continuously Monitor Percent Complete** field, select **Yes** or **No** to determine the percentage complete is initially displayed when the Job Updates and View in Progress NE Generic Transfer pages are opened.

If **Yes** is selected the CMISE network adapter periodically queries the NE to obtain ongoing status and displays this information in the Job Updates and View in Progress NE Generic Transfer pages.

If **No** is selected to view a percentage complete the user must select **Update Percentage Complete** from the Go list on the View in Progress NE Generic Transfers page.

Warning: Only a limited number of Downloads from NE to Remote Device can be continuously monitored simultaneously. If too many simultaneous jobs are being monitored the system will stop automatically querying the Network Element and the user must select **Update Percentage Complete** from the Go List on the View in Progress NE Generic Transfers page.

8 Click the **Submit** button to Download NE Generic from NE to the selected Remote Devices.

Result: The NE generic is downloaded from the NE to one or more Remote Devices.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log. A separate status is provided for each destination Remote Device in the Job Updates page and User Activity log.

END OF STEPS

□

Schedule a Download NE Generic from NE to Remote Device

When to use

Use this task to schedule a download NE Generic from an NE to one or more Remote Devices. This task is supported only for the 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC family of NEs.

Note: Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this task, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to this release.

Related information

See the following topics:

- "Software Management Concepts" (p. 3-132)
- "Scheduled Tasks Concepts" (p. 7-39)
- "Execution interval" (p. 3-137)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a download NE Generic from NE to Remote Device.

1 Do one of the following:

- From the NE Generics on NE search results page, select **Schedule Download NE Generic from NE to Remote Device**. When navigating from the NE Generic on NE search page, the **Source NE Type** and **Source NE Name** are defaulted to the value selected on the NE Generic on NE page.
- From the Schedule Tasks search page, select **Schedule Download NE Generic from NE to Remote Device**. The Schedule Download NE Generic from NE to Remote Device page is displayed. In the **NE type** field, select the type of NE to schedule the download NE Generic from the NE to Remote Device. In the **NE name** field, select the NE to schedule the download NE Generic from the NE to Remote Device.

Result: The Schedule Download NE Generic from NE to Remote Device page is displayed.

2 In the **Remote Device Type** field, select the remote device type from the drop-down list.

The Remote Device Types for AM/AMS R6.1 NEs are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function

The Remote Device Types for AMC NEs and AM/AMS NEs with release R7.1 and higher are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function
- Ethernet QD2 NTU with Bridge Function

3 The **Remote Device List** field displays the available remote devices for the selected Remote Device Type. In the Remote Device List field, select the name of the Remote Device from the list or enter a search string in the text box. The first item in the list that matches the search string is highlighted. If the item that matches the search string is not displayed in the list, click the **Find** button to locate the match.

4 To select Remote Devices, use the arrow keys to move Remote Devices between the **Available Remote Devices** list and the **Selected Remote Devices** list.

5 In the **Continuously Monitor Percent Complete** field, select **Yes** or **No** to determine the percentage complete is initially displayed when the Job Updates and View in Progress NE Generic Transfer pages are opened.

If **Yes** is selected the CMISE network adapter periodically queries the NE to obtain ongoing status and displays this information in the Job Updates and View in Progress NE Generic Transfer pages.

If **No** is selected to view a percentage complete the user must select **Update Percentage Complete** from the Go list on the View in Progress NE Generic Transfers page.

Warning: Only a limited number of Downloads from NE to Remote Device can be continuously monitored simultaneously. If too many simultaneous jobs are being monitored the system will stop automatically querying the Network Element and the user must select **Update Percentage Complete** from the Go List on the View in Progress NE Generic Transfers page.

6 Click the **Schedule** button.

Result: The Add Scheduled Download from NE to Remote Device Task page is displayed.

7 To schedule the frequency, click the calendar icon in the **One time starting on** field.

Result: A Date Chooser pop-up window displays. Select the scheduled start date.

8 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

9 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled task name cannot be modified once the task is created.

10 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours and **Continuous**.

11 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

12 In the **Retry interval** field, select the interval of time that will pass between retries.

13 Click the **submit** button.

Result: The scheduled task is added.

END OF STEPS

□

Activate Remote Device

When to use

Use this task to initiate software activation of the one or more of an Network Elements remote devices. This task is supported only for the 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1645 AMC family of NEs.

Note: Each release of OMS supports certain NEs. Supported NEs for this release are listed in the "Summary of supported NEs" (p. 1-9). In this task, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to this release.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to activate the software on the Remote Devices.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE generics stored on NEs, using the "View a List of NE Generics Stored on an NE" (p. 3-185) task.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on NEs that meet your search criteria.

3 From the NE Generics on NE search results page, select **Activate to Remote Device**.

Result: The Activate to Remote Device page is displayed.

4 In the **Remote Device Type** field, select the remote device type from the drop-down list.

The Remote Device Types for AM/AMS R6.1 NEs are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function

The Remote Device Types for AMC NEs and AM/AMS NEs with release R7.1 and higher are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function
- Ethernet QD2 NTU with Bridge Function

5 The **Remote Device List** field displays the available remote devices for the selected Remote Device Type. In the Remote Device List field, select the name of the Remote Device from the list or enter a search string in the text box. The first item in the list that matches the search string is highlighted. If the item that matches the search string is not displayed in the list, click the **Find** button to locate the match.

6 To select Remote Devices, use the arrow keys to move Remote Devices between the **Available Remote Devices** list and the **Selected Remote Devices** list.

7 Click the **Submit** button to Activate the selected Remote Device(s).

Result: The Remote Device(s) are activated.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log. A separate status is provided for each destination Remote Device in the Job Updates page and User Activity log.

END OF STEPS

□

Schedule Remote Device Activation

When to use

Use this task to schedule the software activation of the one or more of an Network Elements Remote Devices.

Note: Each release of OMS supports certain NEs. Supported NEs for this release are listed in the “Summary of supported NEs” (p. 1-9). In this task, any information about NEs other than those listed in this table applies to previous releases of the management system and is not applicable to this release.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)
- “Execution interval” (p. 3-137)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a NE Generic activation.

1 Do one of the following:

- From the NE Generics on NE search results page, select **Schedule Download NE Generic from NE to Remote Device**. When navigating from the NE Generic on NE search page, the **Source NE Type** and **Source NE Name** are defaulted to the value selected on the NE Generic on NE page.
- From the Schedule Tasks search page, select **Schedule Download NE Generic from NE to Remote Device**. The Schedule Download NE Generic from NE to Remote Device page is displayed. In the **NE type** field, select the type of NE to schedule the download NE Generic from the NE to Remote Device. In the **NE name** field, select the NE to schedule the download NE Generic from the NE to Remote Device.

  Result: The Schedule Activate Remote Device page is displayed.

2 In the **NE Type** field, select the type of NE.

3 In the **Source NE Name** field, select the Source NE Name from the drop-down list. When the navigation is from the NE Generic on NE search page, the Schedule Remote Device page defaults the value selected on the respective page.

4 In the **Remote Device Type** field, select the remote device type from the drop-down list.

The Remote Device Types for AM/AMS R6.1 NEs are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function

The Remote Device Types for AMC NEs and AM/AMS NEs with release R7.1 and higher are:

- 2 MBit/s QD2 NTU
- QD2 SRU
- Ethernet QD2 NTU without Bridge Function
- Ethernet QD2 NTU with Bridge Function

5 The **Remote Device List** field displays the available remote devices for the selected Remote Device Type. In the Remote Device List field, select the name of the Remote Device from the list or enter a search string in the text box. The first item in the list that matches the search string is highlighted. If the item that matches the search string is not displayed in the list, click the **Find** button to locate the match.

6 To select Remote Devices, use the arrow keys to move Remote Devices between the **Available Remote Devices** list and the **Selected Remote Devices** list.

7 Click the **Schedule** button.

Result: The Schedule Remote Device Activation page is displayed.

8 To schedule the frequency, click the calendar icon in the **One time starting on** field.

Result: A Date Chooser pop-up window displays. Select the scheduled start date.

9 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

10 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled task name cannot be modified once the task is created.

11 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours and **Continuous**.

12 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

13 In the **Retry interval** field, select the interval of time that will pass between retries.

14 Click the **submit** button.

Result: The scheduled task is added.

END OF STEPS

□

View a List of NE Database Versions Stored on the Management System

When to use

Use this task to view a list of NE database versions stored on the management system.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE database versions stored on the management system.

1 Use the icons or the object links to follow this path:

- **Network Elements > Software**

  Result: The search panel of the Software page is displayed.

2 In the **Software type** field, select **NE database**.

3 In the **Software stored on** field, select **Management system**.

4 In the **NE type** field, select the type of NE or the value **All**.

5 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. This is an optional field.

6 In the **NE generic partition** field, select the partition from the drop-down list. This is an optional field.

The **NE generic partition** drop down list is used along with the **NE generic** field to determine which partitions to search for matches of the NE generic. It allows the user to find NE database files (i.e. backups) for a specific NE grouping based on the NE generic. For example, if the user is going to activate all DMX NEs with R5.2.1 in the inactive partition, the user might wish to verify there is a good backup for all these NEs. The user could then search by NE Memory on the Management System using the **NE generic partition** value of Inactive and the **NE generic** of R5.2.1.

7 In the **NE generic type** field select either the **Release number** or the **Item Code** radio button. This is an optional field.

Important! The Item Code radio button is only applicable for CMISE NEs.

8 In the **NE generic** field, click on the hyperlink to select the **Release number** or **Item code** from the NE generic selection pop up window or enter the software version or item code in the text box. This is an optional field. **Note:** Item code is for CMISE NEs only.

9 In the **NE group search** field, select either the **Ring**, **Aggregate** or **NCG** radio button to search by either a ring name, aggregate name or NCG. Depending on this selection the hyperlink below this field will change to either **Ring**, **Aggregate** or **NCG**. This is an optional field.

10 Depending on the type of **NE group search** selected in the previous step, type either the ring name, aggregate name or the NCG name in the text box or click on the hyperlink to display either the Ring Selection pop-up window, the Aggregate Selection pop-up window or the NCG Selection pop-up window. After selecting a ring, aggregate or NCG, click the **OK** button. This is an optional field.

11 In the **Backup File Type** field, select the type of backup. Options are: **All**, **System Controller**, **VLNC40**, **VLNC60**, **VLNC64**. This field is only displayed if the user has selected an NEs type of MATS.

12 In the **Backup Status** field, select the backup status from the drop-down list. This is an optional field.

13 In the **Date and Time** field click the calendar icon and select the backup date and time from DateTime Chooser pop-up window. This is an optional field.

14 Click the **Search** button.

Result: The list at the bottom of the Software page is populated with a list of the NE database versions stored on the management system that meet your search criteria.

END OF STEPS

□

Backup NE Database Versions onto the Management System

When to use

Use this task to backup NE database versions onto the management system.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to backup NE database versions to the management system.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

1.
   - View a list of NE database versions stored on the management system, using the “View a List of NE Database Versions Stored on the Management System” (p. 3-219) task.
   - Select the **New** button from the Search Results toolbar.

2.
   - View a list of NE database versions stored on an NE, using the “View a List of NE Database Versions Stored on an NE” (p. 3-237) task.
   - From the Go menu, select **Backup to Management System** and click the **Go** button.

3. From the Go menu on the top of the Software page Search panel, select **Backup from NE** and click the Go button.

Result: The Backup to Management System page is displayed.

3 In the **Selected NEs** field, select one of the following radio buttons. Depending on the NE type, not all fields will be displayed.

- **All NEs in the Network** - Select the radio button.
- **All NEs of type in the network** - Select the radio button and select the NE type from the drop down list.
- **All NEs in Aggregate** - Select the radio button and type the name of the aggregate in the text box, or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in NCG** - Select the radio button and type the name of the NCG in the text box, or click on the hyperlink to display the Network communication group selection pop-up window. Select the NCG you would like to include in your search criteria, and click the **OK** button.
- **NE list for NE type** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. Select the radio button to update the NEs displayed in the selection list. Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

4 In the **Backup Type** field, select the type of circuit packs you wish to backup. Options are: **Entire Network Element**, **System Controller**, **VLNC40**, **VLNC60**, **VLNC64**. This field is only displayed if the value for Selected NEs is **All NEs of NE Type MATS** or **NE List for NE Type MATS**.

5 In the **Backup if status for NE has not changed since the last backup** field, select either the **Yes** or **No** radio button. This field is for TL1 and Mobility Aggregation and Transport System (MATS) NEs only.

Note: This option is not applicable for 1671 Service Connect (SC) NEs.

6 Click the **Submit** button.

Result: A confirmation message is display to confirm the backup.

7 Click the **OK** button.

Result: The selected NE database version(s) is/are transferred to the management system. As the files are transferring, the management system notes the percentage of the transfer that has completed in the Job Updates panel, and logs this activity in the User Activity Log.

The following describes Results if there are failures when more than one NE is selected in the **Selected NEs** field:

- If some NEs pass and some NEs fail the management system validations and the user confirms they wish to proceed with the request, any NE which passes all management system validations or which only has warning messages are added to the management system pending queue to be sent to the NE. Any NE which fails the management system validations are not added to the pending queue or sent to the NE.
- NEs with failures occurring in the management system prior to being placed in the management system pending queue do *not* appear in the Job Updates page.
- Failures occurring in the management system for an NE after being placed in the pending queue do appear in the Job Updates page.

END OF STEPS

□

Schedule a Backup NE Database Version onto the Management System

When to use

Use this task to schedule a backup NE database version to the management system.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a backup for an NE database version.

1 Do one of the following:

1.

- View a list of NE database versions stored on the management system, using the “View a List of NE Database Versions Stored on the Management System” (p. 3-219) task.
- Select the **Schedule Backup to Management System** from the Go menu, and click the **Go** button.

2.

- View a list of NE database versions stored on an NE, using the “View a List of NE Database Versions Stored on an NE” (p. 3-237) task.
- From the Go menu, select **Schedule Backup to Management System** and click the **Go** button.

3.

- Use the icons or the object links to follow this path: **Tools > Scheduled Tasks**
- From the Search panel or the Search results toolbar, click the **New** button.
- Select **Backup from NE** from the displayed menu.

Result: The Schedule Backup to Management system page is displayed.

2 In the **Selected NEs** field, select one of the following radio buttons. Depending on the NE type, not all fields will be displayed.

- **All NEs in the Network** - Select the radio button.
- **All NEs of type in the network** - Select the radio button and select the NE type from the drop down list.
- **All NEs in Aggregate** - Select the radio button and type the name of the aggregate in the text box, or click on the hyperlink to display the Aggregate Selection pop-up window. Select the radio button next to the ring you would like to include in your search criteria, and click the **OK** button.
- **All NEs in NCG** - Select the radio button and type the name of the NCG in the text box, or click on the hyperlink to display the Network communication group selection pop-up window. Select the NCG you would like to include in your search criteria, and click the **OK** button.
- **NE list for NE type** - Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. Select the radio button to update the NEs displayed in the selection list. Use the arrow keys to move NEs between the **Available NEs** list and the **Selected NEs** list.

Note: When selecting a grouping and not an explicit list of NEs, the scheduled task is stored with the grouping and not a list of NEs. The NEs which will be executed as part of the scheduled task is determined at the time the task is initiated. For a periodic task this means that the NEs that are backed up could be different each time the scheduled task is performed.

3 In the **Backup Type** field, select the type of circuit packs you wish to backup. Options are: **Entire Network Element**, **System Controller**, **VLNC40**, **VLNC60**, **VLNC64**. This field is only displayed if the value for Selected NEs is **All NEs of NE Type MATS** or **NE List for NE Type MATS**.

4 In the **Backup if status for NE has not changed since the last backup** field, select either the **Yes** or **No** radio button. This field is for TL1 and Mobility Aggregation and Transport System (MATS) NEs only.

Note: This option is not applicable for 1671 Service Connect (SC) NEs.

5 Click the **Schedule** button.

Result: The Schedule Backup to Management system page is displayed.

6 To schedule the frequency, select one of the following and click the calendar icon in the row. If necessary also select the **Ending** criteria.

- **Daily starting on**
- **Every N days** - additionally select a number of days in the **Every** field. Possible values are 2-6 days.
- **Weekly starting on**
- **Once every month starting on**

Result: A Date/Time Chooser pop-up window displays. Select the scheduled start date or end date to set up a periodic schedule.

7 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

8 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. The Scheduled task name cannot be modified once the Scheduled task is created.

9 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

10 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours or **Continuous**.

11 In the **Retry interval** field, select the interval of time that will pass between retries.

12 Click the **Submit** button.

Result: The scheduled task is added.

Note: When executing a scheduled periodic backup, if the previous scheduled task is still processing, when the period expires and the scheduled backup should be initiated again, the management system denies the request and fails the scheduled backup for all NEs. No retries apply for this type of failure.

END OF STEPS

□

Restore an NE Database Version from the Management System to an NE

When to use

Use this task to restore an NE database version on the management system (also known as a backup file) to an NE.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task, Method 1: From the list of NE database versions on the management system

Complete the following steps to restore an NE database version from the management system to an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE database versions stored on the management system, using the “View a List of NE Database Versions Stored on the Management System” (p. 3-219) task.

Result: The list at the bottom of the Software page is populated with a list of the NE database versions stored on the management system that meet your search criteria.

3 Click the radio button next to the NE database version that you wish to restore to an NE. From the Go menu, select **Restore to NE** or **Restore to NE: Force** and click the **Go** button.

- The **Restore to NE** option restores a backup file stored on the management system on the NE. For all NEs except for LambdaXtreme® Transport and 1671 Service Connect (SC), this option causes the restored database to be activated on the NE. For LambdaXtreme® Transport and 1671 Service Connect (SC), the restored database is placed in the inactive partition.
- The **Restore to NE: Force** option allows the restore even if the backup date/time or the maintenance revision of the backup file do not match the values on the network element. This option is only valid for 1671 Service Connect (SC) NEs.

For LambdaExtreme® Transport and 1671 Service Connect (SC) NEs, you may also select **Restore to and activate** or **Restore to and activate: Force** to restore a backup file stored on the management system on the NE, then initiate a swap between the database in the active and inactive directories.

- The **Restore to NE and activate** option allows the user to restore a backup file stored on the management system on the NE, then initiate a swap between the databases in the active and inactive directories.
- The **Restore to NE and activate: Forced** option allows the restore even if the backup date/time or the maintenance revision of the backup file do not match the values on the network element. This option is only applicable for 1671 Service Connect (SC) NEs.

Result: A pop-up window is displayed that contains a confirmation message.

4 Confirm that you want to perform the restoration.

Result: The restore is initiated. The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log. See the NE documentation to determine if a reboot or service interruption will occur on the NE.

END OF STEPS

Task, Method 2: From the list of NE database versions on the NE

Complete the following steps to restore an NE database version from the management system.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE database versions stored on an NE, using the "View a List of NE Database Versions Stored on an NE" (p. 3-237) task.

Result: The list at the bottom of the Software page is populated with a list of the NE database versions stored on an NE that meet your search criteria.

3 Click the radio button next to the NE for which you want to restore the database version. From the **Go** menu, select **Restore from management system** or **Restore from management system: Force** and click the **Go** button.

- The **Restore from management system** allows the user to copy an NE database backup file stored on the management system and restore it on the NE. This option opens the Restore NE Database from Management System page. For all NEs except LambdaXtreme® Transport and 1671 Service Connect (SC), this options causes the restored database to be activated on the NE. For LambdaXtreme® Transport and 1671 Service Connect (SC), the restored database is placed in the inactive partition.
- The **Restore from management system: Force** option allows the restore even if the backup date/time or the maintenance revision of the backup file do not match the values on the network element. This option is only applicable for 1671 Service Connect (SC) NEs.

For LambdaExtreme® Transport and 1671 Service Connect (SC) NEs, you may also select **Restore from management system and activate** or **Restore from management system and activate: Force** option to copy a backup file stored on the management system and restore it on the NE, and then initiate a swap between the databases in the active and inactive directories.

- The **Restore from management system and activate** option allows the user to copy a backup file stored on the management system and restore it on the NE, and then initiate a swap between the databases in the active and inactive directories.
- The **Restore from management system and activate: Forced** option allows the restore even if the backup date/time or the maintenance revision of the backup file do not match the values on the network element. This option is only applicable for 1671 Service Connect (SC) NEs.

Result: The Restore NE Database from Management System page is displayed. This page shows a list of all database versions (backup files) stored on the management system for the selected NE.

4 Select a value for the **Overwrite Standby Partition** field. A value of **Yes** will overwrite any database version currently in the standby partition (a database version which has been previously restored and not activated). This option is only applicable for 1671 Service Connect (SC) NEs.

5 Select the database version (backup file) to be restored and click the **Submit** button.

Result: The restore is initiated. The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log. See the NE documentation to determine if a reboot or service interruption will occur on the NE.

END OF STEPS

□

View a List of In-progress NE Database Transfers

When to use

Use this task to view a list of in-progress NE database transfers.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of in-progress transfers of NE databases.

1 View a list of NE databases stored on the NE, using the "View a List of NE Database Versions Stored on the Management System" (p. 3-219) task.

Result: The list at the bottom of the Software page is populated with a list of the stored NE database that meet your search criteria.

2 From the Go menu, select **View In Progress NE Database Transfers** and click the **Go** button.

Result: The In-Progress NE Database Transfers search panel is displayed with all NE database transfer in progress.

3 If you wish to further filter the search results, enter the desired search criteria and click the **Search** button.

Result: The NE database transfers that match the search criteria are displayed in the Search results table.

END OF STEPS

□

Abort In-progress NE Database Transfer

When to use

Use this task to abort an in-progress NE Database Transfer for the selected NE.

There are three methods for this task.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

Before you begin this task, open the Job Updates page to view the status of the task. To open the Job Updates page, from the My Network menu, select **Job Updates**.

Task, Method 1: From the In Progress NE Database Transfers page

Complete the following steps to abort an NE database transfer.

1. View a list of in progress NE database transfers, using the "View a List of In-progress NE Database Transfers" (p. 3-233) task.

   Result: The In-Progress NE Database Transfers page is displayed, and includes a list of NE database transfers that are in-progress.

2. Click the radio button next to the NE that is performing the transfer you wish to halt. From the Go menu, select one of the following database transfers and click the **Go** button.

   - **Abort NE Database Transfer**
   - **Abort All Pending Jobs**

   Result: A confirmation box asks you to confirm the abort process.

3. Click the **OK** button.

   Result: The selected NE database transfer is halted.

   One or more transfers may be halted. For example, if the user picks the Abort all Pending Tasks option, all jobs in the management system pending queue are aborted. This can involve more than one task.

Additionally, the management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

Task, Method 2: from the Job Updates page

Complete the following steps to abort an in-progress database transfer.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Click the hyperlink for the in-progress NE database transfer you wish to abort.

Result: The View In Progress NE Database Transfer Page is displayed.

3 Click the radio button next to the NE that is performing the transfer you wish to halt. From the Go menu, select the following option and click the **Go** button.

- **Abort NE Database Transfer**

4 Click the **OK** button.

Result: The selected NE database transfer is halted.

The management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

Task, Method 3: From the list of NE database stored on an NE

Complete the following steps to abort an NE database transfer.

1 View a list of NE database stored on an NE, using the "View a List of NE Database Versions Stored on an NE" (p. 3-237) task.

Result: The list at the bottom of the Software page is populated with a list of the NE database versions stored on the NE that meets you search criteria.

2 Click the radio button next to the NE to which you wish to abort the in progress database transfer. From the Go menu, select **Abort In-Progress NE Database Transfer** and click the **Go** button.

Result: The Abort In-Progress NE Database Transfers page is displayed for the selected in-progress NE database transfer.

3 Click the **OK** button.

Result: The selected NE database transfer is halted.

The management system notes the progress of two tasks in the Job Updates panel. The original transfer task is marked as failed, and the abort task is marked as success. The management system logs these activities in the User Activity Log.

END OF STEPS

□

View a List of NE Database Versions Stored on an NE

When to use

Use this task to view a list of NE database versions stored on an NE.

Related information

See the following topic:

- "Software Management Concepts" (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE database versions stored on an NE.

1 Use the icons or the object links to follow this path:

- **Network Elements > Software**

  Result: The search panel of the Software page is displayed.

2 In the **Software type** field, select **NE database**.

3 In the **Software stored on** field, select **NE**.

4 In the **NE type** field, select the type of NE.

5 In the **NE name** field, select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.

6 Click the **Search** button.

Result: The list at the bottom of the Software page is populated with a list of the NE generics stored on the management system that meet your search criteria.

END OF STEPS

□

Activate NE Database

When to use

Use this task to activate NE database.

This task is supported only for LambdaExtreme® Transport and 1671 Service Connect (SC) NEs.

Related information

See the following topic:

- “Software Management Concepts” (p. 3-132)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to activate an NE database on an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 View a list of NE database versions stored on NEs, using the “View a List of NE Database Versions Stored on an NE” (p. 3-237) task.

Result: The list at the bottom of the Software page is populated with a list of the NE database version stored on NEs that meet your search criteria.

3 Click the radio button next to the NE for which you wish to activate the inactive NE database. From the Go menu, select **Activate: NE database** or **Activate NE database: Forced** and click the **Go** button.

- The **Activate: NE database** option initiates a swap between the databases in the active and inactive directories. This option is only applicable for LambdaXtreme® Transport and 1671 Service Connect (SC) NEs only.
- The **Activate NE database: Forced** option allows the activation even if there is a mismatch of the database NE Name or the database release of the inactive partition or if the database being restored has not had any facility provisioning. This option is only applicable for 1671 Service Connect (SC) NEs.

Result: A confirmation box asks you to confirm the activation process.

4 Click the **OK** button.

Result: The NE generic in the inactive partition is installed in the active partition and the NE reboots to update the current running version of the software.

The management system notes the progress of the operation in the Job Updates panel, and logs this activity in the User Activity Log.

END OF STEPS

□

Schedule NE Database Activation

When to use

Use this task to schedule a NE database activation.

This task is supported only for LambdaExtreme® Transport and 1671 Service Connect (SC) NEs.

Related information

See the following topics:

- “Software Management Concepts” (p. 3-132)
- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule a NE database activation.

1 Do one of the following:

1.

- “View a List of NE Database Versions Stored on an NE” (p. 3-237) as described in an earlier task. The list at the bottom of the Software page is populated with a list of NE database versions that meet your search criteria.
- Click the radio button next to the NE for which you wish to schedule activation of the inactive NE database. From the Go menu, select **Schedule activate: NE database** or **Schedule activate NE database: Forced** and click the **Go** button.

  The **Schedule activate NE database** option allows the user to schedule a swap between the databases in the active and inactive directories. This option is only applicable for LambdaXtreme® Transport and 1671 Service Connect (SC) NEs only.

The **Schedule activate NE database: Force** option allows the activation even if there is a mismatch of the database NE Name or the database release of the inactive partition or if the database being restored has not had any facility provisioning. This option is only applicable for 1671 Service Connect (SC) NEs.

2.

- Use the icons or the object links to follow this path: **Tools > Scheduled Tasks**
- From the Search panel or the Search results toolbar, click the **New** button and the **Activate NE Database** option from the sub-menu.

Result: The Schedule Activate NE Database page is displayed.

2 In the **NE type** field, select the type of NE or the value **All**.

3 In the **NE name** field, select the NE name for which you wish to activate the database.

4 In the **Activation Type** field, select the appropriate activation type from the drop-down menu. Options are: **Standard** or **Forced**. This field is only applicable for 1671 Service Connect (SC) NEs.

5 Click the **Schedule** button.

Result: The Schedule Activate NE Database page is displayed. It is pre-populated with read-only information about the selected NE database activation.

6 To schedule the frequency, click the calendar icon in the **One time starting on** field. This is the only scheduling option allowed for this task.

Result: A Date/Time Chooser pop-up window displays. Select the scheduled start date.

7 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

8 In the **Scheduled task name** field, enter a user defined name for the scheduled task or allow the system to generate a default value. **Note:** The Scheduled task name cannot be modified once the schedule task is created.

9 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours or **Continuous**.

10 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries**, or **1, 2 ,3, or 4** retries.

11 In the **Retry interval** field, select the interval of time that will pass between retries.

12 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

4 NE Management Functions for TL1 NEs

Overview

Purpose

This chapter discusses the NE Management Function feature for provisioning TL1 NEs.

Contents

NE Management Functions Concepts for TL1 NEs

Overview

This section contains conceptual information about the NE Management Functions feature for TL1 NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The NE Management Functions feature allows the user to fully manage all aspects of individual TL1 NEs in the network by executing a comprehensive set of “functions” on a target TL1 NE. The set of functions offers complete coverage of all management functions applicable to a TL1 NE.

This feature differs from the features offered by the other pages in the Network Elements section of the management system. The other features in the Network Elements section of the management system offer network-level control of NEs in the network, but they do not support all management functions applicable to the NE. The NE Management Functions feature provides full management functionality, but at the element management level , through a user-friendly interface which executes commands to the TL1 NE. The user does not need to know the native command language of the NEs being managed.

Any user with access to the NE Management Functions page can send any command, however there are no levels of access to groupings of commands. Access to this page should be given out with caution, since it gives the user full control over TL1 NEs.

Important! The behavior of this feature is not the same for CMISE NEs and TL1 NEs. The behaviors for managing CMISE are described later in the Chapter 5, “NE Management Functions for CMISE NEs”.

Categories and functions for TL1 NEs

Many management functions can be performed on TL1 NEs. The functions are organized into categories to help the user “drill down” to the function they wish to perform.

The categories of functions supported for TL1 NEs supported by the management system are:

- Alarm Severity Assignment Profiles
- Alarms and Events
- Cross-connections
- Data Communications Networks
- Equipment

- Ethernet Cross Connection
- Ethernet Virtual Switches
- External Control and Monitoring Points
- Logs
- Network
- Network Elements
- ONNS
- Optical Channel Connection
- Performance Data
- Ports
- Protection Groups
- Software
- Spanning Tree Groups
- TCA Profiles
- Test Connections
- Timing References
- Users
- All

Each of these categories represents a group of functions that relate to an object within an NE that is managed, such as a protection group. The functions within each category allow you to execute actions on these objects. Common functions include add a new, modify an existing, retrieve or delete an existing object.

Indirectly managed NEs and NE Management Functions for TL1 NEs

The NE Management Functions feature for indirectly managed TL1 NEs is supported by GUI cut-through to the TL1 Cut-Through feature of the WaveStar® ITM-SC. For more information about indirectly managed NEs, see "Indirectly Managed NEs" (p. 1-13).

Supporting NE documentation

For TL1 NEs, the purpose of the NE Management Functions page is to provide a user-friendly interface to help a management system user manage NEs by using TL1 commands. In addition to this Provisioning Guide, the user must also have on-hand the set of documentation that supports the NE. From the NE documentation, the user can find critical information necessary to manage TL1 NEs, such as prerequisites, sequence of steps, and the particular NE's TL1 command set.

For a list of supporting NE documentation for the supported TL1 NEs, see "List of Supporting NE Documentation" (p. 1-17).

How NE Management Functions Work for TL1 NEs

Overview

This section describes how the NE Management Functions feature works for TL1 NEs.

Feature overview

The NE Management Functions feature puts a forms-based interface in front of the native command/response language for TL1 NEs. The feature enables the user to provision NEs using a forms based interface that constructs TL1 commands, and provides the NE responses to the constructed TL1 commands.

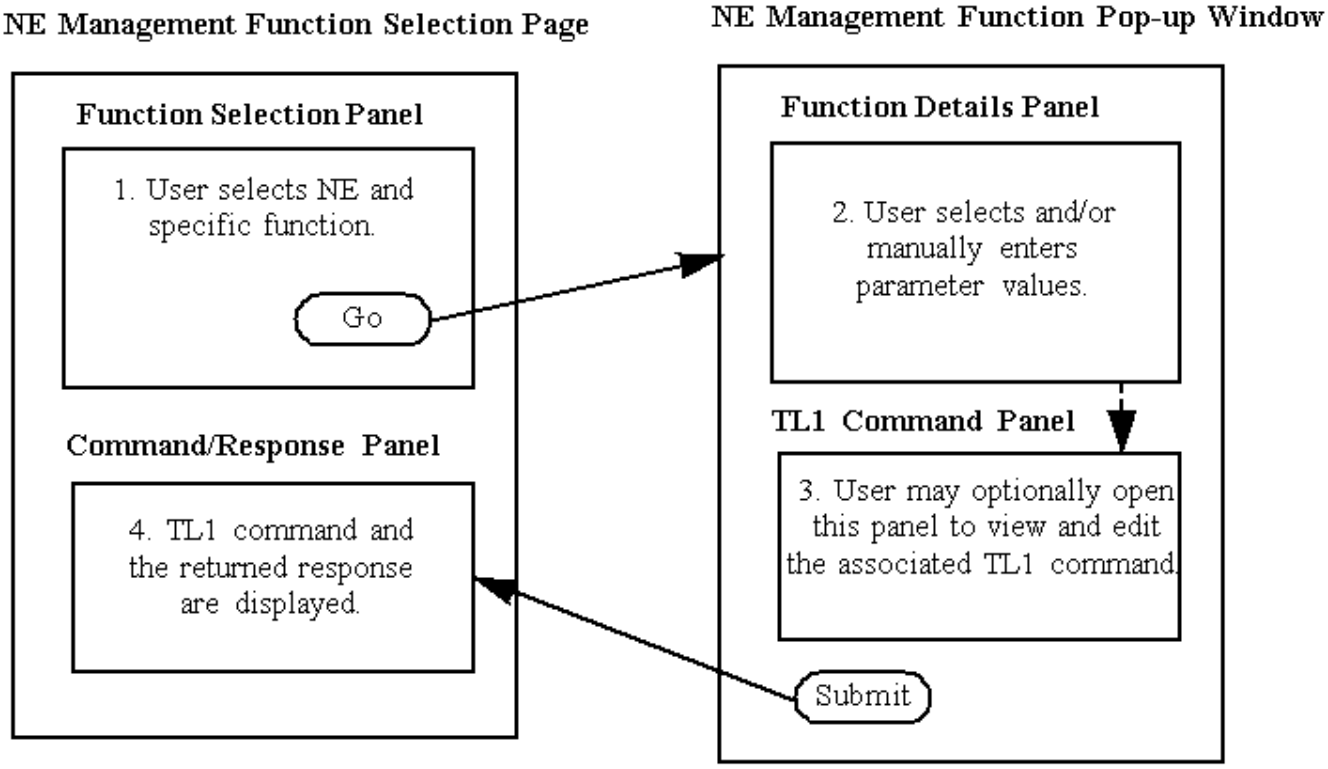
TL1 commands have a simple and consistent structure, and usually have a one to one correspondence with specific NE management functions. For example, provision a port or operate a protection switch. The NE Management Functions feature takes advantage of the one to one correlation between NE management functions and the TL1 commands and presents a menu and forms based interface for executing NE management functions, without necessarily being an expert with the TL1 command, the command structure, or the corresponding parameters of the command.

