

Lucent Technologies
Bell Labs Innovations



Integrated Transport Management SubNetwork Controller (ITM SNC)

User Guide

an InfoWare[®] Product

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Part 1

ITM SNC User Reference

System Introduction

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Background

Introduction

The Integrated Transport Management SubNetwork Controller (ITM SNC) is an element management system that supports various Network Elements (NEs) such as DDM-2000 OC-3, FT-2000 OC-48, SLC-2000®, and OLS in a Synchronous Optical Network (SONET) configuration. SONET standards permit a reliable, flexible, high-speed, self-healing state-of-the-art transmission medium. While SONET is the answer to transmission needs, ITM SNC is the answer to the corresponding operations needs to efficiently manage those NEs.

ITM SNC features

The following list shows some of the ways ITM SNC accomplishes this (see the *System Features* section of this chapter for more details about specific features provided by ITM SNC):

- ITM SNC provides centralized, secure, remote administration of SONET subnetworks. From a single work center, an ITM SNC user can remotely manage SONET NEs. The Lucent Technologies patented Dynamic Network Operations (DNO) process automatically gathers network configuration information from the NEs, providing accurate, hands-off population of the ITM SNC database, and ensuring that the ITM SNC management functions operate using the actual network configuration.
 - It provides fault, performance, configuration, and security management functions via a Graphical User Interface (GUI).
 - It supports such Operations Interworking (OI) features as northbound and southbound operations system (OS)/NE interfaces with ITM SNC acting as the Transaction Language 1 Gateway Network Element (TL1 GNE), an Intra-Office Local Area Network (IAO-LAN) interface as an alternate higher speed communications path to NEs, and Software Management functions for NE version software.
 - It is able to support communication multiplexing or concentration, to provide network security, and to record all database changes.
 - It provides a TL1 cut-through capability, allowing the user to access an NE through a native command set.
-

ITM SNC operations

ITM SNC operates as an enhanced graphical tool and as a general configuration management aid. It provides NE, port, cross-connection, and path provisioning, as well as flow-through from provisioning OSs to NEs. ITM SNC also provides Fault Management through sub-network alarm and event preprocessing prior to sending fault information to a network surveillance system such as the Network Monitoring and Analysis-Facility (NMA-F).

Objectives

This chapter provides background and introductory information about ITM SNC. After learning the material in this chapter, the user should be able to do the following:

- List the features available on the ITM SNC system and briefly describe the purpose of each.
 - Understand the basic concepts of ITM SNC Hardware Architecture and the components therein.
 - Understand the basic concepts of ITM SNC Software Architecture and the main components therein.
-

System Features

Fault management Fault Management monitors alarms and conditions in the subnetwork. ITM SNC receives autonomous alarm messages from NEs when alarm states are set or cleared. These alarm messages are processed and made available to the user, through the GUI, or to other network surveillance systems, such as ITM NM. ITM SNC supports the following Fault Management tasks:

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

Related information

See the 200 series in the *User Tasks* section and [Chapter 3, Fault Management](#) in the *User Reference* section for instructions and information about Fault Management.

Performance management

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

Related information

See the 400 series in the *User Tasks* section and [Chapter 5, Performance Management](#) in the *User Reference* section for instructions and information about Performance Management.

Configuration management

The ITM SNC DNO feature retrieves the internal configurations of NEs and, for Lucent Technologies NEs, external connectivity relationships. This feature enables ITM SNC to discover, without manual intervention, the topology of subnetworks consisting of Lucent Technologies NEs.

ITM SNC provides flow-through provisioning between a network provisioning system, such as Operations System for Intelligent Network Elements (OPS/INE), and NEs. The GUI supports the following Configuration Management tasks:

Network configuration management

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

NE configuration management

- Equipage discovery/update/display
- Equipment provisioning and pre-provisioning
- Cross-connection provisioning/display
- Manual path provisioning
- Automatic path provisioning for certain network topologies

Software management

The Software Management feature enables the user to accomplish generic software upgrades by downloading new software releases to NEs, copying software releases from one NE to another, and installing (or activating) new software versions on the NE. Software management can be initiated either manually via the GUI or through the EMS scheduler.

Related information

See the 300 series in the *User Tasks* section and [Chapter 4, Configuration Management](#) in the *User Reference* section for instructions and information about Configuration Management.

Security management

All users are required to have a login and password to communicate with ITM SNC. Users are assigned by the system administrator to what NEs they can use (Target Groups) and what actions they can perform (Command Groups). So Command and Target Groups can be set up according to the type of task the users are performing, such as maintenance, provisioning, or monitoring.

Release 10.0.1 includes two kinds of security management:

- EMS security management
 - defines EMS users (userid and password)

-
- partitions the network into user-defined Target Groups
 - defines Command Groups
 - assigns EMS user to Target Groups and Command Groups
 - NE security management
 - provides services to manage NE userid and password

See the Table of Contents and the Task Index for where to find more details on logic, password, Command Group, and Target Group administration.

Related information

See the 500 series in the *User Tasks* section and [Chapter 6, Security Management](#) in the *User Reference* section for instructions and information about Security Management.

Log management

Log Management provides services to various system modules, including:

- Writing log messages to database tables
- Retrieving log messages from database tables

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

Related information

See the 700 series of tasks in the *User Tasks* section and [Chapter 8, System Logs](#) in the *User Reference* section for more instructions and information about Log Management.

Enhanced user interface

The ITM SNC Graphical User Interface (GUI) is Java-based, menu-driven software.

Related information

See the 100 series of tasks in the *User Tasks* section and [Chapter 2, The ITM SNC Graphical User Interface](#) in the *User Reference* section for more instructions and information about the User Interface.

Cut-through capability

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

Related information

See tasks 300 through 302 in the *User Tasks* section for instructions on how to perform, build, and broadcast TL1 cut-through commands.

System administration

System Administration of ITM SNC is done through GUI windows and UNIX commands. Key administrative functions include system backup and restore, system start-up and shutdown, definition of user access to NEs and commands, and configuration of data communications and the network model.

Related information

See the 600 series of tasks in the *User Tasks* section and [Chapter 7. Administration](#) in the *User Reference* section for instructions and information about System Administration.

Year 2000 compliance

ITM SNC has been designed to comply with the Year 2000 initiative to ensure correct date presentation and date/time calculation processing for events that occur in the year 2000 and beyond, including data that is received by ITM SNC from the supported NEs.

Hardware Architecture

Overview

ITM SNC hardware architecture consists of three main components:

- HP 9000/800 series server platform and associated peripherals (console, terminals, and printer)
- HP 9000/700 series high-end family workstation
- Windows NT PCs as workstations



NOTE:

For workstations, the HP-VUE display manager is recommended. However, for display managers that are compatible with HP-UX Release 10.x or later, such as the Common Desktop Environment (CDE), or X-terminals running XDM, make sure that the “Allow Parent on Top” option is selected on the workstation’s Style Manager to avoid incorrect display of GUI windows on top of the parent GUI display window.

The HP 9000/800 series platform is the main hardware platform on which most application software is executed. This is referred to as the HOST. The HP 700 series mid-range family workstation is used for running the GUI software, and is referred to as the WS. The Packet-Switched Network (PSN) supports the data communications framework between the NEs and the HOST.

Host platform

The HOST is an HP 9000/800 series server running HP-UX version 10.20. The configuration of the HOST is based on the number of equivalent NEs supported by ITM SNC. The following aspects of the computer will vary based on the number of NEs supported:

- Model of the computer
- Memory
- Disk drives
- SCSI
- X.25 circuit packs

In addition to this list, ITM SNC is always configured with LAN Circuit Pack and Asynchronous Port Circuit Pack (possibly more than one, depending on the number of local ASCII terminals).

The Local Printer is connected to the HOST, and is where the application prints alarms and user-requested reports.

The Local Terminals are ASCII terminals or terminal emulators connected to the HOST. These terminals are used at the local site by users to enter TL1 commands to be sent to the NEs. The responses from the NEs are then displayed on these terminals. This facility allows local users centralized access to NEs.

The Remote Terminals are ASCII terminals or terminal emulators that are located remotely and connected via a network to the HOST. These terminals are used by users for remote access to the TL1 interface on the HOST. The terminals may be off the FEP Remote (using its Packet Assembly/Disassembly [PAD] capability) to take advantage of it already being remote over X.25. As in the case of Local Terminals, users enter TL1 commands to be sent to the NEs. Responses from the NEs are then displayed on these terminals. This facility allows remote users centralized access to NEs.

The following table shows the HOST hardware configurations.

Table 1-1. Host Server Hardware Configuration

| HP000 Hardware | Model K360/ K380 | Model K460/K580 with 4 CPU | Model K460/ K580 with 4 CPUs | Model K580 with 6 CPUs |
|------------------------|-----------------------------|---------------------------------------|---|---------------------------------------|
| Memory | 768 MB | 1024 MB | 1280 MB | 2048 MB |
| Swap Space | 1536 MB | 2048 MB | 2560 MB | 2560 MB |
| Disk Space w/o PM data | 27 GB (3x9GB) | 45 GB (5x9GB) | 54 GB (6x9GB) | 54 GB (6x9GB) |
| Disk Space w/ PM data | 54 GB (6x9GB) | 99GB (11x9GB) | 180GB (20x9GB) | 180GB (20x9GB) |
| RS232 Ports | 16 | 32 | 32 | 32 |
| LAN (100BaseT) | 2 | 3 | 3 | 3 |
| SCSI Controller | 2 | 3 | 4 | 4 |
| System GUI PCs | 20 | 30 | 30 | 30 |

System console

ITM SNC console is connected to the host and is used by a system administrator to enter HP-UX commands. HP-UX and application output is sent to the system console as well.

**Terminals
(optional)****Local Terminals**

The Local Terminals are ASCII terminals or terminal emulators connected to the host. These terminals are used at the local site by users to enter TL1 commands to be sent to the NEs. The responses from the NEs are then displayed on these terminals. This facility allows local users centralized access to NEs.

Remote Terminals

The Remote Terminals are ASCII terminals or terminal emulators that are located remotely and connected via a network to the host. These terminals are used for remote access to the TL1 interface on the host. The terminals may be off the FEP Remote (using its PAD capability) to take advantage of it already being remote over X.25. As in the case of Local Terminals, users enter TL1 commands to be sent to the NEs. Responses from the NEs are then displayed on these terminals. This facility allows remote users centralized access to NEs.

**Remote printers
(optional)**

The host system configuration can support up to four remote parallel printers. These printers print autonomous messages in real time. The host communicates with a remote printer via a Transmission Control Protocol/Internet Protocol (TCP/IP) address over an 802.3 LAN. The protocol conversion from TCP/IP packets to parallel output is performed by a Lantronix® print server. The IP address is associated with the Lantronix print server, which is dedicated to a given parallel printer.

System GUI PC

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

Table 1-2. GUI PC Minimal Hardware Configuration

| | |
|------------------------|-----------------------------------|
| Processor | Pentium/Pentium II |
| Processor Speed | 400 MHz |
| L2 Cache | 512 KB |
| RAM | 256 MB |
| Hard Disk | 4 GB |
| CD-ROM Speed | 24X |
| Floppy Drive | 3.5" |
| Mouse | 2-button Mouse |
| LAN | 10/100 BaseT |
| Video RAM | 8 MB |
| Operating System | WindowsNT 4.0 with Service Pack 4 |
| Monitor Viewable Image | 19" |
| Monitor Resolution | 1,024 x 768 |

Remote printers

The host system configuration can support up to four remote parallel printers. These printers print autonomous messages in real time. The host communicates with a remote printer via a Transmission Control Protocol/Internet Protocol (TCP/IP) address over an 802.3 LAN. The protocol conversion from TCP/IP packets to parallel output is performed by a Lantronix® print server. The IP address is associated with the Lantronix print server, which is dedicated to a given parallel printer.

Software Architecture

Major subsystems Release 10.0.1 software architecture can be divided into the following major subsystems:

- Configuration Management
 - Fault Management
 - NE Event Handler (NEH)
 - EMS Security Management
 - Northbound Management Interface
 - X.25 and TCP/IP protocol layer (CS_NorthBound)
 - OSI and TCP/IP protocol layer
 - TL1 Handler
 - Southbound Management Interface
 - X.25-based protocol layer
 - OSI-based protocol layer
 - TL1 Manager
 - Connection Manager
 - Gateway process
 - Performance Management
 - Software Management
 - Log Management
 - Operation, Administration, and Maintenance
 - TL1-based NE data backup/restore
 - FTAM-based NE data backup/restore
 - Log and trace
 - Scheduler
 - JAVA-based GUI
-

ITM SNC software contains the following components:

NE event handler

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

- Receive non-alarm autonomous messages.
- Distribute the received messages to the user.
- Log by invoking the Log Manager.

The NE Event Handler process is a passive distributor of non-alarm autonomous messages emitted by the NEs. It registers with Southbound for database change messages from TL1 NEs and with Q3 gateway for CMISE NEs. The messages received from CS_SB2 are TL1 message strings as received from the NE, while the CMISE notifications are in MFA structures.

Security management

Security management is performed on ITM SNC by the system Security server. These services support all MFA subsystems.

Communication software launcher

The Communication Software Launcher (CSL) is used as a central access point for all Lucent Technologies communication software products, including this system. In relation to this system, CSL performs the following:

- Administer users. This includes the ability to add/modify/delete a user (login and password only). CSL uses the client programs provided by ITM SNC to perform these operations. Any system-specific security administration, such as Target/Command Groups, is administered locally via the GUI.
 - Provide the ability to launch the GUI whenever needed.
 - Provide the ability to kill the GUI whenever needed.
-

Southbound

The Element Management System Southbound interface contains the required functionality to connect to the NEs, to manage these connections, and to forward and receive the messages between the NEs and the MFA, for all supported communication protocols.

Connection manager process

The Connection Manager (CM) process centralizes the functions of sending, receiving, routing, and processing the connections needed for responses and autonomous messages going in, and coming from, the CMISE and TL1 Southbound subsystems. CM handles the following functions:

- At start-up, load external configurable parameters from a configuration file.
- Create and terminate associations to all NEs.
- Perform association requests in a staggered manner to minimize the impact of the connection processes on the network.
- Implement association recovery mechanisms.
- Receive connection-related indication messages from TL1 and CMISE Southbound subsystems, update association status in memory, and forward notifications to MFA.
- Handle create/modify/delete NEs, store and forward related information.
- Subscribe to notification for NE type incorrect, and send notification to MFA as necessary.

TL1 southbound

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

Log management

Log Management provides logging, browsing, and purging services of other modules in ITM SNC, in order to keep track of information regarding system performance and actions. Log Management consists of three modules:

- Logger—provides one-way services to log messages into a system database.
 - Log Browser—provides services for the GUI to display logged messages.
 - Log Purger—purges old log messages from a database or temporal log files generated by system modules. Retention periods are settable.
-

The ITM SNC Graphical User Interface

2

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Background

Introduction

The ITM SNC Graphical User Interface (GUI) is a Java-based, multilevel windowing environment that provides fault, provisioning, configuration, and security management functions and allows you to graphically monitor the status of the network. The ITM SNC GUI is designed to be an intuitive, consistent, easy-to-use interface. Status bar messages and windows keep you informed of the outcome of an operation. The GUI offers point-and-click, menu-driven operation, as well as a cut-through interface to issue TL1 commands to connected NEs. Several types of online help are available to assist you in performing any task.

The GUI runs on graphical workstations or PCs. Once a GUI session is started, the GUI server can support multiple platform-independent GUI client connections simultaneously.

Objectives

This chapter provides background and introductory information about the ITM SNC GUI. After learning the information in this chapter, the user should be able to do the following:

- Identify the mouse buttons and know how to use them to perform various GUI functions.
 - Obtain and understand their user ID and password, and be able to log into the ITM SNC GUI.
 - Identify, understand, and use the different parts of the ITM SNC Map window, including the main menu bar, the toolbar, the alarm directional button, the subnetwork explorer, and the Map pane.
 - Recognize on the Map window the difference between network elements, aggregates, the Host, trails, and managed/non-managed devices.
 - Display and use the ITM SNC system help documentation.
 - Use GUI lists and tables.
-

Related tasks

For related tasks, see the series 100 (Using the GUI) tasks in the *User Tasks* section or look up individual tasks in the Task Index.

Using the Mouse

Introduction

The mouse is used to move a pointer around the screen. It has three buttons that allow you to select items on the display.

Diagram

The following diagram shows the different mouse buttons, as configured for a right-handed person. To reconfigure the mouse buttons for a left-handed person, consult the mouse and workstation documentation. The mouse for your workstation or PC may only be equipped with two buttons, so consult the hardware documentation.

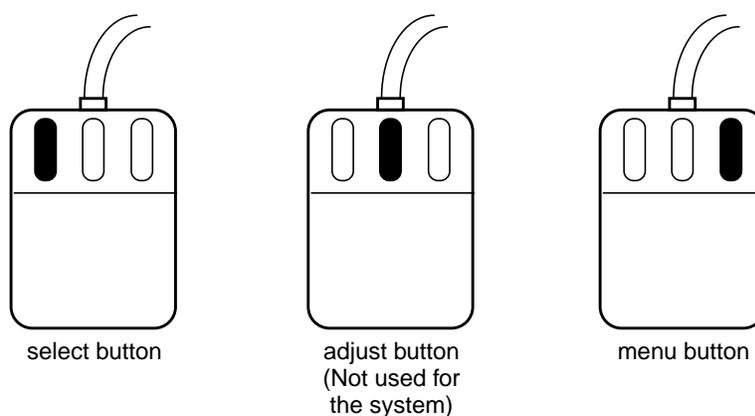


Figure 2-1. Mouse Buttons

Select mouse button

The select mouse button, which is the left-most button on the mouse, is used to select an item in ITM SNC. The terms “click” and “select” are used interchangeably throughout the ITM SNC documentation. Both terms represent the following operations:

- Activating a button, such as OK, Cancel, or Help
- Activating a menu, such as a pull-down menu on the menu bar
- Selecting an item from a menu
- Selecting an NE/aggregate symbol on the Map window
- Selecting an item from a scroll list
- Moving window focus to a text field to type an entry in the field

To do a click or select operation, position the mouse pointer over the desired list item, NE/aggregate icon, button, field, or menu, and double click the select mouse button.

**Menu mouse
button**

The menu mouse button, which is the right-most button on the mouse, is used to bring up (activate) a pop-up menu.

To activate a pop-up menu, position the mouse pointer over the object (like an NE or aggregate icon on the Map pane or Subnetwork Explorer), and single-click the menu mouse button.

Manipulating Fields and Text

Entering text

The following guidelines explain how to enter text in windows that contain text fields:

- Press the **Tab** key to enter text that you have typed in a field. Pressing the **Tab** key in a text field accepts the data in the text field and moves the cursor focus to the next field that accepts input. If the cursor is positioned in the last enterable field on the window, pressing the **Tab** key moves the cursor to the first text field on the window.
 - Use the **Tab** key for field-to-field navigation within a window.
 - Use the **Backspace** key to delete text field input.
 - You can cut and paste text between text fields and/or text areas using the standard cut and paste hot keys for Microsoft Windows and HP-Vue.
-

Logging Into ITM SNC

Introduction

ITM SNC functions and runs on a host machine. To access the system, you must start an “instance” (or session) of the GUI on the ITM SNC host machine.



NOTE:

To start up the ITM SNC GUI, the mouse for your workstation/PC must be connected first.

To start up an instance of the GUI on your workstation/PC, click on the desktop or menu bar icon representing the ITM SNC application. When you click on this icon, a command is sent to the ITM SNC host machine to start up the application.

Click on the same icon/menu item to start up another instance and log into the same host. Click on a separate icon/menu item to start up a GUI instance and log into a different host.



CAUTION:

Once a GUI instance is established for a given host, it is not recommended to run a second GUI instance from the same host.

The ITM SNC Login window is then displayed for logging into ITM SNC.

To log into ITM SNC, you must enter a valid user ID (login) and password that has been supplied to you by your ITM SNC system administrator.

When you log into ITM SNC for the first time with a new user login, you must change your password from the default password given for the login. A pop-up window is displayed, indicating that you must change your password before being allowed to log into ITM SNC. You are given the option of continuing the session or exiting the system at this point. If you choose to continue the login session, the Change Password window is displayed, prompting you to change your password from the default password. The system validates your new password. If it is valid, the system re-displays the Login window to re-enter your user ID and your new password.

Successful login

If the user ID and password that you entered is valid, ITM SNC displays an advisory message, then the Alarm Notification window and Map window are displayed.

Unsuccessful login attempts

If you cannot log into ITM SNC the first time, because you entered an invalid user login or password, the system allows you to retry a certain number of times (as defined by the system administrator) before you are denied access. You must enter a valid user ID (login) and valid password. See the [Valid user ID](#) and [Valid password](#) sections for definitions of a valid user ID and password.

Password expiration

Passwords must be changed after a period of time, as defined by the system administrator. If you attempt to log into ITM SNC with a password that is about to expire, the system informs you of this via a pop-up window and asks if you want to change your password to log into the system immediately. If you choose to change your password at this time, the Change Password window is displayed. If you choose not to change your password at this time, but the password expiration period has not yet been reached, you can continue to log into the system. If the password has expired, and you do not change it, the login session will be terminated.

Related information

See [T 100, Log Into ITM SNC](#) for specific instructions on how to log into ITM SNC.

[T 500, Change Your User Password](#) describes how to change your user password.

[T 514, Globally Provision Login/Password Parameters](#) describes how the system administrator sets up certain aspects of login/password procedures enforced by ITM SNC, such as the password expiration period and the number of login attempts allowed.

Valid user ID

A valid User ID (login) is 1-10 alphanumeric characters in any combination. Special characters (such as ; * & @) are not allowed.

Valid password

A valid password is 6-10 characters. A password must include at least two uppercase and/or two lowercase letters, at least one numeric, and at least one special character (!#\$%^&*()-+_=?). The following special characters are not permitted (;,:).

Alarm notification window

Once you have logged in and the GUI is running, the Alarm Notification window is displayed. The Alarm Notification window displays a running tally of the number of

Critical, Major, Minor (for SONET), or Prompt, Deferred, Informational (for SDH), and Communication alarms on the monitored network. The number displayed below the box for each alarm severity increases by one whenever a new alarm of that severity occurs. You can click on any of the severity type boxes, except for Communications alarms, to display the Alarm List window, filtered for that severity type. The Alarm List window is only displayed if there is one or more active alarms in the selected alarm severity category. Once displayed, the Alarm Tally window remains open during the GUI session. When a new alarm is received by ITM SNC, the Alarm Tally window is brought to the forefront of the GUI display to signal the arrival of the new alarm.

GUI application not running

If the ITM SNC host is successfully contacted, but the application and/or GUI server is not functioning on the host, a pop-up message window is displayed, indicating that the ITM SNC application is not currently running on the host machine.

Multiple GUI instances

If the ITM SNC host machine is successfully contacted, and the application is running, but no more GUI instances can be started by the GUI server, a pop-up warning message window is displayed, informing you that no more GUIs can be connected to the host machine, and to retry later.

Session time-out

When you do perform any action on the GUI for a certain period of time (as defined by the system administrator), a pop-up window is displayed, stating that the GUI session will time-out in 60 seconds and asking if you want to exit ITM SNC at this time. If you choose Yes or make no choice, you are automatically logged out of ITM SNC. If you choose No, the GUI session keeps running and the session time-out clock is reset.

Logging Out of ITM SNC

When you log out of ITM SNC, all open windows associated with the current session are closed and the GUI client/server sessions are terminated.

Changes made during GUI session

If you have made changes during the GUI session to certain settings, such as user-specified preferences for the GUI or NE positions, a pop-up window is displayed, asking if you want to save the settings. Choose Yes if you want to save the settings or No if you do not want to save them.

Related information

See [T 101, Log Out of ITM SNC](#) for specific instructions on how to log out of ITM SNC.

The ITM SNC Map Window

Introduction

After you have logged into ITM SNC, the Map window is displayed. This window provides access to all of the ITM SNC functions and features.

The Map Window

The following figure shows the ITM SNC Map window.

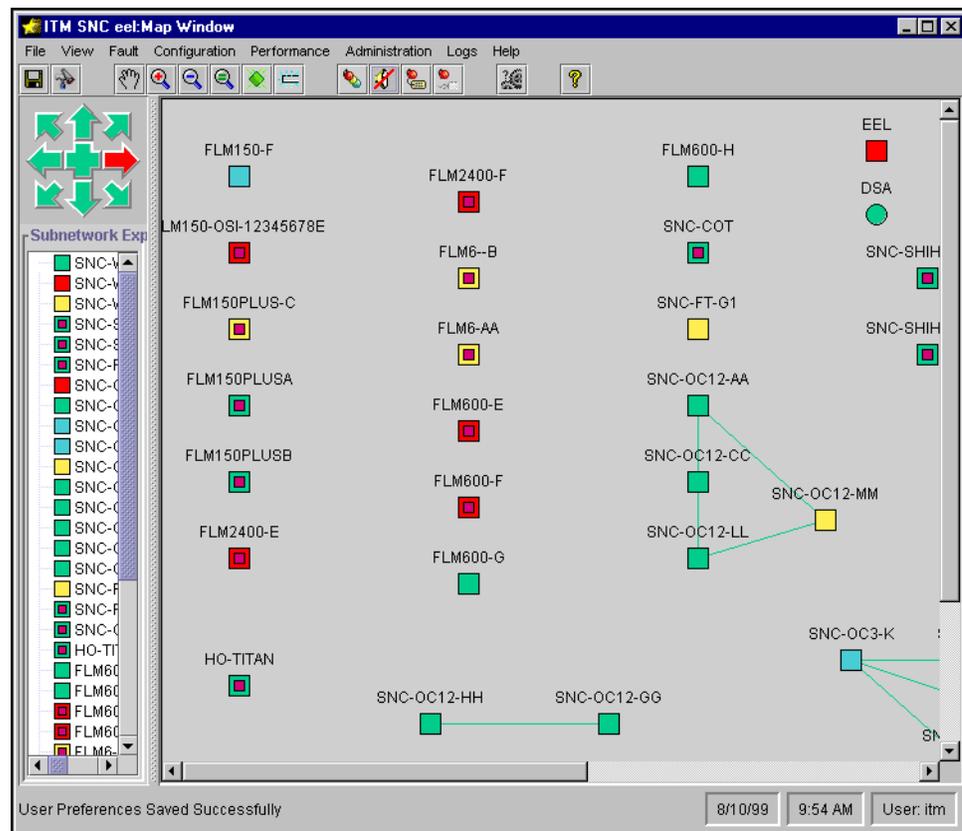


Figure 2-2. The Map Window

Parts of the Map Window

The Map window is divided into several different but interrelated areas. It consists of:

- A main menu bar— located just below the Map window label, it provides access to all the main ITM SNC functions. The main functions are summarized in The Map Window Menu.

-
- A toolbar— a series of buttons just below the main menu bar that control the Map view and provide a shortcut way of accessing some of the ITM SNC functions. For more details, see the Map Window Toolbar section.
 - A status bar—a text bar at the bottom of the window that displays messages related to system activity, the current date/time, and the User ID of the user currently logged in.
 - An Alarm Directional button—an icon used to indicate that an alarm exists in some portion of the Map that is currently not visible.
 - The Subnetwork Explorer—an explorer tree that is used to show a textual list of the aggregates and NEs in a subnetwork, along with the subnetwork's hierarchy. It also shows which aggregates are currently expanded.
 - The Map pane—the portion of the Map window that provides a graphical representation of the network, displaying the NEs, aggregates, and trails between them.

There are three buttons in the upper-right hand corner, in the label portion of the Map window. These buttons are, from left to right:

- the window minimize button
- the window restore button
- the window close button

The Map Window menu

All of the main ITM SNC functions are accessed through the main menu bar on the Map window. When you select a main functional menu (for example, Configuration), this displays an associated drop-down menu, which lists a series of related options for you to select.

The following summarizes each of the main functional menu categories:

- **File**—this menu provides access to a set of options for saving, restoring, and copying user preferences, constructing a TL1 Macro Builder File, printing the network Map, and logging out of ITM SNC.
- **View**—this menu provides access to a set of options for setting Alarm Severity and Alarm Indications, for viewing the Trail Alarm List, for clearing the Map window status line, for viewing the Alarm Tally window, for zooming in/out of the Map view, and for setting user preferences.
- **Fault**—this menu provides access to the set of Fault Management options for monitoring alarms and conditions in the network.
- **Configuration**—this menu provides access to the set of Configuration Management options for viewing and/or modifying Network Element, port, and line parameters.

-
- **Performance**—this menu provides access to the set of options for collecting and viewing Performance Monitoring (PM) data.
 - **Administration**—this menu provides access to the set of options for Security Management and Network Element administration.
 - **Logs**—this menu provides access to the set of options for viewing logs generated by ITM SNC that track network and EMS performance and activity.
 - **Help**—this menu provides access to the set of online Help options.
-

Map Window toolbar

These series of buttons allow you to control the Map view and provide a quick way to access many of the frequently used GUI functions. The toolbar, from left to right, provides a:

- Save Preferences button— details about this function are provided in [T 112, Save Preferences/Map Positions](#).
- Preferences button— details about this function are provided in [T 111, Modify User Preferences](#).
- Map Pan button—this button is used to enable or disable use of the Map Pan feature to reposition the Map view. Single-click on this toolbar button to enable manual “panning” or maneuvering of the Map view in the Map pane. Single-click this toolbar button again to disable Map panning.
- Zoom In button—to zoom into a portion of the Map pane display, position the mouse pointer over this button and single-click the mouse select button.
- Zoom Out button—to display an enlarged view of the portion of the Map pane display, position the mouse pointer over this button and single-click the mouse select button.
- Zoom Reset button—to reset the Map pane view, position the mouse pointer over this button and single-click the mouse select button.
- Add an Aggregate button— details about this function are provided in [T 612, Add an Aggregate](#).
- Clear Message Line button— details about this function are provided in the [Clearing status messages](#) section in this chapter.
- Alarm Severity button—click on this button to change the severity level of new alarms displayed on the Map window. The number of color balls on the toolbar button indicate the type and severity of alarms displayed. You can also change the alarm severity level of displayed alarms using the Preferences function. For details, see [T 111, Modify User Preferences](#).
- Audible Alarms button—details about this function are provided in the [Audible Alarms](#) section in this chapter.

-
- Global Acknowledge button—to acknowledge all active alarms for an NE or aggregate, single-click on this button. A Choose an NE/Aggregate window is displayed. Double-click on the NE or aggregate in the list to select it and click the OK button. All active alarms for the selected NE or aggregate are acknowledged. For more details about this function, refer to [T 206, Acknowledge/Unacknowledge All Alarms for an NE](#) and the [Alarm Indication and Acknowledgement](#) section in [Chapter 3, Fault Management](#).
 - Global Unacknowledge button—to unacknowledge all active alarms for an NE, single-click on this button. A Choose an NE/Aggregate window is displayed. Double-click on the NE or aggregate in the list to select it and click the OK button. All active alarms for the selected NE or aggregate are unacknowledged. For more details about this function, refer to [T 206, Acknowledge/Unacknowledge All Alarms for an NE](#) and the [Alarm Indication and Acknowledgement](#) section in [Chapter 3, Fault Management](#).
 - Status Dialog button—details about this function are provided in Status dialog in this chapter.
 - Help button—more details about this function are provided in Help in this chapter.

To access a toolbar function, position the mouse pointer over the button and single-click the mouse select button.

Alarm Directional button

A monitored network can be larger than can be viewed on the Map pane at any one time and alarms can occur on network objects that are not currently being displayed. The Alarm Directional button, which is located in the left-hand portion of the Map window, above the Subnetwork Explorer, shows the relative location and highest severity alarm of the area not visible. When an alarm exists, an arrow point is lit with the color of the alarm level, showing the direction to go on the Map pane to view the Map item in an alarm state.

The Subnetwork Explorer

The Subnetwork Explorer, located in the left-hand portion of the Map window, is a tree diagram that shows the content and hierarchical relationship of aggregates and NEs in the portion of the network currently being viewed on the Map pane.

If part of the Explorer view is obscured, use the scroll bars below and to the right of the Explorer to obtain a more complete view of the NE/aggregate display.

Element Labels

NEs and aggregates are labeled by their Target Identifier (TID), by default. The label format can be changed through the Preferences option from the View menu on the Map window menu bar.

Selecting an item

To select an item on the Subnetwork Explorer, position the mouse pointer in the item and click the mouse select button. The selected item is highlighted.

Expanding/collapsing an item

To expand an item (such as an aggregate) in the Subnetwork Explorer, single-click on the plus (“+”) sign next to the item.

To collapse the item, single-click on the minus (“-”) sign next to the expanded item.

Pop-up menus

A pop-up menu of ITM SNC functions for the NE or aggregate can be accessed by positioning the mouse pointer and clicking the menu mouse button.

Map Pane display

Any change on the Subnetwork Explorer, such as expansion or contraction of an aggregate, causes a corresponding change in the network display on the Map pane.

Related tasks

[T 102, Select an Item in the Subnetwork Explorer](#) explains how to select an item in the Subnetwork Explorer portion of the Map window.

[T 103, Expand or Collapse an Item in the Subnetwork Explorer](#) explains how to expand or collapse an item (such as an aggregate) in the Subnetwork Explorer portion of the Map window.

The Map pane

The Map pane displays a graphical representation of the network automatically when you log into ITM SNC and the Map window is brought up.

Map pane preferences

The system defaults for different characteristics of the Map pane display, such as NE symbol sizes, shapes, alarm colors, and NE/aggregate labels, can be changed through the Preferences option on the View menu. See [Map preferences](#) for more information on changing characteristics of the Map pane display.

Network elements

Each square on the Map pane represents an NE in your Target Group. A square is the default shape for NEs. The shape used to represent NEs can be changed through the Shapes panel on the Preferences window.

Aggregates

The diamond-shaped symbols on the Map pane represent aggregates. The diamond shape is the default for aggregates; this can be changed through the Shapes panel of the Preferences window. Aggregates are collections of NEs that do not necessarily correspond to any physical connectivity or other NE attributes. An aggregate can consist of a group of related NEs, such as a subnetwork, or a group of colocated NEs that are not necessarily in the same subnetwork. An aggregate can be moved under another parent aggregate on the Map pane or Subnetwork Explorer by selecting it and then dragging it to the parent aggregate symbol.

Non-managed devices

A non-managed device is an NE or other telecommunications entity that is part of the network of NEs that communicate with ITM SNC but is not managed by the system. These NE types are treated as “non-managed devices” and appear on the Map pane display as circles (the default shape) about the same size as the squares that represent managed NEs.

Non-managed devices that are discovered are added to the ITM SNC database to complete the network map and to avoid retries by ITM SNC to log into a non-managed device.

Certain non-managed devices can only be manually added using the Add an NE window on the GUI, specifying it as a non-managed device, when ITM SNC is not communicating with the NE. You can also change the NE type to a non-managed device through the Modify an NE window. Once a non-managed device has been added, ITM SNC does not attempt to log into it.

EMS alarm icon

The Map window pane contains an additional square-shaped icon, labeled with the ITM SNC host name, that displays the highest severity alarm present on the host. Although this icon looks similar to the NE symbols, it cannot be included in an aggregate or have trails connected to it.

The EMS Alarm icon receives alarms from various application processes and monitors the communication links between the ITM SNC host and the NEs. It indicates, for example, whether a file system has exceeded capacity, whether there are remote printer problems, or whether the UNIX message queues are getting full. The icon is shown with the machine name of the host that is running the EMS application.

Like NEs and aggregates, colors are used on the EMS Alarm icon to show the current state of the application or its communications links. The default colors are the same as for NEs (see the [Alarms](#) section). The icon shows the current highest severity alarm for the application. Alarm clearing methods used for NEs and aggregates also apply to the EMS application alarms.

Alarms

The color of a map item symbol or trail indicates the level of the most severe active alarm. The default alarm colors for the Map pane display are:

| Alarm Color | Alarm Severity Level |
|-------------|------------------------|
| Red | Critical |
| Yellow | Major |
| Cyan | Minor |
| Gray | Throttled |
| Green | No Active Alarms |
| Magenta | Loss of Communications |

The center of an NE symbol may show a different color than the border of an NE/aggregate symbol. The center of the NE symbol shows the level of the highest severity alarm. Communication alarms are always top priority and always color the center of the NE symbol. If alarms are being throttled for an NE, the throttled alarm color (gray) is always shown in the center of the symbol, with the last known severity alarm color in the border. If automatic alarm throttling is enabled, the alarm throttling color is not displayed until the alarm throttling threshold has been passed.

Alarm display colors can be modified through the Preferences option of the View menu on the Map window main menu bar. For more details, see [T 111, Modify User Preferences](#).

A flashing (blinking) NE or aggregate symbol indicates that there are one or more unacknowledged alarms against that NE or aggregate. See the Alarm Acknowledgement section in Chapter 3 of this document for more details about alarm acknowledgement/unacknowledgement.

Audible alarms

A speaker-shaped symbol in the middle of the toolbar on the Map window indicates whether the Audible Alarm feature is enabled or disabled. This symbol has a slash through it if the Audible Alarm feature is disabled. To enable the Audible Alarms feature, click on the symbol. The slash is removed from the symbol. To disable the Audible Alarm feature, click on the symbol again. A slash appears on the speaker-shaped symbol.

When the Audible Alarm feature is enabled, an audible sound is triggered each time a new alarm occurs on the network. Once triggered, the audible alarm will sound for a short time and then repeat until the alarm is cleared or it is silenced through the GUI. The sound characteristics of the audible alarm correspond to the

most severe prevailing alarm condition (Critical, Major, Minor). The alarm sound interval can be changed by the ITM SNC system administrator. See the Audible Alarms section in Chapter 3 of this document for more details about the Audible Alarms feature.

Selecting NEs and aggregates

To select a single NE or aggregate on the Map pane, position the mouse pointer over the NE or aggregate icon and click the select mouse button.

To select a group of NEs or aggregates on the Map pane:

1. Position the mouse pointer over a portion of the background adjacent to the items to be selected.
2. Click the mouse select button and drag the mouse pointer. As you drag the mouse pointer, an outlined box appears over the selected area. As items in the Map pane are selected, they change color. Release the mouse select button. The items are selected.

To deselect a selected item in the Map pane, position the mouse pointer over the item and single-click the mouse select button. To deselect a group of items, position the mouse pointer within the boxed region and single-click the mouse select button. Any item in the box that is already selected becomes deselected.

Pop-up menus

A pop-up menu of ITM SNC functions for the NE or aggregate can be accessed by positioning the mouse pointer on the Map pane icon and clicking the menu mouse button.

Moving NEs and aggregates

To move a single NE or aggregate on the Map pane:

1. Position the mouse pointer over the icon you want to move.
2. Press and hold the select mouse button.
3. Drag the icon to the new position.
4. Release the select mouse button.

To move a group of NEs or aggregates on the Map pane:

1. Select a group of NEs or aggregates by positioning the mouse pointer in an area of the background adjacent to the items, clicking the select mouse button and dragging the mouse pointer (a faint dashed box appears) to surround the items, and release the mouse select button.
2. Position the mouse pointer over one of the chosen icons. Press and hold the select mouse button.

-
3. Drag the icons to the new position.
 4. Release the select mouse button.

Expanding and collapsing aggregates

To expand an aggregate and show its member NEs on the Map pane, position the mouse pointer over the aggregate symbol and click the select (left) mouse button to select the aggregate. Then, click the right (menu) mouse button. A pop-up menu is displayed. Choose **Expand** from the displayed pop-up menu. The aggregate is expanded to show the member NEs on the Map pane.

To collapse the expanded aggregate, select one of the member NEs and double-click on it. The aggregate is collapsed and the aggregate symbol replaces the member NEs on the Map pane display.

Moving an NE to the TOP aggregate level

To move an NE out of an aggregate to the TOP level (which includes all NEs), make sure the aggregate is expanded and then select the NE. Once the NE is selected, click the right (menu) mouse button to display a pop-up menu. Choose **Return to TOP**. The NE is brought to the TOP aggregate level and is taken out of the aggregate.

Zooming the map view

The GUI allows you to zoom into (enlarge) a portion of the network on the Map pane to focus on a few NEs or aggregates, or zoom out of the Map pane to show more of the network. The Zoom functions are available through the View menu on the Map window main menu bar.

See [T 108, Zoom the Map View](#) for specific instructions on zooming the Map view.

Related Tasks

[T 104, Select an Item on the Map Pane](#) explains how to select a single item or group of items on the Map pane portion of the Map window.

[T 105, Move an Item on the Map Pane](#) explains how to move a single item or group of items on the Map pane portion of the Map window.

[T 106, Expand or Collapse an Aggregate on the Map Pane](#) explains how to expand or collapse an aggregate on the Map pane portion of the Map window.

[T 107, Move an NE to the TOP Aggregate Level](#) explains how to move an NE out of an aggregate to the TOP aggregate level in the Map window.

[T 108, Zoom the Map View](#) explains how to zoom the Map pane view in or out on the Map window.

Finding a network element

ITM SNC assists you in locating an NE on the Map window if you cannot find it on the Map pane display or Subnetwork Explorer.

To find an NE:

1. Select **View** from the main menu bar on the Map window. A sub-menu is displayed.
2. Select **Find an NE** from the displayed sub-menu. The Find an NE window is displayed.
3. Enter the TID and/or alias of the NE. An asterisk (“*”) can be used in either field as a wildcard character to represent 0 or more characters of the missing name/label.
4. Click the OK or Apply button.

The Map pane display is repositioned to show the NE and the NE is selected in the Map pane and Subnetwork Explorer. If more than one match is found, the item which is found first is indicated in the Subnetwork Explorer portion of the Map pane. If the NE is contained in an unexpanded aggregate, the aggregate is expanded and the NE is highlighted in the Map pane.

Related task

[T 109, Find a Network Element](#) explains how to use the Find an NE function as a shortcut way of locating NEs on the Map window.

Clearing status messages

Status messages that are displayed in the status bar on the Map window can be cleared at any time.

To clear the status bar message display, select **View** from the main menu bar on the Map window and then select **Clear Status Line** from the View menu. The message area in the status bar is cleared. The Status line can also be cleared by using the Clear Status Bar button on the Map window toolbar.

Related task

[T 110, Clear Status Messages](#) explains how to clear status messages from the status bar portion of the Map window.

Map preferences

There are system defaults for how Map items are displayed. ITM SNC allows you to change certain characteristics of the Map pane display, such as NE size, NE labels, and alarm colors, to suit your own needs. The appearance of Map items on

the Map pane can be changed through the Preferences option on the View menu. Preferences are stored on a per-user basis.

The Map Preferences window can be accessed through the View options menu on the main menu bar of the Map window or by clicking the Map Preferences button on the Map window toolbar.

[T 103, Expand or Collapse an Item in the Subnetwork Explorer](#) explains how to change user preferences for the Map window display.

The Preferences window has six categories:

| | |
|---------------|--|
| Nodes & Lines | Allows you to choose NE size and thickness of trail lines between NEs |
| Labels | Allows you to choose the size, content, and alignment of Map item labels and selection of TIRKS numbering format for FT-2000 ADR tributaries and OC-12 circuit packs on Cross-Connection, Port Provisioning, Equipment, and Path Management windows |
| Colors | Allows you to choose colors associated with alarms and cross-connections |
| Shapes | Allows you to choose the shapes used for Map items |
| Fault | Allows you to set preferences associated with how alarms are displayed in the Map and Alarm Tally windows. You can select the severity level of alarms displayed and the definition of alarm levels as Critical/Major/Minor (SONET) or Prompt/Deferred/Informational (SDH). |
| Other | Allows you to turn tooltips on and off, to set the date format for items in the Map, alarm lists, and tallies to mm-dd-yyyy or dd-mm-yyyy format, and to set the display of Bidirectional Line Switched Ring (BLSR) Protected Port Groups on the Cross-Connect View window to be singly or in pairs (Note: the BLSR display option is currently not supported). |

Saving and restoring user preferences

Your chosen preferences for the Map pane display can be saved or restored for each time you log into ITM SNC and bring up the Map window.

[T 112, Save Preferences/Map Positions](#) explains how to save user preferences.

[T 113, Restore Preferences/Map Positions](#) explains how to restore previously saved user preferences.

Copying user preferences

Map display preferences can be copied from another user.

[T 114, Copy Preferences/Map Positions](#) describes how to copy user preferences and/or Map positions from another user.

Restoring defaults for the Map display

System defaults for the Map window display can be restored from the View Preferences window by clicking the Get Default button in the window and then applying them to the current GUI session or saving them. See [T 111, Modify User Preferences](#) for complete instructions on setting user preferences for the Map display.

Related Information

[T 111, Modify User Preferences](#) provides instructions on how to view and modify user preferences for the Map window.

Saving the Map view

ITM SNC allows you to save the positions of NEs and aggregates on the Map pane and/or user preferences for characteristics of the Map display, such as node size, labels, line size, and alarm colors. You can also restore previously saved settings or copy settings from another user. Map positions and preferences are saved on a per-user basis.

[T 112, Save Preferences/Map Positions](#) describes how to save user preferences and/or Map positions.



NOTE:

User preferences can also be saved directly from the Preferences window by clicking the Save button in the window. See [T 111, Modify User Preferences](#) for complete instructions on setting user preferences for the Map display.

[T 113, Restore Preferences/Map Positions](#) describes how to restore previously saved user preferences and/or Map positions.

Status dialog

ITM SNC provides a Status Dialog window, which allows you to check on the status of on-demand functions you requested to be performed by the system, such as a manual DNO on an NE or manual addition of an NE. The status dialog window is also displayed after the completion of certain GUI functions.

The Status Dialog window can be accessed at any time, by clicking the Status Dialog toolbar button on the Map window toolbar, or by selecting **View** from the

main menu bar on the Map window, and then selecting **Status Window** from the View sub-menu.

The following figure shows an example of the Status Dialog window.

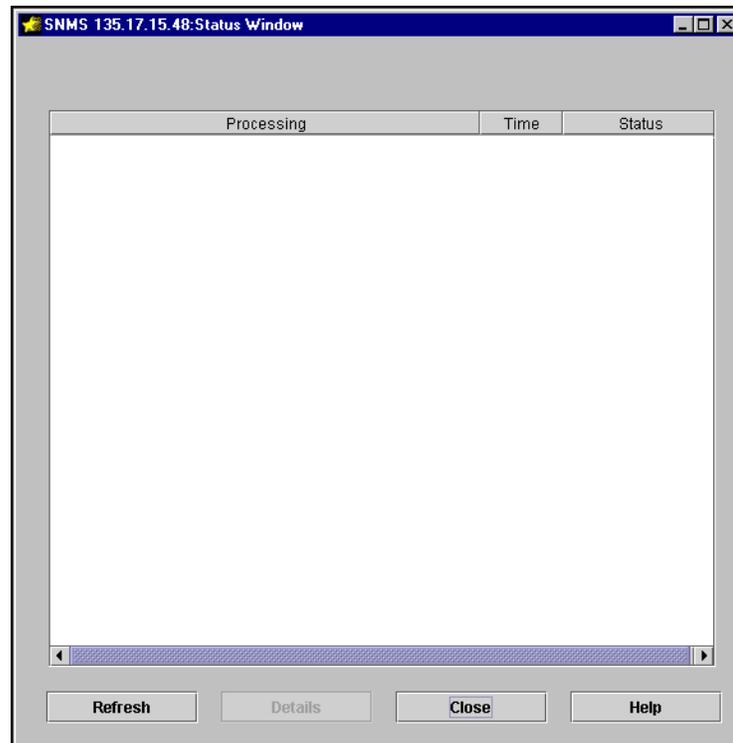


Figure 2-3. Example of Status Dialog Window

The Status Dialog window is a single table with three columns:

- Processing—this column contains a text string which describes the function that is being performed.
- Time—this column indicates the host time, in hours/minutes, that the function was requested.
- Status—this column indicates the status of the requested function. The status of a function is labeled as shown in the following table:

| Status | Meaning |
|---------------|--|
| Working | The function is still in progress. |
| Completed | The function has completed successfully. If it is a multi-step function, such as a backup or restore, the percentage of the function completed successfully is shown. Example: 25% |
| Incomplete | The function is still in the process of being completed, or the function did not complete due to non-communicating NE or another problem. |
| Failed | The function did not complete successfully due to some problem or error. |
| Aborted | The function was aborted by the user. |

Items on the Status Dialog window are shown in the order requested, with the most recent function requested shown at the top of the list. Successfully completed items are removed from the list when you click the Close or Refresh button on the window.

Functions in ITM SNC can be performed on a single NE or a group of NEs, including aggregates. To view the status of a function being performed on a group of NEs, double-click on the row in the Status Dialog window table that refers to the aggregate or group of NEs. A second window is displayed, which shows the status of operations for individual NEs in the aggregate or group.

Help

ITM SNC provides various types of online information to assist you in using the system's functions and features. The types of help available are

- Tooltips help
- Window help
- Online documentation
- Product information

Tooltips help

Tooltips help assists you in identifying a toolbar button on the Map window toolbar, the function of a window button, or the alias and NE type of a network element on the Map window pane.

To identify a toolbar button, window button, or network element, position the mouse button on the item. The item is identified either by a message in the status bar or a message callout to the right of the item.

Tooltip help can be enabled or disabled through the Preferences option accessible through either the Map window toolbar or through the **View** option on the main menu. See [T 111, Modify User Preferences](#) for instructions on how to enable/disable tooltip help.

Window help

Window help provides specific information about the window's purpose or function. A window help screen also provides hyperlinks to the various levels of reference help available, where you can obtain help by selecting a topic, scan an index of tasks that can be performed using ITM SNC, or do a keyword search for the information or topic.

Window help is accessed by clicking the Help button on any functional window in ITM SNC.

Online documentation

A complete version of the *User Guide* is available to view online through Adobe Acrobat Reader.

The online version of the *User Guide* is accessed by selecting **Help** from the main menu bar on the Map window and then selecting **User Guide** from the Help sub-menu.

Product information

General information about ITM SNC, including the full product name, copyright information, the product release number, and other related information is available at any time from a pop-up window that is accessed by selecting **Help** from the main menu bar on the Map window and then selecting **About the EMS** from the Help sub-menu.

To close the Product Information window, click the OK button.

Network Element Explorer

Introduction

The Network Element Explorer is a tool displayed on the Port Provisioning, Cross-Connections, and Equipment Configuration windows that provides a graphical, step-down, hierarchical view of the equipment to be provisioned. The Network Element Explorer consists of a tree diagram that shows the configurable hardware components that comprise the Network Element, and the relationship between each hardware component.

Using the Network Element Explorer

The purpose of the Network Element Explorer is to graphically display the desired hardware component and then select it for provisioning purposes.

Equipment hierarchy

The following simple diagram shows the possible equipment levels that can be displayed and configured on the Network Element Explorer.

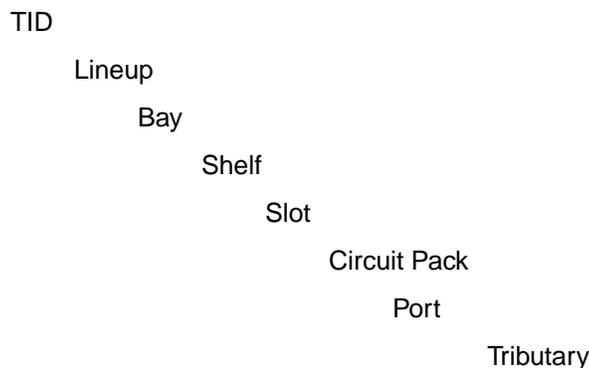


Figure 2-4. Equipment Hierarchy on Network Element Explorer

The content and relationship of equipment shown on the Network Element Explorer varies by NE type. Not every NE contains every level of the hierarchy. Generally, access to a shelf provides access to circuit packs that exist on the shelf. Ports exist on circuit packs, which are placed in slots. Slots are in shelves, shelves are in bays, and bays are in NEs.

Selecting an item

To select an equipment component on the Network Element Explorer, position the mouse pointer on the equipment component and click the mouse select button. The selected item is highlighted.

**Expanding/
collapsing an
equipment
component level**

There are two ways of expanding or collapsing an equipment component level on the Network Element Explorer:

1. A select mouse button click on the plus (“+”) or minus (“-”) sign causes the branch associated with the component level to expand (“+”) or collapse (“-”).
2. A double-click on any equipment level selects it and expands to show the component parts. For example, if you double-click on a shelf in the explorer, the diagram expands to show the associated slots, by number.

**Equipment view
display**

Any change on the Network Element Explorer, such as expansion or collapse of the equipment level, causes a corresponding change on the Equipment View window.

Window Buttons

Types of window buttons

All of the windows in ITM SNC from which you perform a function have standard buttons that work the same way regardless of the function.

The following table lists the standard window buttons and their functions on windows.

Table 2-1. Standard Window Buttons

| Button | Function |
|--------|--|
| OK | Accepts input on the window, validates the input, initiates the requested operation, and closes the window. |
| Apply | Accepts input on the window, validates the input, initiates the requested operation, but leaves the window open. |
| Cancel | Cancels the operation and dismisses the window. Any insertions or changes made during the use of the window are not saved. |
| Help | Accesses online help for information about a particular window, function, feature, or task. |
| Close | Closes the window without performing an operation. |

Greyed-out buttons

If a button is greyed out (dimmed) on a window, it means that a function is not available. In some cases, an item has to be selected or specified on the window before the dimmed button is activated.

Exclusive choice buttons

Exclusive choice buttons in ITM SNC let you choose one item or setting from a list of two or more settings. When you change an exclusive choice setting, the previous setting is automatically deactivated.

Exclusive choice buttons are also called “radio buttons” because they work like car radio preset buttons that let you change stations with the press of a button.

To change an exclusive choice setting, click the mouse select button with the pointer positioned on the button. Your choice is activated when the button is darkened.

Example: exclusive choice buttons

The following figure shows a window where one of the exclusive choices (radio buttons) has been selected.

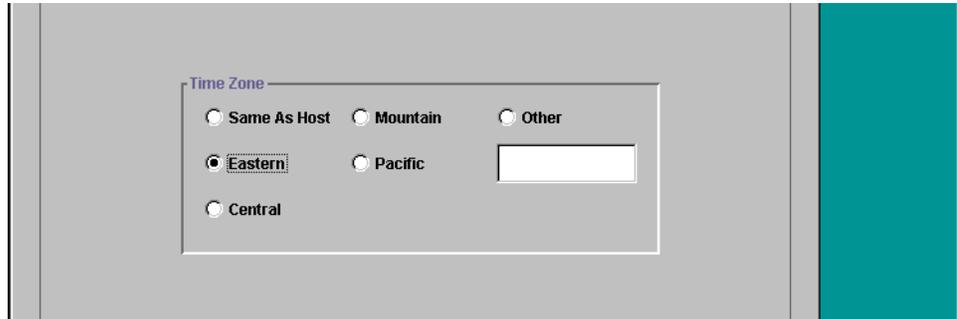


Figure 2-5. Example of Exclusive Choice Button Selection

Push buttons

Some of the function windows in ITM SNC have push buttons that are used to transfer one or more items (such as NEs) between lists on the window.

The following table shows each push button label, its name, and its purpose.

Table 2-2. Push Buttons on List Windows

| Push Button Label | Push Button Name | Purpose |
|--------------------------|-------------------------|--|
| > | Push Right | When this button is clicked, the selected item is transferred to the list on the right and removed from the list on the left. |
| >> | Push All Right | When this button is clicked, all items on the corresponding list on the left are transferred to the corresponding list on the right. |
| < | Push Left | When this button is clicked, the selected item is transferred to the list on the left and removed from the list on the right. |
| << | Push All Left | When this button is clicked, all the items on the corresponding list on the right are transferred to the corresponding list on the left. |

Example: push buttons

The following figure shows a sample window where push buttons are used to transfer items between lists.

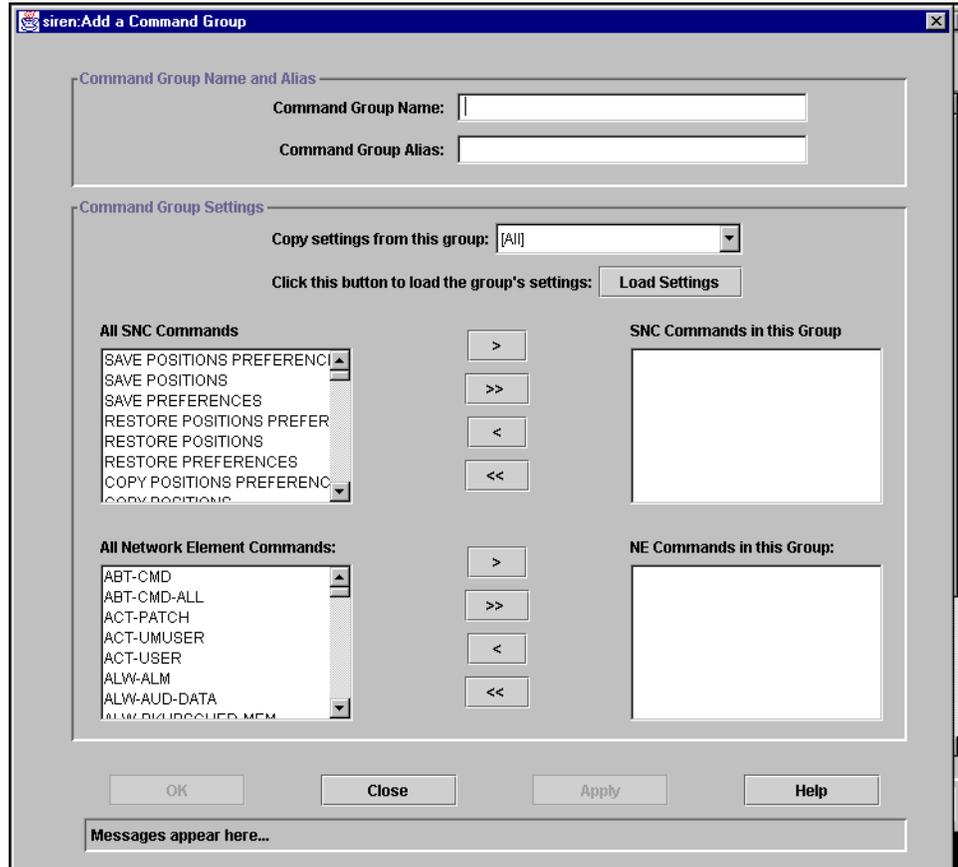


Figure 2-6. Example of Push Buttons on Window

Using Lists

Introduction

A majority of the ITM SNC functions are performed by picking a function to perform (for example, NE restore) and then selecting the item (such as a specific NE) on which to perform the function, from a list of similar items.

To select an item from a list, position the mouse pointer over the item(s) and click the select mouse button. The selected item(s) is highlighted. On some lists, it may be necessary to double-click the select mouse button to select the item and perform the operation.

ITM SNC provides different methods of locating items on lists to narrow the search to only the item(s) you want. These methods are:

- Scrollable lists
 - A filtering/sorting function
 - A type ahead field
-

Scrollable lists

When a window in ITM SNC cannot display all of the information available to you, the information is presented in a scrollable list. The information that you cannot see is available by paging through the scrollable list.

Example: scrollable list window

The following figure shows an example of a scrollable list window in ITM SNC.

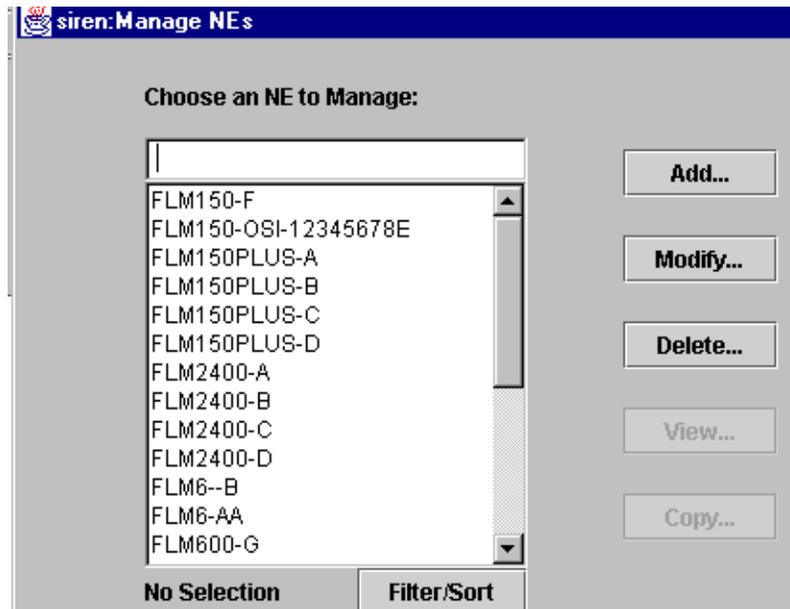


Figure 2-7. Example of a Scrollable List

Using a scrollable list

The vertical bar on the right side of the window is the scroll bar. The scroll bar consists of an up-arrow, a down-arrow, and an elevator box between the two arrows. The scroll bar on the window works as follows:

| To: | Do this: |
|---------------------------|---|
| Display the next page | Put the mouse pointer under the elevator box and click the mouse select button. |
| Display the next line | Put the mouse pointer on the down-arrow and click the mouse select button. |
| Display the previous page | Put the mouse pointer above the elevator box and click the mouse select button. |

| To: | Do this: |
|--------------------------------|---|
| Display the previous line | Put the mouse pointer on the up-arrow and click the mouse select button. |
| Display the bottom of the list | Put the mouse pointer on the elevator box, hold down the mouse select button, move the mouse downward (dragging the elevator box to the bottom of the scroll bar), and release the mouse select button. |
| Display the top of the list | Put the mouse pointer on the elevator box, hold down the mouse select button, drag the elevator box to the top of the scroll bar, and release the mouse select button. |

You can select a single item from a scrollable list by positioning the mouse pointer over the item and clicking the mouse select button. This causes the item to become highlighted and indicates your selection.

