Optical Management System (OMS)

Release 6.4

Getting Started Guide

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Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, information is subject to change.

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Contents

About this document

Purpose

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

The purpose of this *OMS Getting Started Guide* is to explain to new users how to use OMS.

Reason for revision

Issue 1 of this *OMS Getting Started Guide* is a revised document that supports OMS Release 6.4.

Intended audience

This *OMS Getting Started Guide* is written primarily for operations personnel who use and administer the 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 *OMS Getting Started 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 online 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 6.4 of the management system, refer to the Summary of Supported NEs that is provided in Chapter 1, "Getting Started Concepts" 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 follow 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 Getting Started 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 *Getting Started 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 Getting Started Guide* is part of a set of documents that supports the OMS. An online version, in HTML format, of this document set is available on CD-ROM. The *OMS User Documentation CD-ROM* (365-315-144R6.4) includes the full set of documents listed below.

An online version, in HTML format, of this document set is provided as part of the OMS software.

Documentation

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

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

Help products

OMS includes an extensive help system that is designed to consider the task that the user is performing and help the 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 pop-up window shows the version, build number, build date, patch number and service pack number of the management system, along with links to the copyright and the OMS product pages.

How to order

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1 Getting Started Concepts

Overview

Purpose

This chapter describes the OMS Graphical User Interface (GUI).

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. In addition, the management system can *discover* much of the information about NEs and network connections, instead of requiring that information to be entered manually, which minimizes network operator effort and reduces errors.

About the software

OMS is run through an Internet browser-based Graphical User Interface (GUI)—it 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 both the SONET and SDH transport structures

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.

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 pre-defined 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.

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 NEs operate using different transport structures and they support different native command languages. Refer to "Summary of supported NEs" (p. 1-4) 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. 1-4) 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. 1-4) 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-ADM1	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM-ADM4	R2.5[4] R3.5[4]	SDH	CMISE	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
ISM ADM Repeater 1	R2.5[4] R3.5[4]	SDH	CMISE	TDM
ISM ADM 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)	R10.5.5 R10.5.4 R10.5.3 R10.5.2 R10.5.1 10.5 R10.0 R9.1 R9.0 R8.0.20 R7.0.2 R6.1.1	SONET / SDH	TL1	TDM
1625 LambdaXtreme™ Transport	R9.0 R8.1 R7.0 R6.0 R5.3.2 R5.1.1	SONET / SDH[2]	TL1	DWDM
Metropolis® ADM (Compact Shelf)	R5.0.3 R3.3 R3.2 R3.1 R3.0[4]	SDH	CMISE	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
1663 Add Drop Multiplexer-universal (ADMu)	R6.1.5 R6.1 R6.0 R5.2 R5.1 R5.0.3 R4.0.4	SDH	CMISE	TDM
1643 Access Multiplexer (AM)	R7.2.8 R7.1 R6.1H R5.0D R3.2[4] R3.1 R3.0 R2.2[4]	SDH	CMISE	TDM
1643 Access Multiplexer Small (AMS)	R7.2.8 R7.1 R6.1H R5.0D	SDH	CMISE	TDM
1655 Access Multiplexer Universal (AMU)	R5.0 R4.1.1 R4.0 R3.0 R2.1 R2.0.4	SDH	CMISE	TDM
1665 DMX Access Multiplexer	R9.0 R8.0.1 R7.1.1 R7.1 R7.0.x R6.0.x R5.1.6	SONET	TL1	TDM

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
Metropolis® DMXplore Access Multiplexer	R2.1	SONET	TL1	TDM
1665 DMXtend Access Multiplexer	R9.0 R8.0.1 R5.1.1 R5.1 R5.0.x R4.0.x R3.1.x	SONET	TL1	TDM
Metropolis® Enhanced Optical Networking (EON)	R8.8 R8.6.3 R8.4.1	SONET / SDH[2]	TL1	DWDM
Metropolis® Wavelength Services Manager (WSM)	R6.0 R5.0 R4.5 R4.0 R3.0	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
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

NE Supported[1]	NE Release Supported	Transport Structure Supported	Native Command Language Supported	Transmission Technology
SLM Unprotected TM 16	R5.0[4]	SDH	CMISE	TDM
WaveStar® ADM 4/1	V5 R4[4]	SDH	CMISE	TDM
WaveStar® ADM 16/1	R8.0.4 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, 7]	SONET	TL1	TDM
WaveStar® DACS 4/4/1	R3.1.4 R3.0[4]	SDH	CMISE	TDM
WaveStar® OLS 1.6T	R11.0 R10.0 R9.0[7] R8.0[3, 7] R7.1[6, 7] R6.2.2[6, 7]	SDH	TL1	DWDM
WaveStar® TDM 10G (STM64)	R5.0.5 R4.0 [5]	SDH	TL1	TDM
1645 Access Multiplexer Compact (AMC)	R9.1.2 R9.1.1 R9.0 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 using cut-through to Navis® 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 Navis® EMS R10.3.1.

6. Releases listed are supported via cut-through to Navis® EMS R10.3.1.

7. Releases listed are supported via cut-through to Navis® EMS R10.3.4

Indirectly Managed NE Support

Connection provisioning pages support automatic routing, manual routing, and cross-connection-based connection provisioning for indirectly managed NEs between only indirectly managed NEs, only directly managed NEs, and a mix of indirectly and directly managed NEs. For further information on support of indirectly managed NEs, refer to Chapter 1 in the OMS Network Element Management Guide.

About the Home Page

Presented at login

Upon login, users are presented with the home page. The home page displays a set of icons, as shown in the following figure.

An icon can be clicked to take the user into a specific section of the management system.

Alternate login behavior

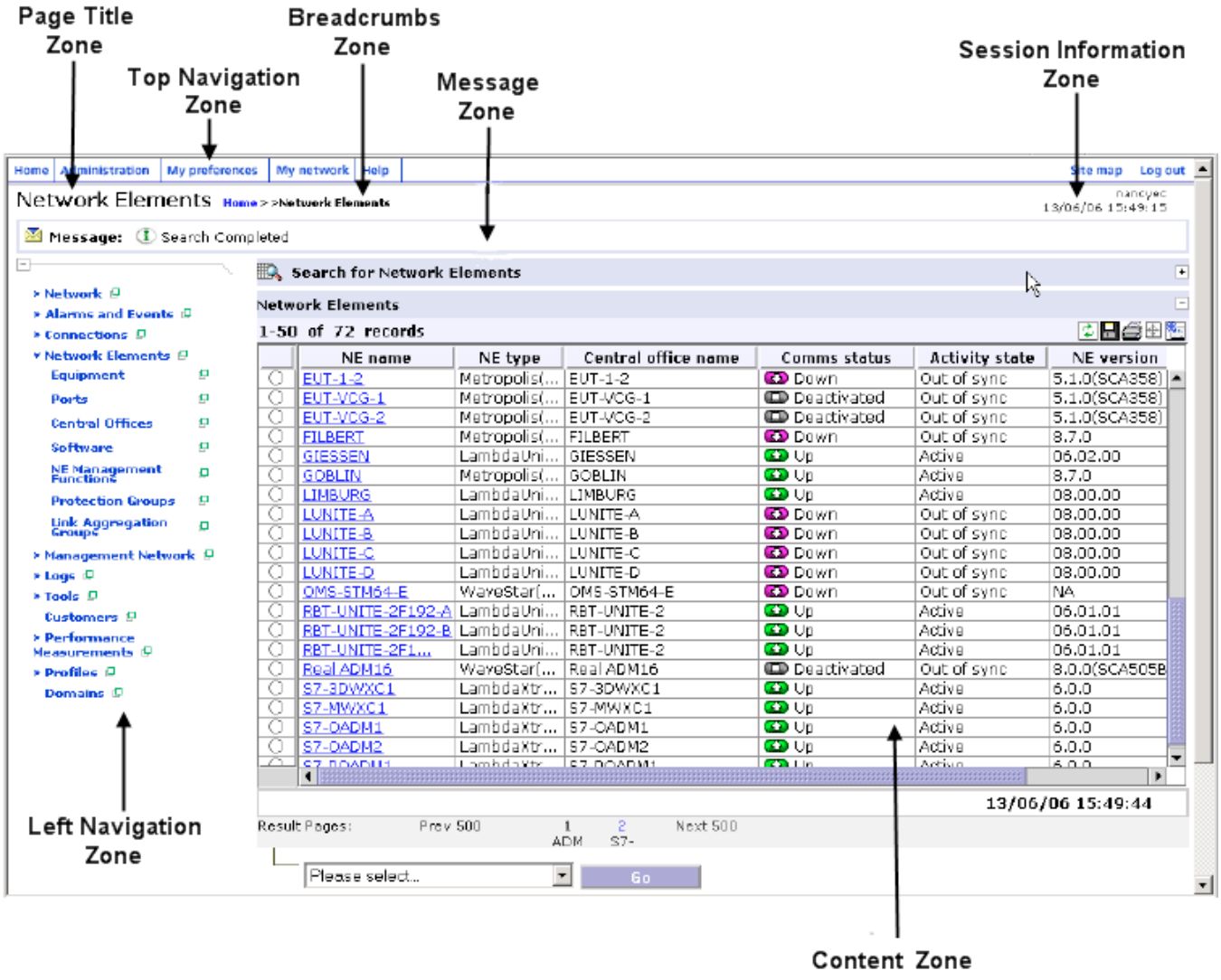
A user can bookmark any page for direct access to that page upon login.

General Information About the Pages

Page Layout

The pages of OMS use a page layout that includes a standard set of zones.

The zones are labeled in the following diagram.



The following table describes the zones of a standard page.

Top Navigation zone	This zone contains a menu bar with links to the following: Home, Administration, My Preferences, My Network, Help, Site Map, and Log out.

Breadcrumbs zone	This zone contains a path to the current page. The items in this path are links that can be used for navigation. The links in the Breadcrumbs zone can be used to back out of a page.
Page title zone	This zone contains the title of the page.
Left Navigation zone	This zone contains a listing of object links available in the management system. The items are presented as a tree, which shows the hierarchy of the management system components. The items are links, so this listing can be used to "drill down" to a specific page. This zone can be closed by clicking on the "-" icon in the left navigation zone. Closing this zone makes more room for the content zone, and is useful for a page that contains the Network Map.
Session information zone	This zone contains the user ID of the user who is logged into the management system, and the date and time (of the server) when the page was opened.
Message zone	This zone presents feedback from the management system, such as error messages and confirmation messages.
Content zone	This zone contains the actual page being displayed.

Content zone contents

The content zone contains the actual page that is displayed. The actual page can be a search panel, a Network Map, a data table, a tree panel, or a form. Some pages include a toolbar and/or a status bar.

Search panel

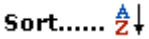
Many pages offer a search panel.

- If the page is displayed with the search panel opened, the section below presents as an empty table. In this case, a search must be performed in order to have the table populate with data.
- If the page is displayed with the search panel closed, the section below presents as a table that is populated with rows of data. In this case, a search is not needed to have the table populate with data.

At any point, a search can be run to have the table populated with a specific item or group of items, or to filter the list of items in the table to a smaller list. Some search windows offer a sort option that allows you to control the order of the items in the table.

Important! Because of the behavior of some open source software, its interaction with the management system, and various refresh rates, certain user actions must be done with caution. For example: during a web-based operation, such as a search, do not position your mouse over a hyperlink because the updated value to which it is linked will not be updated in the management system tables.

The following table describes the symbols that are used in the search panels:

Symbol	Description
* to the left of the field name	Indicates that this field is mandatory
	Indicates that an asterisk may be entered in this field as a wildcard. The wildcard may be used alone to list all items, or as part of a string to list items that contain the partial string.
	This symbol can be clicked to select a date from a calendar tool.
	These symbols can be clicked to show and hide more fields in a search panel.
	This symbol can be clicked to control the order of the items in the data list.

The  icon in the top right corner of the search panel title bar allows you to open and close the search panel.

Network Map

The Network page, and pages used to provision connections, include a Network Map in the content zone. For more information, see "Parts of the Network Map " (p. 1-27), later in this chapter.

Data "Chunking"

Search results are chunked in sets of 150. The user can also click on the Next 150 or Previous 150 to display additional search request data results.

The task bar of a table with "chunked" data records contains the object instance counter and the toolbar.

The following page displays a data table showing data chunking.

Network Connections

1-150 of 213 records

		Connection name	Connection rate	Service type	Customer name	Protection type	Order typ
		1-2-U-DL	STM-64	Not applicable	None	Unprotected	Add
		1/OMS/XTREME-R1...	OMS	Not applicable	None	Unprotected	Add
		1/OTS/XTREME-R2...	OTS	Not applicable	None	Unprotected	Discover
		1/OTS/XTREME-R6...	OTS	Not applicable	None	Unprotected	Discover
		1/OTS/XTREME-RP...	OTS	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/DMX-R6-0...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-1/XPLORE-...	STM-1	Not applicable	None	Unprotected	Discover
		1/STM-16/DMX-R5-...	STM-16	Not applicable	None	1+1 MSP	Discover
		1/STM-16/DMX-R5-...	STM-16	Not applicable	None	1+1 MSP	Discover
		1/STM-16/DMX-R5-...	STM-16	Not applicable	None	1+1 MSP	Discover
		1/STM-16/DMX-R5-...	STM-16	Not applicable	None	1+1 MSP	Discover
		1/STM-16/DMX-R5-...	STM-16	Not applicable	None	1+1 MSP	Discover
		1/STM-16/DMX-R5-	STM-16	Not applicable	None	1+1 MSP	Discover

15/02/07 06:34:47

Result Pages: Prev 150 Next 150

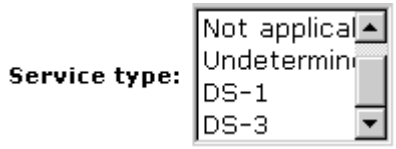
In the above figure, the Connection name column does not display the entire text (the text is not wrapped). However, when you place the cursor over a cell a tooltip with entire text in the cell is displayed.

Data table

Many pages present data about the network in a table format in the bottom portion of the content zone.

The following table describes some of the controls used on the table.

Control	Name	Description
	Radio button	Indicates that this table supports single row selection. A row may be selected by selecting the radio button, or by clicking the mouse anywhere within a row in the main table. An action can then be performed on this item by making a selection from the Go menu.

	Check box	Indicates that this table supports multiple row selection. A row may be added or removed from the selection by selecting or deselecting the check box. Alternatively, selection may be made by clicking the mouse anywhere within a row in the main table; in this case, multiple selections may be made by using the shift or control keys. An action can then be performed on the selected items by making a selection from the Go menu.
	Details button	Displays the details associated with the item.
	Go menu	A list of actions that can be performed upon a selected item in a list.
	Drop-Down List	A list of actions that can be performed upon a selected item in the drop-down list. In drop-down list, the shift key can be used to select a group of contiguous entries. The control key can be used to select multiple non-contiguous items.

The appearance of a table can be customized temporarily, which is the duration of one management session, in the following ways:

- When the user clicks on a table heading, it sorts the table by the entries in that column. The first click on a heading sorts the data in ascending order. The next click sorts the data in descending order. Arrows appear in the heading to show the order of the sort. When sorting a column, by default a request is sent to the back end requesting the full set of table data again, but sorted on the column which was clicked on. Some columns do not have back end support for sorting, and so the sort may be disabled on these columns. If the user clicks on the column, and does not get either an up or a down arrow, then sorting is disabled on that column. For some other columns, the sort may occur, but the sort may not be alphabetical. If the back end is sorting on an integer key value, but the GUI translates the integer key to a string, the sort may produce groupings of data which are not presented in alphabetical order.

  Note that Sorting using table headers is only done alphabetically. For example, sorting on Date, Layer Rate, Severity etc., may not provide the ordering required. In these cases, sorting using the main filter panel should be used.
- Columns can be rearranged by dragging and dropping a table heading to a new position.
- The width of a column can be changed by dragging the divider between columns to the left or right.

The appearance of a table can be customized permanently, which is for every management session, by using the Table Preferences tool in the toolbar. The Table Preferences tool provides you with a pop-up window that enables you to select the ordering and visibility of columns shown in the table along with the width of the column or columns. In addition, you can specify the first, second, and third levels of sort criteria.

Note: You can rearrange the order of the columns in a table by dragging-and-dropping a column directly in the table to the preferred position. The new order is then reflected in the Table Preferences window. If you click **Submit**, the new order is saved. If you do not open up the Table Preferences window and click **Submit**, the new order is not preserved when the page is subsequently opened. The selected sort criteria initially shown in the Table Preferences window reflects what is in the search form. If you re-select the sort criteria in the Table Preferences window and click **Submit**, the new sort criteria is saved and is reflected in the search form when the search form is refreshed.

Cells

Where text is too long to be displayed in a cell, it will be displayed as "text...". However, hovering the mouse over the cell will display the full text in a **tooltip**.

It is possible to copy text from a cell. To put the cell into *copy mode* you can double click it. It is then possible to select text from the cell and copy it to the clipboard from where it may be pasted into other applications. In *copy mode*, selecting the right mouse button will pop-up a menu containing **Copy** and **Select All** options.

Tree panel

Some pages, such as the Areas and Aggregates page, use a tree panel to present information about items that contain other items in the network. The tree panel can be expanded or collapsed to show the hierarchical relationship of these items. The tree panel is expanded by clicking on the symbol to the left of the item. By clicking any name under the item, the information displayed in the right panel changes to reflect information that is particular to the named item that was just selected.

Form

Some pages include a form with fields. The user makes selections to complete the form. Typically these types of pages are used to add or modify an item in the network.

Toolbar

The content zone includes a toolbar. The tools in the toolbar vary depending on the window.

The following table describes tools that commonly appear in the toolbar.

Icon	Tool Name	Definition
	Refresh	Refreshes the display of the Network Map with the latest data
	Print	Prints a portion of the information from the database that is displayed on the page
	New	Adds a new object to the management system (for example, on the Rings page, this tool is used to add a new ring)
	Save	Saves the records shown on the page to the local drive.
	Settings	Enables the user to change the table settings that affect the presentation of a table permanently, for every management session.

Status bar

The status bar contains the following features:

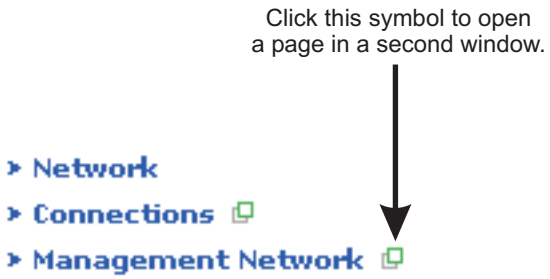
- The **Auto Icon** indicates that a page is dynamically updated:

- In general, the **Date and Time** stamp, displays the time in which the information on this page was last updated. On a static page, the date and time stamp indicates the time in which the user clicked **Search** or **Refresh** to request new data, whether or not new data exists. For a dynamic page, the date and time stamp indicates the time in which new data is received. If the user clicks **Refresh** on a dynamic page, the time stamp is also updated whether or not new data exists.

Open a page in another browser window

When you click an item in the object links, the new page replaces the old page in the browser window. If you like the new page to open in another browser window you can view the new and the old pages at once, click the symbol shown in the following figure.



Pop-up windows

Pop-up windows, which are smaller windows that appear on top of the browser page, are used to help select an item from a list. For example, a pop-up window of a calendar is used to select a date or a pop-up window containing a list of NEs is used to select an NE.

Navigation techniques

Navigation from the home page

To navigate from the home page, click the icon for the section of the management system that is related to the task you want to perform.

Navigation from other pages

The following techniques allow a user to navigate from one page to another:

- Start from the home page and click icons
- Use the object links
- Use the Go menu
- Use hyperlinks in data tables

The following technique can only be used to back out of a page:

- Use the links in the breadcrumbs zone
- Use the **Back** button on the browser

Navigate with bookmarks

Bookmarks can be used to mark pages that are used frequently.

Panning

To move a piece of the Network Map that is out of view into a viewable portion of the map, the technique of *panning* can be used. To pan around the Network Map, hold down the right mouse button and drag the map to a new position.

Administration Subsystem

Definition

The administration subsystem is the portion of OMS that is used by system administrators to control how the management system operates and who can perform certain tasks.

Access

Only users whose user role profile allows them to perform administration tasks can access the administration subsystem.

The administration subsystem is accessed by clicking **Administration** in the menu bar, which results in the display of the Administration page.

The Network Map and Aggregates, Areas, and Submaps

The Network Map

The OMS Network Map is a component of the management system that provides a graphical view of the physical network layout, including nodes and the connectivity between them.

The Network Map is a component of the following pages. Available selections depend on the selected system map:

- The Add Ring page, used to provision rings
- The Add Packet Ring page, used to provision packet rings
- The TDM Connection page, used to provision network connections (Multiplex Section, Service, Infrastructure, or MxN Service Group)
- The WDM Connection page, used to provision network connections (Service, Infrastructure, or Physical)
- The Add Ethernet Switched Service page, used to provision Ethernet switched services
- The Add Ethernet Non-switched Service, used to provision Ethernet non-switched services

- The Add Virtual Switch Network page, used to provision an Ethernet virtual switch network
- The Add Hub-and-Spoke Service page, used to add an Ethernet Hub-and-Spoke service
- The Merge TDM Connection page, used to merge two existing TDM service network connections.

Areas, Aggregates, Submaps, and Domains can also be added from the Network Map.

In addition, the Network Map provides aggregation options that allow the user to manage large networks effectively with many NEs.

An Abnormal Condition on a Network Element is present when the NE is undergoing testing/maintenance/installation. The NE Abnormal Condition icon is displayed on the Network Map. The icon appears on the Area/Aggregate symbol (if one or more of the NEs in the Area/Aggregate has an Abnormal Condition present) and also on the individual NEs affected.

The user can select an individual NE on the Network Map or Network Element list and jump to the screen which displays the Abnormal Condition details for the selected NE.Note that this is not applicable to OLS1.6T and BWM NEs.

The following table describes the symbols that indicates an abnormal condition:

Symbol	Description
	An abnormal condition is indicated by a black circle around the node.

The Network Map updates its record of the NE Abnormal Condition with a response time comparable with that for NE alarms.

Important! For large networks, the Area and Aggregates feature *must* be used to optimize system performance.

Network Map and Domain Users

The Network Map limits the display of NEs to those in a user's domain. The user can see nodes that belong to their domains.

The Display Route function on the Network Map displays the entire network if all network resources in this connection belong to the user's domain.

Areas, aggregates, and submaps that are created by a global domain user are visible to a domain user if at least one node in the area, aggregate, or submap is in the user's domain. Areas, aggregates, and submaps that are created by a domain user are visible to other domains.

When you assign an aggregate to a submap and then collapse it, the aggregate's parent is displayed.

Additionally, “Collapse all” shows the area this aggregate belongs to. When expanding its parent however, the submap only shows the assigned aggregate.

When you assign one or more NEs from an aggregate to a submap, collapsing one of the NEs shows its parent aggregate. Additionally, “Collapse all” shows the area that the aggregate belongs to. When expanding the top parent area however, only the parent aggregate will show. Furthermore, if the parent aggregate is expanded, or “Expand all” of the top area, only the originally assigned NE(s) shall be shown on the submap.

Aggregation options

Several *aggregation options* allow users to label a particular collection of NEs and to track their status from a higher-level view, while allowing them to monitor the resulting more-simplified view of the network. In short, these options enable the user to manage large-scale networks more easily and effectively.

From the lowest-level level aggregation option to the highest level, these options include *aggregates*, *areas*, and *submaps*. In addition, aggregates can be further aggregated to customize or to expand the degree of detail presented to the user.

Aggregates

An aggregate is a collection of NEs that is created to reduce overcrowding on the display and to select a particular group on which to perform a management function.

The following guidelines apply to aggregates:

- Domain users can only view NEs that are assigned to that domain user. The Aggregate tree displays the parent(s) of viewable NEs. The expanded Aggregate tree only displays NEs that are assigned to the domain user.
- Only a user who has a user role profile of *NOC Expert Operator* or who has a user-defined user role profile with the Area and Aggregate Management task included can create an aggregate.
- If an NE to be assigned is already assigned to an aggregate, it must first be unassigned from that aggregate.

