Nortel Communication Server 1000

Telephony Manager 3.1 System Administration

NN43050-601

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Standard 01.03. This document is up-issued add a warning on saving CSV files in Microsoft Excel. Also two warnings are added to the section "Importing telephones and telephone data" to advise on data validation during importing.

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Standard 4.00. This document is up-issued to support Telephony Manager 3.0.

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Standard 3.00. This document is up-issued to support Communication Server 1000 Release 4.5.

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Standard 2.00. This document is up-issued for Communication Server 1000 Release 4.0.

October 2003
Standard 1.00. This document is a new NTP for Succession 3.1. It was created to support a restructuring of the Documentation Library. This document contains information previously contained in the following legacy document, now retired: *Using Optivity Telephony Manager (553-3001-330)*.

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New in this release

Contents

This document is up-issued to incorporate information contained in the Telephony Manager 3.1 Feature Specification document.

This section contains information on the following topics:

"Introduction" (page 15)
"New and enhanced applications" (page 15)
"Phones supported in Release 5.0" (page 15)
"Telephone Manager (Web Station) enhancements" (page 16)
"Web Maintenance enhancements" (page 17)
"Alarm Management enhancements" (page 18)
"Alarm Notification enhancements" (page 18)
"Traffic Analysis enhancements" (page 18)
"Additional enhancements" (page 18)

Introduction

This section outlines the changes in Telephony Manager 3.1 relative to Telephony Manager 3.0.

New and enhanced applications

The following new and enhanced applications are available for Telephone Manager (Web Station), Web maintenance, alarm maintenance, alarm notification, and traffic analysis in Telephony Manager.

Phones supported in Release 5.0

The following new phones are supported in Release 5.0:

- 1110
- 1120E
- 1140E

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- 1150E
- 2007
- 2033

The following IP wireless phones are supported in Release 5.0:

- 2210
- 2211
- 2212

The IP Virtual Office Logged Out phone (VOLO) is also supported in Release 5.0.

The following phones have been rebranded for Release 5.0:

Old IP Phone name	i2001	i2002	i2004	i2050	IPACD
New IP Phone name	2001P1	2002P1, 2002P2	2004P1, 2004P2	2050PC, 2050MC	1150E

Telephone Manager (Web Station) enhancements

- Support exists for operations for supported M1 and CS 1000 releases and there are global updates for all features.
- The new release is used internally and you can add any new telephone set.
- Continued support exists for prompts Terminal Number (NHTN) and Network UserID (NUID), in MG 1000B, CS 1000S, and CS 1000M/E systems.
- New functionality is added to the Emergency Services for Client Mobility (ESCM) to support IP phone mobility.
- Secure media exchanges between endpoints can occur through a new class of service.
- All Phase II IP phones and version II soft phones permit real-time recording and playing of IP telephony sessions.
- PBX Release 5.0 supports new features, key features, and new operations on IP telephones.
- A new multi-language prompt exists on all IP telephones.
- A basic emergency service is available for virtual office logged out (VOLO) phones.

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- New terminal number (TN) types exist on the Call Server and Line Terminal Proxy Server (TPS).
- New hardware and software support customer upgrades and new installations.
- The IP Line product is enhanced.
- New software and hardware extends the CS 1000M/E.
- Two new daughter boards provide DSP resources to connect IP and TDM devices.
- Telephony Manager reports now display all telephones.
- Telephony Manager client and Telephony Manager server can be uninstalled independent of each other.
- IP phone sets in the Telephony Manager inventory application now have a new location report file.
- Correct bandwidth calculation is available for users who use Virtual Office to login to their home IP phones from different call servers within the network.

For more information about Telephone Manager, see "Web Navigator: Telephones (Telephone Manager)" (page 513).

Web Maintenance enhancements

- New hardware and software replaces the Small System Controller (SSC) when used as a gateway controller.
- Information is displayed in relation to Emergency Services Access (ESA) for the virtual office logged-out phone.
- Two new daughter boards placed on the Media Gateway Controller (MGC) provide DSP resources for connecting IP and TDM devices.
- Thirteen new IP phone types can be displayed in Web Maintenance.
- The web maintenance application displays information about the virtual office logged out (VOLO) phones.
- New hardware provides updated configuration and maintenance commands.
- Diagnostic and fault-reporting enhancements are added in Web maintenance and Alarm notification.
- The new MCS32S Mindspeed media card provides a secondary location to register IP devices if a signaling server fails.

For more information about Web Maintenance, see "Web Maintenance Pages" (page 487).

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Alarm Management enhancements

- You can view a new category of Media Gateway Controller (MGC) type alarms through the Telephony Manager windows application.
- An administrator can view current alarms and control the filter and behavior of the system in the alarm interface.
- A patch for the SRG50 alarm subsystem provides survivability for IP telephones during a WAN failure.
- Simple Network Management Protocol (SNMP) provides support for the Linux system that runs Enterprise Common Management framework (ECM), Network Routing Service (NRS), and Network Routing Service Manager (NRSM).