Filtering and sorting items

ITM SNC has a filter/sort function to further narrow a list to only the item(s) you want. This function allows you to:

- Narrow a list by filtering out all items on the list that do not match all or part of the filename, NE/aggregate name, TID, or alias you supply.
- Sort a list by placing the items in ascending or descending order.

ITM SNC allows you to filter and/or sort the list. Many of the scrollable list windows in ITM SNC provide this function.

Example: filter/sort function

The following figure shows an example of a scrollable list window with the filter/sort function.

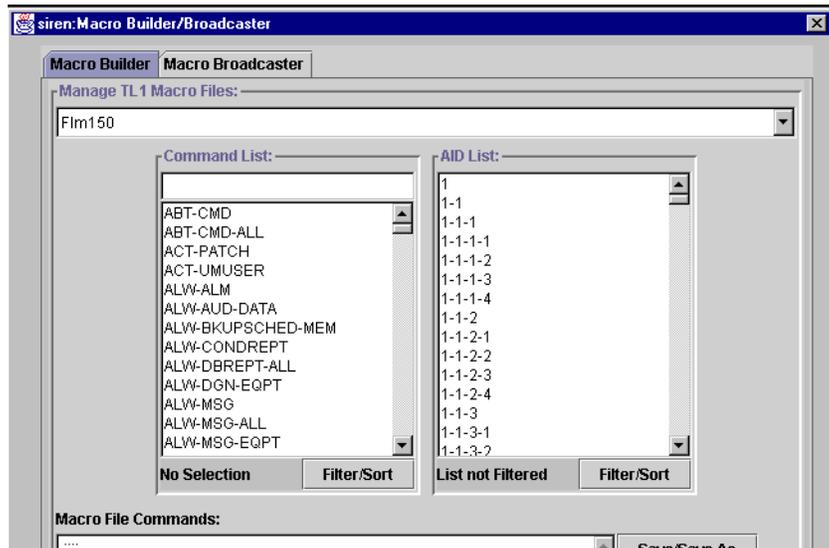


Figure 2-8. Example of Scrollable List Window with Filter/Sort Function

When you click the Filter/Sort button on a list window, a Filter and Sort Options window is displayed to allow you to filter and/or sort the list according to the criteria you specify.

Filter/sort window

The following figure shows a sample Filter and Sort Options window.

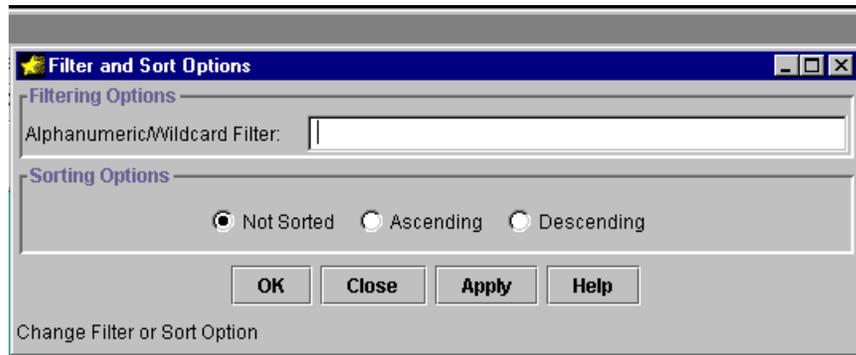


Figure 2-9. Example of Filter/Sort Window

You would fill in the following fields as needed:

-
- **Alphanumeric/Wildcard Filter**—This is a text field for entering all or part of the name/label to narrow the list to only those items that match these criteria. An asterisk (*) can be used as a wildcard character to match one or more characters in the name or label. Use the Backspace key to erase what you have entered in this field.
 - **Sorting Option buttons**—These exclusive choice buttons are used to determine the sort order of the list. Click on the Ascending button to display the list in ascending order. Click on the Descending button to display the list in descending order. Click on the Not Sorted button to leave the list as it is. Lists are displayed in ascending order, by default.
 - **OK**—After making your filtering/sorting choices, click on the OK button to apply your criteria to the list and close the Filter/Sort window.
 - **Close**—Click on this button to close the window without applying any filtering/sort criteria to the list.
 - **Apply**—After making your filtering/sorting choices, click the Apply button to apply your criteria to the list and leave the Filter and Sort Options window open.
 - **Help**—Click on the Help button to obtain online help for the Filter and Sort Options window.
-

Type ahead field

Many of the list windows have a “type ahead” field. This is a text field which is usually located above the first item in the list. As you start to type the item name or label in this field, the system automatically selects an item from the list that matches what you have typed. An asterisk (*) can be used in the type ahead field as a wildcard character to match one or more characters of the item name or label. You can also enter the entire name of the item in the type ahead field to expedite the search and selection of an item on the list.

If you select an item from the list, the name of the item appears in the type ahead field.

The status bar on the list window indicates whether the list has also been filtered.

Example: type ahead list

The following figure shows an example of a list where the type ahead field has been used to expedite the search for an item on the list.

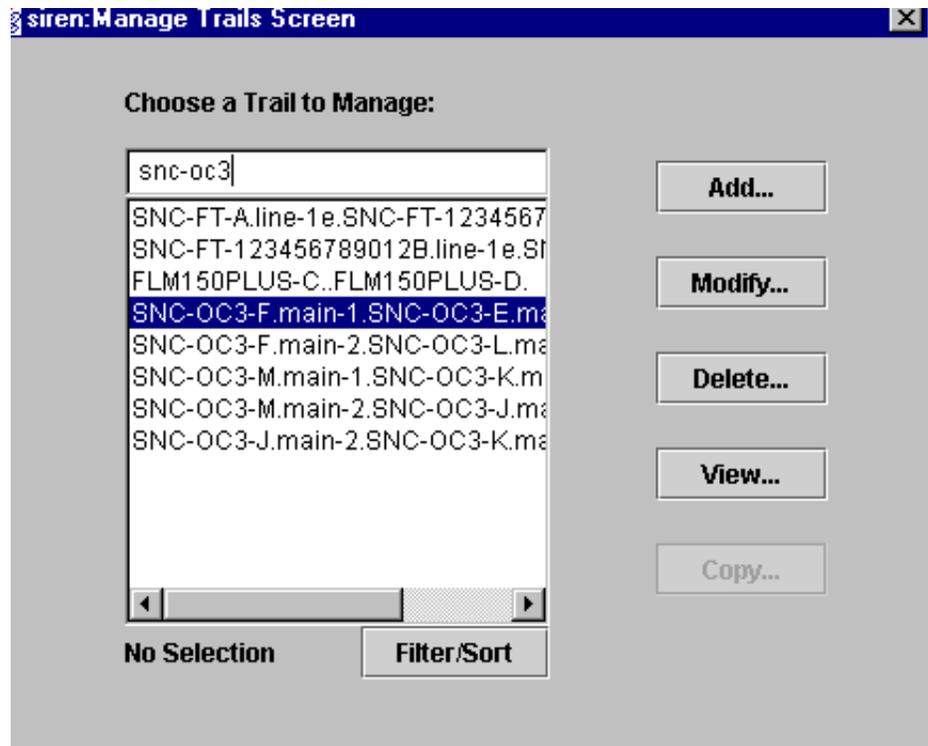


Figure 2-10. Example of Type Ahead List

Sorting Tables

Introduction

Some of the data that ITM SNC retrieves from its managed NEs, such as alarm data, is displayed in multi-column tables. Data is displayed in table format on many windows, including the:

- Alarm Summary
- Trail Alarm Summary
- Alarm List
- Trail Alarm List
- Scheduled Activity Lists

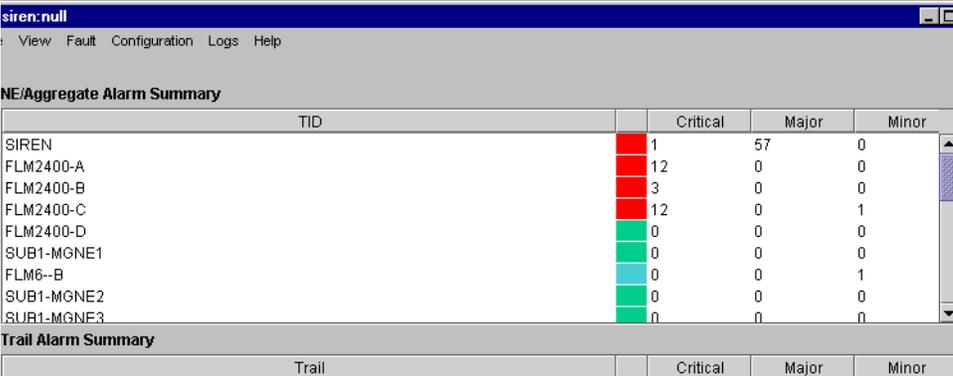
ITM SNC allows you to sort and display data displayed in tables in the exact order that you need it.

Moving and dragging table columns

To change the display order of columns in a table, position the mouse pointer on a column heading, click and hold the select (left) mouse button, and drag the column to a different position in the table.

Example: sorting a table

The following figure shows a sample Alarm Summary window where you may want to change the order of the alarm summary data.



| TID | Critical | Major | Minor |
|------------|----------|-------|-------|
| SIREN | 1 | 57 | 0 |
| FLM2400-A | 12 | 0 | 0 |
| FLM2400-B | 3 | 0 | 0 |
| FLM2400-C | 12 | 0 | 1 |
| FLM2400-D | 0 | 0 | 0 |
| SUB1-MGNE1 | 0 | 0 | 0 |
| FLM6--B | 0 | 0 | 1 |
| SUB1-MGNE2 | 0 | 0 | 0 |
| SUB1-MGNE3 | 0 | 0 | 0 |

The screenshot shows a window titled "siren:null" with a menu bar (View, Fault, Configuration, Logs, Help). Below the menu is a section titled "NE/Aggregate Alarm Summary" containing a table with columns "TID", "Critical", "Major", and "Minor". The table lists several NEs with their respective alarm counts. Below this table is another section titled "Trail Alarm Summary" with a similar table structure.

Figure 2-11. Example of Alarm Summary Window

The default order for data on the Alarm Summary window to be displayed is by Critical, Major, and Minor alarms. To change the sort order in which alarm data is

displayed on this type of window, you would click on one of the column headers or select the Sort option on the View sub-menu for the Alarm Summary window.

Either action brings up a Sort window. The following figure shows an example of the Sort window.

Example: sort window

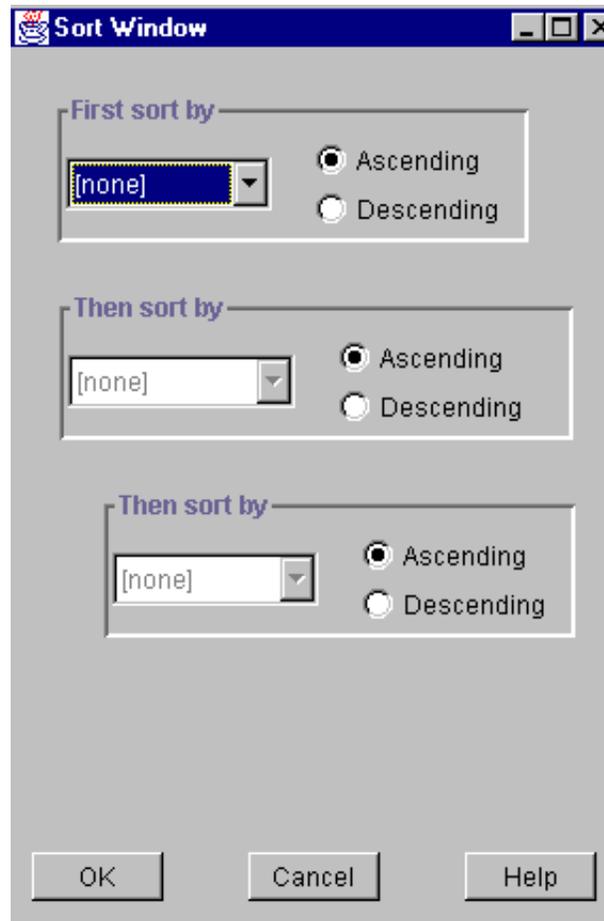


Figure 2-12. Example of Sort Window

The Sort window allows you to select three categories from the table list on which to sort. Each category consists of a drop-down list that contains all of the column names (in column order) from the table list on which to sort, and two exclusive choice radio buttons, labeled Ascending and Descending.

To sort a table, choose a column name from the “First sort by” drop-down list. The item you select becomes the primary sort key for the table list. Then, click the Ascending radio button next to the first drop-down list to sort the table by this item in ascending order or click the Descending radio button to sort by this item in descending order. Ascending order is the default.

To further sort the table data, choose an item from the first **Then Sort By** drop-down list and then the second **Then Sort By** drop-down list. Choose **none** from the drop-down list to indicate no sort at this level. For each level, choose whether to sort the item in Ascending or Descending order. Ascending order is the default.

Related tasks

For related tasks, see [T 201, Access the Alarm Summary](#); [T 202, Access the Alarm List](#); and [T 207, Display Trail Alarms](#) in the *User Tasks* section.

Fault Management

3

Contents

- [Background](#) 2
 - [Available Features](#) 3
-

Background

Introduction

Fault Management monitors alarms and conditions in the subnetwork. Users can access Fault Management functions from the Main Menu, or by accessing the pop-up menu on an NE or Aggregate icon in the Map window, or on the items listed in tables or other screens. Some important Fault Management features include the alarm summary and alarm list, viewing autonomous alarms as they are received, alarm throttling, and visible alarm indicators.

Objectives

This chapter provides background and introductory information about Fault Management available for use with ITM SNC. After learning the information in this chapter, the user should be able to do the following:

- Use the Alarm Tallies window to identify the number and type of alarms currently in the subnetwork.
 - Display the Alarm Summary, Alarm List, and Alarm Details windows to identify various information about current alarms.
 - Initiate resynchronization of alarms.
 - Limit the amount of autonomous messages that are to be monitored for an NE using the alarm throttling feature.
 - Administer audible alarms.
-

Related tasks

For related tasks, see the 200 series tasks in the *User Tasks Manual* or look up individual tasks in the Task Index.

Available Features

Introduction

ITM SNC receives autonomous alarm messages from Network Elements (NEs) when alarm states are set or cleared. These alarm messages are processed and made available to the user through the GUI. Following is a complete list of Fault Management features, all of which are available to the user via the GUI:

- Alarm Tallies
- Alarm Summary
- Alarm List
- Alarm Indication and Acknowledgement
- Alarm Details
- Trail Alarms
- Alarm Resynchronization
- Alarm Throttling
- Audible Alarms
- Alarm Browser
- Alarm Filtering
- Administration of Intelligent Alarm Filtering

In addition to the above alarm windows and reports, the Map window indicates which NEs and aggregates have alarms and their severity level (see [Chapter 2, The ITM SNC Graphical User Interface](#) for more information about color-coded NE alarm severity indicators on the Map window). Also, a system alarm icon on the Map window indicates the alarm status of the host. Furthermore, the Map window indicates which NEs have unacknowledged alarms (by flashing those nodes), which NEs have alarm throttling enabled (with the color gray), and which NEs have lost communication with the host.

Alarm notification

Another way ITM SNC keeps you informed about current alarms is via the Alarm Notification window. This window contains information on the type and number of current alarms in the subnetwork. It always remains open (unless iconified) on your screen, coming to the front each time another alarm is tallied.

The Alarm Notification window contains four buttons labeled Critical, Major, Minor (for SONET), or Prompt, Deferred, Informational (for SDH), and EMS Communications, corresponding to four types of alarms or events (informational for SDH) that may appear. Below each of these buttons is a number that indicates the current number of alarms of that severity.

To see more information about a specific alarm severity level, just point to the desired severity button on the Alarm Tally window and click. ITM SNC then displays the Alarm List window, filtered by the severity type of the clicked button. For instructions on how to use the Alarm List window, see [T 202, Access the Alarm List](#).

Alarm Summary

The Alarm Summary feature provides a single-line overview of alarm information for each node and trail. This information is provided via the Alarm Summary window on the GUI. This window lists the NEs in your Target Group and displays the number of Critical, Major, and Minor alarms for each NE. The alarms can be sorted by severity or TID. Instructions for displaying and using the Alarm Summary window can be found in [T 201, Access the Alarm Summary](#).

Alarm List

The Alarm List contains a line of detailed information about each active alarm in an NE. The user can sort the list by alarm severity and age, condition, and acknowledged vs. unacknowledged. The user can also acknowledge or unacknowledge the alarms listed here. Instructions for accessing and using the Alarm List can be found in [T 202, Access the Alarm List](#).

Alarm Indication and Acknowledgement

The alarm indicator feature graphically indicates the arrival of new alarms by flashing the impacted nodes and aggregates on the Map window. If there are one or more alarms against an NE and alarm indication is enabled, that node will flash (in the color of the highest severity alarm). Likewise, if there are one or more alarms against one or more NEs in an aggregate and alarm indication is enabled, that aggregate will flash. (When all the alarms against an NE or aggregate are acknowledged it no longer flashes.) Users should acknowledge alarms for which they are responsible. (when an alarm is acknowledged, ITM SNC tags that alarm with the user ID so that other users will not attempt to troubleshoot the same problem.) For instructions on acknowledging and unacknowledging alarms, see [T 203, Acknowledge/Unacknowledge Alarms](#); [T 204, Acknowledge/Unacknowledge Alarm Groups](#); [T 205, Acknowledge/Unacknowledge All Alarms](#); and [T 206, Acknowledge/Unacknowledge All Alarms for an NE](#).

Alarm Details

Alarm Details are available to the user via the Alarm List window. This window contains a line of information about each active alarm in an NE or aggregate. Before acknowledging an alarm, it is a good practice to display it on the Alarm List window to check the details and make sure you want to acknowledge it. You can then perform the acknowledgement right from the Alarm List window. For

instructions on using the Alarm List window to display alarm details, see [T 202, Access the Alarm List](#) Trail Alarms

Trails are physical facilities between NEs (see [Chapter 7, Administration](#) for more information about trails.) ITM SNC monitors all existing trails for alarm conditions.

⇒ NOTE:
NEs can only automatically discover and report to SNC trails over which there is an active Data Communications channel (DCC). Users can, however, add trails between any pair of termination points on NEs.

Information about trail alarms that have occurred can be displayed on one of two different screens, depending on the type of information desired:

- Trail Alarm Summary Window—this lists a count of critical, major, and minor alarms for the AIDs that terminate the trail between two NEs.
- Trail Alarm List—this contains a line of information about each active alarm for the trails between two NEs. This information includes alarm severity, occurrence date/time, condition, and date/time logged.

For instructions on displaying and listing these two screens see [T 207, Display Trail Alarms](#).

Alarm Resynchronization

Alarm Resynchronization provides the ability for ITM SNC to update its alarm list, autonomous message log, and command/response log from network elements in the subnetwork whenever any outage of NE communications occurs. ITM SNC automatically resynchronizes alarms whenever the communications status with an NE changes from “down” to “up.” In addition, users can initiate resynchronization of alarms on demand, as described in [T 210, Resynchronize Alarms](#).

⇒ NOTE:
Before resynchronizing alarms for an NE, the user should ensure that the NE is in an unthrottled state. Alarm resynchronization does not work unless the NE is in an unthrottled state.

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

- standing alarms that already exist in the GUI and alarm/notification list displays
- new alarms

-
- alarms that are cleared by the NE between resynchronizations.

This allows ITM SNC to incrementally update the GUI display and alarm notification/list displays to accurately indicate the subnetwork status to the user.

Alarm Throttling

The Alarm Throttling feature enables you to limit the amount of autonomous messages and Critical autonomous messages that should be monitored for an NE.

Alarm throttling can be done on demand for an NE through the Alarm Throttling option on the NE's pop-up menu or be set up to occur automatically when the number of alarms exceed a specified threshold. An alarm throttle level between zero and 3,600 per hour can be specified in the Automatic Alarm Throttling window. The recommended initial level is 100 messages per hour (and this is the default). If an NE has been enabled for alarm throttling and the number of alarms in the NE exceeds the set level, the NE is automatically put on throttled, or partial, alarm monitoring.

See [T 215, Automatically Throttle Alarms](#) for instructions on how to automatically throttle alarms for an NE.

The Alarm Throttling feature is useful during events, such as an initial network turn-up (or maintenance activity), where large numbers of messages are generated by an NE. Throttling alarm only allows alarms of a Critical priority to be displayed on the GUI, sent upstream to the Operations Systems (OSs), or retrieved via alarm queries. (Non-maintenance-related messages are not affected by alarm throttling and continue to be logged in the normal manner.)

See [T 208, Monitor Alarms](#) for instructions on using the GUI to toggle manually between a full set of messages and a throttled set of messages through the Alarm Monitoring menu. For instructions on how to view throttled alarm statistics, see [T 209, View Throttled Alarm Statistics](#).

Audible Alarms

The audible alarm provides an alternative way to alert the user to existing alarms. The following list provides an overview of audible alarm specifications:

- Audible alarms are generated at each system interface screen.
- To eliminate possible confusion, the characteristics of the audible alarm (that is, sound, duration, and interval between sounds) is common to all users of the host.
- Individual user interface users can enable or disable the audible alarm feature for their respective system user interface screens.
- The Map window contains the audible alarm symbol near the upper middle of the screen. The symbol is a speaker if the audible alarm is enabled, or a speaker with a slash through it if disabled.
- When the audible alarm is enabled, an audible alarm is initiated at the onset of each new alarm, with sound characteristics that correspond to the severity level of the most severe alarm.
- Audible alarms last for a short duration and are repeated after a set time interval, until quieted by the user or the alarm is acknowledged.

The audible alarm sounds are initially loaded with system default settings. These settings can be adjusted by the system administrator. For instructions on how to use audible alarms, see [T 211, Enable/Disable Audible Alarms](#) and [T 212, Quiet the Audible Alarm](#).

Alarm Browser

The Alarm Browser lets you view alarms and clear messages for the NEs in your Target Group as they occur. Specifically, it captures *alarm*, *event*, and *clear* messages that are forwarded to network surveillance OSSs for NEs in your Target Group and displays them in the Browsing Alarm Audit Log window on your workstation screen. For how to activate the Alarm Browser, see [T 200, Activate the Alarm Browser](#).

Alarm Filtering

Alarm filtering is the selective removal of alarm messages from being forwarded to the GUI. Alarm filtering can be applied to reduce the number of alarms forwarded to the GUI caused by intermittent failure, or to filter symptomatic alarms associated with a reported signal failure, such as those that occur during a fiber cut.

Types of Alarm Filtering

ITM SNC uses three basic methods to reduce the number of alarms to be displayed:

- Aging—waiting for a pre-set time period to eliminate alarms that are caused by temporary failures (and are cleared within a time period shorter than the aging interval)
- Event-per-Time (EPT) Filtering—EPT, which is primarily an alarm reduction technique, filters transient events (TEs) such as PM Threshold Crossing Alerts (TCAs). To forward all TEs, set the EPT count to zero. Both the time and number of TEs can be adjusted to only log TCs that exceed the expected normal level.
- Intelligent Alarm Filtering—correlating symptomatic alarms with a primary (or directly reported) alarm based on a specific set of filtering rules. This is also referred to as Intelligent Alarm Filtering (IAF). See Intelligent Alarm Filtering in this chapter for more details.

Adjusting Aging and EPT Filtering Parameters

ITM SNC provides several adjustable parameters for processing, collecting, and filtering alarm and event messages. These messages are grouped into three categories, as shown in the following table:

Table 3-1. Alarm and Event Categories

| Message Type | TL1 Name | Condition Status |
|---------------------|------------------------|---|
| Alarm | REPT-ALM, REPT-ALM-ENV | NEs send a clear message when the condition no longer exists. |
| Standing condition | REPT- EVT | NEs send a clear message when the condition no longer exists. |
| Transient condition | REPT-EVT | NEs do not send a clear message because the event does not change an NE's condition for an extended period of time. |

The ITM SNC Fault Management parameters are adjustable for each type of supported NE. The following parameters for alarm aging and EPT filtering can be adjusted.

-
- **Age Time**—This parameter is the number of seconds that an alarm or standing event is held while waiting for a clear message. Enabling this filter suppresses repeated alarm/clear message pairs, such as those that are generated by intermittent failures.

Alarms and standing events that do not clear within the specified time are forwarded to the Map window and other windows that list alarm information, such as the Alarm Summary and Alarm List windows. Messages that do not clear within the specified aging time are also forwarded to a network surveillance system, such as NMA-F.

Held alarms do not appear on the alarm windows and are not forwarded to a network surveillance system. These alarm messages are, however, available through the ITM SNC Logs.

The default value for all NE types and Probable Causes is 0 seconds (that is, aging is “disabled”). The maximum value is 3600 seconds.

- **Event-Per-Time (EPT) Count**—This parameter is the number of occurrences of a transient event that must be generated within the specified EPT Time before a new event is flagged in the ITM SNC alarm/event log and passed to the network surveillance system. (**Note:** There are windows where events are displayed other than looking at a log.) The events that are counted must have matching condition codes, TIDs, and AIDs. The default count for all NE types and Probable Causes is 0. The maximum count is 3600.
- **EPT Time**—This parameter is the number of seconds that ITM SNC maintains an EPT count parameter for a recurring transient event. The default value for all NE types and Probable Causes is 0 seconds. The maximum value is 3600 seconds.

The above alarm filtering parameters are maintained in a UNIX file that the ITM SNC system administrator can edit (see Adjusting Fault Management Parameters in this chapter).

Intelligent Alarm Filtering

Intelligent Alarm Filtering (IAF) is the filtering of symptomatic alarms that were detected elsewhere (either upstream or downstream of the actual failure) and are associated with a directly reported failure condition.

IAF is applied only to alarms that have previously been “pre-filtered” through the aging method or redundant alarms for the same AID, to ensure that only persistent alarms are considered.

Directly Reported Failure Conditions

The types of directly reported failure conditions to which IAF can be applied are:

- Facility Failures
 - Loss of Signal (LOS)
 - Loss of Frame (LOF)
 - Loss of Pointer (LOP)
- Equipment Failures

Symptomatic Alarms

The types of symptomatic alarms that can be filtered out when correlated to a directly reported failure condition are:

- Alarm Indication Signals (AIS)
- Remote Failure Indications (RFI)

Alarm Filtering Rules

The following alarm filtering rules apply to each part of the network that comprises the “correlation domain.” The “correlation domain” is a group of optically interconnected SONET NEs, regardless of whether they also have DCC connectivity, that are being monitored by ITM SNC.

1. All incoming alarms into ITM SNC are logged, whether they are filtered out or not.
2. All collected symptomatic alarms are filtered through IAF if the following conditions are met:
 - a. ITM SNC receives a Directly Reported Failure alarm, of the type noted in Directly Reported Failure Conditions in this chapter, from an NE that belongs to the “correlation domain.”
 - b. There is at least one directly detected facility alarm of the same signal level or higher in the “correlation domain.”

The exceptions to these filtering rules are:

1. When IAF is disabled. The alarm originates from an NE with low-speed tributaries dropped from the NE that is connected to a private network, and administrators want to be advised that there is a loss of signal on their tributaries. In this case, IAF for such NEs can be disabled through the GUI or via an external system.
2. Symptomatic alarms on ports and their channels that terminate links connected to NEs outside the “correlation domain” are **not** suppressed.

The IAF Process

When IAF is enabled, alarms are held for a defined alarm correlation period. At the end of the correlation period, alarms are suppressed if they can be accounted for by a directly reported event.

An initial correlation timer (Initial Correlation Period) is started upon receipt of the first reported alarm, during which ITM SNC collects symptomatic alarms for alarm correlation.

If no directly detected alarm is received during the pre-defined Alert Interval, ITM SNC notifies users that alarm correlation is in progress.

At the end of a Quiet Time Period, which is also user-defined, if no alarms are received that need to be correlated to the initial directly reported alarm, the alarm correlation period is considered to be completed. If a symptomatic alarm is received during the Quiet Time Period, the process is restarted and the “quiet time” counter is reset.

The alarm correlation period is also ended if it exceeds the Maximum Correlation Period, which is also user-defined.

The Alarm Correlation Timers that are used for IAF can be set through the GUI. See [T 214, Set Intelligent Alarm Filtering](#) for instructions on how to set up the Alarm Correlation Timers. These timers can also be changed in an editable file by the system administrator at install time or when the application is running (see Adjusting Fault Management Parameters in this chapter).

Directly detected facility alarms, such as an LOS during the correlation period, are reported without any delay. If a symptomatic alarm/event such as an AIS is due to a directly reported failure that is **not** detected by ITM SNC, the AIS is **not** filtered.



NOTE:

IAF Alarms retrieved from NEs during alarm resynchronization are subject to alarm correlation.

Enabling/Disabling IAF

IAF is enabled, by default, during initial system installation and can be disabled for the system application and for each monitored NE. IAF can be disabled for selected NEs through the GUI. See [T 214, Set Intelligent Alarm Filtering](#) for instructions on how to enable or disable the IAF feature for a specific NE. IAF can be enabled or disabled for the system application by the system administrator by changing certain environment parameters in a UNIX file (see Adjusting Fault Management Parameters in this chapter). Fault management parameter changes should only be made by the system administrator.

Related Information

[T 214, Set Intelligent Alarm Filtering](#) describes how to set up IAF for an NE and how to disable IAF for an NE. It also explains how to set up the Alarm Correlation Timers that are used for IAF.

Adjusting Fault Management Parameters

The parameter settings for alarm filtering are maintained in an editable UNIX file under `/snc/etc/FM_rc`. The following table shows the environment variables for the filtering parameters, their default values, and their allowed values.

Table 3-2. Alarm Filtering Environment Parameters

| Parameter | Environment Variable | Allowed Value | Default Value |
|---|---------------------------|-------------------------|---------------|
| ITM SNC application IAF flag (used for IAF setting at install time before bringing up system) | SNC_FM_DEF_IAF_FLAG | 1=enabled 0=disabled | 0 (disabled) |
| NE level IAF Flag | SNC_FM_DEF_NE_IAF_FLAG | 1=enabled 0=disabled | 0 (disabled) |
| IAF Flag | SNC_FM_IAF_FLAG | 1=enabled 0=disabled | 0 (disabled) |
| Aging Filtering flag (to turn filtering by aging method on/off) | SNC_FM_AGING_FLAG | 1=enabled 0=disabled | 1 (enabled) |
| Alert Interval (timer for IAF) | SNC_FM_DEF_ALERT_INTERVAL | 0 to 60 seconds | 60 seconds |
| Initial Correlation Period (timer for IAF) | SNC_FM_INITIAL_INTERVAL | 60 to <900 seconds | 300 seconds |
| Quiet Time Period (timer for IAF) | SNC_FM_DEF_QUIET_INTERVAL | 0 to 300 seconds | 60 seconds |
| Maximum Correlation Period (timer for IAF) | SNC_FM_DEF_MAX_INTERVAL | >60 to 3600 seconds | 900 seconds |
| Age Time | SNC_FM_DEF_AGE_TIME | 0 to 3600 seconds | 10 seconds |

| Parameter | Environment Variable | Allowed Value | Default Value |
|------------------------|-----------------------------|-------------------------|----------------------|
| EPT Flag | SNC_FM_EPT_FLAG | 1=enabled 2=disabled | 0 (disabled) |
| EPT Count | — | 0 to 3600 | 0 seconds |
| EPT Time | SNC_FM_DEF_STAT_TIME | 0 to 3600 seconds | 0 seconds |
| AID Correlation Flag | SNC_FM_AID_CORRELATION | 1=enabled 0=disabled | 1 (enabled) |
| AID Correlation Period | SNC_FM_DEF_CORR_TIME | | 0 seconds |
| Auto Throttle Flag | SNC_FM_AUTO_THROTTLE_FLAG | 1=enabled 0=disabled | 1 (enabled) |
| Manual Throttle Flag | SNC_FM_MANUAL_THROTTLE_FLAG | 1=enabled 0=disabled | 0 (disabled) |
| Status Time | SNC_DEF_STAT_TIME | 0 to 3600 seconds | 3600 seconds |
| Throttle Level | SNC_FM_DEF_THROTTLE_LEVEL | | 100 seconds |

The ITM SNC application level IAF flag parameter can only be changed when the application is off-line. The NE level IAF flag parameter can be changed when the application is on-line but the change is not made immediately.

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Background

Introduction

Network Elements (NEs) of all types allow the user to modify information about system, port, and equipment parameters. ITM SNC supports this functionality through a series of windows that allow the user to see the current configuration information and to modify that information.

ITM SNC has a Dynamic Network Operations (DNO) feature that retrieves the internal configurations of NEs and, for Lucent Technologies NEs, external connectivity relationships. This feature enables ITM SNC to discover the topology of subnetworks consisting of Lucent Technologies NEs. (Currently only manual DNO is available, but automatic DNO will be available soon in a succeeding release.)

ITM SNC provides flow-through provisioning between a network provisioning system, such as Operations System for Intelligent Network Elements (OPS/INE), and NEs. The GUI supports the following configuration management tasks:

- NE and subnetwork discovery
 - NE parameter provisioning
 - NE port parameter provisioning
 - Cross-connection provisioning
 - NE equipment inventory
 - Inter-NE trail management
 - Multiple GNE configuration
 - TL1 command macro building and broadcasting
 - Administrative scheduling
 - Software management of Lucent NEs
 - Equipment provisioning
 - Protection provisioning
-

Objectives

This chapter provides background and introductory information about Configuration Management in ITM SNC. It includes available features and references to specific task-related instructions. After learning the information in this chapter, the user should be able to do the following:

- Initiate a TL1 cut-through session, build TL1 commands using the TL1 macro builder, and broadcast TL1 commands using the TL1 broadcast window.
- Provision NE ports, equipment, cross-connections, and protection groups.
- Define paths between NEs.
- Initiate DNO.
- Establish the correct date and time via the date/time synchronization and Spring ahead/Fall back features.

Related tasks

For related tasks, see the 300 series (Configuration Management) of tasks in the *User Tasks* section or look up individual tasks in the Task Index.

Cut-Through

In order for the user to execute NE native commands that may not be supported explicitly by a particular release of ITM SNC, a cut-through capability has been developed. In addition, with the command builder and broadcaster, TL1 cut-through gives the user powerful capabilities. See [T 300, Perform Cut-Through Commands](#); [T 301, Build TL1 Commands](#); and [T 302, Broadcast TL1 Commands](#) for instructions on performing TL1 functions. (Please note that ITM SNC allows the user access only to the NEs and associated commands defined by the Target and Command Groups for which the user is validated.)

⇒ **NOTE:**
Instructions about actual TL1 commands are beyond the scope of this user documentation (which focuses on the GUI and its administration), but see your Lucent Technologies account representative for operations guides that contain complete information about all TL1 commands.

Initiating an NE cut-through session

The NE Cut-Through window allows you to access and communicate with an NE, using the TL1 command set. You can submit TL1 cut-through commands to the NE directly. (For specific NE command information, see the appropriate NE documentation.)

⇒ **NOTE:**
Commands such as *rlogin* and *act-user* are disabled, but they are not needed because SNC is already logged into the NEs.

Related information

See [T 300, Perform Cut-Through Commands](#) for how to initiate and perform cut-through.

Building TL1 commands

The TL1 macro builder allows you to create a TL1 command file to assist in performing maintenance and provisioning activities on one or more NEs (such as download of standard configuration), without having to manually enter a set of TL1 command strings. This feature both reduces the amount of manual entry needed to create TL1 command strings and allows for the reuse, at a later time, of the commands built on the same NE or other NEs of the same type.

Related information

See [T 301, Build TL1 Commands](#) for how to build TL1 commands.

Broadcasting TL1 commands to NEs

The broadcasting TL1 commands feature allows you to perform maintenance and provisioning activities (such as download of standard configuration) on one or more NEs, utilizing the TL1 command files created by the TL1 macro builder feature, and broadcasting those files to multiple NEs of the same type. This feature saves you time by performing similar tasks on multiple NEs in one step, and by reducing the manual entry required in the creation of TL1 command strings.

Related information

See [T 302, Broadcast TL1 Commands](#) for how to broadcast TL1 commands.

Port Provisioning

Introduction

The Lucent Technologies DDM-2000 NEs can change the state of ports without issuing a *rept-dbchg* message. ITM SNC therefore cannot detect these changes. To ensure that you receive an accurate list of available AIDs when selecting ports to provision, first do a manual DNO (see [T 319, Manually Initiate DNO](#)) for the NE(s) that you plan to provision.



NOTE:

When cross-connections are added or deleted, the AID list in the port provisioning window is not updated automatically. To ensure that the AID list information is accurate, perform a manual DNO (see [T 319, Manually Initiate DNO](#)) on the NEs that have had cross-connections added or deleted prior to any port provisioning.

Port configuration discovery

There is generally a fixed relationship between circuit packs and their number and type of ports. Upon discovery of an NE, for ports of a fixed type, ITM SNC may automatically retrieve an NE's current set of ports and their type, or it may automatically retrieve an NE's current equipment and derive the set of ports and their type. (This is the automatic discovery portion of DNO.) Deriving the port information from the equipment is the preferred method. Regardless of the method of obtaining the information, ITM SNC maintains the ports and their type in its configuration management database.

For NEs managed via TL1, obtaining the port information directly from the NE is done via TL1 RTRV-*rr* commands (where *rr* represents the various port types). For NEs managed using CMISE, the NE's current port configuration is obtained via CMISE M-GET commands. The responses to these commands include the NE's current ports and their attributes.

Port configuration provisioning

ITM SNC provides a GUI-based function to enable you to select an NE and port or tributary, and view the current values of that port's or tributary's attributes.

Related information

For instructions on provisioning ports, see [T 305, Provision NE Ports](#).

FT-2000 TIRKS numbering

ITM SNC allows you to display tributaries using the Telcordia Technologies' TIRKS® system numbering format whenever desired. You have the choice of displaying tributaries in the standard numbering format (FT-2000 ADR) or TIRKS format as a GUI display option, through the Labels panel on the User Preferences window. If this parameter is set to use the TIRKS numbering format, then ITM SNC displays the AIDs of the tributaries in TIRKS numbering format. If the TIRKS numbering scheme is not selected, then ITM SNC displays the AIDs of the tributaries in FT-2000 ADR numbering format.

In addition, OC-12 AIDs are displayed either in standard FT-2000 or TIRKS format depending on how the ITM SNC parameter was set and whether the OC-12 circuit pack is equipped. If this parameter is set to standard numbering format or if the circuit pack is not equipped, you can see OC-12 quad/slot/port AIDs displayed in FT-2000 numbering format. If the ITM SNC parameter is set to TIRKS numbering format and an OC-12 circuit pack is equipped, you see port AIDs displayed. If this parameter is set to TIRKS format but the circuit is not equipped, you see OC-12 quad/slot/port AIDs displayed.

The option of selecting the numbering format is for viewing and display purposes only. It does not change the tributary numbering format provided by the NE. Setting the numbering parameter affects the display of tributary numbering in the equipment, cross-connect, port provisioning, and path management windows. Other ITM SNC features such as Cut-through, query, alarm, DNO, NE provisioning, and software management are not affected by the numbering format parameter setting. A translation table is available through the GUI to see mappings to/from FT-2000 to TIRKS numbering schemes.

Related information

The [Map preferences](#) section in [Chapter 2, The ITM SNC Graphical User Interface](#) describes Preferences options that are available for the Map pane display.

[T 111, Modify User Preferences](#) describes how to change the characteristics of the Map window display, including the option of using the TIRKS numbering format for FT-2000 ADR tributaries and OC-12 circuit packs.

[T 335, View TIRKS Translation Table](#) describes how to display the TIRKS to FT-2000 numbering translation table.

Equipment Configuration

Introduction

Different NE types are of varying complexity and configurability, ranging from single-shelf NEs at a single location to multi-bay and multi-shelf NEs that are flexible in their arrangements and may be distributed between rooms and floors of a central office or even distributed across central office locations and remote sites. The equipment window gives a set of hierarchically arranged equipment views. The shelf view is the lowest level view. There may also be a system view and a bay/line-up view, depending on how large and complex the NE is. The Equipment Configuration window also allows you to “drill down” into the NE equipment hierarchy.



NOTE:

If ITM SNC does not recognize a circuit pack on the requested shelf, the window shows that slot filled with unknown equipment. Circuit packs are not recognized when the vendor firmware is nonstandard or when the board is a new release that is not supported yet. If you see unknown equipment on the Equipment Configuration window, contact your system administrator or next level of support and report the unknown equipment.

Equipment discovery and inventory maintenance

Upon discovery of an NE, ITM SNC automatically retrieves a network element's current equipment configuration and maintains this information in its database. This is the automatic discovery portion of DNO. An NE's equipment includes any item that it is able to report; for example, bays, shelves, and circuit packs. For network elements managed via TL1, the network element's current equipment configuration is obtained through TL1 RTRV-EQPT commands.

Equipment graphical display

To graphically depict the varying NE types effectively, ITM SNC decomposes them into different numbers of hierarchically arranged graphical displays. For example, with a single-shelf system only a single display at the shelf level is needed, and this shelf-level display is also a system-level display. On the other hand, another system may be composed of multiple bays containing multiple shelves, with the bays arranged into multiple aisles. To effectively depict this requires several levels of display: system (one or more line-ups), line-ups (one or more adjacent bays, with each bay containing one to three shelves), and shelves (each containing many circuit packs).

Equipment provisioning

Older generation NE types have little or no configurability of their equipment entities (their bays, shelves, slots, or circuit packs). New generations of NEs, however, can be expected to have an increasing capacity for configurability in this area. ITM SNC supports equipment provisioning as needed for each NE type.

Some of the attributes reported on some equipment are provisionable. In addition, the equipment allows users to manually create new bays, shelves, and circuit packs. This system therefore has establish and remove functions that apply to bays, shelves, and circuit packs; and attribute modification functions for shelves, slots, and circuit packs. New bays and shelves are created by specifying and provisioning new bay and shelf IDs. New circuit packs are created by associating a circuit pack type and/or circuit pack qualifier with a circuit pack slot. New bays are also implicitly created by creating new shelves with Shelf IDs that imply a bay that does not currently exist. For example, if a shelf with ID 10-1 is added and there is not currently a bay with the Bay ID 1 in ITM SNC, that bay is automatically created and reported by the NE.

Related information

For instructions on viewing NE equipment configurations, see [T 306, View NE Equipment](#).

Cross-Connections

Introduction

ITM SNC provides a graphical means of viewing and provisioning NE cross-connections via the Cross-Connection window. This window is designed to display connection termination points and cross-connections for a selected NE. This section provides information about cross-connection functionality and the Cross-Connection window.

Cross-connection functionality

ITM SNC provides the following major functions associated with the provisioning of cross-connections:

- Perform DNO on discovering an NE.
 - Discover cross-connections as part of DNO.
 - Include cross-connections as part of the system database.
 - Provision cross-connections on demand from the GUI.
 - Display status of cross-connections on the GUI.
 - List cross-connections, including input and output tributaries, topology of the cross-connection.
 - Modify cross-connections on demand from the GUI.
 - Delete cross-connections on demand from the GUI.
 - Update the database upon receiving autonomous database messages from the NE on addition, deletion, and modification of cross-connections.
 - Log all requests/responses and autonomous database update messages.
 - Provide user access from the GUI.
-

The Cross-Connection window

The Cross-Connection window provides the user access to all cross-connection features. It contains an interface tailored to the large, modern cross-connection fabrics now supported by ITM SNC. The window (see [T 309, Display the NE Cross-Connection Window](#) for instructions on displaying the Cross-Connection window) consists of a menu bar, a toolbar, a status bar, a Network Element explorer, and a main view. The main view area is further broken down into four port areas (or eight port areas if the Toggle View feature is used). This window is used for all cross-connection operations, including viewing, adding, modifying, and deleting cross-connections.

Toolbar

The Cross-Connection window contains a toolbar (at the upper left) that contains a series of buttons used for initiating different types of cross-connections. If you are unsure of the operation that a certain toolbar button will perform, point at it with the cursor and after 2 seconds a tooltip is displayed, showing the operation of that button. This information is also displayed in the status bar.

After the cross-connection buttons, the next button in the toolbar is used to delete an existing cross-connection. (It is disabled until the user chooses a cross-connection that can be deleted.)

The next button is used to initiate a cross-connection modification. (It is disabled until the user chooses a cross-connection that can be modified. Note that for some NE types cross-connections cannot be modified.)

The next button is the Reservation button (this button is disabled in ITM SNC and is currently not being used).

The next button is used for the show/hide mode. Click this button to show a cross-connection - click it again to hide the cross-connection.

The next button is for the Cancel function. Click this button when you have started a cross-connection and want to terminate the operation. (This button is disabled until you select a cross-connection type.)

The next button is for Toggle View. Click this button to change the number of port areas displayed in the view panel. Initially the view is set to Toggle to Four , which shows four port areas (and the contents of the pop-up menus in the explorer accommodate all eight ports). When you click the Toggle View button, the view changes to Toggle to Eight , which shows eight port areas (and the contents of the pop-up menus in the explorer accommodate four ports).

The next button, Add to Path, is for adding a cross-connection to a path. When the Path Manager window is open with a manually created path, you can select a cross-connection on the Cross-Connection window and click the Add to Path button to add the selected cross-connection to the manually created path. For more information about path management, see the [Path Management](#) section in this chapter.

Cross-Connection Types (toolbar buttons)

When the source tributary of a cross-connection is selected on the Cross-Connection window, you select the type of cross-connection to be made by clicking the appropriate toolbar button above the Network Element Explorer and Main View on the window. The following table shows some of the types of

cross-connections that can be made and the toolbar button image used (cross-connection types available vary by NE type).

| Type | Definition | Image |
|----------------|---|---|
| 1Way | Having a single source and single destination, carrying a signal only from the source to the destination. This is the foundation for all other cross connection types. |  |
| 2Way | Using the 1Way as a basis, the 2Way is effectively two 1Way Pt-Pt cross connections, where the source of one is the destination for the other. Note that in all network element types except the DDM-2000 types, this cross connection can be handled as two 1Way Pt-Pt cross connection for the purposes of deleting, modifying and redlining. |  |
| 1Way DRI/SS | Using the 1Way as a basis, this is a 1Way with a low speed source and a high speed destination. In addition, a non-working pass through cross connection is used on the same high speed tributary. This is a protected cross connection for use with dual ring interworking. |  |
| 2Way DRI/DC | The same as the 1Way DRI/SS, except that signal is traveling in both directions around the ring, instead of in just one direction. |  |
| 1Way Multicast | The 1Way point to multi-point cross connection is any series of 1Way Pt-Pt cross connections which uses a single source and multiple destinations. Note that in all network element types this cross connection can be handled as a series of 1Way Pt-Pt cross connections for the purposes of deleting, modifying and redlining. |  |
| 2-WAY DRIP | |  |
| 2-WAY DRIS | |  |

| Type | Definition | Image |
|--------|---|---|
| COV | Used only in the DDM-2000 OC-12 network element, this is a 1Way Pt-Pt cross connection that uses a low speed source and a high speed destination. |  |
| RTV | Used only in the DDM-2000 OC-12 network element, this is a 1Way cross connection with multiple sources and a single destination. |  |
| Locked | Used only in the DDM-2000 network elements, this is a 2Way Pt-Pt cross connection which only uses one direction of the ring. |  |

⇒ NOTE:
 Naming conventions for some cross-connection types are different in the ITM SNC GUI and the CIT interface. The cross-connection type/button 2 WAY BR used in the GUI is called a DC (Drop and Continue) in the CIT. The cross-connection type 2 WAY PR in the GUI is called 2 Way Passthrough in the CIT interface.

Status bar

The status bar, at the bottom of the Cross-Connections window, provides the following information to the user:

- The source and destination AID and the cross-connection type of a selected cross-connection in the cross-connection view area. (If more than one cross-connection is being displayed, the status bar uses the word *multiple*.)
- The cumulative information about a cross-connection being added, as it is selected by the user.
- Information about the status of add/delete/modify operations that have been requested.

When a port tributary is displayed in the Main View of the Cross-Connection window, and you position the mouse cursor on the tributary block, a message is displayed next to the tributary address in the status bar identifying it as a “Source” or “Destination” tributary. The “Source” and “Destination” literal displayed in the status bar is used to indicate whether the tributary could act as a “Source” or “Destination”, or both, for additional cross-connections.

Displaying tributaries/port groups

Ports are displayed on the Cross-Connection window between the arrow buttons surrounding the main view area. (See [T 310, Display Ports on the NE Cross-Connect Window](#) for instructions on displaying ports in the main view area of the Cross-Connection window.) Top and Bottom port areas appear between the left and right arrow buttons, while Left and Right port areas appear between the up and down arrow buttons.



NOTE:

The top port area is not available through the menu pop-up method. However, it is available if you use the “drag and drop” mode on the Cross-Connection window to position port groups in the Main View.

You can click the up/down/left/right arrow buttons to change the view to the circuit pack or port group immediately preceding (up/left) or following (down/right) the currently displayed one. (Any circuit packs/port groups that are invalid in a port area in the cross-connection view are skipped over when you use the arrow buttons.)

Tributary/port group blocks

Ports that are selected for cross-connection groups always expand into one of the following tributary/port group building blocks.

- STS-1—contains only a single STS-1 worth of signal, with no access to lower-rate cross-connections
- STS-1/VT1.5—contains a single STS-1 worth of signal, with access to the corresponding 28 VT1.5s that reside within.
- STS-3—contains only a single STS-3 worth of signal, with no access to lower-rate cross-connections.
- STS-3/STS-1—this building block contains an STS-3 and allows access to the corresponding STS-1s that are accessible through that STS-3.
- STS-12/STS-3—this building block contains an STS-12 worth of signal, and allows access to both the STS-12 and the corresponding STS-3s. No access to the STS-1s is available.
- STS-12/STS-3/STS-1—this building block is the same as the previous, except access to the corresponding STS-1s is allowed.
- Any port group on a SLC-2000 DLC expands into a DS-0 building block.

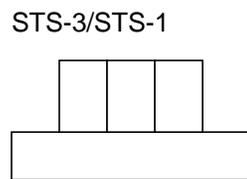
Any building block that contains multiple layers has each layer of the building block as mutually exclusive to the layers above and below it (except for FT-2000). This means that if the building block is an STS-1/VT1.5, then the existence of a VT1.5 cross-connection makes the STS-1 unavailable, and any STS-1 cross-connection makes *all* of the VT1.5s unavailable.

Furthermore, in the STS-12/STS-3/STS-1 building block, an STS-12 cross-connection disables all STS-3 and STS-1 ports. An STS-3 cross-connection disables the STS-12 and the three STS-1s that are part of the cross-connected STS-3. Any STS-1 cross-connection disables the entire STS-12 and the single STS-3 of which the STS-1 is a part.

The following explains how these various tributary building blocks are represented graphically on the Cross-Connection window. They are defined as follows:



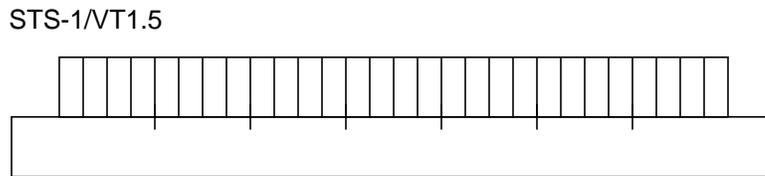
This tributary group displays a single STS-1 or STS-3 for cross connection. The would be used when, for example, the port chosen supports only some number of STS-1 or STS-3 cross connections, but not a combination of the two.



This tributary group is seen more often, and is used to display any STS-3 tributary that contains STS-1 tributaries that can also be cross connected. The larger box at the bottom of the graphic represents a single STS-3. The three smaller boxes on top each represent a single STS-1. This graphic is used whenever an STS-3 tributary can be cross connected

at either STS-3 or as three STS-1s.

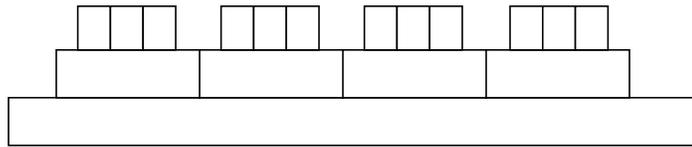
Note: All of the tributary groups that contain more than one level (as does the one above) represent two different rates of cross connections within a single tributary group. This means that the two different levels (the STS-3 and the STS-1, in this case), are mutually exclusive. You can **either** cross connect the STS-3 tributary, **or** the three STS-1 tributaries, but not both.



This graphic is used whenever a tributary can be cross connected at the

STS-1 or VT1.5 rate. The large box at the bottom represents a single STS-1, and the 28 smaller boxes on top each represent a single VT1.5. This graphic would be used, for example, when the user display the tributaries in a DDM-2000 OC-3 network element's mains. A single tributary group (m-1, for instance) is dragged into the View Area and this graphic is displayed.

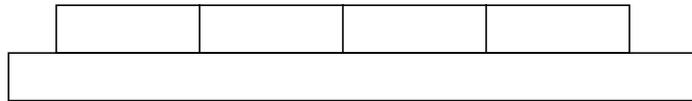
STS-12/STS-3/STS-1



This is the most complex of the graphics used in the cross connection window. The bottom box represents a

single STS-12 tributary. The four boxes in the middle each represent a single STS-3 tributary. And the smaller boxes on top of each STS-3 each represent a single STS-1 tributary. This graphic is used to show an STS-12 tributary that can be cross connected at either STS-12, as four STS-3s or as a combination of STS-3s and STS-1s. This graphic will be shown when an STS-12 tributary is selected in a network element (such as the FLM-600) that allows cross connections at all three rates.

STS-12/STS-3



This graphic is similar to the above graphic, but does not contain the STS-1 boxes. The bottom

box represents a single STS-12 tributary and the four smaller boxes on top each represent single STS-3 tributaries. This graphic will be shown when an STS-12 tributary is selected and the network element only allows cross connections at the STS-12 and STS-3 rates.

The graphics are designed to provide an immediate visual indication of what is cross connected already and what is available for cross connection. Boxes that are yellow do not contain any cross connections. Boxes that are dark blue do contain cross connections. Boxes that are grey are not available for cross-connection.

Color conventions

Listed in the following table are the default color conventions used to represent cross connection and tributary properties. These colors may be changed through the Preferences window (see [T 111, Modify User Preferences](#)).

Table 4-1. Color Conventions for Cross Connection and Tributary Properties

| Color | Representation |
|--------------|--|
| Green | Tributary is selected as a source for cross-connection |
| Magenta | Cross connection destination(s) (shows when selected) |
| Red | Cross connection line whose redline property is enabled |
| Dashed line | Standby cross connection |
| Orange | Cross connection on tributary is in the process of a pending operation (such as creation, deletion, modification). |
| Light yellow | Tributary which is not being used for any cross connection |
| Blue | Tributary which is being used for a cross-connection |
| Purple | Tributary which is a destination tributary for a cross-connection |
| Grey | Tributary not available for cross-connection or not provisioned (FLM NEs) |

A grey box is also displayed when:

- A multiple level graphic is displayed and there are cross connections at a lower rate than the highest rate in the graphic. For example, the graphic showing both STS-3 and STS-1 tributaries may have a grey STS-3 box if any of the STS-1 boxes are blue (already cross-connected in both directions).
- A multiple level graphic is displayed and for some reason the network element will not allow cross connection at a particular rate in the graphic. This will sometime occur when a specific setting in the network element is made to disable a certain rate.

For network element which allow cross-connections at multiple rates within a single tributary, for which no graphic exists (such as STS-3/STS-1/VT1.5), the explorer will allow the user to drag and drop either the STS-3 tributary, or the STS-1 tributary to the View Area. In all other cases, only the bottom most level of tributaries shown in the explorer can be dragged to the View Area.

Whenever a tributary in a circuit pack which serves the ring is dropped into the View Area, it can only be dropped into the left or right sub-areas. In addition, the tributary which serves the other direction of the ring for the tributary chosen is placed in the opposite sub-area. For example, if the user chooses tributary m-1 on the circuit pack in slot main-1 in a DDM-2000 network element and drops that tributary in sub-area left, sub-area right will show the tributary m-1 on the circuit pack in main-2.

Entering cross-connections

The general steps for entering cross-connections on the Cross-Connection window in the GUI are as follows:

1. Find the tributaries that are to be cross connected together and display them in the view area.
2. Choose the box that represents the source tributary for the cross connection by clicking on the box. The box will turn green. The cross connection type buttons on the toolbar will become enabled, but only those that can use the tributary chosen as a source.
3. Choose a cross connection type by clicking on the button in the toolbar for that cross connection type.
4. Choose the box that represents the destination tributary for the cross connection by clicking on it. Both the source and destination boxes will now turn orange (an operation is pending on these tributaries).
5. If it is necessary to provide further information before the cross connection can be completed, an additional information (Cross-Connect Attributes) window is opened. It contains parameter names and lists of values for each parameter. Choose the parameter values for this cross connection and choose OK.
6. Confirm entry of the cross connection when the confirmation window is displayed.

The cross-connection command is now sent to the network element. When the command has completed (either correctly or with errors), the orange color is removed from the chosen tributaries. If the cross connection was created in the network element, the tributaries will turn blue. If the command failed, they will revert to their original colors.

Related information

[T 309, Display the NE Cross-Connection Window](#)

[T 312, Add a Single NE Cross-Connection](#)

[T 313, Add an NE Multi-Cast Cross-Connection](#)

Cross-connection topologies

Cross-connection topologies supported by ITM SNC include the following:

- One-way point-to-point cross-connection

-
- Two-way point-to-point cross-connection
 - Multicast cross-connection
 - Path-switching and dual ring interworking cross-connections

Deleting cross-connections

There are three scenarios where a request to delete a cross-connection will be *denied*:

1. A request to remove redlined cross-connections.
2. A request to remove a cross-connection from a tributary used in a loopback cross-connection.
3. A request to remove a cross-connection from a tributary used in a test access connection.

Related information

See [T 314, Delete NE Cross-Connections—Graphical](#) and [T 315, Delete an NE Cross-Connection—Textual](#) for instructions on deleting cross-connections.

Modifying cross-connections

ITM SNC allows you to modify various cross-connection information, including the source TID, destination TID, and circuit audit number.

Related information

See [T 316, Modify NE Cross-Connections—Graphical](#) and [T 317, Modify NE Cross-Connections—Textual](#) for instructions on modifying cross-connections.

Path Management

Introduction

The path feature lets you define paths between NEs by grouping cross-connections together under a common user-specified name. This feature gives you control over the NEs in the path, the order of the NEs in which the path travels, and the types of cross-connections created or selected on the NEs in the path. Since paths are a set of cross-connections, a path may be created through a combination of auto and manual path provisioning, as described below.

- *Automatic* path provisioning is available on certain network topologies, including:
 - homogenous rings
 - open and closed rings of FT-LCT
 - closed rings of FT-APR
 - rings and ring extensions of DDM family NEs (FiberReach, DDM-OC3, DDM-OC12)

With automatic provisioning, you specify the entry point, the exit point, transmission rate, and the time slot of the path. ITM SNC then automatically creates or selects the add and drop cross-connections, and the pass-through cross-connections in the NEs that are between the source and destination NEs in the ring.

- Cross-connections in paths can always be provisioned *manually*. Manual provisioning gives you complete control to individually specify each cross-connection at each NE that is part of the path.



NOTE:

The system will not allow using auto path provisioning to provision multiple drops in one NE, or to provision an add and a drop in the same NE. (In auto path provisioning, you cannot “revisit” an NE.)

When creating a path using ITM SNC, you need to follow these general steps:

- Identify that you want to create a path in a particular ring and assign it a name.
- Select an NE from the ring that will contain the path.
- ITM SNC determines whether that NE is part of a ring that can support auto path provisioning.
- If the NE can support auto path provisioning, the user can choose whether to use auto or manual. If it cannot support auto path provisioning, the user can only create the path using manual path provisioning.

Path types

This system supports the following two basic path types:

- **Point-to-point path**, which cannot exceed two entry/exit points on a ring. The entry/exit points may be either simple add/drops at a single NE or Dual-Ring Interworking (DRI) connections involving two NEs. In this system, a ring is defined as any set of NEs that enables a closed path. The path may traverse multiple provisionable subnetworks (core rings and extensions). 0x1 cross-connections to ring extensions do not count toward the maximum of two entry/exit points in a protected path. DRI paths can be one-sided (also known as three-node interworking) or two-sided (also known as four-node interworking). DRI paths are a form of providing protected paths between rings.
- **Point-to-multipoint path**, which must contain an entry point and at least two exit points on a ring.

ITM SNC combines these two path types with the rate, directionality, and protection parameters to support various paths, including:

- Two-way point-to-point protected paths on path switched rings
 - Two-way point-to-point unprotected paths on path-switched rings
 - One-way and two-way point-to-point protected paths on line-switched rings
 - One-way point-to-multipoint unprotected paths on path-switched rings
-

Managing paths

Creating a path follows these two key steps:

- Identify that you want to create a path and assign it a name.
- Select an NE from the ring that will contain the path.

In addition to adding paths, ITM SNC allows you to perform various path management tasks. The following list shows the tasks to which you can refer to accomplish the available Path Management functions.

- Add a user path manually (see [T 329, Add a User Path \(Manual\)](#))
- Add a user path via auto path (see [T 330, Add a User Path \(Auto\)](#))
- View a path (see [T 331, View User Paths](#))
- Copy a path (see [T 332, Copy User Paths](#))
- Modify a path (see [T 333, Display Path Modifications](#))
- Delete a path (see [T 334, Delete User Paths](#))



NOTE:

Before creating paths, you should be familiar with the procedures outlined in the user/service manuals for your NE equipment. The procedures in the documentation are not a substitute for the skill and understanding of the

process involved with creating paths in NEs. Neither this manual nor the system itself provides the test procedures necessary to verify the proper functioning of a newly-created path. You must implement the procedures from the appropriate user/service manuals.