  Any new aggregate that has been added is automatically assigned to the “UNASSIGNED” area.

  Once an aggregate is deleted, the NE that previously belonged to that aggregate is automatically placed in the “UNASSIGNED” area.
- An aggregate can contain other aggregates to an unlimited depth.
- An aggregate can contain an unlimited number of NEs.
- A limit of 200 aggregates per network is suggested to maximize performance; however, the system does not prohibit you from exceeding this limit. Some configurations may have lower limits.

Ring Aggregates

A ring aggregate is displayed in the system map of the Network Map, which is the view that supports the provisioning of end-to-end connections.

The OMS automatically creates a ring aggregate when it autodiscovers a ring configuration of NEs in the network.

The management system names the ring aggregate it just created; the name given to the ring depends on its configuration.

Example: If the management system discovered a 2-fiber BLSR ring, the ring would be named *2FBLSR*.

The management system does not generate a ring aggregate when these instances occur:

- When the ring spans more than one area
- When the ring type is 2F BLSR/2F MS-SPRING or 4F BLSR/4F MS-SPRING and the ring status is *pending*
- When the management system generates a ring with some NEs, in which at least one of the NEs already belongs to an existing ring aggregate, the new ring is merged into the existing ring aggregate. A new ring aggregate is not created.

When a user creates a new aggregate that includes NEs that already belong to a ring aggregate, the ring aggregate is broken, and the unused NEs become a user-defined aggregate. Likewise, if a ring is created that includes NEs that already belong to a user-defined aggregate, the management system does not create a ring aggregate for that ring.

CO Aggregates

Central Office (CO) aggregates are only displayed in the system map view, which is the view of the Network Map that enables network personnel to observe and monitor alarms. A CO aggregate, which is created by the management system, is a means to assist the initial automatic system grouping of NEs. It is a tool to assist the user in viewing the network in the initial stages. It is not a real central office. For example, if the user moves all of the NEs from the initial map CO aggregate, that CO aggregate will automatically be deleted. However, the real central office is still there and contains all of the relevant NEs related by their names. The relationship is maintained by the Central Office List. (The management system creates and names CO aggregates based on the CO name.)

Users can modify CO aggregates at any time.

A CO Name is generated based on the NE name:

- For SONET systems, when the NE name is longer than 11 characters, the first 11 characters of the NE name (the TID), counting from the left, are taken as a CO name. Therefore, the same CO (or CO aggregate) contains all NEs with the same first 11 characters.
- For SDH systems, the CO name is derived from a string containing a delimiter that separates the NE name (the TID). The delimiter is defined as a forward slash (**/**), a backward slash (\), an underscore (**_**), a period (.), or a dash (**-**). Whether the delimiter is the first separator (from the left) or the last separator (from the right) depends on a parameter set during installation. The same CO (or CO aggregate) contains all NEs with the same string up to the delimiter.

For more detail on COs, refer to the *OMS Network Element Management Guide*.

Areas

An area is a collection of NEs and/or aggregates and their associated links, that have been grouped into a smaller, more manageable network. Subdividing a network into areas reduces overcrowding on the display and improves system performance because smaller amounts of information are exchanged by the subsystems.

Areas can be a set of NEs/aggregates that are dedicated to a subscriber, or that are in a particular geographic location/building. The set of NEs/aggregates might or might not be connected. The aggregation of the links that connect the NEs/aggregates between two areas is called a *bridge* and is represented by a single line.

The number of managed or non-managed NEs in an Area/Aggregate is displayed beside the Area name. If the user tries to assign more than 300 NEs to an Area/Aggregate, a warning message is displayed.

The following guidelines apply to areas:

- Domain users can only view NEs that are assigned to that domain user. The Area tree displays the parent(s) of viewable NEs. The expanded Area tree only displays NEs that are assigned to the domain user.
- With the exception of the UNASSIGNED area, which is system-generated, only a user who has a user role profile of *NOC Expert Operator* or a user-defined user role profile with the Area and Aggregate Management task included can create an area.
- An aggregate can only be assigned to one area.

  An NE can only be assigned to one area and that NE is selected from NEs that are in the unassigned area.

  If an NE to be assigned is already assigned to an area, it must first be unassigned.
- A limit of 300 NEs per area is suggested to maximize performance; however, the system does not prohibit you from exceeding this limit. Some configurations may have lower limits.

- A limit of 50 areas per network is suggested to maximize performance; however, the system does not prohibit you from exceeding the limits. Some configurations may have lower limits. Use of more than 50 areas per network *will result* in degradation in performance.
- An empty user-defined area is automatically deleted by the management system when all nodes are removed. A warning message is displayed.
- An empty UNASSIGNED area is automatically deleted from the Network Map, but it remains visible in the Area/Aggregate tree.

Submaps

A submap is a collection of areas, aggregates, and NEs that a user has grouped in order to create a particular and individual view of the Network Map. A submap has all the functionality of the Network Map. Submaps afford users an *uncluttered view* of a selected number of NEs, aggregates, and areas that are of interest to them.

The following guidelines apply to submaps:

- Only a user who has a user role profile of *NOC Expert Operator*, *NOC Operator*, or who has one of the following tasks assigned in their user-defined user role profile can create a submap: Alarm Supervision, Connection Management, Area and Aggregate Management, NE Management, NE Engineering, Ethernet Infrastructure Provisioning, Ethernet Non-Switched Service, or Ethernet Switch Service Provisioning.
- When a submap is created, it is set to display the system map view or the system map.

  Note: Users who only have Alarm Supervision privileges can only view/create/copy a submap in the system map view. Users who only have Connection Management or Ethernet Management Provisioning privileges can only view/create/copy a submap in the system map.
- The aggregates and NEs selected to be part of the submap can be members of different areas. The same area, aggregate, or node can be part of multiple submaps.
- The user who created a particular submap, who is known as the *owner* of submap, is the only user who can view, modify, or delete the submap.
- A user can own up to 15 submaps.
- A submap made by one user does not alter the network view of any other user.
- Users can view a list of all submaps in the management system. Users can copy the submap of another user and modify it for their own use. A submap is set to display the system map.
- Any submap that is automatically opened after logging into the management system can be changed using the Preferences page. Refer to "Change Preferences" (p. 2-6).

Domains

A *domain* is a logical association of network resources and users.

All management system users are domain users. Multi-domain users are assigned to more than one domain.

Management system security, as defined in an individual user role profile, applies to all domain users.

There are two types of domain categories:

- Global domain - includes all network resources under management system control. Network resources from global domains can be assigned to user-created domains.
- User-created domains - are domains that are created manually. These can be modified and deleted.

The following guidelines apply to domain users:

- Only a domain user with Domain administration capabilities can create, modify, or delete a domain. For more information on Domain administration, see OMS Administration Guide.
- When network resources are moved to a new assignment, the management system remembers the initial assignment until the new assignment is committed.
- If the name of the domain is modified, the management system retains the domain's position and content.
- If a domain user is deleted, the Customers that have been created by that domain user are reassigned.

Overview of Network Map, aggregates, areas, and submaps

The Network Map displays the most complete picture of a network, which contains all of the network elements of a customer network. When the Network Map is presented at its top level, or in other words, it is collapsed to the area level, the map displays a view that is analogous to how an interstate highway is displayed on a road map. The user, or in this case, the road map viewer, is made aware of the routes and connections, or the major traffic arteries, among the cities and states.

When the Network Map is expanded to the aggregate level, the map is expanded into something similar to an major intrastate view on a road map. The viewer is made aware of the connections among towns or cities.

When the Network Map is further expanded to the NE level, the map displays the most detailed view, which is similar to a local street map.

While the Network Map presents the whole picture of the customer network, a submap, on the other hand, is a map that is created on a per-user basis; and as its name implies, it is a “subset” or a “portion” of something of interest in the customer network. Depending on the user's responsibilities, each user can make a submap that displays his or her own interest. The submap can consist of a subset of the NEs or aggregates or areas in the network.

For example, on a road map, a user might only be interested in a map that displays local traffic within a town, or he or she may only be interested in the traffic between two cities. Similarly, on the management system Network Map, a user might only be interested in a map that displays local traffic within an aggregate, so he or she can create a submap that contains only the NEs within that aggregate; or he or she may only be interested in the traffic between two cities, so he or she can create a submap that contains only those two areas with all of the NEs within those areas.

Remember that a submap can consist of a subset of the NEs or aggregates or areas in the network. Each user can have up to 10 submaps, and other users cannot view these submaps from the map page.

Areas and Aggregates - An area is always present at the top level and typically is used to distinguish between disjointed parts of the network, that is, parts that have few parts in common, such as networks of different customers, or networks that are not connected in any way. (This is a recommended scenario but is only a recommendation.) An area can contain other areas, NEs, or aggregates.

An aggregate can be present at the top level, but is typically found inside an area. The main purpose of an aggregate is to group a number of NEs by one of the following criteria: location, type, or connectivity. Aggregates can contain other aggregates, as well as any number of NEs. Once an NE is assigned to an aggregate, it cannot be assigned to another aggregate.

An NE is the lowest level in this hierarchy. NEs can be present at the top level, but typically NEs are found in either an area or an aggregate. An NE that has been put in a specific area or aggregate cannot be present in another area or aggregate.

Example # 1

As an example, assume that there is a network of 100 network elements. These NEs are divided into the following categories: 30 nodes belong to Customer A, 30 nodes belong to Customer B, and 40 nodes belong to Customer C. These individual networks are not connected in any way to each other. After the areas are created, the nodes are moved in each of the customer's areas for further grouping.

The 30 nodes of the Customer A network are located as follows: 10 nodes in Europe, 15 nodes in Asia, and five nodes in the North American Region (NAR). Assume that there are links among all of these regions. In order to have a regional view, aggregates are created for each region. The nodes belonging to a certain region are moved into each of the aggregates.

The nodes in the Asian aggregate consist mostly of point-to-point connections (5x point-to-point) and a five-node ring. To further minimize screen clutter, six additional aggregates can be created: five for the point-to-point networks (PtP1-5), and one for the ring (Rng1).

Example # 2

Customer B has a different set-up, with all of its nodes located in the US. Most of the network is located on the West Coast (25 nodes); however, some regional links are on the East Coast (5 nodes). The West Coast nodes are located strategically over three states: California (15 nodes), Oregon (5 nodes), and Washington (5 nodes).

Two aggregates can be created in the Customer B area: East Coast and West Coast. The West Coast aggregate contains three additional aggregates: California, Oregon, and Washington. Additional aggregates can be created between node type A and node type B.

Example # 3

Customer C has a global presence except in South America. Nodes are scattered around the world, located in Europe, Asia, NAR, and the Middle east. These nodes consist of local rings and point-to-point connections that are not connected to any parts of Customer C's network. To view a hierarchical piece of this network, you can create areas for the regions, which contain aggregates with the individual ring names or point-to-point connection names.

Submaps – A Submap provides a limited view of the network. A user can create a submap and select which areas, aggregates, and NEs are in the submap in any combination. Selecting this submap would then only display the items defined in the submap.

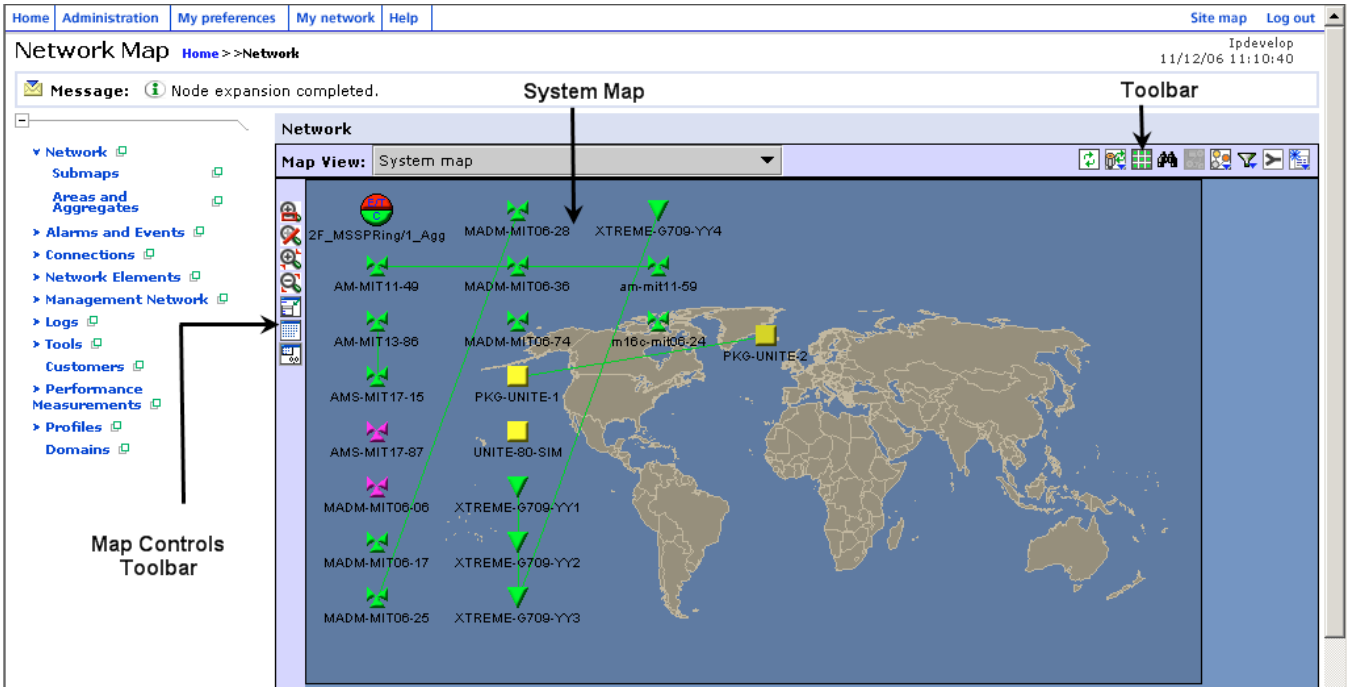
The user can switch between the main network view and submaps easily. Submaps are private and cannot be shared with other users. Default network maps (system map views) are global and are accessible to all management system users.

Parts of the Network Map

Illustration of the Network Map

As the following illustration indicates, the Network Map contains these parts:

- Map Controls toolbar
- System Map
- Toolbar



Map Controls toolbar

The Map Controls toolbar appears to the left of the Network Map and contains tools that can be used on the map.

The following table describes the tools in the Map Controls toolbar.

Icon	Tool Name	Definition
	Zoom in	Allows you to select a rectangular area and zoom in on it.
	Zoom reset	Returns you to the previous zoomed level.
	20% Zoom in	Zooms in by a fixed percentage. This percentage can be changed on the Preferences page; see “Change Preferences” (p. 2-6).
	20% Zoom out	Zooms out by a fixed percentage. This percentage can be changed on the Preferences page; see “Change Preferences” (p. 2-6).
	Full view	Displays a view that includes all NEs; however, the Network Map might not be a part of this view, depending on how NEs have been placed.

Icon	Tool Name	Definition
	Display grid layout/Display customer layout	Allows you to toggle between viewing the grid layout and the customer layout. The customer layout is the user-defined format and the grid layout is the system default; see "The staging area for new nodes" (p. 1-41) for details.
	Display staging /Hide staging area	Allows you to toggle between displaying and hiding the staging area; see "Views of node layouts" (p. 1-42) for details.

System Map View field

The Network Map allows users to view the entire network, or particulars items in the network. The following table describes the System Map view:

Network Map view	Definition	Particulars
System Map	The System Map supports observation of the network, as well as provisioning of end-to-end connections. Only users who have provisioning capabilities assigned in their user role profile can perform provisioning of end-to-end connections.	This view is available to all users. You can view the entire network, or view specific items, such as CO or ring aggregates (The management system generates ring aggregates based on the ring names. If the system generated ring aggregate name "piggy backs" partially on the ring name, and if the ring name is changed, the system automatically updates the ring aggregate name accordingly.) With the appropriate Alarm Supervision privileges, Connection Management or Ethernet Management Provisioning privileges, the user can view/create/copy a submap. When provisioning a connection, the System Map is always displayed even if the user has selected a submap in the system map, in Map Preferences.
User-defined submaps	The view of the Network Map that displays any submaps created by the particular user.	Any submap owned by a user is displayed only to the owner of the submap.

Save Map View	The user can save the current view of the network map so that next time when the user logs in, the map will be expanded at the same level with the same filtering and the zoom level.	The Save Map View has two sub menus Save Map View and Delete Map View. Save Map View - Saves the expansion level for all areas and aggregates on the map, link and node filtering, zoom level, and node locations for the current map (system map or user defined map). If the user has two maps open at the same time, and clicks *Save* on both maps, the map with the latest click will be saved. If the user clicks on *Cancel*, the system aborts the save request. Note that the alarm view is not saved, but the most up-to-date alarms is presented in the saved view. If the user's default map has not been saved, next time the user logs in, the user will still see the default map. The saved map will be displayed when the user switches to that map. Delete Map View - Deletes the map view. It is displayed only when the map being viewed is a saved map view.

Toolbar

The Network Map includes a toolbar that includes some common tools and some tools that are specific to the Network Map. The common tools are described in "General Information About the Pages" (p. 1-10).

The following table describes the tools that are specific to the Network Map.

Icon	Tool Name	Definition
	Refresh	Allows the user to update and collapse the Network Map to the original area. If there is a discrepancy between what is displayed on the map and what is in the database, the icon will change color. When the user clicks the **Refresh** button, the icon will change back to its original color.

Icon	Tool Name	Definition
	Redraw	Brings the Network Map back to a previous view by undoing one of the following: • Map filtering • Route display • Ring display • Node/link selection
	Legend	Pops up a window that provides a legend that defines node icons and colors.
	Find NE	Given the NE name, highlights an NE on the Network Map.
	Save Map View	The user can save the current view of the network map so that next time when the user logs in, the map will be expanded at the same level with the same filtering and the zoom level. The Save Map View has two sub menus Save Map View and Delete Map View Save Map View - Saves the expansion level for all areas and aggregates on the map, link and node filtering, zoom level, and node locations for the current map (system map or user defined map). Note that the alarm view is not saved, but the most up-to-date alarms is presented in the saved view. If the user's default map has not been saved, next time the user logs in, the user will still see the default map. The saved map will be displayed when the user switches to that map. Delete Map View - Deletes the map view.
	Display Route	Given the connection name or the order number associated with a route, highlights the route on the Network Map.
	Filter	Allows you to filter your view of the Network Map to display only specified connection types and rates, or NEs.
	Merge	Allows you to merge the selected connections.

Icon	Tool Name	Definition
	New	New toolbar has New and Merge menu items. Clicking the New menu item opens a page that allows you to create one of the following: • Network Element • Aggregate • Area • Submap • Domain • Ring • Packet ring • TDM Connection (Multiplex Section, Service, Infrastructure, MxN Service Group) • WDM Connection (Service, Infrastructure, Physical) • Ethernet (Non-switched ethernet service, Hub-and-Spoke service, Switched ethernet service, Virtual switch network) *Note:* The list of pages that can be opened using the New icon is dependent on both the Map view in which the user is active and the user's User Role profile.

Node Icons on the Network Map

Node Icons

On the Network Map, node icons represent different NEs, areas, aggregates, or ring aggregates. The icons for these NEs, areas, aggregates, or ring aggregates are readily identified by shape.

Any node icon can be selected by clicking on the icon. When a node icon is selected, its appearance changes depending on the component represented by the icon. Multiple icons can be selected by clicking on the additional icons. An icon is deselected by clicking on it again.

Color is used on the Network Map to indicate the alarm and communication status of nodes in the network. Throughout the management system, the color of the icon represents the highest severity of alarm that is present on the component represented by the icon. (However, the communications state takes precedence over the highest alarm state if the communication state is down.) Refer to the *OMS Service Assurance Guide* for an explanation of the colors used to represent each alarm.

Moving node icons

For the duration of the one user session, any user can *temporarily* move a node icon by dragging and dropping it to a new location on the Network Map. The node icon is returned to its original position when the user exits the program. Refer to the "Move a Node Icon Temporarily" (p. 2-54) task for instructions.

To *permanently* move a node icon to a new position on the Network Map, users with a user-defined user role profile that includes the Global UI Settings task can change the position of the node icon for all users by using the Save Location tool in the toolbar. Refer to the "Move a Node Icon Permanently" (p. 2-55) task for instructions.

In addition, users can move node icons and save their locations permanently in their own submaps by clicking on the **Save Location** icon after moving the icons.

The Node Menu

A single right click on any node icon produces a pop-up menu known as a Node menu. The Node menu is titled to reflect the type of node being represented. The Node menu contains menu items that include object-specific actions and certain navigation actions.

The Node Menu options vary depending on the type of node and the node hierarchy, as follows.

Node Menu for an Area

- Move label
- Expand one level
- Expand all
- Delete (for OMS only)
- Out of area connections
- Alarm list

Node Menu for an Aggregate Not During Provisioning

- Move label
- Expand one level
- Expand all
- Collapse one level
- Collapse to aggregate
- Collapse all
- Delete (only for non-ring aggregates)
- Ring list
- Out of area/aggregate connections

Node Menu for a Managed NE Not During Provisioning

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete
- Network Element - Submenu items are: Equipment (not applicable for Indirectly Managed NEs i.e. BWM (which is managed via EMS) and all WDM Repeaters, Cross connections, Ports (not applicable for all WDM Repeaters), Protection groups, and Abnormal Conditions. Not all submenu items apply to all NEs.
- Session - Submenu items are: DB synchronization, NE management functions, Open CIT GUI. Not all submenu items apply to all NEs.
- NE/Port assignment list
- Alarm list
- Alarm log
- Root cause failures list
- Threshold crossing alerts
- Protection switch events
- Out of area connections
- Within area connections

Node Menu for a Managed NE During Provisioning

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete
- Network Element - Submenu items are: Equipment, Cross connections, Ports, Protection groups, and Abnormal Conditions. Not all submenu items apply to all NEs.
- Session - Submenu items are: DB synchronization, NE management Functions. Not all submenu items apply to all NEs.
- NE/Port assignment list
- Alarm list
- Alarm log
- Threshold crossing alerts
- Protection switch events
- Root cause failures list
- Out of area connections

- Cross connection selection
- Ring selection - Only applicable to the NE that is part of one or more rings.
- NE port selection - Only applicable to Packet Ring provisioning page

Node Menu for an Indirectly Managed NE Not During Provisioning

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Open controller GUI
- Delete
- Network Element - Submenu item is: Cross connections (This menu is not displayed for CBX)
- Session - Submenu items are: DB synchronization, Open controller GUI
- NE/Port assignment list
- Alarm list
- Alarm log
- Threshold crossing alerts
- Protection switch events (This menu is not displayed for CBX)
- Root cause failures list
- Out of area connections
- Within area connections

Node Menu for an Indirectly Managed NE During Provisioning

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete
- Network Element - Submenu item is: Cross connections.
- Session - Submenu items are: DB synchronization, Open controller GUI
- NE/Port assignment list
- Alarm list
- Alarm log
- Threshold crossing alerts
- Protection switch events
- Root cause failures list

- Out of area connections
- Within area connections
- Cross connection selection (This menu is not displayed for CBX)
- Ring selection - Only applicable to the NE that is part of one or more rings.
- NE port selection

Node Menu for an Unknown NE

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete

Node Menu of a Non-Managed NE Not During Provisioning (Black Box)

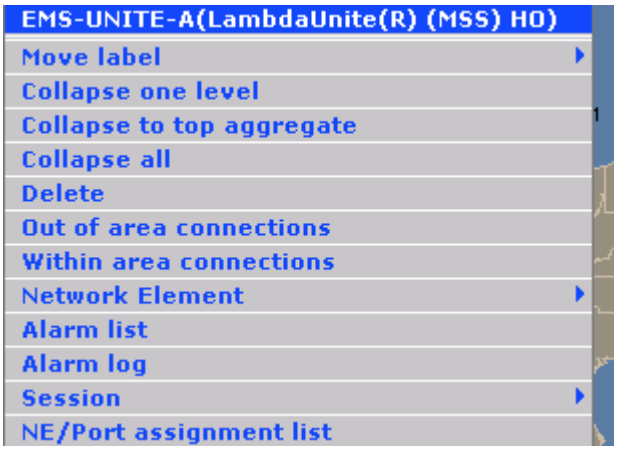
- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete
- Ports
- Protection groups
- Cross connections
- NE/Port assignment
- Out of area connections
- Within area connections

Node Menu of a Non-Managed NE During Provisioning (Black Box)

- Move label
- Collapse one level
- Collapse to top aggregate
- Collapse all
- Delete
- Ports
- Protection groups
- Cross connections
- Cross connection selection
- NE/Port assignment

- Out of area connections
- Within area connections

The following menu is displayed only if the user is in the System Map view of the Network Map. This figure is shown as one example that is available for Node Menus.