Feature workflow

The NE Management Functions feature uses a page and a pop up window to perform specific element layer management functions as follows:

- The NE Management Functions page is used to select the specific NE and the desired management function. This page also displays the results of the executed management function.
- A pop up window (form) is used to enter details for executing the selected management function.

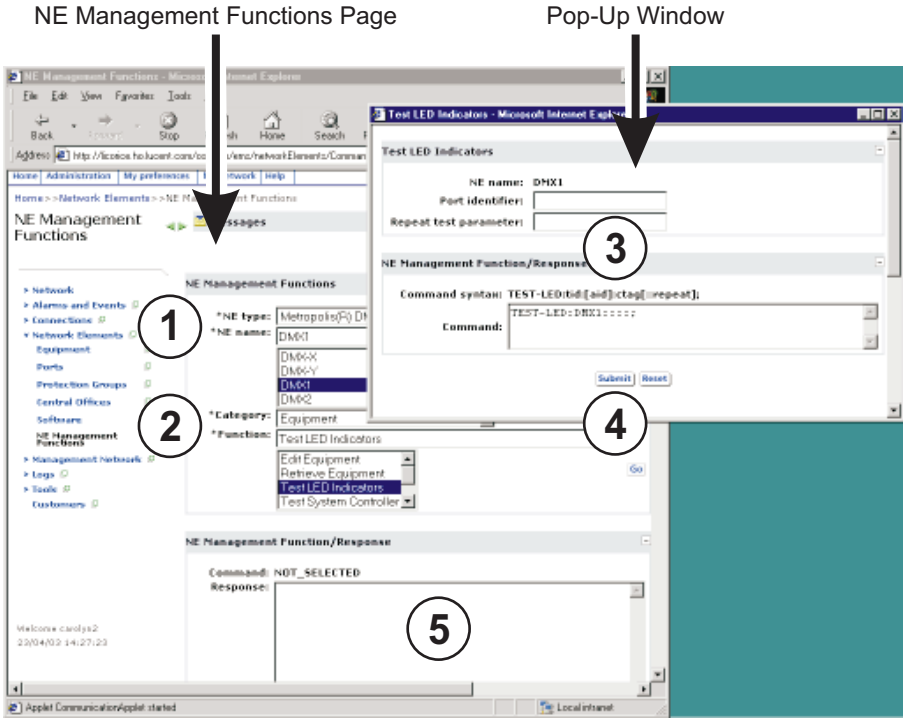
The following figure illustrates the NE Management Functions workflow for TL1 NEs using the page and pop-up window described above.



Management system process overview

The NE Management feature is accessed from the NE Management Functions page. When a TL1 NE and the desired category and management function is selected, this page produces a pop-up window (form) that is used to enter details of the function.

The following figure shows the NE Management Functions page and the pop-up window. It is labeled with numbers that correspond to the steps in the process described below.



The following table describes the process used to execute a function on an NE:

Step Number	Step	Example
1	Select the target NE.	Select NE type **1665 DMX Access Multiplexer** and NE name **DMX1**.
2	Select the category and function to be executed on the target NE. A pop-up window (form) for that function is displayed.	Select category **Equipment** and function **Test LED Indicators**. Click **Go**.
3	Use the pop-up window to select and enter the details associated with the function. *Optional for expert users only.* The NE Command panel may be used to edit the native command language of the function.	Enter the port identifier and repeat test parameter.
4	Send the function to the NE.	Click **Submit**.
5	Observe the response from the NE on the NE Management Functions page.	Observe the response that indicates that the operation is completed.

NE Management Functions page

The NE Management page has two panels:

- The top panel is used to select a target NE, and to select the category and function of the TL1 command that will be performed on that NE.
- The bottom panel is where the system response to the submitted function is displayed. If the function that was sent was to retrieve a current configuration of an NE, the configuration is displayed in this panel. If the function that was sent executed a provisioning action, a success or failure message is displayed on this panel.

Pop-up window

The pop-up window is used to enter the details of the function that is sent to the NE. This involves selecting values for the parameters that are a part of the selected function. When the function is complete, the user selects **Submit** to send the function to the target NE. The management system does not validate the function before it is sent.

Regular users vs. expert users

Regular users of the management system are not required to know the native command set of NEs in the network. Users who are knowledgeable about the native command set are considered to be expert users.

Regular users should use the top panel of the pop-up window to create a function and send it to the target NE.

Expert users can also use the NE Command panel, located on the bottom of the pop up window, which displays the function in the native command language of the target NE. This command language is the same command set that is used to send commands from the CIT.

The NE Command panel includes a field where an expert can edit the native command language of the command. Use of this field is not necessary or generally recommended.

The text in this panel is refreshed every time a selection is made in the pop up window panel above it. As values for the parameters of the function are selected or changed in the fields on the pop up window, the corresponding command displayed in the NE Command panel changes.

> **Important!** Note that every time a selection is made in the top panel of the pop-up window, the command displayed in the NE Command panel is overwritten and any edits previously made in the NE Command panel are lost. For this reason, expert users should complete their work in the top panel before making edits in the NE Command panel. A user editing in the NE Command panel can return to an unedited version of the command by making a selection in the top panel.

Field help

The fields on the pop-up window are supported with field help that will help you make correct entries in the fields. There are two types of fields on the pop-up window.

- Some fields include a drop-down list that shows the valid choices.
- The remaining fields require the user to enter text. A click in this field brings up a panel of field help that describes the contents of a valid entry.

NE provisioning work flow

The typical NE provisioning work flow is to use two tasks to execute a function on an NE, executed in order:

1. Display/view the current provisioned configuration and/or state of an NE. For more information see the "View the Current Configuration and/or State of an NE (TL1 NEs)" (p. 4-9) task.
2. If a change is needed, a function is executed to cause a configuration change. For more information see the "Provision a Configuration Change or Execute an Action (TL1 NEs)" (p. 4-11) task.

Supported network-element-level functionality

For TL1 NEs, the NE Management Functions features allow a user to control some of the functionality that can be controlled via the CIT using the TL1 command language.

Note: The following TL1 commands are not supported via the NE Management Functions page:

- **RTRV-AO** - retrieves one or more TL1 message that had been autonomously reported by the NE.
- **ACT-USER** - opens a login into a NE. Since the management system automatically maintains login with the NEs, this command is not supported.
- **CANC-USER** - closes a login into a NE. Since the management system automatically maintains login with the NEs, this command is not supported.

□

View the Current Configuration and/or State of an NE (TL1 NEs)

When to use

Use this task to execute a management function to view the current configuration and/or state of a TL1 NE.

Related information

For information related to the View the Current Configuration and/or State of an NE task, see the following topics:

- "NE Management Functions Concepts for TL1 NEs" (p. 4-2)
- "How NE Management Functions Work for TL1 NEs" (p. 4-4)
- "Overview" (p. 1-17)

Important! This task is supported only for TL1 NEs.

Before you begin

This task has no preconditions.

Task

Complete the following steps to view the current configuration and/or state of a TL1 NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Complete the following steps to select a function to be sent to the target NE.

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select the category of the function to be viewed.
4. In the **Function** field, select the function to be viewed.
5. Click the **Go** button.

   Result: A pop-up window is displayed for the selected function.

3 To specify the parameters for the function, make selections in the fields on this page.

Optional for expert users only. The NE Command panel may be used to edit the native command language of the function.

4 Click the **Submit** button.

Result: The pop-up window remains open.

5 In the NE Management Function/Response panel, observe the response to the requested function.

Result: If the command was successful, the current configuration and/or state of the selected object is displayed. If the command was not successful, a failure message is displayed.

END OF STEPS

□

Provision a Configuration Change or Execute an Action (TL1 NEs)

When to use

Use this task to provision a configuration change or execute an action on a TL1 NE.

Related information

For information related to the Provision a Configuration Change or Execute an Action (TL1 NEs) task, see the following topics:

- “NE Management Functions Concepts for TL1 NEs” (p. 4-2)
- “How NE Management Functions Work for TL1 NEs” (p. 4-4)
- “Overview” (p. 1-17)

Important! This task is supported only for TL1 NEs.

Before you begin

This task has no preconditions.

Task

Complete the following steps to provision a configuration change or execute an action upon a TL1 NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Complete the following steps to select a function to be sent to the target NE.

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select the category of the function to be performed.
4. In the **Function** field, select the function to be performed.
5. Click the **Go** button.

   Result: A pop-up window is displayed for the selected function.

3 To provision the parameters for the function, make selections and entries in the fields on this page.

Optional for expert users only. The NE Command panel may be used to edit the native command language of the function.

4 Click the **Submit** button.

Result: The pop-up window remains open.

5 In the NE Management Function/Response panel, observe the response to the requested function.

Result: If the command was successful, a success message is displayed. If the command was not successful, a failure message is displayed.

END OF STEPS

□

5 NE Management Functions for CMISE NEs

Overview

Purpose

This chapter discusses the NE Management Function feature for provisioning CMISE NEs.

Contents

Section I: NE Management Functions Overview (CMISE NEs)

Overview

Purpose

This section discusses the NE Management Functions overview for CMISE NEs.

Contents

NE Management Functions Concepts for CMISE NEs

Overview

This section contains conceptual information about the NE Management Functions feature. This information is meant to complement the tasks presented later in this section.

Functionality description

The NE Management Functions feature allows the user to fully manage all aspects of individual NEs in the network. This feature allows a user to execute a comprehensive set of “functions” on a target NE. The set of functions offers complete coverage of all management functions applicable to an NE.

This feature differs from the features offered by the other pages in the Network Elements section of the management system. The other features in the Network Elements section of the management system offer network-level control of NEs in the network, but they do not support all management functions applicable to the NE. The NE Management Functions feature provides full management functionality, but at the element management level.

This feature offers a user-friendly interface to the management functions of an NE. The user does not need to know the native command language of the NEs being managed.

Any user with access to the NE Management Functions page can send any command. There are not levels of access to groupings of commands. Access to this page should be given out with caution, since it gives the user full control over the NEs.

> **Important!** The behavior of this feature is not the same for CMISE NEs and TL1 NEs. The differing behaviors are described later in this chapter and in the Chapter 4, “NE Management Functions for TL1 NEs”.

Indirectly managed NEs and NE Management Functions for CMISE NEs

The NE Management Functions feature for indirectly managed TL1 NEs is supported by GUI cut-through to the TL1 Cut-Through feature of the Optical EMS. For more information about indirectly managed NEs, see “Indirectly Managed NEs” (p. 1-13).

Note for SLM Regenerator 4 and SLM Regenerator 16

SLM Regenerator NEs are reported as neighbors by Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs. If these NEs report the SLM Regenerator NE is managed by WaveStar® ITM-SC, the SLM Regenerator NE will be an indirectly managed NE. If these NEs report the SLM Regenerator NE is managed by a CMISE network adapter, the SLM Regenerator NE will be a directly managed NE. The CMISE network adapter however, does not directly connect to the SLM Regenerator NE and the level of support for a directly managed SLM Regenerator NE is equivalent to that

provided for an indirectly managed SLM Regenerator NE. The only difference between an indirectly managed and a directly managed SLM Regenerator NE is that cut-through to the WaveStar® ITM-SC controller is provided for indirectly managed NEs and the NE Management Functions (for CMISE NEs) is provided for directly managed NEs.

□

How NE Management Functions Works for CMISE NEs

Overview

This section describes how the NE Management Functions feature works for CMISE NEs.

Process overview

The NE Management feature is accessed from the NE Management Functions page. When a CMISE NE is selected, this page leads you to other pages that allow you to provision network-element level functionality from the management system. The subsequent pages work in a manner that is similar to the other pages of the management system.

NE Management Functions page

The NE Management page has two panels:

- The top panel is used to select a target NE, and to select the category and function that will be performed on that NE. When you click on the **Go** button, a page is displayed that is used to configure the details of the function and to send the function to the NE.
- The bottom panel is not used for CMISE NEs and should be disregarded.

Categories and functions for CMISE NEs

Many management functions can be performed on CMISE NEs. The functions are organized into categories to help the user “drill down” to the function they wish to perform.

The categories of functions supported for CMISE NEs supported by the management system are:

- Alarm Severity Assignment Profiles
- Alarms and Events
- Cross-connections
- Data Communications Networks
- Data Service
- Equipment
- External Control and Monitoring Points
- Ports
- Protection Groups
- SHDSL Service
- Performance Monitoring Ports and TCA Profiles and TCA Profiles

- Timing References
- Users

Each of these categories represents a group of functions that relate to an object within an NE that is managed, such as a protection group. The functions within each category allow you to execute actions on these objects. Common functions include add a new, modify an existing, or delete an existing object.

Supported network-element-level functionality

For CMISE NEs, the NE Management Functions feature allows a user to control the functionality described in the remainder of this chapter.

□

Section II: Alarm Severity Assignment Profiles

Overview

Purpose

This section discusses provisioning Alarm Severity Assignment Profiles for CMISE NEs using the NE Management Functions feature.

This section describes two independent sets of screens:

- NE Event Parameters
- Alarm Severity Assignment Profiles

The Alarm Severity Assignment Profiles is supported for the following NEs:

- WaveStar ADM16/1 R9.0 onwards
- Metropolis® ADM (Compact) R6.0 onwards
- 1643 Access Multiplexer (AM)/1643 Access Multiplexer Small (AMS) R7.2 onwards
- 1663 Add Drop Multiplexer-universal (ADMu) R5.2 onwards
- 1655 Access Multiplexer Universal R4.1 onwards
- 1645 Access Multiplexer Compact (AMC) R8.0 onwards

The NE Even Paramters is supported for CMISE NEs and NE releases.

Contents

Alarm Severity Assignment Profiles Concepts

Overview

This section contains conceptual information about provisioning NE alarm severity assignment profiles for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Alarm severity assignment profile category enable the user to perform the following function:

- Retrieve and set event parameters - the user can view and modify event parameters.
- Retrieve and set ASAP parameters - the user can view and modify ASAP parameters. If the selected NE does not support NE Event Parameters then a link to the ASAP Assignment page is displayed.

Alarm severity assignment profile

The alarms and messages convey the urgency of the event to the user by means of severities. There are different levels of severity, which can be defined by the management system user for both the management system generated alarms or for the individual NEs.

Modifiable parameters

The alarm severity assignment profile parameters that can be modified are:

- **Alarm severity** - Indicates the importance of an alarm. Setting this field automatically sets reporting to “on”. Possible values are:
  - **Prompt** - Maintenance required immediately.
  - **Deferred** - Maintenance required, but may be postponed.
  - **Information** - Maintenance not required.
  - **Set reporting off** - turns off alarm severity profile reporting
- **MDO ID** - The identity of the Miscellaneous Discrete Output (MDO) which is activated at the NE if the NE event is detected. The parameters that can be modified are:
  - **Set MDO id to not applicable**
  - **Set MDO id to 1**
  - **Set MDO id to 2**
  - **Set MDO id to 3**
  - **Set MDO id to 4**
  - **Reset to factory defaults**

View a List of NE Event Parameters

When to use

Use this task to view a list of alarm severity assignment profiles.

Related information

See the following topic:

- “Alarm Severity Assignment Profiles Concepts” (p. 5-14)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of alarm severity assignment profiles.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
3. In the **Category** field, select **Alarm Severity Assignment Profiles**.
4. In the **Function** field, select **Retrieve/Set Event Parameters**.
5. Click the **Go** button.

Result: The Alarm Severity Assignment Profiles page is displayed. It includes a list of alarm severity assignment profiles for an NE.

END OF STEPS

□

Modify NE Event Parameters

When to use

Use this task to modify an alarm severity assignment profile.

Related information

See the following topic:

- “Alarm Severity Assignment Profiles Concepts” (p. 5-14)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an alarm severity assignment profile.

1 View a list of alarm severity assignment profiles using the “View a List of NE Event Parameters” (p. 5-15) task.

Result: The Alarm Severity Assignment Profiles page is displayed and includes a list of alarm severity assignment profiles for the NE.

2 The **Event Type** column of the table lists the names of the alarm severity assignment profiles. Click the radio button next to the alarm severity assignment profile you wish to modify.

3 From the Go menu, select one of the following actions:

- **Set Severity to Prompt** (also sets reporting on)
- **Set Severity to Deferred** (also sets reporting on)
- **Set Severity to Information** (also sets reporting on)
- **Set Reporting Off**
- **Set Reporting On**
- **Set MDO Id to Not Applicable**
- **Set MDO ID to 1, 2, 3, or 4**
- **Reset to Factory Defaults**

Result: The alarm severity assignment profile is modified.

END OF STEPS

□

Alarm Severity Assignment Profile Assignment

When to use

Use this task to view a list of alarm severity assignment profile assignment.

Related information

See the following topic:

- “Alarm Severity Assignment Profiles Concepts” (p. 5-14)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of alarm severity assignment profile.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go**button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
3. In the **Category** field, select **Alarm Severity Assignment Profiles**.

4. In the **Function** field, select **Retrieve/Set Alarm Severity Assignment Profile Assignment**.
5. Click the **Go** button.

   Result: The Alarm Severity Assignment Profile Assignment page is displayed. It includes a list of alarm severity assignment profile assignment for an NE.

3 Make selections in the following fields in the search panel:

- In the **NE type** field, select the NE type from the drop-down list.
- In the **NE name** field, select the NE name from the drop-down list.
- In the **View** field, select the radio button **NE resource** or **ASAP**. The default value is **ASAP**.
  Note: Depending upon the view selection, the parameter list is displayed.
- In the **ASAP group** field, select the ASAP group from the drop-down list. This field is only displayed for ASAP view.
- In the **ASAP name** field, select the ASAP name from the drop-down list. This field is only displayed for ASAP view.
- In the **NE resource type** field, select the NE resource type from the drop-down list.
- In the **Slot** field, select the slot from the drop-down list.
- In the **NE resource name** field, enter the NE resource name.

4 Click the **Search** button.

Result: The list at the bottom of the Alarm Severity Assignment Profile Assignment page is populated with a list of the alarm severity assignment profile assignment that meet your search criteria.

5 Do the following in the **Go** list options:

- Select **Modify NE resources assigned to selected ASAP** to modify the NE resource for the selected ASAP.
- Select **Modify ASAP assigned to selected resources** to modify the ASAP for the selected NE resources.

END OF STEPS

□

Modify Alarm Severity Assignment Profile Assignment

When to use

Use this task to modify an alarm severity assignment profile.

Related information

See the following topic:

- “Alarm Severity Assignment Profiles Concepts” (p. 5-14)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an alarm severity assignment profile.

1 View a list of alarm severity assignment profile assignment using the “Alarm Severity Assignment Profile Assignment” (p. 5-19) task.

Result: The Alarm Severity Assignment Profile Assignment page is displayed and includes a list of alarm severity assignment profile Assignment for the NE.

2 From the Alarm Severity Assignment Profile Assignment Go menu, Select **Modify ASAP assignment** and click the **Go** button.

Result: The Modify alarm severity assignment profile assignment page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The alarm severity assignment profile assignment is modified.

END OF STEPS

□

Section III: Alarms and Events

Overview

Purpose

This section discusses alarms and events for CMISE NEs using the NE Management Functions feature.

Contents

Alarms and Events Concepts

Overview

This section contains conceptual information about monitoring alarms and events for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Alarms and Events category enable the user to perform the following functions:

- Retrieve and set event controls - the user can view and modify event controls, such as suppressing station alarms, and changing station alarm raise/clear hold off settings.
- Retrieve and set SLM regenerator spans attached to Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 ports.

SLM regenerator spans

An SLM regenerator span has the following topology:

SLM regenerators are not directly managed. An alarm from the regenerator may go to the head NE, or the tail NE, or both head and tail NEs depending on the alarm. It follows that the controller may be advised of the alarm once, or twice, if the both head and tail NE are managed by the controller. The number of regenerators in a span is reported by the head and tail NEs. This number is reported by the controller.

SLM regenerator span fault reporting

The management system is used to enable / disable fault reporting for an SLM regenerator span. The management system can also provision head / tail for an SLM regenerator span only if Regenerator Span Fault Reporting is enabled.

When the regenerator alarm is forwarded to the management system, the regenerator span name and location number is included. The location numbers are sequential values from 1, the head is identified by address zero.

There are two levels of Regenerator alarm reporting.

- **Basic** - The regenerator alarm has no additional locate information, and only a sub-set of the possible probable causes.
- **Enhanced** - The regenerator alarm has additional locate information (slot and line), together with a full range of reported probable causes.

All regenerators, and the head/tail NEs support the same levels of alarms; either Basic or Enhanced. If there are inconsistencies in the span, the level will be reported as **Inconsistent**. If for some reason the level cannot be determined, the level will be reported as **Unknown**. The controller reports whether Basic or Enhanced alarming is being performed.

The Regenerator can communicate its alarms to the head/tail NE via:

- the RSOH F1 byte (for basic regenerator alarms)
- the RSOH DCC using basic protocol (for basic regenerator alarms)
- the RSOH DCC using enhanced protocol (for enhanced regenerator alarms)

MDIs for SLM regenerator spans

MDI related string provisioning should be the same for all regenerators in the span.

□

Modify NE Event Controls

When to use

Use this task to modify NE event controls.

Related information

See the following topic:

- “Alarms and Events Concepts” (p. 5-23)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify NE event controls.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Alarms and Events**.

4. In the **Function** field, select **Retrieve/Set Event Control Information**.
5. Click the **Go** button.

   Result: The Modify NE page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

The fields on this page vary based on the selected NE. See your NE documentation for definitions of the fields.

4 Click the **Submit** button.

Result: The event control is modified.

END OF STEPS

□

View SLM Regenerator Spans

When to use

Use this task to view a list of SLM regenerator spans attached to all ports on selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Related information

See the following topic:

- “Alarms and Events Concepts” (p. 5-23)

Important! This task is supported only for Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of SLM regenerator spans attached to all ports on a selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Complete the following steps to select a function to be sent to the target NE.

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Alarms and Events**.
4. In the **Function** field, select **Retrieve/Set SLM Regenerator Spans**.
5. Click the **Go** button.

   Result: The SLM Regenerator Spans page is displayed. It includes a list of SLM regenerator spans attached to all ports on a selected WaveStar® ADM 16/1 NE.

END OF STEPS

□

Modify SLM Regenerator Spans

When to use

Use this task to modify parameters on SLM regenerator spans attached to all ports on selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

The following parameters can be modified:

- Enable or disable fault reporting
- Provision head or tail NEs

Related information

See the following topic:

- “Alarms and Events Concepts” (p. 5-23)

  Important! This task is supported only for SLM regenerator spans attached to all ports on selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify SLM regenerator spans attached to all ports on selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

1 View a list of SLM regenerator spans by using the “View SLM Regenerator Spans” (p. 5-27) task.

  Result: The SLM Regenerator Spans page is displayed. It includes a list of Regenerator Spans on the NE.

2 Click the radio button next to the regenerator span you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

  Result: The Modify Regenerator Spans page is displayed.

3 In the **Fault reporting** field, select **Enabled** or **Disabled**.

Result: If **Disabled** is selected, you will not be able to provision the head or tail NE in the next field.

4 In the **Head/Tail configuration** field, select **Head** or **Tail** in order to distinguish one end of the regenerator span from another.

Note: This field is not available if **Fault reporting** is **Disabled** in the previous field.

Result: The head or tail end is provisioned.

5 Click the **Submit** button.

Result: The regenerator span is modified.

END OF STEPS

□

View SLM Regenerator Span MDIs

When to use

Use this task to view SLM regenerator span MDIs for a selected SLM regenerator span attached to a port on selected Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Related information

See the following topic:

- "Alarms and Events Concepts" (p. 5-23)

Important! This task is supported only for Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view SLM regenerator span MDIs Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

1 View a list of SLM regenerator spans by using the "View SLM Regenerator Spans" (p. 5-27) task.

Result: The SLM Regenerator Spans page is displayed. It includes a list of Regenerator Spans on the NE.

2 Click the radio button next to the regenerator span for which you wish to view MDIs. From the Go menu, select **MDIs** and click the **Go** button.

Result: The Regenerator Span MDIs page is displayed.

END OF STEPS

□

Modify a SLM Regenerator Span MDI

When to use

Use this task to modify a SLM regenerator span miscellaneous discrete input (MDI) for Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Related information

See the following topic:

- "Alarms and Events Concepts" (p. 5-23)

Important! This task is supported only for Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a SLM regenerator span MDI for Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs.

1 View a list of SLM regenerator span MDIs using the "View SLM Regenerator Span MDIs" (p. 5-31) task.

Result: The SLM Regenerator Span MDIs page is displayed. It includes a list of SLM regenerator MDIs on the NE.

2 Click the radio button next to the MDI you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify SLM Regenerator MDI page is displayed.

3 Enter a new name in the **MDI Name** field.

4 Click the **Submit** button.

Result: The SLM regenerator span MDI is modified.

END OF STEPS

□

Section IV: Cross-connections

Overview

Purpose

This section discusses cross-connections for CMISE NEs using the NE Management Functions feature.

Contents

Cross-connection Concepts

Overview

This section contains conceptual information about provisioning cross-connections for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Cross-connections category enable the user to perform the following function:

- Retrieve and set cross connections - the user can view the list of currently provisioned cross-connections for NEs. Additionally, cross-connections can be added and deleted.
- Cascaded cross connections - the user can view the list of DNI cross-connection for the selected NEs. Additionally, cross-connection protection can be added and deleted. You can cascade SNC protection.
- DNI cross connection - the user can view the list of DNI cross-connection for the selected NEs. Additionally, DNI cross-connection can be added and deleted.

  Important! Cross-connections may also be managed via the management system. For more information see the OMS Connection Management Guide.

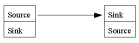
Types of cross-connections

Both unidirectional and bidirectional cross-connections are supported for CMISE NEs.

Unidirectional cross-connections

Unidirectional cross-connections are supported at all VC-n levels. The following figures illustrate the types of unidirectional connections supported by the management system.

1. The cross-connection is made between the source and sink of different termination points as illustrated below:

2. The cross-connection is made between the source and the sink of the same termination point. This is known as **cross-connect-loopback**.

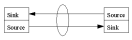
3. The cross connection is made between one source and multiple sink termination point. This is known as **Unidirectional Point to Multipoint - Broadcast**. A maximum of ten broadcast unidirectional connections from one source TP are allowed.

Bidirectional cross-connections

The following bidirectional cross-connections are supported:

- Bidirectional connections - Both legs of a bidirectional cross-connection are coupled to a pair. It is not possible to disconnect only one direction.



- 1:2 broadcast cross-connections - The bidirectional cross-connection consists of one bidirectional and one unidirectional cross-connection.

PDH cross-connection levels

The PDH cards that are supported provide fixed VCs as follows:

- 1.5 MBit/s - 63 * VC-11s mapped into a substructured VC-4
- 2MBit/s - 63 * VC-12s mapped into a substructured VC-4
- 34MBit/s - 3 *VC-3s mapped into a substructured VC-4
- 45MBit/s - 3 * VC-3s mapped into a substructured VC-4.
- 140MBit/s - 1 * VC-4 mapped into an unsubstructured VC-4.

Note: VC11 - DS11 signals (VC11) are mapped to TU12 and are treated as VC12 for cross connections.

The following table lists the applicable PDH signal rates for CMISE NEs.

Signal Rate	1.5 MBit/s	2 MBit/s	34 MBit/s	45 MBit/s	140 MBit/s
1643 Access Multiplexer Small (AMS)	Y	Y	Y	Y	N
1643 Access Multiplexer (AM)	Y	Y	Y	Y	N
1655 Access Multiplexer Universal (AMU)	Y	Y	Y	Y	N
1645 Access Multiplexer Compact (AMC)	Y	Y	Y	Y	N

Signal Rate	1.5 MBit/s	2 MBit/s	34 MBit/s	45 MBit/s	140 MBit/s
Metropolis® ADM MultiService Mux (Compact Shelf)	Y	Y	Y	Y	N
1663 Add Drop Multiplexer-universal (ADMu)	Y	Y	Y	Y	N
WaveStar® ADM 16/1	Y	Y	Y	Y	Y

SDH cross-connection levels

The supported SDH cards provide administrative units (AUs), which are sub-structured for lower connectivity levels.

- **STM-0** - The STM-0 card contains 12 STM-0 ports. The 12 STM-0 signals from these ports map into 4 VC-4s and therefore 4 STM-1 signals. The mapping of three of these STM-0 signals into an STM-1 signal, is implemented as follows : Each STM-0 signal contains an AU-3, which in turn contains a VC-3. Three of these VC-3s can be mapped into three TU-3s and these three TU-3s can then be mapped into an AU-4 and finally an STM-1 signal.
- **STM-1** - An AU-4 is substructured into a combination of the lower TU-3, TU-2 or TU-12 connectivity levels which are compliant with ITU-T recommendation G.707.
- **STM1** - Three AU-3 that hold 3 * TU-3s. These TU-3s are mapped into a VC-4 for cross-connecting.
- **STM- 4** - Four AU-4s are substructured into a combination of the lower TU-3, TU-2 or TU-12 connectivity levels which are compliant with ITU-T recommendation G.707.
- **STM-16** - Sixteen AU-4s are substructured into a combination of the lower TU-3, TU-2 or TU-12 connectivity levels which are compliant with ITU-T recommendation G.707.
- **STM-64** - Sixty four AU-4s are substructured into a combination of the lower TU-3, TU-2 or TU-12 connectivity levels which are compliant with ITU-T recommendation G.707.

The following table lists the applicable SDH signal rates for CMISE NEs.

Signal Rate	STM-0	STM-1 (AU-3)	STM-1 (AU-4)	STM-4	STM-16	STM-64
1643 Access Multiplexer Small (AMS)	N	N	Y	N	N	N
1643 Access Multiplexer (AM)	N	N	Y	Y	N	N
1655 Access Multiplexer Universal (AMU)	N	N	Y	Y	N	N
Metropolis® ADM MultiService Mux (Compact Shelf)	N	Y	Y	Y	Y	N
1663 Add Drop Multiplexer-universal (ADMu)	N	Y	Y	Y	Y	Y
WaveStar® ADM 16/1	Y	Y	Y	Y	Y	N
1645 Access Multiplexer Compact (AMC)	N	N	Y	Y	N	N

AU-4 concatenation

Concatenation provides a mechanism for transporting payloads greater than the capacity of a single VC-4. The management system supports a concatenation of 4 contiguous AU-4s, called AU-4-4c and a concatenation of 16 contiguous AU-4s, called AU-4-16c. The user must establish a group of four (sixteen) AU4 TPs together before creating an AU4-4c (AU4-16c) cross-connection. Subnetwork Connection Protection (SNCP) of AU-4-4c (AU4-16c) is only possible by first having a bidirectional AU4-4c (AU4-16c) cross-connection in place, and having an available termination point group for protection traffic.

□

View Cross-connections (CMISE NEs)

When to use

Use this task to view a list of cross-connections on the selected CMISE NE.

Related information

See the following topic:

- “Cross-connection Concepts” (p. 5-34)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view cross-connections for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go**button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Cross-connections**.

4. In the **Function** field, select **Retrieve/Set Cross-connections**.
5. Click the **Go** button.

   Result: The Cross-connections page is displayed.

3 Do the following in the Search panel:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name**field, select the NE name from the drop-down list.
3. In the **Shelf** field, select the name of the shelf from the drop-down list.
4. In the **Stot** field, select the name of the slot from the drop-down list.
5. In the **High order TP** field, select the high order transmission point of the working leg of the cross connection for TP from the drop-down list.
6. In the **Cross-connection type** field, select the cross connection type. Choices are: **SNC**, **Cascading** and **DNI**.
7. In the **Cross-connection rate** field, select the capacity of the cross connection to be displayed. Choices are: All, VC4-16c, VC4-4c, VC-4, LO-VC-3, and VC-12.
8. Click the **Search** button.

   Result: The list at the bottom of the Cross connection page is populated with a list of cross-connection list that meet your search criteria.

4 The following fields are displayed in the cross connection panel:

1. The **Rate**field displays the capacity of the cross connection.
2. The **From port Id 1** displays the termination point of the working leg of the cross connection for the TP1.
3. The **To port Id 1** displays the termination point of the working leg of the cross connection for TPs.
4. The **From port Id 2** displays the protection port ID 2.
5. The **Switch mode** displays the protection switch mode of a protected cross connection.
6. The **Direction** indicates the direction of the cross connection. Choices are: **Undirectional** or **Bidirectional**.
7. The **Low Priority** indicates whether “Low Priority Traffic” is being carried or not. Low Priority Traffic is any traffic which involves the pre-emptible timeslots in an MS-SPRing protection group.
8. The **Fixed** indicates if the cross connection is fixed by the NE.
9. The **Loopback** indicates the loopback state of the cross connection.