For more information about the Alarm Management application, see "Alarm management" (page 245).

Alarm Notification enhancements

- System alarms and messages are added to Telephony Manager help.
- Call Server has an additional error message regarding media gateway configuration.

For more information about the Alarm Notification application, see "Alarm Notification application" (page 263).

Traffic Analysis enhancements

- The QoS IP statistics report has seven new fields.
- Two new reports in traffic analysis provide new traffic data.
- A new machine type, Communication Server 1000E CPPM, exists as a new CPU option and is added under the "What-if" calculations in Traffic Analysis.
- The CS 1000M/E generates a new customer report, DSP Peg Count.

For more information about the Traffic Analysis application, see "Traffic Analysis" (page 109).

Additional enhancements

- Support exists for the redirection of 911 calls to another Meridian 1 over TIE trunks.
- DECT handsets display the unique Hex ID in site survey mode.

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Related information

This section lists information sources that relate to this document.

NTPs

The following NTPs are referenced in this document:

- *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*

  Explains how to install and configure Telephony Manager 3.1 software on a system.

- *Features and Services (NN43001-106-B1, -B2, -B3)*

  Describes features associated with systems. For each feature, information is provided on feature implementation, feature operation, and interaction between features.

- *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)*

  Provides information on the following optional telemanagement applications: Telecom Billing System (TBS), TBS Web Reporting, General Cost Allocation System (GCAS), Consolidated Reporting System (CRS), and Consolidated Call Cost Reports (CCCR).

- *IP Trunk: Description, Installation, and Operation (NN43001-563)*

  Describes configuration and maintenance of the 24-port ITG trunk card. This card appears as a 24-port trunk card with ISDN Signaling Link (ISL) and D-channel signaling.

- *IP Line: Description, Installation, and Operation (NN43100-500)*

  Describes configuration and maintenance of gateway cards.

- *Communication Server 1000E: Installation and Commissioning (NN43041-310)*

  Provides the information necessary to install and configure a Nortel Networks Communication Server 1000E system.

- *Telephones and Consoles (NN43001-567)*

  Describes telephones and related features. The telephones provide access to a Telephony Manager-generated Corporate Directory.

- *DECT: Description, Planning, Installation, and Operation (NN43120-114)*

  Provides an overview of Telephony Manager for Nortel Integrated DECT (DECT) systems.

- *Software Input/Output: Administration (NN43001-611)*

  Explains system messages.

- *Software Input/Output: Maintenance (NN43001-711)*

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Describes the prompts and responses for the command line interface of a system (CLI). This guide includes information on overlay programs that are classified as maintenance overlays.

- *Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310)*

  Provides information on the Survivable IP Expansion (SIPE) feature for a Meridian 1 Large System and MGC commands.

- *Communication Server 1000M and Meridian 1: Small System Installation and Configuration (NN43011-310)*

  Provides information on the complete first-time installation of a Small System, as well as Survivability and Central Answering Position (CAP) features.

- *Communication Server 1000S: Installation and Configuration (NN43031-310)*

  Provides information on the Survivable IP Expansion (SIPE) feature for CS 1000S systems. Describes the meaning of the messages generated by the CS 1000S system.

- *Communication Server 1000E: Overview (NN43041-110)*

  Describes CS 1000E system architecture, software and hardware requirements, components, and network connections.

- *Communication Server 1000: System Redundancy (NN43001-507)*

  Provides the information necessary to plan, install, and configure system redundancy for CS 1000E systems and CS 1000M Large Systems.

- *SRG Configuration Guide (Survivable Remote Gateway): SRG software version 1.0 (P0609195)*

  Provides information on how to setup and configure a Survivable Remote Gateway (SRG) system for an IP network.

- *Main office configuration guide for Survivable Remote Gateway 50 (NN43001-307)*

  Describes the Main Office Configuration for the Survivable Remote Gateway 50. Information in this document complements information found in documents in the Communication Server 1000 documentation suite.

- *Branch Office: Installation and Commissioning (NN43001-314)*

  Describes the Branch Office feature and contains information about planning, installation, configuration, and maintenance.

- *Emergency Services Access (NN43001-613)*

  Describes the Emergency Services Access feature.

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- *What's New for Communication Server 1000 Release 5.0 (NN43001-115)*

  Contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 5.0 software.

- *Succession 1000/M Main Office Configuration for SRG: Succession software version 3.1 (P0609617)*

  Provides an overview of Succession programming to support the Survivable Remote Gateway (SRG) as a branch office.

- *Security Management (NN430001-604)*

  Provides information regarding security, such as OAM Security enhancements and Media Security.

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How to get help

This chapter explains how to get help for Nortel products and services.

Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
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If you do not find the information you require on the Nortel Technical Support Web site, and you have a Nortel support contract, you can also get help over the telephone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the telephone number for your region:

www.nortel.com/callus

Getting help from a specialist by using an Express Routing Code

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About Telephony Manager

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"Intended audience" (page 27)

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A single point of management

Nortel Communication Server 1000 Telephony Manager provides a single point of access and control for system management. One Telephony Manager Windows Server replaces multiple buffer boxes, access modems, and terminal servers.