Selecting certain options from the Node Menu will display the destination page in a separate browser window.

Moving node icon labels

By using an item on the Node menu, node icon labels can be moved to appear on the top, right, bottom, or left of the icon. The movement of a node icon label is temporary; it lasts for the duration of the user session only. The node icon labels are returned to their original position when the user exits the program.

The node icon label position can be permanently saved by clicking on the **Save Location** icon.

NE icons

When an NE icon is selected, its appearance changes to show a white box around the icon, and the node label is displayed in bold type.

The NE icons used by the management system are shown in the following table:

Network Element*	Icon
1675 Lambda Unite MultiService Switch (MSS)	
1675 Lambda Unite MultiService Switch (MSS) with ASTN capability (ONNS)	

1625 LambdaXtreme™ Transport End Terminal	
1625 LambdaXtreme™ Transport OADM	
1625 LambdaXtreme™ Transport Repeater	
1665 DMX Access Multiplexer	
1665 Metropolis® DMXplore Access Multiplexer	
1665 DMXtend Access Multiplexer	
Metropolis® Enhanced Optical Networking (EON) DF	
Metropolis® Enhanced Optical Networking (EON) ET	
Metropolis® Enhanced Optical Networking (EON) Repeater	
1695 Wavelength Services Manager (WSM) OADM	
1695 Wavelength Services Manager (WSM) Repeater	
Metropolis® ADM (Compact Shelf)	
1663 Add Drop Multiplexer-universal (ADMu)	
1643 Access Multiplexer (AM)	
1643 Access Multiplexer Small (AM-S)	
1655 Access Multiplexer Universal (AM-U)	
WaveStar® ADM 16/1	
WaveStar® BWM	
DDM-2000 OC3 Multiplexer	

Unknown	
Non-managed	
CBX	
1671 Service Connect (SC)	
1645 Access Multiplexer Compact (AMC)	

*Unmanaged Network Element icons are also available.

Area and aggregate icons

When an area icon is selected, the node label is displayed in bold type.

The area icon is shown in the following figure.

When an aggregate icon is selected, its appearance changes to show a white box around the icon, and the node label is displayed in bold type.

The aggregate icon is shown in the following figure. Note that the same icon is used for an aggregate and for a CO aggregate.

Area and aggregate icons are divided into two sections; each section is labelled with a letter:

Label	Title	Definition
E/T	Equipment/ Transmission	Status of the equipment in the area; status of the transmission in the area.
C	Communication	Status of communication between nodes in the area and the management system.

Each section of an area or aggregate icon is colored to indicate the highest severity alarm that is present on the area or aggregate in that category.

Ring aggregate icon

Ring aggregates are only displayed in the system map of the Network Map.

The ring aggregate icon is shown in the following figure.

When a ring aggregate icon is selected, its appearance changes to show a white box around the icon, and the label displays in bold type.

Expand and collapse areas and aggregates

A user can expand an area or an aggregate to view the next lower level that might contain aggregates or NEs, or both. The user can further expand an aggregate to view all aggregates or NEs under that aggregate, until the lowest level of the aggregate is displayed. (Leaf nodes are displayed.)

The user can collapse the expanded view using the Node menu. Nodes are expanded and collapsed by selecting the node icon, right-clicking to display the Node menu, and making an appropriate expand or collapse choice.

When an area is expanded, the connections among the member NEs and/or aggregates within that area are displayed.

Link Icons on the Network Map

Link icons

Link icons appear on the Network Map to represent a bridge or connection between two nodes, where a node is an area, aggregate, or NE. Only one type of link icon appears on the Network Map; it is a thin line that is identifiable by shape and color.

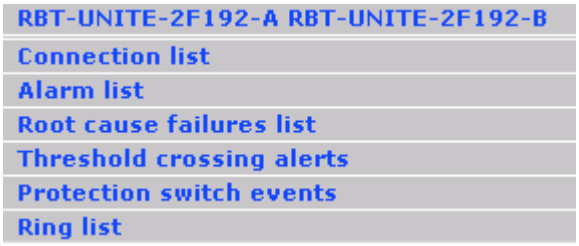
A link icon can be selected by clicking on the icon. When a link icon is selected, its appearance changes to a dashed line. Multiple icons can be selected by clicking on each icon. An icon is deselected by clicking on it again.

The color of the link icon is used to display a route and an alarm.

The width of the link icon can be changed on the Preferences page; see “Change Preferences” (p. 2-6).

Link menu

A single right click on a link icon produces a pop-up menu known as a Link menu, an example of which is shown in the following figure.



The Link menu contains menu items that include object-specific actions and certain navigation actions. The Link menu varies depending on the properties of the link. Depending on the Link menu option selected, a separate browser window may be displayed. Not all options available will apply to all NEs.

The Link menu is titled as follows:

- For a link between two NEs, the Link menu is titled with the From-end and To-end NE names.
- For a link between two nodes where at least one end is an area or aggregate, the Link menu is titled with the From-end and To-end area, aggregate, or NE names.

Network Map Behavior

The staging area for new nodes

The management system automatically puts new nodes in a staging area.

Using the toolbar icon, you can manually hide or display the staging area. The tooltip for the icon is **Display Staging Area** or **Hide Staging Area**. You can also resize the staging area from a maximum defined size to a minimum area.

If you drag a new node to the preferred location of the map layer and save the location, the preferred map location of the node is saved. If you do not save the node location after dragging a new node from the staging area, the node is returned to the staging area after you click **Refresh**, or after you log out and log back in.

When all new nodes are off of the staging area, the management system automatically removes the staging area. In the same respect, when a new node comes to the map, the management system automatically displays the new node in the staging area. However, you can always manually display the staging area even when it does not contain any

nodes by clicking on the toolbar icon. When a subsequent node update is processed, the management system controls the visibility of the staging area. Zoom/pan map functionality is not applied to the nodes that are in the staging area.

Nodes that are in the map area can temporarily be returned to the staging area by dragging the node to the top left-hand corner of the map when the staging area is displayed. The layout of the staging area is recalculated when a node is moved from the layout, or when the contents of the staging area change.

Views of node layouts

Using a toolbar icon, the management system enables you two views of node layouts, which include the system default nodes layout or the customer-specified nodes layout. The tooltip for the icon is **Display Grid Layout**, which displays the system default nodes layout, or **Display Customer Layout**, which displays the customer specified nodes layout. When the defined grid layout is displayed, you cannot change the node position. The "Save Location" icon is not available for this layout.

Multiple map pages/panels display

You can display a maximum of two map pages or panels at the same time. If you attempt to open a third map page or panel, the management system displays a page count error.

When you acknowledge the warning message, the management system closes the error page and goes back to the previous page.

Switching maps

When a user switches a map, the original map is preserved so that when the user switches back, the view of the original map, plus updated information, is displayed. Updated information may include, node and link alarms, NE status, indication if an NE has been deleted from the previous view, connections that are added or deleted between the existing nodes in the previous view.

Alarm view

The Alarm View of the Network Map displays transmission alarms for both the nodes and the links. The node can have various colors depending on the alarm severity based on both the Equipment alarm and the Transmission alarm. The link can have various colors depending on the severity of the Transmission alarm.

Map display when provisioning connections

The Network Map is opened by default on pages used to provision connections.

Change the Appearance of the Network Map

General

A variety of techniques can be used to change the appearance of the Network Map.

Pan

To move a piece of the Network Map that is out of view into a viewable portion of the map, the technique of *panning* can be used. To pan around the Network Map, hold down the right mouse button and drag the map to a new position.

Expand and collapse

To change the appearance of the Network Map, users can expand or collapse an area or an aggregate to view the next appropriate level. Refer to "Expand and collapse areas and aggregates" (p. 1-40) for more details.

Move nodes and node icon labels

To change the appearance of the Network Map, users can move node icons to new positions either temporarily (for one user session) or permanently. Refer to "Moving node icons" (p. 1-33) for details.

In addition, users can temporarily move node icon labels. Refer to "Moving node icon labels" (p. 1-37) for details.

Filter the Network Map

The Network Map can be filtered to display only links or NEs of a specified type. Refer to "Filter the Network Map" (p. 1-44) for details.

Zoom out and focus

To zoom out and focus on all nodes displayed on the Network Map, users can click the **Full View** icon on the Map Controls toolbar.

Filter the Network Map

Types of Network Map filters

Three types of Network Map filters are available:

- Node filters
- Link filters
- ASTN filters

These filters enable the Network Map to be filtered to display only NEs or links of a specified type.

The default map link/connection filter is determined by the User preference that has been set. There are two link filters available: Connection Type filtering (which includes TDM and WDM Connection filtering), and Link Connection filtering. The system default is to display all of the WDM connections, and the TDM multiplex section.

Node filters

The following node filters are available:

- One or more *Node Type* filters filter the Network Map to display one or more nodes of a specified type.
- One or more *Node Name* filters filter the Network Map to display one or more nodes of a specified name.
- One or more *Selected Node* filters filter the Network Map to display one or more selected nodes.

Link filters

The following types of link filters options are available:

- **TDM Connection**
  - The *service layer* filter displays only connections of a given rate that have a Service Type other than *Not applicable*.
  - The *infrastructure layer* filter displays only connections of a specified rate that create link connections (channels).
  - The *multiplex section* filter displays only physical network connections of a specified rate. The physical layer filter is useful for a user who wants to monitor alarms and see the architectural view of the existing network at a given level.
- **WDM Connection**
  - The *service layer* filter displays only connections of a given rate that have a Service Type other than *Not applicable*.
  - The *infrastructure* filter displays all infrastructure connections which are adapted connections with more than one type of channel.
  - The *physical layer* filter displays only physical network connections of a specified rate. The physical layer filter is useful for a user who wants to monitor alarms and see the architectural view of the existing network at a given level. Note that if the OTS layer is selected, all of the optical amplifiers and the DWDM NEs are displayed along with the OTS links. Link menus for an arc of a ring or for creation of a ring are not applicable to OTS.
- **Link Connection**
  - The *link connection type* filter displays only servers of a specified link connection type. The list of choices dynamically changes to list only the link connection types that are currently displayed on the Network Map.

ASTN filters

The ASTN (Automatic Switched Transport Network) filter applies to the filtering of ONNS networks. Display ASTN network information including ASTN ID, SCN IP, MCN IP.

Multi-Panel Forms of a Management System Page

Parts of a Management System Page

The pages of the management system that are used to add or modify connections, new OMS-to-NE connections, virtual switch networks, or Ethernet services consist of the following parts:

- A Network Map
- A multi-panel form
- A navigation aid
- Reset, Cancel, Previous, Next, Finish buttons

Network map

The Network Map provides a view of all NEs in a network and the connectivity between those NEs. For more information, see "Parts of the Network Map " (p. 1-27) in this chapter.

Multi-panel form

Each panel is used to set the parameters for a network connection.

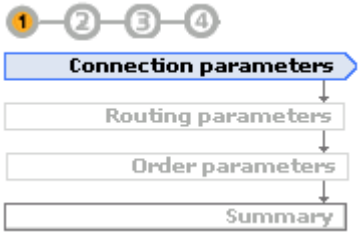
The Summary panel presents all selections that have been made in the previous sections, so that you can correct or accept them. If you want to return to a panel to change a selection, click the panel number or step on the navigation aid, or click the **Edit** button on the Summary panel for the panel to be changed, or click the hyperlink to the panel to be changed on the Summary panel.

Once all selections have been made/changed and checked, the **Submit** button on the Summary panel is clicked to complete the add or modify request.

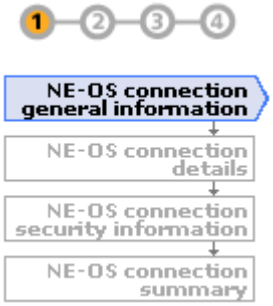
Navigation aid

A navigation aid is a graphical guide that allows a user to move through the multi-panel form by clicking the step or the step number. The navigation aid displays helpful information about the parameters or fields to be entered on the selected panel in the *Tips* box.

A sample navigation aid for adding or modifying a connection is shown in the following figure.



A sample navigation aid for adding or modifying OMS-to-NE connections is shown in the following figure:



A sample navigation aid for adding a virtual switch network is shown in the following figure:

Reset, Cancel, Previous, Next, Finish buttons

Reset, **Cancel**, **Previous**, **Next**, and **Finish** buttons are provided and can also be used to move through the multi-panel form. Note that the **Finish** button takes the user to the Summary panel.

Lock Icons

For service network connections, these pages have a lock icon next to the **Connection rate** and **Service type** fields. These fields are initially unlocked. If the user selects the connection rate first, the connection rate locks and the list of service types is filtered to show only service types that are applicable for that connection rate. If the user selects the service type first, the service type locks and the list of connection rates is filtered to show only connection rates that are applicable for that service type. To make a different selection in a locked field, click the lock icon to unlock the field.

Tools

The following table describes the tools in the toolbar of these pages.

Icon	Tool Name	Definition
 / 	Native Port Name/ITU-T G.707 Format Name	Toggles between the Native Port Name and the ITU-T G.707 format.

Network Connection Names

Names

Every network connection in the network must have a unique name.

The management system allows any of the following three formats to be used:

- Telcordia
- M1400
- Free format

The format used by the management system for network connection names is controlled by an installation parameter.

Telcordia connection name format

The Telcordia naming format is illustrated in the following figure:

The Telcordia naming format has four components:

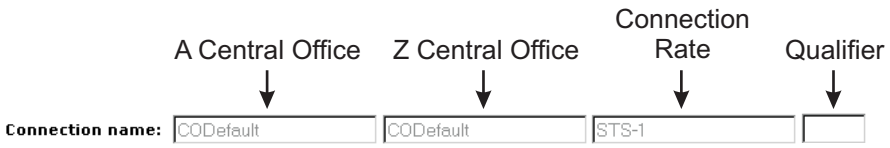
- **Qualifier —** Defined by the user. Allowable values are 4-digit numbers between 0001 and 9999. If the user does not enter a qualifier during provisioning, the system generates one automatically using the lowest free qualifier that is available.
- **Connection rate —** Defined by the management system.
- **A Location —** Defined by the management system.
- **Z Location —** Defined by the management system.

The character that the management system uses as the separator is defined at installation. The separator can be any of the characters listed in the following table:

/	forward slash
|	vertical bar
-	hyphen
_	underbar
,	comma
:	colon
.	period
	blank space

M1400 connection name format

The M1400 naming format is illustrated in the following figure:



The M1400 naming format has four components:

- **A Central Office —** Defined by the management system.
- **Z Central Office —** Defined by the management system.
- **Connection rate —** Defined by the management system.
- **Qualifier —** Defined by the user. Allowable values are 4-digit numbers between 0001 and 9999. If the user does not enter a qualifier during provisioning, the system generates one automatically using the lowest free qualifier that is available.

The character that the management system uses as the separator is defined at installation. The separator can be any of the characters listed in the following table:

/	forward slash
|	vertical bar
-	hyphen
_	underbar
,	comma
:	colon
.	period
	blank space

Free-format connection name format

The free-format naming format is illustrated in the following figure:

The free-format naming format has one component:

- **Qualifier —** Defined by the user. Allowable values are up to 83 characters in length, made up of the allowable characters shown in the following table. If the user does not enter a qualifier during provisioning, the system generates one automatically in the following format: A central office <separator> Z central office <separator> connection rate <separator> qualifier.

The character that the management system uses as the separator is defined at installation. The separator can be any of the characters listed in the following table:

/	forward slash

|	vertical bar
-	hyphen
_	underbar
,	comma
:	colon
.	period
	blank space

Characters supported in NE, customer, and connection names

Every network element, customer name, and connection name in the network must have a unique name. These name fields support international characters, as defined in the Latin alphabet #1 in ISO/IEC 8859-1.

> **Note:** CMISE NEs and MATS NEs support the international character set for NE name. TL1 NEs do not support the international character set.

In the NE name field, you enter a name that will be used by the management system to identify the 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.

In the customer name field on customer screens, you enter a name that will be used by the management system to identify the customer. In provisioning screens, the customer name is selected from a drop-down menu. This field accepts a maximum of 32 characters.

In the connection name field, you enter a name that will be used by the management system to identify the connection. This field accepts a maximum of 83 characters.

The characters that are allowable in the NE, customer, and connection name fields are listed in the following table:

A ...Z	upper case letters
a ... z	lower case letters
0, 1, 2, 3 ...	numbers
/	forward slash
-	hyphen
_	underbar
.	period Although allowed, it may not be the first character.

The following international chars are for CMISE NE names only, not TL1 NE names.	
À, à	Agrave, agrave
Á, á	Aacute, aacute
Â, â	Acirc, acirc
Ã, ã	Atilde, atilde
Ä, ä	Auml, auml
Å, å	Aring, aring
Æ, æ	Aelig, aelig
Blank	Although allowed, it may not be the first character.
Ç, ç	Ccdil, ccdil
È, è	Egrave, egrave
É, é	Eacute, eacute
Ê, ê	Ecirc, ecirc
Ë, ë	Euml, euml
Ì, ì	Igrave, igrave
Í, í	Iacute, iacute
Î, î	Icirc, icirc
Ï, ï	Iuml, iuml
Đ, đ	Dstrok, dstrok
Ñ, ñ	Ntilde, ntilde
Ò, ò	Ograve, ograve
Ó, ó	Oacute, oacute
Ô, ô	Ocirc, ocirc
Õ, õ	Otilde, otilde
Ö, ö	Ouml, ouml
Ø, ø	Oslash, oslash
Ù, ù	Ugrave, ugrave
Ú, ú	Uacute, uacute
Û, û	Ucirc, ucirc
Ü, ü	Uuml, uuml
Ý, ý	Yacute, yacute
ÿ	yuml

Þ, þ	THORN, thorn
β	beta

Set Preferences

Preferences defined

Preferences are parameter settings that customize the behavior and appearance of the management system. These parameters are controlled by users, and should be set to suit their individual preferences. After the user changes preferences and clicks the **Submit** button, the changes will be in effect on all relevant pages once the user logs out and then logs back in to the management system.

Change preferences

The Preferences page is used to change preferences. It is accessed from the My Preferences menu on the top navigation bar of every page. Refer to the "Change Preferences" (p. 2-6) task for instructions.

Types of preferences

The management system supports five types of preferences:

- Regional Preferences
- My Network Preferences
- Map Preferences
- Application Preferences
- Personal Color Preference

Regional preferences

Regional preferences are a set of parameters that control the locale (as exemplified by the language used), the date format (as it displays the month, day and year), and the time zone that the management system uses.

The following table describes the available options for each regional preference.

Preference	Definition	Options
Locale	The localized language used by the management system.	English is the only supported language in this release.
Date Format	The format used by the management system to display dates.	Six options for month/day/year format are offered, including options that use 2-digit or 4-digit years.

Preference	Definition	Options
Time Zone	The time zone used by the management system.	Any valid time zone.

My Network Preferences

The My Network Preferences are a set of parameters that control the appearance and function of these two pages:

- The Network Event Summary page offers the user parameter options to control the display of alarm summaries and latest raise and clear events. Users can set a refresh rate of 5 or 10 seconds to occur between dynamic updates.
- The Job Updates page offers the user parameter options to control the display of order updates and task status.

Map preferences

The map preferences are a set of parameters that control the appearance of the Network Map. Defaults for map preferences apply to, and include, Submaps, if Submaps are selected.

These preferences control:

- Whether the system map view is displayed by default
- Whether the background map should be displayed
- The type of the background map to be displayed (for example, the USA or Spain)
- The colors of the map, the width of the links, and the default zoom percentage
- The map filter used to control the physical network connection rates that are displayed by default

Application preferences

Application preferences include a set of parameters that control some aspects of the functioning of the management system, including:

- The Port ID default format settings
- The connection rate and protection type settings for service, infrastructure, and physical provisioning
- The method in which beeps are used to alert a user to a new alarm or event
- The appearance of the Graphical Layout page for both the Graphical Layout view and the Cross Connection view.
- The operating terminology of SONET or SDH, which can be overriden by an installation parameter; see the *OMS Administration Guide* for details.

Personal color preferences

Personal color preferences include a set of parameters that control colors displayed on the management system screens and pages, including:

- Alarm severity color settings
- NE communication state color setting
- Display route map color settings
- Cross connection states color settings

Each of these main categories has subcategories, which include a hyperlink to the Color Selection pop-up screen where default colors can be changed and submitted.

Page Restrictions Effects on Weblication Behavior

Page Restrictions

To optimize performance capabilities, the weblication restricts the number of pages that a single user can open, and/or the total number of pages that all users can open, and/or the number of particular pages that a user can open in one session. These page restrictions are detailed in the following table:

Component Upon which Restriction Is Imposed	Page Maximum Allowed
Network Event Summary (NES) page	1
Job Updates page	1
Network Map*	2
Equipment View page	3
Graphical Layout page	5
Maximum pages per user	15
Management System for all pages and all users	450
*The page that contains the map component.	

Page Restriction Notification

When the maximum number of pages have been reached for the component upon which the restriction is imposed, the management system displays a pop-up window, explains the following, and instructs users to use the **Previous** button to revert to the previous page.

```
The <PageTitle> can not be displayed. It is due to one of the
following reasons:
```

- The number of pages that contain the map component has reached the maximum count (n).
- The number of pages that you have currently opened has reached the maximum count (n).
- The total number of pages that the system has currently opened has reached the maximum count (p).

```
Please click the button below to go back to the previous page.
```

User Login Rules

Purpose

A management system login consists of User identifiers, or *user IDs*, and a password. Both user IDs and passwords are important mechanisms that the management system uses to identify its users and to secure its data.

User ID Rules

The following rules apply to selecting user IDs:

1. A user ID, which is sometimes referred to as a *user name* or a *user login*, must be unique.
2. A user ID can be a minimum of 7 and a maximum of 10 characters.
3. A user ID must consist of only letters and digits. In addition, it can contain special characters; however, the following special characters are not allowed:
   **“ ' ; { } < > & + . / **
   Specifically, the user ID must contain the letters and digits that appear in the 7-bit, 128-character set defined in Table 5 of the International Reference Alphabet (ITU-T T50).
4. A user ID is case-sensitive; that is, an uppercase letter is considered a different character than its lowercase equivalent, and the correct case of the letter must be entered.

For the administrative details and security implications of user IDs, refer to the *OMS Administration Guide*.

Password Rules

The following rules apply to selecting passwords:

1. A password must have a minimum of 8 and a maximum of 12 characters that are letters, numbers, or special characters (symbols). Specifically, the password must contain the letters, digits, and symbols that appear in the 7-bit, 128-character set defined in Table 5 of the International Reference Alphabet (ITU-T T50).
2. A password must contain at least two uppercase and/or two lowercase letters. Passwords are case-sensitive; that is, an uppercase letter is a different character than its lowercase counterpart, and the correct case of the letter must be entered.
3. A password must contain at least one special character (symbol). The following special characters (symbols) are not allowed:
   ' # $ * / @ < > &
   A space (or a blank character) and a delete are not allowed.
4. A password can begin with any valid character and all alphabetical, numerical, and special characters (symbols) can be randomly positioned.
5. A password must contain at least one Arabic numeral:
   0 1 2 3 4 5 6 7 8 9
6. A password cannot contain a user login name or any reversal or circular variation of the user login name. In this case, the management system treats an uppercase letter and its corresponding lowercase equivalent as identical characters.
7. A new password must differ from the old password by at least three characters. In this case, the management system treats an uppercase letter and its corresponding lowercase equivalent as identical characters.
8. The new password cannot be one of the five most recently used passwords.