5 Do the following in the **Go** list options:

- Select **Delete** to delete a cross connection file.
- Select **Delete protection** to delete the protection from the selected cross-connection file.
- Select **Add virtual point** to add a virtual point to the selected cross-connection file.
- Select **Delete virtual point** to delete the virtual point from the selected cross-connection file.
- Select **Add/Modify protection** to modify the selected cross-connection file.
- Select **From Port Id 1 details** to open the Logical Port page for the From Port Id 1.
- Select **To Port Id 1 details** to open the Logical Port page for the To Port Id 1.
- Select **From Port Id 2 details** to open the Logical Port page for the From Port Id 2.
- Select **SNC Protection** to add SNC protection to the selected protected cross-connection file.
- Select **Cascading SNC Protection** to add Cascading SNC protection to the selected cross-connection file.

END OF STEPS

□

Add a Cross-connection (CMISE NE)

When to use

Use this task to add an equipment protection group for a CMISE NE.

Related information

For information related to the Add a Cross-connection task, see the following topics:

- "Protection Group Concepts" (p. 3-100)
- "Cross-connection Concepts" (p. 5-34)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add a cross-connection for a CMISE NE.

1 View a list of cross-connections using the "View Cross-connections (CMISE NEs)" (p. 5-38) task.

Important! For creating a new DNI cross-connection, select the DNI option as the cross-connection type in the search panel before clicking the **New** icon.

Result: The Cross-connections page is displayed. It includes a list of cross-connections for the selected CMISE NE.

2 Click on the **New** tool in the search panel.

Result: The Add Cross-connections page is displayed.

3 In the **Cross-connection rate** field, click the radio button next to the cross-connection rate.

4 In the **DNI cross-connection type** field, click the radio button next to the cross-connection type.

Important! This field is only displayed if the DNI is selected as the cross-connection type in the cross connection page search panel.

5 In the **Direction** field, click the radio button next to the direction type.

6 In the **Protection type** field, click the radio button next to the protection group type.

7 In the **Switch mode** field, click the radio button next to the protection switch mode. This field is only displayed if the **Protection type** selection is “Protected”.

8 In the **From port ID 1:** field, select the **High order TP** cross-connection level, and the **Low order TP** cross connection level (if applicable).

9 In the **From port ID 1 (West (Working)):** field, select the **High order TP** cross-connection level, and the **Low order TP** cross connection level (if applicable).

Important! This field is only displayed if the DNI is selected as the cross-connection type in the cross connection page search panel.

10 In the **From port ID 1 (Working):** field, select the **High order TP** cross-connection level, and the **Low order TP** cross connection level (if applicable).

Important! This field is only displayed if the Cascading is selected as the cross-connection type in the cross connection page search panel.

11 In the **To port ID 1:** field, select the **High order TP** cross-connection level, and the **Low order TP** cross connection level (if applicable).

12 In the **To port ID 1 (Ring Access Point):** field, select the **High order TP** cross-connection level, and the **Low order TP** cross connection level (if applicable).

Important! This field is only displayed if the DNI is selected as the cross-connection type in the cross connection page search panel.

13 In the **To port ID 1:** field, select the **High order VTP** cross-connection level, and the **Low order VTP** cross connection level (if applicable).

Important! This field is only displayed if the Cascading is selected as the cross-connection type in the cross connection page search panel.

14 In the **From port ID 2 (Protection):** field, select the **High order TP** cross-connection protection level, and the **Low order TP** cross-connection protection level (if applicable). This field is only displayed if the **Protection type** selection is “Protected”.

15 In the **From port ID 2 (East (Protection)):** field, select the **High order TP** cross-connection protection level, and the **Low order TP** cross-connection protection level (if applicable). This field is only displayed if the **Protection type** selection is "Protected".

Important! This field is only displayed if the DNI is selected as the cross-connection type in the cross connection page search panel.

16 Click the **Submit** button.

Result: The CMISE NE cross-connection is added.

END OF STEPS

□

Modify Protection Cross Connection

When to use

Use this task to modify a protection cross connection for a CMISE NE.

Related information

For information related to the modify a Cross-connection task, see the following topics:

- “Protection Group Concepts” (p. 3-100)
- “Cross-connection Concepts” (p. 5-34)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add a cross-connection for a CMISE NE.

1. From the **Cross-Connections List** page, select **Modify Protection** and click the **Go** button.

   Result: The Modify Protection Cross Connections page is displayed for the selected CMISE NE.

2. The **Cross-connection rate** field displays the cross-connection rate for this cross-connection.

3. The **Direction** field displays the direction type for this cross-connection.

4. The **Protection type** field displays the protection group type for this cross-connection.

5. In the **Switch mode** field, click the radio button **Non-revertive** or **Revertive**.

6. In the **Protect TP** field, select the appropriate Protect TP value by clicking on the radio button.

7 In the **Protection:** field, select the **High order TP** cross-connection protection level, and the **Low order TP** cross-connection protection level (if applicable). This field will only display if the **Protection type** selection is “Protected”.

8 Click the **Submit** button.

Result: The CMISE NE cross-connection is modified.

END OF STEPS

□

Delete a Cross-Connection (CMISE NE)

When to use

Use this task to delete a cross-connection for a CMISE NE.

Related information

For information related to the Delete a Cross-connection task, see the following topic:

- “Cross-connection Concepts” (p. 5-34)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to Delete a Cross-connection for a CMISE NE.

1 View a list of cross-connections, using the “View Cross-connections (CMISE NEs)” (p. 5-38) task.

Result: The list at the bottom of the Cross-connections page is populated with a list of cross-connections that meet your search criteria.

2 Click the radio button next to the cross-connection you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The cross-connection is deleted.

END OF STEPS

□

Section V: Data Communications Networks

Overview

Purpose

This section discusses data communications networks for CMISE NEs using the NE Management Functions feature.

Contents

Data Communications Networks Concepts

Overview

This section contains conceptual information about data communications networks (DCC) for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Data Communications Networks category enable the user to perform the following functions:

- Retrieve and set DCC connections- the user can view a list of DCC connections, add DCC connections, and modify DCC connections.
- Retrieve and set DCC test - the user can view results of past tests and request tests of DCC connections between the management system and the NE.
- Retrieve and set DCC in MSP mode - the user can view a list of DCC in MSP mode settings and set the DCC in MSP mode to either the slave or independent mode setting.
- Retrieve and set DCC/EOW - the user can view and modify the DCC/EOW status for CMISE NE port overheads.
- Retrieve and set overhead bytes information - the user can view and modify overhead access ports and disconnect the overhead access byte from the overhead access port.
- Retrieve and set Data Communication Network (DCN) parameters - the user can view and modify the parameters that control network communications for NEs

DCC connections

For some NEs, it is possible to provision a DCC connection so that DCC traffic passes transparently through the NE. This is useful for DCC interworking with third-party NEs. The DCC connection is achieved by means of layer 2 protocol High Level Data Link Control (HDLC) Frame bridging (at the data link layer level). HDLC Frame bridging always applies to two ports (labelled TTP1 and TTP2); more than two ports (that is, broadcasting) is not supported. The DCC connection is implemented via Layer bridging.

DCC channel selection

The following DCC channels exist on an STM-n connection:

- DCC bytes of the RSOH (bytes D1-D3) termed RS-DCC.
- DCC bytes of the MSOH (bytes D4-D12) termed MS-DCC.

DCC in MSP mode

In Multiplex Section Protection (MSP) schemes, the DCC management traffic can be carried on both the working and protection ports or only on the port carrying traffic. This is controlled by the MSP DCC Slave/Independent mode setting.

The modes are:

- **MSP DCC Independent Mode:** DCC control is individually provisionable and can be active even if that port is not the traffic-carrying side of an MSP connection.
- **MSP DCC Slave Mode:** Only the DCC of the traffic carrying side of an MSP connection carries DCC management traffic, and the provisioning of the DCC applies only to that port. The active port changes with the MSP switch (that is, it is slaved to the MSP switch).

EOW is not slaved to the MSP when the DCC is in SLAVE mode.

EOW Control

The Engineer Order Wire (EOW) may be enabled and or disabled in each MS and RS overhead for a network element.

Overhead bytes

The management system is able to provision the route from a connector interface to special overhead bytes for ports on the NE.

The connector has four ports:

- G703-1
- G703-2
- V11-1
- V11-2

Applicable OH bytes for RS ports are “E1” and “F1.” Applicable OH bytes for MS ports are “E2.”

Overhead bytes configuration is subordinate to changes of port type and card reassignment. A change of port type or card unassignment/reassignment causes the automatic removal of access to a provisioned overhead byte channel.

DCC connection test

The NE Management Functions pages can be used to display the test results for the last test of the DCC connection between the management system and each managed NE. The NE Management Function pages can also be used to request a test of the DCC connection between the management system and selected NE(s). Tests are not possible for NEs in a “Pre Provisioned” or “Created, Not Managed” state.

DCN parameters

The NE Management Functions pages can be used to display and modify DCN parameters for a selected NE. The Modify DCN Parameters page allows the user to modify the following types of parameters to be viewed or modified.

NE location

The NE location parameter is a user defined modifiable field for the location of the NE in the network.

NSAP address of NE

The user is able to view the Network Service Access Point (NSAP) address which uniquely identifies an NE on the DCN.

Connection

The user is able to view the connection routing type for the first leg of each connection. Possible values are **Static** or **Dynamic**.

Routing

The user is able to provision routing parameters for the DCN.

□

DCN Routing Concepts (CMISE NEs)

Overview

This section contains conceptual information about DCN routing concepts for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Hierarchical Routing in the Management DCN

To route messages which arrive at a node in the DCN, that node needs a routing table which, in effect, is a list of all the destinations in the DCN. The destination is looked up and the address of the next hop is extracted from the routing table; the message is sent to this next hop and the process repeats until it reaches its final destination. The problem with this mechanism is that it does not scale very well. As the network grows, the routing tables need to grow, which is not always possible since the node usually has limited resources (like the NEs).

The IS-IS protocol alleviates this resource problem by supporting a two level hierarchy. IS-IS refers to the “Intermediate System to Intermediate System” Dynamic routing protocol as defined in ISO 10589. An “Intermediate System” is a router and forwarder of messages.

The entire routing network is sometimes called a Routing Domain. The entire OSI Management DCN is (usually) a single routing domain. The routing domain (DCN) is divided into sections called “Areas”. The areas are typically the parts of the network which have fixed size limitations dependent on the limited and fixed resources available in the nodes comprising that area. In the ideal world, as a network grows, the areas remain fixed, and new areas are added. In reality, this is not always practical and the distribution of nodes and areas are reorganized to meet new demands on the network. The routing domain is divided into disjointed areas where every node belongs to exactly one area.

Routing domain and Intermediate systems

The division of the routing domain into areas is done by defining 2 types of ISs:

- Level 1 IS - the nodes which route messages within an area . A Level 1 IS maintains routing tables for all the other nodes in its area. It also maintains a single route to the nearest Level 2 IS. When a Level 1 IS receives a message for an area different from the one it is in, it forwards it to the nearest Level 2 IS.
- Level 2 IS - the nodes which route messages between areas. The Level 2 IS maintains a routing table for every area in the routing domain and forwards the message in the direction of the destination area. At the destination area the Level 2 IS forwards the message towards the destination within that area, possibly via other Level 1 ISs. Therefore, Level 2 IS must also have the functionality of a Level 1 IS. Note that the Modify DCN Parameters page on the management system screens displays the functionality of the NE as **Level 1**, **Level 2** and **Level 1+2**, not the node type.

Provisionable DCN routing parameters

The following sections describe some of the DCN routing parameters that are provisionable using the Modify DCN parameters page.

Area repair access

The Area Partition Repair feature of the IS-IS protocol modifies the normal IS-IS behavior to allow messages to reach an area that has become divided (or partitioned) due to network failures such as a fiber cut or configuration error.

An IS-IS Level-2 node is provisioned to be a partition capable Level-2 IS by selecting the **Node-IS-IS-Level to be Level 1 + Level 2 + Area Partition Repair** on the Modify DCN Parameters page. This allows the Level 2 node to become a tunnel entrance/exit in the case of an area becoming partitioned. Once a problem in the network that partitions the area is detected, the partition capable Level-2 IS is selected by the IS-IS protocol to establish a tunnel through the Level-2 subnetwork to another partition capable IS in the other partition of the same area. In this way the area is repaired. Note that only the end nodes of the Level-1 tunnel should be provisioned as **Node-IS-IS-Level to be Level 1 + Level 2 + Area Partition Repair**. All the other nodes in the repair path must support the partition repair feature, but should not be provisioned to provide area repair access.

A partition capable node becomes builds the Level 1 tunnel to repair the area automatically. When this happens, the two partition capable nodes at both ends of the Level 1 tunnel raise a persistent alarm. This is to warn the user of an abnormal situation despite all NEs possibly being manageable. Active Partition Repair may have been due to a failure or an invalid network design, configuration or installation. This is a very inefficient mode of operation of the network and should not be allowed for an in-service network. It is recommended that the situation be remedied as soon as possible.

Designated router priority

Each NE is provisioned with a **Designated Router Priority**. This is used by the IS-IS protocol to select which NE attached to the management LAN in an area will become the designated router.

Maximum LSP size

The Maximum Link Status Protocol (LSP) size is an area wide OSI layer 3 parameter which must be identical for all ISs within an area. Provisionable values are **Alcatel-Lucent** (512 bytes) or **ISO8473** (1492 bytes).

□

View a List of DCC Connections

When to use

Use this task to view a list of DCC connections for a selected NE.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of DCC connections for a selected NE

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communications Networks**.

4. In the **Function** field, select **Retrieve/Set DCC Connections**.
5. Click the **Go** button.

   Result: The DCC Connections page is displayed. It includes a list of DCC connections for an NE.

END OF STEPS

□

Add a DCC Connection

When to use

Use this task to add a Data Communications Channel connection between two port overheads for a selected NE.

Related information

See the following topic:

- "Data Communications Networks Concepts" (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add a DCC connection.

1. View a list of add a DCC connections on an NE using the "View a List of DCC Connections" (p. 5-54) task.

   Result: The DCC Connections page is displayed. It includes a list of DCC connections on the NE.

2. Click on the **New** tool in the toolbar.

   Result: The Add DCC Connection page is displayed.

3. In the **TTP1 Port** field, make a selection.

4. In the **TTP1 overhead** field, make a selection.

5. In the **TTP2 Port** field, make a selection.

6. In the **TTP2 overhead** field, make a selection.

7. Click the **Submit** button.

Result: The DCC connection is added.

END OF STEPS

□

Delete a DCC Connection

When to use

Use this task to delete a DCC connection.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a DCC connection.

1 View a list of add a DCC connections on an NE using the “View a List of DCC Connections” (p. 5-54) task.

Result: The DCC Connections page is displayed. It includes a list of DCC connections on the NE.

2 Click the radio button next to the DCC connection you wish to delete. From the Go menu, select **Disconnect** and click the **Go** button.

Result: The DCC connection is disconnected.

END OF STEPS

□

View a List of DCC Connections Tests

When to use

Use this task to view a list of DCC connections tests for a selected NE.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of DCC connections test for a selected NE

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communications Networks**.

4. In the **Function** field, select **Retrieve/Set DCC Test**.
5. Click the **Go** button.

   Result: The Comms Test page is displayed. It includes a list of DCC connections tests for a selected NE.

END OF STEPS

□

Test DCC Connections

When to use

Use this task to test DCC connections between the management system and a NE.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to test DCC connections between the management system and a NE.

1 View a list of DCC tests using the “View a List of DCC Connections Tests” (p. 5-59) task.

Result: The Comms Test page is displayed. It includes a list of DCC connections test between the management system and an NE.

2 Click the radio button next to the NE name for which you would like to test communications. From the Go menu, select **Perform Comms Test** and click the **Go** button.

Result: The communications between the management system and the NE are tested and the results are displayed in the Messages bar.

END OF STEPS

□

View the DCC in MSP Mode

When to use

Use this task to view the DCC in MSP mode.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported for all CMISE NEs participating in an MSP scheme.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the DCC in MSP mode.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communications Networks**.

4. In the **Function** field, select **Retrieve/Set DCC in MSP Mode**.
5. Click the **Go** button.

   Result: The DCC in MSP Mode page is displayed. It includes a list of "DCC in MSP mode settings" for an NE.

END OF STEPS

□

Set the DCC in MSP Mode to Slave

When to use

Use this task to set the DCC mode for a port overhead to slave.

Related information

See the following topic:

- "Data Communications Networks Concepts" (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the DCC in MSP mode to slave.

1 View a list of DCC in MSP mode settings using the "View the DCC in MSP Mode" (p. 5-62) task.

Result: The DCC in MSP Mode page is displayed. It includes a list of "DCC in MSP mode settings" for an NE.

2 Click the radio button next to the DCC in MSP mode setting that you wish to set to slave. From the Go menu, select **Set to Slave** and click the **Go** button.

Result: The DCC in MSP mode setting is set to slave, and DCC management traffic is carried only on the port carrying traffic.

END OF STEPS

□

Set the DCC in MSP Mode to Independent

When to use

Use this task to set the DCC in MSP mode to independent.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the DCC in MSP mode to independent.

1 View a list of DCC in MSP mode settings using the “View the DCC in MSP Mode” (p. 5-62) task.

Result: The DCC in MSP Mode page is displayed. It includes a list of “DCC in MSP mode settings” for an NE.

2 Click the radio button next to the DCC in MSP mode setting that you wish to set to independent. From the Go menu, select **Set to Independent** and click the **Go** button.

Result: The DCC in MSP mode setting is set to independent, and DCC management traffic is carried on both the worker and protection ports.

END OF STEPS

□

View a List of DCC/EOW Status for the Port Overheads

When to use

Use this task to view a list of DCC/EOW Status for the port overheads.

Related information

See the following topic:

- "Data Communications Networks Concepts" (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of DCC/EOW Status for the port overheads.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communications Networks**.

4. In the **Function** field, select **Retrieve/Set DCC/EOW**.
5. Click the **Go** button.

   Result: The DCC/EOW Status page is displayed. It includes a list of DCC/EOW status for the port overheads.

END OF STEPS

□

Modify the DCC/EOW Status for a Selected Port Overhead

When to use

Use this task to modify the DCC/EOW status for a selected port overhead.

Related information

See the following topic:

- "Data Communications Networks Concepts" (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the DCC/EOW status for a selected port overhead.

1 View a list of DCCs using the "View a List of DCC/EOW Status for the Port Overheads" (p. 5-66) task.

Result: The DCC/EOW Status page is displayed. It includes a list of DCC/EOW status for the port overheads.

2 Click the radio button next to the port overhead parameter you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify DCC/EOW page is displayed.

3 Change the entries or selections for any of the fields that are modifiable. The fields on this page vary based on the selected NE.

4 Click the **Submit** button.

Result: The DCC/EOW status for a selected port overhead is modified.

END OF STEPS

□

View a List of Overhead Access Ports

When to use

Use this task to view a list of overhead access ports.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of overhead access ports.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communication Networks**.

4. In the **Function** field, select **Retrieve/Set overhead bytes information**.
5. Click the **Go** button.

   Result: The Overhead Access Ports page is displayed. It includes a list of overhead access ports.

END OF STEPS

□

Modify an Overhead Access Port

When to use

Use this task to modify an overhead access port.

Related information

See the following topic:

- "Data Communications Networks Concepts" (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an overhead access port.

1 View a list of overhead access ports using the "View a List of Overhead Access Ports" (p. 5-69) task.

Result: The Overhead Access Ports page is displayed. It includes a list of overhead access ports on the NE.

2 Click the radio button next to the overhead access port you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify Overhead Access Port page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The overhead access port is modified.

END OF STEPS

□

Disconnect Overhead Byte Signal From the Overhead Access Port

When to use

Use this task to disconnect overhead byte signal from the overhead access port.

Related information

See the following topic:

- “Data Communications Networks Concepts” (p. 5-48)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to disconnect overhead byte signal from the overhead access port.

1 View a list of overhead access ports using the “View a List of Overhead Access Ports” (p. 5-69) task.

Result: The Overhead Access Ports page is displayed. It includes a list of overhead access ports on the NE.

2 Click the radio button next to the overhead access port you wish to disconnect. From the Go menu, select **Disconnect** and click the **Go** button.

Result: The overhead byte signal is disconnected from the overhead access port.

END OF STEPS

□

Modify DCN Parameters (CMISE NEs)

When to use

Use this task to modify DCN parameters on a selected NE port.

Related information

See the following topics:

- “Ports Concepts (CMISE NEs)” (p. 5-180)
- “Modify DCN Parameters (CMISE NEs)” (p. 5-73)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify physical port details on a selected port.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Communication Networks**.

4. In the **Function** field, select **Retrieve/Set DCN Parameters**.
5. Click the **Go** button.

   Result: The Modify DCN Parameters page is displayed. It contains a series of panels from which to view or modify DCN parameters.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The physical port settings are modified for the selected NE port type.

END OF STEPS

□

Section VI: Data Service

Overview

Purpose

This section discusses Ethernet Card provisioning and VCG provisioning for CMISE NEs using the NE Management Functions feature.

Contents

Ethernet Card Provisioning Concepts

Overview

This section contains conceptual information about provisioning Ethernet cards for CMISE NEs using the NE Management Functions pages. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Data Service category enable the user to perform the following Ethernet card provisioning function:

- Retrieve and set Ethernet card information - the user can view a list of Ethernet card information and modify Ethernet card settings.

The Ethernet data features managed under the NE Management Functions menu offer only limited data service provisioning and are intended to allow only certain provisioning not available elsewhere within the management system.

Ethernet card provisioning

The Ethernet Card Information page enables the user to view Ethernet card parameters for a selected NE. From this page the user accesses the Modify Ethernet card page to modify the following Ethernet card parameters:

- **Tagging mode** - the user can provision either a **Transparent** tagging mode (double tagging scheme) or IEEE 802.1 of which there are two sub-types: **IEEE 802.1Q** (Ethertype =8100 a single tagging scheme) or **IEEE 802.1ad** (Ethertype =/8100 - Provider Bridge Mode - a transparent double tagging scheme).
- **Customer port flow granularity** - the user can set the granularity to **Whole port** or **Provisioned flow only**.
- **Ethertype overwrite value** - the user can set the ingress/egress Ethertype overwrite value to be inserted into the Ethernet packages as either **0x8100** (for the IEEE 802.1Q sub-mode) or **0x600 .. 080FF, 0x8101 .. 0xFFFF** (for IEEE 802.1ad (Provider Bridge) sub-mode).

□

VCG Provisioning Concepts

Overview

This section contains conceptual information about provisioning Virtual Concatenation Groups (VCGs) for CMISE NEs using the NE Management Functions pages. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Data Service category enable the user to perform the following VCG provisioning functions:

- Retrieve VCG information - the user can view a list of VCG information for a selected NE slot.
- The user can modify VCGs.
- View VC-TTPs - the user can view VC TTPs for a selected VCG.
- Reset WTR timer - the user can modify the Wait-to-Restore (WTR) timer for a selected VC-TTP.

□

Virtual Switch and VLAN Management Concepts

Overview

This section contains conceptual information about managing Virtual switches and VLANs for CMISE NEs using the NE Management Functions pages. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Data Service category enable the user to perform the following virtual switch and VLAN management functions:

Retrieve and provision virtual switches

The user can navigate to a set of screens from which the following actions can be performed:

- View a list of virtual switches and their parameters for a selected slot on an NE.
- Delete a selected virtual switch.
- View member ports of a selected virtual switch.
- View and modify Ethernet port parameters on a selected member port.
- View VLANS provisioned on a selected virtual switch.
- Create a VLAN on a selected virtual switch.
- View, create or delete virtual ports on a selected Ethernet port.
- View Flow Group tables. These are also known as Flow Identification tables.
- Create, modify or delete a flow group in a selected Flow Group table.
- Provision egress scheduling and queueing parameters on a selected Ethernet port.
- View the Layer 2 Access Control list provisioned on a selected Ethernet port.
- Configure IEEE 802.3ah OAM on a selected Ethernet port.

Retrieve and provision VLANs

The user can navigate to a set of screens from which the following actions can be performed:

- View a list of VLANS provisioned on a selected virtual switch.
- Create, modify or delete a VLAN.
- View a list of VLAN member ports.

□

Ethernet Quality of Service Management

Overview

This section contains conceptual information about managing Ethernet Quality of Service (QOS) for CMISE NEs using the NE Management Functions pages. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Data Service category enable the user to perform the following Ethernet QOS management functions:

- QOS configuration -- the user can enable or disable the profile based QOS configuration capability on a network element. This is supported only for 1663 Add Drop Multiplexer-universal (ADMu) NEs. For all other NE types this capability is permanently enabled.
- QOS profiles - the user can view Ethernet QOS profiles provisioned on an NE which supports profile based QOS. From this page, the user can also create, modify and delete QOS profiles.

□

View Ethernet Card Information

When to use

Use this task to view Ethernet card information on CMISE NEs.

Related information

See the following topic:

- “Ethernet Card Provisioning Concepts” (p. 5-77)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view Ethernet card information.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data services**.

4. In the **Function** field, select **Retrieve/Set Ethernet Card Information**.
5. Click the **Go** button.

   Result: The Ethernet Card Information page is displayed.

END OF STEPS

□

Modify Ethernet Card

When to use

Use this task modify Ethernet card information.

Related information

See the following topic:

- “Ethernet Card Provisioning Concepts” (p. 5-77)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify Ethernet card information.

1. View a list of Ethernet card information using the “View Ethernet Card Information” (p. 5-81) task.

   Result: The Ethernet Card Information page is displayed.

2. Click the radio button next to the slot you wish to modify. From the Go menu, select **Modify Ethernet card** and click the **Go** button.

   Result: The Modify Ethernet Card page is displayed.

3. In the **Tagging mode** field, select the **Transparent** or the **IEEE 802.1Q/IEEE 802.1ad** radio button.

4. In the **Customer Port Flow Granularity** field, select either the **Whole port** or the **Provisioned flows only** radio button.

5. In the **Ingress Expected TPID value** field and the **Egress Transmitted TPID value** field, enter the appropriate value.

6 In the **Priority code point selection egress/ingress map** field, select values from the drop down list or select **Non-standard** for manual mapping. This field is not displayed if **Tagging mode** is set to **Transparent**

7 In the **Priority code point selection ingress map out vectors** field and **Priority code point selection egress map out vectors** field, enter the appropriate value.

If **Priority code point selection egress/ingress map** option is selected, the values are ready-only.

If **Non-standard** option is selected as **Priority code point selection egress/ingress map**, enter the values in the respective fields.

8 In the **Aging pass timer** field, enter the period of expiration of a dynamic MAC address of the forwarding table. This field is not displayed if **Tagging mode** is set to **Transparent**.

9 In the **IGMP last member query count** field, enter the number of intervals that must pass after a group-specific query before the management system determines that a group no longer has members on a VLAN port. Possible values are: **1 .. 10**. This field is not displayed if **Tagging mode** is set to **Transparent**.

10 In the **IGMP group membership interval** field, enter the time period for unlearning a multicast MAC address. Possible values are: **1 .. 10**. This field is not displayed if **Tagging mode** is set to **Transparent**.

11 Click the **Submit** button.

Result: The Ethernet card is modified.

END OF STEPS

□

View Virtual Concatenation Groups

When to use

Use this task to view Virtual Concatenation Group (VCG) information for an NE slot or Ethernet NTU.

There are two methods for this task.

Related information

See the following topic:

- "VCG Provisioning Concepts" (p. 5-78)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Method 1: from the Ethernet Card Information page

Complete the following steps to view Virtual Concatenation Group (VCG) information for an NE slot.

1 View a list of Ethernet card information using the "View Ethernet Card Information" (p. 5-81) task. The Ethernet Card Information page is displayed.

Result: The Ethernet Card Information page is displayed.

2 Click the radio button next to the slot for which you wish to view VCG information. From the Go menu, select **VCG Information** and click the **Go** button.

Result: The Virtual Concatenation Group page is displayed.

END OF STEPS

Task, Method 2: from the NE Management Functions page

Complete the following steps to view Virtual Concatenation Group information.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data services**.
4. In the **Function** field, select **Retrieve/Set Virtual Concatenation Group Information**.
5. Click the **Go** button.

   Result: The Virtual Concatenation Groups page is displayed.

3 From the Search panel, in the **Slot** field, select the slot from the drop down list for which you wish to view Virtual Concatenation Group information.

4 Click the **Search** button.

Result: The Virtual Concatenation Group information is displayed in the Search result table.

END OF STEPS

□

Modify Virtual Concatenation Groups (CMISE NEs)

When to use

Use this task to modify Virtual Concatenation Groups on a CMISE NE slot or Ethernet NTU.

Based on the Ethernet card support, different fields will be display for modification. The following are the types of Ethernet cards which apply:

- Ethernet card which supports LCAS
- Ethernet card which does not support LCAS

Related information

See the following topic:

- "VCG Provisioning Concepts" (p. 5-78)

  Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify Virtual Concatenation Groups on a CMISE NE slot.

1. View a list of virtual concatenation groups using the "View Virtual Concatenation Groups" (p. 5-85) task.

   Result: The Virtual Concatenation Group page is displayed.

2. Click the radio button next to the VCG you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

   Result: The Modify Virtual Concatenation Group page is displayed.

3. Change the entries or selections for any of the fields that are modifiable.

4. Click the **Submit** button.

Result: The virtual concatenation group information is modified for the selected NE slot.

END OF STEPS

□

View VC TTPs

When to use

Use this task to view the VC TTPs associated with a selected Virtual Concatenation Group.

Related information

See the following topic:

- "VCG Provisioning Concepts" (p. 5-78)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify Virtual Concatenation Group (VCG) information for an NE slot.

1 View a list of Ethernet card information using the "View Ethernet Card Information" (p. 5-81) task.

Result: The Ethernet Card Information page is displayed.

2 Click the radio button next to the slot for which you wish to view VCG information. From the Go menu, select **VCG information** and click the **Go** button.

Result: The Virtual Concatenation Group Information page is displayed.

3 Select the VCG for which to view the VC TTP. From the Go menu, select **Associated TTPs** and click the **Go** button.

Result: The VC TTPs page is displayed.

END OF STEPS

□

Reset the WTR Timer for VC TTPs

When to use

Use this task to reset the Wait-to-Restore (WTR) timer for VC TTPs associated with a selected Virtual Concatenation Group.

Related information

See the following topic:

- "VCG Provisioning Concepts" (p. 5-78)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to reset the Wait-to-Restore (WTR) timer for VC TTPs associated with a selected Virtual Concatenation Group.

1. View a list of Ethernet card information using the "View Ethernet Card Information" (p. 5-81) task.

   Result: The Ethernet Card Information page is displayed.

2. Click the radio button next to the slot for which you wish to view VCG information. From the Go menu, select **VCG information** and click the **Go** button.

   Result: The Virtual Concatenation Group Information page is displayed.

3. Select the VCG for which to view the VC TTP. From the Go menu, select **Associated TTPs** and click the **Go** button.

   Result: The VC TTPs page is displayed.

4. Select the VC TTP for which to reset the WTR timer. From the Go menu, select **Reset WTR timer** and click the **Go** button.

Result: The WTR timer is reset on the selected VC TTP.

END OF STEPS

□

View Virtual Switches

When to use

Use this task to view the virtual switches for selected CMISE NEs.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the virtual switch list for selected CMISE NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do one the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Services**.

4. In the **Function** field, select **Retrieve/Set Virtual Switches**.
5. Click the **Go** button.

To access the page from quality-of-service (QoS) profiles page, do the following:

- From the quality-of-service (QoS) profiles Go menu, select **Get Associated Virtual Ports** and click the **Go** button.

  Result: The Virtual Switches page is displayed.

3 Enter the search criteria in the **NE type**, **NE name** and **Slot** fields. **Tagging Mode** field displays the tagging mode. Click the **Search** button.

Result: The selected virtual switch information is displayed in the Search result table.

END OF STEPS

□

Delete a Virtual Switch

When to use

Use this task to delete a virtual switch.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a virtual switch.

1 View a list of virtual switches on an NE using the “View Virtual Switches” (p. 5-93) task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the radio button next to the virtual switch you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The virtual switch is deleted.

END OF STEPS

□

Create a Virtual Switch

When to use

Use this task to create a virtual switch.

Related information

See the following topic:

- "Virtual Switch and VLAN Management Concepts" (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to create a virtual switch.

1 View a list of virtual switches on an NE using the task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the New icon in the Search panel or in the Tool bar of the Results panel.

Result: The Create Virtual Switch page is displayed.

3 Enter or select required information to create the virtual switch.

4 Click the **Submit** button.

Result: The virtual switch is created.

END OF STEPS

□

Modify Virtual Switch

When to use

Use this task to modify a virtual switch.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a virtual switch.

1 From the Virtual Switches **Go menu**, select Modify and click the **Go** button.

Result: The Modify Virtual Switch page is displayed.

2 Enter or select required information to modify the virtual switch.

3 Click the **Submit** button.

Result: The virtual switch is modified.

END OF STEPS

□

View Ethernet Ports

When to use

Use this task to view Ethernet ports.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view Ethernet ports.

1 View a list of virtual switches on an NE using the task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the radio button next to the virtual switch for which you wish to view member ports. From the Go menu, select **View member ports** and click the **Go** button.

Result: The Ethernet Ports page is displayed.

3 From the Search for Ethernet Ports panel, in the Port type field, select either the **LAN** or **WAN** check box. This is an optional field. If no selection is made, data for both LAN and WAN port types will display. Click the **Search** button.

Result: The Ethernet ports are displayed in the Search results table.

END OF STEPS

□

View or Modify Ethernet Port

When to use

Use this task to view and modify Ethernet ports.

Related information

See the following topic:

- "Virtual Switch and VLAN Management Concepts" (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view and modify Ethernet ports.

1 View a list of Ethernet ports using the "View Ethernet Ports" (p. 5-98) task or the "View VLAN Member Ports" (p. 5-107) task.

Result: The Ethernet Ports page or the VLAN Member Ports page is displayed. It includes a list of Ethernet ports or VLAN member ports on the NE.