Dynamic Network Operations

Introduction

The Dynamic Network Operations (DNO) feature performs two major functions in ITM SNC:

- Subnetwork discovery
 - Database synchronization
-

Subnetwork discovery

The DNO feature retrieves the internal configurations of NEs, and for Lucent Technologies NEs, external connectivity relationships. This allows ITM SNC to automatically discover all NEs in a subnetwork as well as the trails between Lucent Technologies NEs where available. As a result, the subnetwork topology (NEs and trails) is automatically displayed on the Map window as soon as it is discovered.

When the subnetwork discovery aspect of DNO is executed on a per-NE basis, the neighbors of the target NE are also discovered.

Database synchronization

The DNO feature synchronizes the system database with current configuration data from the NEs. The information that DNO gather from NEs includes:

- NE parameters
- NE equipment inventory
- NE port parameters
- NE port protection groups
- NE cross-connections

As part of subnetwork discovery, ITM SNC retrieves an NE's current equipment configuration and stores this information in the system database. NE equipment data can include bays, shelves, and circuit packs.

For certain NEs, you can select an NE and any single bay or shelf within the NE through the Network Element Explorer on the Manual DNO window, and then invoke DNO to retrieve the NE's current equipment configuration for that bay or shelf to update the system database. This simplifies DNO when bays and shelves are added to an existing NE.

Ways to initiate DNO

There are three ways that the DNO feature is initiated in ITM SNC:

- Automatically—The DNO subnetwork discovery/database synchronization process is initiated automatically when an NE is discovered or added manually to the ITM SNC database.
- Manually—The DNO subnetwork discovery/database synchronization process is executed for the NE, when you request it. When you request a manual DNO for an aggregate, DNO is executed for all NEs in the aggregate.
- Scheduled—You can schedule DNO to be performed for one or more NEs on a daily, weekly, or monthly basis.

DNO options

You can invoke DNO to perform automatic subnetwork discovery or database synchronization for one or more of the following: NE parameters, equipment inventory, port parameters, port protection groups, cross-connections. You can also invoke DNO to perform subnetwork discovery and resynchronize the system database for all data types.

Related tasks

See the following tasks in the *User Tasks* section:

- [T 319, Manually Initiate DNO](#)
 - [T 618, Schedule DNO](#)
-

Software Management

Introduction

The Software Management feature provides a set of functions that automates the process of transferring NE software from Digital Access Tape (DAT) or CD-ROM to the ITM SNC host machine, and downloading, activating, and copying software to NEs. The Software Management functions assist you in doing a generic software upgrade of a given NE type in the network by providing the ability to download NE software to NEs. The Software Management feature also provides backup and restore functions to protect against NE data loss. Software Management functions can be performed on demand or scheduled to be performed at a later time.

Software management functions

The Software Management functions are:

Executables

- NE Software Transfer
- NE Software Download
- NE Software Copy
- NE Software Activate
- NE Software Delete

Data

- NE Software Backup
- NE Software Restore

Software Release Information

- View software release descriptive information
-

NE releases/types supported

Software Management functions are supported for the following or later NE types/releases, as shown in the following table.

Table 4-2. NE Types Supported for Software Management Function

| NE Type(s) | NE Release(s) |
|--------------------------------------|---------------|
| DDM-2000 OC-3 and SLC-2000 ARM Shelf | 13.0- |
| DDM-2000 OC-12 | 7.0- |
| DDM-2000 FiberReach | 3.0- |
| FT-2000 ADR | 8.0-9.1 |
| FLM-150/150+ and FLM-600 | 11S-15.1S |
| FLM-2400 | 9.3S-* |
| OLS, LCT (via x.25) | 2.0- |

*. Certain Software Management functions are not available for all FLM NEs; the Software Download function is not available for FLM-2400 NEs.

Ways to perform software management functions

Some of the Software Management functions can be performed either on-demand or scheduled to be performed at a certain time or on a periodic schedule (backup is on a periodic schedule). As with other scheduled activities, you can specify the time/date and the number of times to retry a failed or incomplete Software Management activity, as well as the time interval between attempts.

The following table indicates how the various Software Management functions can be performed.

Table 4-3. Methods of Performing Software Management Functions

| Software Management Function | NE Types Supported | On-Demand | Scheduled |
|-------------------------------------|---|------------------|------------------|
| NE Software Transfer | All except OLS, LCT | ✓ | |
| NE Software Download | All except OLS, LCT, FLM-2400 | ✓ | ✓ |
| NE Software Copy | All NE types | ✓ | ✓ |
| NE Software Activate | All except FiberReach | ✓ | ✓ |
| NE Software Delete | All except OLS, LCT | ✓ | |
| NE Software Backup | All NE types | ✓ | ✓ |
| NE Software Restore | All NE types except X.25-connected FLMs | ✓ | |

Related information

For details about how to schedule Software Management functions, see the following tasks:

- [T 618. Schedule DNO](#)
- [T 619. Schedule NE Data Backup](#)
- [T 620. Schedule NE Software Download](#)
- [T 621. Schedule NE Software Copy](#)
- [T 622. Schedule NE Software Activation](#)
- [T 623. Modify a Scheduled Task](#)

Software transfer via removable media

For file transfer from Digital Access Tape (DAT), the ITM SNC hosts are configured so that all the user has to do is physically mount the tape and then use the ITM SNC application to transfer the files to the ITM SNC file system. For file transfer from CD-ROM, the user must both physically load the CD-ROM and use

UNIX utilities to mount the file system for the CD-ROM. Once the CD-ROM has been inserted and mounted, a user can use the EMS GUI application to transfer the files from the CD-ROM to the EMS file system.



NOTE:

It is also possible to use other commonly available tools and applications to get software files into the EMS file system (for example, use file transfer software, such as File Transfer Protocol (FTP), to transfer software to ITM SNC over a network.

Viewing descriptive information for an NE software release

Prior to transferring a new software release or after the software transfer, ITM SNC provides a function for viewing descriptive information for all software releases that are currently maintained on the ITM SNC host machine for a given NE type.

Maximum number of software releases on ITM SNC Host

The maximum number of software releases for a given NE type that can reside on the ITM SNC host machine varies with the host type.

The following table shows the maximum number of NE software release copies by host type.

Table 4-4. Maximum Number of NE Software Copies Allowed to Reside on Host Type

| Host Type | Number of NE Software Release Copies Resident Per NE Type |
|------------------|--|
| K580 | 3 |
| K460 | 3 |
| K380 | 2 |

If the host limit is exceeded, and you attempt to transfer a new software release, ITM SNC informs you of this and instructs you to delete at least one of the existing software releases. You can use the NE Software Delete function to do this. See [T 324, Delete NE Software](#) for instructions on how to delete NE software from ITM SNC.

Related information

[T 320, Transfer NE Software](#) describes how to use the NE Software Transfer function.

NE software download

The Software Download function allows you to download a specific software release from the ITM SNC host to a specified NE. Software downloads are done by specifying the NE type and the software release to download. Software downloads are performed by ITM SNC via an IAO-LAN interface using NE-specific file transfer protocol.

Software downloads for FiberReach NEs

When a software download is performed for a FiberReach NE, the older software is immediately replaced by the new software and the NE automatically resets, therefore not requiring a Software Activate. However, this also results in loss of communications with the FiberReach NE. It is recommended that when software has to be downloaded to all the FiberReach NEs in a ring, the order should be from the NE furthest from the ITM SNC host to the NE closest to the ITM SNC host. If the NE loses DCC connectivity, the software has to be downloaded on site from the CIT.

Verifying software downloads

When a software download is performed, ITM SNC checks if the release identified for the download is older than or the same version currently running on the NE, or if it is a release that is not supported by ITM SNC. If any of these conditions occur, ITM SNC informs you of this, and asks if you want to proceed with the software download anyway. You have the option of continuing with the software download or cancelling it. ITM SNC informs you of the status of the download. If the software download fails for some reason, ITM SNC issues an error message.

Maximum number of software downloads

The number of simultaneous software downloads allowed by ITM SNC is 4.

Related information

[T 321, Download Software Release to the NE](#) describes how to use the Software Download function.

NE software copy

The Software Copy function allows you to copy software from a Lucent Technologies NE to one or more Lucent Technologies NEs of the same type.

Simultaneous NE software copies

The number of simultaneous NE-to-NE software copies (scheduled or on-demand) that can be performed depends on the ITM SNC host type. The following table summarizes the maximum number of simultaneous software copies that can be performed by host type.

Table 4-5. Simultaneous Software Copies Allowed by Host Type

| Host | NE-to-NE Software Copies per NE (FT-2000, OLS, LCT) | NE-to-NE Software Copies (DDM-2000, FiberReach) |
|-------------|--|--|
| K460 | 15 | 1 |
| K380 | 15 | 1 |
| K580 | 15 | 1 |

Verifying software copies

When a software copy is performed, ITM SNC checks if the release identified for the copy is older than or the same version currently running on the destination NE(s). If either of these conditions occur, ITM SNC informs you of this, and asks if you want to proceed with the software copy anyway. You have the option of continuing with the software copy or cancelling it. ITM SNC informs you of the status of the copy. If the software copy fails for some reason, ITM SNC issues an error message.

Maximum number of software copies

The maximum number of simultaneous software copies from a given source NE allowed is 4 (3 for OLS 40G NEs).

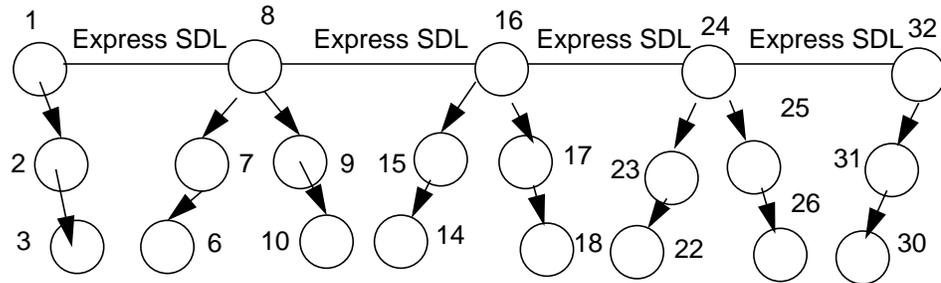
The maximum number, in total, of simultaneous remote copies within an open or closed ring of NEs allowed is 8.

ITM SNC software upgrade process

The process of upgrading NEs with the latest software through ITM SNC is a combination of the Software Download and Software Copy functions requested by the user that are executed by the system in a certain order or sequence.

The software upgrade process is performed on one open or closed ring of NEs at a time.

Refer to the following figure that shows a sample 32 node open ring configuration when following the sequence of events for a software upgrade by ITM SNC.



1. ITM SNC downloads the software to all NEs within the open or closed ring that have the express software download (SDL) terminated.
2. Once all software downloads in step 1 are completed, ITM SNC remote copies the software from the NEs downloaded in step 1 to those NEs' neighbors.
3. Once all remote copies in step 2 are completed, ITM SNC remotely copies the software from the NEs that have just received the remote copies from the source NEs in step 2 to those NEs' neighbors.
The express SDLs are terminated are nodes 1, 8, 16, 24, and 32.
The process continues until all NEs contain the desired software load.
4. NEs should then have the active/inactive partition swapped and reset, starting from the NE furthest away and working towards the NE connected to ITM SNC.

Related information

[T 322. Copy Software from NE to NE](#) describes how to use the Software Copy function.

NE software activate

The Software Activate function allows you to activate a specific software release on an NE. When new software is downloaded to an NE, it is placed in "standby" until it is activated; it then replaces the old software.

Simultaneous NE software activations

The number of simultaneous software activations (scheduled or on-demand) that can be performed depends on the host type. The following table summarizes the maximum number of simultaneous software activations that can be performed by host type.

Table 4-6. Simultaneous Software Activations Allowed by Host Type

| Host | NE Software Activations |
|------|-------------------------|
| K460 | 512 |
| K380 | 128 |
| K580 | 512 |

Software activation for FiberReach NEs

The Software Activate function cannot be performed for FiberReach NEs, because the software is automatically activated when it is downloaded or copied to this NE type.

Verifying software activations

When a software activation is performed, ITM SNC checks if the software being activated is the same as the current version, older than the current version, or is currently not supported by ITM SNC. If either of these conditions exist, ITM SNC informs you of this, and asks if you want to continue with the software activation anyway. You have the option of continuing with the software activation or cancelling it. After a software activation request, ITM SNC loses the connection to the NE. If, after re-establishing the connection, ITM SNC determines that the software activation has failed for some reason, ITM SNC issues an error message.

Software activation failures

When ITM SNC is unable to complete an on-demand request to activate NE software on one or more NEs because some of the NEs rejected the software activation request, the system displays an error message for each failed NE request.

Loss of communications

When ITM SNC loses its connection to the NE as a result of a software activation request, and determines that the activation request was unsuccessful upon re-establishment of the connection with the NE, a failure message is logged in the Activity Log and the system issues a failure message in the status bar for failed on-demand requests.

Related information

[T 323, Activate NE Software](#) describes how to use the Software Activate function.

NE software delete The Software Delete function allows you to delete a specific software release for an NE type.

When software is deleted from ITM SNC, it is not recoverable. The only way to get the software back into ITM SNC is to reload it from a tape or CD-ROM. ITM SNC informs you of this prior to actually deleting the software. You have the option of continuing with the software deletion anyway or cancelling the deletion.

Related information

[T 324, Delete NE Software](#) describes how to use the Software Delete function.

NE data backup The NE Software Backup feature lets you perform an on-demand backup of an NE's provisioning data. The provisioning data includes port parameters and cross-connections.



NOTE:

The NE data backup option is supported for X.25-connected FLM NEs. The NE restore option is not supported for X.25-connected FLM NEs.

When the NE Data Backup option is selected, all of the NE's current configuration data is backed up to a date/time stamped file. To avoid unnecessary redundant backups of NE data that has not changed since the last backup, ITM SNC checks the selected NE to make sure a backup is necessary. If there is no change in the NE's configuration status since the last backup, a backup is not necessary and you are informed of this and given a choice of performing the backup anyway or cancelling it. If you choose to do a backup anyway, all data is backed up.

Storage of backup data

NE backup data is stored in flat ASCII files with header information, including the NE type, software release, NE's TID, equipment/slot information, the ID of the user performing the backup, date/time of the backup, and the system release that created the backup.

Simultaneous backups

The number of simultaneous NE backups (either on-demand or scheduled) that can be performed depends on the ITM SNC host type. The following table indicates the number of simultaneous backups that can be performed by host type.

Table 4-7. Simultaneous NE Backups Allowed by Host Type

| Host | NE Simultaneous Backups |
|------|-------------------------|
| K580 | 6 |
| K460 | 6 |
| K380 | 4 |

If you attempt to perform more than the maximum number of simultaneous backups than can be performed for the ITM SNC host type, the new backup is not accepted and ITM SNC informs you that no more backups can be performed at the current time.

Alarms present during backups

If an on-demand NE backup is requested on an NE with alarms present, you are informed of this and given a choice of proceeding with the backup anyway or cancelling it.

Shelf parameter data for LCT NEs

The Shelf Parameter for LCT NEs, which defines the quantity of in-service shelves in an LCT and is set through the NE Provisioning window, is not part of the LCT NE's database. Therefore, it is **not** backed up and restored as part of the NE backup and restore processes. It is a system parameter and should be backed up as part of ITM SNC database backup. (This parameter *does* determine the number of LCT shelves to which ITM SNC backs up and restores data.)

Verify NE backups

ITM SNC keeps you informed about the status of the NE backup in progress. If the backup fails for some reason, ITM SNC informs you of the problem via a pop-up message window.

Related information

[T 325, Back Up NE Data](#) describes how to use the NE Backup function.

NE data restore

The NE Restore function allows you to restore NE data that was backed up using the NE Backup function.

When a backup or restore is in progress, ITM SNC prevents the execution of any command that may change the settings of NE parameters until the backup or restore is completed.

When a restore is requested, ITM SNC compares the NE type, software release, and equipment of the NE with the data in the selected backup file. If the NE type

or software release does not match, a message is issued and you are given the option of continuing with the restore anyway.

Types of NE restorals

There are two types of NE restorals that can be performed:

- Regular Restore
- Intelligent Restore

Regular restore

A Regular Restore restores all backup data from the selected NE file, including parameters set to the default settings.

Intelligent restore

If you select the Intelligent Restore option, ITM SNC compares each parameter setting from the backup file against its default value. If the current setting matches the default value, that parameter is excluded from the restore. If all parameters on a given command issued during the restore request match the defaults, that command is skipped during the restore process. Only parameters that do not currently match the default settings are set, thus reducing the amount of time it takes to restore the NE to the backup data.



NOTE:

The Intelligent Restore option is not available for NEs that use file transfer-based (FTAM) restorals, such as OSI-connected FLM NEs.

Restoring NE backup data

The files that are created by the NE Backup function are accessible through the NE Restore function. ITM SNC stores up to seven files for each NE. When seven backup files exist and another backup file is created, the oldest backup file is removed.

Verifying NE restorals

ITM SNC keeps you informed about the status of the NE restoral in progress. If the restoral fails for some reason, ITM SNC informs you of the problem via a pop-up message window.

Related information

[T 326, Restore NE Data](#) describes how to use the NE Restore function.

Date/Time Synchronization

Introduction

Periods of time when an NE is out of service, as during a software upgrade, can cause the NE's date/time setting to be out of sync with the ITM SNC host and the other NEs in the network. Lack of date/time synchronization can create problems in determining the order in which alarms occurred on the network.

The date/time synchronization feature allows you to establish the correct time and date of the ITM SNC host's internal clock and to synchronize each NE's date/time setting with the ITM SNC host. This ensures correct date/time settings for the NE and accurate time reporting.

NE Time Zone

As part of the date/time synchronization feature, ITM SNC can take into account whether the NE is located in a different time zone from the ITM SNC host.

Standard Time and Daylight Savings Time

You can use the Spring Forward/Fall Back option to have ITM SNC automatically make time adjustments for Daylight Savings Time (Spring Forward) and Standard Time (Fall Back) when doing date/time synchronization for an NE, a group of NEs, an aggregate, or all NEs under system control, 20 NEs at a time or more, depending on system load. The Spring Forward/Fall Back option can be enabled or disabled, as needed. This option is enabled, by default. If the option is disabled for an NE, the NE's time is always set to standard time.



NOTE:

The Spring Forward/Fall Back option should be set by the system administrator.

Related Information

[T 328, Enable/Disable Fall Back and Spring Forward](#) in the *User Tasks* section explains how to set the Spring Forward/Fall Back option.

Ways to Perform Date/Time Synchronization

NE Date/time synchronization can be performed in three ways:

- **Scheduled**—NE date/time synchronization can be scheduled to be performed on a daily, weekly, or monthly basis. A scheduled date/time synchronization will only be done if the time difference between the NE and the ITM SNC host is more than 15 seconds.

-
- Automatically—You can have ITM SNC automatically perform date/time synchronization on an NE when it is manually added or autodiscovered by ITM SNC, or when communications between the NE and the ITM SNC host are lost and then regained. Automatic date/time synchronization changes the date/time on the NE if the time difference between the NE and ITM SNC is more than 15 seconds, by default. This drift threshold, or the maximum allowed time difference (in seconds) between the NE and the EMS host before date/time synchronization is performed automatically, can be changed via the Set Drift option under the Date Time Management options in the GUI.
 - Automatic date/time synchronization can be enabled or disabled; the default is enabled.



NOTE:

Automatic date/time synchronization should be enabled/disabled by the ITM SNC system administrator or a user with a privileged login.

- Manually—Date/time synchronization can be performed on demand for an NE, a group of NEs, an aggregate, or all NEs under system control, up to 20 NEs at a time or more, depending on system load.

Related Information

[T 615, Enable/Disable Automatic Date/Time Synchronization](#) describes how to enable/disable automatic date/time synchronization.

[T 616, Set Drift Threshold for Date/Time Synchronization](#) describes how to set the drift threshold for automatic date/time synchronization.

[T 327, Set NE Date/Time Synchronization](#) describes how to manually initiate date/time synchronization.

Performance Management

5

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Background

Introduction

The Performance Management features of the system allows users to collect Performance Monitoring (PM) data from certain NE types, as well as PM threshold information. Users can specify the NEs from which PM data is collected. The collected PM data can be viewed online through the GUI or exported to external systems for analysis and report generation.

Objectives

This chapter provides background and introductory information about Performance Management functions in the ITM SNC system. It includes available features and references to specific task-related instructions. After learning the information in this chapter, the user should be able to do the following:

- Enable the Performance Management feature for PM data collection.
 - Administer the storing of PM data.
 - View PM data.
 - Administer PM parameters.
-

Related tasks

For related tasks, see the series 400 (Performance Management) tasks in the *User Tasks Manual* or look up individual tasks in the Task Index.

Related information

For related information, see [Chapter 3, Fault Management](#).

Performance Management

Introduction

The Performance Management feature allows the system to retrieve, store, and export Performance Monitoring (PM) data from various NEs (including OLS 40G, FT-2000 LCT/ADR, DDM-2000 OC-12/OC-3, FiberReach, and Fujitsu FLM 2400/600/150/150+/-6) through GUI functions. This feature, which is enabled or disabled through the GUI, allows you to initiate performance monitoring of managed NEs. PM data can be collected from none, some, or all NEs in the network. This feature allows you to specify, on a per-NE basis, the type(s) of interfaces from which to collect PM data for analysis. PM data can be turned on or off for each NE, and can be collected in 15-minute and/or 1-day time intervals. PM data can be viewed online through the GUI or exported to an external reports system for more sophisticated reports and analysis.

The system also supports remote administration of performance parameters and thresholds through the Cut-Through feature. Performance exceptions are logged from the NEs on Threshold Crossing Alerts (TCAs), each time the administered threshold for these events is exceeded.

Enabling the PM feature

The PM feature must be globally enabled before PM data can be collected from NEs. If the PM feature is not enabled globally, PM data cannot be collected even if PM data collection is turned on for an NE.

When the PM feature is globally enabled, the system periodically polls each NE that has PM data collection enabled by sending one or more RTRV-PM-RR TL1 commands to the NE.

Related Task

[T 400, Enable/Disable the PM Feature](#) describes how to globally enable or disable the PM feature through the GUI.

PM data collection

PM data collection can be enabled or disabled for an NE. You can also select the type of PM data to be collected (15-minute, 1-day, or both) for each interface type on the NE, or disable PM data collection for an interface type.

NEs are normally polled every two hours. Data polling is done by the system in such a way as to avoid overwhelming the network with PM data traffic.

Loss of communications

If connectivity is lost to an NE during PM data polling, upon re-establishing the connection, the system resumes data collection, and polls for the oldest PM data

not yet collected, based on the value of the *PM_OLDEST_TO_POLL* variable stored in the *.pm_global* file, found in the */snc/.pm* directory, which can be changed by the system administrator.

For example, if the value of the *PM_OLDEST_TO_POLL* variable is set to four hours and connectivity between an NE and the system is lost for three hours, the system resumes polling for PM data that is up to four hours old if it has not already been collected.

Suspension of PM data collection

PM data collection is suspended during an alarm storm. ITM SNC resumes PM data collection after the alarm storm has subsided.

Setting the start time for 1-day PM data collection

For the selected NE, the PM feature allows you to view and then reset (if necessary) the hour of the start time for collection of 1-day PM data.

Related task

[T 401, Enable/Disable PM Data Collection](#) describes how to enable or disable PM data collection for one or more port (data) types on an NE.

Storing PM data

The system stores collected PM data in the ITM SNC database. Each PM database record contains a:

- TID of the NE from which the PM data was collected
- 15-minute or 1-day PM data indicator
- NE interface type from which PM data was collected
- time/date of PM data collection
- validation of PM data
- PM threshold exceeded indicator (in other words, whether the PM data collection exceeded the established threshold during PM data collection).

The PM data collected can be invalid if the NE date/time was reset during PM data collection or if the NE PM data register overflowed during the collection interval.

PM data can be stored in the system for 1 to 30 days. The default retention period for 15-minute data is 30 days. The default retention period for 1-day data is 30 days. The data retention period for both 15-minute and 1-day PM data can be specified through the Global PM Management option on the GUI.

PM files are kept for the set retention period, unless the files have to be overwritten due to insufficient data storage space. The system automatically

deletes any PM data file when it is older than the retention period or there is a lack of storage space. If there is a lack of data storage space, the system deletes PM data files, starting with the oldest file first, until the storage problem is resolved.

When PM data is deleted, ITM SNC puts an entry into the Alarm Log indicating that PM data has been deleted.

Deleting an NE from ITM SNC

Any PM data associated with an NE is removed from the ITM SNC database when that NE is deleted from ITM SNC.

Related task

[T 400, Enable/Disable the PM Feature](#) explains how to specify the data retention period for either time interval.

Viewing PM data

The system allows you to view the “raw” PM data which is either stored in the ITM SNC database or not yet collected from the NE. You can specify which PM data to view using selection criteria such as:

- Current or historical PM data
- Date/time of historical PM data
- The type of PM data (15-minute or 1-day)
- The NE interface type

Related task

[T 402, View PM Data](#) describes how to view PM data online through the GUI.

Generating PM data reports

PM data collected by the system can be automatically downloaded by Lucent Technologies' Integrated Transport Management Dynamic Network Analyzer (ITM-DNA), an external PC-based system which can produce various types of user-defined reports. The downloaded PM data that is stored in the ITM-DNA database can be used to generate reports in a variety of formats, including tabular reports, line graphs, and bar graphs.

Types of PM data

The system can be set up to collect various PM data from specific NE interfaces. Depending on the specific NE, some PM data collected could include physical, section, line, path, optics, or far end data. For each NE, the GUI screens display specific fields for the data that can be collected for that NE.

Refer to the NE hardware documentation for details about the types of PM data that can be generated from each of these interfaces.

Administering PM parameters

Some of the parameters that are used by the system to manage the PM feature, such as the data retention period or the age of the data collected during polling, can be manually changed by the system administrator by editing the value of the corresponding variable in the *.pm_global* file, which is found under */snc/pm*.

The following table shows the PM variables that can be edited, with their default values.

Table 5-1. PM Feature Variables

| Variable | Description | Default Value |
|--------------------------|--|---------------|
| <i>PM_COLLECT_STATUS</i> | The current global setting of the PM feature. Value is On or Off. | Off |
| <i>RETENTION_FOR_PM</i> | The global data retention period for 15-minute PM data. | 2 (days) |
| <i>RETENTION_FOR_DAY</i> | The global data retention period for 1-day PM data. | 30 (days) |
| <i>PM_POLLING_FREQ</i> | The frequency that the system polls the NEs for PM data in a session. Allowed value is 2 to 6 (hours). | 2 (hours) |
| <i>PM_OLDEST_TO_POLL</i> | The age of the oldest PM data that can be collected by the system from the NEs (hours). | 4 (hours) |
| <i>PM_MAX_FILE_POLL</i> | The maximum number of PM data reports for which the system can poll NEs in one session. | user-defined |
| <i>TOTAL_FILE_SYSTEM</i> | The total number of system host machines for which PM data is being collected. | 1 |

Exception reporting

The system provides exceptions by logging Threshold Crossing Alerts (TCAs) received from the NEs. TCAs, in the form of report events, are generated every time an administered performance threshold is exceeded in the NE. In addition, the system EPT Threshold capability flags the TCA rate when it exceeds the system threshold.

TCAs and alarms are stored in the ITM SNC database and are available for online queries through the Network Alarm/Event Log.

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Background

Introduction

The Security Management features of the system allow administrative control over user access to managed NEs and the functions that a user can perform. There are also functions for administering user and NE passwords.

Objectives

This chapter provides background and introductory information about Security Management functions in the ITM SNC system. It includes available features and references to specific task-related instructions.

Related tasks

For related tasks, see the series 500 (Security Management) tasks in the *User Tasks Manual* or look up individual tasks in the Task Index.

Related information

For related information, see [Chapter 7, Administration](#).

Password Administration

Introduction

The ITM SNC GUI provides functions for administering user passwords and NE passwords.

Changing an EMS user's password

The Change Password function is the only Administration function that is available to the ITM SNC application user. An ITM SNC user password can be changed at any time. The system verifies that the old password entered matches the one stored in its database for the user.

The first time a user ID (login) is used to log into ITM SNC, the system enforces that the default password must be changed to a new password, and displays the Change Password window for changing it.

Passwords must be changed after a certain period of time (as defined by the system administrator via the Global Security Provisioning window). If a password is about to expire, and a user attempts to log into the system, a pop-up window advises that the password is about to expire and allows the user to change the password at this point. If the expiration period is reached, and the user does not change the password before attempting to log into the system, system access is denied.

ITM SNC maintains a history of password usage. If a user attempts to change the password to one previously used, the system advises that a different password must be specified.

An ITM SNC user's login, however, can only be changed by the ITM SNC administrator. See Users under Network Security in this chapter for additional information about changing ITM SNC user logins.

Related Task

[T 500. Change Your User Password](#) describes how to change a user's password.

Global NE password administration

NEs have default login/passwords that are defined at the manufacturer prior to shipment. The NE login/password is required by the ITM SNC user to gain access to the NE. The system GUI allows you to modify an individual NE's primary and backup password through the Add/Modify an NE window or via Cut-Through mode. However, if the network has a large number of NEs, this can be a very time-consuming process.

The Global Password Administration feature, which is available only for Lucent Technologies NEs, through the GUI, allows you to change the primary and/or backup passwords for a number of NEs at the same time. This feature allows global password change for:

- Individual NEs (by TID)
- All NEs
- NEs by type
- Aggregate (collection of NEs)

Changes to the primary and/or backup NE passwords are sent to the selected NE(s) and the local ITM SNC database is automatically updated with the password information.

The global password update process can be aborted at any time while the Global Password Administration window is open.

Only one person can use the Global Password Administration feature at a time.

Related Task

[T 501, Globally Administer NE Passwords](#) describes how to use the Global Password Administration feature for changing NE passwords.

Network Security

Introduction

The ITM SNC system provides network security by allowing an administrator to define users, the extent of their access to NEs in the network, and capability of performing certain functions and commands through the system.

Levels of access are defined by:

- User/password administration and NE/command access
- Command Groups
- Target Groups

Users

A user is identified by a login and password and provided access to the functions and features of the system as defined by the administrator.

The ITM SNC administrator can create, delete, and modify users (by user login) and their access permissions. Before any user can access the system, the user must be assigned a login and appropriate Target Group and Command Group access permissions.

The administrator can also copy the login group settings, Command Group, and Target Group settings from an existing user to a newly defined one.

When a user login is created by the administrator, it is initially set up with the following default values:

- User ID Login Type—GUI
- Password—no default password, must be entered by the administrator
- Command Group—Empty
- Target Group—Empty
- Date Representation—North American

User Login Types

All user IDs (logins) are created with user login types, or categories, to help control user access to ITM SNC. The following are the defined user login types:

- GUI—This login type is only allowed to access the EMS via the GUI client.
- ITM-NM—This login type is reserved for the interface between the EMS and ITM-NM. The default Command Group for this category is ALL. The default Target Group for this category is ALL. This type of login is not allowed to log in via the EMS GUI. The pre-defined user ID *itm* is defined as the login type ITM-NM (*itm*).

-
- NMS—This login type is reserved for the interface between the EMS and a generic Network Management System (NMS). Both Fault Management and Configuration Management functions are available to this type of user ID. The default Command Group for this login type is Privileged. The default Target Group for this login type is ALL. This type of login is not allowed to log in via the GUI. The pre-defined user ID *nms* is defined as the login type NMS (*nms*).
 - NMS-CM—This login type is reserved for the interface between the EMS and a generic Configuration Management provisioning system. The default Command Group for this login type is Provisioning. The default Target Group for this login type is ALL. This type of login is not allowed to log in via the GUI. The pre-defined user ID *opsine* is defined as the login type NMS-CM (*opsine*).
 - NMS-FM—This login type is reserved for the interface between the EMS and a generic Fault Management collection system. The default Command Group for this login type is Maintenance. The default Target Group for this login type is ALL. This type of login is not allowed to log in via the GUI. The pre-defined user ID *nma* is defined as the login type NMS-FM (*nma*).

Date Format

All user IDs are assigned a date format which defines how calendar date information for that login is displayed in the GUI. The date formats are:

- North American—*mm-dd-yyyy*
- International—*dd-mm-yyyy*

where:

mm represents the month [01-12]

dd represents the day [01-31]

yyyy represents the year [1969-2068]

The default date format is North American. All pre-defined logins default to North American date format.

Changing a user's login

To change a user's login, the system administrator must first delete the user and then re-enter the user in the system with a new login.

User management

ITM SNC has a number of built-in security features to inhibit or prevent unauthorized user access to the system and to monitor user activity.

Through GUI functions, an ITM SNC administrator or a user with a privileged login can:

- terminate an active user login's session
- enable or disable user logins
- set a limit of the number of failed login attempts before preventing a user from logging into ITM SNC
- set the password aging interval for user logins
- issue a warning notice to users when their password is about to expire
- maintain a history of previously used passwords
- set the session timeout interval for logins
- set the expiration period for user logins
- specify the message that is issued when a user successfully logs into ITM SNC
- view all currently active user login sessions

Alarms and user logins

ITM SNC generates a Minor alarm when any of the following conditions occur:

- a user ID is automatically disabled due to excessive failed login attempts
- a user ID is deleted due to lack of use
- a password change for a user ID is unsuccessful

Any of the above conditions may indicate a possible threat or attempted breach of system security. A Minor alarm is generated against the application itself (TID=EMS) which can only be accessed by the EMS system administrator.

Related tasks

[T 502. Add a User](#) describes how to add a user's login/password and define NE/command access permissions.

[T 503. Modify a User](#) describes how to change a user login's settings and access permissions.

[T 504. Delete a User](#) describes how to delete a user login from the system.

[T 511. Terminate User Session](#) describes how to terminate one or more active user login sessions.

[T 512. Enable/Disable User Logins](#) describes how to enable or disable user logins from being able to log into ITM SNC.

[T 513, Display Logged In Users](#) describes how to display users that are currently logged into ITM SNC.

[T 514, Globally Provision Login/Password Parameters](#) describes how to set certain security parameters for user logins and passwords, such as the password aging interval and the number of unsuccessful login attempts allowed.

Command groups

A Command Group, also known as a user class, is a collection of EMS and NE commands that a specified user is allowed to enter through the system GUI. Each user is assigned to one and only one Command Group.

The system has a set of pre-defined Command Groups:

- Maintenance Command Group—This Command Group allows access to all Maintenance and Performance Management Category commands with Authorization Level 4 or less. (For an explanation of Authorization Levels, see the [Functions available by authorization level/functional category](#) section.) This group of commands allows a user to view and modify all NE Maintenance information.
- Provisioning Command Group—This Command Group allows access to all Provisioning Category command with Authorization Level 4 or less. (For an explanation of Authorization Levels, see the [Functions available by authorization level/functional category](#) section.) This group of commands allows a user to view and modify all NE provisioning information.
- Report-Only Command Group—This Command Group allows access to all categories of commands with Authorization Level 2 or less. This restricts a user to only being allowed to view NE information but not change it.
- General Command Group—This Command Group allows access to all categories of commands with Authorization Level 3 or less. This allows a user to view and modify most NE information.
- Privileged Command Group—This Command Group allows a user access to all categories of commands with Authorization Level 4 or less. This allows a user to view and modify almost all NE information, except for Administrator functions.
- All Command Group—This Command Group allows access to all commands, including Administrator functions supported by the NE. This is the super-user NE Command Group and is automatically assigned to the *snc* and *snms* logins; other user IDs may be assigned to this command group. It is usually reserved for the EMS administrator.
- None—This Command Group is set up with no commands.

The ITM SNC administrator can add, modify, or delete Command Groups. Additional Command Groups can be defined as needed by the administrator.

The administrator can also copy the contents of an existing Command Group, including any of the pre-defined Command Groups, to a newly defined one.

Functions available by authorization level/functional category

The following table shows the functions/features that can be performed for each Authorization Level by Functional Category.

The Functional Categories are as follows:

- **Maintenance (M)** - This Functional Category contains all of the Fault Management-related functions/features.
- **Provision (P)** - This Functional Category contains all of the Configuration Management-related functions/features.
- **Performance Management (PM)** - This Functional Category contains all of the Performance Management-related functions/features.
- **Security (S)** - This Functional Category contains all of the EMS Security and Administration-related functions/features.

Table 6-1. Functions Available By Authorization Level/Functional Category

| Auth. Level | Maintenance (M) | Provision (P) | Performance Management (PM) | Security (S) |
|-------------|---|---|---|---|
| 1 | CUT-THROUGH, TL1 MACRO BUILDER, TL1 BROADCASTER | CUT-THROUGH, TL1 MACRO BUILDER, TL1 MACRO SCRIPTS, TL1 BROADCAST | CUT-THROUGH, TL1 MACRO BUILDER, TL1 MACRO SCRIPTS, TL1 BROADCASTER | CHANGE PASSWORD, VIEW USER PREFERENCES |
| 2 | VIEW ALARM MONITORING STA- TISTICS, VIEW ALARM SEVERITY PRO- FILES | RING UTILIZATION, VIEW CROSS CON- NECT, VIEW EQUIPMENT, VIEW PATH, VIEW PROVISION NE, VIEW PROVISION PORT | VIEW PM DATA | COPY POSITIONS, COPY PREFERENCES, MOVE NODE, RESTORE MAP SETTINGS, RESTORE POSITIONS, RESTORE PREFERENCES, SAVE MAP SETTINGS, SAVE POSITIONS, SAVE PREFERENCES, VIEW ALL CMDRSP LOGS, VIEW LOGS |

Table 6-1. Functions Available By Authorization Level/Functional Category

| Auth. Level | Maintenance (M) | Provision (P) | Performance Management (PM) | Security (S) |
|-------------|--|--|-------------------------------------|---|
| 3 | FILTER ALARMS RESYNCHRONIZE ALARMS, VIEW PROTECTION SWITCH MESSAGES, PROVISION ALARM PROVISION- ING | ADD CROSS CONNECT, ADD PATH, COPY PATH, CREATE OPTICAL ASSOCIATION, DELETE CROSS CON- NECT, DELETE OPTICAL ASSOCIATION, DELETE PATH, MANUAL DNO, MODIFY CROSS CONECT, MODIFY OPTICAL ASSOCIATION, MODIFY PATH, PROVISION EQUIP- MENT, PROVISION NE, PROVISION PORT, PROVISION PROTEC- TION GROUPS | | AUTO DNO, AUTO DTSYNC, BACKUP NE, MANUAL DNO, MANUAL DTSYNC, SCHEDULE BACKUP, SCHEDULE DNO, SCHEDULE DTSYNC, SPRING FALL CHANGE |
| 4 | ALL ALARM MONITORING, ENABLE FULL ALARM MONITOR- ING, ENABLE PARTIAL ALARM MONI- TORING, INTELLIGENT ALARM FILTERING, PROVISION PROTECTION SWITCH | ESTABLISH EQUIP- MENT, REMOVE EQUIPMENT | GLOBAL PM MGMT, NE PM MANAGEMENT | ADD AGGREGATE, ADD GNE ASSOCIATION, ADD NE, ADD SUBNET, ADD TRAIL, CHANGE AGGREGATE CON- TENTS, DATE TIME MANAGEMENT, DELETE AGGREGATE, DELETE GNE ASSOCIATION, DELETE NE, DELETE SUBNET, DELETE TRAIL, GLOBAL PASSWORD ADMIN. MODIFY AGGREGATE, MODIFY GNE RNE ASSOCIA- TION, MODIFY NE MODIFY SUBNET, NE SW ACTIVATE, NE SW COPY, NE SW DELETE, NE SW DOWNLOAD, NE SW TRANSFER, PROVISION DSA, RESTORE NE, RETRY INTERVALS, SCHEDULE SW ACTIVATE, SCHEDULE SW COPY, SCHEDULE SW DOWNLOAD, SWITCH ACTIVE GNE, VIEW DESCRIPTIVE INFOR- MATION |

Table 6-1. Functions Available By Authorization Level/Functional Category

| Auth. Level | Maintenance (M) | Provision (P) | Performance Management (PM) | Security (S) |
|-------------|-----------------|---------------|-----------------------------|--|
| 5 | | | | ADD COMMAND GROUP, ADD TARGET GROUP, ADD USER, DELETE COMMAND GROUP, DELETE TARGET GROUP, DELETE USER, MODIFY COMMAND GROUP, MODIFY TARGET GROUP, MODIFY USER, |

The following table shows the TL1 commands that can be issued for WaveStar NEs for each Authorization Level by Functional Category.

Table 6-2. WaveStar Network Element TL1 Commands by Authorization Level/Functional Category

| Auth. Level | Maintenance (M) | Provision (P) | Performance Management (PM) | Security (S) | Test (T) |
|-------------|---|--|---|--|--------------------------------|
| 1 | ACT-USER, CANC-USER, RTRV-ALM, RTRV-ALM-ENV, RTRV-ASAP-ASGNMT, RTRV-ASAP-PROF, RTRV-CMD-STAT, RTRV-COND, RTRV-FLT-ISLT, RTRV-FLT-STATE, RTRV-LRBK, RTRV-OW, RTRV-PROTN-GRP, RTRV-SYCN | ACT-USER, CANC-USER, RTRV-rr, RTRV-EQPT | ACT-USER, CANC-USER, RTRV-TCA-ASGNMT, RTRV-TCA-PROF | ABT-CMD, ACT-USER, CANC-USER, ED-PID, RTRV-EQPT, RTRV-FECOM, RTRV-FECOM-LAN, RTRV-HDR, RTRV-MAP-NEIGHBOR, RTRV-MAP-NETWORK, RTRV-NE, RTRV-PRMTR-DATA, RTRV-PRMTR-SFTWR, RTRV-STATE-EQPT, RTRV-ULS, RTRV-ULS-DCC-L3, RTRV-ULSDCC-L4 | ACT-USER, CANC-USER, RTRV-TACC |
| 2 | RTRV-BSW, RTRV-BSW-PORT, RTRV-MAP-RING, TEST-ALM, TEST-LED, TEST-TRMSN | RTRV-CRS, RTRV-RSVN, RTRV-STATE-EQPT, RTRV-TMSLT | RTRV-PM-rr | RTRV-AO, RTRV-LOG-ALM, RTRV-LOG-NTFCN, RTRV-LOG-PROTNSW, RTRV-LOG-USER, RTRV-MAP-RING, RTRV-NE-SECU | CONN-TACC, DISC-TACC |

Table 6-2. WaveStar Network Element TL1 Commands by Authorization Level/Functional Category

| Auth. Level | Maintenance (M) | Provision (P) | Performance Management (PM) | Security (S) | Test (T) |
|-------------|---|---|---|---|---|
| 3 | ALW-ALM, ALW-MSG, DLT-ASAP-PROF, ED-ASAP-PROF, ENT-ASAP-PROF, INH-ALM, INH-MSG, OPR-EXT-CONT, OPR-LPBK, RLS-EXT-CONT, RLS-LPBK, SET-ATTR-ALM, SET-ATTR-CONT, SET-ATTR-ENV, SET-OW, SET-SYCN | CNVT-CRS-TPY, DLT-CRS, DLT-EQPT, DLT-RSVN, ED-CRS, ED-rr, ED-EQPT, ED-RSVN, ENT-CRS, ENT-EQPT, ENT-ROLL, ENT-RSVN | INIT-REG | ALW-NVM-MIRROR, DLT-ULSDCC-L4, ED-NE, ENT-FECOM, ENT-FECOM-LAN, ENT-ULS, ENT-ULS-DCC-L3, ENT-ULSDCC-L4, INH-NVM-MIRROR, RTRV-SECU-USER, SET-SID | CHG-ACCMD, CHG-TACC, ENT-TSTPT, RLS-TSTPT |
| 4 | DLT-PROTN-GRP, ED-PROTN-GRP, ED-STATE-EQPT, ENT-PROTN-GRP, OPR-PROTNSW, OPR-SNCNSW, RLS-PROTNSW, RLS-SNCNSW, RMV-EQPT, RST-EQPT | ED-RDL | DLT-TCA-PROF, ED-TCA-PROF, ENT-TCA-PROF | APPLY, CPY-MEM, CPY-NVM, ED-DAT, ED-EQPT, ED-NE-SECU, ED-STATE-EQPT, INIT-EQPT, INIT-SYS, RMV-LINK, RST-LINK | |
| 5 | | | | CANC-USER-SECU, DLT-USER-SECU, ED-USER-SECU, ENT-USER-SECU, RTRV-LOG-SECU | |

Related tasks

[T 505, Add a Command Group](#) describes how to add a Command Group.

[T 506, Modify a Command Group](#) describes how to change a Command Group once it has been created.

[T 507, Delete a Command Group](#) describes how to delete a Command Group from the system.

Target groups

A Target Group is a collection of NEs that a user can access. Together with Command Groups, they define user permissions and provide network security. Each user is assigned to one and only one Target Group.

The system has two pre-defined Target Groups:

- All Targets—provides access to all NEs in the network
- None—denies access to any NEs

The ITM SNC administrator can add, modify, or delete Target Groups. Additional Target Groups can be defined as needed by the administrator.

The administrator can also copy the contents of an existing Target Group to a newly defined one.

Related tasks

[T 508, Add a Target Group](#) describes how to add a Target Group.

[T 509, Modify a Target Group](#) describes how to change a Target Group once it has been created.

[T 510, Delete a Target Group](#) describes how to delete a Target Group from the system.

Administration

7

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Background

Introduction

Certain functions in the ITM SNC system should be performed by the ITM SNC system administrator. These administration activities include:

- Setting up the network model and ITM SNC GUI Map window to reflect the physical network
 - Automatic date/time synchronization of the ITM SNC host with its managed network elements
 - Monitoring the status of processes in ITM SNC
 - Scheduling certain administrative and maintenance activities for ITM SNC
-

Objectives

This chapter provides background and introductory information about Administration functions in the ITM SNC system. It includes available features and references to specific task-related instructions.

Related tasks

For related tasks, see the series 700 (Administration) tasks in the *User Tasks Manual* or look up individual tasks in the Task Index.

Related information

For related information, see [Chapter 6, Security Management](#).

Network Element Administration

Introduction

The ITM SNC system administrator inputs subnetwork and network element information so the GUI Map window reflects the physical network. With this information, the ITM SNC application constructs a network model, which is its working view of the physical network.

Subnetworks

A subnetwork is a group of interconnecting and interrelated network elements. The most common connotation is a SONET subnetwork, in which the network elements have Data Communications Channel (DCC) connectivity.

The Network Model

Creating a network model allows the Element Management System (EMS) to communicate with the network and each of its components. When network elements are configured through the ITM SNC configuration windows, the network model is assembled dynamically by the ITM SNC Dynamic Network Operations (DNO) feature.

Network Elements

A network element (NE) is the basic telecommunications entity managed by ITM SNC. An NE is a grouping of physical equipment that provides communications services over a network. An NE is both a node in a larger network of NEs and is a complex network system itself. The software in an NE must manage both the physical (equipment) components of the NE and the network system provided by the NE.

NEs can be added, modified, or deleted through the ITM SNC GUI. When any NE changes to the network are made, DNO must be run to update the ITM SNC database.

Types of NEs

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

The NEs supported by ITM SNC include:

- Lucent Technologies DDM-2000
- Lucent Technologies DDM-2000 FiberReach
- Lucent Technologies FT-2000 Add/Drop Ring (ADR)
- Lucent Technologies FT-2000 Large Capacity Terminal (LCT)

-
- Lucent Technologies Optical Line System (OLS) 40G
 - Lucent Technologies SLC-2000
 - Fujitsu FLM 6, FLM 150/150+, FLM 600, FLM 2400
-

Data Communications Interfaces

The ITM SNC communication interface is partitioned into two parts: one that connects with NEs (southbound) and one that connects with external OSs (northbound). The southbound interface supports TCP/IP over OSI, X.25, and OSI-based connections to NEs. The northbound communication provides external OS to NEs communications over an Intra-Office Local Area Network (IAO-LAN) environment, via ITM SNC. Northbound communications support X.25 and TCP/IP connectivity as well as asynchronous interfaces.

Northbound Communications

The X.25/Transaction Language One (TL1)-based interface to external OSs provides bi-directional communication of messages from maintenance and surveillance OSs to/from ITM SNC to the NEs. When the southbound interface is IAO-LAN based, ITM SNC functions as a Gateway Network Element (GNE). The EMS parses messages received from external OSs, extracts the TIDs and passes them together with the message objects to the IAO-LAN. The TID Address Resolution Protocol (TARP) function of the IAO-LAN translates the TID into the NE's Network Services Access Point (NSAP) address, and routes the message to the appropriate NE. Conversely, ITM SNC routes command/response and autonomous messages from NEs to external OSs.

For the customer who has or has plans to implement the Telecommunication Management Network (TMN) architecture, ITM SNC fulfills the role of an EMS, performing the element management functions for the SONET NEs. ITM SNC also provides standard northbound interfaces to network management systems, such as Lucent Technologies' Integrated Transport Management Network Module (ITM NM). ITM SNC supports a Secure Asynchronous Alarm Interface (SAAI) northbound interface to service management systems, such as Lucent Technologies' Integrated Transport Management Customer Network Controller (ITM CNC), and a northbound TL1 interface to external customer provisioning and surveillance operations systems (OSs).

Southbound Communications

ITM SNC supports concurrent X.25 and OSI-based communications with NEs. Depending on the NE types, the communications can be either X.25 or over an OSI/LAN, but not at the same time, to the same subnetwork.

The choice of using an OSI-based instead of an X.25 Packet Switched Network (PSN) for EMS-to-NE communications depends on the NE type and release. The OSI option is available for the following NE releases (or later):

-
- Lucent Technologies FT-2000 Release 8.0
 - Lucent Technologies DDM-2000 OC-3 Release 13.0
 - Lucent Technologies DDM-2000 OC-12 Release 7.0
 - Lucent Technologies DDM-2000 FiberReach Wideband Shelf (WBS) Release 3.0
-

X.25-Based Communications

ITM SNC supports both X.25 direct and X.25 network connections to NEs. While direct X.25 connectivity is supported, ITM SNC to NE communications are generally done through an NE in a subnetwork serving as the Gateway Network Element (GNE), over an X.25 Packet Switched Network (PSN). The customer chooses the type of link concentration equipment which forms the X.25 PSN necessary for communications with the GNEs. ITM SNC supports a TL1 over X.25 southbound interface that uses an assigned GNE to provide the protocol conversion from TL1 over an X.25 short stack to encapsulated TL1 over the 7-layer OSI stack using the SONET DCC.

Gateway Network Element

A Gateway Network Element (GNE) is an NE that acts as the “gateway” or intermediary node for establishing communications between ITM SNC and the other NEs in a subnetwork. The GNE has X.25-based communications with the ITM SNC host. When a message is received from the ITM SNC host, the GNE sets up OSI associations with its associated NEs and forwards the addressed message to the intended NE. The GNE is also used by ITM SNC to autodiscover all NEs in the OSI-based subnetwork with DCC connectivity.

User-Definable Virtual Circuits

When you add a GNE using ITM SNC, or delete an NE and re-add it back into the ITM SNC host database as a GNE, you can select up to three supported three X.25 virtual circuits (VCs) for communications between the host machine and the GNEs.

Each of the VC connections may be set up as a permanent virtual circuit (PVC) or switched virtual circuit (SVC). You can also specify the purpose of each VC. The recommended configuration is two VCs—one for autonomous messages and one for command/response messages.

When the choice is to use three VCs, a separate VC can be configured for:

- command/response messages
- autonomous maintenance messages and alarm messages
- autonomous database change messages and provisioning commands/responses

Either or both the autonomous maintenance message and autonomous database change/provisioning functions may share the command/response VC.

Cost-effective SVCs (instead of PVCs) can be configured for non-critical command/response functions.

The GNE maps its OSI associations to each of the subtending NEs so that they use the same VCs for the same functions as are used for the GNE. For example, if one VC is used for command/response messages to the GNE and another VC is used for autonomous messages from the GNE, those same VCs are used for messages to and from the NEs.

X.25 Subnetwork Discovery

When a GNE is added to the database and DNO is performed on the GNE, ITM SNC sends a TL1 RTRV-NEIGHBOR command (or its NE--based equivalent) to the GNE to discover any NEs that are connected to the GNE. If the GNE reports connections to any NEs that are not currently in the ITM SNC database, ITM SNC adds the NEs under *that* GNE and queries the newly discovered NEs recursively until all NEs with DCC connectivity are discovered to complete the network topology.

Any NEs that are not discovered through the DNO process or non-Lucent Technologies NEs must be manually added to the ITM SNC database to complete the network model.

Non-Managed Devices

NEs that are not managed by ITM SNC are treated as “non-managed devices” and are added during the autodiscovery process to complete the network model and to avoid repeated attempts by ITM SNC to log into these NEs.

Dual GNEs

ITM SNC can support a second, optional physical connection to a subnetwork for added reliability. For each subnetwork of NEs, an ITM SNC administrator can add multiple GNEs and then identify a GNE association, consisting of a primary and secondary GNE pair of compatible GNEs, which operate in an active/standby arrangement. The secondary GNE takes over communications with the EMS host if there is a loss of communications with the primary GNE. ITM SNC monitors the status of its X.25 links and virtual circuit connections to each GNE. ITM SNC automatically transfers communications to the standby GNE whenever an X.25 link to the active GNE is down.

The ITM SNC administrator can also manually switch the active and standby GNEs.

GNE Association Management

The ITM SNC administrator can add or delete GNE associations as needed. The administrator can also manually swap the primary GNE and secondary GNE in the association.

Deletion of GNE Associations

The ITM SNC administrator can remove the association (relationship) between GNEs. To delete either GNE in a GNE association, the administrator must delete the association first. When a GNE association is deleted, the RNEs in the subnetwork remain connected to the currently active GNE.

Related Tasks

[T 609, Add a GNE Association](#) describes how to add a GNE association.

[T 610, Switch Primary/Secondary GNEs](#) describes how to switch the active and standby status of the GNEs in an association.

[T 611, Delete a GNE Association](#) describes how to delete a GNE association.

Multiple Active GNEs

ITM SNC also supports multiple active GNEs (or multiple primary/secondary GNE associations) to avoid potential data traffic congestion in large X.25-based subnetworks with up to 256 NEs. Functions in the ITM SNC GUI allow an administrator to manually add multiple GNEs to a subnetwork and then manually reassign the NEs in the subnetwork to GNEs for load balancing. A GUI function allows an administrator to display the GNE/RNE relationships and move RNEs between GNEs of a subnetwork to redistribute the data traffic load.

Related Tasks

[T 605, Add a Subnetwork Name/Alias](#) describes how to create a subnetwork name and alias. Once a subnetwork has been created, you can assign one or more GNEs to it.

[T 606, Modify a Subnetwork Alias](#) describes how to change a subnetwork's alias.

[T 607, Delete a Subnetwork Name/Alias](#) describes how to delete a subnetwork name and alias.

[T 608, Associate Remote Network Elements with Gateway Network Elements](#) describes how to view GNE/RNE associations and how to reassign RNEs to another GNE in the same subnetwork.

OSI-Based Communications

The EMS IAO-LAN interface provides an OSI standard, higher-speed communications path to NEs. It enables the reduction of performance bottlenecks by providing faster communications between the EMS and NEs, and also allows functions such as remote software download. The OSI/LAN interface provides up to three high bandwidth communication paths, or OSI associations, to NEs. This communication model is based on the standard 7 layer OSI stack reference model.

For increased system availability, the EMS supports IAO-LAN redundancy. The EMS is connected to a subnetwork of NEs via two separate IAO-LAN connections/hubs. Both connections are active. In the event that one IAO-LAN connection fails, the EMS detects the failure and automatically switches to the other connection.

ITM SNC as TL1 GNE

When the southbound interface between ITM SNC and the TL1 NEs is a direct IAO-LAN connection to the subnetwork, the EMS functions as a TL1 GNE for northbound OSs. All managed NEs in the same subnetwork may communicate with the EMS via the direct IAO-LAN connection or via DCC connections to the “point of attachment” NEs that are directly connected to ITM SNC.

As a TL1 GNE, the ITM SNC performs the following southbound functions:

- Establishes and manages OSI associations (connections) to NEs
- TID-to-NSAP translation by using TARP protocol
- TL1 message encapsulation



NOTE:

The TL1 GNE function does not apply to NEs using CMISE application services.

OSI-Connected NEs and Subnetwork Discovery

When any NE with a direct OSI/LAN connection to ITM SNC is manually added to the EMS database, it can be used as the “seed NE” through which the EMS can automatically discover NEs in the subnetwork to complete the network model. When the NE is added and DNO is executed, ITM SNC issues a RTRV-MAP-NEIGHBOR command (or its NE equivalent) to the NE and discovers all Lucent Technologies NEs and other devices connected to the network. The EMS obtains the NE type from the device; in some cases, the device may be a router or similar equipment not managed by the EMS.

Any NEs that are not discovered through the DNO process or non-Lucent Technologies NEs must be manually added to the ITM SNC database to complete the network model.

ITM SNC can send messages to NEs that are not part of the same network as the “seed NE” by virtue of the TARP method of broadcasting messages and routing tables that are contained in each NE.

Non-Managed Devices

NEs that are not managed by ITM SNC are treated as “non-managed devices” and are added during the autodiscovery process to complete the network model and to avoid repeated attempts by ITM SNC to log into these NEs.

NE Application Services

NEs are managed by ITM SNC through the issue and receipt of alarm, provisioning, and autonomous event messages in the form of TL1 commands.

X.25/TL1 Messages

For X.25/TL1-based communications, southbound TL1 command/responses from the EMS to the NEs are handled by the TL1 Manager.

The Connection Manager Process

The Connection Manager (CM) process centralizes the functions of sending, receiving, and routing messages, and managing the connections needed for responses and autonomous messages going in, and coming from, the CMISE and TL1 Southbound subsystems.

Adding NEs

The following table shows the information that must be identified before adding an NE to the EMS, by communication type.

Table 7-1. Required Information for Adding an NE

| X.25-Connected NE | GNE (X.25) | OSI- Connected NE |
|-----------------------------------|-----------------------------------|-----------------------------------|
| TID | TID | TID |
| NE Type | NE Type | NE Type |
| Valid NE login/ password | Valid NE login/ password | Valid NE login/ password |
| Valid backup NE login/password | Valid backup NE login/password | Valid backup NE login/password |

| X.25-Connected NE | GNE (X.25) | OSI- Connected NE |
|--------------------------|--|-------------------------------------|
| TID of GNE | X.25 Interface (PSN port) | Number and Type of OSI Associations |
| | Virtual circuit information (PVCs, SVCs, PVC Logical channel numbers, SVC X.121 address) | NSAP Address |
| | | |

Running DNO and Manually Adding NEs

DNO must be run to update the ITM SNC database with complete information about a newly added NE. When manually adding an NE, ITM SNC prompts if you want to perform DNO on the newly added NE to update the database. You can run DNO immediately, initiate DNO manually, or schedule DNO to be performed at a later time, to update the database for the added NE.

If you are adding a GNE and are using the Multiple GNE feature, you should not run DNO until all GNEs have been added for the subnetwork.

Adding an X.25 GNE

When you are adding a GNE, you must select a subnetwork to which the NE will be associated. The first NE that you add for a subnetwork must be the GNE.

Related Tasks

[T 600, Add a Network Element—X.25 Communications](#) describes how to add an X.25-connected NE.

[T 601, Add a Network Element—OSI Communications](#) describes how to add an NE that communicates with the EMS over an OSI/LAN.

[T 602, Add a Gateway Network Element](#) describes how to add a GNE for X.25-connected NEs.

[T 605, Add a Subnetwork Name/Alias](#) describes how to define a subnetwork alias.

[T 319, Manually Initiate DNO](#) describes how to manually initiate DNO.

[T 617, Schedule NE Date/Time Synchronization](#) describes how to schedule DNO for an item.

Modifying NEs

Some of an existing NE's parameters can be modified in the ITM SNC database. The following table shows which fields can be modified, by NE communications type.

Table 7-2. Modify NE Fields

| X.25-Connected NE | GNE (X.25) | OSI-Connected NE |
|--------------------------|--------------------|-------------------------------|
| Alias | Alias | Alias |
| NE logins/ passwords | NE logins/password | NE logins/ passwords |
| Time Zone | Time Zone | Time Zone |
| | X.25 interface | number of OSI associations |
| | PVC,SVC settings | |

Secondary GNE in a GNE Association

If an X.25-connected NE is defined as a secondary GNE in a GNE association, you must first delete the GNE association before modifying the following communication fields:

- Choose X.25 Interface
- Number of Virtual Circuits
- Virtual Circuit Fields
- SVC X.121 Address

Related Task

[T 624, Delete a Scheduled Task](#) describes how to modify an NE.

Deleting NEs

An NE should be deleted only when it is to be physically removed from the network. To “hide” an NE from a group of users, you can remove the NE from the users’ Target groups. Removing an NE from a Target group causes the NE to be removed from the Map window, Alarm Summary window, and other windows that are used by the Target group users, but the NE remains in the ITM SNC database and is accessible to other Target groups.

To delete a GNE in an X.25-connected network, you must first delete all of the RNEs that communicate with ITM SNC through the GNE. You must also delete a GNE association before you can delete either GNE in the pair.

Related Task

[T 625, Modify a Network Element](#) describes how to delete an NE.