Help Pages

Help system

The management system includes an extensive help system that is designed to consider the task that the user is to perform and to help that user successfully perform the task. The help system is accessed from the Help menu on the toolbar of every page.

Help products

The five help products described in the following table can be accessed from the Help menu.

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 primary search tool for the entire management system library.
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 primary search tool for the entire management system library.
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 included from the page. The index for the entire management system library, which is the preferred search tool, is accessed from **How do I...**, **About this Page**, or **Technical Support**.
Technical Support Help	**Technical Support**	Provides technical support contact information. In addition, access is provided to the **Index**, which is the primary search tool for the entire management system library.
Product Help	**About OMS**	A pop-up menu shows the version, build number, and build date, along with links to the copyright and the Optical Management System product pages. This page contains information to acknowledge the open source software that Optical Management System uses.

Other help

From task help pages and page help pages, you can access additional supporting help products.

Index

From task help pages and page help pages, you can access an index. Clicking on an index term takes you directly to information on that topic.

Important! The index for each document in the management system library and the index for the entire management system library are the preferred search tools.

Interface Tips

From task help pages and page help pages, you can access *Interface Tips*, which is an online document that explains to new users how to operate the management system.

Glossary

From task help pages and page help pages, you can access a glossary that provides definitions of terms related to the product.

Search

From task help pages and page help pages, you can access a search engine that can be used to search for topics in the help system. The search engine has a **Help** button that can be clicked to obtain directions about how to use the search engine.

Related task

For related task information, see the "Access Help" (p. 2-8) task.

Print Pages

Overview

Pages can be printed in two ways:

- Use the management system Print tool to print all of the data in a table, including those portions of the table that are not currently visible.
- Use the browser print command to print the entire contents of the window.

Use the Print tool

On pages with tables of data below the search panel, there is a Print tool in the toolbar. To print the data table only, click the Print tool. A Print Preview window is displayed. Adjust the settings as necessary and click the Print tool on the Print Preview window. The contents of the Print Preview window is printed.

Use the browser print command

To print out the entire contents of a window, use the browser **File > Print** command.

Site Map

The Site Map menu item

The Site Map menu item is located in the top navigation zone of all management system pages.

The Site Map page

When the Site Map menu item is selected, the management system displays the Site Map page, which is a hierarchical text list of all object links that the management system currently supports. This hierarchical text list can be used in place of the Home Page or the Left Navigation Zone to navigate through the system. Clicking on any hyperlink of text in blue displays the particular page selected.

Related task

For related task information, see the "Access the Site Map" (p. 2-9) task.

Tasks

Introduction

This section describes tasks that are related to the help pages and the Network Map.

General tasks

The general tasks are the following:

- "Log In to OMS" (p. 2-4)
- "Change Preferences" (p. 2-6)
- "Access Help" (p. 2-8)
- "Access the Site Map" (p. 2-9)
- "Customize the Appearance of a Data Table Temporarily" (p. 2-10)
- "Customize the Appearance of a Data Table Permanently" (p. 2-11)
- "Print a Data Table" (p. 2-13)
- "Save and Export a Data Table" (p. 2-14)
- "Change Your Password " (p. 2-15)
- "Log Out of OMS" (p. 2-16)

Network Map operations

The Network Map tasks are the following:

- "Filter Links on the Network Map" (p. 2-18)
- "Filter Nodes on the Network Map by Name or Type" (p. 2-20)
- "Filter Nodes on the Network Map by Selecting a Node(s)" (p. 2-22)
- "Filter ASTNs on the Network Map" (p. 2-23)
- "Find an NE on the Network Map" (p. 2-24)

Aggregates

The tasks relating to aggregates are the following:

- "View a List of All Aggregates" (p. 2-26)
- "Add an Aggregate" (p. 2-27)
- "Modify an Aggregate " (p. 2-29)
- "Delete an Aggregate" (p. 2-31)

Areas

The tasks relating to areas are the following:

- "View a List of All Areas " (p. 2-34)
- "Add an Area" (p. 2-35)
- "Modify an Area" (p. 2-37)
- "Delete an Area " (p. 2-39)

Submaps

The tasks relating to submaps are the following:

- "View a List of All Submaps" (p. 2-42)
- "View a List of Submap Details" (p. 2-43)
- "View Submaps on the Network Map" (p. 2-44)
- "Add a New Submap" (p. 2-45)
- "Copy a Submap" (p. 2-47)
- "Modify a Submap" (p. 2-49)
- "Delete a Submap" (p. 2-51)

Network Map appearance

The tasks relating to the appearance of the Network Map are the following:

- "Move a Node Icon Temporarily" (p. 2-54)
- "Move a Node Icon Permanently" (p. 2-55)

- “Move Node Icon Labels Temporarily” (p. 2-56)
- “Move Node Icon Labels Permanently” (p. 2-57)

2 Getting Started Tasks

Overview

Purpose

This chapter contains tasks related to the OMS Graphical User Interface (GUI).

Contents

General Tasks

Overview

Purpose

This section describes general tasks that can be performed from any page.

Contents

Log In to OMS

When to use

Use this task to log in to OMS.

Note: A Proprietary notice may appear within the login process, depending on how the management system has been configured.

A **Help** button on this page that takes you to About this page information.

Related information

With the implementation of HTTPS/SSL, several security-related messages appear throughout the login process. First-time users of the management system will receive a series of four security alert pop-up screens. Other users will receive one, or possibly more than one, security alert message. If you want to remove these security alert warnings, contact your system administrator and request that the security server certificate for the OMS server that you are using be installed.

See the following topics in this document:

- "User ID Rules" (p. 1-56)
- "Password Rules" (p. 1-57)

Before you begin

The management system must be installed and operational. Your PC must be properly configured to operate the management system. Check the PC Client Software configuration with your local management system administrator, or check the *OMS Administration Guide* for details. You must have the URL for the management system along with a user ID and a password.

Task

Complete the following steps to log in to OMS.

1 Launch a browser window using the Microsoft® Internet Explorer®.

Result: The IE browser window is displayed.

2 Go to the OMS application server. For example, if the address of the server is "http://servername.hr.lucent.com", go to "http:servername.hr.lucent.com/osm/jsp/core/Login.jsp". This will display the login page.

Result: A Security Alert warning message appears. Click **Yes** to proceed. The Login page is then displayed.

3 Enter your User ID and Password, and click the **Login** button.

Result: If you are not already logged in, the a second Security Alert message appears. Go to the next step.

If you are already logged in, the management system responds with `Click here to close the previous session.` Comply with the request. The management system logs you out. Go back to the beginning of this step.

4 Click **Yes** to proceed.

Result: The Home Page appears.

5 Click one of the icons or select an option from the toolbar.

Result: If this is not your first access to the management system, you have completed the login process.

If this is your first access to the management system, a third Security Alert message appears. Click **Always** and this message will not appear in the future.

6 Click one of the icons or select an option from the toolbar.

Result: A final Security Alert message appears.

7 Click **Yes** to proceed.

Result: You are now logged in to the management system.

END OF STEPS

Change Preferences

When to use

Use this task to change your preferences.

Related information

See the following topic in this document:

- "Set Preferences" (p. 1-53)

Before you begin

If you are changing Map Preferences, be aware that when you provision a connection, the system map is always displayed even if you select a default map, such as a Network Map or a submap in the system map.

Task

Complete the following steps to change your preferences.

1 In the top navigation bar, click **My preferences**.

Result: A submenu is displayed.

2 Select **Preferences**.

Result: The Preferences page is displayed.

3 Change any of the selections in any of the fields. There are five panel of information displayed: Regional Preferences, My Network Preferences, Map Preferences, Application Preferences, and Personal Color Preferences.

4 Click **Submit**.

Result: Your changed preferences are saved and a confirmation box asks:

```
 You need to log out and back in to make the preference
change take effect. Do you still want to proceed?
```

5 Select **Yes** or **No**.

Result: The new preferences take effect the next time you log into the management system.

END OF STEPS

Access Help

When to use

Use this task to access help pages that explain how to perform tasks that can be performed from the current page.

Related information

See the following topic in this document:

- "Help Pages" (p. 1-57)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to access task help.

1 In the menu bar of any window, click **Help**.

Result: A submenu is displayed.

2 Do one of the following:

- To access task help, click **How do I ...** A list of tasks that can be performed from the current page is displayed. Click on a task in the list. A help page is displayed that describes how to perform that task.
- To access a page description, click **About this page**. A help page is displayed that describes the purpose of the page, the toolbar tools on the page, and the fields on the page.
- To access online user documents, click **Online docs**. A help page is displayed that is the main menu for the library of online documents. All documents are offered in both HTML and PDF format. Click on a link to access a document.
- To access technical support contact information, click **Technical support**. A help page is displayed that describes how to get technical support.
- To access product information, click **About OMS**. A pop-up menu shows the version, build number, build date, and patch number of the management system, along with links to the copyright and the OMS product pages.

END OF STEPS

Access the Site Map

When to use

Use this task to access the Site Map.

Related information

See the following topic in this document:

- "Site Map" (p. 1-60)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to access the Site Map.

1 From any page of the management system, click the **Site Map** menu item, which is located in the top navigation zone.

Result: The management system displays the Site Map.

2 Click the text link in blue that represents the area of the management system to which you want to navigate.

Result: The management system displays the page for that link.

END OF STEPS

Customize the Appearance of a Data Table Temporarily

When to use

Use this task to customize the appearance of a data table temporarily, which is for one management system session.

Related information

See the following topic in this document:

- "Data table" (p. 1-14)

Before you begin

A data table is a list of network information that is displayed below the Search panel on some management system pages. Some pages with data tables include the Submap page, Network Connections page, and the Network Elements page.

Task

Complete the following steps to customize the appearance of a data table temporarily, which is for one management system session.

1 Access any page that includes a data table.

2 Do one of the following:

- If the table is not populated with data, run a search.
- If the table is populated with data, do nothing.

Result: The list at the bottom of the page is populated with a list of data.

3 Do any of the following to change the appearance of the table:

- Click a table heading to sort the table by the entries in that column. The first click on a heading sorts the data in ascending order. The next click sorts the data in descending order. Arrows appear in the heading to show the order of the sort.
- Rearrange the order of the columns by dragging and dropping a table heading to a new position.
- Change the width of a column by dragging the divider between columns to the left or right.

Result: The appearance of the table changes.

END OF STEPS

Customize the Appearance of a Data Table Permanently

When to use

Use this task to customize the appearance of a data table permanently, which is for every management system session.

Related information

See the following topic in this document:

- "Data table" (p. 1-14)

Before you begin

A data table is a list of network information that is displayed below the Search panel on some management system pages. Some pages with data tables include the Submap page, Network Connections page, and the Network Elements page.

Task

Complete the following steps to customize the appearance of a data table permanently, which is for every management system session.

1 Access any page that includes a data table.

2 Do one of the following:

- If the table is not populated with data, run a search.
- If the table is populated with data, do nothing.

Result: The list at the bottom of the page is populated with a list of data.

3 Click the Settings tool in the tool bar.

Result: The Table Preferences pop-up is displayed.

4 In the top table of the Table Preferences pop-up, specify the column or columns to be fixed or to be hidden and the adjusted width of the column or columns.

5 In the **Sort Preferences** portion of the Table Preferences pop-up, specify the first, second, and third order of search criteria and whether the data should be sorted in ascending or descending order, and then click **Submit**.

Result: The search results are displayed on the data table.

END OF STEPS

Print a Data Table

When to use

Use this task to print a data table.

Related information

See the following topic in this document:

- "Use the Print tool" (p. 1-59)

Before you begin

A data table is a list of network information that is displayed below the Search panel on some management system pages. Some pages with data tables include the Submap page, Network Connections page, and the Network Elements page.

Task

Complete the following steps to print a data table.

1 Access any page that includes a data table.

2 Do one of the following:

- If the table is not populated with data, run a search.
- If the table is populated with data, do nothing.

Result: The list at the bottom of the page is populated with a list of data.

3 Click the Print tool in the toolbar.

Result: A Print Confirmation screen appears. Click in the box to prevent the screen from showing again for this session. Select the **Yes** button to proceed. A Print Preview window is displayed.

END OF STEPS

Save and Export a Data Table

When to use

Use this task to save the information displayed in a data table and export that information to a *.csv* file on your desktop.

Related information

See the following topic in this document:

- "Data table" (p. 1-14)

Before you begin

A data table is a list of network information that is displayed below the Search panel on some management system pages. Some pages with data tables include the Submap page, Network Connections page, and the Network Elements page.

Task

Complete the following steps to save a data table and export the information to a *.csv* file.

1 Access any page that includes a data table.

2 Do one of the following:

- If the table is not populated with data, run a search.
- If the table is populated with data, do nothing.

Result: The list at the bottom of the page is populated with a list of data.

3 Click the **Save** tool in the toolbar.

Result: A Web Page Dialog pop-up is displayed.

4 Browse the directory, enter the filename, and click **OK**.

Result: The information that is displayed on the current page is saved and exported to the location and filename specified on your desktop.

END OF STEPS

Change Your Password

When to use

User this task to change your password.

Related information

See the following topic in this document:

- "Password Rules" (p. 1-57)

Before you begin

Remember that the old and the new password must differ by at least three characters.

Task

Complete the following steps to change your password.

1 From any window, click **My preferences** located on the top navigation bar.

Result: A submenu is displayed.

2 Select **Change password**.

Result: The Change Password page and a Security Alert message screen are displayed.

3 Click **Yes** on the Security Alert screen.

4 In the **Current password** field, enter your current password.

5 In the **New password** field, enter your new password.

6 In the **Confirm new password** field, enter your new password again.

7 Click **Submit**.

Result: Your password is changed.

END OF STEPS

Log Out of OMS

When to use

Use this task to log out of OMS.

Related information

This task does not have any related information.

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to log out of OMS.

1 From any page, click **Log out** in the top navigation bar.

Result: If you have decided to log out of the management system while you are in the middle of a current management system operation, the system asks: `Logging out will terminate any current activity. Do you still wish to proceed?` If you do want to proceed, go to the next step.

If you are not in the middle of a current management system operation, you are logged out of the system, and the Login page is displayed.

2 Click **Yes**.

Result: You are logged out of the system, and the Login page is displayed. All other management system pages are automatically closed.

END OF STEPS

Network Map Operations

Overview

Purpose

This section describes tasks used to perform operations from the Network Map.

Contents

Filter Links on the Network Map

When to use

Use this task to filter your view of the Network Map so only specified links are displayed for the selected connection type and link connection rate.

Related information

See the following topic in this document:

- "Link filters" (p. 1-45)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to filter your view of the Network Map so only specified links are displayed.

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

- **Network**

  Result: The Network Map is displayed.

2 Click the **Filter** tool in the toolbar.

  Result: A submenu is displayed. Steps 3 through 7 describe the task to select the filter for the connection type. Steps 8 through 10 describe the task to select the link connection rate.

3 Select **Link**. Then select **Connection type**.

  Result: The Link Filtering pop-up window is displayed.

4 In the **Connection Type** field, select **TDM connection** or **WDM connection**.

5 In the **Connection category** field, select **Service**, **Infrastructure**, **Multiplex section** or **Physical** from the drop-down list. Selections available depend on selection made in Step 4.

6 In the **Connection rate** field, use the push left (>)/push right (<) buttons to move the connection rates that you want in the **Selected** column.

Note that there is an empty field above the **Connection rate** field followed by an asterisk (*). If you enter an * in this empty field, all of the connection rates listed below are selected at once and then be moved as a group from the **Available** column to the **Selected** column.

7 Click **Filter**.

Result: The Network Map changes so only links of the type specified are displayed.

8 Select **Link**. Then select **Link connection**.

Result: The Link Filtering pop-up window for Link Connection Filtering is displayed.

9 In the **Link Connection** display box, select the link connection rate.

10 Click **Filter**.

Result: The Network Map changes so only links of the connection rate specified are displayed.

END OF STEPS

Filter Nodes on the Network Map by Name or Type

When to use

Use this task to filter your view of the Network Map so that only nodes of a specified name or type are displayed.

Related information

See the following topic in this document:

- "Node filters" (p. 1-44)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to filter your view of the Network Map so that only nodes of a specified name or type are displayed.

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

- **Network**

  Result: The Network Map is displayed.

2 Click the **Filter** tool in the toolbar.

  Result: A submenu is displayed.

3 Select **Node**.

  Result: A submenu is displayed.

4 Do one of the following:

- To filter your map view so only nodes of a specific type are displayed, select **Node type**. The Node Type Filtering pop-up window is displayed. In the **Node type** field, select one or more of the node types in the list.
- To filter your map view so only a single node is displayed, select **Node name**. The Node Name Filtering pop-up window is displayed. In the **Node name** field, select one or more of the node names in the list using the left button(s).

For information on filtering nodes by **Selected node**, see "Filter Nodes on the Network Map by Selecting a Node(s)" (p. 2-22).

5 Click **Filter**.

Result: The Network Map changes so only the node or nodes specified are displayed.

END OF STEPS

Filter Nodes on the Network Map by Selecting a Node(s)

When to use

Use this task to filter your view of the Network Map so that only a selected node(s) is displayed.

Related information

See the following topic in this document:

- "Node filters" (p. 1-44)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to filter your view of the Network Map so a selected node(s) is displayed.

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

- **Network**

  Result: The Network Map is displayed.

2 Select the node or nodes that you would like to be displayed on the Network Map once the filtering is completed.

3 Click the **Filter** tool in the toolbar.

  Result: A submenu is displayed.

4 Select **Node** and then select **Selected node** from the next submenu presented.

  Result: The Network Map now displays only the node or nodes that you selected.

END OF STEPS

Filter ASTNs on the Network Map

When to use

Use this task to filter your view of the Network Map so that only ASTNs (Automatic Switched Transport Networks) are displayed.

Related information

See the following topic in this document:

- "Filter the Network Map" (p. 1-44)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to filter your view of the Network Map so only ASTNs are displayed.

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

- **Network**

  Result: The Network Map is displayed.

2 Expand the Network Map areas to view nodes and links that you want to use for filtering purposes.

3 Click the **Filter** tool in the toolbar.

  Result: A submenu is displayed.

4 Select **ASTN**.

  Result: The Network Map now displays only ASTNs.

END OF STEPS

Find an NE on the Network Map

When to use

Use this task to find an NE on the Network Map.

Related information

See the following topic in this document:

- "Parts of the Network Map " (p. 1-27)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to find an NE on the Network Map.

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

- **Network**

Result: The Network Map is displayed.

2 Click the **Find NE** tool in the toolbar.

Result: The Find Network Elements page is displayed.

3 In the **NE name** field, enter a valid network element name.

4 Click **Search**.

Result: The table at the bottom of the Find Network Elements page is populated with a list of NEs.

5 Click the radio button to the left of the NE you want to find on the Network Map, and click **Submit**.

Result: The "found" NE is selected on the Network Map.

END OF STEPS

Aggregates

Overview

Purpose

This section describes tasks used to add, modify, and delete aggregates.

Contents

View a List of All Aggregates

When to use

Use this task to view a list of all areas and aggregates. In addition, use this task to view the NEs assigned to an area or aggregate and/or other information about a particular area or aggregate. You can only view Aggregates if there are NEs in the Aggregates that belong to your domain.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of all areas and aggregates.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which includes all areas and aggregates, presented in a hierarchical tree.

2 To view the general details for a particular area or aggregate, click the double square icon, which is to the left of the area or aggregate in the tree.

  Result: On the right side of the table, the management system displays the area or aggregate name, the creator, the creation date and time, the last modification date and time, and notes of the area or aggregate.

3 To view the NE details of an area or aggregate, expand the aggregate in the left-side panel, and click the area or aggregate in the tree in the left panel.

  Result: All NEs are shown in the tree.

END OF STEPS

Add an Aggregate

When to use

Use this task to create a new aggregate.

Note that you cannot add an empty aggregate.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to create an aggregate.

1. Use the icons or the object links to follow this path:
   - **Network > Areas and aggregates**

     Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2. Click the **New** tool in the toolbar.

   Result: A submenu is displayed.

3. Select **New Aggregate**.

   Result: The Add Aggregate page is displayed.

4. In the **Aggregate name** field, enter a name for the new aggregate.

5. (Optional) In the **Notes** field, enter text that describes the new aggregate.

6. Add nodes to the aggregate by clicking on the node name in the left tree panel.

Result: The management system moves the selected nodes to the right side of the table.

7 Click **Submit**.

Result: The new aggregate is created. Once the Network Map is refreshed, the new aggregate is displayed under the "UNASSIGNED" area of the Network Map.

If you have tried to submit an empty aggregate, the management system generates an error message.

END OF STEPS

Modify an Aggregate

When to use

Use this task to modify an aggregate.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to modify a user-defined aggregate.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2 The left column of the **Areas and aggregates** panel lists the names of the areas and aggregates. Expand the hierarchical tree if necessary. Each name is a hyperlink. Click the name of the aggregate you wish to modify.

  Result: The right column of the **Areas and aggregates** panel is populated with a description of the aggregate.

3 In the description of the aggregate, the name that appears in the **Aggregate Name** field is a hyperlink. Click the name of the aggregate you wish to modify.

  Result: The View or Modify Aggregate page is displayed.

4 Change the name of the aggregate by changing the entry in the **Aggregate name** field.

5 Change the description of the aggregate by changing the text in the **Notes** field.

6 Change the nodes assigned to the aggregate by clicking on the node name in the left (Available nodes) tree panel.

Result: The management system moves the selected nodes to the left (Available nodes) or the right side (Selected nodes) of the table.

7 Click **Submit**.

Result: The aggregate is modified. Once the Network Map is refreshed, the new aggregate is displayed under the "UNASSIGNED" area of the Network Map.

END OF STEPS

Delete an Aggregate

When to use

Use this task to delete an aggregate and, if you are authorized, you can also delete ring aggregates.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to delete a user-defined aggregate.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2 The left column of the **Areas and aggregates** panel lists the names of the areas and aggregates. Each name is a hyperlink. Click the name of the aggregate you wish to delete.

3 Click **Delete**.

Result: The management systems responds with
`Are you sure you want to delete <aggregate name>?`

4 Click **Yes**.

Result: The management system responds with `Aggregate <name> deleted`.

5 Click the **Yes** button on the Areas and Aggregates page to see an updated view of the data.

Result: The aggregate is deleted and the containment is reassigned to the "UNASSIGNED" area.

END OF STEPS

Areas

Overview

Purpose

This section describes tasks used to add, modify, and delete areas.

Contents

View a List of All Areas

When to use

Use this task to view a list of all areas and aggregates. In addition, use this task to view the NEs assigned to an area or aggregate and/or other information about a particular area or aggregate. You can only view Areas if there are NEs in the Areas that belong to your domain.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view a list of all areas and aggregates.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2 To view the general details for a particular area or aggregate, click the double square icon, which is to the left of the area or aggregate in the tree.

  Result: On the right side of the table, the management system displays the area or aggregate name, the creator, the creation date and time, the last modification date and time, and notes of the area or aggregate.

3 To view the NE details of an area or aggregate, expand the area in the left-side panel, and click the area or aggregate in the tree in the left side panel.

  Result: All NEs are shown in the tree.

END OF STEPS

Add an Area

When to use

Use this task to add an area.

Note that you cannot enter an empty area.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to add an area.

1. Use the icons or the object links to follow this path:
   - **Network > Areas and aggregates**

     Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2. Click the **New** tool in the toolbar.

   Result: A submenu is displayed.

3. Select **New Area**.

   Result: The Add Area page is displayed.

4. In the **Area name** field, enter a name for the new area.

5. (Optional) In the **Notes** field, enter text that describes the new area.

6. Add nodes to the area by clicking on the node name in the left tree panel.

Result: The management system moves the selected nodes to the right side of the table.

7 Click **Submit**.

Result: The area is modified. Once the Network Map is refreshed, the new area is displayed under the "UNASSIGNED" area of the Network Map.

If you have tried to submit an empty area, the management system generates an error message.