2 Select the virtual switch or VLAN member port for which you wish to view or modify the Ethernet port. From the Go menu, select **View/modify Ethernet port** and click the **Go** button.

Result: The View/Modify Ethernet Port Parameters page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The Ethernet port parameters are modified.

END OF STEPS

□

View Virtual Ports

When to use

Use this task to view the virtual ports for selected CMISE NEs.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the virtual ports for a selected CMISE NEs.

1 View a list of Ethernet ports on an NE using the “View Ethernet Ports” (p. 5-98) task.

Result: The Ethernet ports page is displayed. It includes a list of Ethernet ports on the NE.

2 Select the Ethernet port for which you wish to view virtual ports. From the Go menu, select **Ingress QoS (Virtual Ports)** and click the **Go** button.

Result: The Virtual Ports page is displayed.

3 From the Qos profiles page Go menu option, select **Virtual Ports** and click the **Go** button.

Result: The Virtual Ports page is displayed.

END OF STEPS

□

View VLANs

When to use

Use this task to view the VLANs for selected CMISE NEs.

There are two methods to this task.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Method 1: From the NE Management Functions page

Perform the following steps to view the VLAN list for selected CMISE NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Services**.

4. In the **Function** field, select **Retrieve/Set VLANs**.
5. Click the **Go** button.

   Result: The VLANs page is displayed.

3 Enter or select the required search criteria in the **NE type**, **NE name**, **Slot** and **Virtual Switch name** fields and optionally the **VLAN status** field and click the **Search** button.

Result: The selected VLAN information is displayed in the Search results table.

END OF STEPS

Task, Method 2: From the Virtual Switch page

Complete the following steps to view the VLAN list for selected CMISE NEs.

1 View a list of virtual switches on an NE using the "View Virtual Switches" (p. 5-93) task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the radio button next to the virtual switch for which you wish to view VLANs. From the Go menu, select **Get contained VLANs** and click the **Go** button.

Result: The VLANS page is displayed for the selected virtual switch.

END OF STEPS

□

Create/Modify VLANs

When to use

Use this task to create or modify VLANs.

There are several methods for this task.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Create VLAN, Method 1: Via the Virtual Switch page

Complete the following steps to create VLANs.

1 View a list of virtual switches on an NE using the “View Virtual Switches” (p. 5-93) task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the radio button next to the virtual switch on which you wish to add a VLAN. From the Go menu, select **Create VLAN** and click the **Go** button.

Result: The Create/Modify VLAN page is displayed. .

3 Enter or select required information to create the VLAN.

4 Click the **Submit** button.

Result: The VLAN is created.

END OF STEPS

Task, Create VLAN, Method 2: From the VLAN page

Perform the following steps to create a VLAN.

1 View a list of VLANs on an NE using the "View VLANs" (p. 5-101) task.

Result: The VLANs page is displayed.

2 Enter or select the required search criteria in the **NE type**, **NE name**, **Slot** and **Virtual Switch name** fields and optionally the **VLAN status** field and click the **Search** button.

Result: The selected VLAN information is displayed in the Search results table.

3 Click the **Add** icon in the Search panel.

Result: The Create/Modify VLAN page is displayed.

4 Enter or select required information to create the VLAN.

5 Click the **Submit** button.

Result: The VLAN is created.

END OF STEPS

Task, Modify VLAN, Method 1: Via the Virtual Switch page

Complete the following steps to create or modify VLANs.

1 View a list of virtual switches on an NE using the "View Virtual Switches" (p. 5-93) task.

Result: The Virtual Switches page is displayed. It includes a list of virtual switches on the NE.

2 Click the radio button next to the virtual switch on which you wish to modify a VLAN. From the Go menu, select **Get contained VLANs** and click the **Go** button.

Result: The VLAN page is displayed.

3 Click the radio button next to the VLAN you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Create/Modify VLAN page is displayed.

4 Enter or select required information to modify the VLAN.

5 Click the **Submit** button.

Result: The VLAN is modified.

END OF STEPS

Task, Modify VLAN, Method 2: From the VLAN page

Perform the following steps to modify a VLAN.

1 View a list of VLANs on an NE using the "View VLANs" (p. 5-101) task.

Result: The VLANs page is displayed.

2 Enter or select the required search criteria in the **NE type**, **NE name**, **Slot** and **Virtual Switch name** fields and optionally the **VLAN status** field and click the **Search** button.

Result: The selected VLAN information is displayed in the Search results table.

3 Click the radio button next to the VLAN you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Create/Modify VLAN page is displayed.

4 Enter or select required information to modify the VLAN.

5 Click the **Submit** button.

Result: The VLAN is modified.

END OF STEPS

□

View VLAN Member Ports

When to use

Use this task to view VLAN member ports.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view VLAN member ports.

1 View a list of VLANS on an NE using the “View VLANs” (p. 5-101) task.

Result: The VLANS page is displayed.

2 Click the radio button next to the VLAN on which you wish to view member ports. From the Go menu, select **View member ports** and click the **Go** button.

Result: The VLAN Member Ports page is displayed.

END OF STEPS

□

Layer 2 Access Control List

When to use

Use this task to view the Layer 2 Access Control list, which enables you to select tunnelling and discarding of PDUs of the specified protocol types.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task: from the NE Management Functions page

Complete the following steps to view Layer 2 Access Control List information.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data services**.

4. In the **Function** field, select **Retrieve/Set Ethernet Ports** or **Retrieve/Set Virtual Switches** or **Retrieve/Set VLANS**.
5. Select an ethernet port from the list, and then select the Layer 2 Access control list option from the **Go** list.
6. Click the **Go** button.

   Result: The Layer 2 Access Control List page is displayed.

END OF STEPS

□

IEEE 802.3ah OAM Configuration

When to use

Use this task to configure the IEEE 802.3ah OAM , which enables you to set the parameter information for the selected port.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task: from the NE Management Functions page

Complete the following steps toconfigure the IEEE 802.3ah OAM information.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data services**.

4. In the **Function** field, select **Retrieve/Set Ethernet Ports** or **Retrieve/Set Virtual Switches** or **Retrieve/Set VLANS**.
5. Select an ethernet port from the list, and then select the IEEE 802.3ah OAM Configuration option from the **Go** list.
6. Click the **Go** button.

   Result: The IEEE 802.3ah OAM Configuration page is displayed.

END OF STEPS

□

Port VLAN Registrations (Virtual Switches)

When to use

Use this task to view a list of VLANs provisioned on the selected port on a virtual switch.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of VLANs provisioned on the selected port.

1 Use the icons or the object links to follow this path: **Network Elements > NE Management Functions > Virtual Switches> Member Ports**.

Result: The Member Ports screen is displayed.

2 Select a port from the Member Ports list.

3 From the **Member Ports** screen, select **Port VLAN registrations** from the **GO** list option:

Result: The Port VLAN Registrations screen is displayed for the selected port.

END OF STEPS

□

Delete a VLAN

When to use

Use this task to delete a VLAN.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a VLAN.

1 View a list of VLANs on an NE using the “View VLANs” (p. 5-101) task.

Result: The VLANs page is displayed.

2 Click the radio button next to the VLAN you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The VLAN is deleted.

END OF STEPS

□

Remote Bridges

When to use

Use this task to view remote bridge.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to access the Remote Bridge list.

1 Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.

Result: The NE Management Functions page is displayed.

2

1. In the **NE type** field, select the type of NE.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Services**.
4. In the **Function** field, select **Retrieve/Set Remote Bridges**.
5. Click the **Go** button.

Result: A list of remote bridges on the ethernet NTU is displayed.

3 Do the following in the Search panel:

1. In the **NE Type** field, select the type of NE.
2. In the **NE Name** field, select the NE name.
3. Click the **Search**button to locate the NE names that match the search criteria.

4 The following fields are displayed in the Remote Bridge panel:

1. The **NTU Name** field displays the NTU name. This is a read only field.
2. The **NTU ID** field displays the NTU ID. This is a read only field.
3. The **NTU Location** field displays the NTU location. This is a read only field.
4. The **Remote Bridge Mode** field displays the Remote Bridge mode. This is a read only field.
5. In the **Priority Mode** field, select the priority mode.
6. In the **Ingress Rate Control Mode** field, select the Ingress Rate Control mode.
7. In the **Maximum Supported VLANs** field, select the maximum number of supported VLANs.
8. In the **Provisioned VLANs** field, select the provisioned VLANs.

5 Do the following in the **Go** list option:

- Select **Modify Remote Bridge Parameters** to open the Modify Remote Bridge Parameters screen.
- Select **View Member Ports** to open the Remote Bridge Member Ports screen.
- Select **Get Contained VLANs** to opens the VLANs screen. This option is displayed only in the VLAN bridge mode.
- Select **Reset Remote Bridge** to generate command for CNA to restart the remote bridge.

END OF STEPS

□

Modify Remote Bridges

When to use

Use this task to modify a remote bridge.

Related Information

See the following topic:

- “ Remote Bridges” (p. 5-114)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the Remote Bridge.

1 View a list of Remote Bridges using the “ Remote Bridges” (p. 5-114) task.

Result: The Remote Bridge List screen is displayed.

2 From the **Go** menu option, select **Modify**.

Result: The Modify Remote Bridge Parameters is displayed.

3 The **NTU Name** field displays the NTU name. This is a read only field.

4 The **NTU ID** field displays the NTU id. This is a read only field.

5 The **NTU Location** field displays the NTU location. This is a read only field.

6 In the **Bridge Mode** field, select the **VLAN Bridge**, **Provide Bridge**, or **Self Learning Bridge** radio button.

7 In the **Priority Mode** field, select the **Use Port Priority** or **Use Tag Priority** radio button.

8 In the **Ingress Rate Control Mode** field, select the **Strict** or **None** radio button.

9 Click the **Submit** button.

Result: The Remote Bridge is modified.

END OF STEPS

□

Remote Bridge Member Ports

When to use

Use this task to view remote bridge member ports.

Related Information

See the following topic:

- “ Remote Bridges” (p. 5-114)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the Remote Bridge member ports.

1 From the **Go** menu options of the Remote Bridge List screen, select the **View Member Ports** button.

Result: The View Member Ports page is displayed.

2 The following options are available in the **Go** list.

- Select **Modify Ethernet parameters** to open the Modify Ethernet parameters screen.
- Select **View VLANs** to opens the Ports VLAN Registration screen.

END OF STEPS

□

Remote Bridge VLAN List

When to use

Use this task to view the Remote Bridge VLANsd for selected CMISE NEs.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Perform the following steps to view the Remote Bridged VLAN list for selected CMISE NEs.

1 Do one of the following:

- From the **Go** menu options of the Remote Bridge List screen, select the **View Remote Bridge VLAN** button.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. From the **NE Management Functions** page, select **Remote SHDSL Bridges** and click the **Get VLAN** button from the **Go** menu options.

  Result: The Remote VLAN page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Services**.
4. In the **Function** field, select **Retrieve/Set Remote Bridges VLANs**.
5. Click the **Go** button.

Result: The Remote Bridge VLANs page is displayed.

3 Do the following in the Search panel:

1. In the **NE Type** field, select the type of NE from the drop-down list.
2. In the **NE Name** field, select the NE name from the drop-down list.
3. In the **NTU Name** field, select the NTU name from the drop-down list.
4. Click the **Search**button to locate the NE names that match the search criteria.

4 The following fields are displayed in the Remote Bridge panel:

1. The **VLAN ID** field displays the VLAN ID. This is a read only field.
2. The **Label** field displays the Label. This is a read only field.
3. The **Create Time** field displays the Remote Bridge mode. This is a read only field.
4. The **VLAN Status** field displays the VLAN status.

5 Do the following in the **Go** list option:

- Select **Modify VLAN** to open the Create/Modify VLAN screen.
- Select **View Member Ports** to open the Remote Bridge Member Ports screen.
- Select **Delete VLAN** to generate command for CNA to delete the selected VLAN.

END OF STEPS

□

Create Remote Bridge VLAN

When to use

Use this task to create the Remote Bridge VLANs.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Before you begin

This task does not have any preconditions.

Task

Perform the following steps to create the Remote Bridged VLAN.

1 Do one of the following:

- From the **Go** menu options of the Remote Bridge VLAN List screen, select the **Create VLAN** button.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. From the **Network Elements** page, select **Data Service >Remote Bridges >VLANs** and click the **Create** button.

  Result: The Create VLAN page is displayed.

2 In the **Label** field, enter the label name. This field accepts a maximum of 20 characters.

3 In the **VLAN ID** field, enter the VLAN id. When you modify the VLAN, this field appears as a read only field.

4 To select LAN Ports, use the arrow keys to move LAN Ports between the **LAN Ports available** and the **LAN Ports selected**. You can select multiple LAN ports from the LAN ports available list.

5 To select WAN Ports, use the arrow keys to move LAN Ports between the **WAN Ports available** and the **WAN Ports selected**. You can select multiple WAN ports from the LAN ports available list.

6 Click the **Submit** button to create the Remote Bridge VLAN.

END OF STEPS

□

Modify Remote Bridge VLAN

When to use

Use this task to modify the Remote Bridge VLANs.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Before you begin

This task does not have any preconditions.

Task

Perform the following steps to create the Remote Bridged VLAN.

1 Do one of the following:

- From the **Go** menu options of the Remote Bridge VLAN List screen, select the **Modify VLAN** button.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. From the **Network Elements** page, select **Data Service >Remote Bridges >VLANs** and click the **Modify** button.

  Result: The Modify VLAN page is displayed.

2 In the **Label** field, enter the label name. This field accepts a maximum of 20 characters.

3 In the **VLAN ID** field, enter the VLAN id. When you modify the VLAN, this field appears as a read only field.

4 To select LAN Ports, use the arrow keys to move LAN Ports between the **LAN Ports available** and the **LAN Ports selected**. You can select multiple LAN ports from the LAN ports available list.

5 To select WAN Ports, use the arrow keys to move LAN Ports between the **WAN Ports available** and the **WAN Ports selected**. You can select multiple WAN ports from the LAN ports available list.

6 Click the **Submit** button to modify the Remote Bridge VLAN.

END OF STEPS

□

Remote Bridge VLAN Member Ports

When to use

Use this task to view Remote Bridge VLAN member ports.

Related Information

See the following topic:

- “ Remote Bridges” (p. 5-114)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the Remote Bridge VLAN member ports.

1 From the **Go** menu options of the Remote Bridge List screen, select the **View Member Ports** button.

Result: The Remote Bridge VLAN Member Ports page is displayed.

2 The following options are available in the **Go** list.

- Select **Modify Ethernet parameters** to open the Modify Ethernet parameters screen.
- Select **View VLANs** to open the Ports VLAN Registration screen.

END OF STEPS

□

Port VLAN Registrations (Remote Bridge)

When to use

Use this task to view a list of VLANs provisioned on the remote bridge.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view list of VLANs provisioned on the remote bridge of which the selected port is a member.

1 Use the icons or the object links to follow this path: **Network Elements >NE Management Functions >Remote SHDSL Bridges >Member Ports**.

Result: The Member Ports screen is displayed.

2 Select a port from the Member Ports List.

3 From the **Member Ports** screen, select **Port VLAN registrations** from the **GO** list option:

Result: The Port VLAN Registrations screen is displayed for the selected port.

END OF STEPS

□

Modify Remote Bridge Ports

When to use

Use this task to modify the Remote Bridge Ports.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Before you begin

This task does not have any preconditions.

Task

Perform the following steps to create a Remote Bridge Port.

1 Do one of the following:

- From the **Go** menu options of the Remote Bridge Member Port screen, select the **Modify Ethernet parameters** button.
- From the **Go** menu options of the VLAN Member Port List screen, select the **Modify Ethernet parameters** button.

Result: The Modify Remote Bridge Port page is displayed.

2 The **PVID** field displays the provisioned values. Possible values are 1-4094.

3 The **Untagged frame processing** field displays the untagged frame processing. Possible values are **Inset**, **Discard** or **Forward**.

4 The **Default user priority** field displays the default user priority. Possible values are 0-7.

5 The **Committed information rate (kbps)** field displays the committed information rate.

6 The **Committed burst size (kbps)** field displays the committed burst size.

7 Click the **Submit** button to modify the Remote Bridge Port.

END OF STEPS

□

View QOS Profiles

When to use

Use this task to view QOS profiles.

Related information

See the following topic:

- “Ethernet Quality of Service Management” (p. 5-80)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view QOS profiles for selected CMISE NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go**button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Data Services**.

4. In the **Function** field, select **QOS Profiles**.
5. Click the **Go** button.

   Result: The QOS Profiles page is displayed.

3 Enter the search criteria in the **NE type** and **NE name** fields and click the **Search** button.

Result: The selected QOS profile information is displayed in the Search results table.

END OF STEPS

□

Create QOS Profiles

When to use

Use this task to create a QOS profile.

Related information

See the following topic:

- “Ethernet Quality of Service Management” (p. 5-80)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to create a QOS profile.

1 View a list of QOS profiles on an NE using the “View QOS Profiles” (p. 5-129) task.

Result: The QOS Profiles page is displayed.

2 Click the New icon in the Search panel or in the Tool bar of the Results panel.

Result: The Create QOS Profile page is displayed.

3 Enter or select required information to create the QOS profile.

4 Click the **Submit** button.

Result: The QOS profile is created.

END OF STEPS

□

Modify QOS Profiles

When to use

Use this task to modify a QOS profile.

Related information

See the following topic:

- “Ethernet Quality of Service Management” (p. 5-80)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a QOS profile.

1 View a list of QOS profiles on an NE using the “View QOS Profiles” (p. 5-129) task.

Result: The QOS Profiles page is displayed.

2 Enter or select the search criteria in the Search panel.

Result: The QOS profile information is displayed in the Search results table.

3 Click the radio button next to the QOS profile you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify QOS Profile page is displayed.

4 Enter or select required information to modify the QOS Profile.

5 Click the **Submit** button.

Result: The QOS Profile is modified.

END OF STEPS

□

Delete QOS Profile

When to use

Use this task to delete a QOS profile.

Related information

See the following topic:

- “Ethernet Quality of Service Management” (p. 5-80)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a QOS profile.

1 View a list of QOS profiles on an NE using the “View QOS Profiles” (p. 5-129) task.

Result: The QOS Profiles page is displayed.

2 Enter or select the search criteria in the Search panel.

Result: The QOS profile information is displayed in the Search results table.

3 Click the radio button next to the QOS profile you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The QOS Profile is modified.

END OF STEPS

□

Delete Virtual Ports

When to use

Use this task to delete virtual port.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete virtual port.

1 View a list of virtual ports on an NE using the “View Virtual Ports” (p. 5-100) task.

Result: The Virtual Ports page is displayed.

2 Select the virtual port you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The selected virtual port is deleted.

END OF STEPS

□

Create a Virtual Port

When to use

Use this task to create a virtual port.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to create a virtual port.

1 View a list of virtual ports on an NE using the “View Virtual Ports” (p. 5-100) task.

Result: The Virtual Ports page is displayed.

2 Click the New icon in the Search panel or in the Tool bar of the Results panel.

Result: The Create Virtual Ports page is displayed.

3 Enter or select required information to create the virtual port.

4 Click the **Submit** button.

Result: The virtual port is created.

END OF STEPS

□

View Flow Group Table

When to use

Use this task to view the flow group table for a selected virtual port.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the flow group table for a selected virtual port.

1 View a list of virtual ports on an NE using the “View Virtual Ports” (p. 5-100) task.

Result: The Virtual Ports page is displayed.

2 Select the virtual port for which you wish to view the flow group table. From the Go menu, select **View flow group table** and click the **Go** button.

Result: The Flow Group Table page for the selected virtual port is displayed.

END OF STEPS

□

Create Flow Groups

When to use

Use this task to create a flow group.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to create a flow group

1. View a list of flow groups for a virtual port using the “View Flow Group Table” (p. 5-136) task.

   Result: The Flow Groups page is displayed. It includes a list of flow group for a virtual port .

2. Click the New icon in the Search panel or in the Tool bar of the Results panel.

   Result: The Create Flow Group page is displayed.

3. Enter or select required information to create the flow group.

4. Click the **Submit** button.

   Result: The flow group is created.

END OF STEPS

□

Modify Flow Groups

When to use

Use this task to modify a flow group.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a flow group.

1 View a list of flow groups for a virtual port using the “View Flow Group Table” (p. 5-136) task.

Result: The Flow Groups page is displayed. It includes a list of flow group for a virtual port .

2 Click the radio button next to the flow group you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify Flow Group page is displayed.

3 Enter or select required information to modify the flow group.

4 Click the **Submit** button.

Result: The flow group is modified.

END OF STEPS

□

Delete Flow Groups

When to use

Use this task to delete a flow group.

Related information

See the following topic:

- “Virtual Switch and VLAN Management Concepts” (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a flow group.

1 View a list of flow groups for a virtual port using the “View Flow Group Table” (p. 5-136) task.

Result: The Flow Groups page is displayed. It includes a list of flow group for a virtual port .

2 Click the radio button next to the flow group you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The flow group is deleted.

END OF STEPS

□

Provision Egress Scheduling and Queueing Parameters

When to use

Use this task to set the egress traffic class, scheduler method, and weight/priority for a selected LAN or WAN port.

Related information

See the following topic:

- "Virtual Switch and VLAN Management Concepts" (p. 5-79)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the egress traffic class, scheduler method, and weight/priority for a selected LAN or WAN port.

1 View a list of Ethernet ports on an NE using the "View Ethernet Ports" (p. 5-98) task.

Result: The Ethernet ports page is displayed. It includes a list of Ethernet ports on the NE.

2 Select the Ethernet port for which you wish to set the egress. From the Go menu, select **Egress Scheduling and Queueing** and click the **Go** button.

Result: The Egress Scheduling and Queueing page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The egress scheduling and queueing is provisioned.

END OF STEPS

□

Section VII: Equipment

Overview

Purpose

This section discusses network element management for CMISE NEs using the NE Management Functions feature.

Contents

Equipment Concepts (CMISE NEs)

Overview

This section contains conceptual information about equipment for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Equipment category enable the user to perform the following functions:

- Retrieve and set equipment - the user can view a list of slot information, and also modify the slot information for a selected equipment.
- Set the Reset Unit - the user can use a software initiated reset of the given card.
- Retrieve and modify SFP modules - the user can view a list of SFP modules, view a list of SFP module information for a selected slot and modify the SFP module assignment state. The assignment state can only be changed to Unassigned.
- Retrieve and set USB interfaces - the user can view information about USB interfaces as well as USB devices. Additionally, the user can set the USB interface assignment state to **Unassign**.
- Retrieve and set Backplane Mode - the user can view information about Backplane Mode and modify the backplane mode for a selected NE.

SFP module assignment state

After an SFP module is removed from a circuit pack, the SFP module assignment state is set to unassigned. This is typically done so that no alarms are generated. The assignment state can only be set to unassigned only if the SFP module has been removed, so the user cannot request an unassignment of an SFP module that is actually present.

□

View a List of Slots

When to use

Use this task to view a list of slots for a selected CMISE NE.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of slot information for a selected equipment.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Equipment**.

4. In the **Function** field, select **Retrieve/Set Equipment**.
5. Click the **Go** button.

   Result: The Slots page is displayed. It includes a list of slots for the selected NE.

END OF STEPS

□

Modify a Slot

When to use

Use this task to modify a slot for a selected CMISE NE.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a slot.

1. View a list slots using the “View a List of Slots ” (p. 5-143) task.

   Result: The Slots page is displayed and includes a list of slots for the NE.

2. The **Slot** column of the table lists the names of the slots. Click the radio button next to the slot you wish to modify.

3. From the Go menu, select **Modify**.

   Result: The Modify Slot page is displayed

4. Do one or both of the following:
   - In the **Slot state** field, select a radio button to modify the slot state. Possible values are **Auto**, **Assign** or **Unassign**.
   - In the **Set unit type** field, select a type of unit from the drop down list to change the unit type.

5. Click the **Submit** button.

Result: The slot is modified.

END OF STEPS

□

Set the Warm/Cold Reset Unit

When to use

Use this task to set the warm/cold software initiated reset of the given card.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the warm/cold reset unit.

1 View a list slots using the “View a List of Slots ” (p. 5-143) task.

Result: The Slot Lists page is displayed and includes a list of slots for the NE.

2 The **Slot** column of the table lists the names of the slots. Click the radio button next to the slot for which you wish to reset.

3 Do one of the following:

- From the Go menu, select **Warm Reset**.
- From the Go menu, select **Cold Reset**.

Result: The selected card is reset to Warm/Cold.

END OF STEPS

□

View a List of SFP Modules

When to use

Use this task to view a list of SFP modules for a selected CMISE NE.

There are two methods to this task.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Method 1: From the Network Elements page

Complete the following steps to view a list of SFP modules for a selected NE

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Equipment**.

4. In the **Function** field, select **Retrieve/Modify SFP Modules**.
5. Click the **Go** button.

   Result: The SFP Modules page is displayed. It includes a list of SFP modules for the selected NE.

END OF STEPS

Task, Method 2: From the Slots page

Complete the following steps to view a list of SFP modules for a selected NE.

1 View a list slots using the "View a List of Slots " (p. 5-143) task.

Result: The Slot Lists page is displayed and includes a list of slots for the NE.

2 The **Slot** column of the table lists the names of the slots. Click the radio button next to the slot for which you wish to view SFP modules.

3 From the Go menu, select **SFP Modules**.

Result: The SFP Modules page is displayed. It includes a list of SFP modules for the selected slot.

END OF STEPS

□

View SFP Module Information

When to use

Use this task to view SFP information for a selected CMISE NE.

This task has two methods.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Method 1: From the Network Elements page

Complete the following steps to view SFP module information.

1 View SFP module information using the “View a List of SFP Modules” (p. 5-148) task.

Result: The SFP Modules page is displayed and includes a list of SFP modules for the NE.

2 The **SFP module** column of the table lists the names of the SFP modules. Click the radio button next to the SFP module you wish to view.

3 From the Go menu, select **SFP Module Information**.

Result: The SFP Module information page is displayed, which lists information for the selected SFP module.

END OF STEPS

Task, Method 2: From the Slot List

Complete the following steps to view a list of SFP module information.

1 View a list slots using the “View a List of Slots ” (p. 5-143) task.

Result: The Slots page is displayed and includes a list of slots for the NE.

2 The **Slot** column of the table lists the names of the slots. Click the radio button next to the slot you wish to modify.

3 From the Go menu, select **SFP Modules**.

Result: The SFP Modules page is displayed. It includes a list of SFP modules for the selected NE.

4 The **SFP module** column of the table lists the names of the SFP modules. Click the radio button next to the SFP module you wish to view.

5 From the Go menu, select **SFP Module Information**.

Result: The SFP Module information page is displayed, which lists information for the selected SFP module.

END OF STEPS

□

Set the SFP Module Assignment State

When to use

Use this task to set the SFP module assignment state for a selected CMISE NE.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the SFP module assignment state.

1 View SFP module information using the “View a List of SFP Modules” (p. 5-148) task.

Result: The SFP Modules page is displayed and includes a list of SFP modules for the NE.

2 The **SFP module** column of the table lists the names of the SFP modules. Click the radio button next to the SFP module you wish to view.

3 From the Go menu, select **Unassign SFP module**.

Result: The SFP module assignment state is set to Unassigned.

END OF STEPS

□

View USB Interface Information

When to use

Use this task to view the USB interface information for a selected CMISE NE slot.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the USB interface information for a selected CMISE NE slot.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Equipment**.

4. In the **Function** field, select **Retrieve/Set USB interfaces**.
5. Click the **Go** button.

   Result: The USB Interface Information page is displayed.

END OF STEPS

□

View USB Device Information

When to use

Use this task to view information about the USB device resident in the selected USB interface.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view USB device information.

1 View USB interface information using the “View USB Interface Information ” (p. 5-153) task.

Result: The USB Interface Information page is displayed and includes USB interface information for a selected CMISE NE slot.

2 The **USB interface** column of the table lists the names of the USB interfaces. Click the radio button next to the USB interface for which you wish to view USB device information.

3 From the Go menu, select **USB device information**.

Result: The USB Device Information page is displayed.

END OF STEPS

□

Set the USB Interface Assignment State

When to use

Use this task to set the USB interface assignment state for a selected CMISE NE.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the USB interface assignment state of a selected CMISE NE.

1 View USB interface information using the “View USB Interface Information ” (p. 5-153) task.

Result: The USB Interface page is displayed and includes a list of USB interfaces for the NE.

2 The **USB interface** column of the table lists the names of the USB interfaces. Click the radio button next to the USB interface for which you wish to set the assignment state.

3 From the Go menu, select **Unassign USB interface**.

Result: The USB interface assignment state is set to Unassigned.

END OF STEPS

□

View Backplane Mode Information

When to use

Use this task to view the Backplane Mode information for a selected CMISE NE slot.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

Important! This task is supported only for 1663 Add Drop Multiplexer-universal (ADMu) NEs using an LKA20 Controller Card.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the Backplane mode information for a selected CMISE NE slot.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button corresponding to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **Equipment**.
4. In the **Function** field, select **Retrieve/Set Backplane Mode**.
5. Click the **Go** button.

   Result: The Shelf Backplane Mode Information page is displayed.

END OF STEPS

□

Set the Backplane Mode Information

When to use

When an LKA20 System Controller Card is fitted, the Shelf Backplane can be configured by the management system to allow operation in Normal or Extended mode.

Use this task to set the mode for a selected CMISE NE.

Related information

See the following topic:

- “Equipment Concepts (CMISE NEs)” (p. 5-142)

  Important! If the Backplane Mode is provisioned to ’Normal’, the backplane extension EEPROM is not used even if present. The system offers restricted functionality (e.g. only 32 DCC channels).

  If the Backplane Mode is provisioned to ’Extended’, the backplane extension EEPROM is used and system offers extended functionality (e.g. 128 DCC channels).

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the Shelf Backplane Mode of a selected CMISE NE.

1 View Backplane Mode information using the “View Backplane Mode Information” (p. 5-157) task.

Result: The Shelf Backplane Mode page is displayed.

2 In the **Operation** field, select a mode from the drop down list to change the backplane mode.

3 Click the **Submit** button.

Result: The backplane mode is modified.

END OF STEPS

□

Section VIII: External Control and Monitoring Points

Overview

Purpose

This section discusses alarms and events for CMISE NEs using the NE Management Functions feature.

Contents

External Control and Monitoring Points Concepts

Overview

This section contains conceptual information about external control and monitoring points for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the External Control and Monitoring Points category enable the user to perform the following functions:

- Retrieve and set MDIs - the user can view and modify MDIs.
- Retrieve and set MDOs - the user can view and modify MDOs. Additionally, the user can view the alarms associated with an MDO.

Miscellaneous discrete inputs (MDIs)

An MDI is an input to an NE (shelf or card) that is able to detect external conditions. The MDIs have identifiers which can be configured for some NEs. The management system reports the received condition of an MDI. The number of MDIs that can be managed differs for each NE type.

Important! In the case where the SHDSL Remote Power Supply is managed then the 4 MDIs on the NE are no longer available to the user, the 3 MDIs on the SHDSL Remote Power Supply box are used instead. If this is the case, the management system displays the message “MDIs are located on Remote Power Supply”. For more information on SHDSL service, see “Section XII: SHDSL Service” (p. 5-245).

Miscellaneous discrete outputs (MDOs)

An MDO is an output from an NE (shelf or card) used to drive external equipment. The MDOs have identifiers which can be configured for some NEs. For some NEs, the MDO can be switched to a different state (for example, MDO is active, MDO is inactive, or MDO depends on current alarms). The number of MDOs that can be managed differs for each NE type. The management system is able to disable the suppression and/or disconnection of alarms that are associated with an MDO.

Important! In the case where the SHDSL Remote Power Supply is managed then the 4 MDOs on the NE are no longer available to the user, the 3 MDOs on the SHDSL Remote Power Supply box are used instead. If this is the case, the management system displays the message “MDOs are located on Remote Power Supply”. For more information on SHDSL service, see “Section XII: SHDSL Service” (p. 5-245).

View a List of MDOs

When to use

Use this task to view a list of miscellaneous discrete outputs (MDOs).

Related information

See the following topic:

- "External Control and Monitoring Points Concepts" (p. 5-162)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of MDOs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Alarms and Events**.

4. In the **Function** field, select **Retrieve/Set MDO**.
5. Click the **Go** button.

   Result: The MDOs page is displayed. It includes a list of MDOs.

END OF STEPS

□

View Alarms Associated with an MDO

When to use

Use this task to view alarms associated with an MDO.

Related information

See the following topic:

- “External Control and Monitoring Points Concepts” (p. 5-162)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view alarms associated with an MDO.

1 View a list of MDOs using the “View a List of MDOs” (p. 5-163) task.

Result: The MDOs page is displayed. It includes a list of MDOs on the NE.

2 Click the radio button next to the MDO for which you wish to view alarms.

Result: The alarms associated with the MDO are displayed below the table.

END OF STEPS

□

Modify a MDO

When to use

Use this task to modify a miscellaneous discrete output (MDO).

Related information

See the following topic:

- "External Control and Monitoring Points Concepts" (p. 5-162)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an MDO.

1 View a list of MDOs using the "View a List of MDOs" (p. 5-163) task.

Result: The MDOs page is displayed. It includes a list of MDOs on the NE.

2 Do one of the following:

- Click the radio button next to the MDO you wish to modify. From the **Go** menu, select **Modify** and click the **Go** button.
- Click the radio button next to the MDO you wish to modify. Click the hyperlink in the **MDO ID** field.

Result: The Modify MDO page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The MDO is modified.

END OF STEPS

□

View a List of MDIs

When to use

Use this task to view a list of miscellaneous discrete inputs (MDIs).

Related information

See the following topic:

- "External Control and Monitoring Points Concepts" (p. 5-162)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of MDIs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go**button.

  Result: The NE Management Functions page is displayed.

2 Complete the following steps to select a function to be sent to the target NE.

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Alarms and Events**.