Telephony Manager uses IP technology to act as a single-point management server in the following areas:

- Data collection for call accounting, traffic, and billing records
- Collection, processing, distribution, and notification for alarms and events (CallPilot, ITG, CS 1000 and Meridian 1)
- Data entry and propagation (employee names and telephone numbers shared in multiple databases)

Telephony Manager acts as a terminal server for multiple devices by providing Windows and Web-based management applications.

Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 5.0 software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:

www.nortel.com

Applicable systems

This document applies to the following systems:

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Communication Server 1000M Half Group (CS 1000M HG)
- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M/E Multi Group (CS 1000M/E MG)
- Communication Server 1000E CPPM (CS 1000E CPPM)
- Meridian 1 PBX 11C Cabinet (Meridian 1 PBX 11C Cabinet)
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 81
- Meridian 1 PBX 81C

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ATTENTION
When upgrading software, memory upgrades may be required on the Signaling Server, the Call Server, or both.

System Migration

When particular Meridian 1 systems are upgraded to run CS 1000 Release 3.1 (and later) software and configured to include a Signaling Server, they become CS 1000M/E systems. Table 1 "Meridian 1 systems to CS 1000M/E systems" (page 27)or 45 lists each Meridian 1 system that supports an upgrade path to a CS 1000M/E system.

Table 1
Meridian 1 systems to CS 1000M/E systems

This Meridian 1 system...	Maps to this CS 1000M/E system
Meridian 1 PBX 11C Chassis	CS 1000 M Chassis
Meridian 1 PBX 11C Cabinet	CS 1000 M Cabinet
Meridian 1 PBX 51C	CS 1000 M Half Group
Meridian 1 PBX 61C	CS 1000 M Single Group
Meridian 1 PBX 81	CS 1000 M/E Multi Group
Meridian 1 PBX 81C	CS 1000 M/E Multi Group

For more information, see one or more of the following NTPs:

- *Communication Server 1000M and Meridian 1: Small System Upgrade Procedures (NN43011-458)*
- *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures (NN43021-458-B1, -B2, -B3)*
- *Communication Server 1000E: Upgrade Procedures (NN43041-458)*
- *Communication Server 1000S: Upgrade Procedures (NN43031-458)*

Installing Telephony Manager software

See *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)* to install and configure Telephony Manager 3.1 software on a system.

Intended audience

This document is intended for CS 1000 and Meridian 1 system administrators using a Microsoft Windows-based PC for management activities. It assumes that you have the following background:

- Working knowledge of the Windows ® 2000 or 2003 Server, Windows 2000 professional, and Windows XP Professional operating system

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- Familiarity with CS 1000 and Meridian 1 system management activities
- Knowledge of general telecommunications concepts
- Experience with windowing systems or graphical user interfaces (GUIs)
- Knowledge of Internet Protocol (IP)

Conventions

Terminology

In this document, the following systems are referred to generically as "system":

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M (CS 1000M)
- Communication Server 1000E CPPM (CS 1000E CPPM)
- Meridian 1

The following systems are referred to generically as "Small System":

- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Meridian 1 PBX 11C Cabinet

The following systems are referred to generically as "Large System":

- Communication Server 1000M Half Group (CS 1000M HG)
- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M/E Multi Group (CS 1000M/E MG)
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 81
- Meridian 1 PBX 81C

Text conventions

In this document, the following text conventions are used:

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angle brackets (< >)

Indicate that you must input command text. Choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.

Example: If the document syntax is

`chg suppress_alarm` <*n*> where *n* is 0 = all, 1 = minor, 2 = major, 3 = critical, you enter
`chg suppress_alarm 3` to suppress all alarms except critical alarms.

`bold Courier text`

Indicates command names, options, and text.

Example: **`Enter prt open_alarm`**

italic text

Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.

Example: For additional information, see *Using Telephony Manager*.

`plain Courier text`

Indicates command syntax and system output, for example, prompts and system messages.

Example: `Open Alarm destination #0 os 47.82.40.237`

separator (>)

Shows menu paths.

Example: Select **Utilities > Backup** in the Navigator window.

Acronyms

The following are some of the acronyms used in this document.

ACD	automatic call distribution
ART	analysis and reporting tool
ASA	advanced SIP architecture
ASP	active server page
BARS	basic alternate route selection
BCM	business communication manager
CDP	coordinate dialing plan
CLI	command line interface
CLS	class of service
CPND	call party name display
CPP	call processor - pentium