END OF STEPS

Modify an Area

When to use

Use this task to modify an area.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to modify an area.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2 The left column of the **Areas and aggregates** panel lists the names of the areas and aggregates when expanded. Each name is a hyperlink. Click the name of the area you wish to modify.

  Result: The right column of the **Areas and aggregates** panel is populated with a description of the area.

3 In the description of the area, the name that is displayed in the **Area Name** field is a hyperlink. Click the name of the area you wish to modify.

  Result: The View or Modify Area page is displayed.

4 Change the name of the area by changing the entry in the **Area name** field.

5 Change the description of the area by changing the text in the **Notes** field.

6 Change the nodes assigned to the area by clicking on the node name in the left (Available nodes) tree panel.

Result: The management system moves the selected nodes to the left (Available nodes) or the right side (Selected nodes) of the table.

7 Click **Submit**.

Result: The area is modified.

END OF STEPS

Delete an Area

When to use

Use this task to delete an area.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "Node Icons on the Network Map" (p. 1-32)

Before you begin

This task can only be performed by users who have Area and Aggregate Management user task capabilities.

Task

Complete the following steps to delete an area.

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

- **Network > Areas and aggregates**

  Result: The Areas and Aggregates page is displayed, which lists all areas and aggregates in hierarchical order.

2 The left column of the **Areas and aggregates** panel lists the names of the areas and aggregates. Each name is a hyperlink. Click the name of the area you wish to delete.

3 Click **Delete**.

  Result: The management system automatically deletes an area when all of the nodes in that area are removed. The management system responds with

  ```
  Are you sure you want to delete <area name>?
  ```

4 Click **Yes**.

Result: The management system responds with `Area <name> deleted` . All nodes/aggregates under this area are automatically moved to the “UNASSIGNED” area.

If the “UNASSIGNED” area is empty, it is removed from the Network Map.

END OF STEPS

Submaps

Overview

Purpose

This section describes tasks used to add, modify, copy, and delete submaps.

Contents

View a List of All Submaps

When to use

Use this task to view a list of all the submaps.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "View a List of Submap Details" (p. 2-43)

Before you begin

This task does not have any preconditions.

Task

Complete the following one step to view a list of all the submaps.

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

- **Network > Submaps**

  Result: The Submaps List page is displayed. It includes a table that lists all submaps.

END OF STEPS

View a List of Submap Details

When to use

Use this task to view details of a submap.

Related information

See the following topics in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)
- "View a List of All Submaps" (p. 2-42)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to view details of a specific submap.

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

- **Network > Submaps**

  Result: The Submaps List page is displayed. It includes a table that lists all submaps.

2 Click the **Submap name** hyperlink for which you want to see submap details.

  Result: The View or Modify Submap page is displayed for the submap selected.

END OF STEPS

View Submaps on the Network Map

When to use

Use this task to view individual submaps on the Network Map.

Related information

See the following topic in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)

Before you begin

In order to view a submap, one must have been created. For more information see "Add a New Submap" (p. 2-45).

Task

Complete the following two steps to view submaps on the Network Map.

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

- **Network**

  Result: The Network Map page is displayed.

2 Click the **Map View** field and select a user-defined submap from the drop-down list.

  Result: The view of the Network Map changes to show only nodes that are defined to be a part of that submap.

END OF STEPS

Add a New Submap

When to use

Use this task to create a new submap.

Related information

See the following topic in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to create a new submap.

1 Do one of the following to create a new submap:

- Use the icons or the object links to follow the path **Network > Submaps.** The Submaps page is displayed which includes a list of all submaps. Click the **New** tool in the toolbar.
- Use the icons to open the Network Map and click the **New** tool in the toolbar. A drop-down menu is displayed. Select **Submap** .

  Result: The Add Submap page is displayed.

2 In the **Submap Name** field, enter a name for the new submap.

3 (Optional) In the **Notes** field, enter text that describes the new submap or optionally select a map background.

4 From the **List**, select the map background. Note that the initial map backgroud of the submap will be the system defined map background installed and selected by a privileged user.

5 The **Display Map Background** checkbox is checked by default.

6 Add nodes to the submap by clicking on the node name in the left tree panel (Available nodes side). You must assign at least one node to the submap or it is not created. In addition, if you assign an area/aggregate, you cannot individually assign the children of the area/aggregate; all of the children are implicitly assigned to the submap.

Result: The management system moves the selected nodes to the right side (Selected nodes side) of the table.

When the number of NEs on a submap exceeds the upper limit (set by a configurable parameter), the submap page displays a warning message to inform the user that the total number of NEs on the submap has exceeded the limit.

7 Click **Submit**.

Result: The new submap is created and is listed in the **Map View** field on the Network Map. The creation date and time are also listed.

END OF STEPS

Copy a Submap

When to use

Use this task to copy a submap and make a new submap based on the copy.

Related information

See the following topic in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to copy a new submap and make a new submap based on the copy.

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

     Result: The Submaps page is displayed. It includes a table that lists all submaps.
2. Click the radio button next to the submap you wish to copy.
3. Click **Copy**.

   Result: The Copy Submap page is displayed.
4. In the **Submap Name** field, enter a name for the new submap.
5. In the **Notes** field, enter text that describes the new submap.
6. Assign or unassign any nodes.
7. Click **Submit**.

Result: The new submap is created and is listed in the **Map View** field on the Network Map.

END OF STEPS

Modify a Submap

When to use

Use this task to modify a submap.

Related information

See the following topic in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)

Before you begin

Only the user who created the submap can perform this task.

Task

Complete the following steps to modify a submap.

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

   Result: The Submaps page is displayed. It includes a table that lists all submaps.

2. The **Submap name** column of the table lists the names of the submaps. Each name is a hyperlink. Click the name of the submap you wish to modify.

   Result: The Modify Submap page is displayed.

3. Change the name of the submap by changing the entry in the **Submap name** field.

4. Change the description of the submap by changing the text in the **Notes** field or optionally change the map background.

5. Change the nodes assigned to the submap by clicking on the node name in the left (Available nodes) tree panel.

Result: The management system moves the selected nodes to the left (Available nodes) or the right side (Selected nodes) of the table.

6 From the **List** select the map backgrpound. Note that the initial map background of the submap will be the system defined map background installed and selected by a privileged user.

7 The **Display Map Background** checkbox is checked by default.

When the number of NEs on a submap exceeds the upper limit (set by a configurable parameter), the submap page displays a warning message to inform the user that the total number of NEs on the submap has exceeded the limit.

8 Click **Submit**.

Result: The submap is modified and the modification date and time is listed.

END OF STEPS

Delete a Submap

When to use

Use this task to delete a submap. Users can only delete a submap that they own.

Related information

See the following topic in this document:

- "The Network Map and Aggregates, Areas, and Submaps" (p. 1-19)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to delete a submap.

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

- **Network > Submaps**

  Result: The Submaps page is displayed. It includes a table that lists all submaps.

2 Click the radio button next to the submap you wish to delete.

3 Click **Delete**.

  Result: If the submap has not been set as the default map in the My Preferences page, the management system responds with

  ```
  Are you sure you want to delete <submap name>?
  ```

  If the submap has been set as the default map in the My Preferences page, the system responds with

  ```
  Warning! This submap has been selected as the default map. If
  you delete this map, the system default map will be selected
  as your default map. Do you still want to continue?
  ```

4 Click **Yes** if you want to delete the selected submap.

Result: If the submap has not been set as the default map in the my Preferences page, the management system responds with `Submap <name> deleted`. All records of the containment nodes for that submap are purged.

END OF STEPS

Network Map Appearance

Overview

Purpose

This section describes tasks used to change the appearance of the Network Map.

Contents

Move a Node Icon Temporarily

When to use

Use this task to temporarily move a node icon on the Network Map. A temporary move of a node icon lasts for the duration of the user session only.

Related information

See the following topic in this document:

- "Moving node icons" (p. 1-33)

Before you begin

This task can only be performed by users who have a user role profile of NOC Expert Operator or by users who have a user-defined user role profile that includes the task Global UI Settings.

Task

Complete the following steps to move a node icon on the Network Map.

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

- **Network**

  Result: The Network Map is displayed.

2 On the Network Map, drag and drop the NE to a new location.

  Result: The icon and its connecting links are repositioned. At this point, this change is temporary and only lasts for the duration of the user session.

END OF STEPS

Move a Node Icon Permanently

When to use

Use this task to permanently change the position of a node icon on the Network Map for all users.

To move an icon temporarily (for one user session only), refer to the "Move a Node Icon Temporarily" (p. 2-54) task.

Related information

See the following topic in this document:

- "Moving node icons" (p. 1-33)

Before you begin

This task can only be performed by users who have a user role profile of NOC Expert Operator or by users who have a user-defined user role profile that includes the task Global UI Settings.

Task

Complete the following steps to permanently change the position of a node icon on the Network Map for all users.

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

- **Network**

  Result: The Network Map is displayed.

2 On the Network Map, drag and drop the node icon to a new location.

  Result: The icon and its connecting links are repositioned. At this point, this change is temporary and only lasts for the duration of the user session.

3 To make the new position permanent, click the **Save Location** tool in the toolbar.

  Result: The new position is saved and becomes permanent for all users in the network.

END OF STEPS

Move Node Icon Labels Temporarily

When to use

Use this task to move the location of a node icon label. By default, labels are under an icon. Labels can be moved to the right, left, or top of an icon. This task applies to all types of node icons.

Related information

See the following topics in this document:

- "Moving node icon labels" (p. 1-37)
- "Move Node Icon Labels Permanently" (p. 2-57)

Before you begin

The movement of a node icon label is temporary. It lasts for the duration of the user session only. To move a node icon permanently, see the "Move Node Icon Labels Permanently" (p. 2-57)task.

Task

Complete the following steps to move the location of a node icon label.

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

- **Network**

  Result: The Network Map is displayed.

2 On the Network Map, right-click the node icon.

  Result: A Node menu is displayed.

3 Select **Move Label > Left**, **Right**, or **Top**.

  Result: The node icon label moves to the new position. This change is temporary and only lasts for the duration of the user session.

END OF STEPS

Move Node Icon Labels Permanently

When to use

Use this task to move the location of a node icon label permanently. By default, labels are under an icon. Labels can be moved to the right, left, or top of an icon. This task applies to all types of node icons.

Related information

See the following topic in this document:

- "Moving node icon labels" (p. 1-37)

Before you begin

This task does not have any preconditions.

Task

Complete the following steps to move the location of a node icon label.

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

- **Network**

  Result: The Network Map is displayed.

2 On the Network Map, right-click the node icon.

  Result: A Node menu is displayed.

3 Select **Move Label > Left**, **Right**, or **Top**.

  Result: The node icon label moves to the new position. This change is temporary and only lasts for the duration of the user session.

4 Click the **Save Location** icon.

  Result: The node icon label remains in the new position permanently

END OF STEPS

Select a Background Map Image

When to use

Use this task to select a background map image.

Related information

See the following in this document

- Map Preferences

Before you begin

Before this task can be executed, the administrator must have installed the image files.

Task

Complete the following steps to select a background map image.

1 Log in to the **OMS** management system.

Result: The Optical Management System Home Page is displayed.

2 From the menu bar select **My Preferences > Preferences.**

Result: The **Preferences** panel is displayed.

3 Select **Map Preferences** > **Background Map**

4 From the Map background list, select the newly added background of your choice.

Click **Submit**.

Result: A dialog box is displayed that requests you to open a new page to see the change you have made. The new background map you selected is displayed.

Note that the background map change is universal; that is, it changes the background for the entire system.

END OF STEPS

3 Technical Support

Overview

Purpose

This chapter describes how to obtain technical support for the OMS product.

Contents

Technical Assistance

Introduction

Alcatel-Lucent is committed to providing excellence in technical support for its products.

A support structure is ready and available to resolve any technical issue related to OMS.

Getting Help

For technical support, contact your local customer support team. You can reach them using the Web at the Alcatel-Lucent Customer Support web site (http://www.alcatel-lucent.com/support) or the customer support telephone number listed at the Alcatel-Lucent Contact Us web site (http://www.alcatel-lucent.com/contact).

For questions or concerns about this or any other Alcatel-Lucent information product, please contact us at one of the following numbers: (888) 727 3615 (for the continental United States), +1 (630) 713 5000 (for all countries).

Local support procedures

Some customers have established their own support procedures that involve escalation within their companies. In these cases, be sure to follow the procedures established by your company.

Glossary

Numerics

1+1 Optical Port/Line Protection

A 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 active and 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 active line.

1xN Optical Port/Line Protection

A protection architecture in which a circuit pack is protected by a protecting circuit pack (where N equals the number of ports protected by one port). When a fault occurs on a protected pack, the service is switched to the protecting circuit pack. When a protection switch occurs, the working signals are routed from the failed circuit pack to the protection circuit pack. When the fault clears, the signals revert to the working circuit pack.

2-Fiber BLSR Protection

A ring configuration 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.

4-Fiber BLSR Protection

A ring configuration 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.

802.1q Tagging Mode

Also known as *VLAN tagging mode*. An Ethernet packet switching standard in which Ethernet packets are switched based on their Virtual Local Area Network (VLAN) tags.

A

Access Control Information (ACI)

OMS function which manages security entities such as Functional Access Domains (FADs), Object Access Domains (OADs), terminals, terminal profiles, users, user profiles.

Access Identifier (AID)

The name of an object. These identifiers are used to identify objects in the TL1 command set, which is the native command set of the NE.

ACI

See "Access Control Information (ACI)" (p. GL-1).

Acknowledgement

The user validation of receipt of a notification.

Activate Software

The process of causing the NE to swap the roles of the active and inactive partitions. For example, the inactive partition becomes the active partition, and the active partition becomes the inactive partition. The software version that had been in the inactive partition becomes the active software.

Active Capacity

The current in-use capacity for virtually concatenated logical ports, such as VCG logical ports.

Active NE

An NE has some monitored termination point at the current time.

Active Partition

A section of NE nonvolatile memory in which a copy of the active software release is stored.

Active Topology

OMS PKT - A set of NE, ENE and ports belonging to the same domain and actually carrying user data frames. The Active Topology is characterized by a supported set of VLAN (in case of MAC domain there is only one Active Topology for all VLAN). In general, there is one Active Topology for each spanning tree instance (see STI). The carried data frames must be tagged with one VLAN in the set. The ports are characterized by:

- Forced port state equal to forced forwarding (namely the Static Tree Topology)
- Forced port state equal to dynamic and port state equal to forwarding (namely, the active Spanning Tree Instance)

Active TP

A termination point is monitored at the current time.

Add and Drop Multiplexer

Equipment used to combine several signals to produce one signal at a higher rate and to decompose it back to the original lower rate signals.

Address / IP address

OMS PKT - The NE IP address includes the NE IP address followed by a four-digit suffix that corresponds to a port number. Address for a customer is an optional attribute used to specify the customer location.

Administrator

A user who has access rights to all the management domains of the product. An administrator has access to the whole network and to all the management functionalities.

Aggregate

An aggregate is a collection of unassigned NEs that is created to reduce overcrowding on the display and to select a particular group of NEs on which to perform a management function. Aggregates can be nested—that is, aggregates can contain other areas.

AID

See Access Identifier (AID).

Alarm

A visible or audible signal that indicates that an equipment failure or a significant event/condition has occurred. Alarms are categorized into multiple levels that identify their relative severity.

Alarm Identifier (ID)

Unique identifier for an alarm.

Alarm Indication Signal

Alarm linked to the physical interface, associated with a probable alarm occurrence in the normal transmission of the signal.

Alarm Log

A log of all reported alarms, conditions, and events messages received from the NEs or generated by the management system.

Alarm Management

In CFM, alarm management applies to common 1350 OMS FM components for management of Global alarms, Current alarms, Elementary alarms, and Historical alarms.

Alarm Severity

An attribute defining the priority of the alarm message. An indication of the importance/significance of an alarm.

Alarm Severity Assignment Profile (ASAP)

An Alarm Severity profile is used to define how an alarm is reported by a network element. This profile contains a list of alarms for each one of the alarm severity and reporting flag values. Each Termination Point is then assigned to an ASAP and the information is used to control how the alarms are reported.

Alarm Status

Alarms can be in one of two states: *raised* or *cleared*.

Alarm Surveillance (AS)

Alarm Surveillance generic component.

Alias

A customer-defined alternative name.

Annotated Chart

Graphical representation of PM measurements in a line chart, where each measurement point is explicitly indicated. By moving the mouse pointer over a measured value, a tool tip is shown, which displays all the relevant data.

Application Programming Interface (API)

An application programming interface (API) is a set of routines, data structures, object classes and/or protocols provided by libraries and/or operating system services in order to support the building of applications.

Archive File

The backup file for a PM archive session. The file is a zip file, which contains csv files for PM data tables. The file can be imported into the archive database for PM report generation.

Archive Session

Presents a task for the PM data backup/purge. There are two types of archive sessions: common archive session and advance archive session.

Area

A special collection of nodes and/or aggregates grouped by the system administrator and represented by a single icon on the Network Map.

ASAP

See Alarm Severity Assignment Profile.

ASTN

See Auto-Switched Transport Network.

Audible Alerting

An audible signal to bring a user's attention to newly received standing conditions (generally just alarms and not all standing conditions).

Auto-Discovery Command-Line Tool

A management system command-line tool that is used to auto-discover VCGs, along with their server connections. It enables the management system to discover the connections used for Ethernet transport even if these connections were provisioned with a tool other than the management system.

Auto-discovery process

The process by which the management system “discovers” the topology of the network (DCN subnetworks, NEs, and physical network connections).

Auto-Switched Transport Network (ASTN)

An ASTN NE has a signalling element that facilitates automatic routing between them and other NEs in the network. ASTN NEs have the ability to operate in an intelligent network domain.

Automatic Protection Switching

Functionality related to NEs that automatically switches from the degraded resources to the redundant or spare resources. This assures the best quality of transmission service.

B

Backup

The process of making a copy of an object's configuration, primarily to provide the option to return the object to that earlier configuration. For example, an NE memory backup can be made in order to restore the NE to that configuration if necessary.

Bandwidth

1. The difference in Hz between the highest and lowest frequencies in a transmission channel. 2. The data rate that can be carried by a given communications circuit.

Bay

Equipment housing used to mount shelves. Also referred to as a *frame* or *rack*.

Bidirectional Line Switched Ring (BLSR)

A SONET ring topology. The SDH equivalent of this ring topology is the MS-SPRing ring.
A self-healing ring configuration in which traffic is bidirectional between each pair of adjacent NEs and is protected by redundant bandwidth on the bidirectional lines that interconnect the NEs in the ring. Because traffic flow is bidirectional between NEs, traffic can be added at one NE and dropped at the next without traveling around the entire ring. This leaves the spans between other NEs available for additional traffic. Therefore, with distributed traffic patterns, this type of ring can carry more traffic than the same facilities could carry if configured for a unidirectional ring. In the event of a fiber or node failure, service is restored by switching traffic from the working capacity of the failed line to the protection capacity in the opposite direction around the ring.

Bidirectional Ring

A ring in which both directions of traffic between any two nodes travel through the same NEs (in opposite directions).

Bidirectional Switch

Protection switching that is performed in both the transmit and receive directions.

Bit Error Rate (BER)

Determines the number of error bits in a signal frame. If the value exceeds a certain threshold then an alarm is generated.

Bit Rate

The number of binary code digits (either 1 or 0), each of which is a "bit" that is transmitted per second through a communication element.

Black box

See Non-managed NEs.

BLSR

See Bidirectional Line Switched Ring (BLSR).

Board

Electronic cards that fit into slots in the NE.

BPDU

See Bridge Protocol Data Units (BPDU).

Bridge Protocol Data Units (BPDU)

Bridge Protocol Data Units (BPDUs) are the messages that are used in Spanning Tree and GVRP protocols. BPDU encoding defines how the BPDUs are encoded.

C

Carrier Sense Multiple Access with Collision Detection (CSMA/CD)

Ethernet is the IEEE 802.3 Carrier Sense Multiple Access with Collision Detection (CSMA/CD) standard. CSMA/CD is a technique of sharing a common medium among several devices. CSMA is based on the technical etiquette of *listen before talking*; it accounts for those instances when parties interrupt each other and talk at the same time.

CBS

See Committed Burst Size (CBS).

Channel

The concept that was formerly represented by the term “channel” in Alcatel-Lucent's earlier optical network management products is called “link connection” in OMS. *Link connection* is defined elsewhere in this glossary.

CIR

See Committed Information Rate (CIR)/Policing.

Circuit Pack

An equipment unit that consists of a circuit board and electronic components, typically integrated circuits. This board provides the inter-connectivity among electronic components. Circuit packs are mounted in the equipment shelves.

CIT

See Craft Interface Terminal (CIT).

Class of Service (CoS)

Class of Service (CoS) is the grouping of traffic into different sets so each set can receive different treatment.

Client rate

An optical transmission circuit pack parameter that specifies the circuit pack rate, such as, 10G or 40G.

CMISE

Common Management Information Service Element.

CMISE network adapter

See Network adapter.

CNA

See CMISE network adapter (CNA).

Cold Backup

A backup of the management system databases that is performed from the command line interface while the management system is brought down.

Color Profile

Set of parameters in charge of completing the policing management in case of pre-colored regulated traffic.

Command and Response Log

This feature is supported only for the TL1 NEs. A log of all commands sent from the management system to the NEs and the corresponding responses received from the NEs.

Committed Burst Size (CBS)

A measurement applicable to Ethernet QoS and Ethernet QoS Profiles.

Committed Information Rate (CIR)/Policing

A measurement applicable to Ethernet QoS and Ethernet QoS Profiles.

Common Archive Session

Identifies a PM data backup/purge task for all performance points, for a special granularity, for a fixed period. The PM data in this defined scope is backed up to an archive file. After archiving, the PM data can be deleted from the online database.

Company

OMS PKT - Optional field used to identify the customer data in a more descriptive way (it can assume the same value of Customer User Label).

Compatible Optics Port

When a TDM NE that is connected with a DWDM NE is equipped with a compatible optics port, the DWDM NE does not need to have an OTU pack.

Concatenation Level

Property (from 0 to 63), which allows increasing the flexibility of SDH bandwidth management.

Congestion Management

Includes network engineering, OAM procedures to detect the onset of congestion, and real-time mechanisms to prevent or recover from congestion. Congestion management includes, but it is not limited to, congestion control, congestion avoidance, and congestion recovery.

Connection

A relationship between two or more like ports. Two methods that are used to establish a connection include: physically connecting wires, cables, or fibers to physical ports or sending commands to NEs to internally connect logical ports.

Connection Aggregates

Connection Aggregates are also referred to as Mixed Plane connections. Mixed Plane connections span multiple instances of the Managed Plane domain and an instance of the Controlled Plane domain. This spanning of domains is achieved by grouping individual connections into a Group Type known as a Connection Aggregate.

Connection Profile (CP)

Each CP is associated with a type of connection which can be provisioned by the management system. Each CP also contains a list of associations which map to the name of an OSASP.

Connection, High Order

Connection rates such as VC-4 in SDH, and STS-1 and STS-3c in SONET that can serve as infrastructures that further carry client service connections.

Connection, Low Order

Connection rates such as VC-12 and LO-VC-3 in SDH, and VT-1.5 and VT-2 in SONET that are service connections that ride on High Order connection infrastructures.

Constituent protection group

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.

Controlled plane

Connections that pass through the ONNS domain are called “controlled plane” connections. For “controlled plane” connections, the path through the switched NEs is determined by the ONNS.

Controller

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.

Correlated Cross Connection

A correlated cross connection is one that can be associated with a connection provisioned in the management system.

Correlation Rules

In Fault Management, correlation rules are the set of technologically-specific behaviors that provide information to CFM as to what needs to be done for any occurring Elementary Alarm (EA) coming in from the network. A correlation rule is the relationship among a Termination Point (TP) type, TP correlation class, EA Network Management probable cause, impacted transport object type, and Correlated Alarm (CA) probable cause.

CoS

See Class of Service (CoS).

CP

See OMS Connection Profile.

Craft Interface Terminal (CIT)

The user interface terminal used to directly communicate with an NE.