4. In the **Function** field, select **Retrieve/Set MDI**.
5. Click the **Go** button.

   Result: The MDIs page is displayed. It includes a list of MDIs.

END OF STEPS

□

Modify a MDI

When to use

Use this task to modify a Miscellaneous Discrete Input (MDI).

Related information

See the following topic:

- "External Control and Monitoring Points Concepts" (p. 5-162)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a MDI.

1 View a list of MDIs using the "View a List of MDIs" (p. 5-167) task.

Result: The MDIs page is displayed. It includes a list of MDIs on the NE.

2 Do one of the following:

- Click the radio button next to the MDI you wish to modify. From the Go menu, select **Modify** and click the **Go** button.
- Click the radio button next to the MDI you wish to modify. Click the hyperlink in the **MDI ID** field.

Result: The Modify MDI page is displayed.

3 Enter a new name in the **MDI Name** field.

4 Click the **Submit** button.

Result: The MDI is modified.

END OF STEPS

□

Section IX: Network Elements

Overview

Purpose

This section discusses provisioning network elements for CMISE NEs using the NE Management Functions feature.

Contents

Network Element Concepts

Overview

This section contains conceptual information about provisioning NEs for CMISE NEs using the NE Management Functions pages. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Network Element category enable the user to perform the following functions:

- Manage MIB - the user can manage the Management Information Base (MIB) within a network element and the MIB image stored within the WaveStar® ITM-SC controller.
- Retrieve and set low order cross-connection size - the user can upgrade the low-order cross-connection size for a 1663 Add Drop Multiplexer-universal (ADMu) NE with an STM-64 core unit capable of 20 Gbit/s low-order switch size capacity but currently set to 10 Gbit/s low-order cross-connection size.
- QOS Configuration - the user can enable or disable the Ethernet QOS configuration.

MIB management

MIB management includes the following functions:

- Association Management
- Synchronization - including MIB download, MIB upload, MIB image update

Association management

The Optical EMS controller attempts to maintain an association through a set of association states with each NE in its management domain. This association runs over the Data Communication Network (DCN). The NE and the Optical EMS controller can communicate only when the association is active (connected).

The Optical EMS controller allows the user to enable or disable management of the NE. The effect of this command depends on the current association state.

MIB synchronization

The Optical EMS controller maintains an image in its database of each managed NE's MIB. The MIB is the database located in the NE which has all the configuration data required for management of the NE. During normal operations, the NE MIB and Optical EMS controller MIB image of each NE both have the same information within them.

During the management of the NEs, communication may be lost between the Optical EMS controller and the managed NEs. In order to regain proper management control, the MIB and MIB image must be synchronized by performing one of the following operations. On association recovery, the Optical EMS controller will automatically perform the most appropriate option, or let the user decide which to perform.

- **MIB Upload** - the current MIB in the NE is copied over the MIB image in the Optical EMS controller.
- **MIB Download** - the current MIB image in the Optical EMS controller is copied over the MIB in the NE.
- **Update MIB Image** - the Optical EMS controller is able, via a special mechanism, to check which parts of the NE's MIB differ from the MIB image. The Optical EMS controller will then get the latest copy of these parts which will resynchronize the MIB. This will normally be quicker than performing a full MIB upload. This feature is also known as MIB Resync.

□

Manage MIB

When to use

Use this task to manage the Management Information Base (MIB) within a network element and manage the MIB image stored within the Optical EMS controller.

Related information

See the following topic:

- “Network Element Concepts” (p. 5-171)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to manage the Management Information Base (MIB) within a network element and manage the MIB image stored within the Optical EMS controller.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **Network Elements**.
4. In the **Function** field, select **Manage MIB**.
5. Click the **Go** button.

   Result: The Manage MIB page is displayed.

3 Select one of the following options from the Go menu and click the **Go** button.

- **MIB Upload**
- **MIB Download**
- **Update MIB Image**
- **Enable association**
- **Disable association**

Result: The requested action is performed.

END OF STEPS

□

Upgrade the Low-Order Cross-Connection Size for a 1663 Add Drop Multiplexer-universal (ADMu) NE

When to use

Use this task to upgrade the low-order cross-connection size for a 1663 Add Drop Multiplexer-universal (ADMu) NE with an STM-64 core unit capable of 20 Gbit/s low-order switch size capacity but currently set to 10 Gbit/s low-order cross-connection size.

Related information

See the following topic:

- "Network Element Concepts" (p. 5-171)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to upgrade the low-order cross-connection size for a 1663 Add Drop Multiplexer-universal (ADMu) NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Network Elements**.
4. In the **Function** field, select **Retrieve/Set Low Order Cross-connect size**.
5. Click the **Go** button.

   Result: The NE Low Order Cross-connect Size page is displayed.

3 In the **Operation** field, select **Upgrade Low order connect size**.

Result: The low-order cross-connection size for the selected 1663 Add Drop Multiplexer-universal (ADMu) NE is upgraded.

END OF STEPS

□

Enable or Disable QOS Configuration

When to use

Use this task to enable or disable the QOS configuration for a selected CMISE NE.

This task has two methods.

Related information

See the following topic:

- “Ethernet Quality of Service Management” (p. 5-80)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task, Method 1: From the Network Elements category

Complete the following steps to enable or disable QOS configuration for selected CMISE NEs.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **Network Elements**.
4. In the **Function** field, select **QOS Configuration**.
5. Click the **Go** button.

   Result: The QOS Configuration page is displayed.

3 In the **QOS configuration capability** field, select either the **Enabled** or **Disabled** radio button.

Result: The QOS configuration is either enabled or disabled.

END OF STEPS

Task, Method 2: From the QOS Profiles page

Complete the following steps to enable or disable QOS configuration for selected CMISE NEs.

1 View a list of QOS profiles on an NE using the "View QOS Profiles" (p. 5-129) task.

Result: The QOS Profiles page is displayed.

2 From the QOS Configuration Capability panel, select the **QOS configuration capability** hyperlink.

Result: The QOS Configuration page is displayed.

3 In the **QOS configuration capability** field, select either the **Enabled** or **Disabled** radio button.

Result: The QOS configuration is either enabled or disabled.

END OF STEPS

□

Section X: Ports

Overview

Purpose

This section discusses ports for CMISE NEs using the NE Management Functions feature.

Contents

Ports Concepts (CMISE NEs)

Overview

This section contains conceptual information about setting and monitoring ports for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Ports category enable the user to perform the following functions:

- Retrieve and set signal degrade thresholds - the user can view and modify signal degrade thresholds.
- Retrieve and set physical ports - the user can view and modify physical port details, modify output timing parameters and modify optical port details.
- Retrieve and set logical ports - the user can view and modify logical port details.
- Retrieve and set P12 port information - the user can view and modify P12 port parameters.

Signal degrade thresholds

The threshold values are determined by the B3 BER Supervision setting for the selected Port Type (Burst Mode or Poisson Mode). Signal degrade thresholds can be provisioned for each port type on an NE. For each port type two thresholds can be provisioned. In the management system, these are shown as Value 1 and Value 2.

Each threshold consists of two parameters.

- **Required Consecutive Bad Seconds** - the measurement interval over which the signal is measured. The default interval is 7 seconds and can be set for an interval of between 2 seconds to 10 seconds.
- **Errored Blocks/Second** - the number of errored blocks per second. The value range for this parameter depends on the port type.

A signal is considered degraded when the provisioned number of errored blocks per second (or more) are counted for the required consecutive bad seconds. Once the signal degrade thresholds have been provisioned, the user can then select which of these two thresholds they wish to use for each resource.

For more information see *OMS Service Assurance Guide*.

Reload from NE button

The following pages contain a **Reload from NE** button, which allows the displayed NE port parameter values to be updated with the most current port parameter values existing on the NE.

- Modify Optical Port
- Modify Physical Port
- Modify Logical Port

For the Modify Physical Port page only Ethernet parameters are updated, therefore the **Reload from NE** button is visible only for Ethernet based ports.

Change the active port (1655 Access Multiplexer Universal (AMU) NEs)

For 1655 Access Multiplexer Universal (AMU) NEs, ports 7, 8, 9 and 10 of the DI-EPL_E1/4+4 and DI-ESW4_E14 option cards can be used as E/FE/GbE LAN port pairs. The Usage State column on the Physical Ports page indicates which port is Active or Inactive. To change the active port of a E/FE/GbE LAN port pair on these cards, use the **Activate Port** Go menu option on the Physical Ports page.

P12 Ports

Using the NE Management Functions pages for CMISE NEs, the user can view and modify P12 ports. P12 ports are 2 Mbit/s ISDN, 2 Mbit/s LTU or 2 Mbit/s NTU logical ports

□

View Signal Degrade Thresholds

When to use

Use this task to view a list of signal degrade threshold settings configured on the selected NE.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view signal degrade thresholds for a selected NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set Signal Degrade Thresholds**.
5. Click the **Go** button.

   Result: The Signal Degrade Thresholds page is displayed. It includes a list of signal degrade threshold settings configured on the selected NE.

END OF STEPS

□

Modify Signal Degrade Thresholds

When to use

Use this task to modify signal degrade thresholds settings on a selected NE port type.

Related information

See the following topics:

- "Ports Concepts (CMISE NEs)" (p. 5-180)
- This feature is not applicable for setting signal degrade thresholds for Poisson Mode B3 BER Supervision.

  Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify signal degrade threshold settings for a selected NE.

1. View a list of signal degrade thresholds settings using the "View Signal Degrade Thresholds" (p. 5-182) task.

   Result: The Signal Degrade Thresholds page is displayed. It includes a list of signal degrade threshold settings of all port types for the selected NE.

2. Click the radio button next to the signal degrade threshold you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

   Result: The Modify Signal Degrade Thresholds page is displayed.

3. Change the entries or selections for any of the fields that are modifiable.

4. Click the **Submit** button.

Result: The signal degrade threshold settings are modified for the selected NE port type.

END OF STEPS

□

View NE Ports (CMISE NEs)

When to use

Use this task to view a list of physical NE ports.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view NE ports (CMISE NEs).

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set Physical Ports**.
5. Click the **Go** button.

   Result: The NE Ports page is displayed. It includes a list of port detail settings configured on the selected NE.

END OF STEPS

□

Modify Physical Port Details (CMISE NEs)

When to use

Use this task to modify physical port details on a selected NE port.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify physical port details on a selected port.

1 View a list of physical port details using the "View NE Ports (CMISE NEs)" (p. 5-186) task.

Result: The NE Ports page is displayed. It includes a list of physical port details of all selected port types for the selected NE.

2 Click the radio button next to the physical port you wish to modify. From the Go menu, select **Modify port details** and click the **Go** button.

Result: The Modify Physical Ports page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The physical port settings are modified for the selected NE port type.

END OF STEPS

□

Modify Optical Port Details (CMISE NEs)

When to use

Use this task to modify optical port details on a selected NE port.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify optical port details on a selected port.

1 View a list of physical port details using the "View NE Ports (CMISE NEs)" (p. 5-186) task.

Result: The NE Ports page is displayed. It includes a list of physical port details of all selected port types for the selected NE.

2 Click the radio button next to the optical port you wish to modify. From the Go menu, select **Modify optical port details** and click the **Go** button.

Result: The Modify Optical Ports page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The optical port settings are modified for the selected NE port type.

END OF STEPS

□

View Logical Port Information (CMISE NEs)

When to use

Use this task to view a list of logical NE ports.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view logical NE port information (CMISE NEs).

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set Logical Ports**.
5. Click the **Go** button.

   Result: The Logical Port Information Search page is displayed. It includes a list of logical port detail settings configured on the selected NE.

3 Enter the following search criteria:

- **NE name** - select the NE name from the drop-down list. This is a required field.
- **Port Type** - select the port type from the drop-down list. This is a required field.
- **Slot** - select the port from the drop-down-list.
- **Physical port** - select the physical port from the drop-down list.
- **Logical port** - enter the logical port. The use of wild cards is supported in this field.

4 Click the **Submit** button.

Result: A list of logical port information is displayed in the search results table. It includes a list of logical port detail settings configured on the selected port.

END OF STEPS

□

Modify Logical Port Details (CMISE NEs)

When to use

Use this task to modify logical port details on a selected NE port.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify logical port details on a selected port.

1 View a list of logical port details using the "Modify Logical Port Details (CMISE NEs)" (p. 5-192) task.

Result: A list of logical port information is displayed in the search results table. It includes a list of logical port detail settings configured on the selected port.

2 Click the radio button next to the logical port you wish to modify. From the Go menu, select **Modify logical port details** and click the **Go** button.

Result: The Modify Logical Ports page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The logical port settings are modified for the selected NE port type.

END OF STEPS

□

View P12 Ports

When to use

Use this task to view a list of P12 ports for a selected CMISE NE.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view P12 ports for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set P12 ports**.
5. Click the **Go** button.

   Result: The P12 Ports page is displayed. It includes a list of P12 port settings configured on the selected NE.

END OF STEPS

□

Modify P12 Port

When to use

Use this task to modify the configuration on a selected CMISE NE P12 port.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the configuration on a selected CMISE NE P12 port.

1 View a list of P12 ports for an NE using the "View P12 Ports" (p. 5-193) task.

Result: A list of P12 port information is displayed in the search results table.

2 Click the radio button next to the P12 TP port you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify P12 TP Port page is displayed. The fields that are displayed depends on the type of P12 port selected.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The P12 TP port settings are modified for the selected CMISE NE port.

END OF STEPS

□

PDH Port List

When to use

Use this task to view a list of PDH ports for a selected CMISE NE.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view PDH ports for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set PDH ports**.
5. Click the **Go** button.

   Result: The PDH Ports search page is displayed.

3 Do the following in the Search panel:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name** field, select the NE name from the drop-down list.
3. Click the **Search** button.

   Result: The list at the bottom of the PDH page is populated with a list of PDH ports that meet your search criteria.

4 The following fields are displayed in the PDH Ports panel:

1. The **Port** field displays the port. This is a read only field.
2. The **Port type** field displays the port type. This is a read only field.
3. The **ISDN mode**field displays the ISDN mode. This is a read only field.
4. The **Port mode** field displays the port mode. This is a read only field.
5. The **Timeslot 0**field displays the time slot. This is a read only field.
6. The **Signal Degrade Threshold**field displays the signal threshold degrade level. This is a read only field.

5 Do the following in the **Go** list options:

- Select **Set port mode to monitored** to enable fault reporting and performance monitoring.
- Select **Set port mode to not monitored** to disable fault reporting and performance monitoring.
- Select **Set value1 for degrade threshold** to monitor the signal degrade threshold level 1.
- Select **Set value2 for degrade threshold** to monitor the signal degrade threshold level 2.

END OF STEPS

□

View MS Port List

When to use

Use this task to view a list of MS ports for a selected CMISE NE.

Related information

See the following topic:

- "Ports Concepts (CMISE NEs)" (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view MS ports for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set MS ports**.
5. Click the **Go** button.

   Result: The MS Ports search page is displayed.

3 Do the following in the Search panel:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name** field, select the NE name from the drop-down list.
3. Click the **Search** button.

   Result: The list at the bottom of the MS page is populated with a list of MS ports that meet your search criteria.

4 The following fields are displayed in the MS Ports panel:

1. The **Port** field displays the port. This is a read only field.
2. The **Signal Degrade Threshold** field displays the signal threshold degrade level. For Burst Mode B3 error supervision, displays the Signal Degrade Threshold Setting (value 1 or value 2). For Poisson Mode B3 error supervision, displays the Poisson Mode. This is a read only field.
3. The **Forced DNU**field displays the Forced DNU. This is a read only field.
4. The **SSM out** field displays the SSM out. This is a read only field.
5. The **REI mode**field displays the REI mode. This field is displayed only for STM-64 ports on 1663 Add Drop Multiplexer-universal (ADMu).
6. The **Transmitted SS** field displays the Transmitted SS information. This field is not applicable for 1643 Access Multiplexer (AM), 1643 Access Multiplexer Small (AMS) and 1655 Access Multiplexer Universal.
7. The **MSP Port Pair** field displays the MSP port pair information.

5 Do the following in the **Go** list options:

- Select **Set Transmitted SS-bit to SDH mode** to set the transmit SS-bit to SDH mode.
- Select **Set Transmitted SS-bit to SONET mode** to set the transmitted SS-bit to SONET mode.
- Select **Modify MS Ports** to open the Modify MS Port page.
- Select **Modify AU-4 concatenation** to open the Modify AU-4 concatenation page.
- Select **Modify MS Port AU Type** to open the Modify MS Port AU Type page.

END OF STEPS

Modify MS Port

When to use

Use this task to modify the configuration on a selected CMISE NE MS port.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the configuration on a selected CMISE NE MS port.

1 View a list of MS ports for an NE using the task “View MS Port List” (p. 5-198).

Result: A list of MS port information is displayed in the search results table.

2 Click the radio button next to the port you wish to modify. From the Go menu, select **Modify MS Port** and click the **Go** button.

Result: The Modify MS Port page is displayed. The fields that are displayed depends on the type of MS port selected.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The MS port settings are modified for the selected CMISE NE port.

END OF STEPS

□

View MS Port AU Type

When to use

Use this task to view MS Ports AU type for a selected CMISE NE.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view MS ports AU type for a selected CMISE NE.

1 From the **Go** menu options list of the MS Port page, select **MS Port AU Type** and click the **Go** button.

Result: The MS Port AU Type page is displayed.

2 Do the following in the Search panel:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name** field, select the NE name from the drop-down list.
3. Click the **Search** button.

Result: The list at the bottom of the MS Port AU Type page is populated with a list of MS ports AU type that meet your search criteria.

3 The following fields are displayed in the AU type Ports panel:

1. The **Port** field displays the port. This is a read only field.
2. The **AU type** field displays the AU type.

4 Do the following in the **Go** list options:

- Select **Set AU type to AU-3** to set the Au type to AU-3.
- Select **Set AU type to AU-4** to set the Au type to AU-4.

END OF STEPS

□

View / Modify AU-4 Concatenation

When to use

Use this task to view or modify the AU-4 Concatenation for a selected CMISE NE.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view or modify the AU-4 Concatenation for a selected CMISE NE.

1 From the **Go** menu options list of the MS Port page, select **AU-4 Concatenation** and click the **Go** button.

Result: The AU-4 Concatenation page is displayed.

2 Do the following in the AU-4 Concatenation panel:

1. Use the arrow keys to move the ports between **AU-4**, **AU-4-4c** and **AU-4-16c**.

3 Click the **Submit** button.

Result: The AU-4 Concatenation page is modified.

END OF STEPS

□

View RS Port List

When to use

Use this task to view a list of RS ports for a selected CMISE NE.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view RS ports for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Ports**.

4. In the **Function** field, select **Retrieve/Set RS ports**.
5. Click the **Go** button.

   Result: The RS Ports search page is displayed.

3 Do the following in the Search panel:

1. In the **NE type** field, select the NE type from the drop-down list.
2. In the **NE name**field, select the NE name from the drop-down list.
3. Click the **Search** button.

   Result: The list at the bottom of the RS page is populated with a list of MS ports that meet your search criteria.

4 The following fields are displayed in the RS Ports panel:

1. The **Port** field displays the port. This is a read only field.
2. The **TTI mismatch**field displays the TTI mismatch. This is a read only field.
3. The **Consequent action on TTI mismatch**field displays the Consequent action on TTI mismatch. This is a read only field.

5 Do the following in the **Go** list options:

- Select **Modify RS Ports** to open the Modify RS Port page.

END OF STEPS

□

Modify RS Port

When to use

Use this task to modify the configuration on a selected CMISE NE RS port.

Related information

See the following topic:

- “Ports Concepts (CMISE NEs)” (p. 5-180)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the configuration on a selected CMISE NE MS port.

1 View a list of MS ports for an NE using the task “View RS Port List” (p. 5-205).

Result: A list of RS port information is displayed in the search results table.

2 Click the radio button next to the port you wish to modify. From the Go menu, select **Modify RS Port** and click the **Go** button.

Result: The Modify RS Port page is displayed. The fields that are displayed depends on the type of RS port selected.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The RS port settings are modified for the selected CMISE NE port.

END OF STEPS

□

Section XI: Protection Groups

Overview

Purpose

This section discusses protection groups for CMISE NEs using the NE Management Functions feature.

Contents

Protection Groups Concepts

Overview

This section contains conceptual information about protection groups for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Protection Groups category enable the user to perform the following functions:

- Retrieve and set equipment protection - the user can view and add equipment protection groups, modify and delete members of equipment protection groups and make protection switch requests for selected equipment protection groups. For more information, see “Equipment Protection Groups” (p. 5-210).
- Retrieve and set Multiplex Section-Shared Protection Ring (MS-SPring) - the user can view a list of MS-SPring protection schemes, execute, disable and add a MS-SPring protection schemes, view the details of a MS-SPring protection scheme and view the MS-SPring protection scheme map.
- Retrieve and set MSP protection - the user can view a list of MSP protection groups, add, modify and delete MSP protection groups and execute a protection switch.
- SNC DNI Protection Groups - the user can view a list of SNC Protection Groups and modify SNC Protection Groups.
- Cascading Protection Groups - the user can view a list of Cascading Protection Groups and modify the Cascading Protection Groups.
- DNI protection Groups - the user can view a list of DNI Protection Groups and modify the DNI Protection Groups.

□

Equipment Protection Groups

Equipment Protection

Equipment Protection Groups are supported for the following NEs:

- 1663 Add Drop Multiplexer-universal (ADMu)
- Metropolis® ADM MultiService Mux (Compact Shelf)
- WaveStar® ADM 16/1
- 1655 Access Multiplexer Universal (AMU)

Equipment protection types

Two types of equipment protection groups are supported:

- 1+1 equipment protection
- 1:N equipment protection

The following table lists the equipment protection schemes supported for each NE.

Protection Type	Protection Level	Revertive	1663 Add Drop Multiplexer-universal (ADMu)	Metropolis® ADM MultiService Mux (Compact Shelf)	WaveStar® ADM 16/1	1655 Access Multiplexer Universal (AMU)
1+1	CCU	Non-revertive	No	No	Yes	No
1+1	PSF/TU	Non-revertive	No	No	Yes	No
1+1	E3/DS3 TPU	Non-revertive	Yes	Yes	Yes	No
1+1	E3 TPU	Non-revertive	No	No	Yes	No
1+1	DS3 TPU	Non-revertive	No	No	Yes	No
1+1	SI-1/4 TPU	Non-Revertive	Yes	Yes	No	No
1+1	CORE unit	Non-revertive	Yes	Yes	No	No
1:N	E1 2Mbit/s TPU	Revertive	Yes	Yes	Yes	No
1:N	DS1 1.5Mbit/s TPU	Revertive	Yes	Yes	Yes	No
1:N	E4/STM-1E	Revertive	No	Yes	Yes	No
1:N	SPIA-1E4/4	Revertive	No	No	Yes	No
1:N	SI-1/4 TPU	Revertive	No	Yes	Yes	No
1:N	Main Board	Revertive	No	No	No	Yes

1+1 equipment protection switch states

Only non-revertive 1+1 equipment protection is supported.

The protection switch states are defined by indicating whether the working or protection slot is the standby slot and the group condition (Forced Switched, Unit Failed, Manual Switched, or No Request). The following protection switch states are supported for non-revertive protection:

- **Forced Switched to Protection** - The protection slot is the standby slot and the group condition is Forced Switched. This state only applies to non-revertive protection.
- **Forced Switched to Working** - The working slot is the standby slot and the group condition is Forced Switched.
- **Unit Failed, Protection** - The protection slot is the standby slot and the group condition is Unit Failed.
- **Unit Failed, Working** - The working slot is the standby slot and the group condition is Unit Failed.
- **Manual Switched to Protection** - The protection slot is the standby slot and the group condition is Manual Switched.
- **Manual Switched to Working** - The working slot is the standby slot and the group condition is Manual Switched.
- **No Request, Protection** - The protection slot is the standby slot and the group condition is No Request.
- **No Request, Working** - The working slot is the standby slot and the group condition is No Request.

1+1 equipment protection switch requests

The protection switch requests which can be performed by the management system are:

- Clear
- Forced Switch to Working
- Forced Switch to Protection
- Manual Switch to Working
- Manual Switch to Protection

Wait-to-restore timer

In the case of revertive switching, if the protection slot is active due to a failure in the working slot and the failure condition clears, then the wait-to-restore timer is started. When the timer expires the selector is switched back to the preferred working state and the working slot is made active. Each protection group is provided with its own wait-to-resore timer, which is provisionable in steps of one minute between 0 and 60 minutes. A newly provisioned value of the wait-to-restore timer does not take effect until any current timer has expired.

1:N equipment protection

Only revertive 1:N equipment protection is supported.

The protection switch states are defined by whether the working or protection slot is the standby and the group condition (Locked Out, Forced Switched, Unit Failed, Manual Switched, No Request or Wait to Restore). The following protection switch states are supported:

- **Lockout of Protection** - The protection slot is the standby slot and the group condition is Locked Out.
- **Unit Failed, Protection** - The protection slot is the standby slot and the group condition is Unit Failed.
- **Unit Failed, Working** - The working slot is the standby slot because it is faulty and being replaced by the protection slot and the group condition is Unit Failed.
- **No Request, Protection** - The protection slot is the standby slot and the group condition is No Request.
- **Wait To Restore, Working** - The working slot is the standby slot because it was faulty and replaced by the protection slot but now is fault free and waiting to be active. The group condition is Wait to Restore.

1:N equipment protection switch requests

The 1:N equipment protection switch requests that can be requested by the management system are as follows:

- Clear
- Lockout of Protection
- Forced Switch to Protection
- Manual Switch to Protection

□

MSP Protection Groups

MSP protection groups

1+1 protection is a dedicated protection technique for enhancing the availability of a given resource, in this case, a multiplex section connection. In 1+1 Multiplex Section Protection (MSP), at the head-end all higher order VCs are bridged into two multiplex sections. At the tail-end, a selector extracts the VC from one of both multiplex sections. In case of fault conditions or management system requests, one multiplex section resource can take over the role from the other multiplex section resource. Both resources together form a 1+1 protection group.

MSP pairs support two modes of operation:

- ITU / ETSI Mode (Annex A) Compliance with ETS 300 746, and ITU-T Rec. G.841, G.783 is required in the ETSI market. Refer to ETS 300 746, and ITU-T Rec. G.841, G.783 for more information on this subject.
- ITU 1+1 Optimized mode (Annex B) Compliance with NTT specification, and G.841, G.783 is required in the Japanese market. Refer to NTT specification, and ITU Rec. G.841, G.783 for more information on this subject.

SONET interworking

Interworking with SONET equipment (which provides MSP according to Bellcore/ANSI standard) is done with 1+1, non-revertive, unidirectional, ITU / ETSI Mode. Under these conditions, a special SONET interworking option can be provisioned from the management system.

MSP operation

It is only possible to pair transmission multiplex sections on two adjacent interface units in tributary slot-pairs 1-2, 3-4, 5-6, 7-8, or in the line slot pair, to a Multiplex Section Protection Group. The ports in the odd slot are working, the ports in the even slot are protection.

It is only possible to pair ports with the same port number on both units. The units must be of the same type. If the interface units support more than one type of MSP protocol, the type of protocol is user selectable, individually for each protection group. It is only possible to pair ports if the units on which the ports are located are assigned.

MSP modes of operation

The protection switch mode of 1+1 protection groups can be revertive or non-revertive:

- With revertive protection, service returns to the working MS after the condition that caused the switching to the protection MS has been cleared.
- With non-revertive protection, active/standby MS assignment in the group will be maintained after the condition that caused the protection switch has been cleared.

The protection communication mode can be unidirectional or bi-directional.

- Unidirectional switching means that both tail-ends of a bidirectional subnetwork connection are controlled independently of each other.
- Bidirectional switching means that both ends operate together based on a protocol.

The following table describes modes supported for all configurations:

MSP Type	Communication Mode	Switch Mode	Restoration Mode
Annex A (ITU / ETSI)	Unidirectional Bidirectional	Revertive Non-revertive	Wait to restore (WTR) (Revertive Only)
Annex B (NTT)	Bidirectional	Non-revertive	Wait to rename (WTR)

For bidirectional communication mode, near-end and far-end switch states can be retrieved.

Timer provisioning

The following are timers that the user can provision:

- Wait-to restore timer
- Wait-to-rename timer
- Hold-off timer

Wait-to-restore timer

The Wait-to-restore timer applies to ITU / ETSI Mode (Annex A). If, in case of revertive switching, the VCs are selected from the protection MS due to a fail or degrade condition on the working MS, and the condition clears, then the wait-to-restore timer is started. When the timer expires, the selector is switched back to the preferred working state. Each protection group is provided with its own wait-to-restore timer, which is provisionable from the management system in steps of one minute between 0 and 60 minutes. A newly provisioned value of the wait-to-restore timer does not take effect until any current timer has expired.

Wait-to-rename timer

The wait-to-rename timer applies to ITU 1+1 Optimized mode (Annex B). In Annex B, the APS channel is transmitted on both the working and primary multiplex sections, and at the receive side a selection is made the from working or protection section. The section from which the APS is selected is referred to as ″secondary.″ The other section is referred to as ″primary.″ If the VCs are selected from the secondary MS, and the fail or degrade condition on the primary MS clears, the wait-to-rename timer is started. When the timer expires, the secondary MS is renamed to ″primary,″ and the primary MS is renamed to ″secondary.″ Each protection group is provided with its own wait-to-rename timer, which is provisionable from the management system in steps of one minute between 0 and 60 minutes. A newly provisioned value of the wait-to-rename timer does not take effect until the timer has expired.

Hold-off timer

A hold-off timer provides a delay between the moment that the signal fail or degrade condition is set, and the start of the execution of the switchover. Each protection group contains one hold-off timer, which is triggered by the four SF/SD condition inputs. The hold-off timer is started by the activation of the first SF or SD condition. If all conditions are cleared before the hold-off timer terminates, the execution of the switchover is not be started and is not forgotten.

Each protection group is provided with its own hold-off timer, which can be provisioned from the management system. A newly provisioned value of a hold-off timer does not take effect until the hold-off timer has expired.

Fail condition

Whenever a fault condition is present in an MS, and after some integration time has elapsed, the management system indicates the detected fault. This is shown as the fail condition.

MSP protection switch states and protection switch requests

Protection switch requests can be initialized from the management system.

The following switch requests are possible:

- Clear
- Lockout
- Forced switch (to Working or Protection)
- Manual Switch (to Working or Protection)

It is also possible to retrieve the protection switch state of the MSP group. In bidirectional mode, this will be possible for both the near- and far-end sites.

Note that a clear command clears a WTR timer that has not yet expired.

MSP protection switch states

The protection switch states are defined by the slot which is standby (working or protection) and the group fail condition (Free, Unit Failed, or No Request). The following protection switch states are supported by the management system:

- P,Free (Protection, Free): The protection slot is the standby slot and the group condition is Free.
- W,Free (Working, Free): The working slot is the standby slot and the group condition is Free.
- P,UF (Protection, Unit Failed): The protection slot is the standby slot and the group condition is Unit Failed.
- W,UF (Working, Unit Failed): The working slot is the standby slot and the group condition is Unit Failed.
- P,NR (Protection, No Request): The protection slot is standby slot and the group condition is No Request.
- W,NR (Working, No Request): The working slot is standby slot and the group condition is No Request.

MSP protection switch requests

The following Protection Switch Requests (PSRs) can be initiated from the management system (via the MSP Hardware Protection Switch Request):

- Clear (Clr)
- Free Working Unit (Free_W) - the protection slot is requested to be the active.
- Free Protection Unit (Free_P) - the working slot is requested to be the active.

Additional equipment protection for MSP protection groups

In case of MSP protection on tributaries, the MSP switch is on the tributary unit itself. Each of both units provide an MSP switch. The MSP switch and circuitry after the MSP is duplicated, and thus can be protected. Because this is outside the protection provided by MSP, an additional equipment protection is provided.

The additional protection improves the channel availability (which is mainly determined by not-protected and non-monitored parts) and it supports maintenance actions. For the latter, a ″free″ command is provided for. The ″free″ commands routes all traffic over the MSP switch and circuitry after the MSP switch on the working or protection unit. If the MSP-protected part of the traffic is also routed over the same unit, then the other unit is free of traffic.

The additional equipment protection is automatically be provisioned if MSP is provisioned on any ports of the protection pair. It does not apply for ports which are not protected by MSP.

There is no coupling between the MSP processes and equipment protection process, except for the automatic provisioning of the equipment protection group. The only provisionable value of additional equipment protection are the protection switch requests.

□

View a List of Equipment Protection Groups

When to use

Use this task to view a list of equipment protection groups.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is support for the following CMISE NEs:

- Metropolis® ADM MultiService Mux (Compact Shelf)
- 1663 Add Drop Multiplexer-universal (ADMu)
- WaveStar® ADM 16/1
- 1655 Access Multiplexer Universal (AMU)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of equipment protection groups.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Protection Groups**.
4. In the **Function** field, select **Retrieve/Set Equipment Protection**.
5. Click the **Go** button.

   Result: The Equipment Protection Groups page is displayed.

3 In the **NE type** field, select the type of NE.

4 In the **NE name** field, select the name of an NE.

5 In the **Circuit pack and protection type** field select a circuit pack and protection type from the pull-down list.

6 Click the **Search** button.

Result: The list at the bottom of the Equipment Protection page is populated with a list of the equipment protection groups that meet your search criteria.

END OF STEPS

□

Add an Equipment Protection Group

When to use

Use this task to add an equipment protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

  Important! This task is supported for 1+1 Equipment Protection Groups on the following CMISE NEs:

  - Metropolis® ADM MultiService Mux (Compact Shelf)
  - 1663 Add Drop Multiplexer-universal (ADMu)
  - WaveStar® ADM 16/1
  - 1655 Access Multiplexer Universal (AMU)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add an equipment protection group.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Protection Groups**.
4. In the **Function** field, select **Retrieve/Set Equipment Protection**.
5. Click the **Go** button.