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CR	change request
CRS	consolidated reporting system
CS	call server
CSV	comma separated values
DB	daughter board
DBA	data buffering and access
DCHI	D - channel interface
DECT	digital enhanced cordless telecommunication
DN	directory number
DSP	digital signal processing
ECL	emergency caller location
ECS	emergency call services
ELAN	embedded local area network
EMC	emergency multimedia communication
ERL	emergency response location
ESA	emergency services access
ESCM	emergency services for client mobility
ESN	electronic switched network
FD	file descriptor
FLTH	failed login threshold
FTM	failure to match
FTP	file transfer protocol
GCAS	general cost allocation system
GUI	graphical user interface
IP	internet protocol
IPL	IP line
IPMG	IP media gateway
IPSec	IP security
IPT	IP trunk
ISDN	integrated service digital network
ITG	internet telephony gateway
LAN	local area network
LCS	live communication server
LDAP	light-weight directory access protocol
LDN	local dialing number

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MARP	multiple appearance redirection prime
MAT	meridian administration tools
MCDN	meridian customer defined networking
MGC	media gateway controller
MIKEY	multimedia internet KEYing
MLNG	multi-language
MSDL	multi-purpose serial data link
NARS	network alternate route selection
NMS	network management system
OAM	operation, administration, and maintenance
OM	operational measurement
PBX	private branch exchange
PDT	problem determination tool
PPP	point to point protocol
PRD	product requirement document
PRI	primary rate interface
PSAP	public safety answering point
PSTN	public switched telephone network
PTY	pseudo-teletype (network port)
QoS	quality of service
RAS	remote access server
RFP	radio fixed parts
RU	reporting unit
SBO/SRG	survivable branch office/survivable remote gateway
SDP	session description protocol
SIP	session initiation protocol
SRTCP	secure real-time transport control protocol
SRTP	secure real-time transport protocol
SS	signalling server
SSC	small system controller
SSC-P	small system controller pentium
SSH	secure shells
TAT	trunk anti-tromboning
TBS	telecom billing system
TDM	time division multiplexing

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TLAN	telephony local area network
TLS	transport layer security
TM	telephony manager
TMDI	T1 multipurpose digital interface
TN	terminal number
TPS	terminal proxy server
TTY	teletype (serial) port
UDP	uniform dialing plan
UI	user interface
UNI	user network interface
V & H	vertical and horizontal
VGW	voice gateway
VLAN	virtual local area network
VO	virtual office
VOLO	virtual office logged out
VPNI	virtual private network indicator
VOIP	voice over internet protocol

Windows server

Telephony Manager contains the following Windows-based applications:

- Windows Navigator
- List Manager
- Electronic Switched Network (ESN)
- Traffic Analysis module
- Call Tracking application
- Corporate Directory
- IP Telephony Gateway applications
- Inventory
- Alarm Notification
- Telecom Billing System (TBS)
- Data Buffering and Access (DBA)
- General Cost Allocation System (GCAS)
- Consolidated Reporting System (CRS)
- Consolidated Call Cost Reports (CCCR)

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Windows Navigator overview

Windows Navigator provides access to:

- Common services
- Utilities
- Alarm management

Common services

Services are management applications used to set and maintain the Telephony Manager system. System window launches the following applications:

- Alarm Banner
- Events
- System Terminal (Ethernet or Point-to-Point Protocol (PPP)
- Traffic Analysis
- Telecom Billing System
- Call Tracking
- ESN Analysis and Reporting Tool
- Inventory
- General Cost Allocation System (GCAS)
- Consolidated Reporting System (CRS)
- Consolidated Call Cost Reports (CCCR)

The following Telephony Manager applications provide configuration and maintenance for the IP Telephony Gateway (ITG) cards:

- ITG IP Phones

  This application configures and maintains the ITG gateway card for IP Phones. The IP Phones connect to a system through an IPE-to-ITG gateway card. The configuration of IP Phones is accomplished through the Telephone Manager application in Telephony Manager. For more information, see *IP Line: Description, Installation, and Operation (NN43100-500)*.

- ITG IP Telecommuter / e-Mobility

  This application configures and maintains the ITG line card for IP Telecommuter. This application configures the IP Line gateway and the gatekeeper, but not the H.323 IP terminal or PC-based software client.

  This application also configures and maintains the ITG line card for wireless service. For more information, see *WLAN IP Telephony Installation and Commissioning (NN43001-504)*.

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- ITG ISDN IP Trunks

  This application is used to configure and maintain the 24-port or 32-port ITG trunk card that resides in the IPE shelf. The card appears to the switch as a trunk card with ISDN Signaling Link (ISL) and D-channel signaling. The card has a 10/100 baseT connection to carry packetized voice and fax calls over IP data networks. For more information, see *IP Trunk: Description, Installation, and Operation (NN43001-563)*, and *Addendum to Meridian Internet Telephony Gateway (ITG) Trunk 2.0/ISDN Signaling Link (ISL) (P0941974)*.

- IP Telephony

  This application is used to configure and maintain the 32-port Media Card and the Voice Gateway Media Card for pre-Release 5.0 systems. For more information on how to configure and maintain these cards, see the relevant IP Line document in previous releases titled *IP Line: Description, Installation, and Operation (NN43100-500)*. This document does not cover configuration of the Media Cards by Telephony Manager since this capability is not required in R5.0.