Automatic date/ time synchronization

The NE date/time synchronization feature sets up the NE’s date/time to match the date/time of the EMS host. The ITM SNC system administrator, or a user with a privileged login, can enable or disable the Automatic Date/Time Synchronization feature. When this feature is enabled, the system performs date/time synchronization automatically when:

- An NE is added to the network or an NE is autodiscovered by the EMS for the first time
- Re-establishing communications with the NE after the communications link is down

Automatic date/time synchronization changes the date/time on the NE if the time difference between the NE and ITM SNC is more than 15 seconds, by default. This drift threshold, or the maximum allowed time difference (in seconds) between the NE and the EMS host before date/time synchronization is performed automatically, can be changed via the Set Drift option under the Date Time Management options in the GUI.

Automatic date/time synchronization can be enabled or disabled through the GUI. It is enabled, by default.

Related Task

[T 615, Enable/Disable Automatic Date/Time Synchronization](#) describes how to enable/disable automatic date/time synchronization.

[T 616, Set Drift Threshold for Date/Time Synchronization](#) describes how to set the drift threshold for automatic date/time synchronization.

Aggregates

An aggregate is a collection of related NEs that is user-defined as needed to streamline system monitoring and other management functions. Aggregate definition allows a large number of NEs to be concisely displayed and monitored on the Map window's graphical representation of the network. Aggregates can "own" or contain other aggregates. All users using the same GUI client server can share aggregates. User access to certain NEs are defined by Target Groups. For more details, see [Chapter 6, Security Management](#).

Aggregates can be displayed on the Map pane display and can be expanded on the Map window pane or Subnetwork Explorer whenever necessary to display all of its members. You can generate aggregate-specific alarm summaries, alarm logs, and command/response logs.

Aggregate Management

Aggregates can be added, modified, or deleted. To create an aggregate, you assign a name and an alias to the aggregate and then add NEs or other aggregates to the newly created one, using functions on the ITM SNC GUI.

Aggregate Alarms

The color shown in the center of an aggregate icon displayed on the Map window pane or Subnetwork Explorer indicates the highest severity alarm of a member NE or aggregate. If any member NE has the Alarm Throttling feature enabled, and the number of alarms has passed the Alarm Throttling level, then the color in the the icon reflects the level of alarms being throttled, with the last known highest severity alarm color shown in the aggregates's border.

Related Tasks

[T 612, Add an Aggregate](#) describes how to add an aggregate and how to add or change the members of the aggregate.

[T 613, Modify an Aggregate](#) describes hot to change an aggregate's alias.

[T 614, Delete an Aggregate](#) describes how to delete an aggregate and reassign its members to another aggregate.

Trails

Trails are physical links between NEs or aggregates. They are represented graphically on the Map window pane display of the network as solid lines between the NE/aggregate symbols.

Autodiscovery of Trails

Most optical trails between identical Lucent Technologies NEs are configured automatically by the DNO feature and autodiscovered when the network topology is displayed on the Map window after DNO is run.

**NOTE:**

Trails in a DDM-2000 2-node ring cannot be auto-discovered by the DNO process.

Creation of the network model - identifying the NEs, deriving the trails between them, and retrieving the internal configuration information - is performed automatically by ITM SNC through communication with the NEs.

User-Defined Trails

If the DNO process does not automatically discover trails between NEs, the trails must be manually entered through the GUI. User trails can be manually added between any two trail termination points (TTPs) on any type of NE. Generally, there are many more TTPs on all NE types than those for which trails are automatically discovered.

Deletion of Trails

Auto-discovered trails cannot be deleted manually. Auto-discovered trails are deleted automatically if the link is physically disconnected in the network. User-defined trails have to be manually deleted through the GUI. However, if an NE at one end of a user-defined trail is deleted, the trail is removed from the Map window display but remains in the ITM SNC database. In this case, the trail should be deleted; otherwise, the related NE information may still appear on the View Trail List window.

Trail Alarms

Trails can generate alarms. When Access Identifiers (AIDs) for equipment in the NE are provided by ITM SNC or selected when a trail is manually added, the EMS receives alarms from the trail. Trail alarm data is available through the Trail Alarm Summary window and the Trail Alarm List.

Related Tasks

[T 603, Add a Trail](#) describes how to manually add a trail.

[T 604, Delete a Trail](#) describes how to manually delete a trail.

Scheduling Tasks

Introduction

Many of the administrative functions that are performed on-demand can also be scheduled to be done periodically, and/or a specific time through the GUI.

Activities that can be scheduled

The following tasks can be scheduled:

- DNO
 - NE Software Download
 - NE Software Activate
 - NE Software Copy
 - NE Date/Time Synchronization
 - NE Backup
-

Scheduling methods

Tasks can be scheduled to be performed:

- On a one-time basis
- Periodically (daily, weekly, monthly, one every x months)

The NE Software Download, NE Software Copy, and Software Activate functions are scheduled to be done on a one-time basis. The DNO, NE Date/Time Synchronization, and NE Backup Functions are scheduled to be done periodically.

Retrying scheduled tasks

The Scheduler software allows you to specify the number of times to automatically retry a scheduled task that did not complete or failed due to loss of communications with the NE or some other reason.

You can also specify the timer interval between retries. The retry interval timer starts on receipt of the failure response by the scheduled task server for the task type. The system attempts to complete the failed scheduled task the number of specified times.

Each failed scheduled task is logged in a task-specific error log in the `$SCHLOG` directory.

Scheduling simultaneous tasks

The number of tasks that can be scheduled simultaneously depends on the task type and the ITM SNC host server size.

If the number of tasks that you schedule to be performed in the same timeframe exceeds the maximum number allowed, ITM SNC informs you of the next available timeslot for scheduling the task. The system calculates the next available timeslot based on the number of tasks already scheduled and the process duration of each task type. The process duration can vary with the NE type for which the task is being performed. For example, a DNO for most NE types takes approximately 30 minutes. Depending on the size and equipment of an NE, however, a DNO can take up to 180 minutes.

Modifying and deleting scheduled tasks

You can also modify and delete scheduled tasks. However, if a scheduled task is already in progress, you cannot modify it.

For scheduled software downloads and DNOs, if you attempt to delete a task that is already in progress, a warning message is issued, asking if you want to continue with the deletion. If you indicate that you want to delete the in progress job, the job is terminated and is removed from the scheduled list.



CAUTION:

Deleting scheduled DNO requests can result in database discrepancies between the EMS database and the network configuration. Interruption of a software download already in progress can result in NE software problems.

Related information

For specific information on scheduling tasks, refer to the following tasks in the *User Tasks Manual*:

- [T 617. Schedule NE Date/Time Synchronization](#)
- [T 618. Schedule DNO](#)
- [T 619. Schedule NE Data Backup](#)
- [T 620. Schedule NE Software Download](#)
- [T 621. Schedule NE Software Copy](#)
- [T 622. Schedule NE Software Activation](#)
- [T 623. Modify a Scheduled Task](#)

System Logs

8

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Background

Introduction

ITM SNC keeps track of certain information regarding system performance and actions. This information is stored in logs, and may be filtered and viewed by the user. The process of collecting, storing, and displaying this information is called Log Management. The following logs are maintained:

- **Network Alarm/Event Log**—This log stores a history of all the alarms and events received from the network elements as a result of unexpected behaviors by an NE.
- **Network Notifications Log**—This log stores notifications from NEs on database changes, protection switching, and other NE-related activities.
- **Network Command/Response Log**—This log stores all commands and responses, except retrieval commands and responses (for example, RTRV-rr) that are originated from and received by ITM SNC. The user ID information and user interface information (GUI, cut-through, X.25, TCP/IP, or dial-up) are also logged.
- **EMS Alarm Log**—This log stores alarms originated by system on all system hardware and/or software-related unexpected behaviors detected by ITM SNC itself.
- **EMS Activity Log**—This log displays information on selected ITM SNC activities for one or more users.

Log Management provides the following four functions:

- **Logging**—logs messages and data into the system database or a flat file.
- **Browsing**—provides GUI functionality for the user to browse the messages and data.
- **Filtering**—filters log data to provide only desired data.
- **Purging**—purges old log messages from the system database or temporal log files generated by system modules.

Related tasks

For related tasks, see the 700 series of tasks in the *User Tasks Manual*, or look up log entries in the on-line index.

System Logs

Introduction

This section provides information about each of the system logs and how they gather information. See the 700 series of tasks in the *User Tasks Manual* for instructions on how to display and use each of the system logs.

Network Alarm/ Event Log

Use the Network Alarm/Event Log to view, save, and print important alarm and event information. ITM SNC logs and stores various alarms and non-alarm events as listed in the appropriate NE documentation.

The user can filter the Network Alarm/Event Log on certain parameters, including start date/time, end date/time, TID, aggregate, EPT, alarm/event type, and severity. The maximum number of days for which alarm/event data can be displayed is 45.

Related information

See [T 700, Display and Use the Network Alarm/Event Log](#) for instructions on using the Network Alarm/Event Log.

Network Notifications Log

ITM SNC logs the following notifications/events in the Network Notifications Log:

- The completion (or noncompletion) of an automatic database backup (from primary NVM to secondary).
- Any change in the system database.
- The autonomous removal from service of an administrative or data link.
- Automatic and manual (user-initiated) equipment protection switches, synchronization mode switches, and system timing reference switches.

The user can filter the Network Notification Log on certain parameters, including start date/time, end date/time, TID, aggregate, and notification type. The maximum number of days for which network notification data can be displayed is 45.

Related information

See [T 701, Display and Use the Network Notifications Log](#) for instructions on using the Network Notifications Log.

Network Command/ Response Log

All commands that are formulated by internal subsystems as a result of a user operation from the GUI are logged to the Command/Response Log. (The one exception is retrieval commands, which are left out for performance reasons.) ITM SNC provides a user interface parameter for each logged command from all interface types. The possible values for the parameter are GUI, cut-through, X.25, TCP/IP, and dial-up.

The system administrator is allowed access to all commands/responses, while users are able to view self-originated commands and responses. The commands are displayed in the order they were received by ITM SNC, each command followed by its response. (If a command did not receive a response, the display indicates this with the entry "time out.")

The user can filter the Network Command/Response Log on certain parameters, including start date/time, end date/time, TID, and aggregate. The system administrator can filter on these same parameters, plus two more - command interface and user login ID. The maximum number of days for which network command/response data can be displayed is seven.

Related information

See [T 702, Display and Use the Network Command/Response Log](#) for instructions on displaying and using the Network Command/Response Log.

EMS Alarm Log

ITM SNC logs the following system failures to the EMS Alarm Log:

- 802.3 LAN interface failure
- Disk I/O failure
- X.25 link failure
- X.25 server process failure
- Informix EDR agent failure
- File system filling to over 85%
- File system full (over 97%)
- Database space filling to over 85%
- Database space full (over 97%)

The following table shows the system failure information logged by ITM SNC to the EMS Alarm Log.

Table 8-1. System Failure Information in EMS Alarm Log

| Parameter | Values | Description |
|--------------------|----------------------------------|--|
| Alarm/Event Type | Alarm | for alarms only |
| Alarm ID | 1 - 999999 | SNC assigned alarm identification number |
| Date of Occurrence | YYYY-MM-DD (month-day) | date of occurrence |
| Time of Occurrence | HH:MM:SS (hours:minutes:seconds) | time of occurrence |
| Category | Equipment/ Processing Error | category |
| Alarm Issue Point | <=20 characters | LAN/Disk IO/X.25/ File System/ Database |
| Effect on Service | NSA | effect on service |
| Severity | CR/MJ/CL | severity |
| Probable Cause | Text String (see SNC alarm list) | condition type |
| Description | Text String (see SNC alarm list) | description of the failure conditions |

The user can filter the EMS Alarm Log on the start date/time and end date/time parameters. The maximum number of days for which alarm log data can be displayed is 45.

Related information

See [T 703, Display and Use the EMS Alarm Log](#) for instructions on displaying and using the EMS Alarm Log.

EMS activity log

All user activities that are executed through the GUI as well as system activities are stored in the EMS database and logged in the ITM SNC Activity Log. By using

the Log Management feature, the Activity Log can be browsed by the user and the information saved and printed.

The user can filter the Activity Log on certain parameters including start date/time, user, activity type, and selected activity. The maximum number of days for which activity can be displayed is seven.

The activities are listed in the order they were received by WaveStar SNMS with the requested information.

Related information

See [T 704, Display and Use the Activities Log](#) for instructions on displaying and using the ITM SNC Activity Log.

Part 2

ITM SNC User Tasks

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Task Series 100

Using the GUI

Background

When to use Use this procedure to log into the ITM SNC GUI.

Before you begin Before you begin this task for the first time, you must have obtained a user ID and initial password from your system administrator.

When you log into ITM SNC for the first time with a new user login, you must change your password from the default password given for the login. A pop-up window is displayed, indicating that you must change your password before being allowed to log into ITM SNC. You are given the option of continuing the session or exiting the system at this point. If you choose to continue the login session, the Change Password window is displayed, prompting you to change your password from the default password. The system validates your new password. If it is valid, the system re-displays the Login window to re-enter your user ID and your new password.

Related information For related information, see [T 101, Log Out of ITM SNC](#).

Instructions

Task

Complete the following steps to start up and log into ITM SNC.

| Step | Action | Reference |
|------|--|--------------------------|
| 1 | Start an instance of the GUI. This displays the Login window. | |
| 2 | If you are logging into ITM SNC for the first time with a new user ID, use the procedure SE 100-1: Logging Into ITM SNC for the First Time on page 100-3. If not, skip to step 3. | SE 100-1 |
| 3 | Enter your User ID. Press the Tab Key. | |
| 4 | Enter your password. | |
| 5 | Double-click the Login button. A dialog window is displayed, indicating authorization. | |
| 6 | Close the dialog window by clicking the Close button. The Map window is displayed. Stop! End of Task. | |

SE 100-1: Logging Into ITM SNC for the First Time

Procedure

Use the following procedure when you log into ITM SNC for the first time:

1. Start an instance of the GUI. This displays the Login window.
2. Type in your user ID (which you must initially obtain from your system administrator).
3. Press the Tab key and type in the password initially obtained from your system administrator (this is the default password).
4. Double-click the Login button. The system verifies your user ID and password.

A pop-up window is displayed, advising you that you must change your password before continuing with the session and asking if you want to change your password at this point to continue.

To change your password from the default one and continue with the session, choose Yes.

To stop at this point, choose No.

5. Choose Yes. The Change EMS Password window is displayed.



NOTE:

The Cancel button is always disabled on this window.

6. Enter your old password in the Old Password field and enter your new password in the New Password field.



NOTE:

Your new password must differ from the old password by at least three characters. A valid password is 6-10 characters. A password must include at least two non-alphabetic characters and at least one special character (!#\$%^&*()-+_=?). The following special characters are not permitted (;,:).

7. Re-enter your new password in the Confirm Password field.
8. After entering your new password, click the OK button on the Change EMS Password window. If the new password is invalid or a mismatch for your user ID, a message is displayed, indicating that the new password entered is invalid.

Click the OK button and enter a different password. After entering a new password, click the OK button again.

If your new password is valid and accepted by the system, a message is displayed, indicating that password change is successful. Click the OK button again.

The Login window is re-displayed.

9. Enter your user ID and the new password.
10. Double-click the Login button. A dialog window is displayed, indicating authorization.
11. Close the dialog window by clicking the Close button. The Map window is displayed.

Background

When to use

Use this procedure to log out of the ITM SNC GUI.

Before you begin

Before you begin this task, make sure any processes you have been performing on the system have finished running (otherwise, results of these processes may be uncertain).

Related information

For related information, see [T 100, Log Into ITM SNC](#).

Instructions

Task

Complete the following steps to log out of the system.

| Step | Action |
|-------------|--|
| 1 | Select File from the main menu bar on the Map window. |
| 2 | Select Exit from the File menu. The GUI session is terminated. Stop! End of Task. |

Select an Item in the Subnetwork Explorer

102

Background

When to use Use this procedure to select an item on the Subnetwork Explorer portion of the Map window.

Before you begin Before you begin this task, locate the item (NE, aggregate, or non-managed device) to be selected on the Subnetwork Explorer portion of the Map window.

Related information For related information, see [T 109, Find a Network Element](#).

Instructions

Task

Complete the following steps to select an item on the Subnetwork Explorer portion of the Map window.

| Step | Action | Result |
|------|---|-----------------------------------|
| 1 | Position the mouse pointer on the item to be selected in the Subnetwork Explorer portion of the Map window. | |
| 2 | Click the left (select) mouse button. Stop! End of Task. | The selected item is highlighted. |

Expand or Collapse an Item in the Subnetwork Explorer

103

Background

When to use Use this procedure to expand or collapse an item (such as an aggregate) in the Subnetwork Explorer portion of the Map window.

Before you begin Before you begin this task, locate the item to be expanded or collapsed in the Subnetwork Explorer portion of the Map window.

Related information For related information, see [T 109, Find a Network Element](#).

Instructions

Task

Complete the following steps to expand or collapse an item in the Subnetwork Explorer portion of the Map window.

| Step | Action |
|------|--|
| 1 | Position the mouse pointer over the item to be expanded or collapsed in the Subnetwork Explorer portion of the Map window. |
| 2 | Click the left (select) on the plus (“+”) or minus (“-”) sign next to the item to expand (“+”) to show the lower levels of the equipment hierarchy, or to collapse (“-”) and revert back to the display of the item itself. Stop! End of Task. |

Background

When to use Use this procedure to select an item or group of items on the Map pane display portion of the Map window.

Before you begin Before you begin this task, locate the item(s) to be selected on the Map pane portion of the Map window.

Related information For related information, see [T 109, Find a Network Element](#).

Instructions

Task

Complete the following steps to select a single item or group of items on the Map pane portion of the Map window.

| Step | Action | |
|------|---|---|
| 1 | <p>TO:</p> <p>Select a single NE or aggregate on the Map pane.</p> <p>Select a group of NEs or aggregates on the Map pane.</p> | <p>POSITION THE MOUSE POINTER:</p> <p>On the NE or aggregate and click the left (select) mouse button. The selected item is highlighted.</p> <p>Over a portion of the background adjacent to the items to be selected. Click the select (left) mouse button, hold the button, and drag the mouse pointer over the items to be selected. An outlined box appears over the selected area. As items are selected, they change color. Release the mouse button. The items are selected.</p> |
| 2 | <p>To deselect a selected item in the Map pane, position the mouse pointer over the TID of the selected item and click the select (left) mouse button, or simply position the mouse cursor in another area of the Map pane and click the select (left) mouse button. The selected item is deselected. To deselect a group of items, position the mouse pointer within the boxed region and single-click the select (left) mouse button. Any item that is already selected in the box becomes deselected.</p> <p>Stop! End of Task.</p> | |

Background

When to use Use this procedure to move a single item (NE or aggregate) or group of items on the Map pane portion of the Map window.

Before you begin Before you begin this task, locate the item(s) to be moved on the Map pane.

Related information For related information, see [T 109, Find a Network Element](#).

Instructions

Task

Complete the following steps to move a single item or group of items on the Map pane portion of the Map window.

| Step | Action | Action |
|------|--|---|
| 1 | <p>TO:</p> <p>Move a single item (NE or aggregate) on the Map pane display.</p> <p>Move a group of items on the Map pane display.</p> <p>Stop! End of Task.</p> | <p>DO THIS:</p> <p>Position the mouse pointer over the item you want to move. Press and hold the select (left) mouse button. Drag the item to the new position. Release the select (left) mouse button.</p> <p>Select a group of items by positioning the mouse pointer in a area of the background adjacent to the items, clicking and holding the select (left) mouse button while dragging the mouse pointer over the items to select them, and releasing the left mouse button. Position the mouse pointer over one of the selected icons, press and hold the select (left) mouse button, and drag the items to their new position. Release the select (left) mouse button.</p> |

Expand or Collapse an Aggregate on the Map Pane

106

Background

When to use Use this procedure to expand or collapse an aggregate on the Map pane portion of the Map window.

Before you begin Before you begin this task, locate the aggregate to be expanded or collapsed on the Map pane portion of the Map window.

Related information For related information, see [T 109, Find a Network Element](#).

Instructions

Task

Complete the following steps to expand or collapse an aggregate on the Map pane portion of the Map window.

Move an NE to the TOP Aggregate Level

107

Background

When to use Use this procedure to move an NE out of an aggregate to the TOP aggregate level in the Map window, which includes all NEs.

Before you begin Before you begin this task, make sure the aggregate is expanded in the Subnetwork Explorer or Map pane portion of the Map window to show the NE to be moved out of the aggregate.

Related information For related information, see [T 103, Expand or Collapse an Item in the Subnetwork Explorer](#) and [T 106, Expand or Collapse an Aggregate on the Map Pane](#).

Instructions

Task

Complete the following steps to move an NE out of an aggregate and return it to the TOP aggregate level in the Map window.

| Step | Action | Reference |
|------|--|-----------|
| 1 | Expand the aggregate. | |
| 2 | Position the mouse pointer over the NE. | |
| 3 | Click the select (left) mouse button to select the NE. | |
| 4 | Click the right (menu) mouse button. A pop-up menu is displayed. | |
| 5 | Choose Return to TOP from the displayed pop-up menu. The NE is brought to the TOP aggregate level and is taken out of the aggregate. Stop! End of Task. | |

Background

When to use

Use this procedure to zoom in or zoom out on the Map window.

Before you begin

Before you begin this task, display the Map window.

Related information

For related information, see [T 100, Log Into ITM SNC](#).

Instructions

Task

Complete the following steps to zoom the Map window view.

| Step | Action |
|------|--|
| 1 | Select View from the main menu bar on the Map window. This displays a pull-down menu. |
| 2 | <ul style="list-style-type: none"><li>■ To make the Map panel show fewer Map items in the same size space, single click on Zoom In on the pull-down menu.<li>■ To make the Map panel show <i>more</i> in the same size space, single click on Zoom Out on the pull-down menu. |
| 3 | <p>To reset the Zoom level to zero (which is the default), single click on Zoom Reset on the pull-down menu.</p> <p>You can also zoom in, zoom out, and reset the zoom by using the Zoom In, Zoom Out, and Zoom Reset buttons on the Map window toolbar.</p> <p>Stop! End of Task.</p> |

Background

When to use Use this procedure to find an NE on the Map pane or Subnetwork Explorer portion of the Map window.

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

Related information For related information, see [Chapter 2, The ITM SNC Graphical User Interface](#).

Instructions

Task

Complete the following steps to find an NE in the Map pane or Subnetwork Explorer portion of the Map window.

| Step | Action | Result |
|------|---|---|
| 1 | Select View from the main menu bar on the Map window. | The View sub-menu is displayed. |
| 2 | Select Find an NE from the View sub-menu. | The Find an NE window is displayed. |
| 3 | Enter the TID and/or Alias of the NE in the appropriate field(s).  NOTE: An asterisk(*) can be used as a wildcard character to represent 0 or more characters of the TID/Alias. | |
| 4 | Click the OK or Apply button. Stop! End of Task. | The Map pane display is repositioned to show the NE and the NE is highlighted in the Map pane and Subnetwork Explorer portions of the Map window. If more than one match is found, the item which is found first is indicated in the Subnetwork Explorer portion of the Map pane. If the NE is contained in an unexpanded aggregate, the aggregate is expanded and the NE is highlighted on the Map pane. |

Clear Status Messages

110

Background

When to use Use this procedure to clear status messages that are displayed in the status bar on the Map window.

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

Related information For related information, see [Chapter 2, The ITM SNC Graphical User Interface](#).

Instructions

Task

Complete the following steps to clear status messages from the status bar in the Map window.

| Step | Action | Result |
|------|---|--|
| 1 | Select View from the main menu bar on the Map window. | The View menu is displayed. |
| 2 | Select Clear Status Line from the View menu.  NOTE: The status bar message can also be cleared by clicking the Clear Message Line button on the Map window toolbar. Stop! End of Task. | The message in the status bar area of the Map window is cleared. |

Modify User Preferences

111

Background

When to use Use this procedure to change the characteristics of the Map window display, such as NE (node) size, NE labels, trail lines, and alarm color display.

Before you begin Before you begin this task, view the Map pane display to see the current characteristics of the Map view before changing any of them. Be aware that preferences are saved on a per-user basis.

To perform this task, access the Map window.

Related information For related information, see [T 112, Save Preferences/Map Positions](#); [T 113, Restore Preferences/Map Positions](#); [T 114, Copy Preferences/Map Positions](#); and [Chapter 2, The ITM SNC Graphical User Interface](#).

Instructions

Task

Complete the following steps to modify user preferences.

| Step | Action | |
|------|--|--|
| 1 | Select View from the main menu bar on the Map window. The View menu is displayed. | |
| 2 | Select Preferences from the View menu. The View Preferences window is displayed. | |
| 3 | <p>TO CHANGE THE...</p> <ul style="list-style-type: none"> ■ NE size or thickness of trail lines between NEs ■ Size, content, or alignment of map item labels ■ display of FT-2000 tributaries in TIRKS numbering format ■ Colors associated with alarms and/or cross-connections ■ Shapes used to represent NEs, aggregates, EMS host, and non-managed devices on the Map window ■ Alarm severity level displayed in the Map and Alarm Tally windows (Critical/Major/Minor for SONET, Prompt/Deferred for SDH) ■ tooltips help on/off setting ■ date format for items on the Map window, alarm lists, and tallies ■ display of Bidirectional Line Switched Ring (BLSR) Protected Port Groups on the Cross-Connect View window (Note: the BLSR display option is currently not supported). | <p>SELECT THE TAB...</p> <ul style="list-style-type: none"> ■ Nodes & Lines ■ Labels ■ Labels ■ Colors ■ Shapes ■ Fault ■ Other ■ Other ■ Other |

| Step | Action (Continued) |
|-------------|---|
| 4 | <p>When the selected panel of options is displayed on the View Preferences window, change the display characteristics as needed.</p> <ul style="list-style-type: none"> ■ To change the shape for an item in the Shapes panel, double-click on the current shape in the scroll list. A pop-up window is displayed, showing the shapes available for selection. Click on the desired shape. The changed shape is displayed next to the Map item in the scroll list. ■ To change the color indications for alarms and cross-connections on the Map window through the Colors panel, double-click on the item in the Colors scroll-bar list to display a palette of colors. Click on the desired color box in the palette to select it. The color selected is applied to the item. |
| 5 | <p>Click one of the following buttons to adjust your preference settings:</p> <ul style="list-style-type: none"> ■ Save—saves the changes made to user preferences on each panel, to be applied each time the Map window is brought up ■ Restore—resets the saved values for the user ■ Get Defaults—retrieves and displays the system defaults for the preferences category, overriding the displayed settings |
| 6 | <p>Click the Apply button to apply the changes to the Map window display or click the OK button to apply the changes to the Map window display and close the View Preferences window.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to save user preferences for the Map pane display and/or positions of map items on the Map pane display for the next time you log onto the system and access the Map window.

Before you begin

Before you begin this task, you should use the Preferences option to select the appearance or position of map items on the display or accept the system defaults.

To perform this task, access the Map window.

Related information

For related information, see [Chapter 2, The ITM SNC Graphical User Interface](#).

Instructions

Task

Complete the following steps to save user preferences and/or Map item positions.

| Step | Action | | | | |
|---|--|------------|-----------|---|--|
| 1 | Select File from the main menu bar on the Map window. The File menu is displayed. | | | | |
| 2 | Select Save from the File menu. A sub-menu is displayed. | | | | |
| 3 | <table border="1"><thead><tr><th>TO SAVE...</th><th>CHOOSE...</th></tr></thead><tbody><tr><td><ul style="list-style-type: none">■ User preferences■ Map item positions■ User preferences and Map item positions</td><td><ul style="list-style-type: none">■ Preferences■ Positions■ Both</td></tr></tbody></table> | TO SAVE... | CHOOSE... | <ul style="list-style-type: none">■ User preferences■ Map item positions■ User preferences and Map item positions | <ul style="list-style-type: none">■ Preferences■ Positions■ Both |
| TO SAVE... | CHOOSE... | | | | |
| <ul style="list-style-type: none">■ User preferences■ Map item positions■ User preferences and Map item positions | <ul style="list-style-type: none">■ Preferences■ Positions■ Both | | | | |
| 4 | A message is displayed in the status bar area, indicating that your selections have been saved. Stop! End of Task. | | | | |

Background

When to use Use this procedure to restore previously saved user preferences for the Map pane display and/or Map item positions.

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

Related information For related information, see [Chapter 2, The ITM SNC Graphical User Interface.](#)

Instructions

Task

Complete the following steps to restore user preferences and/or Map item positions.

| Step | Action | |
|------|---|--|
| 1 | Select File from the main menu bar on the Map window. The File menu is displayed. | |
| 2 | Select Restore from the File menu. A sub-menu is displayed. | |
| 3 | TO RESTORE... | CHOOSE... |
| | <ul style="list-style-type: none">■ User preferences■ Map item positions■ User preferences and Map item positions | <ul style="list-style-type: none">■ Preferences■ Positions■ Both |
| 4 | A message is displayed in the status bar area, indicating that the default settings have been restored. Stop! End of Task. | |

Background

When to use Use this procedure to copy the user preferences and/or Map item positions saved by another user.

Before you begin Before you begin this task, be aware that Map item positions can only be copied from a user who shares the same Target Group of NEs.

To perform this task, access the Map window.

Related information For related information, see [Chapter 2, The ITM SNC Graphical User Interface.](#)

Instructions

Task

Complete the following steps to copy another user's preferences and/or Map item positions.

| Step | Action | Action | Reference |
|------|---|--|--|
| 1 | Select File from the main menu bar on the Map window. The File menu is displayed. | | |
| 2 | Select Copy from the File menu. A sub-menu is displayed. | | |
| 3 | TO COPY A USER'S... <ul style="list-style-type: none">■ Preferences■ Map item positions■ Preferences and Map item positions | CHOOSE... <ul style="list-style-type: none">■ Preferences■ Positions■ Both | |
| 4 | The Choose a User window is displayed. | | |
| 5 | Choose a user and click the OK button. If you are copying Map item positions, the new positions are applied to your Map pane display once a user is chosen. If you are copying another user's preferences, the View Preferences window is displayed. Make any changes as necessary to the other user's preferences before applying them. When you are finished making necessary changes, click the OK button. | | T 111, Modify User Preferences |
| 6 | A message is displayed in the status bar area, indicating that the copy from another user is completed. Stop! End of Task. | | |

Task Series 200

Fault Management

Activate the Alarm Browser

200

Background

When to use

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

Related information

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

Complete the following steps to activate the alarm browser.

| Step | Action |
|------|---|
| 1 | Select Fault from the main menu bar on the Map window. This displays a pull-down menu. |
| 2 | From the pull-down menu, select Alarm Browser . This displays the Log Browser window. |
| 3 | <p>To save the output from this window to a file, do the following:</p> <ol style="list-style-type: none">Click on File on the main menu bar on the Map window and then select Save As. A pop-up window is displayed.Select the PC drive where the file folder resides in which to store the file output by clicking the down arrow next to the "Look In" field on the window. Select the drive.Select and open the file folder for the saved output file by double-clicking on the folder in the scrollable list on the pop-up window.Type a name for the output file in the File name field.Click the Save button. The output is saved to the named file. <p> NOTE: To view the saved output file, use the Wordpad application.</p> |
| 4 | <p>When you are finished viewing the log information, access the File pull-down menu from the menu bar and select Close.</p> <p>Stop! End of Task.</p> |

Background

When to use

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

Related information

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

Complete the following steps to access the Alarm Summary.

| Step | Action |
|------|--|
| 1 | Select an NE on the Map pane on the Map window to see an alarm summary for a specific NE. OR Select no NEs at this point to see an alarm summary for all NEs in your Target Group. |
| 2 | Select Fault from the main menu bar on the Map window. This displays a sub-menu. |
| 3 | From the sub-menu, select Alarm Summary . This displays the Alarm Summary window. The Alarm Summary window contains two sections - the NE/Aggregate Alarm Summary table and the Trail Alarm Summary table. NE/Aggregate Alarm Summary Table — Each line in this table provides, for the listed TID, a color code indicating the highest severity alarm for the NE/aggregate, as well as a count of the Critical, Major, and Minor alarms for the NE/aggregate. For the NE(s) listed, you can initiate cut-throughs; resynchronize alarms; provision the NE; and display alarm and command/response logs, equipment shelves, and alarm lists. To access these tasks, point to an NE's summary line with the mouse and click the menu mouse button. A pop-up menu appears, from which you can select the desired operation. Trail Alarm Summary Table — This table provides, for each trail, a color code indicating the highest severity alarm for the trail and a count of Critical, Major, and Minor alarms for the AIDs that terminate the trail between two NEs. |
| 4 | When you are finished viewing the alarm summary information, access the File pull-down menu from the menu bar and select Close . Stop! End of Task. |

Background

When to use

Use this procedure to access the alarm list, which contains a line of information about each active alarm in an NE or aggregate. You can sort the list by alarm severity and age, age alone, condition, data/time logged, or acknowledged vs. unacknowledged. You can also use the list to acknowledge and unacknowledge alarms (see Related information below).

Related information

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

Complete the following steps to access the alarm list.

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

| Step | Action (Continued) |
|------|---|
| 2 | <p>Select Alarm List from the sub-menu. The Alarm List window is displayed. You can also access the Alarm List by choosing Fault from the main menu on the Map window and choosing Alarm List from the Fault sub-menu. The Choose an NE/Aggregate window is displayed. Click either the Network Elements or Aggregates radio button to sort the list. Double-click on the NE in the list to select it and click the OK button. The Alarm List for the selected NE is displayed.</p> <p>Each row on the Alarm List window represents an alarm in the selected NE. You can change the sort order by clicking on the column head of the desired sort (the list cannot be sorted by time/date). (The Alarm List window can also be displayed from the Alarm Summary window by pointing to an NE with the mouse, clicking the menu mouse button, and selecting Alarm List from the sub-menu.) The Alarm List window provides the following data for each alarm for the selected NE:</p> <ul style="list-style-type: none"> ■ Color—a color code associated with the alarm severity ■ Alarm ID—an identifying code for the alarm ■ TID—the TID of the NE ■ AID—the Access Identifier, or address, of the equipment component or facility. If this is part of an SLC NBS (Narrow Band Shelf), an asterisk (*) appears. ■ Ack—the user ID of the user that acknowledged the alarm ■ Severity—Critical, Major, or Minor ■ SA/NSA—whether the problem is service affecting (SA) or non-service affecting (NSA) ■ Date/Time of Occ—the date/time the alarm occurred ■ Date/Time of Log—the date/time the alarm was logged by the EMS ■ Condition—a code that indicates the type of failure or status condition ■ SLA—the Signal Level Affected (category) <p> NOTE: To display an alarm in TL1 message format, use the mouse button to point to the alarm listing that you want to display, and double click the select mouse button. This displays the Alarm Text window, containing the alarm in TL1 message format.</p> |

| Step | Action (Continued) |
|-------------|--|
| 3 | <p>To save the output from this window to a file, do the following:</p> <ol style="list-style-type: none"> a. Click on File on the main menu bar on the Map window and then select Save As. A pop-up window is displayed. b. Select the PC drive where the file folder resides in which to store the file output by clicking the down arrow next to the "Look In" field on the window. Select the drive. c. Select and open the file folder for the saved output file by double-clicking on the folder in the scrollable list on the pop-up window. d. Type a name for the output file in the File name field. e. Click the Save button. The output is saved to the named file. <p> NOTE: To view the saved output file, use the Wordpad application.</p> |
| 4 | <p>When you are finished viewing the alarm list information, access the File pull-down menu from the menu bar and select Close.</p> <p>Stop! End of Task.</p> |

Acknowledge/Unacknowledge Alarms

203

Background

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

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

Related information For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

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

| Step | Action |
|------|--|
| 1 | Display the Alarm List window (see T 202, Access the Alarm List). |
| 2 | Left click on the row representing the alarm you want to acknowledge or unacknowledge. You can also acknowledge alarms by right-clicking on the alarm row in the Alarm List. |
| 3 | Select Fault from the menu bar near the top of the Alarm List window. This displays a sub-menu. |
| 4 | Select Acknowledge Selected or Unacknowledge Selected from the displayed sub-menu, as appropriate. (If you wish to acknowledge or unacknowledge <i>all</i> the alarms in the list, select Acknowledge All in List or Unacknowledge All in List , as appropriate.)  NOTE: If an alarm is not yet acknowledged, there is no entry in the Ack field on that line. If it is already acknowledged, the Ack field contains the acknowledger's userid. Stop! End of Task. |

Acknowledge/Unacknowledge Alarm Groups

204

Background

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

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

Related information For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

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

| Step | Action |
|------|--|
| 1 | Display the Alarm List window (see T 202, Access the Alarm List). |
| 2 | Using the mouse, select each row that contains an alarm you want to include in the group to be acknowledged or unacknowledged. To select multiple continuous rows, hold the Control key down and drag the mouse pointer over the desired lines. To select multiple non-continuous lines, hold the Control key down and right click each line to be included. (Unacknowledged alarms contain no entry on their rows in the Ack column. Acknowledged alarms contain, in the Ack column, the login ID of the person who acknowledged the alarm.) Select as many rows of acknowledged or unacknowledged alarms as desired. |
| 3 | Select Fault from the menu bar at the top of the Alarm List window. This displays a sub-menu. |
| 4 | Choose Acknowledge Selected or Unacknowledge Selected , as appropriate. (Or to acknowledge or unacknowledge <i>all</i> alarms in the list [without having to choose individual alarms], select Acknowledge All in List or Unacknowledge All in List , as appropriate.) Stop! End of Task. |

Acknowledge/Unacknowledge All Alarms

205

Background

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

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

Related information For related information, see [Chapter 3, Fault Management](#) and [T 202, Access the Alarm List](#) .

Instructions

Task

Complete the following steps to acknowledge or unacknowledge all alarms.

| Step | Action |
|------|--|
| 1 | Display the Alarm List window (see T 202, Access the Alarm List). |
| 2 | Select Fault from the menu bar at the top of the Alarm List window. This displays a sub-menu. |
| 3 | From the sub-menu, choose Acknowledge All in List (to acknowledge all unacknowledged alarms in the Alarm List window) or Unacknowledge All in List (to unacknowledge all acknowledged alarms in the Alarm List window), as appropriate. (Unacknowledged alarms contain no entry in the Ack field on their rows. Acknowledged alarms contain, in the Ack field, the userid of the alarm acknowledger.) Stop! End of Task. |

Acknowledge/Unacknowledge All Alarms for an NE

206

Background

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

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

Related information For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

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

| Step | Action |
|------|---|
| 1 | On the Map window, use the mouse to select the NE or aggregate for which you want to acknowledge all unacknowledged alarms or unacknowledge all acknowledged alarms. |
| 2 | Select Fault from the main menu bar at the top of the Map window. This displays a sub-menu. |
| 3 | Select Alarm Acknowledgement from the displayed sub-menu. This displays another sub-menu containing the choices Acknowledge and Unacknowledge . |
| 4 | From the displayed sub-menu, select Acknowledge to acknowledge all unacknowledged alarms for the selected NE, or Unacknowledge to unacknowledge all acknowledged alarms for the selected NE. Stop! End of Task. |

Background

When to use

Use this procedure to display trail alarms.

Before you begin

Before you begin this task, determine the trail for which you wish to display trail alarms.

Related information

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

Complete the following steps to display trail alarms.

| Step | Action |
|------|---|
| 1 | <p>On the Map window, position the mouse pointer on the trail for which you want to display trail alarm data and click the right (menu) mouse button. A pop-up menu is displayed.</p> <p> NOTE: When the mouse cursor is positioned on the trail line, a small note is displayed naming the trail if it is a single trail, or the word "Multiple" if the line represents multiple trails.</p> |
| 2 | <p>Choose Trail Alarm List from the pop-up menu. The Trail Alarm List is displayed. The Trail Alarm List displays the alarms for the chosen trail.</p> <p>Stop! End of Task.</p> |

Background

When to use

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

Before you begin

Before you begin this task, determine what type of alarm monitoring you want to accomplish.

Related information

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

Complete the following steps to monitor alarms.

| Step | Action |
|------|---|
| 1 | Select Fault from the main menu bar. This displays a sub-menu. |
| 2 | Select Alarm Monitoring from the sub-menu. This displays another sub-menu. |
| 3 | Select one of the following sub-menu options: <ul style="list-style-type: none">■ All Messages—This message allows all autonomous messages to be accepted from the NE.■ Throttled—This option allows only Critical messages to be accepted from the NE, even if the alarm throttle level set in the Administer NE menu has not been reached or if automatic alarm throttling is displayed. Selecting either of the above options displays the Choose an NE/Aggregate window. |
| 4 | Click on the Network Elements radio button to limit the list to NEs. Click the Aggregates radio button to limit the list to aggregates. |
| 5 | Double click on the TID of the NE or aggregate alias for which you want to change the alarm monitoring status and then click the OK button. (Alarm monitoring status of the NE is displayed on the Map: if Throttled is selected, the NE icon changes back and forth from grey to the color of the highest severity alarm; but if All Messages is selected, the NE icon displays only the color of the highest severity alarm.) Stop! End of Task. |

View Throttled Alarm Statistics

209

Background

When to use

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

Before you begin

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

Related information

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

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

| Step | Action |
|------|---|
| 1 | Select Fault from the main menu bar on the Map window. This displays a sub-menu. |
| 2 | Select Alarm Monitoring from the displayed sub-menu. This displays another sub-menu. |
| 3 | Select Statistics from the displayed sub-menu. The Choose an NE/Aggregate window is displayed. |
| 4 | Click on the Network Elements radio button to limit the list to NEs. Click the Aggregates radio button to limit the list to aggregates. |
| 5 | Select an NE or aggregate from the Choose an NE/Aggregate window. The selected throttling statistics are displayed. Stop! End of Task. |

Background

When to use

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



NOTE:

Before resynchronizing alarms for an NE, the user should ensure that the NE is unthrottled. You can disable the Automatic Alarm Throttling feature via the Modify an NE window in the GUI. Alarm resynchronization does not work unless the NE is in an unthrottled state.

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

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

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

**Related
information**

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

Complete the following steps to resynchronize alarms on demand.

| Step | Action |
|------|--|
| 1 | Position the mouse pointer over the NE that you want to resynchronize and click the menu mouse button. A sub-menu appears. |
| 2 | Select Resynchronize Alarms from the sub-menu. The system resynchronizes the alarms. Stop! End of Task. |

Background

When to use

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

Before you begin

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

Turn up the volume on your PC's audio control if you decide to enable the Audible Alarms feature to clearly hear audible alarms.

Related information

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

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

| Step | Action |
|------|---|
| 1 | On the Map window, select Fault from the main menu bar. This displays a sub-menu. |
| 2 | <p>Select Audible Alarms from the displayed sub-menu. This displays another sub-menu.</p> <ul style="list-style-type: none">■ If the audible alarm feature is currently enabled, a mark appears next to the Audible menu item on the displayed sub-menu. If desired, click on Audible to disable audible alarms.■ If the audible alarm feature is currently disabled, the mark does <i>not</i> appear next to the Audible menu item on the displayed sub-menu. If desired, click on Audible to enable audible alarms. <p> NOTE: The Audible Alarms feature can also be disabled by clicking on the Audible Alarms symbol on the Map window toolbar. A red slash is displayed through the symbol when the feature is disabled. Clicking on the Audible Alarms symbol again removes the slash and enables the feature.</p> <p>Stop! End of Task.</p> |

Quiet the Audible Alarm

212

Background

When to use

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

Before you begin

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

Related information

For related information, see [Chapter 3, Fault Management](#) .

Instructions

Task

Complete the following steps to quiet the audible alarm.

| Step | Action |
|------|--|
| 1 | On the Map window, select Fault from the main menu bar. This displays a sub-menu. |
| 2 | Select Audible Alarms from the displayed sub-menu. This displays another sub-menu. |
| 3 | Select Quiet Current Alarms from the displayed sub-menu. The system quiets the current alarms. (The alarms still need to be acknowledged.) Stop! End of Task. |

Enable/Disable the Alarm Indicator

213

Background

When to use

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



NOTE:

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

Before you begin

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

Related information

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

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

| Step | Action |
|------|--|
| 1 | On the Map window, select View from the main menu bar. This displays a sub-menu. |
| 2 | Select Alarm Indications from the displayed sub-menu. This displays another sub-menu. |
| 3 | On the displayed sub-menu, there will be a bullet mark next to either All Enabled or All Disabled . The one with the bullet is the current state. You can change the state by clicking with your mouse pointer. For example, if the bullet is currently next to All Enabled and you want to disable the alarm indicator function, click All Disabled . The system moves the bullet and makes the change to the feature. Stop! End of Task. |

Background

When to use

Use this procedure to set up Intelligent Alarm Filtering (IAF) for an NE. IAF is the filtering of symptomatic alarms and events that are associated with a directly reported root-cause or alarm, or the filtering of multiple alarms/events reported from the same NE source. This procedure is used to specify for which NEs IAF should be *disabled*, since the system filters, by default, symptomatic alarms that correlate to a reported equipment alarm or same-level facility alarm by an NE.

Before you begin

Before you begin this task, the system administrator can adjust certain tunable parameters that define how alarms are processed, collected, and filtered for IAF.

To perform this task, access the Map window.

Related information

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

Complete the following steps to set up alarm correlation timers for IAF and to disable IAF for selected NEs.

| Step | Action | Reference |
|------|--|--------------------------|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 2 | Select Fault from the Administration menu. The Fault menu is displayed. | |
| 3 | Select Intelligent Alarm Filtering from the Fault menu. The Intelligent Alarm Filtering sub-menu is displayed. | |
| 4 | Select Disable by TID from the Intelligent Alarm Filtering sub-menu. The Disabling IAF for NEs window is displayed. | |
| 5 | Select the NE(s) and transfer it to the NEs with Disabled IAF list, using the push buttons. NEs can be transferred back and forth between the Enabled IAF and Disabled IAF lists, using the push buttons, as needed. | |
| 6 | Click the OK button. ITM SNC enables/disables IAF for the NEs, as specified. Stop! End of Task. | |
| 7 | Set up the Alarm Correlation Timers for Intelligent Alarm Filtering. Stop! End of Task. | SE 214-1 |

SE 214-1: Set Up Alarm Correlation Timers for IAF

Procedure

Perform the steps below to set up Alarm Correlation Timers for Intelligent Alarm Filtering.

1. Select **Administration** from the Map window main menu bar. The Administration menu is displayed.
 2. Select **Fault** from the Administration menu. The Fault menu is displayed.
 3. Select **Intelligent Alarm Filtering** from the Fault menu. A sub-menu is displayed.
 4. Select **Correlation Timers** from the sub-menu. The IAF Correlation Timers window is displayed.
 5. Enter values for the following correlation timer fields:
 - **Alert Interval**— The time period, in minutes, from the start of an alarm correlation process until the point that ITM SNC notifies users that alarm correlation is in progress. The default value is one minute.
 - **Initial Correlation Period**—The time period, in minutes, started upon receipt of the first directly reported alarm during which ITM SNC collects symptomatic alarms and events for alarm correlation, plus at least one Quiet Time Period. The default value is five minutes.
 - **Quiet Time Period**—The time period, in minutes, used to check whether any new alarms that need to be correlated have been received. The default value is 1 minute. The maximum Quiet Time Period is 15 minutes.
 - **Maximum Correlation Period**—The time period, in minutes, that defines the maximum time allotted for alarm correlation. The Maximum Correlation Period is equal to the Initial Correlation Period, plus one or more Quiet Periods. The correlation process is terminated when no new alarms are received during the Quiet Time Period or the Maximum Correlation Period expires. The Maximum Correlation Period must be greater than or equal to the Initial Correlation Period, plus at least one Quiet Time Period. The default value is 15 minutes.
 6. Click the Apply button to apply the settings or click the OK button to apply the settings and close the window.
-

Background

When to use

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

Before you begin

Before you begin this task, access the Map window.

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

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

**Related
information**

For related information, see [Chapter 3, Fault Management](#).

Instructions

Task

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

| Step | Action | Action |
|------|--|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 2 | Select Fault from the Administration menu. The Fault sub-menu is displayed. | |
| 3 | Select Alarm Throttling from the Fault sub-menu. The Automatic Alarm Throttling window is displayed. | |
| 4 | Click on the NE TID in the explorer portion of the window to select it. If the NE is under an aggregate, click on the plus (+) sign next to the aggregate in the explorer to expand the aggregate and select the NE. | |
| 5 | TO ... Enable automatic alarm throttling for the selected NE Disable automatic alarm throttling for the select NE | DO THIS... Click the Enabled button under the "Set Alarm Throttling to" portion of the window and select a alarm threshold by moving the threshold arrow to the left or right until the desired threshold number is shown in the box. Click the Disabled button under the "Set Alarm Throttling to" portion of the window. |
| 6 | Click the Apply button to activate your choice(s) or click the OK button to activate your choice(s) and close the window. Stop! End of Task. | |

Task Series 300

Configuration Management

Background

When to use Use this procedure to initiate a TL1 cut-through session from the Map window and perform enhanced cut-through commands via the Cut-Through window.

Before you begin Before you begin this task, you must have already displayed the Map window and determined the NE for which you want to initiate a cut-through session.

Related information

For related information, see the following:

- [T 301, Build TL1 Commands](#)
- [T 302, Broadcast TL1 Commands](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task Complete the following steps to initiate and perform cut-through.

| Step | Action |
|------|---|
| 1 | Position the mouse pointer over the NE to which a cut-through is required and press the menu mouse button. A pop-up menu appears. |
| 2 | Select Cut-Through from the pop-up menu. The Cut-Through window and the Cut-Through Output window are displayed. (If the NE is unavailable for any reason, a message identifying the cause of the error is displayed in a pop-up window.) |
| 3 | <p>At the Cut-Through window, type the appropriate TL1 command into the Cut Through Command field. If desired, select from the displayed Command and AID lists (using double clicks) to save typing time. See your NE documentation for detailed command information. (You can select the Clear Command Area button any time to clear the Cut Through Command field and start over. The TID of the NE remains after the Clear Command Area button is pressed.)</p> <p> NOTE: The AID list for an NE displayed in the AID scroll list may not be complete. You may have to select a similar AID from the list to populate the Cut-Through Command field and then manually edit the AID to make it the correct one.</p> |
| 4 | <p>After completing your entry in the Cut-Through Command field, select the Send Command Now button. The command is echoed to the Cut-Through Output window and the command output appears there.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to create a TL1 command file to assist in performing maintenance and provisioning activities on one or more NEs (such as download of standard configuration), without having to manually enter a set of TL1 command strings. This feature both reduces the amount of manual entry needed to create TL1 command strings and allows for the reuse, at a later time, of the commands built on the same NE or other NEs of the same type.

Before you begin

Before you begin this task, you must have already determined the TL1 commands you wish to build.

Related information

For related information, see the following:

- [T 300, Perform Cut-Through Commands](#)
 - [T 302, Broadcast TL1 Commands](#)
 - [Chapter 4, Configuration Management](#)
-

Instructions

Task Complete the following steps to build TL1 commands.

| Step | Action |
|-------------------------------|--|
| 1 | On the Map window, select File from the main menu bar. This displays a pull-down menu. |
| 2 | Select TL1 Macro Scripts from the displayed pull-down menu. This displays a sub-menu. |
| 3 | <p>Select TL1 Macro Builder from the displayed sub-menu. This displays the Macro Builder/Broadcaster window. Select the Macro Builder tab if it is not already selected.</p> <p> NOTE: When you use the TL1 Macro Builder for the first time, a message is displayed, "No Files Found". This is correct, and only indicates that no TL1 Macro file has been created yet.</p> |
| 4 | TL1 command files can only be built for one NE type at a time, so first specify the NE type by clicking the down arrow adjacent to the NE Type field (directly below the Manage TL1 Macro Files heading) and select an NE. |
| 5 | Next type the appropriate TL1 command(s) into the Macro File Commands area at the lower left of the window. Press the Return key between commands, typing each new command on the next available line in the Macro File Commands area. If desired, select from the displayed Command List by double-clicking on the command and from the AID List by single-clicking on the AID to save typing time. To enter multiple commands from the Command List, click on the end of a command string and press the Return key before entering the next command. This will access the next available command line. See your NE documentation for detailed TL1 command information. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|--|
| 6 | When you have completed your macro file commands, select Save/Save As. This displays the Save As window. |
| 7 | In the Save As window, save the contents of the Macro File Command lines as a new macro file (by typing the new macro file name into the Save As field) or to an existing macro file name, overwriting the contents of the file (by selecting one from the displayed list). Don't forget to use the radio buttons to indicate whether the file should be Accessible by all or Accessible by owner only . |
| 8 | <p>The following list shows how to use remaining items on the TL1 Macro Builder window:</p> <ul style="list-style-type: none">■ Clear Command(s)—click this button to clear the current entries in the Macro File Command area.■ Owner—displays the macro file owner's login ID.■ File Properties—indicates whether the displayed macro file is Accessible By All or Accessible by Owner Only. This value can be changed (by owners) via the Save As screen, which is displayed by clicking the Save/Save As button.■ Put Into Command Area—select this button to put the contents of the selected macro file into the command line text area.■ View Macro—use this button to view the contents of the selected macro file.■ Delete Macro—click this button to delete the selected macro file (for owners only). <p>Stop! End of Task.</p> |

Background

When to use

The broadcast TL1 commands feature allows you to perform maintenance and provisioning activities (such as download of standard configuration) on one or more NEs, utilizing the TL1 command files created by the TL1 macro builder feature, and broadcasting those files to multiple NEs of the same type. This feature saves you time by performing similar tasks on multiple NEs in one step, and by reducing the manual entry required in the creation of TL1 command strings.

Before you begin

Before you begin this task, you must have already determined the TL1 commands you wish to broadcast, or know the name of the TL1 macro file you are going to use.

Related information

For related information, see the following:

- [T 300, Perform Cut-Through Commands](#)
- [T 301, Build TL1 Commands](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task Complete the following steps to broadcast TL1 commands.

| Step | Action |
|------|---|
| 1 | On the Map window, select File from the main menu bar. This displays a pull-down menu. |
| 2 | Select TL1 Macro Scripts from the displayed pull-down menu. This displays a sub-menu. |
| 3 | Select TL1 Macro Broadcaster from the displayed sub-menu. This displays the Macro Builder/Broadcaster window. Select the Macro Broadcaster tab if it is not already selected. |
| 4 | Specify the NE type for the broadcast; select All NEs, NEs by Type, or NEs by TID from the Where to Broadcast block at the top middle of the Broadcaster window. Specify the parameters of the broadcast further by highlighting NEs in the Available Network Elements list (on the left side of the window) and clicking the single right arrow (>) to move them to the Chosen Network Elements list (on the right side). <i>The NEs placed in the Chosen Network Elements list on the right will be the ones to receive the broadcast.</i> (You can use the double arrows to move all current choices between the two lists.) |
| 5 | Next type the name of the macro file (to be broadcast to the NEs selected in the Chosen Network Element list) into the field in the Macro File to Broadcast block (or simply select a macro file from the displayed list by double clicking on it). |
| 6 | <p>Select the Broadcast Macro button to ask the system to perform the broadcast. The following list shows how to use the remaining buttons on the Broadcaster window:</p> <ul style="list-style-type: none"> ■ View Macro - use this button to view the macro file, which you may want to do before executing it. ■ Abort Broadcast - use this button to stop the execution of the TL1 commands at any time while the broadcast window is active. When this button is chosen, the system stops sending out the next command in the macro file to the NE(s) currently being broadcast to. Once the abort is completed, the system displays a message. ■ Close - click this button any time before clicking the Broadcast Macro button to remove the Broadcast window from your screen. <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to display the Provisioning window. The Provisioning window is the main system window used to modify information about system, port, and equipment parameters.

Before you begin

Before you begin this task, be aware that you must perform DNO on the NE before provisioning NE system parameters, port parameters, or creating cross-connections to update the database with the latest configuration data.

To perform this task, access the Map window.

Related information

For related information, see [Chapter 4, Configuration Management](#) .

Instructions

Task

Complete the following steps to display the Provisioning window, in order to perform network element, port, and line provisioning.

| Step | Action |
|------|---|
| 1 | From the main menu bar on the Map window, select Configuration . This displays a sub-menu. |
| 2 | Select Provision from the displayed sub-menu. This displays the Choose an NE window. |
| 3 | Use the mouse to select an NE on the Choose an NE window. (Double click on the desired NE and then click the OK button.) This displays the Provisioning window. Stop! End of Task.  NOTE: The Provisioning window can be displayed in similar fashion from the Alarm Summary, Equipment View, and Cross-Connection windows. |

Background

When to use Use this procedure to display the windows used to provision NE system parameters.

Before you begin Before you begin this task, determine specifically what type of system provisioning you want to accomplish.

Related information For related information, see [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to display the windows used to provision system parameters.

| Step | Action |
|------|---|
| 1 | Display the Provisioning window as described in T 303, Display the Provisioning Window . |
| 2 | Use the mouse to select the TID from the Network Element Explorer portion of the window. Then click the Provision button. This displays the system parameters (for your selection) in the Provisioning area of the window. (Parameters that have no value reported for them, and which therefore do not apply to the current operation, are not shown in the provisioning panel.) |
| 3 | Make your provisioning changes in the Provisioning section of the window using the available fields and your selected values. |
| 4 | Click Apply to enter your changes. Stop! End of Task. |

Background

When to use

Use this procedure to display the windows used to provision NE ports.

Before you begin

Before you begin this task, determine specifically what type of port provisioning you want to accomplish.

Related information

For related information, see [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to display the windows used to provision port parameters.

| Step | Action |
|------|---|
| 1 | Display the Provisioning window as described in T 303, Display the Provisioning Window . |
| 2 | Expand the explorer tree if it has not already been expanded. |
| 3 | Use the mouse to select the port from the Network Element Explorer portion of the window. (Click on the plus [+] signs to display available circuit packs.) Then click the Provision button. This displays the port attributes (for your selection) in the Provisioning area of the window. Use the tabs to go to the specific port attribute to provision. |
| 4 | Make your provisioning changes in the Provisioning section of the window. Stop! End of Task. |

Background

When to use Use this procedure to display and view NE equipment on the Equipment Configuration window.

Before you begin Before you begin this task, determine the equipment you want to view.

Related information For related information, see the following:

- [T 307, View NE Equipment Details](#)
- [Chapter 4, Configuration Management](#) .

Instructions

Task

Complete the following steps to display and view various NE equipment components on the Equipment Configuration window.

| Step | Action |
|------|--|
| 1 | Select the NE in the Map pane portion of the Map window. |
| 2 | Select Configuration from the main menu bar on the Map window. This displays a sub-menu. |
| 3 | <p>Select Equipment from the displayed sub-menu. This displays the Equipment View window, containing equipment information for the selected NE.</p> <p>The Equipment View window allows you to view and/or “drill down” through a network element to view its various constituent parts via the graphical representation (the network element view panel), or to select a component (shelf, bay, slot) for viewing via the hierarchical representation (the network explorer panel). In addition, you can access certain features via a pop-up menu that is available in both panels.</p> <p>Following are the navigational conventions to use to view equipment information for the selected NE.</p> <p>View Panel</p> <p><i>Single Left Click</i>—selects the component both here and in the explorer.</p> <p><i>Double Left Click</i>—shows the contents of the component in the view panel, and indicates that it is selected. Shows the component as selected in the explorer and its subtending components (if there are any).</p> <p><i>Single Right Click</i>—indicates that the component is selected, and shows the pop-up menu.</p> <p>Explorer List Item</p> <p><i>Single Left Click</i>—selects the explorer component and the view component. If the component selected has contents, it shows the content in the view panel. Does not show/hide subtending explorer components.</p> <p><i>Double Left Click</i>—same as single left click on explorer list item, but does show/hide subtending components in the explorer.</p> <p><i>Single Right Click</i>—indicates that the component is selected, and shows the pop-up menu.</p> <p>Explorer plus or minus sign</p> <p><i>Single Left Click</i>—shows/hides subtending components.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to view details of a single component inside an NE.

Before you begin

Before you begin this task, determine the NE for which you want to display equipment details.

Related information

For related information, see the following:

- [T 306, View NE Equipment](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to display NE equipment details.

| Step | Action | Reference |
|-------------|------------------------------------|--|
| 1 | Display the Equipment View window. | T 306, View NE Equipment |

| Step | Action (Continued) | Reference |
|------|--|-----------|
| 2 | <p>Select a component in the NE explorer part of the Equipment View Window by clicking the plus (+) sign next to the component in the equipment hierarchy to expand the hierarchy until the component for which you want details is displayed. The details displayed depends on the equipment level selected. For example, if you click on a circuit pack, the system displays only circuit pack information. If you select a slot in the explorer/equipment hierarchy, the system displays slot and circuit pack information.</p> | |
| 3 | <p>Select View from the menu bar. This displays the View menu.</p> | |
| 4 | <p>Select Equipment Details from the View menu. This displays the equipment details for the selected component.</p> <p> NOTE: Right clicking on the desired component in the Equipment View window also displays a sub-menu from which Equipment Details can be selected. If the component selected for details is a populated slot (with a circuit pack installed) then details for both the slot and circuit pack are displayed in Equipment Details.</p> <p>Stop! End of Task.</p> | |

Background

When to use

Use this procedure to access the list of a given component's subtending equipment. When you request an equipment item from either the drop-down or pop-up menu, SNC provides a list of equipment for the selected item and its subtending equipment. The lists can be saved and printed.

Before you begin

Before you begin this task, determine the equipment for which you want to display equipment lists.