   Result: The Equipment Protection Groups page is displayed.

3 In the **NE type** field, select the type of NE.

4 In the **NE name** field, select the name of an NE.

5 In the **Circuit pack and protection type** field, select the type of circuit pack and protection type to be added.

6 Click on the **New** tool in the search panel.

Result: The Add Equipment Protection Group page is displayed.

7 In the **Working slot** field, select the working slot of the equipment protection group.

8 In the **Protection slot** field, select the protection slot of the equipment protection group.

9 Click the **Submit** button.

Result: The equipment protection group is added.

END OF STEPS

□

Modify an Equipment Protection Group

When to use

Use this task to modify an equipment protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is support for 1:N Equipment Protection Groups on the following CMISE NEs:

- Metropolis® ADM MultiService Mux (Compact Shelf)
- 1663 Add Drop Multiplexer-universal (ADMu)
- WaveStar® ADM 16/1

Before you begin

This task does not have any preconditions.

Task

Complete the following four steps to modify an equipment protection group.

1 View a list of equipment protection groups, using the “View a List of Equipment Protection Groups” (p. 5-218) task.

Result: The list at the bottom of the Equipment Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 The **Equipment Protection group name** column of the table lists the names of the equipment protection groups. Click the radio button next to the equipment protection group you wish to modify. From the Go menu, select **Modify protection group** and click the **Go** button.

Result: The Modify Equipment Protection Group page is displayed.

3 The **Not Protected** table contains all available slots that are not protected. The **Protected** table contains the protected slots. Use the arrow buttons to move one or more slots from one table to the other as required.

4 Modify the Wait to restore time (minutes), if required.

5 Click the **Submit** button.

Result: The equipment protection group is modified.

END OF STEPS

□

Delete an Equipment Protection Group

When to use

Use this task to delete an equipment protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is support for the following CMISE NEs:

- Metropolis® ADM MultiService Mux (Compact Shelf)
- 1663 Add Drop Multiplexer-universal (ADMu)
- WaveStar® ADM 16/1
- 1655 Access Multiplexer Universal (AMU)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to Delete a Protection Group.

1 View a list of equipment protection groups, using the “View a List of Equipment Protection Groups” (p. 5-218) task.

Result: The list at the bottom of the Equipment Protection Groups page is populated with a list of protection groups that meet your search criteria.

2 Click the radio button next to the equipment protection group you wish to delete. From the Go menu, select **Delete protection group** and click the **Go** button.

Result: The equipment protection group is deleted.

END OF STEPS

□

Execute an Equipment Protection Switch

When to use

Use this task to execute an equipment protection switch.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to execute a protection switch (manual to working).

1 View a list of equipment protection groups using the “View a List of Equipment Protection Groups” (p. 5-218) task.

Result: The Equipment Protection page is displayed. It includes a list of equipment protection groups for the selected circuit pack and protection type.

2 Click the radio button next to the equipment protection group for which you wish to execute a protection switch. From the Go menu, select one of the following and click the **Go** button:

- **Forced to Protection**
- **Manual to Working**
- **Clear**
- **Manual to Protection**
- **Forced to Working**
- **Lock Out**

Result: The protection switch is executed.

END OF STEPS

□

View a List of MS-SPRing Protection Schemes

When to use

Use this task to view a list of Multiplex Section - Shared Protection Ring (MS-SPRing) protection schemes.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of MS-SPRing protection schemes.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Protection Groups**.
4. In the **Function** field, select **Retrieve/Set MS Shared Protection Ring**.
5. Click the **Go** button.

   Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

END OF STEPS

□

View the Details of a MS-SPRing Protection Scheme

When to use

Use this task to view the details of a Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the details of an MS-SPRing protection scheme.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click the details button next to the MS-SPRing protection scheme for which you wish to view details.

Result: The details of the MS-SPRing protection scheme are displayed below the table.

END OF STEPS

□

View the MS-SPRing Protection Scheme Map

When to use

Use this task to view the Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme map. This task is also used to view a list of NEs in an MS-SPRing protection scheme.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the MS-SPRing protection scheme map.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click the radio button next to the MS-SPRing protection scheme for which you wish to view a map. From the Go menu, select **Ring Map** and click the **Go** button.

Result: The map for the MS-SPRing protection scheme is displayed.

END OF STEPS

□

Modify a MS-SPRing Protection Scheme

When to use

Use this task to modify a Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a MS-SPRing protection scheme.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click the radio button next to the MS-SPRing protection scheme you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify MS-SPRing Protection Scheme page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The MS-SPRing protection scheme is modified.

END OF STEPS

□

Disable a MS-SPRing Protection Scheme

When to use

Use this task to disable an Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to disable an MS-SPRing protection scheme.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click the radio button next to the MS-SPRing protection scheme you wish to disable. From the Go menu, select **Disable** and click the **Go** button.

Result: The MSP protection scheme is disabled.

END OF STEPS

□

Execute a MS-SPRing Protection Scheme Switch

When to use

Use this task to execute a Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme switch.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to execute a Multiplex Section - Shared Protection Ring (MS-SPRing) protection scheme switch.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click the radio button next to the MSP protection scheme you wish to for which you wish to execute a switch. From the Go menu, select one of the following and click the **Go** button:

- **Port A Manual**
- **Port B Clear**
- **Port A Forced**
- **Port A Clear**
- **Port B Manual**
- **Port B Lockout**
- **Port B Forced**
- **Port A Lockout**

Result: The switch is executed.

END OF STEPS

□

Add a MS-SPRing Protection Scheme

When to use

Use this task to add an MS-SPRing protection scheme.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add an MS-SPRing protection scheme.

1 View a list of MS-SPRing protection schemes using the “View a List of MS-SPRing Protection Schemes” (p. 5-227) task.

Result: The MS-SPRing Schemes page is displayed. It includes a list of MS-SPRing Protection Schemes on the NE.

2 Click on the **New** tool in the toolbar.

Result: The Add MS-SPRing Scheme page is displayed.

3 In the **Port A** field, select a port.

4 In the **Port B** field, select a port.

5 Click the **Submit** button.

Result: The MS-SPRing protection scheme is added.

END OF STEPS

□

View a List of MSP Protection Groups

When to use

Use this task to view a list of Multiplex Section Protection (MSP) protection groups.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of MSP protection groups.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **Protection Groups**.
4. In the **Function** field, select **Retrieve/Set MSP Protection**.
5. Click the **Go** button.

   Result: The MSP Protection Groups page is displayed. It includes a list of MSP protection groups on the NE.

END OF STEPS

□

Add a MSP Protection Group

When to use

Use this task to add a Multiplex Section Protection (MSP) protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to add an MSP protection group.

1 View a list of MSP protection groups on an NE using the “View a List of MSP Protection Groups” (p. 5-237) task.

Result: The MSP Protection Groups page is displayed. It includes a list of MSP protection groups on the NE.

2 Click on the **New** tool in the toolbar.

Result: The Add MSP Protection Group page is displayed.

3 In the **Working Section** field, enter the designated working section for the MSP pair.

4 In the **Protection Section** field, enter the designated protection section for the MSP pair.

5 In the **MSP mode** field, select the mode of operation.

6 *(Optional)* If you selected **ETSI** in the **MSP mode** field, the **Communication mode** field is present. Select the method of message communication for protection switching.

7 *(Optional)* If you selected **ETSI** in the **MSP mode** field, the **Switch mode** field is present. Select the mode of protection switching associated with the protection group.

8 *(Optional)* If you selected **ETSI** in the **MSP mode** field, **Unidirectional** in the **Communication mode** field, and **Non-revertive** in the **Switch mode** field, the **SONET interworking** field is present. Turn this parameter on or off.

9 *(Optional)* If you selected **ETSI** in the **MSP mode** field and **revertive** in the **Switch mode** field, the **Wait to restore time (minutes)** field is present. Select an amount of time, in minutes, for the wait-to restore timer to run.

10 *(Optional)* If you selected **1+1 Optimized** in the **MSP mode** field, the **Wait to rename time (minutes)** field is present. Select an amount of time, in minutes, for the wait-to rename timer to run.

11 Click the **Submit** button.

Result: The MSP protection group is added.

END OF STEPS

□

Modify a MSP Protection Group

When to use

Use this task to modify a Multiplex Section Protection (MSP) protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a Multiplex Section Protection (MSP) protection group.

1 View a list of MSP protection groups using the “View a List of MSP Protection Groups” (p. 5-237) task.

Result: The MSP Protection Groups page is displayed. It includes a list of MSP protection groups on the NE.

2 Click the radio button next to the MSP protection group you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify an MSP Protection Group page is displayed.

3 If the MSP protection group has a switch mode of **revertive**, or if the **MSP Mode** is **1x1**, the **WTR timer** field is present, and you may modify the setting of this field.

4 Click the **Submit** button.

Result: The MSP protection group is modified.

END OF STEPS

□

Delete a MSP Protection Group

When to use

Use this task to delete a Multiplex Section Protection (MSP) protection group.

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete an MSP protection group.

1 View a list of MSP protection groups using the “View a List of MSP Protection Groups” (p. 5-237) task.

Result: The MSP Protection Groups page is displayed. It includes a list of MSP protection groups on the NE.

2 Click the radio button next to the MSP protection group you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: The MSP protection group is deleted.

END OF STEPS

□

Execute a Protection Switch

When to use

Use this task to execute a protection switch (manual to working).

Related information

See the following topics:

- “Protection Groups Concepts ” (p. 5-209)
- “Equipment Protection Groups” (p. 5-210)
- “MSP Protection Groups” (p. 5-213)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to execute a protection switch (manual to working).

1 View a list of MSP protection groups using the “View a List of MSP Protection Groups” (p. 5-237) task.

Result: The MSP Protection Groups page is displayed. It includes a list of MSP protection groups on the NE.

2 Click the radio button next to the MSP protection group for which you wish to execute a protection switch. From the Go menu, select the appropriate action and click the **Go** button. For more information see “1+1 equipment protection switch requests” (p. 5-211) or “1:N equipment protection switch requests” (p. 5-212).

Result: The protection switch is executed.

END OF STEPS

□

Section XII: SHDSL Service

Overview

Purpose

This section discusses SHDSL services for CMISE NEs using the NE Management Functions feature.

Contents

SHDSL Service Concepts (CMISE NEs)

Overview

This section contains conceptual information about SHDSL service for CMISE NEs. This information is meant to complement the tasks presented later in this section.

SHDSL - definition

SHDSL (Symmetrical single-pair High speed Digital Subscriber Line) is a protocol which provides high speed transport over copper wire connections.

Functionality description

The pages within the SHDSL Service category enable the user to perform the following function:

- Retrieve and set SHDSL units - the user can view and set SHDSL circuit pack parameters in a CMISE NE.
- Retrieve and set SHDSL spans- the user can view and modify SHDSL spans in a CMISE NE.
- Retrieve and set SHDSL devices- the user can view and modify SHDSL devices in a CMISE NE.
- Manage SHDSL remote power supply - the user can set the management mode for the SHDSL remote power supply associated with a CMISE NE.
- Retrieve and set remote power supply port - the user can view and modify the ports for the remote power supply associated with a CMISE NE.

Supported SHDSL networks

Using the NE Management Functions pages, the SHDSL feature is supported in the management system in the following ways.

Protocols for remote SHDSL device management

Embedded Operations Channel (EOC) - This is a basic message protocol allowing minimum management functions, for example SHDSL link discovery, remote SHDSL device inventory, and synchronize remote SHDSL device.

QD2 - The is an extended message protocol allowing EOC management functions and additional management functions such as Reset Remote SHDSL Device.

Applications

The following two applications are covered by the SHDSL feature.

- Customer access for E1 via NT2M NTU
- Customer access for Ethernet via NT10ETH NTU

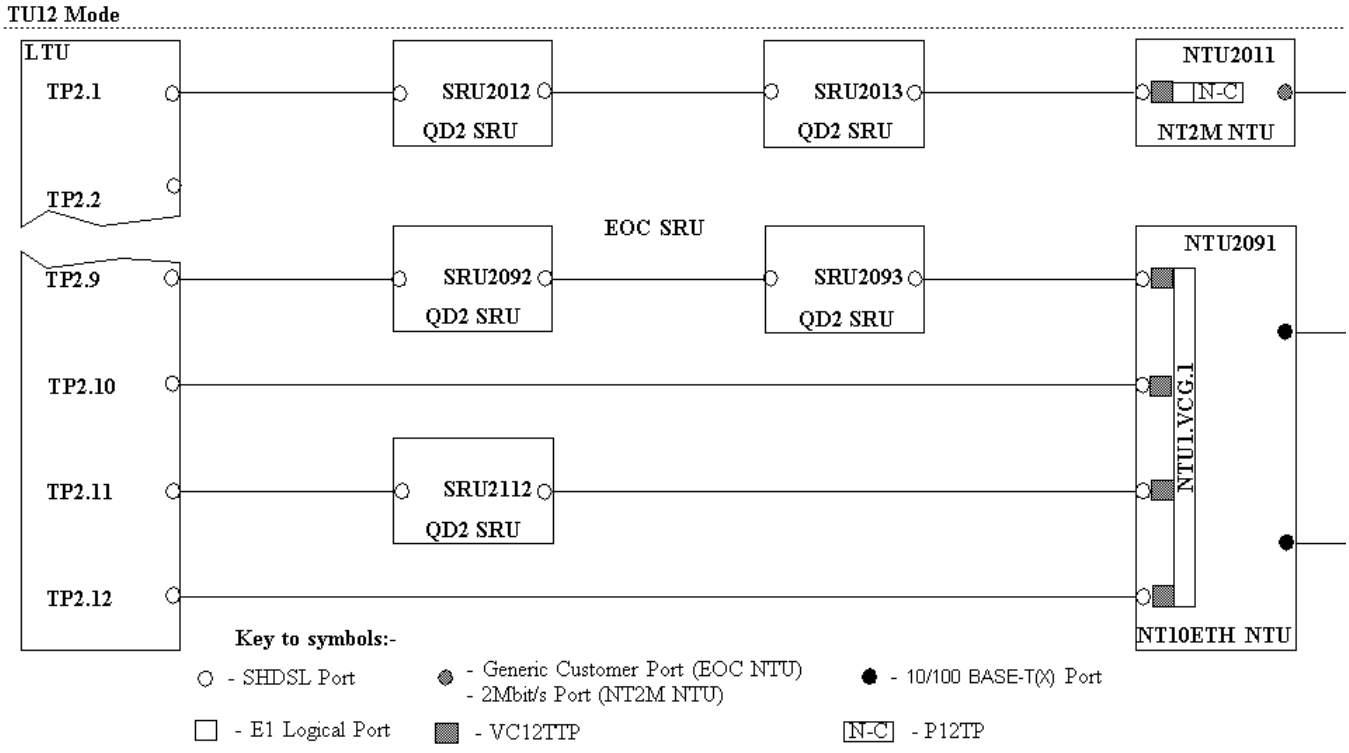
SHDSL network rules

The following rules apply for the SHDSL management system feature:

- All Line Terminating Unit (LTU) ports are either E1/SHDSL or TU12/SHDSL mode.
- An SHDSL link between an LTU and an Network Terminating Unit (NTU) can have 0-2 SHDSL Regenerator Units (SRUs), the number of SRUs being independent for each SHDSL link.
- Only one LTU port can be associated with an E1 interface via a single NT2M NTU.
- Up to four LTU ports can be associated with two Ethernet 10/100BASE-T(X) interfaces via a single NT10ETH NTU.
- NTUs with mixed Ethernet / E1 interfaces are not supported.

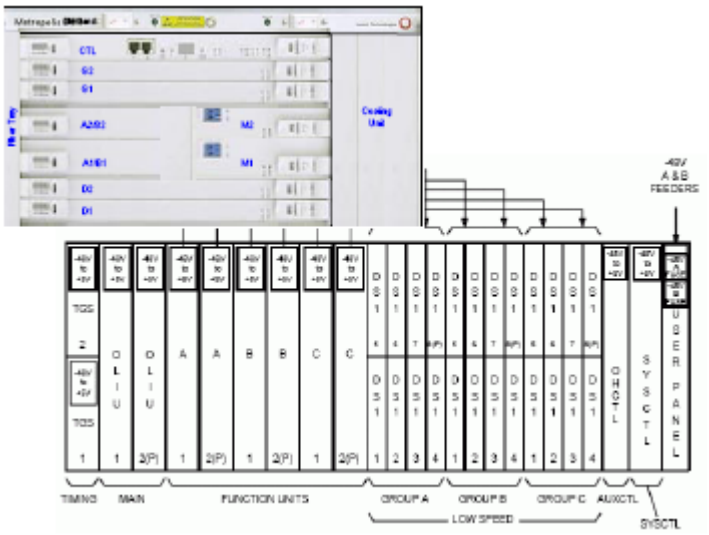
SHDSL unit with remote SHDSL devices - TU12 mode

The following is an illustration of an SHDSL unit with remote SHDSL devices in TU12 mode.



SHDSL unit with remote SHDSL devices - E1 mode

The following is an illustration of an SHDSL unit with remote SHDSL devices in E1 mode.



Management of remote SHDSL devices

The following sections describe management of remote SHDSL devices.

SHDSL transport mode

The management system allows the following SHDSL transport mode management per LTU.

- All LTU ports set to E1 SHDSL transport mode
- All LTU ports set to TU12 SHDSL Transport Mode

Remote SHDSL devices

The management system allows the following SHDSL Regenerator Unit (SRU) and NTU remote SHDSL device management.

- NTU and SRU inventory information
- Name provisioning - a user provisionable name for a remote SHDSL device
- Location provisioning - a user provisionable location for a remote SHDSL device
- Synchronize command - to align remote SHDSL device MIB with that held in the LTU
- Software download - to download the stored software to the selected SHDSL device. Click the radio button next to the SHDSL device you wish to modify. From the Go menu, select **Software download** and click the **Go** button. The User confirmation page is displayed. Click the **Submit** button to download the software to the selected remote SHDSL device.

  .

- Password management - to modify the password of the currently selected SHDSL device. Valid only for Remote QD2 NTU device type = “QD2 NTU NT10ETH with bridge function”. This parameter is visible to the user with the privileges of password administration and NE management functions.
- Reset command - valid only for QD2 managed remote SHDSL devices
- Enable/Disable Station Clock Output - valid only for QD2 managed NT2M NTU

SHDSL spans

The SHDSL span comprises the SHDSL connection between the LTU port and the NTU port including any SRU ports. The management system offers the following SHDSL connection management:

- Overview of all SHDSL connections for an LTU
- Discover SHDSL Connection command - restarts the EOC discovery sequence whereby the NE rebuilds the information it has about the SRUs and NTU on the SHDSL span for the selected LTU port.
- Restart command - restarts the low-level SHDSL hardware whereby the end-to-end SHDSL span for the selected LTU port is started up again.
- Drop connection command - removes all remote devices on the SHDSL span for the selected LTU port.
- Diagnostic mode - allows management of an SHDSL span containing only SRUs with no terminating NTU.

SHDSL remote power supply

The SHDSL Remote Power Supply (FSP12AM box) is a third-party equipment used to provide power to remote SHDSL devices via SHDSL lines. The FSP12AM box contains 12 power supply ports, each one powering the SHDSL devices on an SHDSL span. A hardware DIP switch controls the hardware power setting (“On” or “Off”) for each port.

Management of the FSP12AM box is achieved by reassigning the MDI/MDO ports of the 1643 Access Multiplexer (AM) or the 1643 Access Multiplexer Small (AMS). The NE uses the 4 MDIs and 4 MDOs to communicate with the FSP12AM box via a cable connecting the NE MDIO port to the FSP12AM box control port. The 4 MDIs and 4 MDOs on the NE are no longer available to the user but the 3 MDIs and 3 MDOs on the FSP12AM box can be used instead.

The management system offers the following SHDSL Remote Power Supply management:

- Enable / Disable SHDSL remote power supply management - the Enable setting reassigns MDI/MDO NE ports to allow SHDSL RPS management.
- Assign user names to MDIs/MDOs on the SHDSL remote power supply.

- Activate / Deactivate MDOs on the SHDSL remote power supply.
- Overview of all SHDSL remote power supply ports - shows alarm suppression and hardware power settings for each port.
- Enable / Disable alarm suppression for SHDSL Remote Power Supply port - controls suppression of alarms generated at the port.
- Restart SHDSL remote power supply port - requests restoration of power at the remote power supply port. The hardware power setting must be “On” for power to be restored at the port.

□

View SHDSL Units

When to use

Use this task to view the SHDSL unit information for a selected CMISE NE.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the SHDSL unit information for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **SHDSL Service**.

4. In the **Function** field, select **Retrieve/Set SHDSL Units**.
5. Click the **Go** button.

   Result: The SHDSL Units page is displayed. It includes a list of SHDSL units configured on the selected NE.

END OF STEPS

□

Set the SHDSL Transport Mode

When to use

Use this task to set the SHDSL transport mode for a selected CMISE NE SHDSL Unit.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the SHDSL transport mode for a selected CMISE NE SHDSL Unit.

1 View a list of SHDSL units using the "View SHDSL Units" (p. 5-251) task.

Result: The SHDSL Units page is displayed. It includes a list of SHDSL units for the selected NE.

2 Click the radio button next to the SHDSL unit for which you wish to set the transport mode. From the Go menu, select **Set SHDSL transport mode to E1** or **Set SHDSL transport mode to TU12** and click the **Go** button.

Result: The SHDSL transport mode for the selected CMISE NE SHDSL Unit. is set.

END OF STEPS

□

View SHDSL Spans

When to use

Use this task to view the SHDSL span information settings for a selected CMISE NE.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the SHDSL span information settings for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **SHDSL Service**.

4. In the **Function** field, select **Retrieve/Set SHDSL Spans**.
5. Click the **Go** button.

   Result: The SHDSL Spans page is displayed. It includes a list of SHDSL span settings configured on the selected CMISE NE.

END OF STEPS

□

Discover SHDSL Span

When to use

Use this task to restart the Embedded Operations Channel (EOC) discovery sequence which enables the NE to rebuild the information it has about the SRUs and NTU on the SHDSL span for the selected LTU port.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to discover SHDSL spans.

1 View a list of SHDSL spans using the "View SHDSL Spans" (p. 5-254) task.

Result: The SHDSL Spans page is displayed. It includes a list of SHDSL spans for the selected NE.

2 Click the radio button next to the SHDSL span for which you wish to start discovery. From the Go menu, select **Discover** and click the **Go** button.

Result: The Embedded Operations Channel (EOC) discovery sequence begins, whereby the NE rebuilds the information it has about the SRUs and NTU on the SHDSL span for the selected LTU port.

END OF STEPS

□

Restart Low-Level SHDSL Hardware

When to use

Use this task to restart the low-level SHDSL hardware enabling the end-to-end SHDSL span for the selected LTU port to be started up again.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to restart low-level SHDSL hardware for a SHDSL span.

1 View a list of SHDSL spans using the "View SHDSL Spans" (p. 5-254) task.

Result: The SHDSL Spans page is displayed. It includes a list of SHDSL spans for the selected NE.

2 Click the radio button next to the SHDSL span for which you wish to start low-level SHDSL hardware. From the Go menu, select **Restart** and click the **Go** button.

Result: The low-level SHDSL hardware is restarted, enabling the end-to-end SHDSL span for the selected LTU port to be started up again.

END OF STEPS

□

Remove SHDSL Span Remote Devices

When to use

Use this task to remove all remote devices on the SHDSL span for the selected LTU port.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to remove all remote devices on the SHDSL span for the selected LTU port.

1 View a list of SHDSL spans using the "View SHDSL Spans" (p. 5-254) task.

Result: The SHDSL Spans page is displayed. It includes a list of SHDSL spans for the selected NE.

2 Click the radio button next to the SHDSL span for which you wish to remove all remote devices. From the Go menu, select **Drop** and click the **Go** button.

Result: All remote devices on the SHDSL span for the selected LTU port are removed.

END OF STEPS

□

Enable/Disable SHDSL Span Diagnostic Mode

When to use

Use this task to enable/disable management of an SHDSL span containing only SRUs with no terminating NTU.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to enable/disable management of an SHDSL span containing only SRUs with no terminating NTU.

1 View a list of SHDSL spans using the "View SHDSL Spans" (p. 5-254) task.

Result: The SHDSL Spans page is displayed. It includes a list of SHDSL spans for the selected NE.

2 Click the radio button next to the SHDSL span for which you wish enable/disable the SHDSL diagnostic mode. From the Go menu, select **Diagnostic mode enable** or **Diagnostic mode disable** and click the **Go** button.

Result: The management of an SHDSL span containing only SRUs with no terminating NTU is enabled/disabled.

END OF STEPS

□

View SHDSL Devices

When to use

Use this task to view the SHDSL device information settings for a selected CMISE NE.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the SHDSL device information settings for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **SHDSL Service**.
4. In the **Function** field, select **Retrieve/Set SHDSL Devices**.
5. Click the **Go** button.

   Result: The SHDSL Device page is displayed. It includes a list of SHDSL device settings configured on the selected CMISE NE.

END OF STEPS

□

Modify SHDSL Device

When to use

Use this task to modify the name, location or station clock output setting of a remote SHDSL device.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the name, location or station clock output setting of a remote SHDSL device.

1 View a list of SHDSL devices for an NE using the "View SHDSL Devices" (p. 5-260) task.

Result: A list of SHDSL device information is displayed in the search results table.

2 Click the radio button next to the SHDSL device you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify SHDSL Device page is displayed. The fields that are displayed depends on the type of SHDSL device selected.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The settings are modified for the selected remote SHDSL device.

END OF STEPS

□

Modify SHDSL Device Password

When to use

Use this task to modify the password of the remote SHDSL device.

Related information

See the following topic:

- “SHDSL Service Concepts (CMISE NEs)” (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify the password setting of a remote SHDSL device.

1 View a list of SHDSL devices for an NE using the “View SHDSL Devices” (p. 5-260) task.

Result: A list of SHDSL device information is displayed in the search results table.

2 Click the radio button next to the SHDSL device you wish to modify. From the Go menu, select **Password Management** and click the **Go** button.

Result: The Modify SHDSL Device Password page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The password setting is modified for the selected remote SHDSL device.

END OF STEPS

□

Synchronize SHDSL Remote Devices

When to use

Use this task to synchronize the remote SHDSL device MIB with that held in the LTU.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to synchronize the remote SHDSL device MIB with that held in the LTU.

1 View a list of SHDSL devices using the "View SHDSL Devices" (p. 5-260) task.

Result: The SHDSL Device page is displayed. It includes a list of SHDSL devices for the selected NE.

2 Click the radio button next to the SHDSL device you wish to synchronize. From the Go menu, select **Synchronize** and click the **Go** button.

Result: Synchronization of the remote SHDSL device MIB with that held in the LTU begins.

END OF STEPS

□

Reset SHDSL Remote Device

When to use

Use this task to reset the remote SHDSL device. This task is valid only for QD2 managed remote SHDSL devices.

Related information

See the following topic:

- “SHDSL Service Concepts (CMISE NEs)” (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to reset the remote SHDSL device.

1 View a list of SHDSL devices using the “View SHDSL Devices” (p. 5-260) task.

Result: The SHDSL Device page is displayed. It includes a list of SHDSL devices for the selected NE.

2 Click the radio button next to the SHDSL device you wish to reset. From the Go menu, select **Reset** and click the **Go** button.

Result: The remote SHDSL device is reset.

END OF STEPS

□

Set SHDSL Remote Power Supply Management Mode

When to use

Use this task to set the SHDSL management mode setting for a selected CMISE NE.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to set the SHDSL remote management mode setting for a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **SHDSL Service**.

4. In the **Function** field, select **Manage SHDSL Remote Power Supply**.
5. Click the **Go** button.

   Result: The SHDSL Device page is displayed. It includes the SHDSL remote power supply management mode setting configured on the selected CMISE NE.

3 In the SHDSL remote power supply management mode field, select either the **Managed** or **Non-managed** radio button as appropriate.

END OF STEPS

□

View a List of SHDSL Remote Power Supply Ports

When to use

Use this task to view information about ports for the SHDSL remote power supply associated with a selected CMISE NE.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view information about ports for the SHDSL remote power supply associated with a selected CMISE NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.

3. In the **Category** field, select **SHDSL Service**.
4. In the **Function** field, select **Retrieve/Set SHDSL Remote Power Supply Ports**.
5. Click the **Go** button.

   Result: The SHDSL Remote Power Supply Ports page is displayed. It includes information about the ports for the SHDSL remote power supply associated with the selected CMISE NE

END OF STEPS

□

Restart SHDSL Remote Power Supply Port

When to use

Use this task to restart SHDSL remote power supply ports.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to restart SHDSL remote power supply ports.

1 View a list of SHDSL remote power supply ports using the "View a List of SHDSL Remote Power Supply Ports" (p. 5-268) task.

Result: The SHDSL Remote Power Supply Port page is displayed. It includes a list of ports for the SHDSL remote power supply associated with a selected CMISE NE.

2 Click the radio button next to the SHDSL port which you wish to restart. From the Go menu, select **Restart** and click the **Go** button.

Result: The SHDSL remote power supply port is restarted.

END OF STEPS

□

Set SHDSL Remote Power Supply Port Alarm Suppression

When to use

Use this task to set SHDSL remote power supply port alarm suppression.

Related information

See the following topic:

- "SHDSL Service Concepts (CMISE NEs)" (p. 5-246)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to restart SHDSL remote power supply ports.

1 View a list of SHDSL remote power supply ports using the "View a List of SHDSL Remote Power Supply Ports" (p. 5-268) task.

Result: The SHDSL Remote Power Supply Port page is displayed. It includes a list of ports for the SHDSL remote power supply associated with a selected CMISE NE.

2 Click the radio button next to the SHDSL port for which you wish to set alarm suppression. From the Go menu, select **Alarm suppression on** or **Alarm suppression off** as applicable, and click the **Go** button.

Result: The SHDSL remote power supply port alarm suppression is set.

END OF STEPS

□

Section XIII: TCA Profiles

Overview

Purpose

This section discusses Performance Monitoring Ports and TCA Profiles for CMISE NEs using the NE Management Functions feature.

Contents

Performance Monitoring Ports and TCA Profiles Concepts

Overview

This section contains conceptual information about setting and monitoring TCAs for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Performance Monitoring Ports and TCA Profiles category enable the user to perform the following function:

- Retrieve and set PM ports - the user can view and modify Performance Monitoring (PM) ports.
- Reset PM ports - the user can reset all performance monitoring counters (15 minutes and 24 hours) active on a selected NE termination point to zero.

Performance monitoring ports

The management system is able to view performance monitoring parameters, measurement points, and thresholds for NE ports. The management system also allows thresholds to be modified. For more information see *OMS Service Assurance Guide*

□

View Performance Monitoring Ports

When to use

Use this task to view performance monitoring port settings on the selected NE.

Related information

See the following topic:

- “Performance Monitoring Ports and TCA Profiles Concepts” (p. 5-273)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view performance monitoring ports settings for a selected NE.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **TCA Profiles**. For CMISE NEs, select **Performance Data**.

4. In the **Function** field, select **Retrieve/Set PM Ports**.
5. Click the **Go** button.

   Result: The PM Ports page is displayed. It includes a list of performance monitoring ports settings configured on the selected NE.

END OF STEPS

□

Modify Performance Monitoring Ports

When to use

Use this task to modify performance monitoring ports settings on a selected NE.

Related information

See the following topic:

- “Performance Monitoring Ports and TCA Profiles Concepts” (p. 5-273)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify performance monitoring ports settings for a selected NE.

1 View a list of performance monitoring ports settings using the “View Performance Monitoring Ports ” (p. 5-274) task.

Result: The PM Ports page is displayed. It includes a list of performance monitoring ports settings for the selected NE.

2 Click the radio button next to the port ID you wish to modify. From the Go menu, select either **Modify selected** or **Modify all** and click the **Go** button.

Result: The Modify PM Ports page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The performance monitoring ports settings are modified.

END OF STEPS

□

Reset Performance Monitoring Counters

When to use

Use this task to reset 15 minutes and 24 hour performance monitoring counters settings on a selected PM port.

Related information

See the following topic:

- “Performance Monitoring Ports and TCA Profiles Concepts” (p. 5-273)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to reset performance monitoring counter settings for a selected PM port.

1 View a list of performance monitoring ports settings using the “View Performance Monitoring Ports ” (p. 5-274) task.

Result: The PM Ports page is displayed. It includes a list of performance monitoring ports settings for the selected NE.

2 Click the radio button next to the port ID you wish to modify. From the Go menu, select **Reset PM counters (15 min and 24 hr)** and click the **Go** button.

Result: The performance monitoring counter settings for the selected PM port are reset.

END OF STEPS

□

Enable/Disable Performance Monitoring

When to use

Use this task to enable or disable performance monitoring on a selected PM port.

Related information

See the following topic:

- “Performance Monitoring Ports and TCA Profiles Concepts” (p. 5-273)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to enable or disable performance monitoring on a selected PM port.

1 View a list of performance monitoring ports settings using the “View Performance Monitoring Ports ” (p. 5-274) task.

Result: The PM Ports page is displayed. It includes a list of performance monitoring port settings for the selected NE.

2 Click the radio button next to the port ID you wish to modify. From the Go menu, select one of the following options and click the **Go** button.

- **Enable monitoring (24 hour unidirectional)**
- **Enable monitoring (15 minute unidirectional)**
- **Enable monitoring (24 hour bidirectional)**
- **Disable monitoring**

Result: The performance monitoring for the selected PM port is enabled or disabled.

END OF STEPS

□

Section XIV: Timing References

Overview

Purpose

This section discusses timing references for CMISE NEs using the NE Management Functions feature.