- ITG M1 IP Trunks

  This application is used to configure and maintain the 8-port ITG (trunk) card that resides in an IPE shelf. The card has a 10/100 baseT connection to carry packetized voice and fax calls over IP data networks, and can serve as a toll bypass to the traditional PSTN.

Utilities

Utilities are application tools to control and maintain the movement of data in Telephony Manager.

Scheduler

The Scheduler schedules a Telephony Manager activity (or any Windows application activity) for processing at a later time. With Scheduler, you can define the intervals you want to run the activity. If there are multiple tasks in a job, you can assign the tasks in a sequential order by using the queue function.

The Scheduler normally runs in background mode. This means that if a Telephony Manager application is due to run at a certain time, the Scheduler automatically runs it at that time without interrupting current sessions.

Compact and Repair

In the System Window utility, use the Compact and Repair utility to compact or repair the Telephony Manager database files for specific sites and systems. This utility compacts or repairs any Microsoft Access format database files of the same version as Telephony Manager (for example, Access 97).

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The following are two common reasons to compact database files:

- Increase in size

  CDR data that is accessed by Telephony Manager Telecom Billing System and Telephony Manager Directory is stored in database files. These database files grow as records are added and deleted. Periodically, compact the database files to increase access performance. This is especially true of very active files, such as CDR database files.

- File fragmentation

  As you update the Telephony Manager databases, the files can become fragmented and use more disk space than necessary. Use the Compact command to compact these databases and optimize the disk space. Compacted databases can be accessed more quickly, saving time and system resources when you perform such operations as database backups.

In some cases, the Telephony Manager databases become corrupted and are not accessible to the Telephony Manager applications. Use the Repair command to repair these databases so they can be accessed by these applications.

Many sites have extremely large values for Record ID. The way to reset the Record ID is to archive, then completely purge the Call Database prior to running Compact.

ATTENTION

Compact may help fragmentation on some drives, but has no effect on fragmentation if the drive is heavily fragmented, as the file is copied to empty fragments.

CND synchronization

Use the Common Network Directory (CND) synchronization utility to synchronize the data between the Telephony Manager server and the CND database.

Billing synchronization

Use the Billing synchronization utility to synchronize the data between the Telecom Billing System (TBS) employee directory and the CND database. This utility does not propagate changes from the TBS employee database to CND.

Alarm management

Telephony Manager alarm management provides an alarm collection and processing center for multiple systems and devices. Telephony Manager receives SNMP traps from systems (such as the CS 1000M and CallPilot)

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and stores them in a circular log file on the Telephony Manager Server. The Telephony Manager Alarm Notification application monitors the incoming traps and notifies the appropriate people of important events and alarms.

Alarm management components

Telephony Manager alarm management contains the following components:

- A Web-based alarm browser server that supports the viewing of alarms from multiple systems and devices. HTML Help is provided for individual alarms.
- A Windows alarm browser (Event Monitor) used to view system-specific alarms. Windows Help is provided for individual alarms.
- An Alarm Notification application that provides a scripting language to generate notifications on selected incoming traps. Notification types include pagers, e-mail, and the forwarding of SNMP traps to an upstream processor (such as NMS). Notification is triggered by trap data, such as alarm severity, device type, and time of day.
- A Text Handler application that parses maintenance terminal output and generates traps on selected error messages. This is intended primarily for legacy Meridian 1 systems (Release 21 and earlier). Text Handler rules can be created by the user to support other serial devices.
- A PC Event Log and Viewer for viewing events and alarms generated on the Telephony Manager Server and all of its Windows clients. This Windows application can also generate SNMP traps based on the event severity level.

Figure 1 "Telephony Manager alarm management main components" (page 37) shows the main components of Telephony Manager alarm management. The Trap Master handles the SNMP traps from the systems and stores the traps on the server for retrieval by the Alarm Browser client. The Trap Server distributes traps to applications registered to receive traps, such as Alarm Notification.

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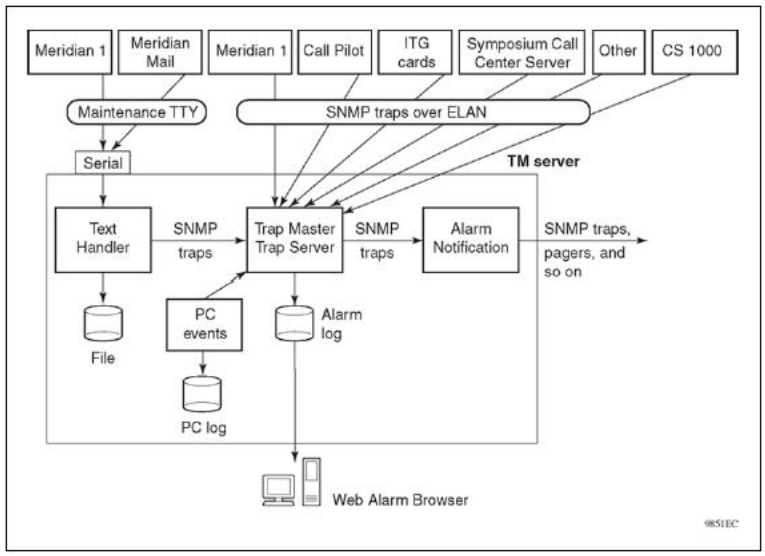
Figure 1
Telephony Manager alarm management main components