Related information

For related information, see the following:

- [T 306, View NE Equipment](#)
 - [Chapter 4, Configuration Management](#)
-

Instructions

Task

Complete the following steps to view NE equipment lists.

| Step | Action |
|------|---|
| 1 | Select a component in the NE explorer part of the Equipment View Window. (See Related information earlier in this task for instructions on displaying the Equipment View.) |
| 2 | Select View from the menu bar. This displays the View menu. |
| 3 | <p>Select Equipment List from the View menu. This displays the equipment list for the selected component. The list contains information about the NE equipment, at the level you requested. The information is textual and listed in name/value pairs.</p> <p> NOTE: Right clicking on the desired component in the Equipment View window also displays a sub-menu from which Equipment List can be selected. If the component selected for listing is a populated slot (with a circuit pack installed) then information for both the slot and circuit pack are displayed in Equipment Details.</p> <p>Stop! End of Task.</p> |

Display the NE Cross-Connection Window

309

Background

When to use Use this procedure to display the NE cross-connection window. This window provides access to all NE cross-connection features.

Before you begin Before you begin this task, determine the cross-connection types you want to work with.

Related information For related information, see the following:

- [T 311, View NE Cross-Connections—Textual](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to display the cross-connection window and gain access to all cross-connection features.

| Step | Action |
|------|---|
| 1 | Select Configuration from the main menu bar on the Map window. This displays a sub-menu. |
| 2 | Select Cross-Connection from the displayed sub-menu. This displays the Choose an NE window. |
| 3 | <p>Double-click on the NE in the Choose an NE window to select it and then click the OK button. The Cross-Connection window is displayed.</p> <p> NOTE: Right clicking on an NE in the Map window also displays a sub-menu from which Cross Connection can be selected.</p> <p>The Cross-Connection window consists of a menu bar, a toolbar, a status bar, a Network Element explorer, and a main view. The main view area is further broken down into four or eight port areas. This window is used for all cross-connection operations, including viewing, adding, modifying, and deleting. These operations are all described in separate tasks.</p> <p>Stop! End of Task.</p> |

Display Ports on the NE Cross-Connect Window

310

Background

When to use Use this procedure to display port information on the NE Cross-Connect window.

Before you begin Before you begin this task, determine the ports to be displayed and display the Cross-Connect window.

Related information For related information, see the following:

- [T 309, Display the NE Cross-Connection Window](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to display port information in the Cross-Connect window.

| Step | Action | | Reference |
|------|--|--|---|
| 1 | Display the Cross-Connect window. | | T 309. Display the NE Cross-Connection Window |
| 2 | USING EXPLORER TREE... | USING MAIN VIEW... | |
| | <p>a. Expand an item in the explorer tree (using the mouse) and locate the port group that contains the tributaries/ports to display in the main view area.</p> <p>b. Right click to see the pop-up menu and select a port area from the menu. The port group is expanded to display the tributaries/ports.</p> <p>Stop! End of Task.</p> | <p>Use the left/right and up/down buttons in the main view area to move the display one group. Choose the appropriate arrow to change the view.</p> <p> NOTE: See the Configuration Management chapter for much more information about ports.</p> <p>To remove tributary blocks from the Main View, position the mouse cursor on the tributary block and click the left mouse button. Then click the right mouse button to display a small pop-up window with the word "Clear". Select "Clear" to clear the block from the window.</p> | Chapter 4. in the <i>User Reference</i> section |

View NE Cross-Connections— Textual

311

Background

When to use Use this procedure to view a textual version list of existing cross-connections.

Before you begin Before you begin this task, display the Cross-Connection window.

**Related
information**

For related information, see the following:

- [T 309, Display the NE Cross-Connection Window](#)
 - [Chapter 4, Configuration Management](#)
-

Instructions

Task

Complete the following steps to display a textual version list of existing cross-connections.

| Step | Action |
|------|---|
| 1 | Display the Cross-Connection window as described in T 309, Display the NE Cross-Connection Window . |
| 2 | In the explorer area of the Cross-Connection window, use your mouse to select the system, a bay, a shelf, a circuit pack, or a port group. |
| 3 | Select View from the main menu at the top of the Cross-Connection window. This displays a sub-menu. |
| 4 | Select List Cross-Connections from the displayed sub-menu. This displays the Cross-Connection List window. Some general information about this window follows: <ul style="list-style-type: none">■ This list shows all the cross-connections in the selected element.■ Headers displayed above each list differ from NE to NE, but the first three headers are always Source AID (From), Destination AID (To), and Cross-Connection Type. |
| 5 | If desired, select another element from the explorer area of the Cross-Connections window to change the information in the Cross-Connection List window for the new selection. Also if desired, select a row in the list and then click the Delete or Modify button to display the windows used to delete and modify cross-connections, respectively. |

Add a Single NE Cross-Connection

312

Background

When to use Use this procedure to add new NE cross-connections.

Before you begin Before you begin this task, determine the NE and the elements for which you want to add cross-connections. Be aware that the explorer portion of the Cross-Connection window may show more circuit packs for FLM NEs than actually exist and allow you to make cross-connections on a duplication of the same card.

To perform this task, access the Map window.

There are several ways to access the Cross-Connection window besides the method described in this procedure. Other ways to access the Cross-Connection window:

A. From the Map Main Menu

1. Choose the network element to work with in the Map.
2. Choose **Configuration** from the main menu.
3. Choose **Cross Connection** from the sub-menu.
4. The Cross Connection Window is displayed.

B. Equipment View Window Menu

1. Choose **Configuration** from the equipment view main menu.
2. Choose **Cross Connection** from the sub-menu.
3. The Cross-Connection Window is displayed.

C. Equipment View Pop-Up Menu

1. Right click over the equipment whose cross connection window is to be displayed.
2. Choose **Cross Connection** from the popup menu.
3. The Cross-Connection Window is displayed.

Related information

For related information, see [Chapter 4, Configuration Management](#).

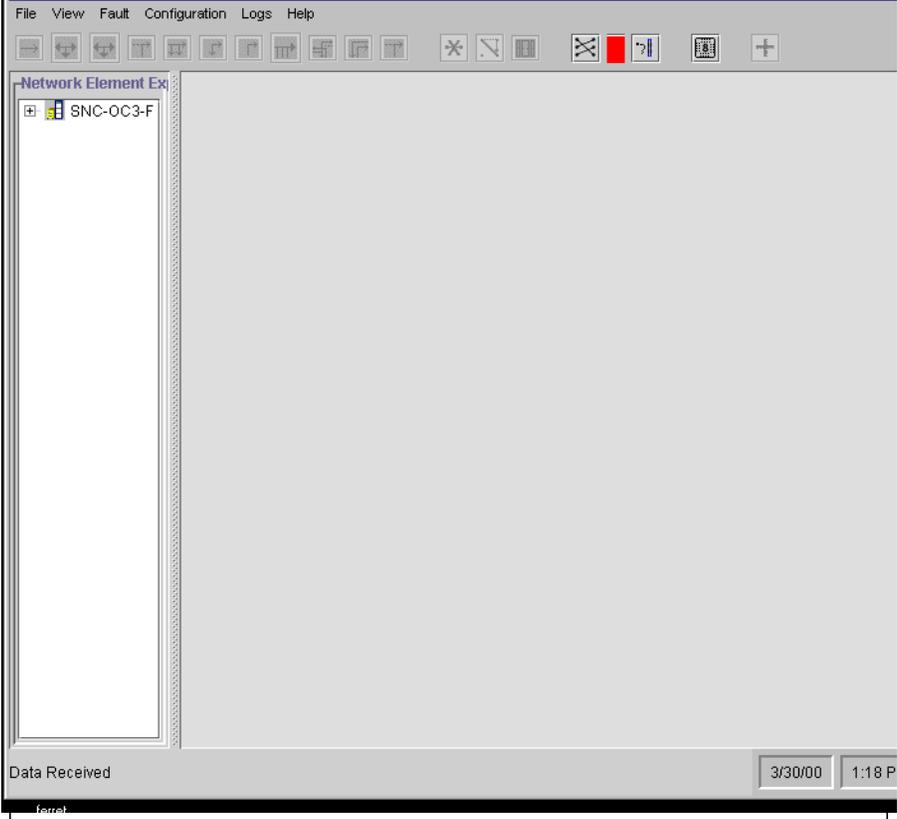
Instructions

Task

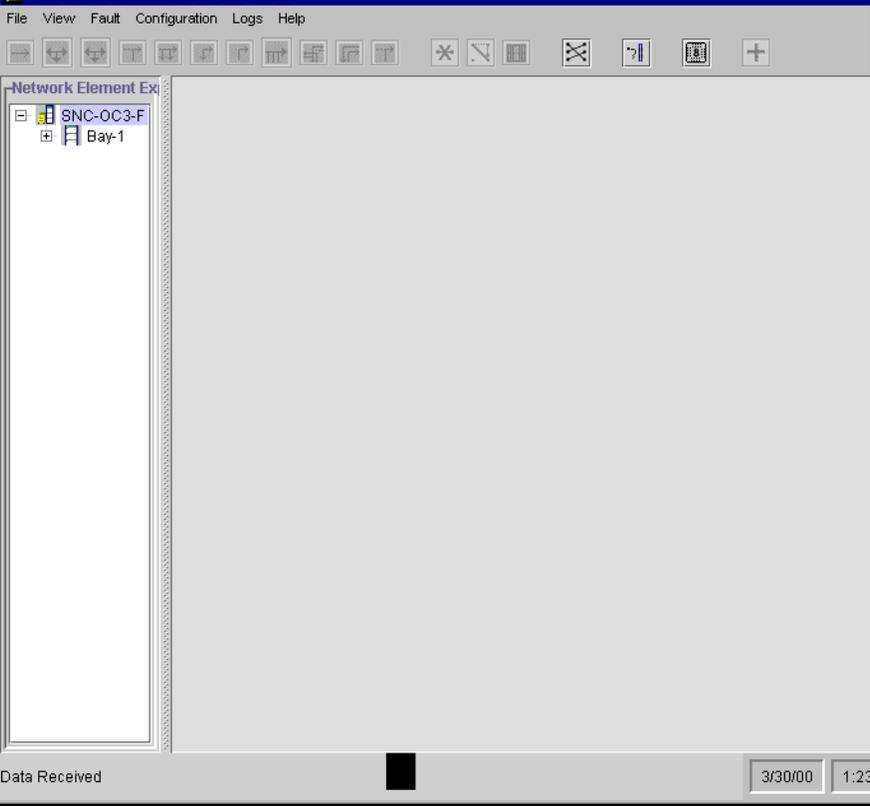
Complete the following steps to add a single new cross-connection

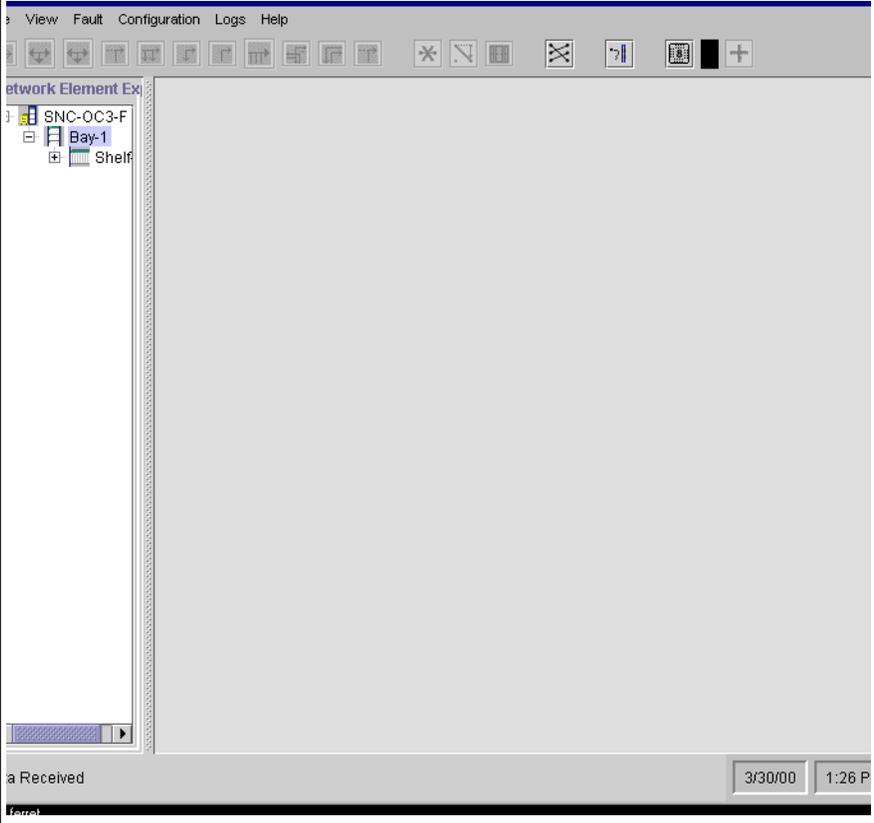
For illustration purposes, the example shown in the procedure is for adding a cross-connection on a DDM-2000 OC-3 NE.

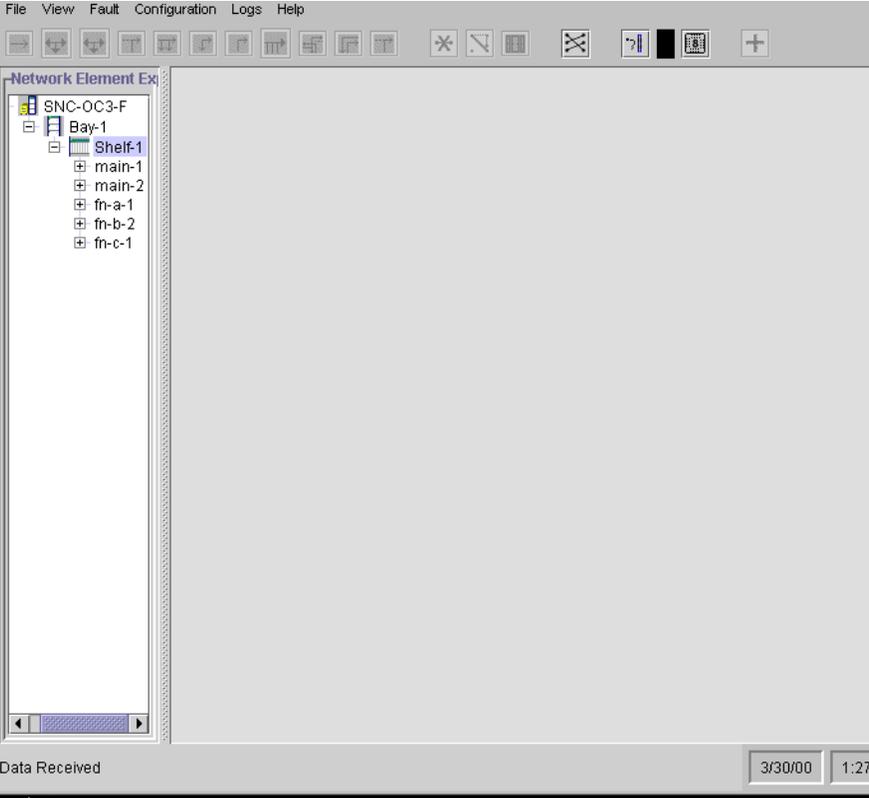
| Step | Action |
|------|---|
| 1 | Position the mouse cursor on the NE in the Map pane portion of the Map window and click the menu (right) menu mouse button. A pop-up menu is displayed. |
| 2 | Choose Cross Connection from the pop-up menu. The Cross-Connection window is displayed. |

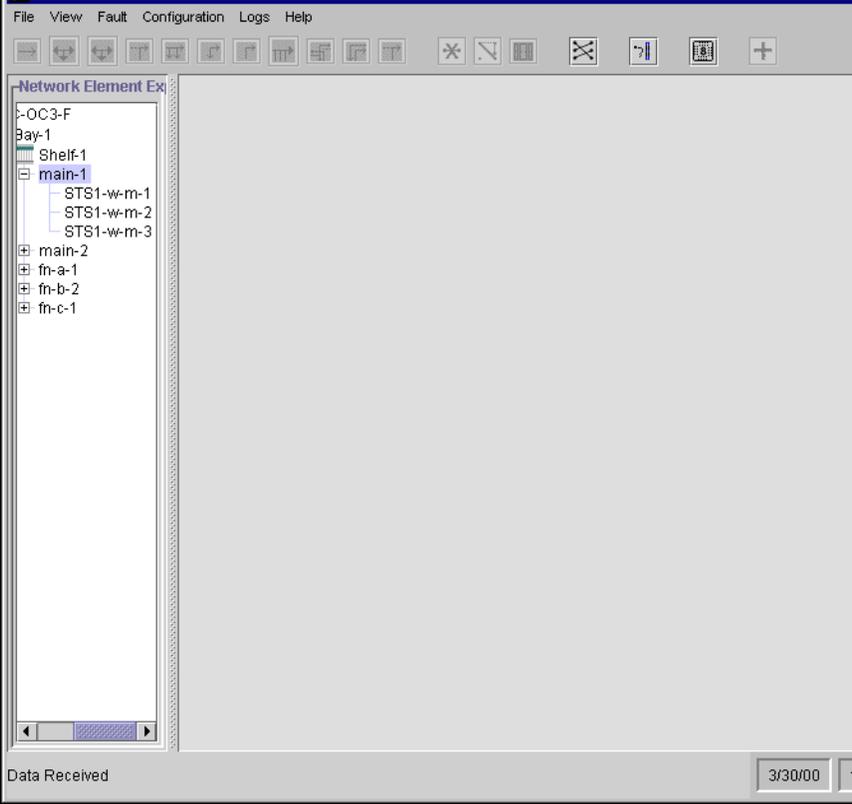


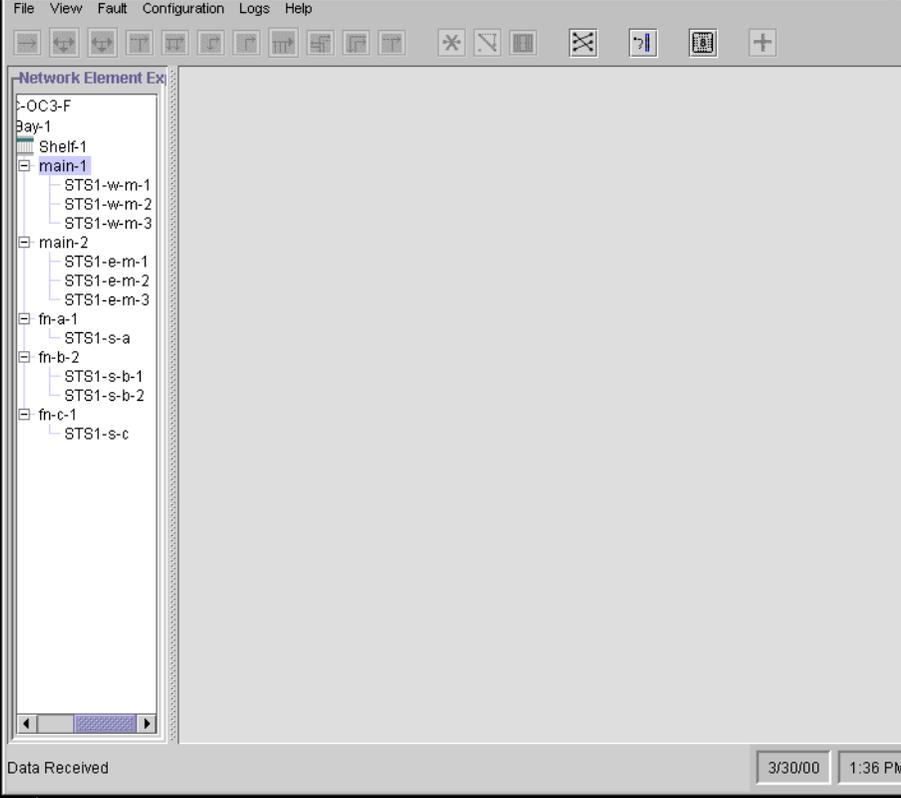
The screenshot shows a software application window with a menu bar (File, View, Fault, Configuration, Logs, Help) and a toolbar. On the left, there is a 'Network Element Explorer' pane containing a tree view with a single item 'SNC-OC3-F'. The main area is a map pane. At the bottom, a status bar displays 'Data Received', '3/30/00', and '1:18 P'.

| Step | Action (Continued) |
|------|---|
| 3 | <p>Position the mouse cursor on the NE's TID displayed in the left portion of the window below the Network Element Explorer heading. Double-click the left mouse button to highlight the TID and expand the explorer tree to show the bay(s) below the TID.</p>  |
| | <p>⇒ NOTE: You can also expand any item in the Network Element Explorer by clicking the plus (+) sign next to the item. To collapse the item, click the minus (-) sign next to it. If items in the explorer are partially obscured, plus the mouse cursor on the pane edge between the right side of the explorer and Main View, click and hold the left mouse button, and drag the edge to the right until the explorer items can be seen clearly.</p> |

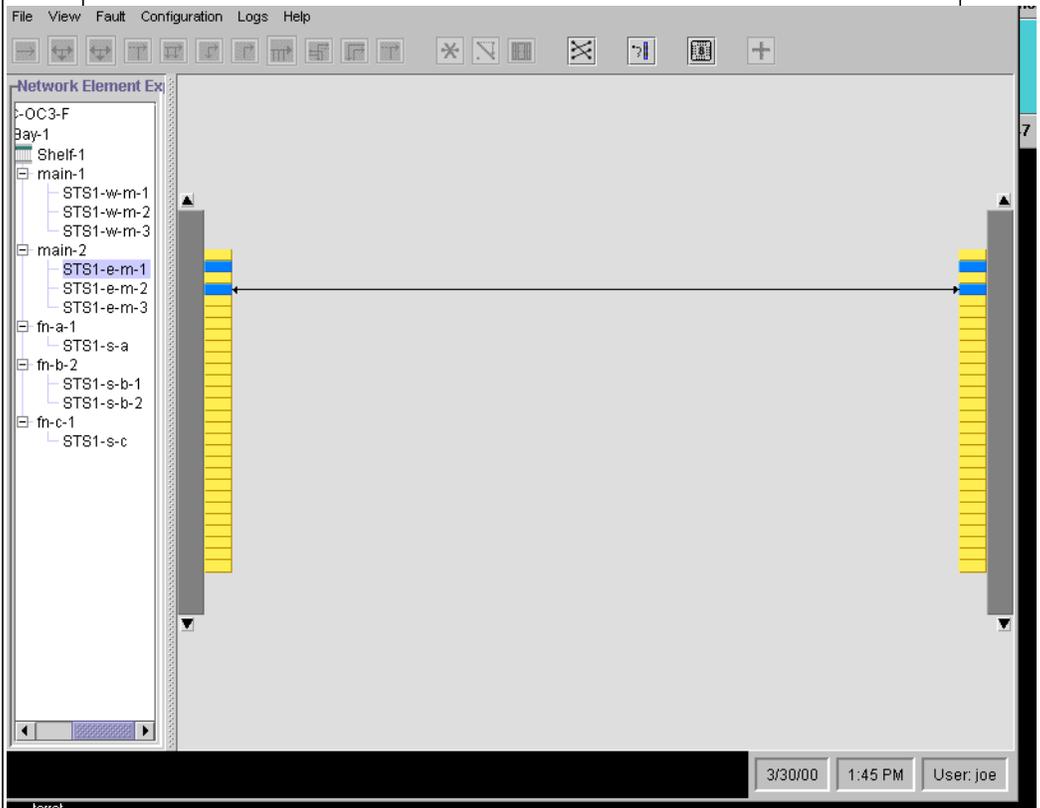
| Step | Action (Continued) |
|------|---|
| 4 | <p>Position the mouse cursor on the bay displayed in the explorer tree. Double-click the select (left) mouse button to highlight the bay and expand the explorer tree to show the shelf(ves) beneath the bay.</p>  <p>The screenshot shows a software interface with a menu bar (View, Fault, Configuration, Logs, Help) and a toolbar. On the left is a 'Network Element Explorer' tree with the following structure:</p> <ul style="list-style-type: none"> SNC-OC3-F <ul style="list-style-type: none"> Bay-1 <ul style="list-style-type: none"> Shelf <p>The main area of the interface is currently blank. At the bottom, there is a status bar with the text 'Data Received' on the left and '3/30/00 1:26 P' on the right.</p> |

| Step | Action (Continued) |
|------|---|
| 5 | <p>Position the mouse cursor on the shelf displayed in the explorer tree. Double-click the select (left) mouse button to highlight the shelf and expand the explorer tree to show the circuit packs beneath the shelf.</p>  |

| Step | Action (Continued) |
|------|---|
| 6 | <p>Position the mouse cursor on the circuit pack displayed in the explorer tree. Double-click the select (left) mouse button twice to highlight the circuit pack and expand the explorer tree to show the port groups beneath the circuit pack.</p>  <p>The screenshot shows a software window titled "Network Element Explorer". The window has a menu bar with "File", "View", "Fault", "Configuration", "Logs", and "Help". Below the menu bar is a toolbar with various icons. The main area is a tree view showing a hierarchy of network elements. The tree is expanded to show the following structure:</p> <ul style="list-style-type: none">OC3-FBay-1<ul style="list-style-type: none">Shelf-1<ul style="list-style-type: none">main-1 (highlighted)<ul style="list-style-type: none">ST81-w-m-1ST81-w-m-2ST81-w-m-3main-2fn-a-1fn-b-2fn-c-1 <p>At the bottom of the window, there is a status bar with "Data Received" on the left and "3/30/00" on the right.</p> |

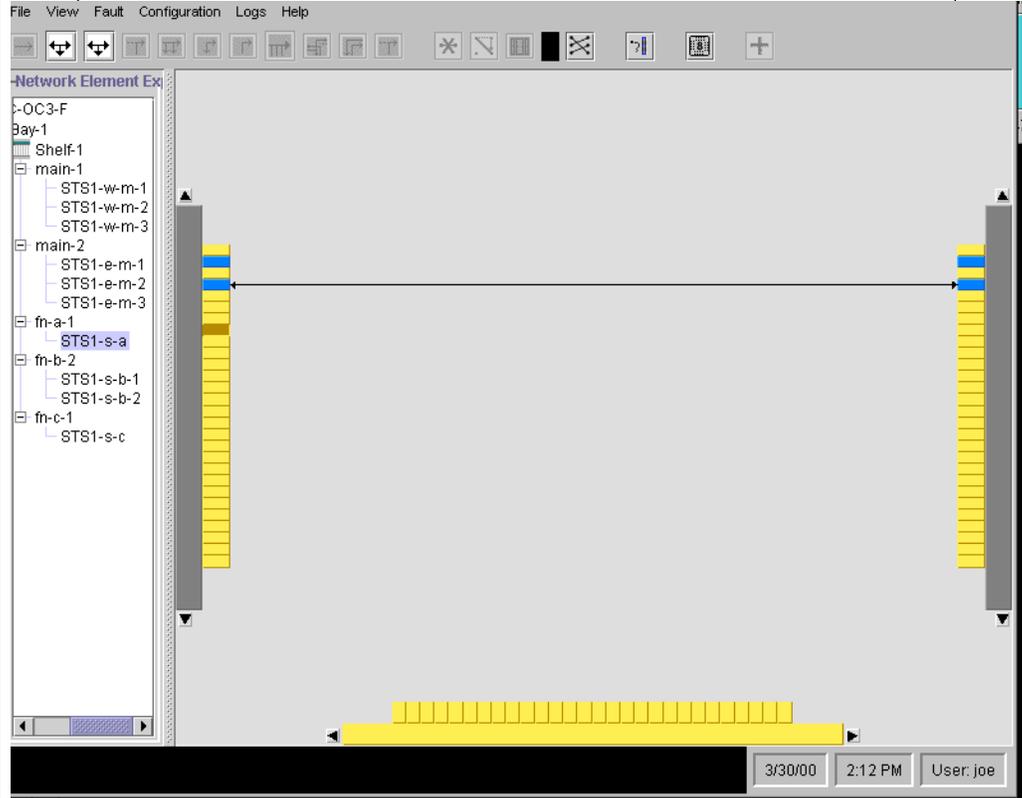
| Step | Action (Continued) |
|---|--|
| 7 | Repeat steps 4-6 for all bays, shelves, and ports that need to be displayed, if necessary. |
|  <p>The screenshot shows a software interface for network configuration. On the left, there is a tree view titled "Network Element Explorer" with the following structure:</p> <ul style="list-style-type: none"> -OC3-F <ul style="list-style-type: none"> Bay-1 <ul style="list-style-type: none"> Shelf1 <ul style="list-style-type: none"> main-1 <ul style="list-style-type: none"> STS1-w-m-1 STS1-w-m-2 STS1-w-m-3 main-2 <ul style="list-style-type: none"> STS1-e-m-1 STS1-e-m-2 STS1-e-m-3 fr-a-1 <ul style="list-style-type: none"> STS1-s-a fr-b-2 <ul style="list-style-type: none"> STS1-s-b-1 STS1-s-b-2 fr-c-1 <ul style="list-style-type: none"> STS1-s-c <p>The main area of the window is currently blank. At the bottom of the window, there is a status bar with the text "Data Received" on the left, and "3/30/00" and "1:36 PM" on the right. The word "ferret" is visible in the bottom-left corner of the window's title bar area.</p> | |

| Step | Action (Continued) |
|------|---|
| 8 | <p>Expand and display the associated port tributary in the Main View of the Cross-Connect window. There are two ways to do this:</p> <ul style="list-style-type: none"> ■ Position the mouse cursor on the port group in the explorer to be expanded and click the menu (right) mouse button to display a drop-down menu of positions. Select the left position for the tributary block from the drop-down menu list. The selected tributary block is positioned on the left side. ■ Position the mouse cursor on the port group in the explorer, click and hold the select (left) mouse button and drag the selected port into the left portion of the Main View of the Cross-Connect window. The tributary block for the selected port is displayed in the Main View. Note: this “drag and drop” method allows you to place the tributary in any position. <p>⇒ NOTE: To remove a tributary block from the Main View, position the mouse cursor on the tributary block and click the left mouse button. Then click the right mouse button. A single option, “Clear”, is displayed in a pop-up window. Move the mouse cursor over the word “Clear” in the pop-up window to select it. The tributary block is cleared from the Main View.</p> <p>Its port/tributary pair is displayed on the right side of the Main View of the Cross-Connect window.</p> |



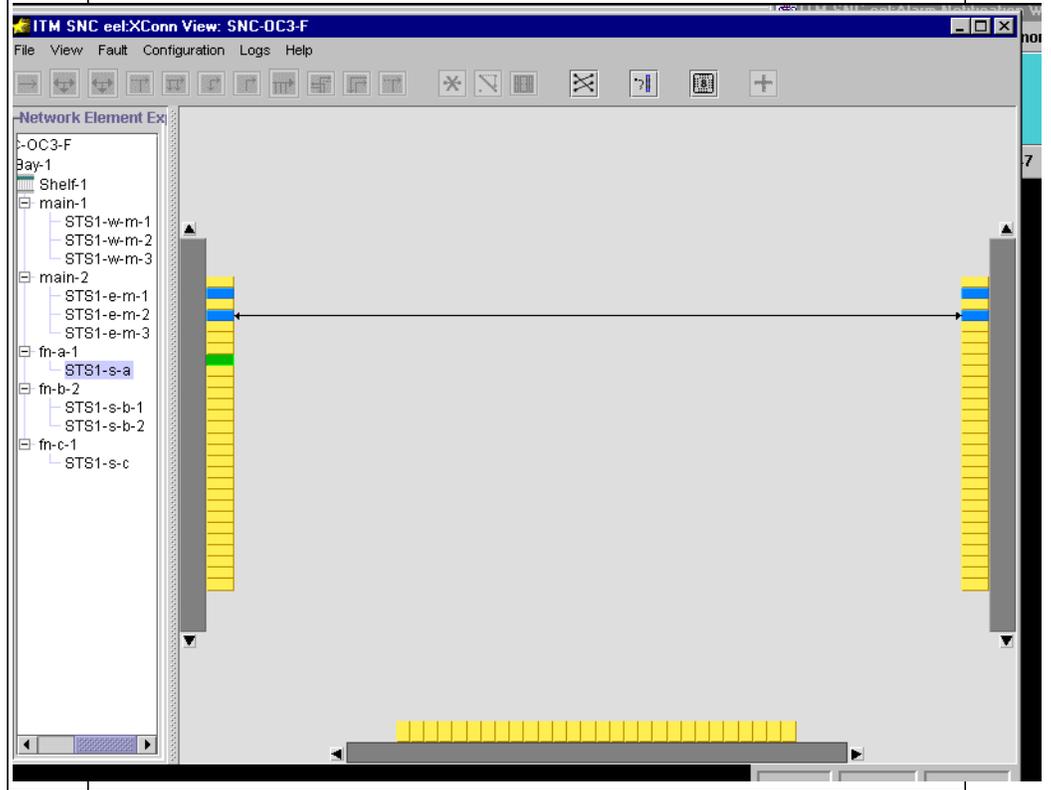
| Step | Action (Continued) |
|------|---|
| | <p> NOTE: Some port tributaries have corresponding port tributaries that will be automatically displayed on the opposite side of the Main View while others do not. For example, when an FLM NE is configured as a TERMINAL node, no lineside is assigned to the high speed port tributaries.</p> |
| | <p> NOTE: In Release 10.0, if a DDM-2000 port is set for video, it is still displayed as an available port for STS-1 level cross-connections when this type of cross-connection can only be made at the STS-3 level. The STS-1 tributary block is displayed as yellow (available) when it should be grey (unavailable for this level of cross-connection).</p> |
| | <p>If, as the example shown in this procedure, a 2 Way PR (Passthrough) or 2 Way BR (Drop and Continue) cross-connection is being created, position the mouse cursor on a low speed port (in this example, STS1-s-a in fn-a-1) and click the select (left) mouse button to select it. Then, using either method, position the low speed port tributary (click the right mouse button to display the drop down menu and select the bottom position, or click and hold the left mouse button and drag the low speed port into the bottom of the Main View of the Cross-Connect window).</p> |
| | <p>When a port tributary is displayed in the Main View of the Cross-Connection window, and you position the mouse cursor on the tributary block, a message is displayed next to the tributary address in the status bar identifying it as a "Source" or "Destination" tributary. The "Source" and "Destination" literal displayed in the status bar is used to indicate whether the tributary could act as a "Source" or "Destination" , or both, for additional cross-connections.</p> |
| | <p> NOTE: To clear a port tributary block from the Main View, position the mouse cursor on the tributary block and click the left mouse button. Then click the right mouse button to display a small pop-up window with the word "Clear". Select "Clear" to clear the block from the window.</p> |
| | <p> NOTE: If necessary, click the up/down and left/right arrow keys located next to the tributary blocks displayed to scroll and locate the tributary you want to use. When you position the cursor on a tributary block, the status bar indicates the tributary address and whether the tributary is available to be used as a source or destination.</p> |

| Step | Action (Continued) |
|------|---|
| 9 | Move the mouse cursor to the source tributary block and click the select (left) mouse button to select the source tributary for the cross-connection. The color of the selected tributary block changes from yellow to magenta. |

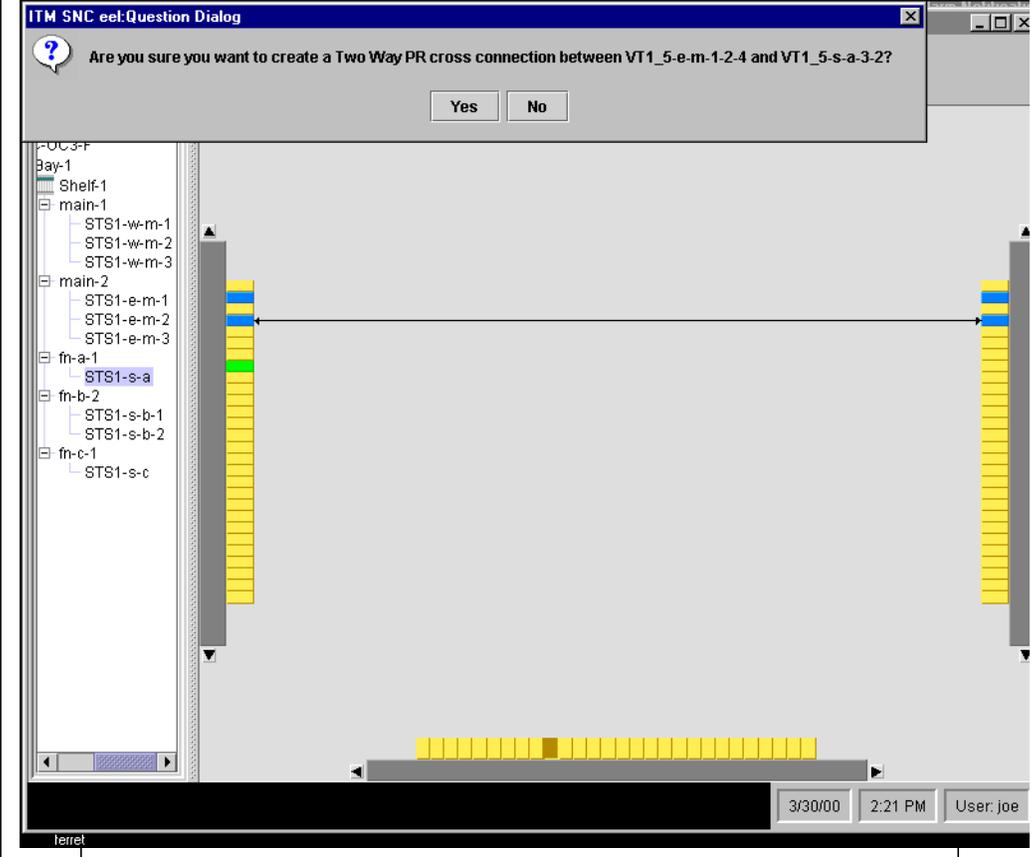


The available cross-connection type buttons are enabled at the top toolbar portion of the window above the Main View and Network Element Explorer. If a specific type of cross-connection is not possible for the source tributary selected, these cross-connection type buttons are greyed out.

| Step | Action (Continued) |
|------|--|
| 10 | Select the cross-connection type by clicking on the appropriate cross-connection type button at the top portion of the window. The color of the selected source tributary block changes to green. |



| Step | Action (Continued) |
|------|---|
| 11 | Move the mouse cursor and position it on the destination tributary block. |
| 12 | <p>Click the select (left) mouse button on the destination tributary block to select it. The color of the selected destination tributary changes to magenta.</p> <p>A pop-up question dialog window is displayed, asking if you are sure that you want to create the selected type of cross-connection between the selected source and destination tributaries. Choose Yes to initiate the cross-connection or No to cancel the cross-connection operation.</p> |



| Step | Action (Continued) |
|------|---|
| 13 | <p>Choose Yes to create the cross-connection. The line of the newly created cross-connection momentarily changes to orange. When the cross-connection has been established, the lines and arrows of the created cross-connection change color from orange to black. The tributaries change to blue, indicating that the cross-connection has been made.</p> |

Stop! End of Task.

Add an NE Multi-Cast Cross-Connection

313

Background

When to use

Use this procedure to add a new multi-cast cross-connection. This is accomplished via the Add a Multi-Cast Cross-Connection window, which allows you to choose the number of destination AIDs for a multi-cast cross-connection.

Before you begin

Before you begin this task, determine the NE and the elements for which you want to add a multi-cast cross-connection.

Related information

For related information, see [Chapter 4, Configuration Management](#) .

Instructions

Task

Complete the following steps to add a new multi-cast cross-connection.

| Step | Action |
|------|---|
| 1 | Display the ports for which you want to add a multi-cast cross-connection, as described in T 310, Display Ports on the NE Cross-Connect Window . |
| 2 | Single click on a high-speed line or low-speed address at the appropriate signal rate for the new multi-cast cross-connection source. |
| 3 | Choose the multi-cast button, which is one of the cross-connection type buttons at the upper left of the Cross-Connections window. This displays the Add a Multi-Cast Cross-Connection window. |
| 4 | In the Total Number of Destinations in this NE field on the Add a Multi-Cast Cross-Connection window, enter the number of drops to be included in the cross-connection. |
| 5 | In the main view area of the Cross-Connections window, click on each port/tributary that is to be a drop for the new multi-cast cross-connection. Notice that as each drop is specified, it is added to the Chosen Destinations area of the Add a Multi-Cast Cross-Connection window. (If necessary, you can remove a previously selected AID from the Chosen Destinations area by selecting it with the mouse and then clicking the nearby Remove AID button.) After you have specified the last drop, click the Done button. |
| 6 | After you complete the Add a Multi-Cast Cross-Connection window and click the Done button, the system asks you to specify additional information for the cross-connection, if any is needed. Specifically, for the purposes of a multi-cast cross-connection, a destination TID must be present for each and every destination that you specified. To get this information the system displays the Create Cross Connect Attributes window. Type the additional requested information into this window and click OK.  NOTE: The Create Cross Connect Attributes window is not displayed for FLM NEs. |
| 7 | The system displays the Cross-Connection Confirmation window. Click the Yes button to send the new cross-connection command to the NE. Stop! End of Task. |

Background

When to use Use this procedure to delete a selected cross-connection using the graphical representation.

Before you begin Before you begin this task, you must determine the cross-connection to be deleted and display it.

Related information For related information, see the following:

- [T 315, Delete an NE Cross-Connection—Textual](#)
- [Chapter 4, Configuration Management](#)

Instructions

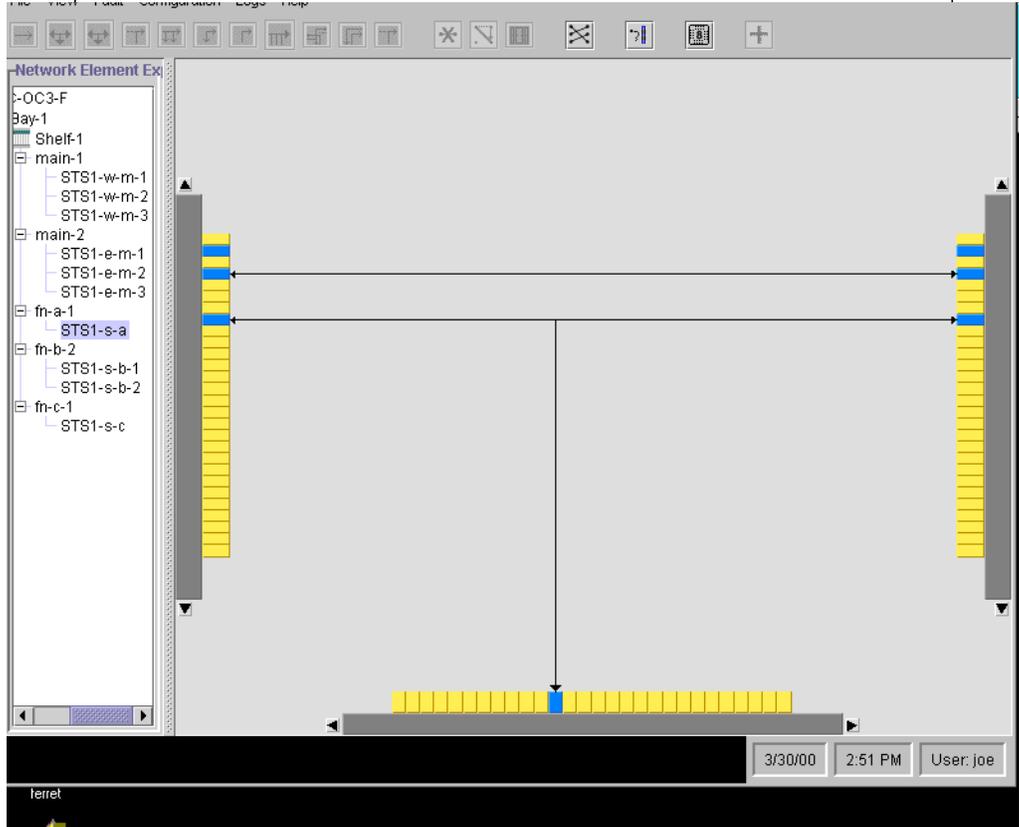
Task

Complete the following steps to delete a cross-connection on the Cross-Connection window graphically via the Cross-Connection window.

| Step | Action |
|------|---|
| 1 | <p>Position the mouse cursor on the NE in the Map pane portion of the Map window and click the menu (right) mouse button. A pop-up menu is displayed. Choose Cross Connection from the pop-up menu. The Cross-Connection window is displayed.</p> <p> NOTE: To obtain a textual list of all existing cross-connections on the NE while on the Cross-Connection window, choose View from the Cross-Connection window menu bar, then choose List Cross Connections and then choose All Cross Connections. A pop-up window is displayed, providing a textual list of cross-connections. To select a cross-connection from the list, position the mouse cursor on the cross-connection and click the select (left) mouse button. You can then click the Modify button on this window to modify the cross-connection or click the Delete button to delete it. In both cases, a pop-up question dialog is displayed, asking if you really want to perform the operation. Choose Yes to perform the operation or No to cancel the operation.</p> |
| 2 | <p>Double-click on the TID of the NE in the Network Element Explorer portion of the window (or click the plus sign next to the NE TID) to expand and show the bay, shelf, slot, circuit pack, and port group that contains the cross-connection to be deleted.</p> <p>If the equipment hierarchy is not expanded to show all components down to port level, double-click on the bay, shelf, slot, and circuit pack in successive order until the explorer tree expands to show the desired port.</p> |
| 3 | <p>Position the mouse cursor on the port group in the explorer tree and click the left mouse button to select it. The port is highlighted in the explorer.</p> |
| 4 | <p>Position the mouse cursor on the port group in the explorer and click the right mouse button to display a drop-down list. Select the position to place the associated port tributaries in the Main View of the Cross-Connection window.</p> <p>The other way to do this is to click and hold the left mouse button and drag the port group into the left, right, or bottom position to display the associated tributaries in the Main View.</p> |

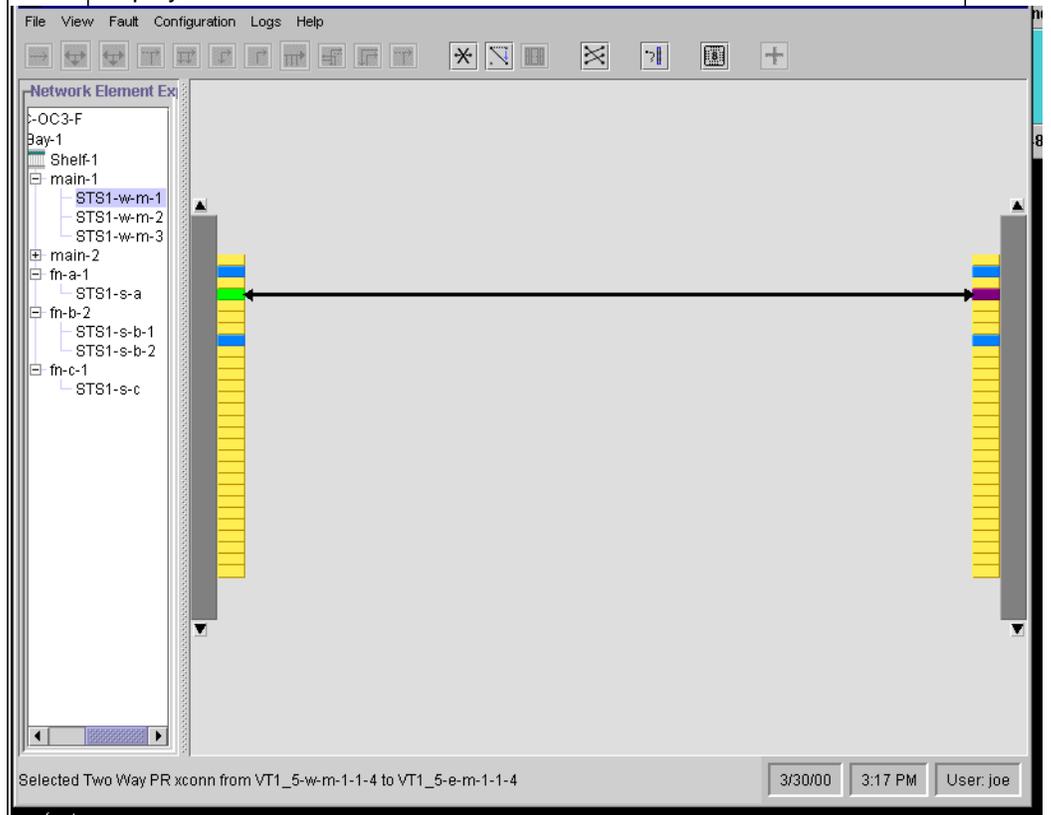
| Step | Action (Continued) |
|------|--------------------|
|------|--------------------|

| | |
|---|---|
| 5 | The window shows any existing cross-connections for the port. |
|---|---|



⇒ NOTE:
If the cross-connection is not displayed, click the Show/Hide toolbar button to show the cross-connection. If there are multiple cross-connections, position the mouse cursor over one of the cross-connections and click the right mouse button to display a listing of the existing cross-connections. Then select the desired cross-connection.

| Step | Action (Continued) |
|------|---|
| 6 | On the Cross-Connection window, position the mouse cursor on the line that represents the cross-connection and click the left mouse button. The line of the selected cross-connection becomes thicker and the color displayed is black. |



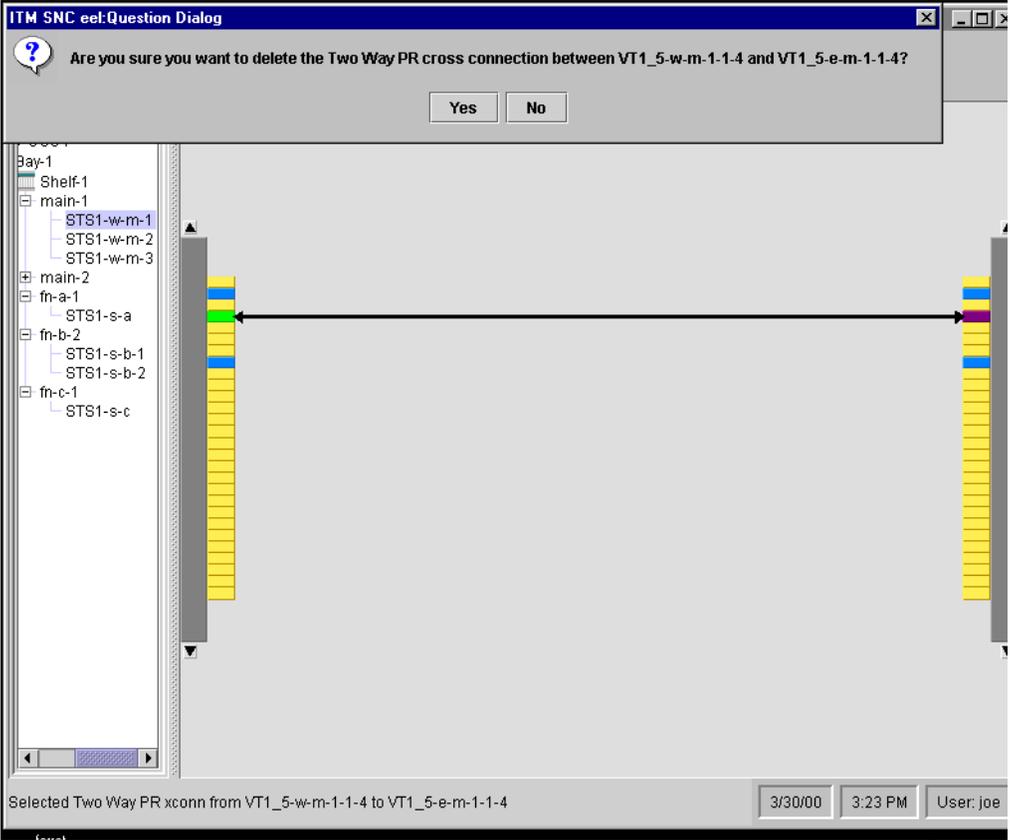
NOTE:

If you want to delete a two-way cross-connection, each leg of the two-way cross-connection must be deleted, one at a time. To select the leg of the two-way cross-connection to be deleted, position the mouse cursor on the cross-connection line and click the right mouse button to display a listing of the cross-connection legs, select the leg to be deleted, and go to Step 7 to follow the rest of this procedure. This step must be repeated to select the other leg of the two-way cross-connection for deletion.

Also, the request to remove a red-lined cross-connection will be denied.

| Step | Action (Continued) |
|------|--------------------|
|------|--------------------|

| | |
|---|--|
| 7 | Click the Delete button on the Cross-Connection window toolbar. The system displays a confirmation window. |
|---|--|



| | |
|---|--|
| 8 | Select Yes in the confirmation window to delete the cross-connection. Stop! End of Task. |
|---|--|

Delete an NE Cross-Connection— Textual

315

Background

When to use Use this procedure to delete a selected cross-connection using the Cross-Connections List window, which lists the cross-connections textually rather than graphically.

Before you begin Before you begin this task, you must determine the cross-connection to be deleted and display it as described in [T 311, View NE Cross-Connections—Textual](#).

Related information For related information, see the following:

- [T 314, Delete NE Cross-Connections—Graphical](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to delete a cross-connection textually.

| Step | Action |
|------|--|
| 1 | Display cross-connections on the Cross-Connection List window, as described in the task T 311, View NE Cross-Connections—Textual . |
| 2 | Use your mouse to select the cross-connection to be deleted. |
| 3 | <p>Press the Delete key or click the Delete button. The system displays a confirmation window.</p> <p> NOTE: The following three scenarios will cause a cross-connection deletion request to be <i>denied</i>:</p> <ul style="list-style-type: none">■ A request to remove a red-lined cross-connection.■ A request to remove a cross-connection from a tributary used in a loop-back cross-connection.■ A request to remove a cross-connection from a tributary used in a test access connection. |
| 4 | <p>If you are certain you want to delete the cross-connection indicated for deletion in the cross-connection window, click the Yes button. The system deletes the indicated cross-connection.</p> <p> NOTE: Upon successful deletion of a cross-connection, all reference to that cross-connection, in any window in the GUI, is removed.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to modify cross-connections graphically via the Cross-Connections window. Use this procedure to modify certain parameters for the cross-connection, such as the redline status or source/destination node. For example, if you modify the redline parameter and enable redlining, it means that the cross-connection is prohibited from being deleted until you change the redline status from Yes to No in the associated parameters window.

Before you begin

Before you begin this task, determine the cross-connection you need to modify and the modification you need to make.

To perform this task, access the Map window.

Related information

For related information, see

- [T 317, Modify NE Cross-Connections—Textual](#)
 - [Chapter 4, Configuration Management](#)
-

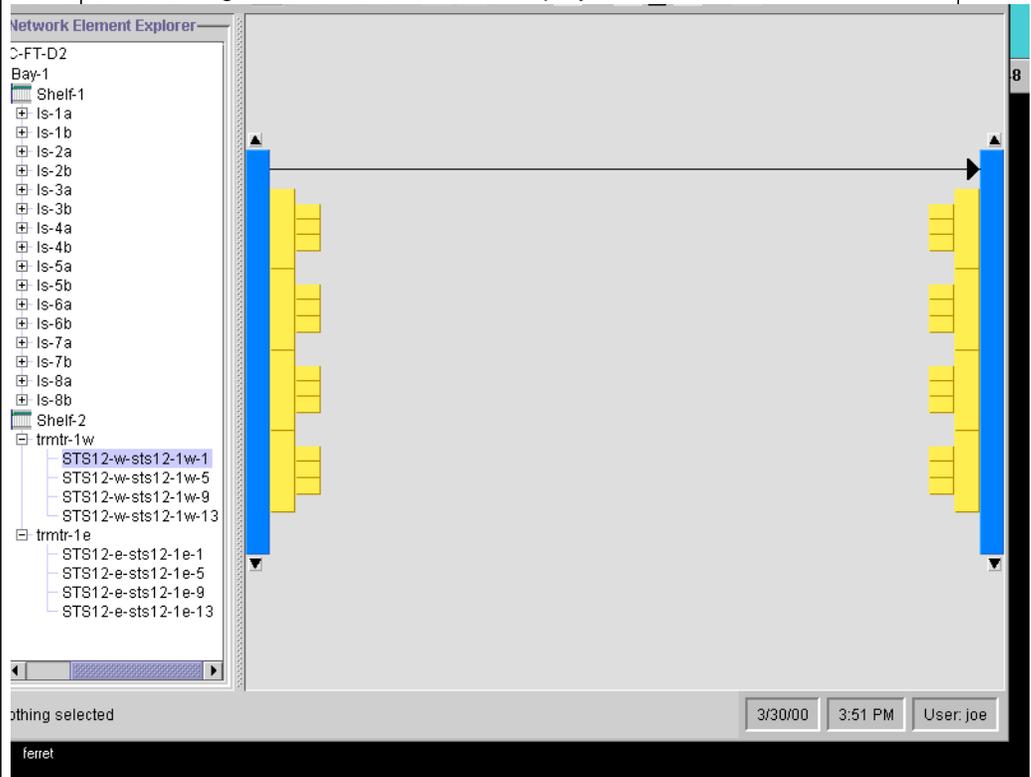
Instructions

Task

Complete the following steps to modify cross-connections graphically via the Cross-Connections window. The example shown is for an FT-2000 NE.

| Step | Action |
|------|--|
| 1 | Position the mouse cursor on the NE in the Map pane portion of the Map window and click the select (left) mouse button to select it. The NE is highlighted in the Map window. |
| 2 | Click the menu (right) menu mouse button. A pop-up menu is displayed. Choose Cross Connection from the pop-up menu. The Cross-Connection window is displayed. |
| 3 | Double-click on the TID of the NE in the Network Element Explorer portion of the window to expand and show the bay, shelf, slot, circuit pack, and port that contains the cross-connection to be deleted. If the equipment hierarchy is not expanded to show all components down to port level, double-click on the bay, shelf, slot, and circuit pack in successive order until the explorer tree expands to show the desired port. |
| 4 | Position the mouse cursor on the port in the explorer tree and click the left mouse button to select it. The port is highlighted in the explorer. |

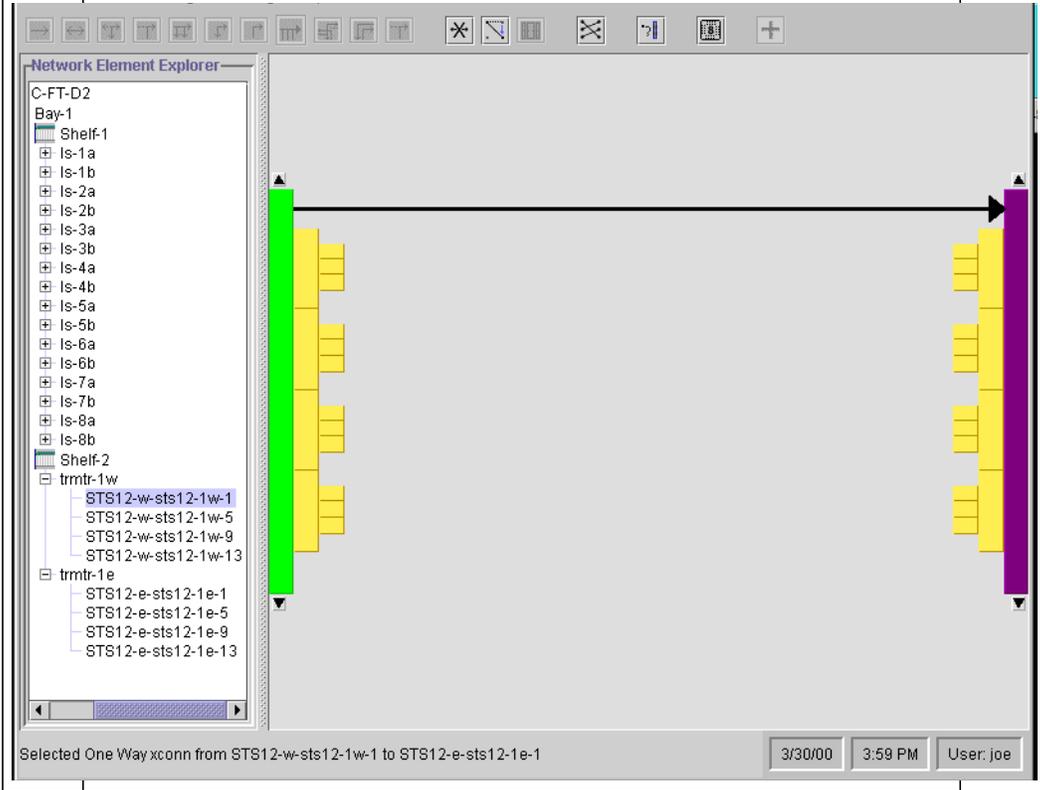
| Step | Action (Continued) |
|------|---|
| 5 | <p>Click the right mouse button to display a drop-down list and select the position to place the associated tributaries in the Main View of the Cross-Connection window.</p> <p>The other way to do this is to click and hold the left mouse button and drag the port into the left, right, or bottom position to display the associated tributaries in the Main View.</p> <p>The existing cross-connections are displayed in the window.</p> |

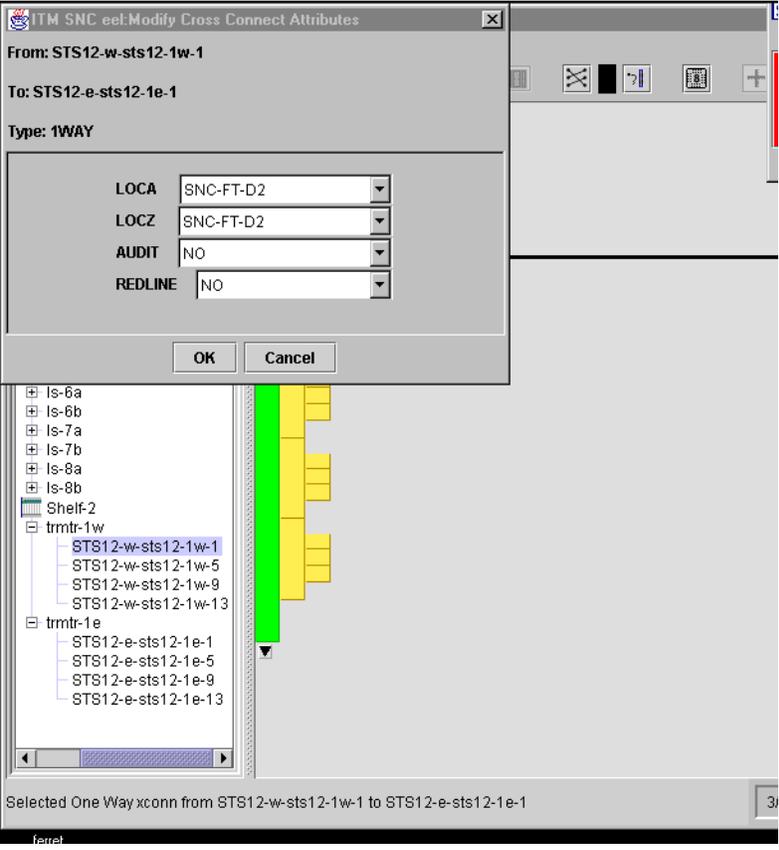


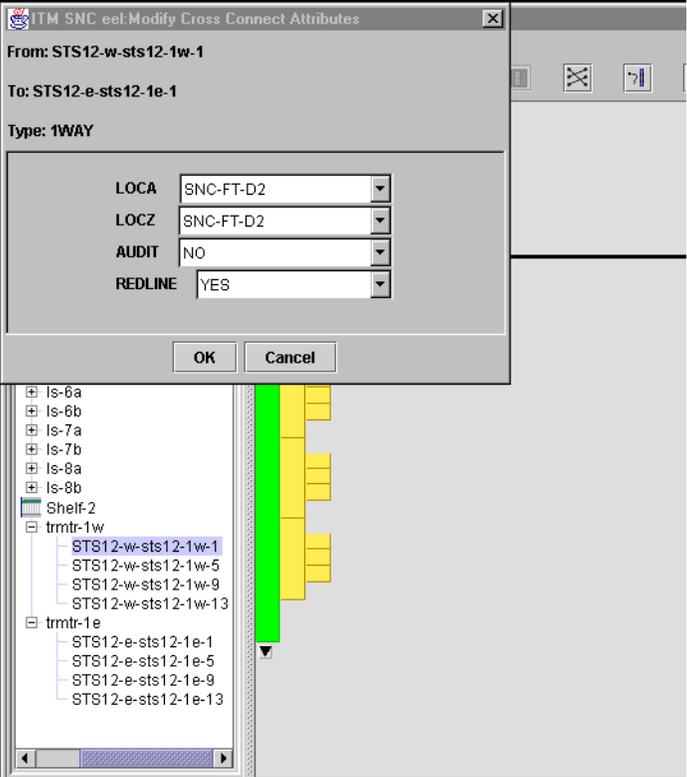
NOTE:

If the existing cross-connection(s) is not displayed, click the Hide/Show button on the Cross-Connection window toolbar to display it. To expand the view of the Network Element Explorer to see any obscured tributary AIDs, position the mouse cursor next to the bar between the right edge of the Explorer and the tributary block display in the Main view, click the left mouse button and drag the border to the right.