Contents

Timing References Concepts

Overview

This section contains conceptual information about monitoring and setting timing references for CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Timing References category enable the user to perform the following functions:

- Retrieve and set port information - the user can view a list of NE timing ports and modify a selected NE timing port.
- Retrieve and set Station Clock Output (SCO) timing source information - the user can view a list of SCO timing sources, view the details of a SCO timing source, and modify a SCO timing source.
- Retrieve and set Station Clock Output (SCO) timing status information - the user can view and modify the SCO timing status details.
- Retrieve and set system timing source information - the user can view a list of NE system timing sources, view the details of an NE system timing source and modify an NE timing source information.
- Retrieve and set system timing status information - the user can modify the NE system timing status.
- Retrieve and set timing source information - the user can view and modify NE timing sources.

SCO timing

This function includes the output-clock timing link switch, the station clock output selection, both station clock output processes and the station clock output distribution functions.

The station clock output timing function in the NE is responsible for:

- Performing the timing link switching between all possible reference sources, regardless of what their type is
- Forwarding the selected signal(s) to the station clock output(s)

The management system manages the following “Station Clock Output Timing” parameters:

- Priority for each timing source (read/write)
- Lockout State (Yes/No) for each timing source (read)
- Lockout Request (Set/Clear) for each timing source (action)

- Switch status (read)
- Switch requests (action)
- Active timing source (read)
- System Timing and Output Timing QL mode (enabled/disabled) (read/write)
- Source Selection (System Timing / Independent) (read/write)
- Acceptance QL for the Station Clock Output (read/write)
- Regenerator loop (read/write)
- STCLK Output (enabled/disabled) (read/write)
- Output State (read)
- Output QL (read)
- Signal type of the station clock output ports (read/write)
- S bit selection of the 2Mbit/s framed station clock output signals (read/write)
- AIS/DNU mode of the station clock output (read/write)
- Force DNU of the station clock output (read/write)

System Timing

This function includes the system timing link switch, both system clock processes and all output port timing processes functions.

The system timing function in the NE is responsible for:

- Performing the timing link switching between all possible reference sources, regardless of what their type is
- Selecting the system timing mode
- Translating the quality level of the selected timing link into SSM to be sent on the output transport ports

The management system manages the following “System Timing” parameters:

- Priority for each timing source (read/write)
- Lockout State (Yes/No) for each timing source (read)
- Lockout Request (Set/Clear) for each timing source (action)
- Switch status (read)
- Switch requests (action)
- Active timing source (read)
- System Timing and Output Timing QL mode (enabled/disabled) (read/write)
- Timing Mode (LO/HO/FR/TR) (read/write)
- Timing State (Normal / Loopback on Line A / Loopback on Line B / FR / HO) (read)
- System QL (read)

In addition, the management system manages a number of transmission output port parameters related to timing.

Timing sources

This function includes station clock input processes, input port timing process, timing source assignment, and timing source functions.

The timing sources function in the NE is responsible for:

- Extracting the synchronization reference signal and the SSM from the received input signal.
- Processing defects to a “Reference Fail” condition.
- Connecting a subset of all possible reference sources with the timing sources (assignment).
- Performing the timing reference switching between input references that have been configured as pairs.
- Determining the quality levels (QL) of all timing functions to be forwarded to the system timing and station clock output timing functions. The QL of a timing link can be determined from the incoming reference SSM.
- Determining the signal status of all timing links to be forwarded to the System Timing and Station Clock Output Timing functions.

The management system manages the following Station Clock Output Timing parameters:

- System Timing and Output Timing QL mode (enabled/disabled) (read/write)
- Working and Protection Reference assignments (read/write)
- Working and Protection reference failure (read) — Active reference (read)
- Switch status (read)
- Switch requests (action)
- Wait-to-Restore Timer value (read/write)
- Clear WTR timer (action)
- Monitored status (read/write)
- Signal status (read)
- QL-in status (read)
- QL-in (read)
- QL Provisioned (read/write)
- QL-out (read)

In addition, the management system manages a number of station clock input processes parameters:

- Signal type (read/write)
- SSM extraction (read/write)
- S bit selection (read/write)

□

View a List of NE Timing Ports

When to use

Use this task to view a list of NE timing ports.

Related information

See the following topic:

- "Timing References Concepts" (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE timing ports.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set Port Information**.
5. Click the **Go** button.

   Result: The NE Timing Ports page is displayed. It includes a list of timing ports for an NE.

END OF STEPS

□

Modify an NE Timing Port

When to use

Use this task to modify an NE timing port.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an NE timing port.

1 View a list of NE timing ports using the “View a List of NE Timing Ports” (p. 5-284) task.

Result: The NE Timing Ports page is displayed. It includes a list of NE timing ports for an NE.

2 Click the radio button next to the NE timing port you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify NE Timing Port page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

The fields on this page vary based on the selected NE. See your NE documentation for definitions of the fields.

4 Click the **Submit** button.

Result: The NE timing port is modified.

END OF STEPS

□

View a List of SCO Timing Sources

When to use

Use this task to view a list of station clock output (SCO) timing sources.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of SCO timing sources.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set Station Clock Output Timing Source Information**.
5. Click the **Go** button.

   Result: The NE SCO Timing Sources page is displayed. It includes a list of SCO timing sources for an NE.

END OF STEPS

□

View the Details of a SCO Timing Source

When to use

Use this task to view the details of a station clock output (SCO) timing source.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the details of an SCO timing source.

1 View a list of SCO timing sources using the “View a List of SCO Timing Sources” (p. 5-287) task.

Result: The NE SCO Timing Sources page is displayed. It includes a list of SCO timing sources for an NE.

2 Click on the hyperlink of the SCO timing source for which you wish to view the details of SCO timing source.

Result: The details of the SCO timing source are displayed below the table.

END OF STEPS

□

Modify a SCO Timing Source

When to use

Use this task to modify a station clock output (SCO) timing source.

Related information

See the following topic:

- "Timing References Concepts" (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an SCO timing source.

1 View a list of SCO timing sources using the "View a List of SCO Timing Sources" (p. 5-287) task.

Result: The NE SCO Timing Sources page is displayed. It includes a list of SCO timing sources for an NE.

2 Click the radio button next to the SCO timing source you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The Modify SCO Timing Sources page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The SCO timing source is modified.

END OF STEPS

□

Modify SCO Timing Status

When to use

Use this task to modify station clock output (SCO) timing status.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify SCO timing status.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set Station Clock Output Timing Status Information**.
5. Click the **Go** button.

   Result: The Modify NE page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

   Result: The SCO timing status is modified.

END OF STEPS

□

View a List of NE System Timing Sources

When to use

Use this task to view a list of NE system timing sources.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE system timing sources.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set System Timing Source Information**.
5. Click the **Go** button.

   Result: The NE System Timing Sources page is displayed. It includes a list of system timing sources for an NE.

END OF STEPS

□

View Details of an NE System Timing Source

When to use

Use this task to view details of an NE system timing source.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view details of an NE system timing source.

1 View a list of NE system timing source using the “View a List of NE System Timing Sources” (p. 5-293) task.

Result: The NE System Timing Sources page is displayed. It includes a list of NE system timing sources for an NE.

2 Click on the hyperlink of the source name of which you wish to view the details of NE system timing source.

Result: The details of the NE system timing source are displayed below the table.

END OF STEPS

□

Modify an NE System Timing Source

When to use

Use this task to modify an NE system timing source.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an NE system timing source.

1 View a list of NE system timing sources using the “View a List of NE Timing Sources” (p. 5-299) task.

Result: The NE System Timing Sources page is displayed. It includes a list of NE system timing sources for an NE.

2 Click the radio button next to the NE system timing source you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

Result: The NE System Timing Source details page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The NE system timing source is modified.

END OF STEPS

□

Modify NE System Timing Status

When to use

Use this task to modify system timing status.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify system timing status.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set System Timing Status Information**.
5. Click the **Go** button.

   Result: The NE System Timing Status Details page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

   Result: The system timing status is modified.

END OF STEPS

□

View a List of NE Timing Sources

When to use

Use this task to view a list of NE timing sources.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of NE timing sources.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **Retrieve/Set Timing Source Information**.
5. Click the **Go** button.

   Result: The NE Timing Sources page is displayed. It includes a list of timing sources for an NE.

END OF STEPS

□

Modify an NE Timing Source

When to use

Use this task to modify an NE timing source.

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify an NE timing source.

1 View a list of NE timing sources using the “View a List of NE Timing Sources” (p. 5-299) task.

Result: The NE Timing Sources page is displayed. It includes a list of NE timing sources for an NE.

2 Click the radio button next to the NE timing source you wish to modify. From the Go menu, select **Modify NE Timing Source** and click the **Go** button.

Result: The Modify NE Timing Sources page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: The NE timing source is modified.

END OF STEPS

□

NE Synchronization Summary

When to use

Use this task to view the NE Synchronization information for all NEs managed by a selected NE Server (CNA).

Related information

See the following topic:

- “Timing References Concepts” (p. 5-280)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the NE Synchronization summary.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Timing References**.

4. In the **Function** field, select **NE Synchronization**.
5. Click the **Go** button.

   Result: The NE Synchronization page is displayed.

3 In the **NE Server Name** field, select the server from the drop-down list.

4 In the **NE Name** field, select the name of the NE from the drop-down menu.

5 Click the **Search** button.

Result: The list at the bottom of the NE Synchronization page is populated with a list of NE Synchronization summary that meet your search criteria.

END OF STEPS

□

Section XV: Users

Overview

Purpose

This section discusses CIT access and access control profiles for CMISE NEs using the NE Management Functions feature.

Contents

Users Concepts

Overview

This section contains conceptual information about setting up and administration of users on CMISE NEs. This information is meant to complement the tasks presented later in this section.

Functionality description

The pages within the Users category enable the user to perform the following functions:

- Retrieve the CIT access list - the user can view a list of CIT users logged into an NE and log out CIT users.
- Retrieve and set CIT access control information - the user can view CIT access control profiles and modify access control profiles.

Craft Interface Terminal (CIT) access

The management system is able to control CIT user access to NEs in its management domain.

Three roles for the CIT user are supported:

- Operator: The CIT user is allowed to monitor the NE.
- Supervisor: The CIT user is allowed to provision the NE.
- Administrator: The CIT user has Supervisor capability, and is allowed to administer the password, lock flag, and inactivity time-out.

There is password protection for the CIT user access to the NE. Each role has a different password. A password can be empty. There is a lock flag per role, which prevents CIT user access for that role. This is ignored during periods of association loss between the management system and the NE. There is no access control of the management system user. The management of the NEs lock flag, passwords, inactivity timer and CIT user access termination are available. The authentication of the CIT access is a procedure between the CIT and the NE. There is no dynamic involvement with the management system, except that the management system is notified when the CIT user logs in and the management system displays this information to the user.

Craft Interface Terminal (CIT) access control profile

A CIT access control profile defines the various types of CIT access available on an NE, including various parameter settings and states.

□

View a List of CIT Accesses

When to use

Use this task to view a list of Craft Interface Terminal (CIT) accesses, that is, a list of CITs that are logged into the NE.

Related information

See the following topic:

- "Users Concepts" (p. 5-305)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of Craft Interface Terminal (CIT) accesses.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Users**.

4. In the **Function** field, select **Retrieve CIT Access List**.
5. Click the **Go** button.

   Result: The CIT Accesses page is displayed. It includes a list of CITs that are logged into the NE.

END OF STEPS

□

Log Out CIT User(s)

When to use

Use this task to log out one or more users who are logged into a CIT.

Related information

See the following topic:

- “Users Concepts” (p. 5-305)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to log out one or more users who are logged into a CIT:

1 View a list of CITs that are logged into the NE using the “View a List of CIT Accesses” (p. 5-306) task.

Result: The CIT Access’s page is displayed. It includes a list of CITs that are logged into the NE.

2 Click one or more radio buttons next to the CITs you wish to log out of the NE. From the Go menu, select **Force Logout** and click the **Go** button.

Result: The CIT is logged out of the NE.

END OF STEPS

□

View a List of CIT Access Control Profiles

When to use

Use this task to view a list of CIT access control profiles.

Related information

See the following topic:

- "Users Concepts" (p. 5-305)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of CIT access control profiles.

1 Do one of the following:

- Use the icons or the object links to follow this path: **Network Elements > NE Management Functions**.
- On the Network Map, right-click the NE upon which you wish to execute a management function. From the Node menu, select **Session > NE Management Functions**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button next to the NE to which you wish to send a management function. From the Go menu, select **NE Management Functions**, and click the **Go** button.

  Result: The NE Management Functions page is displayed.

2 Do the following:

1. In the **NE type** field, select the type of NE. If you selected the target NE in Step 1, this field is already populated with your selection.
2. Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string. If you selected the target NE in Step 1, this field is already populated with your selection.
3. In the **Category** field, select **Users**.

4. In the **Function** field, select **Retrieve/Set CIT Access Control Information**.
5. Click the **Go** button.

   Result: The CIT Access Control Profiles page is displayed. It includes a list of CIT Access Control Profiles.

END OF STEPS

□

Modify CIT Access Control Profile(s)

When to use

Use this task to modify CIT access control profile(s).

Related information

See the following topic:

- “Users Concepts” (p. 5-305)

Important! This task is supported only for CMISE NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify CIT access control profile(s).

1 View a list of CIT access control profiles using the “View a List of CIT Access Control Profiles” (p. 5-309) task.

Result: The CIT Access Control Profiles page is displayed. It includes a list of CIT Access Control Profiles.

2 Click the radio button next to the CIT Access Control Profile you wish to modify. From the Go menu, select **Modify Selected** or **Modify All**and click the **Go** button.

Result: The Modify CIT Access Control Profile page is displayed.

3 Change the entries or selections for any of the fields that are modifiable.

4 Click the **Submit** button.

Result: If you selected **Modify Selected**, the selected CIT Access Control Profile is modified.

If you selected **Modify All**, the selected CIT Access Control Profiles are modified.

END OF STEPS

□

6 Logs

Overview

Purpose

This chapter discusses logs.

Contents

Log Concepts

Overview

This section provides conceptual information about logs. This information is meant to complement the tasks presented later in this section.

Functionality description

The management system provides the following log functionality:

- Messages and data are logged into the management system database or a flat file.
- Messages and data can be viewed by the user.
- Log data can be filtered to provide only desired data.

Access to logs

Like all management system features, logs can only be accessed by users who are permitted to do so by their user role profile.

Supported logs

The following management system logs are available to collect and store management system information:

- Alarm Log
- User Activity Log
- Security Log
- NE Notification Log
- Command and Response Log
- Ethernet Service Activity Log
- Protection Switch Event Log

Alarm Log

The Alarm Log stores historic alarm information. The management system logs every alarm and event generated by NEs in the network. The record of these logged activities is the Alarm Log.

TCAs are not logged in the Alarm Log. There is a separate TCA storage. Both current and historic TCAs are accessible via a TCA summary page.

The Alarm Log and TCA storage is fully described in a related document. See the *OMS Service Assurance Guide* for a description of the tasks and concepts related to this feature.

Installation parameters control the functioning of many Alarm Log functions. These concepts are explained in the Installation Parameters chapter and the Logs chapter in the *OMS Administration Guide*.

User Activity Log

The management system logs all user activities performed in the management system. The record of these logged activities is the User Activity Log.

The User Activity Log is used for the following purposes:

- As a system-wide surveillance tool that can monitor all activities throughout the management system. The user does not need to use other types of logs to get an overview of the system-wide user activities.
- For trouble analysis. This log can be used to analyze management system problems and to obtain information to be used in troubleshooting or debugging activities.
- For security management. This log can be used to monitor all user activities.
- For operational activity management. This log can provide operations managers with an overview of management system activities, and can be used to analyze system-wide performance.

In a High Availability configuration, the User Activity Log is specific to the actions of the user on a per server basis, and potential data inconsistencies can arise on the primary active and the secondary active management systems. Since synchronization does not occur between servers, any inconsistencies need to resolved by the user. The User Activity Log information should be viewed on both servers.

Installation parameters control the functioning of many User Activity Log functions. These concepts are explained in the Installation Parameters chapter and the Logs chapter in the *OMS Administration Guide*.

Security Log

The management system logs all security-related activities in the management system. The record of these logged activities is the Security Log. This log collects data that can be used by administrators to ensure the security of their network operations.

The Security Log is accessible only by users with the Security Log task in their user role profile.

The Security Log is fully described in a related document. See the *OMS Administration Guide* for a description of the tasks and concepts related to this feature.

In a High Availability configuration, the Security Log is specific to the actions of the user on a per server basis, and potential data inconsistencies can arise on the primary active and the secondary active management systems. Since synchronization does not occur between servers, any inconsistencies need to resolved by the user. The Security Log information should be viewed on both servers.

NE Notification Log

This log is supported only for the TL1 NEs.

The NE Notification Log stores notifications from NEs on database changes, protection switches, and other NE-related activities. Specifically, it logs:

- The completion (or noncompletion) of an automatic database backup
- Any change in the management system database
- The autonomous removal from service of an administrative or data link
- Automatic and manual (user-initiated) equipment protection switches, synchronization mode switches, and management system timing reference switches

Installation parameters control the functioning of many NE Notification Log functions. These concepts are explained in the Installation Parameters chapter and the Logs chapter in the *OMS Administration Guide.*

Command and Response Log

This log is supported only for the TL1 NEs.

The Command and Response Log stores all commands sent to an NE and responses received from an NE, except retrieval commands and responses that are originated from and received by the management system. The user ID information and user interface information are also logged.

All commands generated as a result of a user operation from the management system are logged to the Command and Response Log.

The commands are displayed in the order they were received by the management system. Each command is followed by the system response (if a command did not receive a response, the display indicates this with the entry “time out”).

Ethernet Service Activity Log

The management system logs all Ethernet service activities in the management system. The record of these logged activities is the Ethernet Service Activity Log. This log collects data that can be used to view the Ethernet service activity of the network.

The Ethernet Service Activity Log is fully described in a related document. See the *OMS Administration Guide* for a description of the tasks and concepts related to this feature.

In a High Availability configuration, the Ethernet Service Activity Log is specific to the actions of the user on a per server basis, and potential data inconsistencies can arise on the primary active and the secondary active management systems. Since synchronization does not occur between servers, any inconsistencies need to resolved by the user. The Ethernet Service Activity Log information should be viewed on both servers.

Protection Switch Event Log

The management logs all protection switch events. A protection switch event is generated when a protection switch occurs in a network element and causes traffic to be switched between a worker and protection entity. The record of these events is the Protection Switch Event Log.

The Protection Switch Event Log is fully described in a related document. See the *OMS Service Assurance Guide* for a description of the tasks and concepts related to this feature.

Retention of log entries

The retention period and number of records retained are defined in the following table.

Log	Maximum Number of Days		Maximum Number of Records	
	Default	Range	Default	Range
Alarm Log	31	1-45	150,000	150,000 - 300,000
Alarm Log (smaller servers)	31	1-45	100,000	Not Provisionable
Alarm Log (large servers)	31	1-45	300,000	Not Provisionable
Separate TCA storage (smaller servers)	31	1-45	25,000	Not Provisionable
Separate TCA storage (large servers)	31	1-45	50,000	Not Provisionable
User Activity Log	31	1-45	20,000	100 - 30,000
User Activity Log (smaller servers)	31	1-45	30,000	Not Provisionable
User Activity Log (large servers)	31	1-45	60,000	Not Provisionable
Security Log	31	1-45	10,000	100 - 30,000
NE Notification Log	31	1-45	30,000	100 - 30,000
NE Notification Log (smaller servers)	31	1-45	30,000	Not Provisionable
NE Notification Log (large servers)	31	1-45	60,000	Not Provisionable
Command and Response Log	31	1-45	30,000	100 - 30,000
Command and Response Log (smaller servers)	31	1-45	30,000	Not Provisionable

Log	Maximum Number of Days		Maximum Number of Records	
	Default	**Range**	**Default**	**Range**
Command and Response Log (large servers)	31	1-45	60,000	Not Provisionable
Ethernet Service Activity Log	31	1-45	10,000	100 - 30,000

Log records are purged as follows:

- Once a day, the “Maximum Number of Days” threshold is checked. Any records older than the threshold are deleted.
- Once an hour, the “Maximum Number of Records” threshold is checked. If the threshold is reached, 25% of the records are deleted, starting with the oldest.
- For each log type, when 80% of its maximum number of records is reached, an alarm is generated. When 100% of the maximum number of records is reached, purging occurs (while new records are still collected). When the purging is completed, an alarm is raised.

□

View the User Activity Log

When to use

Use this task to view the User Activity Log.

Related information

See the following topic:

- “Log Concepts” (p. 6-2)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the User Activity Log:

1 Use the icons or the object links to follow this path:

- **Logs > User Activity Log.**

  Result: The search panel of the User Activity Log page is displayed.

2 Complete the following steps to search for user activity log entries.

1. Specify the criteria for your search by making selections in the search fields.
2. Click the **Search** button.

   Result: The list at the bottom of the User Activity Log page is populated with a list of the user activity log entries that meet your search criteria.

3 To see the details of a specific log entry, click the details button next to the log entry.

Result: The details of the selected log entry are displayed below the table.

END OF STEPS

□

View the NE Notification Log

When to use

Use this task to view the NE Notification Log.

Related information

See the following topic:

- “Log Concepts” (p. 6-2)

Important! This task is supported only for the TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the NE Notification Log:

1 Use the icons or the object links to follow this path:

- **Logs > NE Notification Log.**

Result: The search panel of the NE Notification Log page is displayed.

2 Complete the following steps to search for NE notification log entries.

1. Specify the criteria for your search by making selections in the search fields.
2. Click the **Search** button.

Result: The list at the bottom of the NE Notification Log page is populated with a list of the NE notification log entries that meet your search criteria.

3 To see the details of a specific log entry, click the details button next to the log entry.

Result: The details of the selected log entry are displayed below the table.

END OF STEPS

□

View the Command and Response Log

When to use

Use this task to view the Command and Response Log.

Related information

See the following topic:

- “Log Concepts” (p. 6-2)

Important! This task is supported only for the TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the Command and Response Log:

1 Use the icons or the object links to follow this path:

- **Logs > Command and Response Log**.

Result: The search panel of the Command and Response Log page is displayed.

2 Complete the following steps to search for command and response log entries.

1. Specify the criteria for your search by making selections in the search fields.
2. Click the **Search** button.

Result: The list at the bottom of the Command and Response Log page is populated with a list of the command and response log entries that meet your search criteria.

3 To see the details of a specific log entry, click the details button next to the log entry.

Result: The details of the selected log entry are displayed below the table.

END OF STEPS

□

View the Protection Switch Events Log

When to use

Use this task to view the Protection Switch Events log.

Related information

See the following topic:

- “Log Concepts” (p. 6-2)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view the Protection Switch Events Log:

1 Use the icons or the object links to follow this path:

- **Logs > Protection Switch Events**.

  Result: The search panel of the Protection Switch Events Log page is displayed.

2 Complete the following steps to search for command and response log entries.

1. Specify the criteria for your search by making selections in the search fields.
2. Click the **Search** button.

   Result: The list at the bottom of the Protection Switch Events Log page is populated with a list of the protection switch events log entries that meet your search criteria.

3 To see the details of a specific log entry, click the details button next to the log entry.

Result: The details of the selected log entry are displayed below the table.

END OF STEPS

□

7 Tools

Overview

Purpose

This chapter contains provisioning tasks associated with database synchronizations and supported tools.

Contents

Section I: TL1 Macro Files

Overview

Purpose

This section discusses the concepts and tasks associated with TL1 macro files.

Contents

TL1 Macro Files Concepts

Overview

This section provides conceptual information about TL1 macro files. This information is meant to complement the tasks presented later in this section.

TL1 macro files is supported only for TL1 NEs.

Definition

The TL1 macro files feature enable users to create scripts (sequences) of TL1 commands, and then execute these scripts on one or more TL1 NEs.

Indirectly managed NEs and TL1 macro files

TL1 macro files for indirectly managed NEs is supported by GUI cut-through to the TL1 Macro Files/Command Broadcaster feature of the WaveStar® ITM-SC. For more information about indirectly managed NEs, see "Indirectly Managed NEs" (p. 1-13).

Note: For more details on **SLM Regenerator 4** and **SLM Regenerator 16**, see "Section I: NE Management Functions Overview (CMISE NEs)" (p. 5-8).

Functionality description

The TL1 macro files feature contains two complimentary components:

- **TL1 macro builder** - enables users to create scripts or sequences of TL1 commands. The TL1 macro builder provides the capability to create and manage TL1 macro files.
- **TL1 macro broadcaster** - enables users to execute these scripts on one or more NEs. The TL1 broadcaster provides the capability to send the sets of TL1 commands in the file/script and display the responses.

The TL1 macro file feature includes the capability to create, delete, display or modify a TL1 macro file. The creator of the TL1 macro file is the owner of the file and the owner may set up the TL1 macro file to be restricted to the user or available to all users.

□

View a List of TL1 Macro Files

When to use

Use this task to view a list of TL1 macro files.

Related information

For information related to the View a List of TL1 Macro Files task, see the following topic:

- “TL1 Macro Files Concepts” (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following three steps to view a list of TL1 macro files.

1 Use the icons or the object links to follow this path: **Tools > TL1 Macro Files**.

Result: The **TL1 Macro Files** page is displayed.

2 Make selections in one or more of the following fields in the search panel:

- In the **NE Type** field, select an NE type or select **All** to include all NE types. This is a required field.
- In the **Owner Name** field, enter a user ID that owns the macro file.
- In the **Filename** field, enter the name of the macro file.

3 Click the **Search** button.

Result: The list at the bottom of the TL1 Macro Files page is populated with a list of TL1 macro files that meet your search criteria.

END OF STEPS

□

Add a TL1 Macro File

When to use

Use this task to add a new TL1 macro file.

Related information

For information related to the Add a TL1 Macro File task, see the following topic:

- "TL1 Macro Files Concepts" (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to Add a TL1 macro file.

1. Use the icons or the object links to follow this path: **Tools > TL1 Macro Files**.

   Result: The **TL1 Macro Files** page is displayed.

2. Click on the **New** tool in the **Search for TL1 Macro Files** panel.

   Result: The **TL1 Macro File** page is displayed.

3. In the **NE type** field, select an NE type.

4. In the **Filename** field, enter a name for the TL1 macro file.

   Note: The file name must conform to UNIX file naming conventions.

5. In the **Permissions** field, either select **Owner** to limit access to this file to the User ID that created it, or select **All** to allow unlimited access to the TL1 macro file.

6. In the **TL1 Commands** field, enter either directly through typing, or cutting and pasting from other sources, the TL1 macro script (a file composed of a set of TL1 commands).

7 Click the **Save** button.

Result: The TL1 macro file is added.

END OF STEPS

□

Modify a TL1 Macro File

When to use

Use this task to modify a TL1 macro file.

Related information

For information related to the Modify a TL1 Macro File task, see the following topic:

- "TL1 Macro Files Concepts" (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to modify a TL1 macro file.

1 View a list of TL1 macro files using the "View a List of TL1 Macro Files" (p. 7-5).

Result: The list at the bottom of the TL1 Macro Files page is populated with a list of TL1 macro files that meet your search criteria.

2 The Filename column of the table lists the names of the TL1 macro files. The name in this column is a hyperlink.

Do one of the following:

- Click the name of the TL1 macro file you wish to modify.
- Click the radio button next to the TL1 macro file you wish to modify. From the Go menu, select **View/Modify** and click the **Go** button.

Result: The TL1 Macro file page is displayed.

3 If desired, change any of the fields on the TL1 Macro File page.

4 Click the **Save** button.

Result: The TL1 macro file is modified.

END OF STEPS

□

Copy a TL1 Macro File

When to use

Use this task to copy a TL1 macro file.

Related information

For information related to the Copy a TL1 Macro File task, see the following topic:

- "TL1 Macro Files Concepts" (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to copy a TL1 macro file.

1. View a list of TL1 macro files using the "View a List of TL1 Macro Files" (p. 7-5).

   Result: The list at the bottom of the TL1 Macro Files page is populated with a list of TL1 macro files that meet your search criteria.

2. The Filename column of the table lists the names of the TL1 macro files. The name in this column is a hyperlink.

   Do one of the following:

   - Click the name of the TL1 macro file you wish to copy.
   - Click the radio button next to the TL1 macro file you wish to copy. From the Go menu, select **View/Modify** and click the **Go** button.
     If you are logged in as NOC operator, select **View/Copy** to edit the TL1 macro and save it to another TL1 macro name.

     Result: The TL1 Macro file page is displayed.

3. In the Filename field, change the name of the TL1 macro file.

4. Click the **Save** button.

Result: The TL1 macro file is copied and saved with a new file name. You may modify the new TL1 macro file by using the "Modify a TL1 Macro File" (p. 7-8) task.

END OF STEPS

□

Delete a TL1 Macro File

When to use

Use this task to delete a TL1 macro file.

Note: Only one TL1 macro file may be deleted at a time. Only the owner of a TL1 macro file can delete it. A user with a user task of "All TL1 Macro Files Management" can delete any TL1 macro file whether or not that user is the owner.

Related information

For information related to the Delete a TL1 Macro File task, see the following topic:

- "TL1 Macro Files Concepts" (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a TL1 macro file.

1 View a list of TL1 macro files using the "View a List of TL1 Macro Files" (p. 7-5).

Result: The list at the bottom of the TL1 Macro Files page is populated with a list of TL1 macro files that meet your search criteria.

2 Click the radio button next to the TL1 macro file you wish to delete. From the Go menu, select **Delete** and click the **Go** button.

Result: A confirmation window appears.

3 Click the **Yes** button to confirm.

Result: The TL1 macro file is deleted. To see the TL1 macro file deleted from the page, click the **Refresh** button.

END OF STEPS

□

Broadcast a TL1 Macro File

When to use

Use this task to broadcast a TL1 macro file to one or more NEs.

Related information

For information related to the Broadcast a TL1 Macro File task, see the following topic:

- “TL1 Macro Files Concepts” (p. 7-4)

Important! This task is supported only for TL1 NEs.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to broadcast a TL1 macro file.

1 View a list of TL1 macro files using the “View a List of TL1 Macro Files” (p. 7-5)

Result: The list at the bottom of the TL1 Macro Files page is populated with a list of TL1 macro files that meet your search criteria.

2 Click the radio button next to the TL1 macro file you wish to broadcast. From the Go menu, select **Broadcast** and click the **Go** button.

Result: The TL1 Macro File Broadcast page appears.

3 In the **NE type for broadcast** field, select the type of NE from the displayed set of TL1 NE types supported by the management system. This field is optional. Leaving this field blank is interpreted as “all” licensed TL1 NE types.

4 For selecting the specific NEs to which to broadcast the TL1 Macro File, select one of the following radio buttons:

- **All network elements selected below:** Select the name of the NE from the list or type the NE name in the text box. To search for an NE name, enter a search string in the text box with a wildcard (*). Click the **Find** button to locate the NE names that match the search string.
- **All network elements: aggregate** - Select this radio button to specify an Area or an Aggregate. The TL1 Macro File is broadcast to all NEs of the specified type in the specified Area or Aggregate. Type the Area or Aggregate name in the text box. Additionally, this field is a hyperlink that, when selected, opens a Selection box from which to choose an Area or and Aggregate.
- **All network elements: network communications group** - Select this radio button to specify a Network Communications Group (NCG). The TL1 Macro File is broadcast to all NEs of the specified type in the specified NCG. Select the NCG name from the drop down list.

5 Select and move the NEs to which the TL1 macro file is to be broadcast to the **Selected** box. To do that, highlight the NE and select an arrow key or double click on the NE to move it to the **Selected** box.

6 Click the **Submit** button.

Result: A confirmation window appears.

7 Click the **Yes** button to confirm.

Result: The TL1 macro file is broadcast to the specified NEs. The TL1 Broadcast Response panel displays the set of TL1 commands and their responses sorted by NE.

END OF STEPS

□

Section II: Database Synchronization

Overview

Purpose

This section discusses the concepts and tasks associated with database synchronization.

Contents

Database Synchronization Concepts

Overview

The following is conceptual information about database synchronization. This information is meant to complement the tasks presented later in this section.

Definition of database synchronization

Database synchronization is a management system process in which information about the configuration and alarm status of an NE in the network is collected and stored in the database of the management system. Database synchronizations keep the management system view of the network current with changes that have occurred in the network.

Functionality description

For directly managed NEs, the management system initiates a database synchronization from a network adapter to the NE itself.

For indirectly managed NEs, the management system initiates a database synchronization between itself and the controller. If a database synchronization is desired with an indirectly managed NE, the user must open the controller application and initiate a database synchronization with the NE. For more information on opening the controller application, see “Open Controller Application for Indirectly Managed NEs” (p. 3-22).

The management system does not support all of the partial database synchronizations, such as equipment synchronization for indirectly managed NEs. However, the database search function and Initiate Database Synchronization function can be performed for indirectly managed NEs.

Note for SLM Regenerator 4 and SLM Regenerator 16

SLM Regenerator NEs are reported as neighbors by Metropolis® ADM (Compact Shelf) and WaveStar® ADM 16/1 NEs. If these NEs report the SLM Regenerator NE is managed by WaveStar® ITM-SC, the SLM Regenerator NE will be an indirectly managed NE. If these NEs report the SLM Regenerator NE is managed by a CMISE network adapter, the SLM Regenerator NE will be a directly managed NE. The CMISE network adapter however, does not directly connect to the SLM Regenerator NE and the level of support for a directly managed SLM Regenerator NE is equivalent to that provided for an indirectly managed SLM Regenerator NE. The only difference between an indirectly managed and a directly managed SLM Regenerator NE is that cut-through to the WaveStar® ITM-SC controller is provided for indirectly managed NEs and the NE Management Functions (for CMISE NEs) is provided for directly managed NEs.

Domain partitioning

Users are only able to view the NEs that are included in the Domain to which they are assigned.