Call Tracking

- Monitors telephone calls and alarms in real time
- Displays information in CDR displays in user-defined formats
- User-defined alarms for unusual calling patterns

Traffic analysis

- Collects traffic data from a specific system
- Maintains a database of collected traffic data
- Defines report parameters
- Generates reports to extract significant information from raw traffic data, such as trunk usage, peak periods, process loads, and junctor and loop traffic
- Allows user to run "what-if" scenarios, to examine potential effects of changes in or on the system,

ESN Analysis and Reporting Tool

Electronic Switched Network (ESN) is a private network application. The ESN Analysis and Reporting Tool (ESN ART) is a Telephony Manager application designed to:

- Configure, analyze, and manage large and complex ESN databases.
- Retrieve the ESN configuration from a system.

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- Convert the overlay-based data into a PC database. Use the Windows user interface to easily view, modify, and print the data.

Web Navigator

Overview

The Telephony Manager Web Navigator provides the following:

- A list of systems and devices. Users click on a system or device to:
  - Open a Web System Terminal or URL to manage a system or device
  - Open Maintenance Pages for performing maintenance operations on hardware
- Alarm browser to view alarms and events from multiple systems and devices
- Telephone Manager application to find and maintain telephones and telephone data
- User interface to Common Network Directory (CND) application
- Telephony Manager Web configuration pages

Equipment

- Monitor the availability and status of applications and systems on the Telephony Manager server
- Monitor alarms on the Telephony Manager server
- Access the Terminal Server through the Web Virtual System terminal
- Perform maintenance operations on Web Navigator.

Telephones (Telephone Manager)

- Add, update, remove telephones
- Add or modify groups of telephones using templates
- Add, update, and configure line cards
- Create and generate reports
- Import and export telephones and telephone data

Directory

- User interface to Common Network Directory (CND)
- Add, update, and delete employee records
- Reset passwords

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Telecom Billing

- User interface to the Telephony Manager Telecom Billing Systems application. See *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)* for more details.
- View and delete billing synchronization log files

Web administration

- Customize Help text for Telephony Manager Web-based applications
- Configure user authentication
- Assign and administer user groups
- Administer login security in the Session Monitor
- Select a language

Web Desktop Services

- Install and configure Desktop Services

  See *Telephony Manager 3.1 Desktop User Guide (NN43050-100)*.

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Concurrency support for CS 1000 Release 5.0

Content

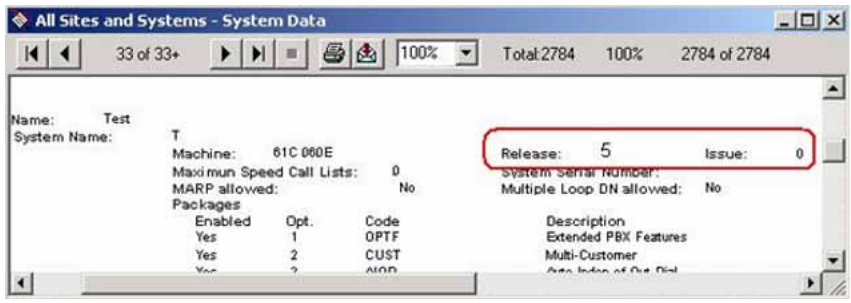
This section contains information on the following topics:

"Support for CS 1000 Release 5.0" (page 41)

Support for CS 1000 Release 5.0

Telephony Manager 3.1 supports the new CS 1000 Release for the CS 1000 and Meridian systems. The "update system data" operation populates the release value as 5 and the issue as 0 as shown in Figure 2 "System Data report screen" (page 41)

Figure 2
System Data report screen



ATTENTION

You can manually modify the Release and Issue fields. If the PBX and Telephony Manager do not match, The Telephone Manager retrievals and transmission from Telephony Manager fail.

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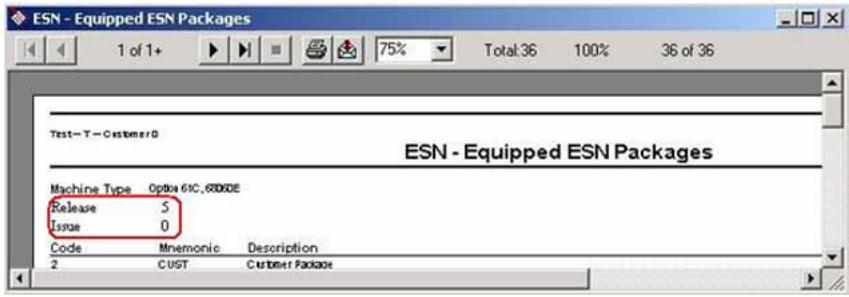
Telephone Manager (previously known as Web Station) supports all operations previously provided by CS 1000 Release 4.0 and supports the new features introduced for Release 4.5 and later. The new release is used internally for adding any telephone set.