Cross-Connection

An internal connection between like ports within an NE. For example, a cross-connection could be an internal connection between logical ports of an NE.

Cross-Connection Leg

A portion of a cross-connection that connects exactly two logical ports in a single direction.

Cross-Connection Loopback

A connection from an input logical port to its corresponding output logical port.

CSMA/CD

See Carrier Sense Multiple Access with Collision Detection.

Current Alarm Management

In CFM, Current alarm management enables the user to supervise network activity in order to identify anomalies and solve them.

Customer Edge (CE)

Customer equipment that directly interacts with the network located at the border of a customer domain. The CE is located at the border of a customer domain. The CE is owned and managed by the customer.

Cut-Through

This feature is supported only for the TL1 NEs. Also known as *cut-thru*. A management system capability that allows a user to use TL1 commands, which are the native command set of the NEs, to communicate with NEs in the network.

D Data Extraction Command-Line Tool

Data Extraction is a licensed management feature that extracts equipment, alarm, NE, network connection, and PM data from the management system database and stores this data in

field-delimited, pre-defined flat files known as *data files*. Data Extraction can be executed automatically as a nightly cron job or manually and on-demand from the command line.

Data Management

The Data Management for PM involves the maintenance of the PM database. Maintenance includes saving, removing and retrieving data. A manual purge is also a part of Data Management.

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. The purpose of an database synchronization is to keep the management system view of the network current with changes that have occurred in the network.

Database Synchronization Discrepancy Reports

Database Synchronization Discrepancy Reports are automatically generated after a database synchronization of Ethernet services is run. The report provides the user with data received from the NEs as a result of the database synchronization.

Date

A PM date is expressed in “year/month/day” format. A PM time is expressed in “hour:minute” format, on a 24 hours scale. Seconds are usually omitted (although internally a granularity of seconds is used). The year is expressed in four digits.

DB Delete

An action that removes a network connection from the management system's database and moves the order to the history order step, but does not send any commands to NEs. The result is that the network connection still exists at the NE level.

DCN

See Data Communications Network (DCN) and Data Communications Network (DCN) Subnetwork.

Default Behavior (DE)

Type of quality of service used in MPLS terminology (related to Best Effort traffic).
For this kind of connection, no bandwidth is reserved but the maximum numbers of LSPs is limited by the OMS PKT.

Dense Wavelength Division Multiplexing (DWDM)

Multiplexing using close spectral spacing of individual wavelengths to take advantage of desirable transmission characteristics, for example minimum dispersion or attenuation, within a given fiber, while reducing the total fiber count needed to provide a given amount of information-carrying capacity.

Differentiated Services

Ethernet QoS is based on a concept known as *differentiated services*, which regulates traffic flow at the ingress to the network and has each node in the route processing data packets on a *per hop* basis.

Digital Communication Network

Communication network in which the transmission of data is done in a digitized format.

Digital Link

The concept that was formerly represented by the term “digital link” in Alcatel-Lucent's earlier optical network management products is called “physical network connection” in OMS. *Physical network connection* is defined elsewhere in this glossary.

Digital Service Rate (DSR)

A layer rate that carries either SONET/SDH signals, or data services.

Disaster Recovery

An optional management system feature that protects the management system and the HP® servers from hardware and software failures that could be caused by system, site, backplane, or processor failures or any unplanned outages. Disaster Recovery includes a diverse geographic standby (or secondary) system along with interconnecting networking. Each system acts as an integrated web and application server that provides full management system functionality.

Domain

A logical association of network resources and users.

Domain Partitioning

A partitioning of network resources into domains and the ability to restrict a user's access based on these partitions.

Domain type

Port parameter that indicates whether the ports are controlled by the management system or by ONNS.

Drop-Down Menu

A menu that is displayed from a menu bar.

Dropping

An Ethernet QoS Egress function which discards frames that do not fit into the egress queue for the CoS of the frame.

DSn

See Digital Signal Levels (DSn).

DSR

See Digital Service Rate (DSR).

DWDM

See Dense Wavelength Division Multiplexing (DWDM).

E

Edge Port

An Ethernet physical port or a SDH termination playing the UNI or IWI role.

Egress Functions in Ethernet

Egress functions in Ethernet involve scheduling and queueing on the output port to the next node. Egress functions include Dropping and Scheduling.

Element Level Management (EML)

Element Level Management (EML) features include Virtual Switches, Service Routes, Static MAC Addresses and associated Table Sizes and Overflow Status, IGMP Snooping, and Virtual LANs. When the OMS_CORE license is installed and the user's user role profile contains one of the tasks for Ethernet Element Management, the users are said to be working at the Element Level Management (EML). This application is responsible for the configuration and management of NEs.

ELR

Effective Line Rate.

Embedded Operations Channel (EOC)

Embedded Operations Channel is a network management protocol used for Remote SHDSL Device management. It is the basic message protocol, which allows minimum management functions such as SHDSL Link discovery, Remote SHDSL Device inventory, and Synchronize Remote SHDSL Device.

EML

See Element Level Management (EML).

EML Domain

A set of NEs that are maintained by the same EML-OS.

Empty NE

For PM, an NE that has no children and is not active.

Empty TP

For PM, a TP that has no data and is not active.

ENE

External NE with a Role
See External Network Element (ENE).

Enhanced Specification

An Ethernet QoS Profile type. Parameter specifications include Traffic class, PIR, CIR, PBS, and CBS.

Environmental Variable

An installation parameter; *see* Installation Parameter.

EOC

See Embedded Operations Channel.

Equipment

The physical components of an NE, such as bays, shelves, and slot/circuit packs.

Equipment Protection Switching

Used to provide protection for cards to protect traffic in the event of card failure.

Equipment View

A management system graphical display of an equipment component.

Ethernet

The most widely-installed Local Area Network (LAN) technology, an Ethernet LAN typically uses coaxial cable or special grades of twisted pair wires. The most commonly installed Ethernet systems are called 10BASE-T and provide transmission speeds up to 10 Mbps.

Ethernet Bridges

An Ethernet bridge connects multiple network segments and the traffic between those segments. If the source and destination are on the same network segment, data is not transmitted to other segments; however, if the source and destination are on different network segments, data is transmitted as required. This behavior is transparent to any host that resides on a segment connected by a bridge; the host merely perceives the bridged segments to be one segment.

Ethernet Connection

A connection (physical or virtual), which allows Ethernet traffic to flow from one point to another point of the Ethernet network.

Ethernet LAN Port

An Ethernet LAN port is either an electrical or optical interface to which an Ethernet cable can be connected. Ethernet LAN ports interface with the data network and receive Ethernet packets.

Ethernet Management

Ethernet Management is a network-level management feature that allows the efficient, rapid provisioning and activation of Ethernet services in a transport network, which includes the latest generation of hybrid technology NEs that are equipped to offer Ethernet switching and routing capabilities along with traditional transport technologies (such as SONET and SDH).

Ethernet Network

The network, composed by multi-technology equipment characterized on its border by edge ports, which allows the transport of Ethernet frames belonging to a customer.

Ethernet Non-Switched Service

An Ethernet Service in which packets are sent directly between the A Port and Z Port without any routing decisions made in the network.

Ethernet Notification Handling

Ethernet Notification Handling supports forwarding and processing changes made at the NE level for Ethernet Objects. When the Ethernet Element Management Layer (EML) receives these notifications, the Ethernet Objects are updated as appropriate based on predetermined criteria. When the Ethernet Network Management Layer (NML) receives these notifications, the

notifications are correlated to an existing Ethernet Service.

Ethernet Object Synchronization

The Ethernet Object Synchronization is performed automatically, as part of a full database synchronization, or manually as a partial database synchronization using the **Configuration - Ethernet Object** Database synchronization type. The Ethernet Object Synchronization should be executed after equipment and port information has been updated in the OMS database.

Ethernet Orders

An Ethernet Order is an object that can be used to specify and track a task that is related to a certain network object, such as an Ethernet service, in the management system. Ethernet Order concepts are only applicable to Network Level Management (NML).

Ethernet Physical Port

A resource able to guarantee the access of Ethernet traffic inside the provider network. It can be extremity of a transport link built on a cable (with or without Martini encapsulation) or the extremity of an EVC. It can be dedicated to connection oriented or to connection less technology. It can play the role of UNI (when connected to a customer edge port) or IWI (when it represents the frontier between two different networks).

Ethernet Port

An Ethernet LAN port.

Ethernet Quality of Service (QoS)

Ethernet Quality of Service (QoS) relies on an NE circuit pack or an external device that supports QoS for switched services within the infrastructure of a virtual switch network, a virtual switch, or for hub-and-spoke services.

Ethernet Quality of Service (QoS) Profile

An Ethernet Quality of Service ingress (QoS) profile is the set of data that defines the QoS parameter specifications that can be used for an Ethernet virtual switch network, switched service, virtual switch, or hub-and-spoke service. These parameter specifications can be assigned to traffic flows during the provisioning process of these services.

Ethernet Segment

Unidirectional end to end connection between two edge ports representing a unidirectional Ethernet flow, characterized by at least a classifier and a traffic descriptor.

Ethernet Service

Connection between two or more provider edges, composed by one or more EVCs. Offered by a network user to its customers in order to formalize network connections (i.e. EVCs) satisfying a specific telecommunication requirement such as, EVPL, EPTL, EPL, EVPLAN, ExtendedEVPL, Extended EVPLAN, HIS, BTV or Broadcast.

Ethernet Service Classification

Classification as either an Ethernet switched service or an Ethernet non-switched service.

Ethernet Switched Service

An Ethernet service in which packets are routed based information contained in the packet header.

Ethernet Tagging Mode

The number and type of tags present in an Ethernet frame. The management system supports the following tagging modes: 802.1q, transparent, and none.

Ethernet Traffic

A specific set of Ethernet frames (tagged or not tagged) flowing into the Ethernet network.

Ethernet Transport Service (ETS)

Designed to provide private lines for customers to connect their corporate network by means of an Ethernet interface.

Ethernet Virtual Connection (EVC)

An Ethernet Virtual Connection crossing several networks based on the same technology (Elementary EVC) or different technologies (End-to-End EVC). It is normally terminated on a UNI termination but it is allowed also to terminate an EVC on IWI interfaces.

Represents an Ethernet connection where an ingress frame from a UNI can be delivered to one or more than one UNI belonging to the same EVC. In particular the following definitions apply:

- Point-to-Point EVC: An EVC with exactly two UNIs
- Rooted-Multipoint EVC: A multipoint EVC in which a UNI is designated as either a root or a leaf. Ingress service frames at a root UNI can be delivered to one or more of the other UNIs in the EVC. Ingress service frames at a leaf UNI can only be delivered to one or more root UNIs in the EVC.
- Multipoint-to-Multipoint EVC: An EVC with two or more UNIs. A multipoint-to-multipoint EVC with two UNIs is different from a point-to-point EVC because one or more additional UNIs can be added to it.

OMS PKT definition: A component of an Ethernet service. It is mainly characterized by a type; point-to-point, point-to-multipoint or multipoint-to-multipoint. Following these types, in connection oriented cases an EVC is composed of a specific set of Ethernet segments. While in connectionless cases it is the association of two or more EVC terminations belonging to the same technological bridge domain.

EtherType

The EtherType is a 16-bit value that is used to express the type of Ethernet service to which a frame belongs in an IEEE 802.1Q-compliant frame header.

EtherType Swapping

Ethernet users can swap EtherType values on certain NE circuit packs to enable inter-operability between this equipment.

Event

System detected happenings that are of sufficient importance to justify notification to users. Events can be transient or persistent. *See* Transient Event and Persistent Event.

External Network Element (ENE)

A set of NEs, which are outside of the managed domain. For example, an ENE can represent an adjacent sub-network not supervised. An ENE may be used also to represent Customer Edge (CE) devices. This object is defined in order to improve the USM representation. Also, it can represent equipment not managed by OMS PKT inside the network or ISA PR Rings. The ENE can be used either in connection oriented management or in connection less management. In the latter case a domain assignment is needed.

External Termination Port (ETP)

Identifies an Ethernet port located in an external NE. It is useful to represent a transport link extremity or Ethernet segment extremity in a NE not managed by OMS EML. It can play the role of UNI (when connected to a customer edge) or IWI (when it represents the frontier between two different networks)

F

Factory-Defined User Role Profile

A default, predefined set of data that specifies which task a user account can perform. The management system supports the following factory-defined user role profiles:

- NOC Administrator
- NOC Expert Operator
- NOC Operator

Contrast with User-Defined User Role Profile.

Fast Ethernet (FE)

Generic term. Fast Ethernet or 100BASE-T provides transmission speeds up to 100 megabits per second and is typically used for LAN backbone systems, supporting workstations with 10BASE-T cards.

Fault Management (FM)

Fault Management is a set of functions that detect, isolate, and correct malfunctions in a telecommunications network, compensate for environmental changes, and include maintaining and examining error logs, accepting and acting on error detection notifications, tracing and identifying faults, carrying out sequences of diagnostics tests, correcting faults, reporting error conditions, and localizing and tracing faults by examining and manipulating database information.

File Transfer Protocol (FTP)

A protocol used to transfer files between network hosts. It is encapsulated by a TCP connection, and is the reliable analog to Trivial File Transfer Protocol (TFTP).

Filter

As related to the alarms or events generated on an NE or internally within the management system itself, filters can be configured by a user to reject specified types of notifications and limit the

processing that is applied to them.

Flow Classification

Flow classification is an Ethernet Ingress function that groups frames into *flows* based on some criteria, such as the CoS, the VLAN ID, the priority, the port, any combination of these, or other criteria.

Frame Format

The structure of the frame, such as *cbit* or *unframed*. Called *Signal Format* on some NEs.

FSP12AM Box

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.

FTP

See File Transfer Protocol (FTP) and FTP/FTAM Gateway.

FTP/FTAM Gateway

A protocol conversion function between File Transfer Protocol (FTP) over TCP/IP networks and File Transfer Access and Management (FTAM) over OSI networks.

Functional Access Domain (FAD)

OMS function which defines the range of functions that are available to a specified user.

G

GARP

See Generic Attribute Registration Protocol (GARP).

GARP VLAN Registration Protocol

An Ethernet Management feature that relies on GARP protocol to register VLAN IDs on WAN ports for switched Ethernet services.

Gateway Network Element (GNE)

An NE that provides gateway functionality between external interfaces to OSs (for example, LAN ports) using one protocol stack (for example, TCP/IP) and internal DCC interfaces using a different protocol stack (for example, OSI).

Generic Attribute Registration Protocol (GARP)

A protocol used to register VLAN IDs on WAN ports for switched Ethernet services.

Generic Frame Protocol (GFP)

Generic term. The Generic Frame Protocol (GFP) provides a set of functions that support a generic interface to the underlying frame representation systems (FRSs). The interface layer allows an application some independence from the idiosyncrasies of specific FRS software and enables the development of generic tools that operate on many FRSs. GFP is complementary to

language specifications developed to support knowledge sharing.

Geographic Redundancy

Redundant system configuration in which two diversely located management system host servers exist. One host server is the active server and one is the standby server.

Gigabit Ethernet (GE)

Generic term. Gigabit Ethernet provides an even higher level of backbone support at 1000 megabits per second (1 gigabit or 1 billion bits per second). 10-Gigabit Ethernet provides up to 10 billion bits per second.

Gigabits per Second (Gbps)

A unit of transmission rate, equal to one billion bits per second.

GNE

See Gateway Network Element (GNE).

Granularity

The type of measure used in PM, such as **15 minutes**, **hours** or **day**. By selecting the granularity, the user selects which type of measure is presented in a report.

Graphical Layout

A page of the management system that graphically depicts a selected network connection.

Graphical User Interface (GUI)

A graphics-based software interface to computer systems that provides pictorial representations and menus of operations and files.

Group Order

A Group Order is one in which one order generates multiple additional orders.

GUI

See Graphical User Interface (GUI).

GVRP

See GARP VLAN Registration Protocol.

H

High order connection

A TDM connection that can serve as an infrastructure that further carries client service connections.

High Order Matrix

Defines the ports of an NE handling transmission rates greater than 140 Mbit/s.

High Order Path Connection

Function dealing with the establishment of high order connections (cross connections and pass through connections) in boards.

High Order Path Termination

Function used to complete the high order virtual container path overheads and vice versa extract the path overhead from these virtual containers.

History Report

Function which enables users to get information concerning performance, security or alarms on entities composing the network, or on the network itself. The user specifies the time period which is included in the report.

Hot Backup

A backup of the management system databases that is performed while the management system is up and running.

Hub-and-Spoke Service

A hub-and-spoke service is an Ethernet service in which multiple private line services are aggregated into a single *trunked* port that leads to a global or scarce resource.

I

IANA

Regulatory group that maintains all assigned and registered Internet numbers, such as IP and multicast addresses

IGMP

See Internet Group Management Protocol (IGMP).

In Effect Date/Time

The date and time in which a network connection was activated.

Inactive Partition

The section of the non-volatile memory within an NE in which a copy the application software for the NE is stored. This version of the application software is independent of the currently running software release.

Inactivity Timeout

An administrator-tunable function of the management system in which a user can automatically be logged out of the system if the user has not sent any requests to the management system for a specified period of time.

Inconsistent connection

An inconsistent connection is an In Effect or IMP Complete network connection that contains a cross-connection that has been disconnected or rearranged outside of the management system. In this case, the management system view of the connection is “inconsistent” with the NE-level view.

An Inconsistent Connection event occurs for an OCH, ODUk, DSR, or OC-n/STM-n Multiplex Section connection established using automatic or manual routing when an OS topological link between an OMU/ODU, OTU/OUPSR, OTU/OMU/ODU, OUPSR/OMU/ODU, or ODC/OTU/OMU/ODU associated with an In Effect or Implementation Complete connection is

disconnected or rearranged outside of the management system. These Inconsistent Connections can be viewed and acknowledged, but not restored.

An Inconsistent Connection event *does not* occur when an OS topological link between an OTU/OMU/ODU is disconnected if the NE is a 1625 LambdaXtreme™ Transport NE and the OCH or ODUk connection includes a MUX OTU.

For Metropolis® Enhanced Optical Networking (EON) NEs, Inconsistent Connections occur when the OS topological link is entirely within a single NE and when the OS topological link in between two Metropolis® Enhanced Optical Networking (EON) NEs.

An Inconsistent Connection event *does not* occur when an OS topological link between TDM NEs and WDM NEs (both compatible optics and no compatible optics cases) is disconnected.

An Inconsistent Connection event occurs for Controlled Plane connections when a cross connection associated with an In Effect of IMP Complete connection is disconnected or rearranged outside of the management system. These Inconsistent Connections can be viewed and acknowledged, but not restored.

For connections established using cross-connection based routing, an Inconsistent Connection *does not occur* for OS topological links that are disconnected or rearranged outside of the management system.

Indirectly managed NEs

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.

Information Manager

Processes used by the OMS SDH that are the functional part of the OMS SDH applications.

Infrastructure Network Connection

A connection between logical ports that is an adapted connection with one or more types of link connections. For example, a VC-4 infrastructure network connection has VC-12 and LO-VC-3 link connections.

Ingress Functions in Ethernet

Ingress functions in Ethernet involve traffic classification and conditioning. Ingress functions include VLAN ID filtering, Traffic classifications, Flow classifications, Traffic conditioning, Policing, and Counting.

Installation Parameter

A variable value that controls the behavior of a management system feature and that is set during the installation of the management system. Some installation parameters can be tuned by the administrator. An installation parameter is also known as *system parameter* or *environmental variable*.

Internet Group Management Protocol (IGMP)

Internet Group Management Protocol (IGMP) is the standard for Internet Protocol (IP) multicasting on the Internet. IGMP is used to establish host memberships in particular multicast

groups on a single network. The mechanisms of the protocol allow a host to inform its local router, using Host Membership Reports, that it wants to receive messages addressed to a specific multicast group. Multicast groups allow frames to be broadcast to only a subset of the complete service.

Internet Protocol (IP)

A routing and connection-less delivery protocol, originally developed by the Department of Defense to support interworking of dissimilar computers across a network, that works in conjunction with Transmission Control Protocol (TCP) and is usually identified as TCP/IP. It operates at the network layer (layer 3) of the Open Systems Interconnection (OSI) model.

Internet Protocol (IP) Address

Routing address within an IP network.

Internet Protocol (IP) Tunnel

An overlay IP network that transports IP packets through an OSI network.

Internetworking

Communication between two networks or two types of networks or end equipment.

Invalid Login Attempt Message

A non-descriptive message that the management system purposefully displays when an invalid user ID or password is detected.

IP

See Internet Protocol (IP), Internet Protocol (IP) Address, and Internet Protocol (IP) Tunnel.

K

Kilobits per second (Kbps)

A measure of bandwidth on a digital data transmission medium, such as optical fiber.

L

LAG

See Link Aggregation Group (LAG).

LAN

See Local Area Network (LAN).

LAN Extension Ethernet-capable Link

In Ethernet Hub-and-Spoke Services, the LAN Extension Ethernet-capable Link means that for each repeated Ethernet capable link, all spokes using the same Ethernet Capable Link must have the same LAN Extension Ethernet Capable Link.

LDAP Database

See Lightweight Directory Access Protocol (LDAP) database.

License

The right to use a software application. Licenses can pertain to several aspects of an application. For example, to access specific features for specific NE types.

Lightweight Directory Access Protocol (LDAP) database

One of the management system databases that stores information relative to user management, such as accounts created and corresponding user role profile information.

Line

A transmission medium, together with the associated equipment, required to provide the means of transporting information between two consecutive NEs. One NE originates the line signal; the other terminates it.

Line Protection

A method of guarding optical interfaces from line facility failures. It includes the protection of the interfaces at both ends of a line, the optical fibers, and any equipment between the two ends along with the protection of equipment failures.

Line Terminal

The end point of a communication link used to transmit or receive signals. They can undertake signal conversion functions (adapting a signal to two different transmission media) or multiplexing/demultiplexing functions.

Line Terminating Unit (LTU)

Line Terminating Unit for SHDSL local ports on the 1643 Access Multiplexer (AM) / 1643 Access Multiplexer Small (AMS).

Link

A line on the Network Map that represents a bridge or connection between nodes, where a node is an area, aggregate, or NE.

A one-to-one correspondence does not necessarily exist between physical transmission lines and the number of lines in the graphical layout. For example, a link in one layer can be the result of a serving connection at a higher rate across several NEs. Links always represent at least one transmission line and they can also represent a combination of transmission lines and nodes from a higher-rate connection.

Link Aggregation Group (LAG)

A Link Aggregation Group (LAG) is a group of LAN ports that is based on the IEEE 802.3ad standard. The group of LAN ports must be on the same circuit pack.

Link Capacity Adjustment Scheme (LCAS)

A method to dynamically increase or decrease the bandwidth of virtual concatenated containers.

Link Connection

Also known as *channel*. A connection that transports a client signal between end ports of its serving network connection.

Link Connection (LC)

Also known as *channel*. A connection that transports a client signal between end ports of its serving network connection.

A transport entity provided by the client/server association. It is formed by a near-end adaptation function, a server trail and a far- end adaptation function between connection points. It can be configured as part of the trail management process in the associated server layer.

Link Over Cable

The way to connect two Ethernet ports without using the SDH layer. Link over cable is a transport link carried by cables

Link Over SDH

A transport link carried by one or more paths.

Local Access Control (LAC)

Possible values: **Granted**, **Denied** or **Post-granted**. When the LAC state is **Granted**, the NE is controlled by a system other than OMS PKT and all the user requests involving this NE are refused. When the LAC state is **Denied**, the OMS PKT controls the NE. When the LAC state is **Post-granted**, the user can acknowledge the NE possible misalignment, after the LAC State is set to **Denied**.

Local Area Network (LAN)

A communications network that covers a limited geographic area, is privately owned and user administered, is mostly used for internal transfer of information within a business, is normally contained within a single building or adjacent group of buildings, and transmits data at a very rapid speed.

Local Non-Preemptible Unprotected Traffic (NUT) Status

The local NUT status for a logical port as provisioned on the NE. The local NUT status may differ from the operational NUT status because all NEs involved in a protection switch must agree before a protection switch will occur.