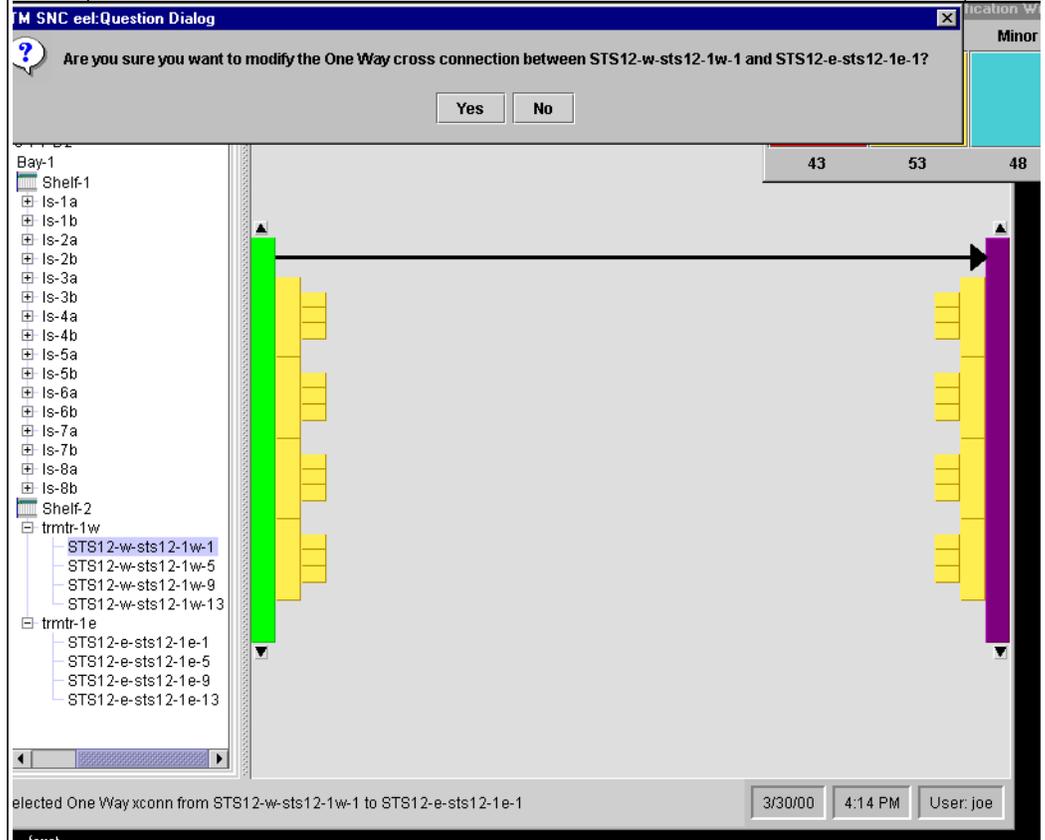
| Step | Action (Continued) |
|------|---|
| 6 | Position the mouse cursor on the line of the cross-connection to be modified and click the select (left) mouse button to select it. The cross-connection lines become thicker and the color is black. |



| Step | Action (Continued) |
|------|---|
| 7 | <p>Click the Modify button on the toolbar part of the window.</p> <p>NOTE: If you are not sure which button is the Modify button, move the cursor to each button until the tooltips help is displayed to indicate that it is the Modify button. Then click the button.</p> <p>A Cross-Connection Attributes window is displayed for the selected cross-connection, showing the parameters that can be modified.</p>  <p>In this example, the REDLINE parameter is being changed from NO to YES to redline the cross-connection and prohibit it from being deleted.</p> |

| Step | Action (Continued) |
|------|---|
| 8 | <p>To change the REDLINE parameter, click the down arrow next to the REDLINE field in the Attributes window to display a drop-down list and select YES to enable the REDLINE feature.</p>  <p>Selected One Way xconn from STS12-w-sts12-1w-1 to STS12-e-sts12-1e-1</p> |

| Step | Action (Continued) |
|------|--|
| 9 | After making all necessary parameter changes, click the OK button in the Cross-Connect Attributes window. A question dialog window is displayed, asking if you really want to modify the parameters for the cross-connection. |



| | |
|----|--|
| 10 | <p>Choose Yes to modify the cross-connection. In this example, the REDLINE status of the cross-connection was changed. When the modification is completed, The color red will be displayed on the cross-connection line to indicate that the cross-connection is redlined (prohibited from being deleted, until the REDLINE status is changed again to NO, to disable redlining).</p> <p>Stop! End of Task.</p> |
|----|--|

Modify NE Cross-Connections— Textual

317

Background

When to use Use this procedure to modify cross-connections textually via the Cross-Connections List window.

Before you begin Before you begin this task, determine the cross-connection you need to modify and the modification you need to make.

Related information For related information, see the following:

- [T 316, Modify NE Cross-Connections—Graphical](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to modify cross-connections textually via the Cross-Connections List window.

| Step | Action |
|------|--|
| 1 | Display the Cross-Connections List window as described in T 311, View NE Cross-Connections—Textual . |
| 2 | Choose a cross-connection to modify and select Modify . This displays the Additional Cross-Connection Information window, with the current information for the selected cross-connection. |
| 3 | Type the required changes into the displayed window and click the Done button. This displays the Cross-Connection Confirmation window. |
| 4 | Make sure you have entered the desired changes and then click the Yes button. The system modifies the selected cross-connection per the entered changes. Stop! End of Task. |

Show/Hide NE Cross-Connection Lines

318

Background

When to use Use this procedure to show or hide the cross-connection lines that graphically represent cross-connections on the Cross-Connections window.

Before you begin Before you begin this task, determine whether you want to show or hide cross-connection lines.

Related information For related information, see the following:

- [T 309, Display the NE Cross-Connection Window](#)
- [Chapter 4, Configuration Management](#)

Instructions

Task

Complete the following steps to show or hide cross-connection lines on the Cross-Connections Window.

| Step | Action | | Reference |
|------|---|--|---|
| 1 | Display the Cross-Connections window. | | T 309. Display the NE Cross-Connection Window |
| 2 | TO SHOW/HIDE ALL LINES... | TO SHOW/HIDE A SINGLE LINE... | |
| | <p>Either click the show/hide button on the toolbar or select View from the menu bar and then Show Cross Connection Lines from the sub-menu.</p> <p> NOTE: If cross-connection lines were showing they will now be hidden, and vice versa.</p> <p>Stop! End of Task.</p> | <p>a. Display ports as described in T 310. Display Ports on the NE Cross-Connect Window.</p> <p>b. Click on an AID representation (building block) that indicates that it contains a cross-connection. The desired cross-connection line is displayed.</p> | |

Background

When to use Use this procedure to manually initiate DNO for one or more NEs or an aggregate. You can specify that all information be included in the DNO update, or just port, cross-connection, port protection group, subnetwork, NE parameters, or equipment information.

Before you begin Before you begin this task, you must be logged into ITM SNC.

Be aware that trails in a DDM-2000 OC-3 two-node ring cannot be autodiscovered after running subnetwork DNO. The trails must be added manually.

Related information For related information, see [T 101, Log Out of ITM SNC](#) and the Dynamic Network Operations section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to manually initiate DNO.

| Step | Action | |
|-------------------------------|---|--|
| 1 | IF ... <ul style="list-style-type: none"> ■ you are performing DNO on a single NE, group of NEs, or aggregate | THEN ... <ul style="list-style-type: none"> ■ select one or more NEs or an aggregate. |
| 2 | Access the DNO function (as appropriate) through: <ul style="list-style-type: none"> ■ The Map window Configuration menu—select DNO from the Configuration menu on the main menu bar of the Map window. The Choose an NE/Aggregate window is displayed. Double click on the NE(s)/aggregate(s) for which you want to perform DNO. Click the OK button. ■ The NE's or aggregate's pop-up menu—position the mouse cursor over the NE/aggregate icon on the Map pane or Subnetwork Explorer, and click the menu (right) mouse button. A pop-up menu is displayed. Select DNO from the pop-up menu. ■ The Equipment View window (for the chosen NE/aggregate)—Select Configuration from the main menu. A sub-menu is displayed. Select DNO from the sub-menu. ■ The Cross-Connection window (for the chosen NE/aggregate)—select Configuration from the main menu. A sub-menu is displayed. Select DNO from the sub-menu. The Manual DNO window is displayed.  NOTE: If the DNO channel is down, a message is displayed in the status bar of the window, indicating that you cannot perform a DNO at this time. Click the Close button to close the window. | |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) |
|------|--|
| 4 | <p>Click the Apply button to initiate DNO and select the next data type for update, or click the OK button to initiate DNO and close the window.</p> <p>The DNO process is started.</p> <p>  NOTE: To obtain DNO status for an NE before or after initiating DNO, click on the GetStatus button. </p> <p>When the DNO is completed, a message is displayed on the window's status bar, indicating whether the DNO is successful or if there are any errors.</p> <p>If DNO cannot be performed for the selected NE(s), the system issues a message.</p> <p>If you choose to perform DNO on all NEs in your Target Group, a pop-up window is displayed, informing you that the DNO process may take a long time and affect system performance. You can choose to perform DNO or stop the process. Choose Yes to perform DNO anyway or No to stop the DNO process.</p> <p>Stop! End of Task.</p> |

Background

When to use Use this procedure to transfer an NE software release from a Digital Access Tape (DAT) or CD-ROM onto the ITM SNC host for eventual downloading to an NE.

Before you begin Before you begin this task, the DAT must be physically loaded (if the file source is tape) or the CD-ROM must be physically loaded and the file system mounted on the ITM SNC host (if the file source is CD-ROM). If you are transferring the NE software from CD-ROM, a special setup procedure must be performed for the ITM SNC host prior to doing the transfer; this procedure is explained as part of the task.

To perform this task, access the Map window.

Related information For related information, see the Software Management section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to transfer NE software to ITM SNC.

| Step | Action | | Reference |
|-------------------------------|---|--|--------------------------|
| 1 | IF YOU ARE TRANSFERRING NE SOFTWARE FROM... <ul style="list-style-type: none"> ■ CD-ROM ■ DAT | THEN.... <ul style="list-style-type: none"> ■ a special setup procedure must be performed by the ITM SNC administrator once prior to the NE software transfer. ■ skip to Step 2. | SE 320-1 |
| 2 | Before transferring a software release, you may want to see what software releases are already stored in ITM SNC for the NE type. | | SE 320-2 |
| 3 | Select Configuration from the main menu bar on the Map window. The Configuration menu is displayed. | | |
| 4 | Select Software Management from the Configuration menu. The Software Management menu is displayed. | | |
| 5 | Select Import Software to the EMS from the Software Management menu. The Select NE Type and Drive for Software Transfer window is displayed. | | |
| 6 | Choose CD Drive or Tape Drive for the media to search for the software release. | | |
| <i>Continued on next page</i> | | | |

| Step | Action (Continued) | Reference |
|-------------|---|------------------|
| 7 | Single-click on the NE type in the NE Type list to select it. | |
| 8 | <p>Click the OK button. The system begins a search for the software release on the tape or CD-ROM.</p> <p>The status dialog window is displayed, indicating that the software transfer is in progress (working). If the software transfer is successful, the status shown on the window is "Completed". If the software transfer is not successful, an error message is displayed and the status shown is "Incomplete".</p> | |
| 9 | <p>Click the Close button to close the status dialog window.</p> <p>Stop! End of Task.</p> | |

SE 320-1: Setting Up the ITM SNC Host for Transferring NE Software from CD-ROM

Procedure

Before NE software can be transferred from CD-ROM onto the ITM SNC host machine, the ITM SNC system administrator must do the following once while configuring the ITM SNC host or installing the host software:

1. Log into the ITM SNC host machine as *root* and enter the following command to find the hardware path to the CD-ROM drive:

ioscan -fn -C disk

A response similar to the following is displayed:

```
disk 45 10/8.6.0 sdisk CLAIMED DEVICE SEAGATE ST34371W
/dev/dsk/c3t6d0 /dev/rdisk/c3t6d0
```

```
> disk 46 10/8.8.0 sdisk CLAIMED DEVICE SEAGATE T39173WC
/dev/dsk/c3t8d0 /dev/rdisk/c3t8d0
```

```
> disk 30 10/12/5.2.0 sdisk CLAIMED DEVICE TOSHIBA CD-ROM XM-5701TA
/dev/dsk/c4t2d0 /dev/rdisk/c4t2d0
```

2. Locate the output line that contains the hardware path to the CD-ROM drive.

In the sample output shown in Step 2, the third line of the sample output indicates that the hardware path to the CD-ROM drive is:

```
/dev/dsk/c4t2d0
```

3. Do a symbolic link between the above hardware path and */dev/cdrom* using the following command as *root*:

ln -s /dev/dsk/c4t2d0 /dev/cdrom

If the Software Transfer function performed through the GUI is successful, the file system for the CD-ROM drive will be mounted each time the CD-ROM is physically loaded into the drive.

The CD-ROM drive may fail to mount because:

1. The CD is not physically loaded into the drive.
2. The file system for the CD-ROM drive failed to be mounted.

In the latter case, log in as *root* (if not already logged in) and issue the following command:

mount /dev/dsk/c4t2d0/SD_CDROM

SE 320-2: View NE Software

Procedure

Perform the steps below to see what software releases are already stored in ITM SNC for an NE type.

4. Select **Configuration** from the Map window main menu. The Configuration menu is displayed.
5. Select **Software Management** from the Configuration menu. The Software Management menu is displayed.
6. Select **View Software Release Descriptive Information** from the Software Management menu. The Select NE type window is displayed.
7. Select the NE type from the NE Type list and click the OK button, or just double-click on the NE type on the list.

The Software Descriptive Files window is displayed. This window displays a description of all the software releases stored in ITM SNC for the selected NE type.

Download Software Release to the NE

321

Background

When to use

Use this procedure to download a selected executable software release to a specific NE.

Before you begin

Before you begin this task, you must first access the Map window. The software release to be downloaded to the NE must be transferred to ITM SNC from CD or tape. You may want to see what software releases are available on the ITM SNC host before downloading software for an NE. Refer to [T 320, Transfer NE Software](#) for related information on how to view NE software that is stored on the EMS host for an NE type.

Be aware that when a software download is performed for a FiberReach NE, the older software is immediately replaced by the new software and becomes activated on the NE immediately after completion of the software download. This may result in a loss of communications with the FiberReach NE. It is recommended that when software has to be downloaded to all the FiberReach NEs in a ring, the order should be from the NE furthest from the ITM SNC host to the NE closest to the ITM SNC host. If the NE loses DCC connectivity, the software has to be downloaded on site from the Craft Interface Terminal (CIT).

**Related
information**

For related information, see the Software Management section of [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to download software to an NE.

| Step | Action | Result |
|-------------------------------|---|--|
| 1 | Select Configuration from the main menu bar on the Map window. | The Configuration menu is displayed. |
| 2 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) | Result |
|------|---|--|
| 3 | Select Download Software to NE from the Software Management menu. | The Choose an NE window is displayed. |
| 4 | Double-click on the NE to select it and click the OK button. | The <i>Software Download to NE</i> window is displayed. If downloadable software is not available, the system informs you with an error message. |
| 5 | <p>Select a software release from the Releases Available list and click the Apply button.</p> <p>⇒ NOTE: You can abort the software download at this point, if necessary, by clicking the Abort button. A pop-up window is displayed, asking if you really want to abort the download. Choose Yes to abort the download or No to continue it.</p> <p>Stop! End of Task.</p> | <p>The system verifies that the software release is not the same or older than the version currently running on the NE. If either of these conditions is true, a pop-up information window is displayed, asking if you want to continue with the software download. Choose:</p> <ul style="list-style-type: none"> ■ Yes to perform the software download anyway <p>OR</p> <ul style="list-style-type: none"> ■ No to cancel the software download <p>If you choose Yes, a second pop-up message window is displayed, informing you that the download may take a certain amount of time and asks if you want to proceed with the software download. Choose:</p> <ul style="list-style-type: none"> ■ Yes to continue with the software download <p>OR</p> <ul style="list-style-type: none"> ■ No to cancel the software download <p>The software download is initiated. The status bar shows the software download is in progress and percentage completed.</p> |

Background

When to use Use this procedure to copy executable software from an NE to one or more NEs.

Before you begin Before you begin this task, the software to be copied must first be downloaded to the Network Element from which the copy will be made.

To perform the software copy operation on OLS 40G NEs, follow these steps:

1. From the CIT, copy the OLS 40G software that is to be installed to the DSNE. **Note: the DSNE will show a major alarm that indicates that the standby release is not the same as the active release.**
2. From ITM SNC, copy the standby software from the DSNE to the other NEs on the ring. Up to 3 copies may be initiated from ITM SNC at the same time. Each copy takes about 40 minutes, but if multiple copies are initiated at the same time, then it will take slightly less time than if they were individually initiated. Multiple software copies can cause congestion on the network.

To perform this task, access the Map window.

**Related
information**

For related information, see [T 321, Download Software Release to the NE](#) and the following section:

- [Software Management](#)
-

Instructions

Task

Complete the following steps to copy software from a selected NE to one or more NEs.

| Step | Action | Result |
|-------------------------------|--|---|
| 1 | Select Configuration from the main menu bar on the Map window. | The Configuration menu is displayed. |
| 2 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. |
| 3 | Select NE to NE Software Copy from the Software Management menu. | The Software Copy from NE to NE(s) window is displayed. |
| 4 | Double-click on the NE and software release number that is the source of the software copy, from the Source NE scroll list. You can limit the list by typing characters in the type ahead field or the Filter/Sort fields. | The Available NE(s) list displays the TID(s) of NEs, of the same type, to which software can be copied. |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) | Result |
|-------------------------------|--|---------------|
| 5 | Select the NE(s) and software release number that the software will be copied to from the Available NE(s) list and move the selected item(s) to the Chosen NE(s) list, using the push buttons. You can also double-click on the selected NE to automatically move it to the Chosen NE(s) list. | |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) | Result |
|-------------|---|--|
| 6 | <p>Click the OK button.</p> <p>IF ... There is a problem with the software release selected for copy</p> <p>Stop! End of Task.</p> | <p>The software copy is started. The system verifies that the software being copied is supported by the system and that it is a newer version than the copy currently running.</p> <p>THEN ... A pop-up window is displayed, asking if you want to proceed with the copy. Choose:</p> <ul style="list-style-type: none"> ■ Yes to perform the software copy anyway <p>OR</p> <ul style="list-style-type: none"> ■ No to cancel the software copy <p>If you choose Yes, a second pop-up message is displayed, informing you that the software copy process may take a long time and asks if you want to continue with the software copy. Choose:</p> <ul style="list-style-type: none"> ■ Yes to continue with the software copy <p>OR</p> <ul style="list-style-type: none"> ■ No to cancel the software copy <p>The software copy is initiated.</p> |

Background

When to use

Use this procedure to check the currently active and standby executable software releases on an NE and to activate the standby release. You can select more than one NE at a time for software activation.

Before you begin

Before you begin this task, the software to be activated must first be downloaded to the NE. Be aware that when a software download is performed for a FiberReach NE, the older software is immediately replaced by the new software and becomes activated immediately after completion of the software download.

To activate software on an OLS 40G NE, follow these steps:

1. Perform a *RTRV-MAP-RING:tid of the DSNE:::* command to list the NEs in the ring.
2. Start to activate the NEs in the order that they appear in the response from the *RTRV-MAP-RING* command, starting with the first NE listed after the DSNE. Go down the list, activating each NE until reaching the end of the list. If necessary, go back up to the top of the list and activate each NE until the DSNE is activated. The DSNE is the last NE to be activated. There should be a slight delay in between each activation. You should start the next activation only after receiving a response that the current software activation has started.

-
3. As the NEs are activated, they lose communications with ITM SNC. After DSNE has been activated, you can re-establish the ITM SNC connection to the NE(s) via the **cm_tool** command, instead of waiting until the next scheduled poll time interval. For information about the **cm_tool** command, see the *Integrated Transport Management (ITM SNC) Operations, Administration, and Maintenance Guide* for Release 10.0.1.
 4. When communications are re-established, the new software is activated.

Be aware that you may lose the NE visibility on the Map window for some time as the NE reboots during this process.

To perform this task, access the Map window.

**Related
information**

For related information, see [T 321, Download Software Release to the NE](#) and the following section:

- [Software Management](#)

Instructions

Task

Complete the following steps to activate the standby release of NE software.

| Step | Action | Result | Reference |
|------|---|--|--------------------------|
| 1 | Choose one or more NEs on the Map window OR choose no NEs at this point. | | SE 323-1 |
| 2 | Select Configuration from the main menu bar on the Map window. | The Configuration menu is displayed. | |
| 3 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. | |

Continued on next page

| Step | Action (Continued) | Result | Reference |
|------|--|--|-----------|
| 4 | Select Activate NE Software from the Software Management menu. | If no NEs were chosen in Step 1, the Choose an NE window is displayed. Choose one or more NEs for software activation and click the OK button. The Activate NE Software window is displayed, showing the NE(s) selected for software activation, the currently active release and the standby release for each NE. | |
| 5 | Select the NE for standby software activation.  NOTE: To remove a network element from the list of network elements in the table, select it and click the Remove from List button. | | |
| 6 | Click the OK button. IF ... There is a problem with the software release selected for activation Stop! End of Task. | The software activation(s) is initiated. THEN ... A pop-up window is displayed, asking if you want to proceed with the activation(s). Choose: <ul style="list-style-type: none"> ■ Yes to perform the software activation(s) anyway OR <ul style="list-style-type: none"> ■ No to cancel the software activation(s) | |

SE 323-1: Selecting NEs and Aggregates on the Map Window

To select a single NE or aggregate on the Map pane, position the mouse pointer over the NE or aggregate icon and click the mouse select button.

To select a group of NEs or aggregates on the Map pane:

1. Position the mouse pointer over a portion of the background adjacent to the items to be selected.
2. Click the mouse select button and drag the mouse pointer. As you drag the mouse pointer, an outlined box appears over the selected area.
3. Drag the mouse pointer over the NE(s)/aggregate(s) to be selected, enclosing them in the selection box. As items in the Map pane are selected, they change color. Release the mouse select button. The items are selected.

To deselect a selected item in the Map pane, position the mouse pointer over the item and single-click the mouse select button. To deselect a group of items, position the mouse pointer within the boxed region and single-click the mouse select button. Any item in the box that is already selected becomes deselected.

Background

When to use Use this procedure to delete a specific executable software release for an NE type from ITM SNC.

Before you begin Before you begin this task, access the Map window. The software to be deleted must be transferred to the ITM SNC from CD-ROM or tape.

Related information For related information, see the Software Management section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to delete a specific software release for the NE type.

| Step | Action | Result |
|------|---|--|
| 1 | Select Configuration from the main menu. | The Configuration menu is displayed. |
| 2 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. |
| 3 | Select Delete Software From the EMS from the Software Management menu. | The Delete NE Software from SNC window is displayed. |
| | | <i>Continued on next page</i> |

Background

When to use Use this procedure to back up an NE's provisioning data. The provisioning data includes port parameters and cross-connections.

Before you begin Before you begin this task, determine the NE for which you want to perform a backup. Ensure that there are no alarms present on the NE.

Access the Map window to perform this function.

Related information For related information, see the Software Management section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to perform an NE backup.

| Step | Action | Result |
|------|--|---|
| 1 | Select Configuration from the main menu bar on the Map window. | The Configuration menu is displayed. |
| 2 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. |
| 3 | Select Backup from the Software Management menu. | The Choose an NE window is displayed. |
| 4 | Double-click on the desired NE and click the OK button. Stop! End of Task. | A pop-up window is displayed, indicating how long the backup process will take and asking if you want to proceed with the backup. Choose: <ul style="list-style-type: none">■ Yes to perform the NE backup OR <ul style="list-style-type: none">■ No to cancel the NE backup |

Background

When to use

Use this procedure to restore NE provisioning data from a specified backup file. You can specify the type of provisioning data to be restored. You have the option of performing a Regular Restore or an Intelligent Restore. A Regular Restore restores all backup data from the selected NE file, including the default settings. For an Intelligent Restore, the system compares each parameter setting from the backup file against its default value. If the current setting matches the default value, that parameter is excluded from the restore. If all parameters on a given command issued during the restore request matches the defaults, that command is skipped during the restore process. Only parameters that do not currently have default settings are set, thus reducing the amount of time it takes to restore the NE's backup data.

Before you begin

Before you begin this task, determine the NE to which you want to restore data. You must access the Map window to perform this function. Be aware that for FLM NEs, after the NE restore has been performed and completed through the GUI, you must issue the following commands in Cut-Through mode for the NE to activate the restored file:

```
INIT-SYS:TID:AID::CTAG::KEYWORK=DOMAIN
```

A example of this command is:

```
INIT-SYS:FLM150::RSF::GISSUE=10-01-S,ACTDAT=00-02-15,ACTTM=03-50-00,VALTM=02-20-00,DBSRST=Y;
```

where:

TID = Name of the NE

AID = The only valid AID choice is NULL

CTAG = used to correlate the input with the output

ACTDAT = Activate date. Use today's date.

ACTTM = Active time. Use current time.

VALTM = Validation time period. Needs to be set to greater than 1 hour, (01-00-00)

After the *INIT-SYS* command has been issued, the following command needs to be entered:

```
CANC-VALTM:<TID>::<CTAG>;
```

The above command should be sent after the NE restarts and begins communicating.

An example of this command is:

```
CANC-VALTM:FLM150::rsf;
```

⇒ **NOTE:**
A DNO must be done after the restore to resynchronize the database.

⇒ **NOTE:**
Be aware that the NE data restore option is not supported for X.25-connected FLM NEs.

Related information

For related information, see the Software Management section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to restore an NE's backup data.

| Step | Action | Result |
|-------------------------------|--|--|
| 1 | Select Configuration from the main menu bar on the Map window. | The Configuration menu is displayed. |
| 2 | Select Software Management from the Configuration menu. | The Software Management menu is displayed. |
| 3 | Select Restore from the Software Management menu. | A sub-menu is displayed. |
| 4 | Select Regular Restore or Intelligent Restore from the sub-menu. | The Choose an NE window is displayed. |
| 5 | Double-click on the desired NE and click the OK button. A window displays with backup files listed. | |
| 6 | Select a backup file for restoral. To look at a description of the backup data contained in the file before restoring it, click the View Descriptive Files button. | |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) | Result |
|-------------|--|---|
| 8 | IF ... you respond Yes to perform the restore. Stop! End of Task. | THEN ... The restore is initiated. The system informs you of the restore's progress with a status message. When the restore is completed, an information window appears that notifies you of the completion. If the restore fails, an error message is displayed in a pop-up window, indicating the source of the problem. |

Set NE Date/Time Synchronization

327

Background

When to use Use this procedure to manually initiate date/time synchronization for a single NE, a group of NEs, an aggregate, or all NEs under ITM SNC control.

Before you begin Before you begin this task, you must take into account whether the NE(s) being set with the date/time synchronization feature are located in the same or a different time zone as the ITM SNC host. You can also select to have ITM SNC automatically make adjustments for Daylight Savings Time (Spring Forward) and Standard Time (Fall Back) before doing date/time synchronization for the selected NE(s).

Related information For related information, see [T 600, Add a Network Element—X.25 Communications](#); [T 601, Add a Network Element—OSI Communications](#); [T 328, Enable/Disable Fall Back and Spring Forward](#), and the Date/Time Synchronization section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to manually perform date/time synchronization..

| Step | Action | Reference | | | | |
|---|--|--|---------|---|---|--|
| 1 | <p>Select one or more NEs/aggregates from the Map window.</p> <p style="text-align: center;">OR</p> <p>Select no NEs/aggregates to perform date/time synchronization on all NEs under ITM SNC control.</p> <p> NOTE: If all NEs are selected, 20 or more NEs can be handled at a time, depending on system load conditions.</p> | SE 327-1 | | | | |
| 2 | Select Configuration from the main menu bar on the Map window. The Configuration menu is displayed. | | | | | |
| 3 | Select Date/Time Synchronization from the Configuration menu. A sub-menu is displayed. | | | | | |
| 4 | Select Manual from the sub-menu. Another sub-menu is displayed. | | | | | |
| 5 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">IF YOU ARE PERFORMING DATE/TIME SYNCHRONIZATION FOR...</th> <th style="width: 50%;">THEN...</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ■ an NE ■ an aggregate ■ all the NEs in your Target Group </td> <td> <ul style="list-style-type: none"> ■ choose NE from the sub-menu. ■ choose Aggregate from the sub-menu. ■ choose All from the sub-menu. </td> </tr> </tbody> </table> | IF YOU ARE PERFORMING DATE/TIME SYNCHRONIZATION FOR... | THEN... | <ul style="list-style-type: none"> ■ an NE ■ an aggregate ■ all the NEs in your Target Group | <ul style="list-style-type: none"> ■ choose NE from the sub-menu. ■ choose Aggregate from the sub-menu. ■ choose All from the sub-menu. | |
| IF YOU ARE PERFORMING DATE/TIME SYNCHRONIZATION FOR... | THEN... | | | | | |
| <ul style="list-style-type: none"> ■ an NE ■ an aggregate ■ all the NEs in your Target Group | <ul style="list-style-type: none"> ■ choose NE from the sub-menu. ■ choose Aggregate from the sub-menu. ■ choose All from the sub-menu. | | | | | |
| 6 | If you chose NE or Aggregate in the previous step, and have not already selected the NE/aggregate, the Choose an NE/Aggregate window is displayed. If you have already chosen the NE(s)/aggregate(s), skip to Step 8. | | | | | |

| Step | Action (Continued) | Reference |
|------|---|---|
| 7 | Select the NE(s) on which to perform date/time synchronization and click the OK button. | |
| 8 | The Manual Date/Time Synchronization window is displayed. | |
| 9 | <p>Click the OK button to initiate date/time synchronization for the listed NEs. Date/Time synchronization is initiated. A pop-up window is displayed, showing the status of the date/time synchronization. A pop-up window is displayed, showing the status of the date/time synchronization. The status is as follows:</p> <ul style="list-style-type: none"> ■ Completed—date/time synchronization is completed for the selected NE(s) or aggregate. ■ Incompleted—The command to perform date/time synchronization may be completed but the time difference between the host and NE is greater than the drift threshold set. <p>Stop! End of Task.</p> | <p>T 616, Set Drift Threshold for Date/Time Synchronization</p> |

SE 327-1: Selecting NEs and Aggregates on the Map Pane

Procedure

To select a single NE or aggregate on the Map pane, position the mouse pointer over the NE or aggregate icon and click the select mouse button.

To select a group of NEs or aggregates on the Map pane.

1. Position the mouse pointer over a portion of the background adjacent to the items to be selected.
2. Click the mouse select button and drag the mouse pointer. As you drag the mouse pointer, an outlined box appears over the selected area.
3. Drag the mouse pointer over the NE(s)/aggregate(s) to be selected, enclosing them in the selection box. As items in the Map pane are selected, they change color. Release the mouse select button. The items are selected.

To deselect a selected item in the Map pane, position the mouse pointer over the item and single-click the mouse select button. To deselect a group of items, position the mouse pointer within the boxed region and single-click the mouse select button. Any item in the box that is already selected becomes deselected.

Enable/Disable Fall Back and Spring Forward

328

Background

When to use Use this procedure to enable or disable the Spring Forward (Daylight Savings Time) and Fall Back (Standard Time) feature to make automatic time adjustments in date/time synchronization for the selected NE(s)/aggregate(s).

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

Related information For related information, see [T 600, Add a Network Element—X.25 Communications](#), [T 615, Enable/Disable Automatic Date/Time Synchronization](#), and the Date/Time Synchronization section in [Chapter 4, Configuration Management](#).

Instructions

Task

Complete the following steps to enable or disable the Spring Forward/Fall Back time adjustment feature.

| Step | Action | Reference |
|-------------------------------|---|--------------------------|
| 1 | Select one or more NEs/aggregates from the Map window. OR Select no NEs/aggregates to use this feature for all NEs in your Target group. | SE 328-1 |
| 2 | Select Configuration from the main menu bar on the Map window. The Configuration menu is displayed. | |
| 3 | Select Date/Time Synchronization from the Configuration menu. A sub-menu is displayed. | |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) | | Reference |
|------|---|---|-----------|
| 4 | <p>Select Spring/Fall Change from the Configuration menu. If you have not yet selected the NE(s)/aggregate(s), the Choose an NE/Aggregate window is displayed. Select the NE(s)/aggregate(s) on which to use the Spring Forward/Fall Back feature and click the OK button.</p> <p>The Fall Back and Spring Forward Status window is displayed.</p> | | |
| 5 | <p>IF ...</p> <ul style="list-style-type: none"> ■ you want to enable the Spring Forward/Fall Back feature for the selected NE(s) ■ you want to disable the Spring Forward/Fall Back feature for the selected NE(s) | <p>THEN ...</p> <ul style="list-style-type: none"> ■ Click the “Enable FB/SF for above NEs” button. ■ Click the “Disable FB/SF for above NEs” button. | |
| 6 | <p>Click the OK button to activate your choices.</p> <p> NOTE: If Daylight Savings Time is already in effect for an NE, and you disable Spring Forward/Fall Back for an NE, requiring a date/time synchronization, a pop-up window is displayed, asking if you want to automatically initiate date/time synchronization for the NE(s). Choose Yes to initiate automatic date/time synchronization for the NE or No to skip date/time synchronization for the NE.</p> <p>Stop! End of Task.</p> | | |

SE 328-1: Selecting NEs and Aggregates on the Map Pane

Procedure

To select a single NE or aggregate on the Map pane, position the mouse pointer over the NE or aggregate icon and click the select mouse button.

To select a group of NEs or aggregates on the Map pane.

1. Position the mouse pointer over a portion of the background adjacent to the items to be selected.
2. Click the mouse select button and drag the mouse pointer. As you drag the mouse pointer, an outlined box appears over the selected area.
3. Drag the mouse pointer over the NE(s)/aggregate(s) to be selected, enclosing them in the selection box. As items in the Map pane are selected, they change color. Release the mouse select button. The items are selected.

To deselect a selected item in the Map pane, position the mouse pointer over the item and single-click the mouse select button. To deselect a group of items, position the mouse pointer within the boxed region and single-click the mouse select button. Any item in the box that is already selected becomes deselected.

Background

When to use

Use this procedure to enter the name of a new path, and a CAC and CIC for the path.



NOTE:

Auto and manual path provisioning can be used together. For example, you might be provisioning a path on an FT-2000 ring with a subtending DDM-2000 OC-3. You could use auto path provisioning to provision the path in the FT-2000 portion of the ring and then use manual path provisioning to complete the path in the subtending DDM-2000 OC-3.

Before you begin

Before you begin this task, you must determine the path to be added.

Related information

For related information, see [T 330, Add a User Path \(Auto\)](#).

Instructions

Task

Complete the following steps to manually add a user path.

| Step | Action | Result |
|------|---|---|
| 1 | Select Configuration from the menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Path Manager window. |
| 3 | Click the Add button in the Path Manager window. | This displays the Add a Path window. |
| 4 | Type the new path name, CAC, and CIC into the three fields provided near the top of the window. | |
| 5 | Access the pop-up menu for an NE to be in the path (by right clicking on the NE on the Map window). | This displays the pop-up menu. |
| 6 | Select Add to Path from the displayed pop-up menu. | This displays a sub-menu. |
| 7 | Select Manual from the displayed sub-menu. | This displays the Cross-Connection View window. |
| 8 | Specify an existing cross-connection for the path or create a new cross-connection for the path. | The system displays a confirmation window. |
| 9 | Confirm the cross-connection by clicking the appropriate button. | The system returns to the Add to Path window. |
| 10 | Click the OK button to complete the operation. Stop! End of Task. | |

Background

When to use

Use this procedure to provision paths in Auto mode.



NOTE:

Auto and manual path provisioning can be used together. For example, you might be provisioning a path on an FT-2000 ring with a subtending DDM-2000 OC-3. You could use auto path provisioning to provision the path in the FT-2000 portion of the ring and then use manual path provisioning to complete the path in the subtending DDM-2000 OC-3. When adding a DDM-2000 NE to an existing path, it is recommended that you manually add the NE to the path.

Before you begin

Before you begin this task, you must determine the path to be added.

Related information

For related information, see [T 329, Add a User Path \(Manual\)](#).

Instructions

Task

Complete the following steps to automatically add a user path.

| Step | Action | Result |
|------|---|--|
| 1 | Select Configuration from the menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Path Manager window. |
| 3 | Click the Add button in the Path Manager window. | This displays the Add a Path window. |
| 4 | Type the new path name, CAC, and CID into the three fields provided near the top of the window. Keep this window open. | |
| 5 | Access the pop-up menu for an NE to be in the path (by right clicking on the NE on the Map window). | This displays the pop-up menu. |
| 6 | Select Add to Path from the displayed pop-up menu. | This displays a sub-menu. |
| 7 | Select Auto from the displayed sub-menu.  NOTE: If the Auto selection is greyed out (not selectable), then the NE is not in a subnetwork that can be provisioned automatically. You must use the Manual mode to provision this portion of the path. | This displays the Subnet Provisioning window. |
| 8 | Select the path type by clicking the box to the right of the PathType field. | A list of path types is displayed - select one. |
| 9 | Select Yes or No to indicate whether the user path is to have protection around the ring. | |

| Step | Action (Continued) | Result |
|-------------|---|--|
| 10 | Depending on the NE type or Path type, the Path Rate field may be automatically populated. If not, select the path rate from the list of valid rates. | You are prompted to Choose an NE to add to the path. |
| 11 | Depending on the type of path, you may be asked to provision the Source node, Secondary node, or Primary node first. | |
| 12 | The NEs in the ring are listed in the Choose an NE list. Choose the source NE for the path in the ring. The list is populated with the information that applies to this type of path, for this rate in the chosen NE. | |
| 13 | Pick a port from the list and click the Assign Port button. | |
| 14 | Pick a tributary from the list and click the Assign Trib button. | |

| Step | Action (Continued) | Result |
|-------------|--|---------------|
| 15 | Click the Add to Path button. The information selected for the NE is added to the table. | |
| 16 | As prompted, continue to select the nodes in the path by repeating the instructions given in steps 12 to 15. | |

| Step | Action (Continued) | Result |
|------|--|--|
| 17 | <p>After you have completed step 16, click the OK button to officially add these items to the path and return to the Add to Path window. When you click on Add to Path, the information for the NE is added to the ring path table. Click the OK button.</p> <p>The NE icons on the Map window for the nodes that are in the path are highlighted in blue. The Add to Path window displays the specifications for the cross-connections in the path. The column headings for the NEs in Path list are:</p> <ul style="list-style-type: none"> ■ NE—the NE to which the cross-connection belongs. ■ From—the source of the cross-connection ■ To—the destination of the cross-connection ■ Type—the type of cross-connection ■ Exists—whether the cross-connection corresponds to an existing cross-connection. <p>Stop! End of Task.</p> | <p>ITM SNC creates cross-connections in the path according to the definition you specified. When ITM SNC cannot create a cross-connection in the path, it stops creation and displays a window that states the location of the failure.</p> <p> NOTE: During the path creation process, the Exists column is updated. New cross-connections that are created are changed from No to Yes. Cross-connections that ITM SNC could not create remain set to No. If ITM SNC cannot create a cross-connection, it is often because there is already another cross-connection to the requested low- or high-speed address. Once the creation process is complete, the Exists column on the Add Path window is not updated.</p> |

Background

When to use Use this procedure to display the network elements and cross-connections in a path, as well as information about its existence in a network element. (In addition, viewing a path causes all network elements and trails that are part of that path to be highlighted in the Map window.)

Before you begin Before you begin this task, determine the path to be viewed.

Related information For related information, see [T 329, Add a User Path \(Manual\)](#).

Instructions

Task

Complete the following steps to view a path.

| Step | Action | Result |
|------|--|---|
| 1 | Select Configuration from the main menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Manage Paths window. |
| 3 | On the Manage Paths window, select the path to be viewed by double-clicking on it. | |
| 4 | Click the View button. Stop! End of Task. | This displays the View a Path window. For the selected path, this window displays: <ul style="list-style-type: none">■ The NE to which the cross-connection belongs■ The source (From) and destination (To) of the cross-connection■ The rate■ The cross-connection type■ Whether the cross-connection exists on the NE |

Background

When to use Use this procedure to copy all information about a path to a new name, CAC, and CID.

Before you begin Before you begin this task, determine the path to be copied and the name to be given the new path.

Related information For related information, see [T 331, View User Paths](#).

Instructions

Task

Complete the following steps to copy a path.

| Step | Action | Result |
|------|--|---|
| 1 | Select Configuration from the main menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Manage Paths window. |
| 3 | Select a path from the Manage Paths window by double clicking on it. | |
| 4 | Click the Copy button. | This displays the Copy a Path window. |
| 5 | Into the lower Path Name and Information portion of the Copy a Path window, type the new path name, CAC, and CIC to be copied from the existing path displayed in the upper Path Name and Information portion of the window. | |
| 6 | Click the OK button to copy the path. Stop! End of Task. | The system copies the selected path into the entered path name, CAC, and CIC. |

Display Path Modifications

333

Background

When to use

Use this procedure to display path modifications prior to the execution of any delete or add path operation.

Before you begin

Before you begin this task, determine the changes needed and make sure you will be changing the correct path.

Related information

For related information, see [T 331, View User Paths](#).

Instructions

Task

Complete the following steps to modify a path.

| Step | Action | Result |
|------|---|---|
| 1 | Select Configuration from the main menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Manage Paths window. |
| 3 | Select a path from the Manage Paths window by double-clicking on it. | |
| 4 | Click the Modify button. Stop! End of Task. | This displays the Modify Path window, with the requested information. |

Background

When to use Use this procedure to delete a path, and to administer the deletion of each cross-connection in the path either individually or as a whole.

Before you begin Before you begin this task, determine the path to be deleted.

Related information For related information, see [T 331, View User Paths](#).

Instructions

Task

Complete the following steps to delete a path.

| Step | Action | Result |
|------|---|---|
| 1 | Select Configuration from the main menu bar on the Map window. | This displays a sub-menu. |
| 2 | Select Path Management from the sub-menu. | This displays the Manage Paths window. |
| 3 | Select a path from the Manage Paths window (by double clicking on it) and click the Delete button. | This displays the Question Dialog box asking if you really want to perform the Delete. |
| 4 | Click Yes in the Question Dialog box. | This displays the Delete a Path window. |
| 5 | To delete only the path name, CAC, and CIC associated with the selected path (but not the actual cross-connections in the path), click on the OK button. (To delete the path <i>and</i> the associated cross-connections, go to Step 6 below.) | Only the information associated with the selected path is deleted (the cross-connections are not). |
| 6 | <p>To delete the path information <i>and</i> the NE's cross-connections associated with the path, first click on the Delete all cross connections in the path box and <i>then</i> click the OK button.</p> <p>⇒ NOTE: The user can also selectively delete the NE's cross-connections by toggling between Yes/No in the Delete all cross connections in the path box on an individual row in the table using the menu mouse button.</p> <p>Stop! End of Task.</p> | <p>The selected path information and the associated cross-connections are all deleted.</p> <p>⇒ NOTE: If you attempt to delete Dual Ring Interworking (DRI) cross-connections as part of a path deletion, the system displays a warning message telling you to proceed with extreme caution because the cross-connection may be carrying critical service. After careful consideration, you can click OK to proceed with the delete, or click cancel to cancel the delete.</p> |

View TIRKS Translation Table

335

Background

When to use

Use this procedure to view a table that displays the numbering of FT-2000 ADR tributary AIDs and OC-12 port AIDs in standard FT-2000 and their TIRKS equivalent for STS-12/3/1 groupings.

Before you begin

Before you begin this task, access the Map window.

Related information

For related information, see [T 111, Modify User Preferences](#) and the [Map preferences](#) section in [Chapter 2, The ITM SNC Graphical User Interface](#) .

Instructions

Task

Complete the following steps to view the TIRKS translation table for FT-2000 ADR numbering translations to their TIRKS equivalent for tributary and OC-12 port AIDs.

| Step | Action |
|------|--|
| 1 | Select View from the main menu bar on the Map window. The View menu is displayed. |
| 2 | <p>Select TIRKS XLation Table from the View menu. The TIRKS Translation Tables for FT-2000 ADR window is displayed.</p> <p>This window is divided into two sections:</p> <ul style="list-style-type: none">■ Tributary AID Numbering Format■ OC-12 Port AID Numbering Format <p>The Tributary AID Numbering Format section of the window is a table that shows the STS-12, STS-3, and STS-1 tributary AIDs numbering schemes in standard format with their TIRKS numbering format equivalent.</p> <p>The OC-12 Port AID Numbering Format section of the window is a table that shows the OC-12 quad, slot, and port AID numbering schemes in standard format with their TIRKS numbering format equivalent.</p> |
| 3 | <p>Click the Close button to close the window.</p> <p>Stop! End of Task.</p> |

Task Series 400

Performance Management

Background

When to use

Use this procedure to globally enable or disable the Performance Monitoring (PM) data collection feature for ITM SNC NEs. When the PM data collection feature is turned on, ITM SNC periodically collects PM data from each NE that has PM data collection activated. When the PM feature is globally disabled, PM data is not collected from any NE.

Before you begin

Before you begin this task, access the Map window.

Related information

For related information, see [Chapter 5, Performance Management](#).

Instructions

Task

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

| Step | Action | |
|------|--|---|
| 1 | Select Performance from the main menu bar on the Map window. The Performance menu is displayed. | |
| 2 | Select Global PM Management from the Performance menu. The Global PM Data Administration window is displayed. | |
| 3 | IF ... you want to enable the PM feature | THEN ... click on the Collect PM Data box to place a check there and select the retention period for 15-minute and 1-day PM data reports. To select the retention period, move the slider bar for each report type to the left or right. You can set the retention period from 1 to 30 days for each report type. The number displayed to the right of each slider bar shows the setting selected.  NOTE: Click the Retrieve button to display the current system default retention periods. |
| | you want to disable the PM feature | click on the Collect PM Data box to remove the check or leave the box blank. |
| 4 | Click the Apply button to activate your choices. Stop! End of Task. | |

Enable/Disable PM Data Collection

401

Background

| | |
|----------------------------|---|
| When to use | Use this procedure to enable or disable PM data collection for the specified NE and, if PM data collection is enabled, select the PM reporting interval. |
| Before you begin | Before you begin this task, be aware that NE PM data collection will not be performed until the PM feature is globally enabled (see T 400, Enable/Disable the PM Feature). Be aware that PM data collection is suspended during an alarm storm. ITM SNC resumes PM data collection after the alarm storm has subsided. |
| Related information | For related information, see Chapter 5, Performance Management . |

Instructions

Task

Complete the following steps to enable collection of the selected PM data types or disable PM data collection for the entire NE.

| Step | Action |
|-------------------------------|--|
| 1 | Select Performance from the main menu bar on the Map window. The Performance menu is displayed. |
| 2 | Select NE PM Management from the Performance menu. The Choose an NE window is displayed. |
| 3 | <p>Double-click on the NE in the list to select it and click the OK button. The NE PM Data Administration window is displayed.</p> <p style="text-align: center;">OR</p> <p>Select an NE on the Map or Subnetwork Explorer, right-click on the NE to bring up a pop-up menu, select Performance Management from the pop-up menu, and select NE PM Management to display the NE PM Data Administration window.</p> <p>The NE PM Data Administration window is divided into two parts. The left side of the window contains an NE explorer tree. The NE explorer contains a plus (+) sign that is not expandable and the NE's TID at the top part of the hierarchy.</p> <p>The right side of the window has a panel labelled EMS PM Data Settings.</p> <p>When the PM Data Administration window is first displayed, the NE TID is selected in the explorer tree, the explorer tree is unexpanded and the current EMS PM Data settings for the entire NE are shown in the EMS PM Data Settings panel.</p> |
| <i>Continued on next page</i> | |

| Step | Action (Continued) | |
|------|---|--|
| 4 | <p>IF ...</p> <ul style="list-style-type: none"> ■ you want to collect PM data for the selected PM data type in 15-minute intervals ■ you want to collect PM data for the selected PM data type in 1-day intervals ■ you want to collect both 15-minute and daily PM data for the PM data type ■ collect no PM data (disable PM data collection for the NE) | <p>THEN ...</p> <ul style="list-style-type: none"> ■ check the Enable 15 Minute PM data collection for this NE box. ■ check the Enable 1-Day PM data collection for this NE box. ■ check both boxes. ■ click both boxes to remove the checks, or leave both boxes blank. |
| 5 | <p>IF ...</p> <ul style="list-style-type: none"> ■ you want to collect PM data from all data types ■ you want to collect PM data from one or more types <p> NOTE: Use the Retrieve button to retrieve the current settings.</p> | <p>THEN ...</p> <ul style="list-style-type: none"> ■ click the All Facility Types in this NE radio button. ■ click the "Only these facility types" radio button and then check the data types for PM data. |
| 6 | <p>Click the Apply button to activate your choices.</p> <p>Stop! End of Task.</p> | |

Background

When to use

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

Before you begin

Before you begin this task, the PM feature must be globally enabled and the selected NE must have PM data collection activated for one or more PM data types.

Related information

For related information, see [Chapter 5, Performance Management](#).

Instructions

Task

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

| Step | Action |
|------|--|
| 1 | Select Performance from the main menu bar on the Map window. The Performance menu is displayed. |
| 2 | Select View PM Data from the Performance menu. The Choose an NE window is displayed. |
| 3 | Select an NE and click the OK button. The View PM Data window is displayed. OR Select an NE on the Map or Subnetwork Explorer, right-click on the NE to bring up a pop-up menu, select Performance Management from the pop-up menu, and select View PM Data to display the View PM Data window. |
| 4 | Choose to show either current data or historical data by clicking on the appropriate radio button. If you chose historical data, choose the date and time of the data by using the date and time (if you are choosing 15-minute data, in hours) spinner fields.  NOTE: If you configured the data retention period on the Global PM Data Administration window for less than 30 days, you can only view the data files that fall within the selected data retention period. |
| 5 | Choose one of the NE facility types for viewing by clicking on the appropriate radio button. |
| 6 | Choose to show 15-minute or 1-day PM data by clicking on the appropriate radio button. |
| 7 | Click the OK button. The PM Data window is displayed, showing the selected PM data in table format. To save the contents of the table to a file on the local system, click the Save button. Stop! End of Task. |

Task Series 500

Security Management

Change Your User Password

500

Background

When to use

Use this procedure to change your user password. The user password must be changed when a user ID (login) is used to log into ITM SNC the first time, or when a password has expired or about to expire. The password expiration period is set by the system administrator.

Before you begin

Choose a valid password. A valid password is 6-10 characters. A password must include at least two non-alphabetic characters and at least one special character.

To perform this task, access the Map window.

Related information

For related information, see [T 100, Log Into ITM SNC](#), [T 514, Globally Provision Login/Password Parameters](#), and the following section in the Security Management chapter:

- [Password Administration](#)

Instructions

Task

Complete the following steps to change your user password.

| Step | Action | Action |
|------|---|---|
| 1 | Select Administration from the main menu of the Map window. This displays a sub-menu. | |
| 2 | Choose Security from the displayed sub-menu. This displays another sub-menu. | |
| 3 | Choose Change EMS password from the Security menu. This displays the Change EMS Password window. | |
| 4 | Type your current password into the Old Password field. | |
| 5 | Type your desired new password into the New Password field. | |
| 6 | Type the same desired new password into the Confirm New Password field. | |
| 7 | <p>IF ... the new password entered is invalid</p> <p>you change the password to one previously used</p> | <p>THEN ... the system issues a warning message. You must enter a password that is 6-10 characters, contains at least two non-alphabetic characters, and one special character (!#\$%^&*()-+_=?). The following special characters are not permitted (:,;).</p> <p>issues a message, advising that you cannot change the password to one previously used and that a different password must be chosen.</p> |
| 8 | Select the OK button to enter the password change into the system. Stop! End of Task. | |

Background

When to use Use this procedure to change the primary and/or secondary passwords for selected NE(s)/aggregate(s).

Before you begin Before you begin this task, you must be logged into the system. The NE(s) or aggregate(s) for which you are changing passwords must already exist in the system. Be aware that if you are changing passwords for 20 or more NEs at a time, this may degrade system performance. Only one user can use the Global Administer Password function at a time.

To perform this task, access the Map window.

Related information For related information, see [T 624, Delete a Scheduled Task](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to change the primary and/or secondary passwords for the selected NE(s)/aggregate(s).

| Step | Action | |
|-------------------------------|--|--|
| 1 | Select one or more NEs and/or aggregates on the Map window pane or subnetwork explorer, if you know for which NEs you want to perform this function. <p style="text-align: center;">OR</p> Select no NEs and/or aggregates at this point. | |
| 2 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 3 | Select Security from the Administration menu. The Security sub-menu is displayed. | |
| 4 | Select Global Password Administration from the Security sub-menu. The Global Password Administration window is displayed. | |
| 5 | TO CHANGE THE PASSWORD FOR... <ul style="list-style-type: none"> ■ one or more NEs ■ one or more aggregates ■ a specific NE of the same type | CLICK THE... <ul style="list-style-type: none"> ■ Show NEs radio button. ■ Show Aggregates radio button. ■ List by Type radio button. Click the down arrow for this field to display a list of NE types, then select the NE type. |
| 6 | Select the NE(s) or aggregate(s) for which the password(s) will be changed, from the Network Elements/Aggregates list. When you select an NE or aggregate, the item moves from the Network Elements/Aggregates List to the Chosen NEs list. You can use the arrow push buttons to move NEs/aggregates back and forth between the two lists, as needed. | |
| 7 | Enter the new Primary Password for the selected NE(s)/aggregate(s) in the Primary Password field. | |
| 8 | Re-enter the new Primary Password in the Re-enter Primary Password field. | |
| <i>Continued on next page</i> | | |

| Step | Action (Continued) |
|-------------|--|
| 9 | If desired, enter a new Secondary Password in the Secondary Password field. |
| 10 | If a new Secondary Password has been entered, re-enter it in the Re-enter Secondary Password field. |
| 11 | <p>To abort the password change operation at any time while the Global Password Administration window is open, click the Abort button. To initiate the password change(s), click the Apply button or OK button.</p> <p>⇒ NOTE: If the number of NEs selected is 20 or more, a pop-up message window appears, advising you that the EMS performance may be impacted and asking if you want to continue with the operation. Choose Y to continue with the operation or N to cancel the operation.</p> <p>A Log Browser window is displayed, showing the status of the operation. This window remains open until you close it.</p> <p>Stop! End of Task.</p> |

Background

When to use Use this procedure to add a user's login and access permissions for the system.

Before you begin Before you begin this task, you must have at least one Command Group and one Target Group defined.

To perform this task, access the Map window.

Related information For related information, see [T 508, Add a Target Group](#), [T 505, Add a Command Group](#), and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to add a user login.

| Step | Action |
|-------------------------------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select User Provisioning from the Security sub-menu. The Manage Users window is displayed, showing the current list of user logins. |
| 4 | Click the Add button. The Add a User window is displayed. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|---|
| 5 | <p>Fill in the following fields, as needed:</p> <ul style="list-style-type: none"> ■ Name—This is the user login field. A user login can be 1-10 alphanumeric characters, in any combination of characters. Uppercase and lowercase letters are allowed. No special characters are allowed. Spaces are not allowed. This field is required. ■ Alias—This is an alternate label for the user. A user alias can be 1-20 alphanumeric characters, in any combination. Uppercase and lowercase letters are allowed. Spaces are allowed. This field is required. ■ Password—This is the user's password. A user password can be 6-10 characters. The password must contain at least one alpha character, one numeric character, and one special character. This field is required. ■ Confirm Password—This field is to confirm the user's password. If the entry in this field is not identical to the password entered in the Password field, a pop-up window is displayed with a warning message when the OK button is clicked. This field is required. ■ Copy this user's settings—This field is used to copy another user's Login Type, Command Group, and Target Group settings. Click the down arrow to the right of the field to display a list of users. Select a user login from which to apply settings and then click the Load Settings button. This field is optional, and settings can be modified after these fields have been populated. Note: this function does not copy a user's preferences for Map display settings. ■ Login Type—This field is used to specify the type of login. The types are: <i>gui</i>, <i>itm</i>, <i>nms</i>, <i>opsine</i>, and <i>nma</i>. Click the down arrow to the right of the field to display the choices. Select a login type. This field is required. ■ Command Group—This field is used to specify which Command Group the user can access. Click the down arrow to the right of the field to display a list of choices. The choices are: All Commands, No Commands, or a specific Command Group. Select a Command Group for user access. This field is required. ■ Target Group—This field is used to specify which Target Group the user can access. Click the down arrow to the right of the field to display a list of choices. The choices are: All Targets, No Targets, or a specific Target Group. Select a Target Group for user access. This field is required. For OPS/INE and NMA logins, the Target Group must be All Targets. ■ Date Representation—This field is used to specify how calendar date information for this login is shown in the GUI displays. The date formats are North American (month-day-year) or International (day/month/year). North American is the default. |

| Step | Action (Continued) |
|-------------|--|
| 6 | Click the OK button. The Status Dialog window is displayed, indicating that the user is being added to ITM SNC. Stop! End of Task. |

Background

When to use Use this procedure to change a user login's attributes. The Login Type, Password, Command Group, and/or Target Group can be changed.

Before you begin Before you begin this task, you must create a user login.
To perform this task, access the Map window.

Related information For related information, see [T 502, Add a User](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to modify a user login's attributes.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select User Provisioning from the Security sub-menu. The Manage Users window is displayed, showing the current list of user logins. |
| 4 | Select a user login from the list. |
| 5 | Click the Modify button. The Modify User window is displayed. |
| 6 | Change the Login Type, Password, Command Group, and/or Target Group fields as desired. |
| 7 | Click the OK button. The Status Dialog window is displayed, indicating that the changes to the user login are being made by the system. Stop! End of Task. |

Background

When to use

Use this procedure to delete a user login from ITM SNC.

Before you begin

Before you begin this task, be aware that TL1 Macro Builder Files created by a user remain in ITM SNC. These files must be removed either by the owner of the files (the user) or the system administrator.

To perform this task, access the Map window.

Related information

For related information, see [T 502, Add a User](#), [T 301, Build TL1 Commands](#), and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to delete a user.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select User Provisioning from the Security sub-menu. The Manage Users window is displayed. |
| 4 | Select the user to be deleted from the list of user logins. |
| 5 | Click the Delete button. A pop-up window is displayed, asking if you really want to delete the user. |
| 6 | Choose Yes to delete the user. Stop! End of Task. |

Add a Command Group

505

Background

When to use

Use this procedure to add a Command Group. A Command Group is a set of NE and ITM SNC commands that a user can use. In creating a Command Group, you can copy a set of commands from an existing command group into the new one. Command Groups can also be modified or deleted.