The new Release 5.0 for relevant systems is displayed in the Electronic Switched Network (ESN) Equipped package report. See Figure 3 "ESN reports screen" (page 42).

Figure 3
ESN reports screen



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Using Windows Navigator

Contents

This section contains information on the following topics:

"Logging in to Windows Navigator" (page 43)
"Navigator controls" (page 45)
"Windows" (page 45)
"Toolbar" (page 45)
"Shortcut Key" (page 45)
"Status bar" (page 50)
"Navigator views" (page 50)
"Sites view" (page 50)
"Gatekeeper Zones view" (page 52)
"System Window" (page 55)

Logging in to Windows Navigator

Using the Microsoft Windows interface, Telephony Manager Windows Navigator displays and launches all systems available to the current user.

ATTENTION
Users who log in to the computer running Telephony Manager need full local administrative rights and computer policies should not restrict access rights.

Procedure 1
Logging in to Windows Navigator

Step	Action
1	From the browser window select **Start > Programs > Telephony Manager > Telephony Manager Navigator**. The Login window appears, as shown in Figure 4 "Telephony Manager Login window" (page 44).

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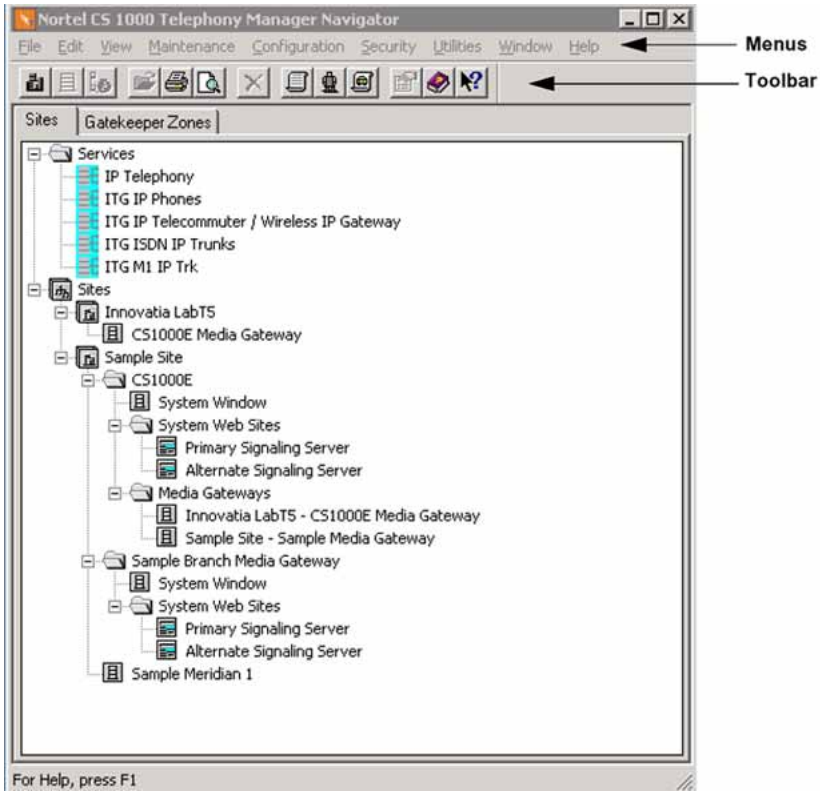
Figure 4
Telephony Manager Login window

2 Enter your **Login Name** and **Password**.

3 Click **OK**.

The Telephony Manager Windows Navigator window appears, as shown in Figure 5 "Telephony Manager Windows Navigator window" (page 44).

Figure 5
Telephony Manager Windows Navigator window



—End—

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Navigator controls

Telephony Manager services and sites are controlled and configured through the Navigator controls described in this section.

Windows

The Windows menu bar, at the top of the Navigator window, contains the main commands you need to use the applications in Telephony Manager Navigator. For the full set of Windows commands, see "Nortel CS 1000 Telephony Manager Windows Navigator controls" (page 45).

Toolbar

Located below the Window menu bar, the Toolbar provides button access to some of the commands used in Navigator. The function of each button in the Toolbar appears when you move the mouse over the button. For a full set of Toolbar commands see "Nortel CS 1000 Telephony Manager Windows Navigator controls" (page 45).

Shortcut Key

The keyboard also provides shortcut keys for a number of commands in the Windows File, Edit, and Help menus. For a full set of Shortcut Key commands see "Nortel CS 1000 Telephony Manager Windows Navigator controls" (page 45).