Local Redundancy

A redundant system configuration in which two co-located management system host servers exist; one host server is the active server and the other host server is the standby server.

Location Name

Text associated with a network component (Service node, NE) entered by the user at the creation or definition time.

Log

A historical record of events, operations, and/or messages.

Logical Port

A logical connection point within a physical connection. Logical ports are contained within physical ports. Logical ports can in turn contain other logical ports.

Loopback

A connection between the input and output of a bidirectional port.

Loss Of Signal (LOS)

Alarm linked to the physical interfaces, associated with the absence of a received signal.

Low order connection

A TDM service connection that can ride on High Order connection infrastructures.

Low Order Path Connection

Function of the 21x2Mbit/s, 3x34Mbit/s and the 140 Mbit/s tributary boards that routes the lower order signals to the STM-N frame.

Low Order Path Termination

Function of the 21x2Mbit/s, 3x34Mbit/s tributary boards that completes the signal by adding the path overhead.

LSP Link

The segment of a LSP Tunnel between two NEs.

LSP Tunnel

A path created by the concatenation of one or more label switched hops. A LSP tunnel is unidirectional, starting in a LER (at the border of the MPLS network), crossing one or more LSR and terminating in a second LER. A LSP tunnel is dedicated to one class of Ethernet traffic: Best Effort, Guaranteed or regular. Its bandwidth and CoS characteristics are defined by the associated traffic descriptor. The termination of a LSP tunnel is a MPLS Termination. The LSP tunnel has a fixed bandwidth dedicated to a class of traffic, only the bandwidth related the LSP tunnel could be used.

LTU

See Line Terminating Unit

M

MAC

See Media Access Control (MAC).

MAC Frame

The logical organization of control and data fields, for example, addresses, data or error check sequences, defined for the MAC sub-layer.

Note: The term frame can be prefixed with an orientation (ingress, egress, inbound, outbound) or an operation (inserted, copied, stripped, and passed through).

Managed NE

An NE that is managed by the management system.

Managed plane

Used in terms of ONNS, connections that are not within the ONNS domain are considered part of the “managed plane.” The routing for these connections is determined by the management system.

Management Domain

The OMS SDH is partitioned into management domains for functional proposes. Each management domain is associated with functionalities that enable the users to manage the NEs.

Management Information Base (MIB)

Describes all the managed objects controlled by the management system. A management system MIB and an NE MIB exist.

Management Network

The data communications network that interconnects NEs with each other and with the system(s) that manage the NEs. The management network carries traffic used by the operator of the network to control the NEs in order to provide services for customers (for example, the management network transports messages to the management system that indicate active faults that have been detected in the NEs).

Management System Internet Protocol (IP) Address

The IP address used by the management system to communicate with the NEs.

Manager Control

Manager Control is an OMS PKT local state.

For Ethernet ports with an ETS Client Type and if Supported Layer is Ethernet then it is set by default to Enabled when the Ethernet Port is created in the OMS PKT, otherwise it is set to Disabled:

- When the Manager Control is Enabled, the port is under the control of the Ethernet traffic management that can use it as Ethernet s extremity. Its Usage State is Not Meaningful in the Construction domain, but it is managed in a significant way by Ethernet traffic management.
- When the Manager Control is Disabled, the port is fully controlled by the Construction domain that can use it as extremity of an internal Link over cable. Its Usage State is managed in the Construction domain.
- Optionally, a port, which has an Enabled Manager Control, could be an Extremity of an external Link over Cable.

Maximum Capacity

The full capacity of virtually concatenated logical ports, such as VCG logical ports.

Measurement Category

Represents either a Granularity or Window Type in PM, or a set of measurements that were taken on a Measurement Point for a specific purpose.

Media Access Control (MAC)

A Media Access Control (MAC) address is a universally unique 48-bit address that identifies an Ethernet host.

Megabits per second (Mbps)

A unit of transmission rate, equal to one million bits per second.

MegaHertz (MHz)

A unit of alternating current (AC) or electromagnetic (EM) wave frequency equal to one million Hertz (Hz).

Mesh

A topology where the network elements are not connected in a ring. A mesh can be one unprotected physical connection.

MIB

Management Information Base within an NE

Mixed plane connection

Mixed plane connections are referred to as Connection Aggregates. These are connections that traverse a mix of non-ONNS domains and one ONNS domain. The management system performs the manual routing for the managed plane portions of the connection and ONNS performs the routing for the controlled plane portion of the connection.

MS-SPRing

See Multiplex Section - Shared Protection Ring (MS-SPRing).

Multiplex Section - Shared Protection Ring (MS-SPRing)

An SDH ring topology. The SONET equivalent of this ring topology is the BLSR ring.
A self-healing ring configuration in which traffic is bidirectional between each pair of adjacent NEs and is protected by redundant bandwidth on the bidirectional lines that interconnect the NEs in the ring. Because traffic flow is bidirectional between NEs, traffic can be added at one NE and dropped at the next without traveling around the entire ring. This leaves the spans between other NEs available for additional traffic. Therefore, with distributed traffic patterns, this type of ring can carry more traffic than the same facilities could carry if configured for a unidirectional ring. In the event of a fiber or node failure, service is restored by switching traffic from the working capacity of the failed line to the protection capacity in the opposite direction around the ring.

Multiplex Section (MS)

In general, represents the section containing the multiplexed signals.

Multiplex Section Protection

Provides protection for an STM-N signal in case of channel failure or low transmission quality.

Multiplex Section Termination (MST)

Function of the 140 Mbit/s and the STM-1 tributary boards and aggregate boards that completes the section overhead of the signal frame and checks the coherence of the transmitted signal. This functional block also manages alarms linked to the multiplex section.

Multiplexer

Equipment used to combine several signals to produce a single signal at a higher transmission rate and to decompose it back to the smaller rate signals.

Multiplexing (MUXing)

The combining of two or more information channels onto a common transmission medium. Note: the management system the two supported forms of multiplexing are time-division multiplexing (TDM) and wavelength-division multiplexing (WDM).

MUXing

See Multiplexing (MUXing).

MxN Connection Protection Group

This is a group of ONNS connections consisting of a number of working connections and a number of protecting connections.

N

NE

See Network Element (NE), NE Generic, and NE Notification Log.

NE Generic

The software (application) release for a particular NE. Software management for NE generics includes the ability to import NE generics to the management system from an external storage device, download an NE generic from the management system to an NE, copy software from one NE to another NE, activate NE generics, and support file management capabilities for the NE generic files.

NE Notification Log

A log of all reported configuration and protection switch messages received from the NEs.

NE Profile Assignment

The Profile Management feature that allows the user to view/create/modify/delete a set of profiles configured in the NE.

NE Profile Management

The Profile Management feature that allows the user to view a summary of resources assigned to a specified NE.

Network

An interconnected group of nodes; a series of points, nodes, or stations connected by communications channels; the assembly of equipment through which connections are made between data stations. Also, part of the destination (code) used in an address; similar to an international telephone code.

Network Access Domain (NAD)

Used to define the set of resources a user can manage.

Network Access Point (NAP)

A potential extremity for a SDH path.

Network adapter

Network adapters manage the communications between the management system and groups of NEs. The management system supports configurations where the network adapters 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.

Network Communications Group

A network communications group is a collection of OMS-to-NE connections between the management system and the NEs it manages.

Network Connection

An end-to-end connection at a given layer (physical or logical) in the management domain. Typically, a network connection consists of a list of cross-connections and link connections.

Network Discrepancy

An inconsistency between the network connections and the actual network configuration. For example, a network discrepancy can be due to an inconsistent connection or an uncorrelated cross-connection.

Network Element (NE)

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.

Network Event Summary

Summary displays of network-reported and management-system-detected significant events. For example, network-reported significant events are alarms; management-system-detected significant events are inconsistent connections.

Network interface type

Port parameter that indicates the role that the port has been assigned in the network.

Network Level Management (NML)

When the OMS_EM license is installed in addition to the OMS_CORE license and the user's user role profile contains the tasks that enable any of the Ethernet services, Ethernet administration, and/or Ethernet infrastructure tasks, the users are said to be working at the Network Level Management (NML).

Network Map

A component of the management system that provides graphical view of the physical network layout, including nodes and the connectivity between them.

Network Provider

Also called Network Operator, Service Provider, Internet Service Provider etc. It refers to an entity that owns and operates the network and all the inner Nodes, including the Provider edge devices.

Network Service Access Point (NSAP) Address

The address of an NE in the OSI environment.

Network Terminating Unit (NTU)

Network Terminating Unit for SHDSL remote ports.

NML

See Network Level Management (NML).

No Tag Tagging Mode

Also known as *Private Line tagging mode*. A mode in which packets are routed based on fixed associations between Ethernet LAN and Ethernet WAN ports. Routing is not based on tags.

Node

A generic term that refers to any of the following: NEs, aggregates, areas, and non-managed NEs. It is used most commonly to generically refer to icons on the Network Map.

Non-managed NE

An NE that is not managed by the management system, but that the management system can make connections to or through.

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. It is often referred to as a Black Box.
- **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 Navis® Network Management System.

Non-Preemptible Protection Access (NPPA)

The ability to designate individual logical ports within a protection line as non-preemptible. Generally referred to as *NUT* outside of North America.

Non-Preemptible Unprotected Traffic (NUT)

Used to describe traffic that is carried on channels in an MS-SPRing protection scheme with the MS-SPRing APS protection switching mechanism disabled for working channels and their corresponding protection channels. Traffic on these channels is unprotected and non-pre-emptible. Also called *NPPA* in North America.

Non-Switched Service

A non-switched service is an Ethernet service in which a virtual concatenation group (VCG) is created between two WAN ports on two NEs in a point-to-point connection.

Northbound Interface

An interface from a lower-level management system to a higher-level management system (for example, an interface from an element-level management system to a network-level management system).

NPPA

See Non-Preemptible Protection Access (NPPA).

NS

The value NS in a PM tabular report means that this measurement is not supported.

NSAP Address

See Network Service Access Point (NSAP) Address.

NTU

See Network Terminating Unit (NTU).

NUT

See Non-preemptible Unprotected Traffic (NUT).

O

OA

See Optical Amplifier.

OADM

See Optical add-drop multiplexer.

OC

See Optical Channel (OC).

OCH

See Optical Channel (OCH).

OCP

See OMS Connection Profile.

ODU

See Optical Channel Data Unit.

ODU (or OD)

See Optical Demultiplexer Unit.

ODU-k

An optical logical connection with a specific rate. The rate can be either ODU-10G or ODU-40G.

OMD

Optical Multiplexer / Demultiplexer. These units provide both the signal combining and splitting functions to multiplex / demultiplex the signals from the high speed optical line.

OMS

See Optical Multiplex Section (OMS).

OMS Connection Profile (OCP)

OMS defines Connection Profiles (CPs). Each CP is associated with a type of connection which can be provisioned by the management system. Each CP also contains a list of associations which map to the name of an OSASP.

OMS Profile Assignment to NEs

The Profile Management feature that maps the OMS profile to the format required for an NE.

OMS Profile Management

The Profile Management feature that allows the user to create profiles inside the OMS create/modify/delete assignment for an NE.

OMS Standard Alarm Severity Profile (OSASP)

OMS Standard Alarm Severity Profiles (OSASP) are a set of standard default profiles available from the Profile Templates page. These profiles are available to the user in addition to the existing set of default NE profiles.

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; they have no impact on an NE.

OMU (or OM)

See Optical Multiplex Unit (OMU).

ONNS

See Optical Network Navigator system (ONNS).

ONNS domain

The portion of the network that is under the control of ONNS is known as the ONNS domain. The ONNS domain is a collection of switched NEs that are able to signal amongst themselves and use this information to maintain the neighbor topology data to provide routing and restoration within the domain.

ONNS-UPSR-Construct (OUC)

OUC (ONNS-UPSR-Construct) refers to the grouping of the Customer/Client port of a pre-existing ONNS connection and an unused Customer/Client port on the same NE that will become part of a traditional UPSR. The construct assists in achieving the UPSR-mesh interworking.

OP1P1

The protection pack name used by *LambdaXtreme*™ Transport.

Operating system (OS)

A system dedicated to the supervision of NEs in a standard way, using protocols and interfaces. it offers to the user a set of functions necessary to supervise the NEs.

Operational Non-Preemptible Unprotected Traffic (NUT) Status

The NUT status for a logical port as used in protection switching. All NEs must agree that a logical port can be preempted before protection switching can occur.

Operator

The end-user of the management system. Supervises a part of the network that is dependant on the user profile.

Optical add-drop multiplexer (OADM)

A piece of equipment that allows wavelengths to be added or dropped at particular node points.

Optical Amplifier

An equipment which provides amplification of the outputs from the OMU and inputs of the ODU to increase the span distance between WDM NEs.

Optical Channel (OC)

An OC-N wavelength within an optical line signal. Multiple channels, differing by 1.5µ in wavelength, are multiplexed into one signal.

Optical Channel (OCH)

An optical logical connection between 2 DWDM optical translator (OT) or optical multiplexer (OM)/optical demultiplexer (OD) ports whose link connections are determined by the OT pack type.

Optical Data Unit (ODU)

OCH (optical channel) Data Unit. An optical logical connection without a specific rate.

Optical Demultiplexing Unit (ODU)

Also known as Optical Demultiplexer (OD). An equipment which provides the signal splitting functions to demultiplex the signals from the high speed optical line.

Optical Line Signal

A multiplexed optical signal containing multiple wavelengths or channels.

Optical Multiplex Section (OMS)

Logical connection between 2 optical multiplexers of optical demultiplexers of two DWDM NEs. If there are no repeaters (Optical Amplifiers) between the DWDM NEs, the optical transmission section (OTS) and the optical multiplex section (OMS) terminate on the same physical port (optical amplifier port) but their layer characteristics (physical or logical) are preserved. An OMS section between two LambdaXtreme end terminals will have 64 or 128 optical channel (OCH) link connections, depending on whether the end terminal is a 40G or a 10G model.

Optical Multiplexer Unit (OMU)

Also known as Optical Multiplexer (OM). An equipment which provides the signal combining function to multiplex the signals from the OTUs onto the high speed line.

Optical Network Navigator System (ONNS)

Software and hardware present on some NEs, which performs connection management functions for synchronous connections, across a network of switched NEs. The ONNS system consists of a number of ONNS modules. Each module resides on a different switched NE in the network.

Optical Section (OS)

The part of the physical network consisting of the fiber-optic cabling and connectors interconnected to provide the transport function between two adjacent repeater locations, between a repeater location and an adjacent terminal location, or between two adjacent terminal locations. The optical section extends between the point on the optical fiber just after the transmitter optical connector and the point on the optical fiber just before the receiver optical connector.

Optical Translator Unit (OTU)

Also called Optical Translator. An equipment that translates the incoming signals to the appropriate wavelengths for multiplexing. Also performs signal regeneration and functions such as performance monitoring.
Regular OTU refers to connections beyond the OTs on the client side that are OS connections with RS/DSR link connections.

Optical Transmission Section

The physical connection between optical amplifiers in DWDM NEs.

Optimize

A tool for the administrator to optimize the databases and clear the databases alarms. Usually some data in databases have already been purged but the alarm logs still exist. This function also checks and attempts to repair tables if errors are detected. The tool logs the optimizing information in the pmslog.out file.

Order Number

A unique number that identifies the Network Connection Order or Ethernet Service Order.

Order Step

A step in the progression of an order. One of: Planned, Local Design, Implementation, In Effect, or History.

Order Step Status

The status of an order step with regard to completion. One of: Completed, In-progress, or Failed.

Order Type

Type of an order. One of: Add, Discover, Delete, or DB Delete.

OS

See Optical Section (OS).

OSASP

See OMS Standard Alarm Severity Profile.

OTS

See Optical Transmission Section (OTS).

OTU (or OT)

See Optical Translator Unit (OTU).

OUC

See ONNS-UPSR-Construct.

OUPSR

The protection pack name used by *Metropolis*® EON.

Over-subscription

An Ethernet QoS CIR/Policing Profile type in which the CIR is less than the PIR, which is equal to the port speed.

Owner

A system or user who has created an object, and therefore has permission to modify it.

P

Packet Ring

A set of Ethernet circuit packs connected to each other in a ring configuration.
For a definition of Resilient Packet Rings, *see* Resilient Packet Ring (RPR).

Parameter

A variable that is given a value for a specified application. A constant, variable, or expression that is used to pass values between components.

Password Aging

An administrator-tunable installation parameter that displays an early warning message to notify users that a password needs to be changed and then forces users to change their passwords after a set aging period has elapsed.

PBS

See Peak Burst Size (PBS).

PCP

See Priority Point Code (PCP).

PDH Physical Interface

Electrical transformers restricted to the PDH signals (140Mbit/s, 34Mbit/s and 2Mbit/s) that decouple the line signals and adapt the form of signal for further transmission. This functional block also manages clock extraction, signal loss monitoring and loopback functions.

Peak Burst Size (PBS)

A measurement applicable to Ethernet QoS and Ethernet QoS Profiles.

Peak Information Rate (PIR)

A measurement applicable to Ethernet QoS and Ethernet QoS Profiles.

Performance Counter

A time–discrete and value–discrete measurable parameter. The values are collected in fixed intervals at a termination point. For PM, three granularities or window types are possible for each counter: **15 minutes**, **day** and **hour**.

Performance Monitoring (PM)

Also referred to as Performance Management. A set of management functions which enable the performance of the network to be measured and corrective actions to be taken. Performance Management, in the context of the PM component, means the collection of historic performance data of managed Network Elements, reporting of the collected performance data, and long term trend analysis of the collected performance data.

Performance Point

Termination point that is monitored for particular performance counters.

Persistent event

Also referred to as a standing event. A persistent event consists of a raise-clear pair of notifications, that is, when a condition occurs an event is raised and when the condition goes away the event is cleared.

Physical Interface (PI)

Electrical transformers that decouple the line signals and adapt the form of signal for further transmission. This functional block also manages clock extraction, signal loss monitoring and loopback functions.

Physical Network Connection

A connection that uses wires, cables, or optical fibers to connect two physical ports.

Physical Port

A physical connection point. Transmission lines attach to physical ports.

PIR

See Peak Information Rate (PIR).

Platform

The hardware and software configurations that have been designed to support a particular application.

Port

A connectable point. Ports can be designated as logical or physical ports.

Port class

Port class is a parameter set on the ASTN NE for allocating resources. Possible port class setting are:

- **EDGE** - identifies the port as an ONNS domain edge port which is network owned.
- **iNNI** - identifies the port as a network owned port.
- **TRADITIONAL** - identifies the port as non-ONNS management system owned port.

Port Tag

A tag applied to Ethernet packets based on the associated Ethernet port. With port tagging Ethernet layer 2 switching is based on Ethernet port and all Ethernet packets on a given Ethernet port are treated identically.

Preemptible

A protection type for a service network connection or infrastructure network connection in which the traffic is preemptible in at least one segment.

Priority Code Point (PCP)

Priority Code Point (PCP) selection parameters enable users to change four bits in the VLAN header to four other bits for Ethernet.

Private Line in Ethernet

Ethernet Private Line is a non-switched, point-to-point connection between two Ethernet LAN ports. The transport service is provided by using dedicated bandwidth (an Ethernet Private Line) between the endpoints. All packet-based service information resides with the end customer systems, rather than with the transport network. Ethernet Media Access Control (MAC) frames are forwarded transparently (without modification, at the MAC level) over the transport network.

Probable Cause

A term used to indicate the unique description of a fault condition that can be raised as an alarm instance by an NE or management system. Also called *Condition Type* on NEs.

Proprietary Agreement Warning File

An ASCII file that contains the text of the legal agreement that is to be displayed to users upon their log in to the management system. The text of the proprietary agreement warning message is an administrator-tunable installation parameter.

Proprietary Agreement Warning Message

A query that the management system displays so that users can accept or decline the company proprietary agreement. The display of the proprietary agreement warning message is an administrator tunable installation parameter.

Protected

A protection type for a service network connection or infrastructure network connection in which the traffic is protected from end-to-end (at the physical or logical level).

Protection

The extra capacity (link connections, circuit packs) in transmission equipment that is not intended to be used for service, but rather to serve as backup against equipment failures.

Protection Group

A set of objects that jointly participate in a protection scheme. In the event of a failure, protection units in the protection group provide the services of the failed unit(s). There are many types of protection groups, including 1+1 optical port/line and 2F/4F BLSR/MS-SPRing protection groups.

Protection Loopback Mode

A SONET network recovery mechanism that is deployed when two fiber pairs exist between each recoverable NE and when the fiber facility fails, the NE preceding the break loops the signal back toward the originating NE, where it travels on different fiber pairs to its destination.

Protection Switch

The switch of traffic from the working connection to a protection connection, or vice versa. A protection switch may happen automatically (as in the case of a failure), or it can be invoked manually.

Protection Type

The level of protection provided by the network connection. For example, Protected, Unprotected, or Preemptible.

Protection Unit

A unit in a protection group that does not typically provide service, but that is available to take over and provide service for a failed unit.

Provider Edge (PE) or Edge node

A device located at the border of a network user domain, for example, an Ethernet board in an OMSN. The provider edge is owned and managed by the network user, but may be located within the customer premises. The service support of the provider edge depends on the type of the node.

Provisioned Capacity

Currently provisioned capacity for virtually concatenated logical ports (for example, VCG logical ports).

Q

QD2

An extended message protocol that allows EOC management functions and additional management functions such as Reset Remote SHDSL Device.

QOS

See Quality of Service (QOS). *See also* Ethernet Quality of Service (QoS).

QoS Parameter Settings

In Ethernet Hub-and-Spoke Services, QoS Parameter Settings means that if the Traffic management mode setting is not **VLAN** or **VLAN/CoS**, for each repeated Ethernet capable link all spokes using the same Ethernet capable link must have the same QoS settings.

QoS Traffic Management Mode

In Ethernet Hub-and-Spoke Services, QoS Traffic Management Mode means that all of the spokes for specified Ethernet capable link must have the same QoS traffic management mode specified.

Quality of Service (QOS)

A connection parameter that defines the level of service for a connection.

R

Radio Buttons

A standard window control that allows a user to select an item from a list or to select an item from a fixed set of mutually exclusive choices.

RCF

See Root Cause Failures (RCF).

Rearrange

Hard Rearrange - A rearrange where traffic is interrupted when a cross-connection type is changed.

Soft Rearrange - A rearrange where traffic interruption is limited by use of the bridge-and-roll type cross connection.

Receive Direction

The direction towards the NE.

REF

Reference Value Report window.

Refresh

Replace all the data with new data.

Regeneration Section (RS)

The part of line section between two repeaters or between a repeater and a line system.

Region

One MSTP region as defined by IEEE 802.1Q.

Remote Network Element (RNE)

Any NE that is connected to the referenced NE through either an electrical or optical link. It may be the adjacent node on a ring, or N nodes away from the reference. It also may be at the same physical location but is usually at another (remote) site.

Repeat Alarm

Repeat alarms are a special category of current alarms. A current alarm becomes a repeat alarm if another current alarm is received with the same source and probable cause. Repeat alarms are not viewable on the Alarms page, but can be accessed from the associated more recent current alarm in the Alarms page. When the associated current alarm that is viewable in the Alarms page is deleted, all repeat alarms are also deleted, which means they all become historic alarms.

Repeater

Equipment used to regenerate a signal when it has traveled a long distance.

Requested Capacity

Requested capacity for virtually concatenated logical ports (for example, VCG logical ports).

Resilient Packet Ring (RPR)

A Resilient Packet Ring (RPR) is a network topology for fiber optic rings. Fiber optic rings are widely deployed as part of both MANs and WANs; however, these topologies are dependent on protocols that are not optimized or scalable to meet the demands of packet-switched networks. The standard specifies an RPR access protocol and physical layer interfaces to enable high-speed data transmission in a fiber optic ring topology.

Resource Monitor

A management system feature that executes periodic checks on the mounting of the file system and the usage of the file system, the inode, and the swap space.