Database synchronization types

The database synchronization feature synchronizes the management system database with current configuration data from an NE in the network. The following database synchronization types gather information from the NE:

- Configuration - all information
- Configuration - Cross-connections
- Configuration - Ethernet Objects
- Configuration - Equipment
- Configuration - Network Connections
- Configuration - Network OUC
- Configuration - Optical Connections
- Configuration - Port Parameters
- Configuration - Protection groups
- Configuration - Link Aggregate Groups
- Configuration - System parameters
- Configuration - Subnetwork discovery
- Ethernet services
- Fault - Alarm and Events
- NE date/time
- NE List Synchronization
- Incremental VCG Information
- Full VCG Information

Note: The Configuration - Network Connection synchronization and the Configuration - Network OUC synchronization are only initiated as part of a Full Configuration Database Synchronization when it is manually invoked by a user. Neither of these two Configuration synchronizations are initiated as part of the Full Configuration sync automatically initiated when a NE is first added to the system.

The Incremental VCG Information and the Full VCG Information synchronization apply only if the system is set to EPM.

Database synchronization types and indirect NEs

The following database synchronization types are available for indirectly managed NEs.

- Configuration - System parameters
- Configuration - Port parameters
- Configuration - Protection groups
- Configuration - Cross-connections
- Configuration - Optical Connections
- Fault - Alarm and Events

Database synchronization scope

The user determines the scope of the database synchronization. These options determine the scope:

- **Per-NE for the following NEs** - the management system searches for any non-Ethernet database synchronization activities.

  The management system provides the following options to select the NEs for the per-NE synchronization:

  – All NEs in the network

  – All NEs in a selected network adapter/controller server

  – All NEs in the a selected network communications group

  – A single selected NE

  Important! The system allows the user to manually initiate a NE List Synchronization job, if the value for the Database Synchronization Scope is set to be “All NEs in the following network adapter/controller server”.

Network adapter / controller servers

The management system supports configurations where the network adapters are detached from the main management system server and running on separate, dedicated servers. These dedicated servers can be either CMISE network adapters (CNAs), which support CMISE NEs or TL1 network adapters (TNAs), which support TL1 NEs. The user can search for or initiate database synchronizations for a selected network adapter server.

The management system also supports configurations where NEs are indirectly managed through controller servers. The user can search for or initiate database synchronizations for a selected controller server.

Full database synchronization

A full database synchronization gathers information about all aspects of the NE with which the management system is synchronizing. The database synchronization type for a full database synchronization is **All configuration information**.

Partial database synchronization

A partial database synchronization can be performed that only gathers information about one aspect of an NE. A partial database synchronization is performed by selecting any database synchronization type but **All configuration information**.

Three ways to initiate database synchronization

There are three ways that a database synchronization is initiated in the management system:

- **Automatically —** The database synchronization process is initiated automatically in the following case:
  - When an NE is discovered or manually added to the management system database.

    Note: For TCP/IP NEs, the user is asked to confirm that the management system will perform a database synchronization on the newly added NE. For OSI NEs, no confirmation is necessary.
  - When an NE recovers from loss of communications with the management system. This situation is controlled by an installation parameter that controls whether or not a database synchronization is run automatically after a loss of communications.

    Additionally, when an NE recovers from loss of communications with the management system, if either the system parameter or equipment partial database synchronization has failed during the previously completed database synchronization, a full database synchronization is automatically initiated.

    Note: Indirectly managed NEs that are discovered by the NE list synchronization when communication is established or restored to a controller are not automatically synchronized. Synchronization must be manually invoked.
- **Manually —** The database synchronization process can be initiated from the Initiate Database Synchronization page of the management system.
- **Scheduled —** The management system allows searching for and scheduling database synchronizations using the Scheduled Tasks function. For more information see “Scheduled Tasks Concepts” (p. 7-39).

Note: The Configuration - Network Connection synchronization and the Configuration - Network OUC synchronization are only initiated as part of a Full Configuration Database Synchronization when it is manually invoked by a user. Neither of these two Configuration synchronizations are initiated as part of the Full Configuration sync automatically initiated when a NE is first added to the system.

Methods for database synchronization

Database synchronization is accomplished using the following method:

- The Database Retrieval method synchronizes the management system database with the NE by sending database retrieval commands to retrieve data from the NE on specific categories. The management system compares the NE responses with the current management system database entries, and updates its database as necessary.

□

View a List of Database Synchronizations

When to use

Use this task to view a list of database synchronizations that are active and/or pending in the management system.

Related information

See the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of database synchronizations that are active and/or pending in the management system.

1 Use the icons or the object links to follow this path:

- **Tools > Database Synchronizations**

  Result: The Database Synchronizations page is displayed. It includes a table that is initially empty, but which can be populated by running a search.

2 Complete the following steps to search for database synchronizations that have occurred in the management system.

1. Specify the criteria for your search by making selections in each of the fields. You must make a selection in at least one field for the search to be successful.
2. Click the **Search** button.

   Result: The list at the bottom of the Database Synchronizations page is populated with a list of tasks that are active, pending or not in progress in the management system.

END OF STEPS

□

Perform a Full Database Synchronization

When to use

Use this task to perform a full database synchronization.

This task is used in two situations:

- When a GNE is added, the user is asked if a database synchronization should be run now. If the user is adding multiple GNEs, the user should answer no and initiate a database synchronization from all of the GNEs at the same time after all of the GNEs are added. This balances the load of RNEs assigned to the GNEs because the management system automatically assigns an RNE to the GNE through which it is discovered.
- Physical network connections between NEs are not automatically discovered if they are added after the NE is added. Periodically, or when new physical connections are known to have been added, the user should manually run a databases synchronization to auto-discover the new physical connections.

Related information

For information related to the Perform a Full Database Synchronization task, see the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

That the management system is communicating with the NE (If it is not, this feature cannot work.)

Task

Complete the following steps to perform a full database synchronization.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**.

  Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database Synchronization Type** field, select **Configuration - all information**.

Note: The **Configuration - Network connections** and **Configuration - Network OUC** drop-down options are available only if ONNS is enabled.

5 Do one of the following:

In the **Per-NE for the following NEs** field select the radio button, and make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The full database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates reports the status of the full database synchronization.

END OF STEPS

□

Perform a Partial Database Synchronization

When to use

Use this task to perform a partial database synchronization.

Related information

See the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**.

  Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database synchronization type** field, select one of the following:

- **Configuration - all information**
- **Configuration - Cross-connections**
- **Configuration - Optical Connections**
- **Configuration - Equipment**
- **Configuration - Port Parameters**
- **Configuration - Protection groups**
- **Configuration - Link Aggregate Groups**
- **Configuration - Subnetwork discovery**
- **Configuration - System Parameters**
- **Configuration - Network Connections**
- **Configuration - Network OUC**
- **Ethernet services**
- **Fault - Alarm and Events**
- **NE Date/Time**

Note: The Configuration - Network Connection synchronization and the Configuration - Network OUC synchronization are only initiated as part of a Full Configuration Database Synchronization when it is manually invoked by a user. Neither of these two Configuration synchronizations are initiated as part of the Full Configuration synchronization automatically initiated when a NE is first added to the system.

5 In the **Database synchronization scope** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page reports the status of the partial database synchronization.

END OF STEPS

□

Perform a Date/Time Synchronization With an NE

When to use

Use this task to perform a date/time synchronization with an NE.

Related information

See the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

Ensure that the management system is communicating with the NE. (If it is not, this feature cannot work.)

Task

Complete the following steps to perform a date/time synchronization with an NE.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Sync Operations**.

  Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database synchronization type** field, select **NE date/time**.

Important! This option is not applicable for MATS NEs.

5 In the **Per-NE for the following NEs** field select the radio button, and make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The date/time synchronization with an NE or a group of NEs is performed, and a confirmation is issued in the Messages panel. The Job Updates page reports the status of the date/time synchronization with an NE.

END OF STEPS

□

Schedule Database Synchronizations

When to use

Use this task to schedule database synchronizations.

Related information

See the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to schedule database synchronizations.

1 Use the icons or the object links to follow this path:

- **Tools > Schedule Tasks**

  Result: The Schedule Tasks search page is displayed.

2 Click the New button and select Database Synchronization from the drop-down list.

  Result: The Initiate Database Synchronization page is displayed.

3 Complete the fields in the Initiate Database Synchronizations page as required and click the **Schedule** button.

  Result: The Add Scheduled Task page is displayed.

4 To schedule the frequency, select one of the following radio buttons:

- **Daily starting on**
- **Weekly starting on**
- **Once every month starting on**
- **Every N Days starting on**
- **One time starting on**

5 Click the calendar icons in the row selected in the previous step to select the start and ending date and time. A Date/Time Chooser popup window displays. Select the scheduled start date, end date, and start time.

6 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. Possible choices are **no retries** or **1**.

7 In the **Retry interval** field, select the interval of time that will pass between the retry. Possible choices are **5 minutes**, **15 minutes**, **30 minutes**, or **60 minutes**.

8 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

Perform a Partial Database Synchronization for Optical Connections

When to use

Use this task to perform a partial database synchronization for optical connections.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for optical connections.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**.

  Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database synchronization type** field, select **Configuration - Optical connections**.

5 In the **Database synchronization scope** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page reports the status of the partial database synchronization.

END OF STEPS

□

Perform a Partial Database Synchronization for Subnetwork Discovery

When to use

Use this task to perform a partial database synchronization for subnetwork discovery.

Important! Inventory of connections in the management system is based on the DCC being enabled on that connection. Connections being inventoried in the management system is a precondition for the proper display of connections on the graphical layout.

Related information

See the following topics:

- “Port Concepts” (p. 3-70)
- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for subnetwork discovery.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**.

Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database synchronization type** field, select **Configuration - Subnetwork discovery**.

5 In the **Database synchronization scope** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page reports the status of the partial database synchronization.

END OF STEPS

□

Perform a Partial Database Synchronization for Network OUC

When to use

Use this task to perform a partial database synchronization for Network OUC.

Related information

See the following topic:

- “Database Synchronization Concepts” (p. 7-16)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to perform a partial database synchronization for Network OUC.

1 In the top navigation bar select **My network > Job updates**.

Result: The Job Updates page is displayed. This page allows you to monitor the status of the task.

2 Do one of the following:

- Use the icons or the object links to follow this path: **Network**. The Network Map is displayed. Right-click an NE icon. From the resulting Node menu, select **Session > Database synchronization**.
- Use the icons or the object links to follow this path: **Network Elements**. The Network Elements page is displayed. Click the radio button to the left of the NE for which you wish to perform a database synchronization. From the Go menu, select **Initiate database synchronization**, and click the **Go** button.
- Use the icons or the object links to follow this path: **Tools > Database Synchronizations**.

  Result: The Database Synchronizations page is displayed.

3 Click on the **New** tool in the search panel or in the toolbar.

Result: The Initiate Database Synchronization page is displayed.

4 In the **Database synchronization type** field, select **Configuration - Network OUC**.

5 In the **Database synchronization scope** field, make a selection to indicate with which NE or group of NEs the management system should synchronize as follows:

- In the **All NEs in network** field, select the radio button.
- In the **All NEs in following network adapter/controller server** field, select a network adapter/controller server from the **NA name** drop-down list.
- In the **All NEs in following network communications group** field, either enter the NCG name, or click on the **NCG name** hyperlink to display the Network Communications Group Selection popup window. This window is used to select an NCG from a list.
- In the **The following NE:** field, either enter the NE name, or click on the **NE name** hyperlink to display the Network Elements popup window. This window is used to select an NE from a list.

6 Click the **Submit** button.

Result: The partial database synchronization is performed, and a confirmation is issued in the Messages panel. The Job Updates page reports the status of the partial database synchronization.

END OF STEPS

□

Section III: Scheduled Tasks

Overview

Purpose

This section discusses the concepts and tasks associated with scheduled tasks.

Contents

Scheduled Tasks Concepts

Overview

The following is conceptual information about scheduling tasks from the management system. This information is meant to complement the tasks presented later in this section.

Functionality description

This feature provides the ability to have the management system perform some tasks on a scheduled basis. The activities can be scheduled to run as a one time activity to be kicked off on a specific day at a specific time or as a periodic activity to be kicked off on a recurring day and time.

Scheduled tasks for multiple NEs

When scheduling a task, a group of NEs can be selected for the specific task. When initiating a scheduled task, the management system waits until the scheduled task is initiated to determine the list of NEs for the scheduled task. The list is not determined when the scheduled task is created. This allows the user to create a scheduled task and then as NEs are added to the management system that meet the criteria, they automatically get added to the scheduled task. The NEs included must be in the user's domain.

Domain partitioning

The following applies for domain partitioning:

- **Search for scheduled tasks** - There is no search criteria for domain when searching for scheduled tasks. All scheduled tasks which match the search criteria are included in the search results table, irrespective of any domain partitioning. However, if the NE Name is used as search criteria, only NEs in the user's domain appear in the NE Name field. Therefore, by not selecting an NE as search criteria, tasks for all domains appear in the search results table.
- **Delete scheduled tasks** - Any scheduled task can be deleted, irrespective of domain partitioning.

- **Modify scheduled tasks** - Any scheduled task can be modified, irrespective of domain partitioning.
  Note: If a user who is not the current owner of the scheduled task is modifying the scheduled task and if the domain of the user modifying the task is different from the current owner's domain, the NEs included in the scheduled task may change.
- **Initiating a scheduled task** - If a scheduled task is modified by a user with different domains than the creator of the scheduled task, the domain associated with the scheduled task is changed. The domain used to determine which NEs will executed as part of the scheduled task is the domain(s) which apply for the User Name when the scheduled task is initiated, not the domain(s) when the scheduled task was created or modified. If, when initiating a scheduled task, the User Name does not exist or the domain for a User Name cannot be determined, the scheduled task is failed by the management system.

Tasks that can be scheduled

The following tasks can be scheduled from the management system:

- Backup from NE
- Download NE Generic to NE
- Download NE Generic from NE to Remote Device
- Copy from NE to NE
- NE Generic Activation
- Activate Remote Device
- Activate NE Database
- Database Synchronization
  Database synchronization is the only type of synchronization that can be scheduled for indirectly managed NEs.

Access to scheduled tasks

To create new scheduled tasks, use the **Tools > Scheduled Tasks** access path. Click the **New** icon and select the scheduled task you would like to add.

Additionally you can create new scheduled tasks through the menu component, for example, Software, or Database synchronizations. Use the following access paths to add new schedule tasks:

- To schedule new software management tasks, such as Backup from NE, Download an NE Generic to an NE, Download an NE Generic from an NE to Remote Device, Copy an NE Generic from NE to NE, NE Generic Activation, Remote Device Activation, and NE Database Activation, use the **Network Elements > Software** access path. For more information, see "Section VI: Software Management" (p. 3-130).
- To schedule a database synchronization, use the **Tools > Database synchronization** access path. For more information, see "Section II: Database Synchronization" (p. 7-15).

To search for, modify or delete scheduled tasks, use the **Tools > Scheduled Tasks** access path.

Scheduled task status

When entering search criteria for scheduled tasks the user is required to specify a scheduled task status in the search panel. One of the following options must be chosen:

- **Currently scheduled** - includes tasks that have not begun processing. The scheduled tasks that are displayed in the search results table can be modified or deleted.
- **Processing** - includes scheduled software management tasks which have been initiated, but not completed. The scheduled tasks that are displayed in the search results table are able to be cancelled or the NE level details can be viewed.
  A processing task is considered completed when all NEs included in the scheduled task have successfully completed or failed. As long as the job for one or more NEs is in progress at the NE or in the management system pending queue the scheduled task is considered as processing.
  Note: Once a scheduled task has completed, the user needs to check the User Activity Log for status of the scheduled task.

Execution interval

Important! This option is applicable for all Scheduled Task Types except Database Synchronization.

The system uses the start date and time and the execution interval to determine if a job should exit the queue and be sent to the NE.

When the scheduled start date and time is reached, jobs begin to be sent to the NE. During the execution interval, jobs for the NEs in the scheduled task continue to exit the queue to be sent to the NEs. Once the current date and time plus the execution

interval is reached, jobs for the NEs in the scheduled task can no longer exit the queue to be sent to the NEs. All jobs remaining in the queue, must wait until the scheduled start time is reached on the next day.

The jobs for the NEs in the scheduled task that can no longer exit the queue to be sent to the NEs are referred to as Suspended jobs. Suspended jobs retain their positioning in the queue, but are not able to exit the queue. Suspended jobs are not removed from the queue and re-added to the end of the queue when the scheduled start time is reached on the next day.

The Execution Interval is used for tasks with multiple NEs that span multiple days. For example, a user only wants to perform the Download NE Generic to NEs job between 1:00 am and 6:00 am and they have scheduled the start of the task for 4/1/2005. Jobs will begin being sent to the NEs at 1:00 am on 4/1/2005. If commands have not been sent to all NEs by 6:00 am on 4/1/2005 the system waits until 1:00 am on 4/2/2005 to continue with the remaining NEs.

Cancel a processing task

Important! This option is applicable for all Scheduled Task Types except Database Synchronization.

Software management tasks that are in the Processing status are able to be canceled. The cancel operation is performed for the entire scheduled task and any NEs that are in the pending queue. Additionally, for NE types which support the Abort of an In Progress software task, any NEs that are in progress are aborted. For NE types which do not support Abort of an In Progress software task, any NEs that are in progress are unaffected. Any NEs for which the scheduled task is completed by the NE are unaffected. To cancel at the individual NE level the “Abort In-progress NE Generic Transfer” (p. 3-181) or “Abort In-progress NE Database Transfer” (p. 3-234) tasks must be used. For a periodic task, the cancel action aborts only the current instance of the task that is processing. The next time the period expires, the task is executed again unless the scheduled task is deleted.

Retry scheduled task

When scheduling a task you have the option of instructing the management system to attempt to retry the task in case of error.

If the user requests a retry attempt when scheduling a database synchronization, the management system will only attempt a retry if the database synchronization is initiated by the management system and fails. When the scheduled date and time arrives, and the management system rejects the database synchronization job, the managements system will not initiate a retry. The following is a list of reasons why the management system would reject a scheduled database synchronization job:

For a database synchronization requested for a single NE:

- Another database synchronization is already in progress or pending against the target NE
- The target NE is not found
- A software download job is currently in progress against the target NE
- A software backup job is currently in progress against the target NE
- A software restore job is currently in progress against the target NE
- A software activation job is currently in progress against the target NE
- The communications link to the target NE is down
- The ONNS capability at the target NE is disabled
- An unsupported type of database synchronization was attempted against the target NE
- An internal system processing failure occurs when attempting to initiate a database synchronization against the target NE

For a database synchronization requested against a NCG:

- The target NCG is not found
- There are no NEs currently assigned to the target NCG

For a database synchronization requested against the entire network:

- The network does not have any valid NE to synchronize

View scheduled task NE level details

The Scheduled Task NE Level Details page includes a list of all NEs which are part of the selected scheduled task. For Software Management Tasks included on this page are:

- All NEs for which scheduled jobs are in progress at an NE.
- All NEs for which software jobs are in the management system pending queues
- All NEs that failed management system validations and the scheduled jobs were not attempted. For example, when the user selects the **Schedule** button on the Schedule Download NE Generic to NE Page, if any NEs fail they are listed on this page.
- All NEs which have successfully completed or failed. When an NE has failed an initial attempt but there are retries remaining, the NE is considered in progress. Only after all retries have been exhausted is the NE considered failed.

For Database Synchronization Tasks included on this page are:

- All NEs for which scheduled jobs are in progress at an NE.
- All NEs for which software jobs are in the management system pending queues

□

View a List of Scheduled Tasks

When to use

Use this task to view a list of tasks that are scheduled in the management system.

Related information

See the following topic:

- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of scheduled tasks.

1 Use the icons or the object links to follow this path:

- **Tools > Scheduled Tasks**

  Result: The Scheduled Tasks page is displayed.

2 Complete the following steps to search for tasks that can be scheduled.

1. Specify the criteria for your search by making selections in each of the fields. Depending on the selections in the **Scheduled Task Status**, **Search By** and **Task Type** search criteria fields, different search fields are displayed.
2. Click the **Search** button.

   Result: The list at the bottom of the Scheduled Tasks page is populated with a list of tasks that are scheduled in the management system.

END OF STEPS

□

Add a Scheduled Task

When to use

Use this task to add a scheduled task.

Related information

See the following topics:

- “Scheduled Tasks Concepts” (p. 7-39)
- “Schedule Database Synchronizations” (p. 7-30)
- “Schedule a Download NE Generic to NE” (p. 3-175)
- “Schedule NE Generic Activation” (p. 3-198)
- “Schedule a Download NE Generic from NE to Remote Device” (p. 3-211)
- “Schedule Remote Device Activation” (p. 3-216)
- “Schedule a Backup NE Database Version onto the Management System” (p. 3-225)
- “Schedule a Copy from NE to NE” (p. 3-205)
- “Schedule NE Database Activation” (p. 3-241)

Before you begin

The following tasks are able to be scheduled:

- Backup
- Download NE Generic to NE
- Copy from NE to NE
- NE Generic Activation
- Activate NE Database
- Database Synchronization
- Download to Remote Device
- Activate Remote Device

The user can only schedule tasks for NEs in their own domain. For example, if the user is choosing an NE name, only NEs in their domain can be selected. If the user chooses a bulk grouping, for example, all Metropolis® Wavelength Services Manager (WSM) NEs, the management system only selects the NEs in the user’s domain to be included in the task.

Note: User cannot schedule more than one task on an NE at the same date and time when an another task is scheduled on that NE.

Task

Complete the following steps to add a schedule task.

1 Use the icons or the object links to follow this path:

- **Tools > Scheduled Tasks**

  Result: The Scheduled Tasks search page is displayed.

2 From the Search panel or the Search results toolbar, click the **New** button.

  Result: A menu of scheduled tasks is displayed.

3 Select one of the following tasks as applicable.

- **Backup from NE**
- **Download to NE**
- **Download to Remote Device**
- **Copy from NE to NE**
- **NE Generic Activation**
- **Activate Remote Device**
- **NE Database Activation**
- **Database Synchronization**

  Result: The scheduled task page for the selected task is displayed.

4 Enter all the required information on the scheduled task page.

5 Click the **Schedule** button.

  Result: The Add Scheduled Task page is displayed.

6 From the Add Scheduled Task page, schedule the frequency by selecting one of the following radio buttons or fields. Based on the task type, some of these fields may not be available.

- **Daily starting on**
- **Weekly starting on**
- **Once every month starting on**

- **One time starting on**
- **Every N days**

7 To select the date for the task to begin and/or end, click the calendar icon in the row selected in the previous step. A Date Chooser popup window displays. Select the scheduled start date and ending date.

For the Every N days field, select the start and end dates, and also select a number of days in the **Every** field. Possible values are 2-6 days.

Note: Start date is a mandatory field and **End date** is an optional field.

8 In the **Scheduled Time** field, enter the time in the format ″hh:mm:ss”. The time entered applies for both the start and end date.

9 In the **Scheduled Task Name** field, enter a name for this scheduled task.

The name entered should be carefully considered. It cannot be modified and it must be unique.

10 In the **Number of retries** field, select the number of times the scheduled task will be retried in case of error. This field may not display for all task types.

11 In the **Retry interval** field, select the interval of time that will pass between retries. This field may not display for all task types.

12 In the **Execution Interval** field, select the number of hours this task should be performed from the drop down list. Possible values are from **1** to **12** hours of **Continuous**. This field is not displayed for all scheduled tasks.

13 Click the **Submit** button.

Result: The scheduled task is added.

END OF STEPS

□

Modify a Scheduled Task

When to use

Use this task to modify a currently scheduled task.

Related information

See the following topic:

- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

A user can modify any scheduled task irrespective of any domain partitioning.

Task

Complete the following steps to modify a scheduled task.

1. View a list of scheduled tasks using the following procedure:
   - “View a List of Scheduled Tasks” (p. 7-44).

   Note: In the Scheduled task status field, select the **Currently Scheduled** radio button.

   Result: The list at the bottom of the Scheduled Tasks page is populated with a list of tasks that are scheduled in the management system that match your search criteria.

2. The table lists the scheduled tasks. Click the radio button next to the scheduled task you wish to modify. From the Go menu, select **Modify** and click the **Go** button.

   Result: The Modify Scheduled Tasks page is displayed and lists parameters of the operation to be scheduled. The actual parameters differ based on what you are trying to schedule.

3. Change the entries or selections for any of the parameters of the schedule task that are modifiable.

4. Click **Submit**.

Result: The scheduled task is modified.

END OF STEPS

□

Delete a Scheduled Task

When to use

Use this task to delete a currently scheduled task.

Related information

See the following topic:

- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

A user can delete any scheduled task irrespective of any domain partitioning.

Task

Complete the following steps to delete a currently scheduled task.

1 View a list of scheduled tasks using the following procedure:

- “View a List of Scheduled Tasks” (p. 7-44).

Note: In the Scheduled task status field, select the **Currently Scheduled** radio button.

Result: The list at the bottom of the Scheduled Tasks page is populated with a list of tasks that are scheduled in the management system that match your search criteria.

2 Click the radio button next to the task you wish to delete.

3 From the Go menu, select **Delete** and click the **Go** button.

Result: A confirmation window is displayed.

4 Confirm that you wish to delete the scheduled task.

Result: The scheduled task is deleted.

END OF STEPS

□

Cancel a Scheduled Task

When to use

Use this task to cancel a currently processing task.

Related information

See the following topic:

- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

A user can cancel any scheduled task irrespective of any domain partitioning.

A user can only cancel the following types of processing tasks:

- Backup
- Download
- Download from NE to Remote Device
- Copy
- NE Generic Activation
- Activate Remote Device
- NE Memory Activation

Task

Complete the following steps to cancel a currently processing task.

1 View a list of processing scheduled tasks using the following procedure:

- “View a List of Scheduled Tasks” (p. 7-44).

Note: In the **Scheduled task status** field, select the **Processing** radio button.

Result: The list at the bottom of the Scheduled Tasks page is populated with a list of tasks that are processing in the management system that match your search criteria.

2 Click the radio button next to the task you wish to cancel.

3 From the Go menu, select **Cancel** and click the **Go** button.

Result: A confirmation window is displayed.

4 Confirm that you wish to cancel the scheduled task.

Result: The scheduled task is cancelled.

END OF STEPS

□

View Schedule Task NE Level Details

When to use

Use this task to view of list of all the NEs and the status of the scheduled job for the NEs which are part of the selected scheduled task.

Related information

See the following topic:

- “Scheduled Tasks Concepts” (p. 7-39)

Before you begin

A user can view the NE level details for any scheduled task irrespective of any domain partitioning.

Task

Complete the following steps to view a list of all NEs which are part of the selected scheduled task.

1 View a list of scheduled tasks using the following procedure:

- “View a List of Scheduled Tasks” (p. 7-44).
  Note: When performing the View a List of Scheduled Tasks procedure, in the Scheduled Task Status field, select the **Processing** radio button.

  Result: The list at the bottom of the Scheduled Tasks page is populated with a list of tasks that are processing in the management system that match your search criteria.

2 Click the radio button next to the task you wish to view.

3 From the Go menu, select **View NE Level Details** and click the **Go** button.

  Result: A list of NEs included in the scheduled task is displayed.

END OF STEPS

□

Section IV: TDM NE Optical Lines Upgrade

Overview

Purpose

This section discusses the concepts and tasks associated with TDM NE Optical Lines Upgrade tool.

Contents

TDM NE Optical Lines Upgrade Concepts

Overview

This section provides conceptual information about TDM NE Optical Lines Upgrade tool. This information is meant to complement the tasks presented later in this section.

Functionality description

The Time Division Multiplexing Network Element (TDM NE) Optical Lines Upgrade tool is used to support an upgrade of optical lines within the managed domain for TDM NEs. These TDM NEs include directly managed NEs and NEs that are managed through a legacy element management system. The tool supports all SONET and SDH physical network connection rates (that is, all OC-n and STM-n rate physical network connections).

The management system appropriately updates all connection related configuration information based on the new/higher optical line rate. It also renames the physical network connections and updates the ring information.

For more information on operational scenarios and considerations refer to the *OMS Administration Guide* (365-315-149R6.3.1).

TDM NE Optical Lines Upgrade tool licensing

The TDM Optical Lines Upgrade tool is part of the OMS_CORE license. A separate license is not needed to execute the tool.

TDM NE Optical Lines Upgrade tool log files

The TDM NE Optical Lines Upgrade tool creates an error log file and an activity log file in the following directory:

/var/opt/lucent/logs/tools/optical-lines-upgrade

Examples:

/var/opt/lucent/logs/oms/tools/optical-lines-upgrade/errorLog.year.month.day.hour.min.sec

/var/opt/lucent/logs/oms/tools/optical-lines-upgrade/activityLog.year.month.day.hour.min.se

□

Run the TDM NE Optical Lines Upgrade Tool

When to use

Use this task to run the TDM NE Optical Lines Upgrade tool.

Related information

See the following topic:

- “TDM NE Optical Lines Upgrade Concepts” (p. 7-55)

Before you begin

The TDM Optical Lines tool does not require you to bring the management system down to perform the upgrade (stop the application). This tool requires you to know the name of the NE, circuit pack, and the slot number of the circuit pack that is to be upgraded.

Task

Complete the following steps to run the TDM Optical Lines Upgrade tool.

1 Use the icons or the object links to follow this path: **Upgrade Tools > sub-OOGITU>OOGITU**. Select the TDM Line Upgrade Tool from the Tool Type drop-down list.

Result: The **TDM Line Upgrade Tool** page is displayed.

2 Enter the values in the following fields for the TL upgrade:

- In the **Connection Name** field, enter the digital link connection name.
- In the **A and Z NE names** field, enter the NE names in the field.
- In the **A and Z Circuit Pack names**field, Enter the circuit pack name.
- In the **A and Z Port IDs** field, Enter the Port Identifications.
- In the **New TL Rate** field, enter the TL rate.

3 Enter the values in the following fields for the single port upgrade:

- In the **NE Name** field, enter the NE name.
- In the **Circuit Pack Name** field, enter the Circuit Pack Name.
- In the **Port Name** field, enter the port name.
- In the **New Port Name** field, enter the new port name.
- In the **New Port Rate**field, enter the new port rate.

4 Click the **Submit** button.

Result: The tool upgrades all connection related configuration information based on the new/higher optical line rate.

5 Click the **Reset** button to reset the entered values.

6 Click the **Add** button to continue to upgrade another TL, Ring or Single Port. The user can view all the TL/Port parameters that the user has entered, and modify the existing parameters if required.

END OF STEPS

□

Section V: NE Insert / Removal Tool

Overview

Purpose

This section discusses the concepts and tasks associated with the Insert / Removal tool.

Contents

NE Insert / Removal Tool Concepts

Overview

This section provides conceptual information about NE Insert / Removal tool. This information is meant to complement the tasks presented later in this section.

Functionality description

For SDH physical network connections, the Insert / Removal tool can be used to add a node or remove a node from the HP® server.

The Insert / Removal tool enables a new node to be brought under management system control for the first time. The node can be inserted into an existing physical network connection (link) in the existing management system network, which includes configurations in which the link is part of a ring topology. It also enables a node to be removed/deleted from an existing physical network connection (link) in the existing management system network, which includes configurations in which the link is part of a ring topology.

The tool inserts or removes a node in an existing physical network connection and appropriately updates all network level information to be consistent with the new configuration. When inserting a node, the tool provisions the NE to maintain continuity of all existing network connections. When deleting a node from a ring/link, the tool updates the management system database accordingly and verifies that only through cross-connections exist between the two links from which the node is being removed, and prohibits the operation unless that constraint is met.

For more information refer to the *OMS Administration Guide* (365-315-149R6.3.1).

NE Insertion / Removal tool licensing

The Insert / Remove Node tool is part of the OMS_CORE license, which is the standard management system license that is licensed by the number of CPUs and includes network adapters (NAs) for CMISE and TL1 NEs. No other license is required to run this tool.

□

Run the NE Insert / Removal Tool

When to use

Use this task to run the NE Insert / Remove tool.

Related information

See the following topic:

- “NE Insert / Removal Tool Concepts” (p. 7-59)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to run the NE Insert / Remove tool.

1 Use the icons or the object links to follow this path: **Tools > sub-OOGITU>OOGITU**. Select the NE Insertion / Removal tool.

Result: The **NE Insertion / Removal tool** page is displayed.

2 In the **Tool type**field, select the options from the drop-down list **Insert Node in Ring / DL** or **Remove Node in Ring / DL**. If you select Remove Node in Ring/DL option, you will be in the recovery mode and need to provide the NE name and connection name to remove the specified NE.

3 In the **Recovery mode** field, select the options from the radio button**Yes** or **No**. The default value is **No**. This option helps to decide in which mode the offline tool should be invoked. If the recovery data exists, select the option **Yes** to run the tool in recovery mode.

4 In the **NE name** field, enter the NE name of the node being inserted.

5 In the **Connection name** field, enter the connection of the old digital link.

6 In the **Protection type** field, select the options from the radio button **Unprotectd** or **1+1 MSP**.

7 If the connection is a VC-4/STS-1, enter the services name to be dropped, for example A-end CTP: Z-end CTP, in the Input field. If the user does not specify the service name to be dropped, then this will be considered as pass through, by default. If this option is selected, enter the values in the following fields. If you select **Unprotected** in the protection type, the following fields are displayed:

- In the **A-end Port** field, enter the end Port of the node to be inserted.
- In the **Z-end Port** field, enter the End Port of the node to be inserted.

8 If you select **1+1MSP** in the protection type, the following fields are displayed:

- In the **A-end port name to be inserted (working)** field, enter the A-end Port of the node to be inserted.
- In the **Z-end port name to be inserted (working)** field, enter the A-end Port of the node to be inserted.
- In the **A-end port name to be inserted (protection)** field, enter the A-end Port of the node to be inserted.
- In the **Z-end port name to be inserted (protection)** field, enter the A-end Port of the node to be inserted.

9 Click the **Submit** button to continue to insert or remove the NE.

10 Click the **Reset** button to reset the entered values.

END OF STEPS

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