Before you begin

Before you begin this task, access the Map window.

Related information

For related information, see [T 506, Modify a Command Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to add a Command Group.

| Step | Action |
|-------------------------------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Command Groups from the Security sub-menu. The Manage Command Groups window is displayed, showing the current list of Command Groups. |
| 4 | Click the Add button. The Add a Command Group window is displayed. |
| 5 | <p>Fill in the following fields, as needed:</p> <ul style="list-style-type: none">■ Command Group Name—This is the Command Group name. A Command Group name cannot contain spaces. This field is required.■ Command Group Alias—This is the Command Group alias (alternate label). This field is required. <p> NOTE: If you provide an invalid Command Group name or alias, the system informs you with a warning message.</p> <ul style="list-style-type: none">■ Copy settings from this group—This field is used to copy a set of commands from an existing Command Group into the new one. Click the down arrow to the right of the field to display a list of Command Groups. Select a Command Group from which to copy a set of commands and then click the Load Settings button. This field is optional, and the contents of the EMS and NE Command fields can be modified after this information has been copied. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|-------------|--|
| 6 | Use the push buttons to move commands from the list of available commands in the EMS Commands scroll list to the SNC Commands In This Group list, as needed. |
| 7 | Use the push buttons to move commands from the list of available NE commands in the Network Elements Commands scroll list to the NE Commands In This Group list, as needed. |
| 8 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window. The Status Dialog window is displayed, indicating the Command Group is being added to ITM SNC. Stop! End of Task. |

Modify a Command Group

506

Background

When to use Use this procedure to change a Command Group once it has been created.

Before you begin Before you begin this task, be aware that the Command Group name or alias cannot be modified.

To perform this task, access the Map window.

Related information For related information, see [T 505, Add a Command Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to modify a Command Group.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Command Groups from the Security sub-menu. The Manage Command Groups window is displayed, showing the current list of Command Groups. |
| 4 | Select the Command Group to be modified from the list. |
| 5 | Click the Modify button. The Modify Command Group window is displayed. |
| 6 | Change the Copy From Group, EMS Command List, or NE Command List as desired. |
| 7 | Click the OK button. The Status Dialog window is displayed, indicating that the changes to the Command Group are being made by ITM SNC. Stop! End of Task. |

Background

When to use

Use this procedure to delete a Command Group from ITM SNC.

Before you begin

Before you begin this task, be aware that users for the Command Group being deleted must be reassigned to another Command Group. The reassignment is done as part of this task.

To perform this task, you must first access the Map window.

Related information

For related information, see [T 505, Add a Command Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to delete a Command Group.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Command Groups from the Security sub-menu. The Manage Command Groups window is displayed, showing the current list of Command Groups. |
| 4 | Select the Command Group to be deleted from the list. |
| 5 | Click the Delete button. A pop-up window is displayed, asking if you really want to delete the Command Group. |
| 6 | Choose Yes to delete the Command Group. The Reassign Users to Command Group window is displayed if any users are assigned to the Command Group. |
| 7 | Choose a Command Group from the list to which you want to reassign all users of the Command Group being deleted. |
| 8 | Click the OK button. The Command Group is deleted. Stop! End of Task. |

Background

When to use

Use this procedure to add a Target Group. A Target Group is a collection of NEs to which a user has access and can execute commands. A user is assigned to one and only one Target Group and can only access the NEs in this group. ITM SNC is initially loaded with two Target Groups: one for all NEs and another with no NEs. Additional Target Groups can be defined as needed by a system administrator or a user with a privileged login. In creating a Target Group, you can copy a set of NEs from an existing Target Group into the new one. Target Groups can also be modified or deleted.

Before you begin

Before you begin this task, access the Map window.

Related information

For related information, see [T 509, Modify a Target Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to add a Target Group.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Target Groups from the Security sub-menu. The Manage Target Groups window is displayed, showing the current list of Target Groups. |
| 4 | Click the Add button. The Add a Target Group window is displayed. |
| 5 | Fill in the following fields, as needed: <ul style="list-style-type: none">■ Target Group Name—This is the Target Group name. A Target Group name cannot contain spaces. This field is required.■ Target Group Alias—This is the Target Group alias (alternate label). This field is required. <p> NOTE: If you provide an invalid Target Group name or alias, the system informs you with an error message.</p> <ul style="list-style-type: none">■ Copy settings from this group—This field is used to copy a set of NEs from an existing Target Group into the new one. Click the down arrow to the right of the field to display a list of Target Groups. Select a Target Group from which to copy a set of NEs and then click the Load Settings button. This field is optional, and the contents of the Target Group can be modified after this information is copied. |
| 6 | Use the push buttons to move NEs from the Network Element list scroll list to the NEs in This Group list, as needed. |
| 7 | Click the OK button. The Status Dialog window is displayed, indicating that the Target Group is being added to ITM SNC. Stop! End of Task. |

Background

When to use

Use this procedure to change a Target Group once it has been created.

Before you begin

Before you begin this task, be aware that the Target Group name cannot be modified. Certain Target Groups cannot be modified or deleted; this is indicated on the Target Group Manager window.

To perform this task, access the Map window.

Related information

For related information, see [T 508, Add a Target Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to modify a Target Group.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Target Groups from the Security sub-menu. The Manage Target Groups window is displayed, showing the current list of Target Groups. |
| 4 | Select the Target Group to be modified from the list. |
| 5 | Click the Modify button. The Modify Target Group window is displayed. |
| 6 | Change the Copy From Group, and/or NEs in This Group fields, as desired. |
| 7 | Click the OK button. The Status Dialog window is displayed, indicating that the changes to the Target Group are being made by ITM SNC. Stop! End of Task. |

Delete a Target Group

510

Background

When to use

Use this procedure to delete a Target Group from ITM SNC.

Before you begin

Before you begin this task, be aware that users of the Target Group to be deleted must first be reassigned to another Target Group. The reassignment is done as part of this task. Certain Target Groups cannot be modified or deleted; this is indicated on the Target Groups Manager window.

To perform this task, access the Map window.

Related information

For related information, see [T 508, Add a Target Group](#) and [Chapter 6, Security Management](#).

Instructions

Task

Complete the following steps to delete a Target Group.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Target Groups from the Security sub-menu. The Manage Target Groups window is displayed, showing the current list of Target Groups. |
| 4 | Select the Target Group to be deleted from the list. |
| 5 | Click the Delete Group button. A pop-up window is displayed, asking if you really want to delete the Target Group. |
| 6 | Choose Yes to delete the Target Group. The Reassign Users to Target Group window is displayed if there are any users assigned to the Target Group. |
| 7 | Choose a Target Group from the list to which you want to reassign all users of the Target Group being deleted. |
| 8 | Click the OK button. The Target Group is deleted. Stop! End of Task. |

Background

When to use

Use this procedure to terminate one or more active user login sessions. When you terminate an active user session, the system gracefully exits out of the current session and does not cause any pending or scheduled tasks to be aborted. The user login that was terminated can start a new login session after the login/password is validated.

Before you begin

Before you begin this task, see if the user is currently on the system via the Display Users window.

To perform this task, access the Map window.

Related information

For related information, see [T 513, Display Logged In Users](#) and the following section in the Security Management chapter:

- [Users](#)

Instructions

Task

Complete the following steps to terminate one or more active user login sessions.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Terminate User Session from the Security sub-menu. The Terminate EMS User Sessions window is displayed. |
| 4 | Select the user login(s) to be terminated from the Users Currently Logged list and, using the arrow push buttons, move the selected user login(s) to the User Sessions to be Terminated list. You can use the the arrow push buttons to move user logins back and forth between the two lists, as needed. |
| 5 | Click the OK button. Active GUI sessions for the user(s) selected are terminated. Stop! End of Task. |

Background

When to use

Use this procedure to enable or disable user logins. Disabling a user login prevents that user from being able to log into ITM SNC. If you disable a user login that is currently on the system, that user's GUI session is automatically terminated. If there is a standing alarm against a user login that has been disabled, re-enabling the user login clears the alarm against it.

Before you begin

Before you begin this task, be aware that the *snc* login and other pre-defined logins may not be disabled. To see if a user is currently on the system, access the Display Users window through the GUI.

To perform this task, access the Map window.

Related information

For related information, see For related information, see [T 513. Display Logged In Users](#) and the following section in the Security Management chapter:

- [Users](#)
-

Instructions

Task

Complete the following steps to enable or disable one or more user logins for starting a GUI session.

| Step | Action | |
|------|--|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. | |
| 3 | Select Disable/Enable Users from the Security sub-menu. The Disable/Enable User Sessions window is displayed. | |
| 4 | <p>TO ...</p> <ul style="list-style-type: none"> ■ disable one or more users ■ enable one or more users <p> NOTE: You can use the arrow push buttons to move users back and forth between the two lists, as needed.</p> | <p>SELECT ...</p> <ul style="list-style-type: none"> ■ the user(s) in the Enabled Users list and move the user(s) to the Disabled Users list, using the arrow push buttons. ■ the user(s) in the Disabled Users list and move the user(s) to the Enabled User list, using the arrow push buttons. |
| 5 | <p>Click the OK button. If you are disabling one or more users, a pop-up confirmation window is displayed, asking if you really want to prevent the selected user(s) from establishing login sessions. Choose Yes to disable the user(s). If you are enabling one or more users, a pop-up window is displayed indicating that the selected user(s) have been enabled to log into ITM SNC.</p> <p>Stop! End of Task.</p> | |

Background

When to use Use this procedure to display all users that are currently logged into ITM SNC.

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

Related information For related information, see [T 512. Enable/Disable User Logins](#) and the following section in the Security Management chapter:

- [Users](#)
-

Instructions

Task

Complete the following steps to display all users that are currently logged into ITM SNC.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| 3 | Select Display Logged-In Users from the Security sub-menu. The Display Users window is displayed, showing, in table format, a list of users that are currently logged into the system their user alias, and their login source. |
| 4 | Click the Close button to close the window. Stop! End of Task. |

Globally Provision Login/Password Parameters

514

Background

When to use

Use this procedure to globally administer certain aspects of login/password procedures enforced by ITM SNC, such as the number of login attempts allowed, the login expiration period, the password aging interval, and the password history.

Before you begin

Before you begin this task, make sure that you are administrator or a user with a privileged login allowed to provision these login/password parameters.

To perform this task, access the Map window.

Related information

For related information, see [T 100, Log Into ITM SNC](#) and [T 500, Change Your User Password](#).

Instructions

Task

Complete the following steps to globally provision login/password parameters for users logging into ITM SNC.

| Step | Action |
|-------------------------------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Security from the Administration menu. The Security sub-menu is displayed. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|--|
| 3 | Select Global Security Provisioning from the Security sub-menu. The Global Security Provisioning window is displayed. |
| 4 | <p>Fill in the following fields, as needed:</p> <ul style="list-style-type: none"> ■ Allow unsuccessful login attempts before disabling login ID—click the up and down arrows on this spinner field to select the number of consecutive failed login attempts before disallowing a user to log into the system. The default is three days. ■ Delete login IDs after x days of user inactivity—click the up and down arrows on this spinner field to select the number of days that a user login is not in use before it expires (in other words, cannot be used to log into the system). The default is 60 days. ■ Prompt users to change passwords every x days—click the up and down arrows on this spinner field to select the number of days that a password can be used before it has to be changed. The default is 30 days. ■ Warn users x days prior to their password aging—click the up and down arrows on this spinner field to select the number of days prior to passwords expiring that a warning notice is issued. The default is seven days. ■ Remember users' last x previous passwords (and don't allow users to use these previous passwords)—click the up and down arrows on this spinner field to select the number of previous passwords recalled and prohibited from being re-used. The default number is five passwords. ■ Session inactivity timeout interval—click the up and down arrows on this spinner field to select, in minutes, the session inactivity timeout interval before the user's GUI session automatically terminates. The default is 30 minutes. ■ Enter an advisory message that users will see upon login—enter the text advisory message that is displayed to the user upon successfully logging into ITM SNC. <p> NOTE: Click the Get Defaults button to retrieve and display the system defaults for the numeric value fields.</p> |
| 5 | <p>Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window.</p> <p>Stop! End of Task.</p> |

Task Series 600

Administration

Add a Network Element—X.25 Communications

600

Background

When to use Use this procedure to add an X.25-connected NE. X.25-connected NEs are either directly connected to ITM SNC or use a Gateway Network Element (GNE) for communications with ITM SNC.

Before you begin Before you begin this task, verify that the NE that you are adding communicates with ITM SNC using X.25 protocol. Before adding an NE, you must have a Target Identifier (TID), a valid NE login/password, and a valid backup NE login/password. The GNE(s) that provides the communications link for this NE in the subnetwork must be added first.

To perform this task, you must first access the Map window.

Related information For related information, see [T 602, Add a Gateway Network Element](#); [T 624, Delete a Scheduled Task](#); [T 625, Modify a Network Element](#); and [Chapter 7, Administration](#).

Instructions

Task Complete the following steps to add an X.25-connected NE to ITM SNC.

| Step | Action |
|-------------------------------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Network Elements from the sub-menu. The Manage NEs window is displayed, showing the current list of NEs in your Target Group. |
| 4 | <p>Click on the Add button. The Add an NE - General Information panel is displayed.</p> <p>The Add an NE window for X.25-connected NEs is divided into three panels:</p> <ul style="list-style-type: none">■ General NE Information■ NE Communications Details■ NE Security <p>There are fields on each panel that are required to add an NE. To access a panel, click the mouse select button on the panel's labeled tab.</p> <p>The General Information panel is displayed initially.</p> |
| 5 | Enter the NE's Target Identifier (TID). A TID can be 1-20 alphanumeric characters. Hyphens and periods are allowed. This field is required. |
| 6 | Enter the NE Alias. An alias can be 1-20 alphanumeric characters. Uppercase and lowercase letters are allowed. Spaces are allowed. This field is optional. |
| 7 | Select the NE Type. To do this, click the down arrow to the right of the field to display a drop-down list of choices and select the NE type. This field is required. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|--|
| 8 | Select the NE's time zone by clicking the appropriate radio button. If Other is selected, enter the time difference, in minutes, between the NE time and Greenwich Mean Time (GMT). Specify the time difference, "+" (plus) or "-" (minus), up to five characters. Valid values are -11.0 to 13.00 (the plus "+" is implied). This field is required. If no selection is made, the Time Zone defaults to Same as Host. |
| 9 | For the Communicate Via field, click the GNE radio button. This NE is being set up communicate with ITM SNC via a GNE. The default for this NE type is GNE. This field is required. |
| 10 | Click on the NE Communications Details tab. The NE Communications Details panel is displayed, showing the current list of GNEs available to provide communications with ITM SNC for the NE being added. |
| 11 | Select the GNE for the NE being added. Use the type ahead field and filter/sort function to narrow the listing to the GNE(s) required. |
| 12 | Click on the NE Security tab. The NE Security panel is displayed. |
| 13 | Enter the primary NE login for the NE being added. The login can be 1-10 characters. |
| 14 | Enter the primary NE password for the NE login. An NE password can be 1-10 characters. |
| 15 | Re-enter the primary NE password, in the Re-enter Password field, for checking. |
| 16 | Enter the backup login for the NE. The backup login can be 1-10 characters. |
| 17 | Enter the backup password for the NE. The backup password can be 1-10 characters. |
| 18 | Re-enter the backup password, in the Re-enter Backup Pwd field, for checking. |
| 19 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the NE Security panel of the Add/Modify NE window. A message is displayed in the status bar, indicating that the NE is being added to ITM SNC. Stop! End of Task. |

Background

When to use

Use this procedure to add an NE that communicates with ITM SNC over an OSI/LAN interface. The ITM SNC IAO-LAN interface provides a higher bandwidth communications path to NEs than possible via X.25. ITM SNC establishes and manages OSI associations to NEs. ITM SNC supports the OSI standard seven-layer protocol stack. When ITM SNC communicates with OSI-connected NEs over an IAO-LAN interface, no GNE is needed, but one NE of this type can serve as the point of attachment for ITM SNC to the subnetwork.

Before you begin

Before you begin this task, you should identify the number and types of OSI associations to be used for NE communications with ITM SNC.

:When adding an NE, the following information must be entered:

- Target Identifier (TID)
- NE Type
- Valid NE primary/backup login/password
- Number and Type of OSI Associations

To perform this task, access the Map window.

**Related
information**

For related information, see [T 624, Delete a Scheduled Task](#), [T 625, Modify a Network Element](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to add an OSI-connected NE to ITM SNC.

| Step | Action |
|-------------------------------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Network Elements from the sub-menu. The Manage NEs window is displayed, showing the current list of NEs in your Target Group. |
| 4 | <p>Click on the Add button. The Add an NE - General Information panel is displayed.</p> <p>The Add an NE window for OSI-connected NEs is divided into three panels:</p> <ul style="list-style-type: none">■ General NE Information■ NE Communications Details■ NE Security <p>There are fields on each panel that are required to an an NE. To access a panel, click the mouse select button on the panel's labeled tab.</p> <p>The General Information panel is displayed initially.</p> |
| 5 | Enter the NE's Target Identifier (TID). A TID can be 1-20 alphanumeric characters. Hyphens and periods are allowed. This field is required. |
| 6 | Enter the NE's Alias. An alias can be 1-20 alphanumeric characters. Uppercase and lowercase letters are allowed. Spaces are allowed. This field is optional. |
| 7 | Select the NE Type. To do this, click the down arrow to the right of the field to display a drop-down list of choices and select the NE type. This field is required. |
| 8 | Select the NE's time zone by clicking the appropriate radio button. If Other is selected, enter the time difference, in minutes, between the NE time and Greenwich Mean Time (GMT). Specify the time difference, "+" (plus) or "-" (minus), up to five characters. Valid values are -11.0 to 13.00 (the plus "+" is implied). This field is required. If no selection is made, the Time Zone defaults to Same as Host. |
| 9 | Choose OSI for the Communicate Via field. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|---|
| 10 | <p>Click on the NE Communications Details tab. The Communications Details panel for OSI communications is displayed. Fill in the following fields, as need:</p> <ul style="list-style-type: none"> ■ Communication Type—These radio button selections are reserved for future use. ■ Number of OSI Associations—Choose the number of OSI associations for the NE type by clicking the corresponding radio button: 1, 2, or 3. The default number is 1. This field is required. The number of available associations is 3. ■ Type of OSI Associations—For each OSI association chosen, choose the association type. Only one association type can be assigned per association. This field is required. The association types vary by NE type. <p> NOTE: The only Association Type that can be chosen for FLM NEs is Peer Communications (PeerCom).</p> |
| 11 | Click on the NE Security tab. The NE Security panel is displayed. |
| 12 | Enter the primary NE login for the NE being added. The login can be 1-10 characters. |
| 13 | Enter the primary NE password for the NE login. An NE password can be 1-10 characters. |
| 14 | Re-enter the primary NE password, in the the Re-enter Password field, for checking. |
| 15 | Enter the backup login for the NE. The backup login can be 1-10 characters. |
| 16 | Enter the backup password for the NE. The backup password can be 1-10 characters. |
| 17 | Re-enter the backup password, in the Re-enter Backup Pwd field, for checking. |
| 18 | <p>Click the Apply button to activate your choices, or click the OK button to activate your choices and close the NE Security panel of the Add/Modify NE window.</p> <p>A message is displayed in the status bar, indicating that the NE is being added to ITM SNC.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to add a Gateway Network Element (GNE). A GNE is an NE that provides X.25-based communications between ITM SNC, the NEs in a subnetwork, and external OSs. The GNE establishes communication with the ITM SNC host through a synchronous port over a Packet-Switched Network (PSN). To provide support in the event of a communications failure, a GNE is assigned to a subnetwork to allow switchover to another GNE.

Before you begin

Before you begin this task, the following must be established before adding a GNE:

- The GNE's Target Identifier (TID)
- A valid NE login/password, and a valid backup NE login/password
- The synchronous port that the PSN uses for connectivity to the ITM SNC host
- The PVCs and/or SVCs that are being used for command/response messages, autonomous maintenance/alarm messages, and autonomous database change/ provisioning commands/responses

Before adding a GNE, you must first create a subnetwork to which it can be assigned.

To perform this task, access the Map window.

**Related
information**

For related information, see [T 605, Add a Subnetwork Name/Alias](#); [T 624, Delete a Scheduled Task](#); [T 625, Modify a Network Element](#); and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to add an X.25-connected GNE.

| Step | Action |
|-------------------------------|--|
| 1 | Select Administration from the main menu bar on the Map window. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Network Elements from the sub-menu. The Manage NEs window is displayed, showing the current list of NEs in your Target Group. |
| 4 | <p>Click on the Add button. The Add an NE - General Information panel is displayed.</p> <p>The Add an NE window for X.25-connected GNEs is divided into three panels:</p> <ul style="list-style-type: none">■ General NE Information■ NE Communications Details■ NE Security <p>There are fields on each panel that are required to add a GNE. To access a panel, click the mouse select button on the panel's labeled tab.</p> <p>The General Information panel is displayed initially.</p> |
| 5 | Enter the GNE's Target Identifier (TID). A TID can be 1-20 alphanumeric characters. Hyphens and periods are allowed. This field is required. |
| 6 | Enter the GNE's Alias. An alias can be 1-20 alphanumeric characters. Uppercase and lowercase letters are allowed. Spaces are allowed. This field is optional. |
| 7 | Select the NE Type. To do this, click the down arrow to the right of the field to display a drop-down list of choices and select the NE type. This field is required. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|-------------------------------|--|
| 8 | Select the NE's time zone by clicking the appropriate radio button. If Other is selected, enter the time difference, in minutes, between the NE time and Greenwich Mean Time (GMT). Specify the time difference, "+" (plus) or "-" (minus), up to five characters. Valid values are -11.0 to 13.00 (the plus "+" is implied). This field is required. If no selection is made, the time zone defaults to Same as Host. |
| 9 | For the Communicate Via field, click the PSN radio button. As a GNE, this NE is being set up to communicate with ITM SNC and other NEs in the subnetwork via a PSN. This field is required. |
| 10 | Click on the NE Communications Details (PSN) tab. The NE Communications Detail panel is displayed. This panel is used to enter information about the GNE's X.25 interface. |
| 11 | Click on the down arrow to the right of the Choose an X.25 Interface field to display a list of X.25 port names, and select a port. This field is required. |
| 12 | Click on the down arrow to the right of the Choose a Subnetwork field to display a list of subnetworks, and select a subnetwork. This field is required. |
| 13 | <p>For NEs discovered under the GNE being added (Discovered Remotes), choose one of the following options (by clicking on that option's radio button):</p> <ul style="list-style-type: none"> ■ This GNE—the NE login and password entered for this GNE in the NE Security panel will be used to log into the NEs ■ EMS Default for Remote NEs—the system-wide ITM SNC default NE login and password for the NE type of the Remote Terminal (RT) being discovered will be used to log into the NEs. ■ EMS Default for GNE Type—the system-wide ITM SNC default NE login and password for the NE type of the GNE being added will be used to log into the NEs. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|-------------|--|
| 21 | Enter the backup login for the GNE. The backup login can be 1-10 characters. |
| 22 | Enter the backup password for the GNE. The backup password can be 1-10 characters. |
| 23 | <p>Click the Apply button to activate your choices, or click the OK button to activate your choices and close the NE Security panel of the Add/Modify NE window.</p> <p>The system prompts if you want to run DNO immediately to update the ITM SNC database with complete information about the newly added NE. Choose Yes to run DNO or No to not perform DNO at this time.</p> <p>A message is displayed in the status bar, indicating that the GNE is being added to ITM SNC.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to manually add a trail between two NEs. Trails between identical Lucent Technologies NEs may be autodiscovered by the DNO feature and do not have to be manually added. Manually added trails may also be manually deleted.

Before you begin

Before you begin this task, verify that the NEs at either end of the trail are compatible for the connection and that the AIDs at both ends of the trail are using compatible software releases. DNO has to be performed on the NEs at either end of the trail before manually adding a trail.

When you are adding a trail between an NE managed by ITM SNC and a non-managed device, the AID(s) may not be available for the non-managed device, and, subsequently, will not be displayed in the AID list on the Add a Trail window. The trail can still be added between the managed and non-managed NE.

To perform this task, access the Map window.

Related information

For related information, see [T 604, Delete a Trail](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to manually add a trail.

| Step | Action | Result |
|------|---|--|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | The Network sub-menu is displayed. |
| 3 | Select Trails from the Network sub-menu. | The Trail Manager window is displayed, showing the current list of user-defined trails between NEs. |
| 4 | Click the Add a New Trail button. | The Add a Trail window is displayed. This window consists of: <ul style="list-style-type: none">■ From TID and To TID scroll lists for both NEs■ From AID and To AID explorers for both NEs The Trail Termination Point (TTP) for either end of the trail consists of the NE's TID and AID. |
| 5 | Select the first NE's TID from the From TID list. | The corresponding AIDs for the first NE's TID are displayed in the From AID explorer. |
| 6 | Select the second NE's TID from the To TID list. | The corresponding AIDs for the second NE's TID are displayed in the To AID explorer. |
| 7 | Select a valid AID for the first NE's TID from the From AID explorer. | |
| 8 | Select a valid AID for the second NE's TID from the To AID explorer. | |
| 9 | Click the Apply button to create the trail, or click the OK button to create the trail and close the window. Stop! End of Task. | |

Background

When to use

Use this procedure to manually delete a trail between two NEs. Automatically discovered trails are deleted automatically if one of the NEs at either end is deleted.

Before you begin

Before you begin this task, be aware that if you delete a trail, it is removed from the trail list in any open windows, including the Trail Manager window. The deleted trail is also removed from all open Map windows.

To perform this task, access the Map window.

Related information

For related information, see [T 603, Add a Trail](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to manually delete a trail.

| Step | Action | Result |
|------|--|---|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | The Network sub-menu is displayed. |
| 3 | Select Trails from the Network sub-menu. | The Trail Manager window is displayed, showing the current list of trails between NEs |
| 4 | Select a trail to be deleted. | |
| 5 | Click the Delete Trail button. | A pop-up window is displayed, asking if you really want to delete the trail. |
| 6 | Choose Yes to delete the trail. | The Status Dialog window is displayed, indicating that the trail is being deleted. |
| | Stop! End of Task. | |

Background

When to use

Use this procedure to add a subnetwork name and subnetwork alias. Once a subnetwork name and alias is created, you can associate one or more active GNEs with that subnetwork. The Remote Network Elements (RNEs) associated with a GNE become grouped under that subnetwork name/alias. RNEs in a subnetwork can be manually reassigned to another GNE in the same subnetwork.

Before you begin

Before you begin this task, you must add at least one of the network elements that will be part of the subnetwork you are adding. To perform this task, you must first access the Map window.

Related information

For related information, see [T 602, Add a Gateway Network Element](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to add a subnetwork name and its alias.

| Step | Action | Result |
|------|---|--|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | A sub-menu is displayed. |
| 3 | Select Subnetwork from the sub-menu. | The Subnetwork Manager window is displayed. |
| 4 | Click the Add button to add a new subnetwork name/alias. | The Add a Subnetwork window is displayed. |
| 5 | Enter the name of the subnetwork, which is the name of one of the member Network Elements, in the Subnetwork Name field. | |
| 6 | Enter the name of the subnetwork alias in the Subnetwork Alias field. | |
| 7 | Click the Apply button to add the new information to the ITM SNC database, or click the OK button to add the new information and close the window. Stop! End of Task. | The Status Dialog window is displayed, indicating that the subnetwork name/alias has been added to the system. |

Modify a Subnetwork Alias

606

Background

When to use Use this procedure to change a subnetwork's alias once it has been created.

Before you begin Before you begin this task, the subnetwork name/alias being modified must exist in ITM SNC.

To perform this task, access the Map window.

Related information For related information, see [T 605, Add a Subnetwork Name/Alias](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to change a subnetwork alias.

| Step | Action | Result |
|------|--|---|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | A sub-menu is displayed. |
| 3 | Select Subnetwork from the sub-menu. | The Subnetwork Manager window is displayed. |
| 4 | Select the subnetwork name to be modified from the scroll list. | |
| 5 | Click the Modify button. | The Add a Subnetwork window is displayed with the current subnetwork name and alias. |
| 6 | Change the subnetwork alias name and click the OK button. Stop! End of Task. | The Status Dialog window is displayed, indicating that the subnetwork alias change has been made in the system. All references to the subnetwork are updated to reflect the changes made. |

Delete a Subnetwork Name/Alias

607

Background

When to use

Use this procedure to delete a subnetwork name and alias from the ITM SNC database.

Before you begin

Before you begin this task, the subnetwork name/alias must exist in the ITM SNC database. The NE(s) assigned to the subnetwork name being deleted must first be reassigned to another subnetwork by modifying the network element, via the Add/Modify a Network Element window.

To perform this task, access the Map window.

Related information

For related information, see [T 625, Modify a Network Element](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to delete a subnetwork name and alias from the ITM SNC database.

| Step | Action | Result |
|------|--|---|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | A sub-menu is displayed. |
| 3 | Select Subnetwork from the sub-menu. | The Subnetwork Manager window is displayed. |
| 4 | Select the subnetwork to be deleted. | |
| 5 | Click the Delete button. Stop! End of Task. | A pop-up message window is displayed, asking if you really want to delete the selected subnetwork. Choose Yes to delete the subnetwork. The Status Dialog window is displayed, indicating that the subnetwork name/alias has been deleted. All references to the deleted subnetwork name/alias and subnetwork/NE relationships are updated in ITM SNC. |

Associate Remote Network Elements with Gateway Network Elements

608

Background

When to use Use this procedure to view the Gateway Network Elements (GNEs) in a subnetwork and associated Remote Network Elements (RNEs) and to reassign RNEs to a different GNE in the same subnetwork, as needed.

Before you begin Before you begin this task, network elements to be reassigned to a different GNE must be initially assigned to a GNE in the subnetwork. The GNEs/RNEs must be given an existing subnetwork name/alias. To perform this task, you must first access the Map window. Be aware that this function is not supported for FLM NEs.

Related information For related information, see [T 602, Add a Gateway Network Element](#), [T 605, Add a Subnetwork Name/Alias](#), and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to view a GNE and its associated RNEs in a subnetwork and, if needed, to reassign RNEs to a different GNE in the subnetwork.

| Step | Action | Result |
|------|---|---|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | The Network sub-menu is displayed. |
| 3 | Select GNE Associations from the Network sub-menu. | A sub-menu is displayed. |
| 4 | Select GNE/RNE from the sub-menu. | The GNE/RNE Association window is displayed. This window is divided into two parts. It consists of: <ul style="list-style-type: none">■ An explorer tree, which shows the names of all subnetworks in your Target Group (unexpanded)■ A table which displays the TID and type of each RNE |
| 5 | To view GNEs in a subnetwork, double-click on a subnetwork name in the explorer tree to select and expand the subnetwork's associations. | |
| 6 | To view RNEs associated with a GNE, select the GNE. | The GNE's associated RNEs are displayed in the table. |
| 7 | To reassign an RNE from one GNE to another one in the subnetwork, select the RNE by left-clicking on it in the "Remote NEs" part of the window. | |
| 8 | Right-click on the same RNE selected. | A pop-up window is displayed, with the message "Associate with...". |

| Step | Action (Continued) | Result |
|-------------|--|--|
| 9 | Click the select (left) mouse button on the "Associate with.." message that is displayed. | A message is displayed in the status bar "Select a GNE within the same subnet to associate this RNE with". |
| 10 | Double-click on a GNE under the same subnetwork in the explorer tree to select it for reassignment of the RNE. | The GNE/RNE reassignment is processed. Messages are displayed in the status bar of the window, indicating the progress of the reassignment and when it is completed. |
| 11 | Continue making reassignments as needed. | |
| 12 | When you are finished, click the Close button to close the window. Stop! End of Task. | |

Background

When to use

Use this procedure to add a GNE association. A GNE association is a pair of GNEs in the same X.25-connected subnetwork that serve, respectively, as the Primary GNE and Secondary GNE for the other NEs in the subnetwork to communicate with ITM SNC. The Primary GNE initially serves as the point of communications for the other NEs in a subnetwork with ITM SNC. The Secondary GNE is the backup GNE should communications with the Primary GNE fail.

Before you begin

Before you begin this task, you must configure both NEs to be GNEs in the same subnetwork. You must also verify that the Secondary GNE does not have a separate set of Remote Network Elements communicating with it. Be aware that this function is not supported for FLM NEs.

To perform this task, access the Map window.

Related information

For related information, see [T 602, Add a Gateway Network Element](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to add a GNE association.

| Step | Action | Result |
|------|---|---|
| 1 | Select Administration from the main menu bar on the Map window. | The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. | The Network sub-menu is displayed. |
| 3 | Select GNE Associations from the Network sub-menu. | A sub-menu is displayed. |
| 4 | Select Primary/Secondary from the sub-menu. | The Primary/Secondary GNE Associations window is displayed. This window shows the current GNE associations (if any exist). An "X" to the left of a GNE in an association indicates that it is the currently active GNE. |
| 5 | Click the Add New Association button. | The Add a Primary/Secondary GNE Association window is displayed. |
| 6 | Select the Primary GNE from the Primary GNE scroll list. | The GNE(s) available to serve as the Secondary GNE in the association is displayed in the Secondary GNE scroll list. |
| 7 | Select the Secondary GNE from the Secondary GNE scroll list. | |
| 8 | Click the Apply button to create the association or click the OK button to create the association and close the Add a Primary/Secondary GNE Association window. | The GNE association is added to the GNE Associations list. The Primary GNE in the newly created association becomes the currently active GNE. |
| 9 | Close the status window by clicking the Close button. | |
| 10 | Click the Close button to close the Primary/Secondary GNE Association window. Stop! End of Task. | |

Background

When to use

Use this procedure to switch the active and standby status of the GNEs in an association. When a switch is made, the Secondary GNE becomes the active GNE.

Before you begin

Before you begin this task, be aware that a manual switch of the active and standby GNEs may cause temporary loss of communications with the connected NEs, resulting in generation of alarms and/or loss of alarms. Be aware that this function is not supported for FLM NEs.

To perform this task, access the Map window.

Related information

For related information, see [T 609, Add a GNE Association](#), [T 210, Resynchronize Alarms](#), and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to manually switch the active and standby GNE in a GNE association.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. The Network sub-menu is displayed. |
| 3 | Select GNE Associations from the Network sub-menu. A sub-menu is displayed. |
| 4 | Select Primary/Secondary from the sub-menu. The Primary/Secondary Associations window is displayed. |
| 5 | Select the Primary/Secondary GNE association to be switched. The Status Dialog window is displayed, indicating that the switch is being made. When the switch is made, the "X" moves to the newly active GNE in the association. |
| 6 | Click the Close button to close the window. Stop! End of Task. |

Delete a GNE Association

611

Background

When to use Use this procedure to delete a GNE association. This procedure is only used to remove the association between two GNEs, not to delete the GNEs from the network. When a GNE association is deleted, NEs in a subnetwork remain connected to the currently active GNE.

Before you begin Before you begin this task, identify the GNE association to be deleted. Be aware that this function is not supported for FLM NEs.

To perform this task, access the Map window.

Related information For related information, see [T 609, Add a GNE Association](#), [T 610, Switch Primary/Secondary GNEs](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to delete a GNE association.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. The Network sub-menu is displayed. |
| 3 | Select GNE Associations from the Network sub-menu. A sub-menu is displayed. |
| 4 | Select Primary/Secondary from the sub-menu. The Primary/Secondary Association window is displayed. |
| 5 | Select the GNE association to be deleted. |
| 6 | Click the Delete button. |
| 7 | The Status Dialog window is displayed, indicating that the association has been deleted. |
| 8 | Click the Close button to close the window. Stop! End of Task. |

Background

When to use Use this procedure to add an aggregate. An aggregate is a collection of related NEs/aggregates that are grouped and named for purposes of streamlining network monitoring and resynchronization. A new aggregate is created by providing a unique aggregate name and alias and adding NEs or other aggregates to it.

Before you begin Before you begin this task, identify which NEs and/or aggregates you want to associate with the aggregate being created.

To perform this task, access the Map window.

Related information For related information, see [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to create a new aggregate.

| Step | Action | Reference |
|------|---|--------------------------|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 2 | Select Network from the Administration menu. The Network sub-menu is displayed. | |
| 3 | Select Aggregates from the Network sub-menu. The Aggregates sub-menu is displayed. | |
| 4 | Select Add from the Aggregates sub-menu. The Add a New Aggregate window is displayed. | |
| 5 | Fill in the following fields, as needed: <ul style="list-style-type: none">■ Aggregate Name—This is the aggregate name. The Aggregate name can be 1-20 alphanumeric characters. Dashes are allowed. This field is required. The Aggregate name must be unique.■ Aggregate Alias—This is the aggregate alias (alternate label). The Aggregate alias can be 1-20 alphanumeric characters. Dashes are allowed. This field is optional. | |
| 6 | Click the OK button. The new Aggregate is created.  NOTE: When a new aggregate is created, it is automatically placed into the TOP layer of the Map view. Any NE or aggregate that is placed into the aggregate is removed from the TOP layer. The icon for the new aggregate is displayed in the current Map view and the subnetwork explorer, and is automatically selected. | |
| 7 | Add NEs and/or aggregates to the newly created aggregate. Stop! End of Task. | SE 612-1 |

SE 612-1: Add Network Elements/ Aggregates to an Aggregate

Procedure

Perform the steps below to add an NE or aggregate to the parent (owner) aggregate.

1. From the Map window, position the mouse cursor on the aggregate icon on the Map pane and single-click the select mouse button to select the aggregate icon, if it is not already selected.
2. Select an NE or aggregate (by pointing at it with the mouse cursor and single-clicking on it with the mouse select button).
3. Drag the NE or aggregate icon into the parent (owner) aggregate.



NOTE:

An NE or aggregate can be moved out of the current parent aggregate into the TOP Map view by choosing **Return to Top** in the NE/aggregate's pop-up menu.

Background

When to use Use this procedure to change an aggregate's alias. To change the contents of an aggregate, use SE-01 in [T 612, Add an Aggregate](#).

Before you begin Before you begin this task, identify the aggregate to be modified. Be aware that the aggregate name for the Top Level Aggregate (TOP), which is the default parent of all member NEs in the network, cannot be changed.

To perform this task, access the Map window.

Related information For related information, see [T 612, Add an Aggregate](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to change the aggregate alias.

| Step | Action |
|------|---|
| 1 | Select the aggregate to be modified from the Map window or subnetwork explorer. OR Select no aggregates at this point. |
| 2 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 3 | Select Network from the Administration menu. The Network sub-menu is displayed. |
| 4 | Select Aggregates from the Network sub-menu. The Aggregates sub-menu is displayed. |
| 5 | Select Modify Alias from the Aggregates sub-menu. If no aggregates were chosen from the Map window or Subnetwork Explorer in Step 1, the Choose an NE/Aggregate window is displayed for selection of the aggregate to be modified. Select the aggregate to be modified and click the OK button. The Modify Aggregate window is displayed with the current aggregate name and/or alias. |
| 6 | Change the aggregate alias, as desired. |
| 7 | Click the OK button. A message in the status bar is displayed, indicating that the changes to the aggregate are being made by ITM SNC. Stop! End of Task. |

Background

When to use

Use this procedure to delete an aggregate from ITM SNC.

Before you begin

Before you begin this task, be aware that NEs/aggregates that are members of the aggregate being deleted must be reassigned to another aggregate or to the TOP aggregate level as part of this task.

To perform this task, access the Map window.

Related information

For related information, see [T 612. Add an Aggregate](#) and [Chapter 7. Administration](#).

Instructions

Task

Complete the following steps to delete an aggregate.

| Step | Action | Reference |
|------|--|--------------------------|
| 1 | Before deleting the aggregate, you may want to move the member NEs out of the aggregate and return them to the TOP level. | SE 614-1 |
| 2 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 3 | Select Network from the Administration menu. The Network sub-menu is displayed. | |
| 4 | Select Aggregates from the Network sub-menu. The Aggregates sub-menu is displayed. | |
| 5 | Select Delete from the Aggregates sub-menu. The Choose an Aggregate Aggregate/Delete window is displayed. Select the aggregate to be deleted and click the OK button. | |
| 6 | The Reassign an Aggregate window is displayed. | |
| 7 | Choose an aggregate from the list to which you want to reassign any member NEs/aggregates.  NOTE: If you are not moving the majority of NEs to a single aggregate, it is recommended that you select the TOP Level Aggregate and modify those aggregates that take the NEs from the deleted aggregate. | |
| 8 | Click the OK button. A message is displayed, indicating that the aggregate is being deleted. Stop! End of Task. | |

SE 614-1: Moving an NE to the TOP Aggregate Level

Procedure

Perform the following steps below to move an NE out of an aggregate to the TOP level.

1. Expand the aggregate by selecting it on the Map window, clicking the right (menu) mouse button to display a pop-up menu, and choosing **Expand**.
2. Select the NE to be moved.
3. When the NE is selected, click the right (menu) mouse button to display a pop-up menu.
4. Choose **Return to TOP**.

The NE is brought to the TOP aggregate level and is taken out of the aggregate.

Enable/Disable Automatic Date/Time Synchronization

615

Background

When to use

Use this procedure to enable or disable automatic date/time synchronization. When this feature is enabled, ITM SNC automatically sets each NE's date/time to match the ITM SNC host's date/time on establishing communication with an NE for the first time or if the communications link between the ITM SNC host and the NE is down for more than 15 seconds. Automatic date/time synchronization takes into account whether the NE is set up in a different time zone than the ITM SNC host. ITM SNC also makes adjustments for Daylight Savings Time and Standard Time if the NE has the Fall Back/Spring Forward feature enabled.

Before you begin

Before you begin this task, you must decide if changes to the time zone setting must be made for the NE(s) in the network for date/time synchronization to work properly. You must also check if the Fall Back/Spring Forward feature is enabled (it is enabled, by default). To perform this task, access the Map window.

Related information

For related information, see [T 625, Modify a Network Element](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to enable or disable automatic date/time synchronization.

| Step | Action | |
|------|--|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. | |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. | |
| 3 | Select Date/Time Mgmt from the sub-menu. The Date/Time Management sub-menu is displayed. | |
| 4 | Select Automatic Date/Time Sync from the Date/Time Management sub-menu. The Automatic Date/Time Sync window is displayed. | |
| 5 | IF ... you want to enable Automatic Date/Time Synchronization you want to disable Automatic Date/Time Synchronization | THEN ... click the Enable button. click the Disable button. |
| 6 | Click the OK button. The system processes your choice. When processing is completed, the Status Dialog window is displayed, indicating the change in the automatic date/time synchronization setting. Stop! End of Task. | |

Set Drift Threshold for Date/Time Synchronization

616

Background

When to use

Use this procedure to set the drift threshold, or the maximum time difference allowed (in seconds) between the NE and the EMS host before date/time synchronization is performed automatically. The default time difference is 15 seconds.

Before you begin

Before you begin this task, be sure that you make the drift threshold setting before enabling the Automatic Date/Time Synchronization feature.

To perform this task, access the Map window.

Related information

For related information, see [T 615, Enable/Disable Automatic Date/Time Synchronization](#) and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to set a drift threshold for automatic date/time synchronization.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Date/Time Mgmt from the sub-menu. The Date/Time Management sub-menu is displayed. |
| 4 | Select Set Drift from the displayed sub-menu. The Set Date/Time Synchronization Drift Cycle window is displayed. |
| 5 | Use the up and down spinner buttons next to the NE Drift Threshold field to select a drift value, in seconds, for the time difference between the NE and the EMS host before date/time synchronization is performed automatically. |
| 6 | Click the OK button. The system processes your choice. Stop! End of Task. |

Schedule NE Date/Time Synchronization

617

Background

When to use Use this procedure to schedule date/time synchronization for an NE.

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

Related information For related information, see [T 623, Modify a Scheduled Task](#), and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to schedule date/time synchronization for an NE.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub-menu is displayed. |
| 3 | Select Date/Time Sync from the sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled date/time synchronizations. |
| 4 | Click the Add button. The Add a Scheduled Item for Date/Time Sync window is displayed. |
| 5 | Choose an NE (by TID) from the Choose an NE scroll bar list by double-clicking on the item. Use the type ahead field and/or filter/sort functions to narrow the list, if necessary. |
| 6 | Choose the following Scheduling Options, as needed: <ul style="list-style-type: none">■ Daily—click on this radio button if you want the task to be done on a daily basis.■ Weekly on...—click on this radio button if you want to task to be done on a weekly basis. If you schedule the task to be done weekly, choose the day of the week by using the spinner field list next to this option.■ Once every...—click on this radio button if you want the task to be done periodically. If you schedule the task to be done periodically, choose the frequency (every x months) and the day of the month it will be done using the spinner field lists next to this option. Click in the Last day of the month checkbox to place a check in it if the task is scheduled to be performed the last day of the month or click the Last Day of the Month checkbox.■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. |
| 7 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window. Stop! End of Task. |

Background

When to use Use this procedure to schedule a Dynamic Network Operations (DNO) database update for an NE.

Before you begin Before you begin this task, be aware that unless you are scheduling a DNO for all NE data, you can only specify a database update for one data type. The first time that a DNO is scheduled for an NE, the system does database synchronization for all data types, even if you select only one type for database synchronization.

To perform this task, access the Map window.

Related information For related information, see [T 623, Modify a Scheduled Task](#), [T 624, Delete a Scheduled Task](#), and the following Configuration Management chapter sections:

- [Dynamic Network Operations](#)
 - [Scheduling Tasks](#)
-

Instructions

Task

Complete the following steps to schedule DNO for an NE.

| Step | Action |
|-------------------------------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub-menu is displayed. |
| 3 | Select DNO from the sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled DNOs. |
| 4 | Click the Add button. The Add a Scheduled Item for DNO window is displayed. |
| 5 | Choose an NE (by TID) from the Choose an NE scroll bar list by double-clicking on the item. Use the type ahead field and/or filter/sort functions to narrow the list, if necessary. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) | |
|------|---|--|
| 6 | <p>TO SCHEDULE A DNO FOR... all data types</p> <p>a specific data type</p> <p> NOTE: The first time you perform DNO on an NE, all data types are updated, even if you select only one data type.</p> | <p>CLICK... The All Information radio button under the DNO Type portion of the window.</p> <p>Click the “Only the following...” button and then click one of the following radio buttons:</p> <ul style="list-style-type: none"> ■ Port Parameters ■ Subnetwork ■ Equipment ■ Cross-Connections ■ NE Parameters ■ Port Protection Groups <p> NOTE: One or more data type buttons may be disabled for a specific NE type.</p> |
| 7 | <p>Choose the following Scheduling Options, as needed:</p> <ul style="list-style-type: none"> ■ Weekly on...—click on this radio button if you want to task to be done on a weekly basis. If you schedule the task to be done weekly, choose the day of the week by using the spinner field list next to this option. ■ Once every...—click on this radio button if you want the task to be done periodically. If you schedule the task to be done periodically, choose the frequency (every x months) and the day of the month it will be done using the spinner field lists next to this option or click the Last Day of the Month checkbox. ■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. ■ Number of Retries—click the up and down arrows on this spinner field to specify the number of retries for the scheduled task. ■ Retry Interval—If the Number of Retries selected is greater than 1, specify the retry interval, in minutes. Click the up and down arrows on the spinner field to select the time interval. | |

| Step | Action (Continued) |
|-------------|---|
| 8 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window. Stop! End of Task. |

Background

When to use Use this procedure to schedule backup of an NE's provisioning data. You can select to perform either a Regular Backup or an Intelligent Backup. A Regular Backup backs up all NE data. An Intelligent Backup invokes the system to see if there are NE data changes since the last backup. If there are changes (resulting from either the EMS receiving an autonomous message from the NE reporting a database change or the EMS lost communications with the NE at any time since the last backup), the backup proceeds. If there are no changes to NE data since the last backup, the system does not perform the scheduled backup and an entry is made in the Activity Log indicating that the scheduled backup was not performed because the NE data is still current.

Before you begin Be aware that NE data backups are not supported for X.25-connected FLM NEs. To perform this task, access the Map window.

Related information For related information, see [T 623, Modify a Scheduled Task](#), [T 624, Delete a Scheduled Task](#), and the following Configuration Management chapter sections:

- [Software Management](#)
 - [Scheduling Tasks](#)
-

Instructions

Task

Complete the following steps to schedule an NE software backup.

| Step | Action |
|-------------------------------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub-menu is displayed. |
| 3 | Select Software Mgmt from the sub-menu. The Software Management sub-menu is displayed. |
| 4 | Select Backup from the Software Management sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled NE backups. |
| 5 | Click the Add button. The Add a Scheduled Item for Backup NE Software window is displayed. |
| 6 | Choose an NE (by TID) from the Choose an NE scroll bar list by double-clicking on the item. Use the type ahead field and/or filter/sort function to narrow the list, if necessary. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|---|
| 7 | For Backup Type, click the Regular Backup or Intelligent Backup radio button. |
| 8 | <p>Choose the following Scheduling Options, as needed:</p> <ul style="list-style-type: none"> ■ Daily—click on this radio button if you want the task to be done on a daily basis. ■ Weekly on...—click on this radio button if you want to task to be done on a weekly basis. If you schedule the task to be done weekly, choose the day of the week by using the spinner field list next to this option. ■ Once every...—click on this radio button if you want the task to be done periodically. If you schedule the task to be done periodically, choose the frequency (every x months) and the day of the month it will be done using the spinner field lists next to this option. ■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. ■ Number of Retries—click the up and down arrows on this spinner field to specify the number of retries for the scheduled task. ■ Retry Interval—If the Number of Retries selected is greater than 1, specify the retry interval, in minutes. Click the up and down arrows on the spinner field to select the time interval. |
| 9 | <p>Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window.</p> <p>Stop! End of Task.</p> |

Background

When to use

Use this procedure to schedule an NE software download.

Before you begin

Before you begin this task, make sure that the software release to be downloaded to the NE has been transferred to the ITM SNC host.

To perform this task, access the Map window.

Related information

For related information, see [T 623. Modify a Scheduled Task](#), [T 624. Delete a Scheduled Task](#), and the following Configuration Management chapter sections:

- [Software Management](#)
 - [Scheduling Tasks](#)
-

Instructions

Task

Complete the following steps to schedule an NE software download.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub--menu is displayed. |
| 3 | Select Software Mgmt from the sub-menu. The Software Management sub-menu is displayed. |
| 4 | Select Download Software to NE from the Software Management sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled NE software downloads. |
| 5 | Click the Add button. The Add a Scheduled Item for NE Software Download window is displayed. |
| 6 | Choose an NE (by TID) from the Choose an NE scroll bar list by double-clicking on the item. Use the type ahead field and/or filter sort function to narrow the list, if necessary. |
| 7 | Click the down arrow next to the Release field to display a drop-down list of available releases and select the release to download. This field is required. |
| 8 | Choose the following Scheduling options, as needed: <ul style="list-style-type: none">■ Date—click the up and down arrows on this spinner field to select the schedule date. Choose Today or the date. This field is required.■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. This field is required.■ Number of Retries—click the up and down arrows on this spinner field to specify the number of retries for the scheduled task.■ Retry Interval—if the Number of Retries selected is greater than 1, specify the retry interval, in minutes. Click the up and down arrows on the spinner field to select the time interval. |
| 9 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window. Stop! End of Task. |

Background

When to use Use this procedure to schedule an NE software copy from one NE to one or more NEs of the same type.

Before you begin Before you begin this task, be aware that software copies to multiple DDM-2000 or FiberReach NEs are not permitted.

The Software Copy function is not supported for FLM NEs.

To perform this task, access the Map window.

Related information For related information, see [T 623, Modify a Scheduled Task](#), [T 624, Delete a Scheduled Task](#), and the following Configuration Management chapter sections:

- [Software Management](#)
 - [Scheduling Tasks](#)
-

Instructions

Task

Complete the following steps to schedule an NE software copy to one or more NEs.

| Step | Action |
|------|--|
| 1 | Select Administration from main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub-menu is displayed. |
| 3 | Select Software Mgmt from the sub-menu. The Software Management sub-menu is displayed. |
| 4 | Select NE to NE Software Copy from the Software Management sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled NE software copy jobs. |
| 5 | Click the Add button. The Add a Scheduled Item for NE Software Copy window is displayed. |
| 6 | Choose the TID of the Source NE (the NE to be copied from) from the Source NE list by double-clicking on the item. Use the type ahead field and/or filter/sort function to narrow the list, if necessary. |
| 7 | Choose the TID of one or more Destination NEs (to be copied to) from the Destination NE list by double-clicking on the item. |
| 8 | Choose the following Scheduling options, as needed: <ul style="list-style-type: none">■ Date—click the up and down arrows on this spinner field to select the schedule date. Choose Today or the date. This field is required.■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. This field is required.■ Number of Retries—click the up and down arrows on this spinner field to specify the number of retries for the scheduled task.■ Retry Interval—if the Number of Retries selected is greater than 1, specify the retry interval, in minutes. Click the up and down arrows on the spinner field to select the time interval. |
| 9 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window. Stop! End of Task. |

Background

When to use Use this procedure to schedule activation of an NE's executable software. When new software is downloaded to an NE, it is placed in "standby" until it is activated; it then replaces the old software. Software activations can be scheduled for more than one NE at a time, up to the limit imposed by the ITM SNC host type.

Before you begin Before you begin this task, make sure that the software to be activated has already been downloaded to the NE.

To perform this task, access the Map window.

Related information For related information, see [T 321, Download Software Release to the NE](#), [T 620, Schedule NE Software Download](#), [T 623, Modify a Scheduled Task](#), [T 624, Delete a Scheduled Task](#), and the following Configuration Management chapter sections:

- [Software Management](#)
 - [Scheduling Tasks](#)
-

Instructions

Task Complete the following steps to schedule software activation for one or more NEs.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. A sub-menu is displayed. |
| 3 | Select Software Mgmt from the sub-menu. The Software Management sub-menu is displayed. |
| 4 | Select Activate NE Software from the Software Management sub-menu. The Schedule Manager window is displayed, showing a list of currently scheduled NE software activations. |
| 5 | Click the Add button. The Add a Scheduled Item for NE Software Activation window is displayed. The window is designed to show the current active and standby software release for each NE once this information is displayed.  NOTE: Use the scroll bar to move the window left to right to see the entire contents of the window. |
| 6 | Choose an NE (by TID) from the Choose an NE scroll bar list by positioning the mouse cursor on the item and single-clicking on it with the select (left) mouse button. |
| 7 | Click the Get Standby Release button to display the standby (currently inactive) release for the NE. |

| Step | Action (Continued) |
|------|---|
| 8 | After displaying the standby release, single-click on the NE (by TID) again in the scroll list. |
| 9 | <p>Coose the following Scheduling options, as needed:</p> <ul style="list-style-type: none"> ■ Date—click the up and down arrows on this spinner field to select the schedule date. Choose Today or the date. This field is required. ■ Schedule Time—click the up and down arrows on this spinner field to select the time of day for the scheduled task. The schedule time is in 24-hour format, in hours:minutes. This field is required. ■ Number of Retries—click the up and down arrows on this spinner field to specify the number of retries for the scheduled task. ■ Retry Interval—if the Number of Retries selected is greater than 1, specify the retry interval, in minutes. Click the up and down arrows on the spinner field to select the time interval. |
| 10 | <p>Click the Apply button to activate your choices, or click the OK button to activate your choices and close the window.</p> <p>The Status Dialog window is displayed, indicating that the task schedule request has been processed. Click the Close button to close the status window.</p> <p>Stop! End of Task.</p> |

Modify a Scheduled Task

623

Background

When to use Use this procedure to change the parameters of a task for any function that can be scheduled (DNO, NE Date/Time Synchronization).

Before you begin Before you begin this task, be aware that you cannot modify a scheduled task that is already in progress. You cannot modify another user's scheduled tasks unless you are the system administrator or have a privileged login.

To perform this task, access the Map window.

Related information For related information, see the Series 600 tasks related to scheduling tasks and the following sections in the document:

- [Dynamic Network Operations](#)
 - [Date/Time Synchronization](#)
 - [Scheduling Tasks](#)
-

Instructions

Task

Complete the following steps to modify a scheduled task.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. The Schedule sub-menu is displayed. |
| 3 | Select the function of the task to be modified (DNO, Date/Time Sync).. The Scheduler Manager window for the selected function is displayed, showing a list of currently scheduled tasks. |
| 4 | Select a task from the list to be modified. |
| 5 | Click the Modify button. The appropriate Modify a Scheduled Item window is displayed. |
| 6 | Make modifications to the information. |
| 7 | Click the Apply button to apply the changes or click the OK button to apply the changes and close the window. Stop! End of Task. |

Background

When to use Use this procedure to delete a scheduled task for any function that can be scheduled (DNO, NE Date/Time Synchronization).

Before you begin Before you begin this task, be aware that you cannot delete any scheduled NE software backup or DNO that is already in progress. You cannot delete another user's scheduled tasks unless you are the system administrator or have a privileged login.

To perform this task, access the Map window.

Related information For related information, see the Series 600 scheduling -related tasks and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to delete a scheduled task.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Schedule from the Administration menu. The Schedule sub-menu is displayed. |
| 3 | Select the function of the task to be deleted. To select one of the Software Management scheduled tasks, choose Software Mgmt from the sub-menu, and then select the appropriate Software Management function (Backup NE Software, Download Software to NE, NE to NE Software Copy, Activate NE Software). The Scheduler Manager window for the selected function is displayed, showing a list of currently scheduled tasks. |
| 4 | Choose the item to be deleted, which is identified by TID, from the list. |
| 5 | Click the Delete button. |
| 6 | A Status Dialog window is displayed, indicating that the selected item is being deleted from the schedule. Stop! End of Task. |

Background

When to use

Use this procedure to modify an NE. This procedure applies to both X.25-connected and OSI-connected NEs.

Before you begin

Before you begin this task, be aware that the TID and Communicate Via fields cannot be modified.

To perform this task, access the Map window.

Related information

For related information, see [T 502, Add a User](#), [T 600, Add a Network Element—X.25 Communications](#); [T 601, Add a Network Element—OSI Communications](#); [T 602, Add a Gateway Network Element](#); and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to modify an NE.

| Step | Action |
|------|---|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Network Elements from the sub-menu. The Network Element Manager window is displayed, showing the current list of NEs in your Target Group. |
| 4 | Choose the NE to be modified. |
| 5 | Click on the Modify NE button. The Add/Modify a Network Element - General Information panel is displayed. |
| 6 | Click on the tab of the appropriate panel, and change the NE field(s), as needed. |
| 7 | Click the Apply button to activate your choices, or click the OK button to activate your choices and close the Add/Modify a Network Element window. For X.25-connected GNEs, a pop-up window is displayed, asking if you want to perform DNO at this time. Choose Yes to perform DNO or choose No to not perform DNO at this time. A message in the status bar is displayed, indicating that the NE is being modified. Stop! End of Task. |

Delete a Network Element

626

Background

When to use

Use this procedure to delete an NE. This procedure applies to X.25-connected NEs and OSI-connected NEs.

Before you begin

Before you begin this task, make sure that if the NE is assigned to an aggregate, that you remove it from the aggregate before deleting it. If you delete a GNE, you must first delete all of the RNEs that communicate with ITM SNC through the GNE. When an NE is deleted, all information related to that NE is immediately removed from the ITM SNC database. Associated trails may also be deleted. Any trail that is deleted as a result of deleting an NE is also removed from any open window that shows the deleted trail (like the Map window pane and the Trail Manager). To perform this task, access the Map window.

**Related
information**

For related information, see [T 600, Add a Network Element—X.25 Communications](#); [T 601, Add a Network Element—OSI Communications](#); [T 602, Add a Gateway Network Element](#); [T 625, Modify a Network Element](#); and [Chapter 7, Administration](#).

Instructions

Task

Complete the following steps to delete an NE.

| Step | Action |
|------|--|
| 1 | Select Administration from the main menu bar on the Map window. The Administration menu is displayed. |
| 2 | Select Network from the Administration menu. A sub-menu is displayed. |
| 3 | Select Network Elements from the sub-menu. The Network Element Manager window is displayed, showing the current list of NEs in your Target Group. |
| 4 | Choose the NE to be deleted. |
| 5 | Click on the Delete NE button. |
| 6 | Click the OK button. A pop-up window is displayed, asking if you really want to delete the chosen NE. |
| 7 | Choose Yes. A message in the status bar is displayed, indicating that the NE is being deleted. Stop! End of Task. |

Task Series 700

ITM SNC Logs

Display and Use the Network Alarm/ Event Log

700

Background

When to use

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

Related information

For related information, see [Chapter 8. System Logs](#) .

Instructions

Task

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

| Step | Action |
|-------------------------------|--|
| 1 | Select Logs from the main menu bar on the Map window. This displays the sub-menu. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|--|
| 2 | Select Network Alarm/Event from the displayed sub-menu. This displays the viewing parameters window for the Alarm/Event Log. |
| 3 | <p>On the viewing parameters window, select the parameters for which you want to display Alarm/Event Log data:</p> <ul style="list-style-type: none"> ■ Use the up and down arrows on the Start Date & Time and End Date & Time spinner fields to adjust the entries in these fields. Network Alarm/Event data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) ■ To choose to view data related only to selected network elements or only to selected Aggregates, select the Network Elements or the Aggregates radio button (to the right of Choose from a list of:), respectively. If you select the Network Element radio button, then a list of NEs appears just below and to the left of the radio button. If you select the Aggregate radio button, then a list of aggregates appears instead of NEs. After selecting one of these two radio buttons, you can use the right arrow button (>) between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side “Chosen” list area. The NEs or aggregates you move into this “Chosen” list will be the NEs or aggregates for which later you will be viewing Alarm/Event Log data. ■ Use the Alarms and Events checkboxes near the lower left of the viewing parameters window to request both alarm and event information or just one of the two. Clicking these checkboxes toggles between placing a check (include this data) and removing the check (do <i>not</i> include this data). ■ Select from the Alarm record options and/or Event record options lists to further specify the type of data you want to display. |
| 4 | <p>After you have finished specifying parameters on the viewing parameters window, click the OK button. This closes the window and displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file.</p> <p>Stop! End of Task.</p> |

Display and Use the Network Notifications Log

701

Background

When to use

Use this procedure to display the Network Notifications Log, and to use this log to view and save important system-compiled network notifications information.