Resource partitioning

Bandwidth in the network is considered to be a “resource.” In order to allocate bandwidth to ONNS, physical ports on NEs need to be assigned to ONNS. This process is known as “resource partitioning.”

Restore

The process of updating an object's configuration to match a historical version of its configuration that is stored on the management system. For example, memory restore is used to restore an NE configuration to that in an earlier point in time. A restore can be done to the same exact configuration, such as a memory restore or to effectively the same configuration such as re-routing a network connection around a network failure to effectively provide the same service.

Revertive

A protection group is revertive when, upon restoration of the service unit, it is again automatically made the active unit.

Ring

A network topology in which a set of NEs (or more precisely nodes) are serially connected by transmission lines in a circular fashion with the last NE (node) in the chain connected back to the first NE (node). Ring topology enable protection because they guarantee that two paths are between any pair of NEs.

Ring Topology

The logical and/or physical arrangement of stations on a ring.

RNE

See Remote Network Element (RNE).

Root Cause Failures (RCF)

The process of associating an alarm issued by an entity in the network to a root cause. Root cause failures provides a summary of the alarms correlated to each resource (connection, piece of equipment) in the network. Search for client connections and services is available. This feature requires a license.

Routing Mode

The method used to determine the route for the connection. The management system supports three routing modes for service network connections and infrastructure network connections: automatic, manual, and cross-connection-based.

RPR

See Resilient Packet Ring (RPR).

RRC

Report Request Control window.

S

SAN

See Storage Area Network (SAN).

Scale

In a PM Graphical Report the scale can be either linear or logarithmic, and the minimum and maximum value on the y–axis can be defined.

Scheduling

An Ethernet QoS Egress function which transmits frames from the egress queues, depending on the scheduling algorithm and priority.

SDH

See Synchronous Digital Hierarchy (SDH).

SDH Path

The transport infrastructure based on SDH technology dedicated to the transport of Data Frames. Several protocols can be used over a SDH path infrastructure in order to carry Ethernet Data frames (GFP, HDLC, LAPS). The SDH path management is assigned to OMS SDH and the

following SDH path types can be identified:

- **Terminated**: from OMS SDH point of view, the SDH path is terminated when both extremities are located on NEs managed by OMS SDH; that is from OMS SDH point of view when the SDH path extremities (NAPs) and NEs are completely under the control of OMS SDH.
- **Not Terminated** or **Partially Terminated**: from OMS PKT point of view, the SDH path is not terminated or partially terminated when one or more extremities are located on 1350 OMS PKT ENE; that is from 1350 OMS-SDH point of view, when one or more extremities are virtual resources on OMS SDH, Virtual Terminations on Virtual NEs.

The SDH path can be Point to Point Bi-directional or Broadcast Unidirectional. In this latter case, the topology can be Point to Multipoint when only one Source and many Sinks exist, or Multi Point to Multi Point when two Sources and many Sinks exist.

SDH Physical Interface (SPI)

Physical interface linked to the SDH signals that converts the electrical signal to the optical signal and detects the loss of signal during reception.

SDH Termination

Termination belonging to ISA E/FE/GE boards or ISA PR-EA boards. SDH Termination is the extremity of a link over SDH built by one or more SDH paths. It usually plays the NNI role, However it can play the IWI role when it is the extremity of an inter-working transport link.

SEC

Security authorization component

Segment Protected

A protection type for a service network connection or infrastructure network connection in which the route contains at least one protected segment (logical or physical) and at least one unprotected segment. A segment can be Ring or a Mesh.

Server

A computer in a computer network that performs dedicated main tasks that generally require sufficient performance. Also referred to as the *host*.

Service

Offered by a network user to its customers in order to satisfy a specific telecommunication. Four services are: VPWS, BA, VPAS or VPHS.

Service Assurance (SA)

Service Assurance is a combination of 1350 OMS application features that affords the user the capabilities of Fault Management (FM) and Performance Monitoring (PM).

Service Network Connection

A connection between logical ports that is entirely used to carry a unique service, which is specified by the Service Type connection parameter. Service network connections do not have client connections.

Service Node

A geographic gathering of OMS PKT defined NE(s) depending on the characteristics of the OMSN that carries each NE.

Service Route

In Ethernet, a service route is used to describe an in-band test frame that is used to measure the latency (the delay) between two end-points. An in-band test frame is sent from one bridge to another bridge (from one Ethernet circuit pack to another). The bridge at the opposite end traps the frame and returns a reply. The time that elapses before a reply is received is the round-trip delay time. A measurement times out in an NE after 10 seconds.

Service Type

The rate of the service carried over a network connection. Service type is identified as not applicable when the connection carries link connections.

Session Inactivity Time-out Interval

The interval of time following the last user activity over the session after which the user session is to be terminated. Also called *Idle Session Time-out*. The session inactivity time-out interval is an administrator tunable installation parameter.

Severity

Linked to alarms, severities indicate the magnitude related to the failure.

SFP

See Small Form Factor Plug-in.

Shared Risk Link Group (SRLG)

Created as a part of physical network connection management. For physical network connections to ports that are already provisioned with SRLG information, the management system automatically associates that physical link with the SRLGs of the ports. Physical network connection provisioning also allows the user to identify an SRLG for the link and then provision the ports with that SRLG. In requesting connections across the ONNS domain, the management system allows specified SRLGs to be excluded.

SHDSL

See Symmetric High-Bitrate Subscriber Loop.

SHDSL (Ethernet QoS Profile Type)

An Ethernet QoS Profile type. Parameter specifications include CIR and CBS.

SHDSL Local Port

A physical port on a SHDSL Option Card (LTU port).

SHDSL Regenerator Unit (SRU)

SHDSL Regenerator Unit for regenerating SHDSL signal between LTU and NTU.

SHDSL Remote Port

A physical port on an SHDSL Option Card.

SHDSL TL

SHDSL Topological Link (TL) is the physical link of DSL rate modeled as being between LTU and NTU.

Shelf

An equipment unit that holds and interconnects circuit packs through a backplane. Shelves are mounted in Bays. Also referred to as a *subrack*.

Simple Network Management Protocol (SNMP)

Originally designed for the Department of Defense network to support TCP/IP network management, this protocol has been widely implemented to support the management of a broad range of network products and functions.

Slot

Equipment holder for circuit packs. Shelves typically contain many slots.

Small Form Factor Plug-in (SFP)

For CMISE NEs, supported as additional objects in the equipment hierarchy. SFPs are treated as their own equipment object, contained within a circuit pack and with their own inventory and status information.

SNCP Ring

See Subnetwork Connection Protection Ring.

SONET

See Synchronous Optical NETwork (SONET).

Southbound Interface

An interface from a higher-level management system to a lower-level management system or a interface from a management system to an NE. For example, a southbound interface interfaces the management system to an NE.

Spanning Tree

A distributed protocol that establishes which set of logical ports in a Spanning Tree Group forward or block traffic. The purpose of this protocol is to prevent loops in an Ethernet network.

Spanning Tree Group

The set of WAN ports that participate in the same spanning tree domain.
In an NE equipped with an Ethernet circuit pack, Spanning Tree Groups employ an automatic routing algorithm in multipoint services to provide redundant paths for broadcasting data while prohibiting traffic over specified cross-connection points to avoid undesirable loops in the network.

SPE

See Synchronous Payload Envelope (SPE).

Spoke Layer 2 Switching

In Ethernet Hub-and-Spoke Services, Spoke Layer 2 Switching means that all of the spokes for specified Ethernet capable link must have the same Layer 2 switching specified.

SRLG

See Shared Risk Link Group.

SRU

See SHDSL Regenerator Unit (SRU).

Standing event

See Persistent Event.

STM-N

See Synchronous Transport Module, Level N (STM-N).

Storage Area Network (SAN)

A storage area network (SAN) is a high-speed, special-purpose network or subnetwork that interconnects different types of data storage devices with associated data servers on behalf of a larger network of users. Typically, a SAN is part of the overall network of computing resources for an enterprise.

Strict

An Ethernet QoS CIR/Policing Profile type in which the CIR is equal to the PIR, which is less than the port speed.

STS-Nc

See Synchronous Transport Signal, Level N, Concatenated (STS-Nc).

STS, STS-N

See Synchronous Transport Signal (STS, STS-N).

Submap

A map view of a selected area that has been defined by the user for their personal use.

Subnetwork

An arbitrary collection of ports into a group. This collection is arbitrary across the NEs within the overall network. Typically subnetworks are defined to include entire NEs, but this is not a requirement. For example, a subnetwork could be defined to include some, but not all, OC-3 ports of a given NE.

Subnetwork Connection Protection Ring (SNCP Ring)

An SDH term for Unidirectional Path Switched Ring. The SDH equivalent of this ring topology is the UPSR ring.

Switched NE

An NE that has the ability to operate in an intelligent network domain. The ports of a switched NE can be controlled by ONNS. 1675 Lambda Unite MultiService Switch (MSS) is the only NE

supported by the management system that is able to operate as a switched NE.

Switched Services

A switched service is one of the Ethernet services in which a series of VCGs are created between contiguous WAN points that are connected in a point-to-point manner on two or more NEs.

Symmetric High-Bitrate Subscriber Loop

Symmetric High-Bitrate Subscriber Loop (SHDSL) is a standardized multirate symmetric DSL from ITU-T. It is designed to transport rate adaptive symmetrical data.

Symptomatic Alarm

An alarm that indicates an actual failure, but is a secondary manifestation of a failure.

Symptomatic Alarm Filtering (SAF)

A management function used to suppress symptomatic alarms from being displayed to the user and from being forwarded to northbound systems.

Synchronous

The essential characteristic of time scales or signals such that their corresponding significant instances occur at precisely the same average rate, generally traceable to a single Stratum-1 source.

Synchronous Digital Hierarchy (SDH)

An international digital telecommunications network hierarchy which standardizes transmission on the STM-1 bit rate of 155.52 megabits per second. Higher frame rates are derived from multiples of STM-1 (Synchronous Transport Module-Level 1). SDH specifies how payload data is framed and transported synchronously across optical fiber transmission links without requiring all the links and nodes to have the same synchronized clock for data transmission and recovery (that is, both the clock frequency and phase are allowed to have variations, or be plesiochronous).

Synchronous Optical NETwork (SONET)

An industry standard for high-speed transmission over optical fiber, which specifies a hierarchy of rates and formats for optical transmission ranging from 51.84 Mbps to 13.271 Gbps. These rates were created to provide the flexibility needed to transport many digital signals with different capacities and to provide a design standard for manufacturers.

The SONET protocol stack consists of the following *four* layers:

- The *photonic layer* is the electrical and optical interface for the transport of information bits across the physical medium. It converts STS-N electrical signals to OC-N optical signals. It performs functions associated with the bit rate, optical-pulse shape, power, and wavelength. It does not use any overhead.
- The *section layer* transports the STS-N frame across the optical cable and establishes frame synchronization and the maintenance signal. Its functions include framing, scrambling, error monitoring, and orderwire communications.

- The *line layer* provides the synchronization, multiplexing, and automatic protection switching (APS) for the path layer. Because it is primarily concerned with the reliable transport of the path layer payload (voice, data, or video) and overhead, it allows automatic switching to another circuit if the quality of the primary circuit drops below a specified threshold. Overhead includes line-error monitoring, maintenance, protection switching, and express orderwire.
- The *path layer* maps services such as DS3, FDDI, and ATM into the SONET payload format. It provides end-to-end communications, signal labeling, path maintenance, and control and is accessible only through terminating equipment. A SONET ADM accesses the path layer overhead; a cross-connect system that performs section and line layer processing does not require access to the path layer overhead.

Synchronous Payload Envelope (SPE)

The combined payload and path overhead of an STS-1, STS-3c, STS-12c or STS-48c signal.

Synchronous Transport Signal (STS, STS-N)

The basic logical building block signal for SONET with a rate of 51.84 Mb/s for an STS-1 signal and a rate of N times 51.84 Mb/s for an STS-N signal.

Synchronous Transport Signal, Level N, Concatenated (STS-Nc)

A concatenated SONET payload signal at the STS-N rate, where N equals 3, 12, or 48. For example, an STS-3c signal is constructed by concatenating three STS-1 signals into a signal that uses a single path overhead, rather than three.

System Backup

The process of making a copy of a management system current configuration, or the backup copy itself.

System Backup Devices

Hardware, such as a CD-ROM or tape drive, that can be used to backup the management system.

System Map

A view of the Network Map that supports observation of the network. This view is typically used by personnel who are monitoring alarms.

System Parameter

An installation parameter; *see* Installation Parameter.

T

Tandem Network Connection (TNC)

A Tandem Network Connection (TNC) is a network connection that is discovered (or, for ONNS MxN Protection, a network connection that is created) by the management system that can be extended to become part of another network connection. TNCs can become end-to-end Controlled Plane connections, or they can become part of a Mixed Plane connection.

Target Identifier (TID)

This term is applicable only for TL1 NEs.
The name of the NE, as provisioned by the CIT during installation of the NE.

TCA

See Threshold Crossing Alert (TCA).

TCP

See Transmission Control Protocol (TCP).

TCP/IP

See Transmission Control Protocol/Internet Protocol (TCP/IP).

TDM

See Time Division Multiplexing.

Terminal Point or Termination Point (TP)

Describes either the origin or the termination of a signal in equipment. Is related to a port.
A PM Measurement Point within Network Elements. At a Termination Point, Error Counters can be collected at specific moments in time. A TP is uniquely identified within its NE by a label.

Threshold

The assignment of a specified value to monitored parameters (for example, Bit Error Rates) that, when exceeded, generate trouble indications.

Threshold Crossing Alert (TCA)

A transient condition message issued by an NE if the value of a performance monitoring (PM) parameter exceeds or falls below a set threshold value. An example of a PM parameter for which a TCA can be issued if the threshold value is exceeded is the Number of Errored Seconds.

Throttled Alarm

This feature is supported only in the SONET version of the management system.
An alarm that was suppressed from presentation to the user and northbound systems because alarm throttling was in effect.

THz

TerraHertz (10^{12} Hz).

TID

See Target Identifier (TID).

Time Division Multiplexing (TDM)

A multiplexing technique whereby two or more channels are derived from a transmission medium by dividing access to the medium into sequential intervals. Each channel has access to the entire bandwidth of the medium during its interval. This implies that one transmitter uses one channel to send several bit streams of information.

TL1

See Transaction Language 1 (TL1), TL1 Command, TL1 Cut-Through, TL1 Network adapter, TL1 Session.

TL1 Command

This term is applicable for only TL1 NEs.
TL1 is the native command set for all the managed NEs.

TL1 Cut-Through

See TL1 Session.

TL1 network adapter

See Network adapter.

TL1 Session

This term is applicable for only TL1 NEs.
Also known as *TL1 cut-through*. A feature that provides access to the operations system of the NE and allows TL1 commands to be issued to the NE from the management system.

TMN

A Telecommunications Management Network (TMN) provides the means to transport and process information related to management of the telecommunication network.

TNA

See TL1 network adapter (TNA).

TNC

See Tandem Network Connection.

Topologies

Four main topologies used by Ethernet Services.

- Point-to-point Ethernet topology
- Hub & spoke Ethernet topology
- Full meshed topology

Traffic Classification

Traffic classification is an Ethernet Ingress function that determines the Class of Service (CoS) based on information in the frame header. The frame header can be based on the 3-bit priority, the VLAN ID, or another value; and, it typically maps the frames into the set of the CoS that is supported on that circuit pack.

Traffic Conditioning

Traffic conditioning is an Ethernet Ingress function that includes values that can be specified for certain parameters such as: PIR, CIR, PBS, or CBS. Traffic conditioning includes the following stages: Metering and marking, Policing, and Counting.

Trail

A transport entity in a server layer responsible for the integrity of transfer of characteristic information from one or more client network layers between server layer access points. It defines the association between access points in the same transport network layer. It is formed by combining a near-end trail termination function, a network connection and a far-end trail-termination function.

Trail Termination

A transport processing function which generates the characteristic information of a layer network and ensures integrity of that characteristic information. The trail termination defines the association between the access point and termination connection point and these points delimit the trail termination.

Transaction Language 1 (TL1)

This term is applicable for only TL1 NEs.
A machine-to-machine communications language that is a subset of the ITU human-machine language.

Transient Event

A notified event that is not persistent, which is characterized by having only a single notification of its occurrence such as when a condition occurs an event is raised but there is no associated clear event. Because transient events are not persistent, they are not retrievable. A TCA is an example of a transient event.

Transmission Control Protocol (TCP)

A reliable protocol that provides connection- and stream-oriented services at the Open Systems Interconnection transport layer. It uses Internet Protocol (IP) to deliver its packets, and guarantees delivery of an ordered stream of data packets.

Transmission Control Protocol/Internet Protocol (TCP/IP)

A suite of networking protocols developed for the Internet that provides communication across interconnected networks, between computers with diverse hardware architectures and various operating systems.

Transparent LAN Service

A Transparent LAN service is a IEEE802.1ad multipoint, packet-based switched service between two or more Ethernet LAN ports or Link Aggregation Groups. This is a type of Ethernet Switched Service.

Transparent Tagging Mode

A mode in which Ethernet packets are switched based on port tags. With port tagging, Ethernet layer 2 switching is done based on the Ethernet port and all Ethernet packets on a given Ethernet port are treated identically.

Transport

Image, in Ethernet management, of a transport link.
Possible Transport Type values of a Network Element are: **PREA 4ETH**, **PREA 1GBE**, **E/FE**, **GE RA**,

ES1, **ES4** or **ES16**.

Transport Entity (TE)

Generic term for Path or Trail in OMS SDH.

Transport Failure

Transport Failure - means that the path is not working end-to-end. The managed domain may not be interested in this alarm if the managed domain is not interested in the end-to-end service. In this case, this alarm can be squelched using an appropriate ASAP.

Transport Incoming Failure

Means that a failure is entering the managed domain. This alarm alone does not indicate if the end-to-end path works or not; it just indicates that a wrong signal is entering. The managed domain may be able to recover from the failure if the path is protected.

Transport Link

A point-to-point infrastructure link that provides a link between two NEs (or between a NE and an ENE). Its end points are Transport Link Terminations. The under-layer type of a transport link could be SDH (Link over SDH), MPLS (Link over MPLS) or cable (Link over cable). The Transport Link can be fully dedicated to Connection Oriented or to Connection Less Management or it can represent the Inter-working link between the two. Point to point connection. Network infrastructure used to build Ethernet service.

Transport Link Termination

The extremity of the transport link. The extremity can be an Ethernet physical port, an ET or , a MPLS termination. The transport link termination plays the role of one NNI interface.

Tributary

The concept that was formerly represented by the term “tributary” in Alcatel-Lucent's earlier optical network management products is called “logical port” in OMS. *Logical port* is defined elsewhere in this glossary.

Tributary Unit

Entity composed of a virtual container to which is added a pointer that indicates the position of the container in the STM-N frame.

U

Uncorrelated Cross Connection

An uncorrelated cross connection occurs when the cross-connection shape that is reported by the NE and the cross-connection shape that is reported by the management system do not agree, or when the cross connection in the NE is not in use by a connection order.

UNI (User Network Interface)

UNI specifies the protocols to interface between a User Network Interface user device and the edge of the ONNS network. UNI defines the Network Interface Type of the port that is used to specify that part of the port that is to be used for UNI connections.

Unidirectional path switched ring (UPSR)

A SONET ring topology that is based on the transmission of duplicate signals and the selection of the best signal at the subnetwork connection termination. The SDH equivalent of this ring topology is the SNCP ring.

Uniform Resource Locator (URL)

An address of a file that is accessible on the Internet.

Unknown NE

An NE that is used only during subnetwork discovery to designate NEs for which OMS has not yet determined the appropriate NE type.

Unmanageable device

A NE that is not displayed on the Network Map and is used to inhibit the NE from being discovered (or re-discovered) via subnetwork discovery.

Unprotected

A protection type for a service network connection or infrastructure network connection in which the traffic is not protected at all, and does not contain any preemptible segments.

UPSR

See Unidirectional Path Switched Ring.

URL

See Uniform Resource Locator (URL).

User Account Status

The current state of a user account. It is controlled by the administrator, and the possible values are: *activate*, *suspend*, *delete*, and *stop session*.

User Identifier (User IDs)

A component of a user account which includes the user login, password, and user role profile.

User Label

Identifies a resource such as a NE, a sub-network, a service node or customer.

User Network Interface

See UNI

User Profile

Identifies the functionalities of the management system to which a user has access. A finite number of predefined user profiles is determined by a fixed set of FADs.

User Role Profile

The set of data that specifies which tasks a user account can perform. Users can only perform tasks that their user role profile allows. The management system supports two types of user role profiles: factory-defined user role profiles and user-defined user role profiles. *See also* Factory-Defined User Role Profile and User-Defined User Role Profile.

User Session

A user login session.

User-Defined User Role Profile

A customized set of data that specifies which task a user account can perform. A user-defined user role profile can be created from the list of tasks available on the User Role Profile page, which can include all tasks that are assigned to a particular factory-defined user role profile or profiles and/or a subset of tasks that is assigned to another factory-defined user role profile or profiles. *Contrast with* Factory-Defined User Role Profile.

V

Value

A number, text string, or other menu selection associated with a parameter.

VCG

See Virtual Concatenation Group (VCG) and Virtual Concatenation Group (VCG) Port.

Virtual Concatenation Group (VCG)

Virtual concatenation is an inverse multiplexing protocol that allows multiple transport containers to be grouped and treated as a single entity that is transported across the network. This entity is referred to as a Virtual Concatenation Group (VCG). A VCG is a group of logical ports that, while they may be routed individually through a network, behave as a single concatenation group for carrying Ethernet packets.

Virtual Concatenation Group (VCG) Port

Ethernet packet switch port associated with a VCG. Also called an *Ethernet WAN port*.

Virtual LAN Service

A Virtual LAN service is a multipoint, packet-based switched service between two or more Ethernet ports. This is a type of Ethernet Switched Service.

Virtual Local Area Network (VLAN)

The IEEE 802.1q packet tagging used for associated sets of devices on multiple physical LANs as members of a common virtual LAN. For example, a group of devices on one or more LANs that communicate as if they were connected to the same wire; although they are physically located on different LAN segments.

Virtual Switch

A grouping of Ethernet LAN ports and Ethernet WAN ports (VCGs) that partitions an Ethernet physical switch into subsets.

Virtual Switch Network (VSN)

A collection of virtual switches interconnected by Ethernet-capable links. A VSN enables the logical partitioning of LAN/WAN port usage for a subnetwork of NEs. One or more VSNs, connected by Ethernet-capable links, becomes the underlying infrastructure for a Ethernet Switched Service Network.

VLAN

See Virtual Local Area Network.

VLAN ID

A tag in the packet header for IEEE 802.1Q tagging mode.

VLAN ID Filtering

VLAN ID filtering is an Ethernet Ingress function that removes frames that do not have the required VLAN ID in the header.

VLAN Management

A way of separating traffic on a LAN. A VLAN ID is used to mark an Ethernet frame with a tag to create user groups on a LAN.

VLAN Model

Two values are supported:

- **Mappings** - The VLAN tag of the frame has to be removed (pop) and added (pus) at UNIs or IWIs.
- **Tunneling** - The VLAN tag is preserved across the network.

VLAN Tag

IEEE 802.1Q defines a VLAN tagged frame as a frame whose header carries both VLAN ID and priority information.

VLAN Type

Identifies the VLAN tag protocol type used to distinguish tagged and untagged frames and to form new VLAN tags using push operations.

VSN

See Virtual Switch Network (VSN).

W

WAN Port

Ethernet packet switch port associated with a VCG.

Wavelength Division Multiplexing

In optical fiber communications, any technique by which two or more optical signals having different wavelengths may be simultaneously transmitted in the same direction over one fiber, and then be separated by wavelength at the distant end.

WDM

See Wavelength Division Multiplexing (WDM).

Wizard

GUI based behaviors enabling the user to manage long and complex network operations. Both "One Shot" behaviors (where also IM is impacted) and Step By Step driven behaviors (where the GUI proposes a sequential set of operations) are generically identified as Wizards.

Wrapping

The technique that enables the most recent entries in a file to replace the oldest when a file is full.

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