Related information

For related information, see [Chapter 8. System Logs](#) .

Instructions

Task

Complete the following steps to use the Network Notifications Log.

| Step | Action |
|-------------------------------|--|
| 1 | Select Logs from the main menu bar on the Map window. This displays a sub-menu. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|---|
| 2 | Select Network Notifications Log from the displayed sub-menu. This displays the viewing parameters window for the Network Notifications Log. |
| 3 | <p>On the viewing parameters window, select the parameters for which you want to display Network Notifications Log data:</p> <ul style="list-style-type: none"> ■ Use the up and down arrows on the Start Date & Time and End Date & Time spinner fields to adjust the entries in these fields. Network Notifications data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) ■ To choose to view data related only to selected network elements or only to selected Aggregates, select the Network Elements or the Aggregates radio button (to the right of Choose from a list of:), respectively. If you select the Network Element radio button, then a list of NEs appears just below and to the left of the radio button. If you select the Aggregate radio button, then a list of aggregates appears instead of NEs. After selecting one of these two radio buttons, you can use the right arrow button (➤) between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side “Chosen” list area. The NEs or aggregates you move into this “Chosen” list will be the NEs or aggregates for which later you will be viewing Network Notifications Log data. ■ Use the Show these types of log records: field near the lower part of the viewing parameters window to further specify the type of data wanted. |
| 4 | <p>After you have finished specifying parameters on the viewing parameters window, click the OK button. This closes the window and displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file.</p> <p>Stop! End of Task.</p> |

Display and Use the Network Command/Response Log

702

Background

When to use

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

Related information

For related information, see [Chapter 8, System Logs](#) .

Instructions

Task

Complete the following steps to use the Network Command/Response Log.

| Step | Action |
|-------------------------------|--|
| 1 | Select Logs from the main menu bar on the Map window. This displays a sub-menu. |
| <i>Continued on next page</i> | |

| Step | Action (Continued) |
|------|--|
| 2 | <p>Select Network Command/Response from the displayed sub-menu. This displays the viewing parameters window for the Network Command/Response Log.</p> |
| 3 | <p>On the viewing parameters window, select the parameters for which you want to display Network Command/Response Log data:</p> <ul style="list-style-type: none"> ■ Use the up and down arrows on the Start Date & Time and End Date & Time spinner fields to adjust the entries in these fields. Network Command/Response data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) ■ To choose to view data related only to selected network elements or only to selected Aggregates, select the Network Elements or the Aggregates radio button (to the right of Choose from a list of:), respectively. If you select the Network Element radio button, then a list of NEs appears just below and to the left of the radio button. If you select the Aggregate radio button, then a list of aggregates appears instead of NEs. After selecting one of these two radio buttons, you can use the arrow button (➤) between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side “Chosen” list area. The NEs or aggregates you move into this “Chosen” list will be the NEs or aggregates for which later you will be viewing Network Command/Response Log data. ■ If you belong to a command group that allows you to view other user’s command/response log records (check with your system administrator), then you can click on the More Options button to display an additional viewing parameters window. Click More Options, and then use this additional window to select the users and log record sources you want to include in your viewing parameters. In both cases, select the desired parameters by clicking on them in the left list, and using the right arrow symbol button (➤) to move the selections to the “Chosen” list. (The current user’s username appears in the “Chosen” list by default.) |
| 4 | <p>After you have finished specifying parameters on one or both of the viewing parameters windows, click the OK button. This displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log record or save them to a file.</p> <p>Stop! End of Task.</p> |

**Display and Use the EMS
Alarm Log**

703

Background

When to use

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

Related information

For related information, see [Chapter 8. System Logs](#) .

Instructions

Task

Complete the following steps to use the Alarm Log.

| Step | Action |
|------|---|
| 1 | Select Logs from the main menu bar on the Map window. This displays a sub-menu. |
| 2 | Select Alarms from the displayed sub-menu. This displays the viewing parameters window for the EMS Alarm Log. |
| 3 | On the viewing parameters window, select the time and date parameters for which you want to display EMS Alarm Log data: <ul style="list-style-type: none">■ Use the up and down arrows on the Start Date & Time and End Date & Time spinner fields to adjust the entries in these fields. Alarm data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) |
| 4 | After you have finished specifying parameters on the viewing parameters window, click the OK button. This closes the window and displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file. Stop! End of Task. |

Background

When to use

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

Related information

For related information, see [Chapter 8. System Logs](#).

Instructions

Task

Complete the following steps to use the Activity Log.

| Step | Action |
|------|---|
| 1 | Select Logs from the main menu bar on the Map window. This displays a sub-menu. |
| 2 | Select Activity from the displayed sub-menu. This displays the viewing parameters window for the EMS Activity Log. |
| 3 | <p>On the viewing parameters window, select the parameters for which you want to display Activity Log data:</p> <ul style="list-style-type: none">■ Use the up and down arrows on the Start Date & Time and End Date & Time spinner fields to adjust the entries in these fields. Activity data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.)■ To choose to view data related only to a selected user(s), you can use the arrow button (>) between the left and right list areas to move a selected user(s) into the right side "Chosen" list area. The user(s) you move into this "Chosen" list will be the user(s) for which you will be viewing Activity data.■ You can choose the activity criteria you want to include in your viewing parameters by using the scroll down list to select All Activities, Only Completed Activities, or Only Failed Activities.■ Select the desired activities from the Available Activities list by clicking to highlight the desired activities in the left list, and using the right arrow symbol button (>) to move the selections to the "Chosen" list. |
| 4 | <p>After you have finished specifying parameters on the parameters windows, click the OK button. This displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file.</p> <p>Stop! End of Task.</p> |

Glossary

Glossary

Numerics

0×1 Line Operation

0×1 means unprotected operation. The connection between network elements has one bidirectional line (no protection line).

1+1 Line Protection

A protection architecture in which the transmitting equipment transmits a valid signal on both the working and protection lines. The receiving equipment monitors both lines. Based on performance criteria and OS control, the receiving equipment chooses one line as the active line and designates the other as the standby line.

1×N Equipment Protection

1×N protection pertains to N number of circuit pack/port units protected by one circuit pack or port unit. When a protection switch occurs, the working signals are routed from the failed pack to the protection pack. When the fault clears, the signals revert to the working port unit.

1×N Multi-Cast Cross-Connection

Consists of N one-way cross-connections from an input tributary to N output tributaries. 1:N Multi-cast (for N>2) is most commonly associated with providing video services.

A

Absent (ABS)

Used to indicate that a given circuit pack is not installed.

Access Identifier (AID)

A technical specification for explicitly naming entities (both physical and logical) of an NE using a grammar comprised of ascii text, keywords, and grammar rules.

Active (ACT)

Used to indicate that a circuit pack or module is in-service and currently providing service functions.

Active Path

The path that is currently carrying the service in a circuit that is protected at the path level.

Add/Drop Multiplexer (ADM)

The term for a synchronous network element capable of combining signals of different rates and having those signals added to or dropped from the stream.

Aggregate

A user-defined grouping of NEs. It most commonly consists of NEs located in a central office (CO) and the subnetworks to which they belong.

Alarm

Visible or audible signal indicating that an equipment failure or significant event/condition has occurred.

Alarm Correlation

The search for a directly-reported alarm that can account for a given symptomatic condition.

Alarm Cut-Off (ACO)

A button on the user panel used to silence audible alarms.

Alarm Cut-Off and Test (ACO/TST)

The name of a pushbutton on the user panel used to silence audible alarms.

Alarm Indication Signal (AIS)

A code transmitted downstream in a digital network that indicates that an upstream failure has been detected and alarmed if the upstream alarm has not been suppressed.

Alarm Severity

An attribute defining the priority of the alarm message. The way alarms are processed depends on the severity.

Alarm Suppression

Selective removal of alarm messages from being forwarded to the GUI or to network management layer OSs.

Alarm Throttling

A feature that automatically or manually suppresses autonomous messages that are not priority alarms.

Alternate Mark Inversion (AMI)

A line code that employs a ternary signal to convert binary digits, in which successive binary ones are represented by signal elements that are normally of alternative positive and negative polarity but equal in amplitude and in which binary zeros are represented by signal elements that have zero amplitude.

American Standard Code for Information Interchange (ASCII)

A standard 7-bit code that represents letters, numbers, punctuation marks, and special characters in the interchange of data among computing and communications equipment.

Association

A logical connection between manager and agent through which management information can be exchanged.

Asynchronous

The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.

Asynchronous Transfer Mode (ATM)

A high-speed transmission technology characterized by high bandwidth and low delay. It utilizes a packet switching and multiplexing technique which allocates bandwidth on demand.

Attribute

Alarm indication level: critical, major, minor, or no alarm.

Autolock

Action taken by the system in the event of circuit pack failure/trouble. System switches to protection and prevents a return to the working circuit pack even if the trouble clears. Multiple protection switches on a circuit pack during a short period of time cause the system to autolock the pack.

Automatic (AUTO)

One possible state of a port or slot. When a port is in the AUTO state and a good signal is detected, the port automatically enters the IS (in-service) state. When a slot is in the AUTO state and a circuit pack is detected, the slot automatically enters the EQ (equipped) state.

Automatic Protection Switch

A protection switch that occurs automatically in response to an automatically detected fault condition.

Autonomous Message

A message transmitted from the controlled Network Element to the ITM-SC which was not a response to an ITM-SC originated command.

B

Backup

The backup and restoration features provide the capability to recover from loss of NE data because of such factors as human error, power failure, NE design flaws, and software bugs.

Bandwidth

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

Baud Rate

Transmission rate of data (bits per second) on a network link.

Bidirectional Line

A transmission path consisting of two fibers that handle traffic in both the transmit and receive directions.

Bidirectional Line-Switched Ring (BLSR)

A bidirectional ring in which protection switching is accomplished by switching working traffic into protection time slots in the line going 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 network elements (although in opposite directions).

Bidirectional Switch

Protection switching performed in both the transmit and receive directions.

Bipolar 3-Zero Substitution (B3ZS)

A line coding technique that replaces three consecutive zeros with a bit sequence having special characteristics accomplishing two objectives: First, this bit sequence accommodates the ones density requirements for digital T3 carrier; Second, the sequence is recognizable at the destination (due to deliberate bipolar violations) and is removed to produce the original signal.

Bipolar 8-Zero Substitution (B8ZS)

A line coding technique that replaces eight consecutive zeros with a bit sequence having special characteristics accomplishing two objectives: First, this bit sequence accommodates the ones density requirements for digital T1 carrier; Second, the sequence is recognizable at the destination (due to deliberate bipolar violations) and is removed to produce the original signal.

Bit

The smallest unit of information in a computer, with a value of either 0 or 1.

Bit Error Rate (BER)

The ratio of error bits received to the total number of bits transmitted.

Bit Error Rate Threshold

The point at which an alarm is issued for bit errors.

Bit Interleaved Parity-N(BIP-N)

A method of error monitoring over a specified number of bits (BIP-3 or BIP-8).

Blank (BLK)

The status of a circuit pack slot that contains a bus extender (blank) circuit pack.

Board Controller Local Area Network (BCLAN)

The internal local area network that provides communications between the line and board controllers on the circuit packs associated with a high-speed line.

Bridge Cross-Connection

The setting up of a cross-connection leg with the same input tributary as that of an existing cross-connection leg. Thus, forming a 1:2 bridge from an input tributary to two output tributaries.

Broadband Communications

Voice, data, and/or video communications at greater than 2 Mb/s rates.

Building Integrated Timing Supply (BITS)

A single clock that provides all the DS1 and/or composite clock timing reference to all other clocks in that building.

Byte

Refers to a group of eight consecutive binary digits.

C

C-Bit

A framing format used for DS3 signals produced by multiplexing 28 DS1s into a DS3. This format provides for enhanced performance monitoring of both near-end and far-end entities.

Cell Relay

Fixed length cells. For example, ATM with 53 octets.

Central Office (CO)

A building where common carriers terminate customer circuits.

Channel

A sub-unit of transmission capacity within a defined higher level of transmission capacity.

Channel State Provisioning

A feature that allows a user to suppress reporting of alarms and events during provisioning by supporting multiple states (automatic, in-service, and not monitored) for VT1.5 and STS-1 channels.

Circuit

A set of transmission channels through one or more network elements that provides transmission of signals between two points, to support a single communications path.

Clear Channel (CC)

A digital circuit where no framing or control bits are required, thus making the full bandwidth available for communications.

Closed Ring Network

A network formed of a ring-shaped configuration of network elements. Each network element connects to two others, one on each side.

Coding Violation (CV)

A performance monitoring parameter indicating bipolar violations of the signal have occurred.

Collocated

System elements that are located in the same location.

Command Group

An administrator-defined group that defines commands to which a user has access.

Concatenation

A procedure whereby multiple virtual containers are associated one with each other resulting in a combined capacity that can be used as a single container across which bit sequence integrity is maintained.

Consultative Committee for the International Telephone and Telegraph (CCITT)

International Telephone and Telegraph Consultative Committee — An international advisory committee under United Nations' sponsorship that has composed and recommended for adoption worldwide standards for international communications. Recently changed to the International Telecommunications Union Telecommunications Standards Sector (ITU-TSS).

Co-Resident

A hardware configuration where two applications can be active at the same time independently on the same hardware and software platform without interfering with each others functioning.

Correlation

A process where related hard failure alarms are identified.

Craft Interface Terminal (CIT)

The user interface terminal used by craft personnel to communicate with a network element.

Critical (CR)

Alarm that indicates a severe, service-affecting condition.

Cross-Connection

Path-level connections between input and output tributaries or specific ports within a single NE. Cross-connections are made in a consistent way even though there are various types of ports and various types of port protection. Cross-Connections are reconfigurable interconnections between tributaries of transmission interfaces.

Crosstalk

An unwanted signal introduced into one transmission line from another.

Current Value

The value currently assigned to a provisionable parameter.

Cut-Through

A capability that allows a user to utilize a network element's native command set (CIT or TL1 as appropriate) to communicate with network elements in the ITM SNC domain.

D

Data

A collection of system parameters and their associated values.

Database Administrator

A user who administers the database of the application.

Data Communications Channel (DCC)

The embedded overhead communications channel in the synchronous line, used for end-to-end communications and maintenance. The DCC carries alarm, control, and status information between network elements in a synchronous network.

Data Communications Equipment (DCE)

The equipment that provides signal conversion and coding between the data terminating equipment (DTE) and the line. The DCE may be separate equipment or an integral part of the DTE or of intermediate equipment. A DCE may perform other functions usually performed at the network end of the line.

Data Terminating Equipment (DTE)

The equipment that originates data for transmission and accepts transmitted data.

DDM-1000

Lucent Technologies' Dual DS3 Multiplexer — A digital multiplexer that multiplexes DS1, DS1C, or DS2 signals into a DS3 signal or a 90 Mb/s or 180 Mb/s optical signal.

DDM-2000

Lucent Technologies SONET-ready network multiplexer that can function as a lightwave terminal. It is designed primarily for loop feeder and interoffice applications that work in existing asynchronous as well as the emerging SONET networks. Multiplexers that multiplex DS1, DS3, or EC-1 inputs into EC-1, OC-1, OC-3, or OC-12 outputs.

Default

An operation or value that the system or application assumes, unless a user makes an explicit choice.

Default Provisioning

The parameter values that are preprogrammed as shipped from the factory.

Defect

A limited interruption of the ability of an item to perform a required function. It may or may not lead to maintenance action depending on the results of additional analysis.

Demultiplexer

A device that splits a combined signal into individual signals at the receiver end of transmission.

Demultiplexing

A process applied to a multiplexed signal for recovering signals combined within it and for restoring the distinct individual channels of these signals.

Dense Wavelength Division Multiplexing (DWDM)

Transmitting two or more signals of different wavelengths simultaneously over a single fiber.

Deprovisioning

The inverse order of provisioning. To manually remove/delete a parameter that has (or parameters that have) previously been provisioned.

Digital Cross-Connect Panel (DSX)

A panel designed to interconnect equipment that operates at a designated rate. For example, a DSX-3 interconnects equipment operating at the DS3 rate.

Digital Multiplexer

Equipment that combines by time-division multiplexing several digital signals into a single composite digital signal.

Digital Signal Levels 0, 1, 3 (DS0, DS1, DS3)

An ANSI-defined signal or service level corresponding to the following: DS0 is 64 Kb/s, DS1 is 1.544 Mb/s (equivalent to T1), and DS3 is 44.736 Mb/s (equivalent to 28 T1 channels or T3).

Directory Service Network Element (DSNE)

A designated network element that is responsible for administering a database that maps network element names (TIDs) to addresses [NSAPs (network service access points)] in an OSI subnetwork. There can be one DSNE per ring. A DSNE can also be a GNE.

Dispersion

Time-broadening of a transmitted light pulse.

Dispersion Shifted Optical Fiber

1330/1550 nm minimum dispersion wavelength.

Divergence

When there is unequal amplification of incoming wavelengths, the result is a power divergence between wavelengths.

Doping

The addition of impurities to a substance in order to attain desired properties.

Downstream

At or towards the destination of the considered transmission stream, for example, looking in the same direction of transmission.

Drop and Continue

A circuit configuration that provides redundant signal appearances at the outputs of two network elements in a ring. Can be used for Dual Ring Interworking (DRI) and for video distribution applications.

Drop-Down Menu

A menu that is displayed from a menu bar.

DS1 Signal

Signal with a data rate of 1.544 Mb/s.

DS3 Format

Specifies the line format of a DS3 interface port, such as M13 or C-bit parity.

DS3 Idle Signal

A signal that can be applied to any output port that is not cross-connected to an input port. This signal lets downstream network elements know that the facility is operating normally even though it is not sending a normal DS3 signal.

DS3 Signal

A logical or electrical B3ZS signal with a data rate of 44.736 Mb/s.

DSX-1, 2, 3

Digital cross-connect used to interconnect equipment, provide patch capability, and provide test access at the DS1, DS2, or DS3 level.

Dual Ring Interworking (DRI)

A topology in which two rings are interconnected at two nodes on each ring and operate so that inter-ring traffic is not lost in the event of a node or link failure at an interconnecting point.

E

Electrical Carrier, Level 1 (EC-1)

An electrical interface signal at the SONET rate of STS-1.

Electromagnetic Compatibility (EMC)

A measure of equipment tolerance to external electromagnetic fields.

Electromagnetic Interference (EMI)

High-energy, electrically induced magnetic fields that cause data corruption in cables passing through the fields.

Electronic Industries Association (EIA)

A trade association of the electronic industry that establishes electrical and functional standards.

Electrostatic Discharge (ESD)

Static electrical energy potentially harmful to circuit packs and humans.

Entity

A specific piece of hardware (usually a circuit pack, slot, or module) that has been assigned a name recognized by the system.

Entity Identifier

The name used by the system to refer to a circuit pack, memory device, or communications link.

Equipped (EQ)

Status of a circuit pack or interface module that is in the system database and physically in the frame, but not yet provisioned.

Erbium

A soft rare earth element used in metallurgy and nuclear research.

Erbium Doped Fiber Amplifier (EDFA)

An amplifier that performs by having a light signal pass through a section of erbium-doped fiber and using the laser pump diode to amplify the signal.

Errored Seconds (ES)

A performance monitoring parameter. ES "type A" is a second with exactly one error; ES "type B" is a second with more than one and less than the number of errors in a severely errored second for the given signal. ES by itself means the sum of the type A and type B ESs.

Establish

A user initiated command, at the WaveStar CIT, to create an entity and its associated attributes in the absence of certain hardware.

Event

A significant change. Events in controlled Network Elements include signal failures, equipment failures, signals exceeding thresholds, and protection switch activity. When an event occurs in a controlled Network Element, the controlled Network Element will generate an alarm or status message and send it to the management system.

Event Driven

A required characteristic of network element software system: NEs are reactive systems, primarily viewed as systems that wait for and then handle events. Events are provided by the external interface packages, the hardware resource packages, and also by the software itself.

Externally Timed

An operating condition of a clock in which it is locked to an external reference and is using time constants that are altered to quickly bring the local oscillator's frequency into approximate agreement with the synchronization reference frequency.

Extra traffic

Unprotected traffic that is carried over protection channels when their capacity is not used for the protection of working traffic.

F

Facility

A one- or two-way circuit that carries a transmission signal.

Failures in Time (FIT)

Circuit pack failure rates per 10^9 hours as calculated using the method described in *Reliability Prediction Procedure for Electronic Equipment*, BellCore Method I, Issue 5, September 1995.

Far End (FE)

Any other network element in a maintenance subnetwork other than the one the user is at or working on. Also called remote.

Far-End Block Error (FEBE)

An indication returned to the transmitting node that an errored block has been detected at the receiving node. A block is a specified grouping of bits.

Far-End Receive Failure (FERF)

An indication returned to a transmitting Network Element that the receiving Network Element has detected an incoming section failure. Also known as RDI.

Fault

Term used when a circuit pack has a hard (not temporary) fault and cannot perform its normal function.

Fault Management

Collecting, processing, and forwarding of autonomous messages from network elements.

Fiber Distributed Data Interface (FDDI)

Fiber interface that connects computers and distributes data among them.

Flash EPROM

A technology that combines the nonvolatility of EPROM with the in-circuit reprogrammability of EEPROM (electrically-erasable PROM).

Folded Rings

Folded (collapsed) rings are rings without fiber diversity. The terminology derives from the image of folding a ring into a linear segment.

Forced

Term used when a circuit pack (either working or protection) has been locked into a service-providing state by user command.

Frame

The smallest block of digital data being transmitted.

Frame Relay (FR)

A form of packet switching that relies on high-quality phone lines to minimize errors. It is very good at handling high-speed, bursty data over wide area networks. The frames are variable lengths and error checking is done at the end points.

Framework

An assembly of equipment units capable of housing shelves, such as a bay framework.

Free Running

An operating condition of a clock in which its local oscillator is not locked to an internal synchronization reference and is using no storage techniques to sustain its accuracy.

FT-2000 ADR

Lucent Technologies' OC-48 rate Add/Drop Rings lightwave Terminal for 2-fiber BLSRs. It is designed primarily for interoffice applications. It supports adds, drop, and through connections for DS3/EC-1, OC-3, IS-3, and OC-12.

G

Gateway Network Element (GNE)

A network element that passes information between other network elements and management systems through a data communication network.

Gateway Network Element (GNE)

A Network Element that provides a means of communication between an OS and remote Network Elements over the SONET DCC.

In a primary/secondary GNE pair:

The active GNE is the GNE (primary or secondary) that is currently serving as the GNE for the subnetwork.

The primary GNE is the first GNE associated with a subnetwork that initially serves as the GNE for the subnetwork.

The secondary GNE is the second GNE that is associated with the primary GNE for a subnetwork, and can take over communications in the event there is a failure in the communications via the primary GNE.

The standby GNE is the GNE (primary or secondary) that is currently serving as the backup GNE for the subnetwork in the event there is a failure in communications via the active GNE.

H

Hard Failure

An unrecoverable nonsymptomatic (primary) failure that causes signal impairment or interferes with critical network functions, such as DCC operation.

High Level Data Link Control (HDLC)

OSI reference model datalink layer protocol.

Holdover

An operating condition of a clock in which its local oscillator is not locked to an external reference but is using storage techniques to maintain its accuracy with respect to the last known frequency comparison with a synchronization reference.

Host

The host is an HP 9000/800 series platform running HP-UX.

Hot Standby

A circuit pack ready for fast, automatic placement into operation to replace an active circuit pack. It has the same signal as the service going through it, so that choice is all that is required.

Human Machine Language (MML)

A standard language developed by the ITU for describing the interaction between humans and dumb terminals.

I

Idle

An output port not cross-connected to an input port.

Idle Code

A signal transmitted downstream automatically from an idle output port. It can also be transmitted downstream by a manual command from a cross-connected output port.

Insert

To physically insert a circuit pack into a slot, thus causing a system initiated restoral of an entity into service and/or creation of an entity and associated attributes.

In-Service (IS)

A memory administrative state for ports. IS refers to a port that is fully monitored and alarmed.

Integrated Transport Management Network Module (ITM NM)

Lucent Technologies' integrated network management system that provides a broad end-to-end view of the SONET network.

Integrated Transport Management SubNetwork Controller (ITM SNC)

Lucent Technologies' SONET element management layer system that provides fault, configuration, and security functions through the use of a GUI.

Intelligent Alarm Filtering

The filtering of symptomatic alarms and events that are associated with a reported root-cause or symptomatic condition.

Interconnect Signal-3 (IS-3)

The logical equivalent to an OC-3 signal that uses a proprietary interface that allows short-range operation at a lower cost than an OC-3.

Interface Capacity

The total number of STS-1 equivalents (bidirectional) tributaries in all transmission interfaces with which a given transmission interface shelf can be equipped at one time. The interface capacity varies with equipage.

InterLATA

Circuits that cross outside the LATA and to an interexchange carrier.

IntraLATA

Circuits with both end-points within the LATA.

J

Jitter

Short term variations of amplitude and frequency components of a digital signal from their ideal position in time.

L

Lead Time

The time interval between placement of a product order and receipt of the product.

Lightguide Build-Out (LBO)

An attenuating (signal-reducing) element used to keep an optical output signal strength within desired limits.

Line

A transmission medium, together with the associated equipment, required to provide the means of transporting information between two consecutive network elements. One network element originates the line signal; the other terminates it.

Line Build Out (LBO)

An equalizer network that guarantees the proper signal level and shape at the DSX panel.

Line Controller Local Area Network (LCLAN)

The internal local area network that provides communications between the controlled circuit packs.

Line Protection

The optical interfaces can be protected by line protection. Line protection switching protects against failures of line facilities, including the interfaces at both ends of a line, the optical fibers, and any equipment between the two ends. Line protection includes protection of equipment failures.

Line Timing

Refers to a network element that derives its timing from an incoming OC-N signal.

Link

The mapping between in-ports and out-ports. It specifies how components are connected to one another.

Literal Character

A letter, digit, or symbol that is entered in a command. The first hyphen in UNIT-{1-64} is a literal character; the braces and the second hyphen are not literal characters.

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.

Location

An identifier for a specific circuit pack, interface module, interface port, or communications link.

Lockout of Protection

The WaveStar CIT command that prevents the system from switching traffic to the protection line from a working line. If the protection line is active when a "Lockout of Protection" is entered – this command causes the working line to be selected. The protection line is then locked from any Automatic, Manual, or Forced protection switches.

Lockout State

The Lockout State shall be defined for each working or protection circuit pack. The two permitted states are: None – meaning no lockout is set for the circuit pack, set meaning the circuit pack has been locked out. The values (None & Set) shall be taken independently for each working or protection circuit pack.

Loopback

Type of diagnostic test used to compare an original transmitted signal with the resulting received signal. A loopback is established when the received optical or electrical external transmission signal is sent from a port or tributary input directly back toward the output.

Loop Timing

A special case of line timing. It applies to network elements that have only one OC-N/STM-N interface. For example, terminating nodes in a linear network are loop timed.

Loss Budget

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

Loss of Frame (LOF)

A failure to synchronize to an incoming signal.

Loss of Pointer (LOP)

A failure to extract good data from a signal payload.

Loss of Signal (LOS)

The complete absence of an incoming signal.

M

M23-Format

A standard framing format used for DS3 signals produced by multiplexing 28 DS1s into a DS3 (sometimes referred to as M13 format, without C-bit parity).

Major

Indicates a service-affecting failure, main or unit controller failure, or power supply failure.

Maintenance Condition

An equipment state in which some normal service functions are suspended, either because of a problem or to perform special functions (copy memory) that can not be performed while normal service is being provided.

Manual Switch State

A protection group shall enter the Manual Switch State upon the initiation and successful completion of the Manual Switch command. The protection group leaves the Manual Switch state by means of the Clear or Forced Switch commands. While in the Manual Switch state the system may switch the active unit automatically if required for protection switching.

Mapping

The logical association of one set of values, such as addresses on one network, with quantities or values of another set, such as devices or addresses on another network.

Mediation Device (MD)

Allows for exchange of management information between Operations System and Network Elements.

Mid-Span Meet

The capability to interface between two lightwave network elements of different vendors. This applies to high-speed optical interfaces.

Minor (MN)

Indicates a non-service-affecting failure of equipment or facility.

Miscellaneous Discrete Interface

Allows an operations system to control and monitor equipment collocated within a set of input and output contact closures.

Multiplexer

A device (circuit pack) that combines two or more transmission signals into a combined signal on a shared medium.

Multiplexing

The process of combining multiple signals into a larger signal at the transmitter by a multiplexer. The large signal is then split into the original smaller signals at the receiver by a demultiplexer.

N

Network Element (NE)

A node in a telecommunication network that supports network transport services and is directly manageable by a management system.

Network Monitoring and Analysis (NMA)

An operations system designed by Bellcore which is used to monitor network facilities.

Network Service Access Point (NSAP) Address

Network Service Access Point Address (used in the OSI network layer 3). An automatically assigned number that uniquely identifies a Network Element for the purposes of routing DCC messages.

Node

A network element in a ring or, more generally, in any type of network. In a network element supporting interfaces to more than one ring, node refers to an interface that is in a particular ring. Node is also defined as all equipment that is controlled by one system controller. A node is not always directly manageable by a management system.

Non-Preemptible Protection Access (NPPA)

Non-preemptible protection access increases the available span capacity for traffic which does not require protection by a ring, but which cannot be preempted.

Non-Revertive Switching

In non-revertive switching, an active and stand-by line exist on the network. When a protection switch occurs, the standby line is selected to support traffic, thereby becoming the active line. The original active line then becomes the stand-by line. This status remains in effect even when the fault clears. That is, there is no automatic switch back to the original status.

Non-Volatile Memory (NVM)

Memory that retains its stored data after power has been removed. An example of NVM would be a hard disk.

No Request State

This is the routine-operation quiet state in which no external command activities are occurring.

Not Monitored (NMON)

A provisioning state for equipment that is not monitored or alarmed.

O

Open Ring Network

A network formed of a linear chain-shaped configuration of network elements. Each network element connects to two others, one on each side, except for two network elements at the ends which are connected on only one side. A closed ring can be formed by adding a connection between the two end nodes.

Open Systems Interconnection (OSI)

Referring to the OSI reference model, a logical structure for network operations standardized by the International Standards Organization (ISO).

Operations Interface

Any interface providing you with information on the system behavior or control. These include the equipment LEDs, user panel, WaveStar CIT, office alarms, and all telemetry interfaces.

Operations Interworking (OI)

The capability to access, operate, provision, and administer remote systems through craft interface access from any site in a SONET network or from a centralized operations system.

Operations System (OS)

A central computer-based system used to provide operations, administration, and maintenance functions.

Operations System for Intelligent Network Elements (OPS/INE)

A Bellcore configuration management operations system.

Operator

A user of the system with operator-level user privileges.

Optical Carrier N (OC-N)

An optical carrier signal at the SONET rate of N, where n equals 1, 3, 12, 48, or 192. The basic rate of an OC-1 signal is 51.84 Mb/s, equivalent to an STS-1, with other values of N direct multiples of this basic rate.

Optical Channel

A OC-N wavelength within an optical line signal. Multiple channels, differing by 1.5 μ in wavelength, are multiplexed into one signal.

Optical Demultiplexer Unit (ODU)

A circuit pack responsible for receiving the optical line signal and separating it into the original number of OC-N/STM-N signals.

Optical Line Signal

A multiplexed optical signal containing multiple wavelengths or channels.

Optical Multiplexer Unit (OMU)

A circuit pack responsible for combining multiple signals into one signal. The combined signal is called the Optical Line Signal.

Optical Translator (OT)

A system feature used in conjunction with WaveStar OLS that concatenates multiple OLS terminals, regenerates signals in the 1.3 and 1.5 μ ranges, prevents wavelength blocking via wavelength interchange, provides wavelength add/drop (WAD) capabilities, and establishes open interfaces with multi-vendor signal compatibility.

Optical Translator Port Module (OTPM)

A circuit pack that can electrically regenerate incoming OC-12/STM-4 and OC-3/STM-1 signals into specific outgoing signals of the same type.

Optical Translator Unit (OTU)

A circuit pack that can electrically regenerate incoming OC-N/STM-N signals (1.3 or 1.5 μ ranges) into specific outgoing signals of the same type.

Orderwire (OW)

A dedicated voice-grade line for communications between maintenance and repair personnel.

Original Value Provisioning

Preprogramming of a system's original values at the factory. These values can be overridden using local or remote provisioning.

Outage

A disruption of service that lasts for more than 1 second.

Out-of-Service

The circuit pack is not providing its normal service function (removed from either the working or protection state) either because of a system problem or because the pack has been removed from service.

P

Packet Assembler/Disassembler (PAD)

An interface between a device and an X.25 packet-switched network. The PAD converts the protocol used by the device and the X.25 protocol used by the network, allowing terminals to exchange data with other packet mode terminals and hosts.

Packet-Switched Network (PSN)

An X.25 network that transmits groups of bits as a unit through the network. Packets usually include data and control information such as addressing, identification, and error-control fields.

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.

Parity Check

Tests whether the number of ones (or zeros) in an array of binary bits is odd or even; used to determine that the received signal is the same as the transmitted signal.

Pass-Through

Paths that are cross-connected directly across an intermediate node in a network.

Path

A logical connection between the point at which a standard frame format for the signal at the given rate is assembled, and the point at which the standard frame format for the signal is disassembled.

Path Overhead (POH)

Informational bytes assigned to, and transported with the payload until the payload is demultiplexed. It provides for integrity of communication between the point of assembly of a virtual container and its point of disassembly.

Path Terminating Equipment

Network elements in which the path overhead is terminated.

Performance Monitoring (PM)

Measures the quality of service and identifies degrading or marginally operating systems (before an alarm would be generated).

Peripheral Control and Timing Facility Interface (PCTFI)

A proprietary physical link interface supporting the transport of 21×2 Mb/s signals.

Platform

A family of equipment and software configurations designed to support a particular application.

Plesiochronous Network

A network that contains multiple subnetworks, each internally synchronous and all operating at the same nominal frequency, but whose timing may be slightly different at any particular instant.

Polarization Mode Dispersion (PMD)

Output pulse broadening due to random coupling of the two polarization modes in an optical fiber.

Port (also called Line)

The physical interface, consisting of both an input and output, where an electrical or optical transmission interface is connected to the system and may be used to carry traffic between network elements. The words “port” and “line” may often be used synonymously. “Port” emphasizes the physical interface, and “line” emphasizes the interconnection. Either may be used to identify the signal being carried.

Port State Provisioning

A feature that allows a user to suppress alarm reporting and performance monitoring during provisioning by supporting multiple states (automatic, in-service, and not monitored) for low-speed ports.

Preprovisioning

The process by which the user specifies parameter values for an entity in advance of some of the equipment being present. These parameters are maintained only in NVM. These modifications are initiated locally or remotely by either a CIT or an OS. Preprovisioning provides for the decoupling of manual intervention tasks (for example, install circuit packs) from those tasks associated with configuring the node to provide services (for example, specifying the entities to be cross-connected).

Proactive Maintenance

Refers to the process of detecting degrading conditions not severe enough to initiate protection switching or alarming, but indicative of an impending signal fail or signal degrade defect.

Protection

Extra capacity (channels, circuit packs) in transmission equipment that is not intended to be used for service, but rather to serve as backup against equipment failures.

Protection Access

To provision traffic to be carried by protection tributaries when the port tributaries are not being used to carry the protected working traffic.

Protection Group Configuration

The members of a group and their roles, for example, working protection, line number, etc.

Protection Path

One of two signals entering a path selector used for path protection switching or dual ring interworking. The other is the working path. The designations working and protection are provisioned by the user, whereas the terms active path and standby path indicate the current protection state.

Protection State

When the working unit is currently considered active by the system and that it is carrying traffic. The "active unit state" specifically refers to the receive direction of operation — since protection switching is unidirectional.

Provisioned (PROV)

Indicating that a circuit pack is ready to perform its intended function. A provisioned circuit pack can be active (ACT), in-service (IS), standby (STBY), provisioned out-of-service (POS), or out-of-service (OOS).

Provisioning

The modification of certain programmable parameters that define how the node functions with various installed entities. These modifications are initiated locally or remotely by either a CIT or an OS. They may arrive at the node via the IAOLAN, CIT port, or any DCC channel. The provisioned data is maintained in NVM and/or hardware registers.

Q

Quad Optical Translator Unit (QOTU)

A unit that provides functions similar to an Optical Translator Unit (OTU), except that an QOTU provides the equivalent functionality of four OTUs in a package that is only twice the size of an OTU.

R

Reactive Maintenance

Refers to detecting defects/failures and clearing them.

Receive-Direction

The direction towards the Network Element.

Regeneration

The process of reconstructing a digital signal to eliminate the effects of noise and distortion.

Reliability

The ability of a software system performing its required functions under stated conditions for a stated period of time. The probability for an equipment to fulfill its function. Some of the ways in which reliability is measured are: MTBF (Mean Time Between Failures) expressed in hours; Availability = $(MTBF)/(MTBF+MTTR)(\%)$ [where MTTR = mean time to restore]; outage in minutes per year; failures per hour; percentage of failures per 1,000 hours.

Remote Defect Indication (RDI)

An indication returned to a transmitting terminal that the receiving terminal has detected an incoming section failure. [Previously called far-end-receive failure (FERF).]

Remote Failure Indication (RFI)

A signal that alerts upstream STS-1 path terminating equipment that a downstream failure has been alarmed along the STS-1 path. This action prevents multiple alarms from being activated for the same failure and ensures that a technician is dispatched to correct the failure. (Previously called yellow signals.)

Remote Network Element

Any Network Element that is connected to the referenced Network Element 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.

Return to Zero

A code form having two information states (termed zero and one) and having a third state or an at-rest condition to which the signal returns during each period.

Revertive

A protection switching mode in which, after a protection switch occurs, the equipment returns to the nominal configuration (that is, the working equipment is active, and the protection equipment is standby) after any failure conditions that caused a protection switch to occur, clear, or after any external switch commands are reset. (See "Non-Revertive.")

Revertive Switching

In revertive switching, there is a working and protection high-speed line, circuit pack, etc. When a protection switch occurs, the protection line, circuit pack, etc. is selected. When the fault clears, service "reverts" to the working line.

Ring

A configuration of nodes comprised of network elements connected in a circular fashion. Under normal conditions, each node is interconnected with its neighbor and includes capacity for transmission in either direction between adjacent nodes. Path switched rings use a head-end bridge and tail-end switch. Line switched rings actively reroute traffic over the protection capacity.

Router

An interface between two networks. While routers are like bridges, they work differently. Routers provide more functionality than bridges. For example, they can find the best route between any two networks, even if there are several different networks in between. Routers also provide network management capabilities such as load balancing, partitioning of the network, and trouble-shooting.

S

Section

The portion of a transmission facility, including terminating points, between a terminal network element and a line-terminating network element, or two line-terminating network elements.

Section Layer

The second of the four levels in a standard SONET signal, used to transport an STS frame across a physical medium. This layer uses the photonic layer to form the physical transport.

Self-Healing

A network's ability to automatically recover from the failure of one or more of its components.

Server

Computer in a computer network that performs dedicated main tasks which generally require sufficient performance.

Serving Area

A user-defined grouping of Network Elements. It most commonly consists of Network Elements located in a central office (CO) and the subnetworks to which they belong.

Severely Errored Seconds (SES)

This performance monitoring parameter is a second in which a signal failure occurs, or more than a preset amount of coding violations (dependent on the type of signal) occurs.

Service

The operational mode of a physical entity that indicates that the entity is providing service. This designation will change with each switch action.

Signal-to-Noise Ratio (SNR)

The relative strength of signal compared to noise.

Signal Rate

An attribute that defines the bit-rate and format of the signal. The signal rate is defined by the STS-N path-level signal bit-rate and format including the presence or absence of concatenation.

Single-Ended Operations

Provides operations support from a single location to remote Network Elements in the same SONET subnetwork. With this capability you can perform operations, administration, maintenance, and provisioning on a centralized basis. The remote Network Elements can be those that are specified for the current release.

Single-Mode Fiber (SM)

An 8- μ diameter low-loss, long-span optical fiber typically operating at either 1310 nm, 1550 nm, or both.

Site Address

The unique address for a Network Element.

Slot

A physical position in a shelf designed for holding a circuit pack and connecting it to the backplane. This term is also used loosely to refer to the collection of ports or tributaries connected to a physical circuit pack placed in a slot.

Software Backup

The process of saving an image of the current network element's databases, which are contained in its NVM, to a remote location. The remote location could be the WaveStar CIT or an OS.

Software Download

The process of transferring a generic (full or partial) or provisioned database from a remote entity to the target network element's memory. The remote entity may be the WaveStar CIT or an OS. The download procedure uses bulk transfer to move an uninterpreted binary file into the network element.

Software ID

Number that provides the software version information for the system.

Span

An uninterrupted bidirectional fiber section between two network elements.

Span Growth

A type of growth in which one wavelength is added to all lines before the next wavelength is added.

Squelch Map

This map contains information for each cross-connection in a ring and indicates the source and destination nodes for the low-speed circuit that is part of the cross-connection. This information is used to prevent traffic misconnection in rings with isolated nodes or segments.

Standby

The circuit pack is in service but is not providing service functions. It is ready to be used to replace a similar circuit pack either by protection or by duplex switching.

Standby Path

One of two signals entering a constituent path selector, the standby path is the path not currently being selected.

State

The state of a circuit pack indicates whether it is defective or normal (ready for normal use).

Status

The indication of a short-term change in the system.

STS-1E

Now referred to as EC-1. A signal typically carried by coaxial cables from one equipment location to another. The term EC-1 refers to the organization and data rate of the signal and also to the voltage template the signal must conform to and the impedances for which the voltage template is valid.

STS-1

The basic building block logical signal in the SONET standard with a data rate of 51.84 Mb/s.

Subnetwork

A group of interconnected/interrelated Network Elements. The most common connotation is a synchronous network in which the Network Elements have data communications channel (DCC) connectivity.

Supervisory Signal

An optical signal originating with the telemetry circuit pack that is used to communicate maintenance information.

Suppression

A process where service-affecting alarms that have been identified as an "effect" are not displayed to a user.

Symptomatic Alarm

An alarm that is not indicative of an actual failure itself, but rather of a secondary manifestation.

Synchronization Messaging

Synchronization messaging is used to communicate the quality of network timing, internal timing status, and timing states throughout a subnetwork.

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)

A hierarchical set of digital transport structures, standardized for the transport of suitable adapted payloads over transmission networks.

Synchronous Network

The synchronization of transmission systems with synchronous payloads to a master (network) clock that can be traced to a reference clock.

Synchronous Optical Network (SONET)

The North American standard for the rates and formats that defines optical signals and their constituents.

Synchronous Payload

Payloads that can be derived from a network transmission signal by removing integral numbers of bits from every frame. Therefore, no variable bit-stuffing rate adjustments are required to fit the payload in the transmission signal.

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.

T

T1

A carrier system that transmits at the rate of 1.544 Mb/s (a DS1 signal).

T2

A carrier system that transmits at the rate of 6.312 Mbps (a DS2 signal).

T3

A carrier system that transmits at the rate of 44.736 Mbps (a DS3 signal).

Target Group

An administrator-defined group that defines to which Network Elements a user has access.

Target Identifier (TID)

A provisionable parameter that is used to identify a particular Network Element within a network. It is a character string of up to 20 characters where the characters are letters, digits, or hyphens (-).

Telemetry Feed-Through

Operations capability for 4-fiber applications which allows the DCC to go from one OLS End Terminal (one subnetwork) through to the other collocated end terminal (separate subnetwork), thereby extending the OLS operations domain.

Through (or Continue) Cross-Connection

A cross-connection within a ring, where the input and output tributaries have the same tributary number but are in lines opposite each other.

Threshold-Crossing Alert (TCA)

A message type sent from a Network Element that indicates that a certain performance monitoring parameter has exceeded a specified threshold.

Through Timing

Refers to a network element that derives its transmit timing in the east direction from a received line signal in the east direction and its transmit timing in the west direction from a received line signal in the west direction.

Time Division Multiplexing (TDM)

A technique for transmitting a number of separate data, voice, and/or video signals simultaneously over one communications medium by interleaving a portion of each signal one after another.

Time Slot Assignment (TSA)

A capability that allows any tributary in a ring to be cross-connected to any tributary in any lower-rate, non-ring interface or to the same-numbered tributary in the opposite side of the ring.

Time Slot Interchange (TSI)

The ability of the user to assign cross-connections between any tributaries of any lines within a Network Element. Three types of TSI can be defined: Hairpin TSI, Interring TSI (between rings), and Intraring TSI (within rings).

Transaction Language One (TL1)

A machine-to-machine communications language that is a subset of ITU's human-machine language.

Transmit-Direction

The direction outwards from the Network Element.

Tributary

A path-level unit of bandwidth within a port, or the constituent signal(s) being carried in this unit of bandwidth, for example, an STS-1 tributary within an OC-N port.

True Wave™ Optical Fiber

Lucent Technologies' fiber generally called non-zero dispersion-shift fiber, with a controlled amount of chromatic dispersion designed for amplified systems in the 1550/1310 nm range.

Two-Way Point-to-Point Cross-Connection

A two-legged interconnection, that supports two-way transmission, between two and only two tributaries.

Two-Way Roll

The operation which moves a two-way cross-connection between tributary i and tributary j to a two-way cross-connection between the same tributary i and a new tributary k with a single user command.

U

Unavailable Seconds (UAS)

In performance monitoring, the count of seconds in which a signal is declared failed or in which 10 consecutively severely errored seconds (SES) occurred, until the time when 10 consecutive non-SES occur.

Upstream

At or towards the source of the considered transmission stream, for example, looking in the opposite direction of transmission.

User Privilege

Permissions a user must perform on the computer system on which the system software runs.

User-to-Network Interface (UNI)

The specifications for the procedures and protocols between a user and the Asynchronous Transfer Mode (ATM) network.

V

Value

A number, text string, or other menu selection associated with a parameter.

Variable

An item of data named by an identifier. Each variable has a type, such as int or Object, and a scope.

Violation Monitor and Removal (VMR)

A provisionable mode for DS3 output that causes parity violations to be monitored and corrected before the DS3 signal is B3ZS encoded.

Virtual

Refers to artificial objects created by a computer to help the system control shared resources.

Virtual Circuit

A logical connection through a data communication (for example, X.25) network.

Virtual Tributary (VT)

A structure designed for transport and switching of sub-STS-1 payloads. There are currently four sizes: VT1.5 (1.728 Mb/s), VT2 (2.304 Mb/s), VT3 (3.456 Mb/s), and VT6 (6.912 Mb/s).

Virtual Tributary Group (VT-G)

A 9-row by 12-column structure (108 bytes) that carries one or more VTs of the same size. Seven VT groups (756 bytes) are byte interleaved with the VT-organized synchronous payload envelope.

Voice Frequency (VF) Circuit

A 64 kilobit per second digitized signal.

Volatile Memory

Type of memory that is lost if electrical power is interrupted.

VT1.5 Tributary

A SONET logical signal with a data rate of 1.728 Mbps. In the 9-row structure of the STS-1 SPE, a VT1.5 occupies three columns. VT-structured STS-1 SPEs are divided into seven VT groups. Each VT group occupies twelve columns of the 9-row structure and, for VT1.5s, contains four VTs per group.

W

Wait-to-Restore (WTR)

Applies to revertive switching operation. The protection group enters the WTR state when all Equipment Fail (EF) conditions are cleared, but the system has not yet reverted back to its working line. The protection group remains in the WTR state until the Wait-to-Restore timer completes the WTR time interval.

Wait to Restore Time (WRT)

Corresponds to the time to wait before switching back after a failure has cleared, in a revertive protection scheme. This can be between 0 and 15 minutes, in increments of one minute.

Wavelength Add/Drop (WAD)

The process of adding and dropping wavelengths to provide more efficient transmission.

Wavelength Division Multiplexing (WDM)

A means of increasing the information-carrying capacity of an optical fiber by simultaneously transmitting signals at different wavelengths.

Wavelength Interchange

The ability to change the wavelength associated with an OC-N signal into another wavelength.

WaveStar™ Optical Line System

Lucent Technologies' lightwave transmission system. Utilizing DWDM technology, the system combines multiple signals of different wavelengths, transmits the resulting signal over a single fiber, and then demultiplexes the signal at the receive end.

Wide Area Network (WAN)

A communication network that uses common-carrier provided lines and covers an extended geographical area.

Wideband Communications

Voice, data, and/or video communication at digital rates from 64 kb/s to 2 Mb/s.

Working

Label attached to a physical entity. In case of revertive switching the working line or unit is the entity that is carrying service under normal operation. In case of nonrevertive switching the label has no particular meaning.

Working State

The working unit is currently considered active by the system and that it is carrying traffic.

X

X.25 Interface/Protocol

The ITU packet-switched interface standard for terminal access that specifies three protocol layers: physical, link, and packet for connection to a packet-switched data network.

X-Terminal

Workstation that can support an X-Windows interface.

Z

Zero Code Suppression

A technique used to reduce the number of consecutive zeros in a line-coded signal (B3ZS, B8ZS).

Abbreviations and Acronyms

A

ABN

Abnormal (condition)

ABS

Absent

AC

Alternating Current

ACO

Alarm Cut-Off

ACT

Active

ADM

Add/Drop Multiplexer

ADR

Add/Drop Ring

AGNE

Alarm Gateway Network Element

AID

Access Identifier

AIS

Alarm Indication Signal

AITS

Acknowledged Information Transfer Service: Confirmed mode of operation of the LAPD protocol.

AMI

Alternate Mark Inversion

ANSI

American National Standards Institute

APD

Avalanche PhotoDiode

APS

Automatic Protection Switch

AS&C

Alarm, Status, and Control

APSD

Automatic Power Shutdown

ASCII

American Standard Code for Information Interchange

ASN.1

Abstract Syntax Notation 1

ATM

Asynchronous Transfer Mode

AUTO

Automatic

AVAIL

Available

B

B3ZS

Bipolar 3-Zero Substitution

B8ZS

Bipolar 8-Zero Substitution

BCLAN

Board Controller Local Area Network

BDFB

Battery Distribution and Fuse Bay

BER

Bit Error Rate

BITS

Building Integrated Timing Supply

BLK

Blank

BLSR

Bidirectional Line-Switched Ring

BOC
Bell Operating Company

C

CAC
Circuit Access Code

CCITT
Comité Consultatif International Télégraphique & Téléphonique

CCT
Cross-Connection Type

CDRH
Center for Devices and Radiological Health

CEPT
Conférence Européenne des Administrations des Postes et des Télécommunications

CID
Circuit Identifier

CIT or CIT-PC
Craft Interface Terminal

CL
Clear

CLEI
Common Language Equipment Identifier

CLLI
Common Language Location Identifier

CM
Communications Module

CMIP
Common Management Information Protocol. OSI standard protocol for OAM&P information exchange.

CMISE
Common Management Information Service Element

CO
Central Office

COV
Central Office Video

CP
Circuit Pack

CPE
Customer Premises Equipment

CR
Critical (alarm)

CSMA/CD
Carrier Sense Multiple Access with Collision Detection

CS&O
Lucent Technologies Customer Support and Operations

CSU
Channel Service Unit

CTIP
Customer Training and Information Products

CTS
Customer Technical Support within Lucent Technologies

CV
Coding Violation

D

DACS/DCS
Digital Access Cross-Connect System

dB
Decibels

DC
Direct Current

DCC
Data Communications Channel

DCE
Data Communications Equipment

DCN
Data Communications Network

DPLL
Digital Phase Locked Loop

DRI
Dual Ring Interworking

DRAM
Dynamic Random Access Memory

DRIP
Dual Ring Interworking on Protection

DS0, DS1, DS3
Digital Signal Levels 0, 1, 3

DS-N
Digital Signal, Level N

DS-NE
Directory Service Network Element

DSX
Digital Cross-Connect Frame

DTCU
Distant Terminal Channel Unit

DTE
Data Terminating Equipment

DTMF
Dual Tone Multifrequency

DWDM
Dense Wavelength Division Multiplexing

E

EBER
Equivalent Bit Error Rate

EC
Echo Celler

EC-1, EC-N
Electrical Carrier, Levels 1 and N

ECI
Equipment Catalog Item

EEPROM
Electrically Erasable Programmable Read-Only Memory

EF
Equipment Fail

EIA
Electronic Industries Association

EM
Event Management

EMC
Electromagnetic Compatibility

EMI
Electromagnetic Interference

EMS
Element Management System

EPROM
Erasable Programmable Read-Only Memory

EPT
Event-per-Time

EQ
Equipped

EQPT
Equipment

ES
Errored Seconds

ESD
Electrostatic Discharge

ESF
Extended Super Frame (DS1 signal format)

ETSI
European Telecommunications Standards Institute

EVT
Event

EXM
Extended Switching Module

F

FCC
Federal Communications Commission

FDA
Food and Drug Administration

FDDI
Fiber Distributed Data Interface

FE
Far End

FEBE
Far End Block Error

FEPROM
Flash EPROM

FIT
Failure in Time

G

GB
Gigabytes

Gb/s
Gigabits per second

GHz
Gigahertz

GNE
Gateway Network Element

GR-XXX
Bellcore General Requirement-XXX

H

HDLC

High-Level Data Link Control

HS

High Speed

HW

Hardware

Hz

Hertz

I

IAF

Intelligent Alarm Filtering

IAO LAN

Intraoffice Local Area Network

ID

Identifier

IEC

International Electrotechnical Commission

IEEE

Institute of Electrical and Electronics Engineers

I/O

Input/Output

INTFC

Interface

IS

In Service

IS-3

Interconnect Signal-3

ISDN

Integrated Services Digital Network

ITCO

Independent Telephone Company

ITM

Integrated Transport Management

ITM-NM

Integrated Transport Management Network Module

ITM SNC

Integrated Transport Management SubNetwork Controller

ITU

International Telecommunications Union

ITU-R

International Telecommunications Union — Radio standardization sector. Formerly known as CCIR: Comité Consultatif International Radio; International Radio Consultative Committee.

ITU-T

International Telecommunications Union — Telecommunication standardization sector. Formerly known as CCITT: Comité Consultatif International Télégraphique & Téléphonique; International Telegraph and Telephone Consultative Committee.

IXC

Interexchange Carrier

K

Kb/s

Kilobits per second

L

LAN

Local Area Network

LATA

Local Access and Transport Area

LBC

Laser Bias Current

LBFC
Laser Backface Currents

LBO
Lightguide Build-Out

LBP
LAN Bridge Port

LCN
Local Communications Network

LCT
Large Capacity Terminal

LEC
Local Exchange Carrier

LED
Light-Emitting Diode

LGX
Lightguide Cross-Connect

LMP
LAN Management Port

LNE
Logical Network Element

LOF
Loss of Frame

LOP
Loss of Pointer

LOS
Loss of Signal

LPBK
Loopback

LS
Low Speed

LTE
Line Terminating Equipment

M

μ

Microns

μm

Micrometer

MB

Megabytes

Mb/s

Megabits per second

MCOND

Maintenance Condition

MDS

Metallic Digital Server

MDSCU

Metallic Digital Server Channel Unit

MEM

Memory

MIPS

Millions of Instructions Per Second

MJ

Major (alarm)

MML

Human-Machine Language

MN

Minor (alarm)

ms

Millisecond

MTBF

Mean Time Between Failures

MTBMA

Mean Time Between Maintenance Activities

MTTR

Mean Time To Repair

N

NA

Not Applicable

NCC

Network Communication Controller

NE

Network Element

NEBS

Network Equipment-Building System

nm

Nanometer (10^{-9} meters)

NMA

Network Monitoring and Analysis System

NMA-F

Network Monitoring and Analysis-Facility

NMON

Not Monitored

NMS

Network Management System

NORM

Normal

NPPA

Non-Preemptible Protection Access

NRZ

Nonreturn to Zero

NSA

Non-Service Affecting

NSAP Address

Network Service Access Point Address (used in the OSI network layer 3)

NTF

No Trouble Found

NVM

Non-Volatile Memory

O

O&M

Operation and Maintenance

OA

Optical Amplifier

OALAN

Overhead Access Local Area Network

OAM&P

Operations, Administration, Maintenance, and Provisioning

OC, OC-N

Optical Carrier

OC-1

Optical Carrier, Level 1 Signal (51.84 Mb/s)

OC-3

Optical Carrier, Level 3 Signal (155.52 Mb/s)

OC-3c

Optical Carrier, Level 3 Concatenated Signal (155.52 Mb/s)

OC-12

Optical Carrier, Level 12 Signal (622.08 Mb/s)

OC-48

Optical Carrier, Level 48 (2488.32 Mb/s) (2.5 Gb/s)

OC-192

Optical Carrier, Level 192 (9953.28 Mb/s) (10 Gb/s)

ODU

Optical Demultiplexing Unit

OI

Operations Interworking

OILU

Optical Line Interface Unit

OLS

Optical Line System

OMU

Optical Multiplexing Unit

OOF
Out-of-Frame

OOS
Out-of-Service

OPS/INE
Operations System for Intelligent Network Elements

ORM
Optical Remote Module

OS
Operations System

OSI
Open Systems Interconnect

OSMINE
Operations Systems Modifications for the Integration of Network Elements

OT
Optical Translator

OTCTL
Optical Translator Controller

OTPM
Optical Translator Port Module

OTU
Optical Translator Unit

OW
Orderwire

P

PAD
Packet Assembler/Disassembler

PCB
Printed Circuit Board

PCM
Pulse Code Modulation

PDH
Plesiochronous Digital Hierarchy

PM
Performance Monitoring

PMD
Polarization Mode Dispersion

POH
Path Overhead

POP
Point of Presence

POTS
Plain Old Telephone Service

PRI
Primary

PROTN
Protection

PROV
Provisioned

PSDN
Public Switched Data Network

PSN
Packet-Switched Network

PSTN
Public Switched Telephone Network

PTE
Path Terminating Equipment

PTY
Parity

PVC
Permanent Virtual Circuit

PWR
Power

PWR ON
Power On

Q

QOS
Quality of Service

QOTU
Quad Optical Translator Unit

QRSS
Quasi-Random Signal Source

R

RAM
Random Access Memory

RCV
Receive

RCVR
Receiver

RDI
Remote Defect Indication

RF
Radio Frequency

RFI
Remote Failure Indication

RPP
Reliability Prediction Procedure

RT
Remote Terminal

RTAC
Regional Technical Assistance Center

RTRV
Retrieve

RTV
Remote Terminal Video

RZ
Return to Zero

S

SA
Service Affecting

SDH
Synchronous Digital Hierarchy

SDS
Standard Directory Service based on ANSI recommendation T1.245

SEC
Secondary

SES
Severely Errored Seconds

SF
Super Frame (DS1 signal format)

SLN
A 12-character circuit pack serial number

SNR
Signal-to-Noise Ratio

SOH
Section Overhead

SONET
Synchronous Optical Network

SPE
Synchronous Payload Envelope

STBY
Standby

STS
Synchronous Transport Signal

STS-1, STS-N
Synchronous Transport Signal, Levels 1 and N

STS-3
Synchronous Transport, Level 3

STS-3c
Synchronous Transport, Level 3 Concatenated Signal

STS-12
Synchronous Transport, Level 12

STS-12c
Synchronous Transport, Level 12 Concatenated Signal

SVC
Switched Virtual Circuit

SYNC
Synchronizer

T

TA
Technical Advisory

TABS
Telemetry Asynchronous Byte Serial (Protocol)

TARP
Target Identifiers Address Resolution Protocol

TBD
To Be Determined

TBOS
Telemetry Byte-Oriented Serial (Protocol)

TCA
Threshold-Crossing Alert

TDM
Time Division Multiplexing

THz
Terahertz (10^{12} Hz)

TID
Target Identifier

TIRKS

Trunks Integrated Records Keeping System

TL1

Transaction Language 1

TR

Technical Requirement

TSA

Time Slot Assignment

TSI

Time Slot Interchange

TSO

Technical Support Organization

TU

Tributary Unit

U

UAS

Unavailable Seconds

UITS

Unacknowledged Information Transfer Service. Unconfirmed mode of LAPD operation.

UNEQ

Path Unequipped

UPSR

Unidirectional Path-Switched Ring

USAM

User-Settable Alarm Monitoring

V

V

Volts

VAC

Volts Alternating Current

VDC
Volts Direct Current

VF
Voice frequency

VM
Violation Monitor

VMR
Violation, Monitor, and Removal

VRT
Virtual Remote Terminal

VT
Virtual Tributary

VT1.5
Virtual Tributary, Level 1.5

VT-G
Virtual Tributary Group

W

WAD
Wavelength Add/Drop

WAN
Wide Area Network

WaveStar™ OLS 40G/80G/400G
WaveStar Optical Line System 40G/80G/400G

WBS
Wideband Shelf

WDCS
Wideband Digital Cross-Connect System

WDM
Wavelength Division Multiplexing

X

X.25

An ITU standard defining the connection between a terminal and a public packet-switched network