Nortel CS 1000 Telephony Manager Windows Navigator controls

Menu item	Toolbar button	Shortcut key
File		
Open		Ctrl+O
Open the System window for the system selected in the Navigator.		
Print		Ctrl+P
Print detailed information for a selected site or system. If you select the Navigator icon, this command prints information for all sites and systems in the window.		
Print preview		
Display the default report for selected sites and systems. You can scroll through the report to review information and then print it if you choose.		
Print setup		
Select a printer and a printer connection.		
Reports		Ctrl+R

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Menu item	Toolbar button	Shortcut key
Display the list of available reports for sites and systems. You can preview or print a selected report.		
Properties		
Display current information for the selected site or system. If you have administrator privileges, you can change this information.		
Exit		
Disconnect from all systems, close related windows, and log off of Telephony Manager. You can terminate Telephony Manager immediately or run Telephony Manager in the background so that it can complete scheduled tasks.		
Edit		
Delete		Delete Del
Remove the selected site or system from the Navigator window. You must have administrator privileges to use the Delete command.		
View		
Toolbar		
Display or hide the toolbar. A check mark appears next to the menu item when the toolbar is displayed.		
Status Bar		
Display or hide the status bar. A check mark appears next to the menu item when the status bar is displayed.		
Refresh		F5
Refresh the current screen, to update the page information.		
Maintenance		
Event Log Viewer		
Display the PC Events Log, which includes logon and logoff events, application selection, connection failures, security violations, and application failures.		
Configuration		
Add Site		

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Menu item	Toolbar button	Shortcut key
Add a new site to the Navigator window. You must have administrator privileges to use the Add Site command.		
Add System		
Add a new system to a site in the Navigator window. You must have administrator privileges to use the Add System command.		
Move System		
Move the selected system to another site. System users have write access to the new site if they did not previously have access. If scheduled events are pending for the system, you must manually delete the events and reschedule the events after the move. You must have administrator privileges to use the Move System command.		
System Modem Scripts		
Display the list of available modem scripts and define new scripts. After a script is defined, you can apply it to a system so that it executes each time you try to connect to the system.		
Event Notification		
Set an audible tone (beep) to sound when a new critical alarm occurs in the Events window.		
Regional Setting		
Enter information about local currencies to display proper cost values in report summaries.		
Gatekeeper Zone Manager		
Manage Gatekeepers.		
Security		
Users		
Display the list of current users, and you can modify the user information or User Groups assigned to a user. You must have administrator privileges to use the Users command.		
User Groups		
Open the User Groups window where you can define properties for various user groups and assign users to groups.		

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Menu item	Toolbar button	Shortcut key
User Authentication		
Authenticate users.		
Change Password		
Change passwords		
Utilities		
Scheduler		
Display scheduled tasks, and delete a scheduled task. If you have administrator privileges, you can reorder or delete any task.		
Backup		
Back up application and system data from the PC to a backup file. Use the backup to restore data when necessary. You can back up all data or data for a single site or system. A wizard guides you through the backup. This menu item is not available when the user logs on from a Telephony Manager Client.		
Restore		
Restore application and system data from the backup file to the PC. You can restore all data or data for a single site or system. You can choose whether to overwrite system property data. A Wizard guides you through the restore. This menu item is not available when the user logs on from a Telephony Manager Client.		
Corporate Directory		
Define and generate reports based on Telephone Manager data across all sites and systems. You can display a report, print the report, or save the report to a file. You can also schedule report generation for a specified date and time. Corporate Directory requires both the Telephone Manager and Microsoft Excel applications.		
Common Network Directory		
Establish communications with a CND server. Use CND synchronization to synchronize telephone data between Telephony Manager and CND. This menu item is not available when the user logs on from a Telephony Manager Client.		
Billing Synchronization		

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Menu item	Toolbar button	Shortcut key
Synchronize directory data from Telephony Manager to the Employee Directory for Billing Services. This menu item is not available when the user logs on from a Telephony Manager Client.		
Alarm Notification		
Open the Alarm Notification application where you can monitor alarms and process alarm notifications.		
Data Buffering & Access		
Open the Data Buffering & Access application where you can store CDR, Traffic, or serial data on the PC. You can back up and restore the PBX database files.		
Consolidated Call Cost Reports		
Open the Consolidated Call Cost Reports window where you can create detailed reports about telephone system usage. This menu item is not available when the user logs on from a Telephony Manager Client.		
Manage Clients		
Opens the Clients window to list all Telephony Manager clients installed on the Telephony Manager server. This menu item is not available when the user logs on from a Telephony Manager Client.		
Count TN Licenses		
Count TN licenses used. The sets count in your keycode and the sets count in your TN License user interface do not match. Additional licenses are available in the TN count due to the sets in Sample Systems for which you are not charged.		
Keycode Upgrade/Downgrade		
Perform a keycode upgrade or downgrade. This menu item is not available when the user logs on from a Telephony Manager Client.		
Window		
Arrange		
Arrange all system-related windows into a partially overlapping pattern for easy access.		
Schedule		

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Menu item	Toolbar button	Shortcut key
Help		
Help Topics		F1
Display the list of Help topics.		
What's This?		Shift+F1
Change the cursor and display Help on the next item you select.		
About Telephony Manager		
Display release information for the Navigator.		
About Telephony Manager Keycodes		
Display keycode, installed applications, and patch information.		

Status bar

A status bar is located at the bottom of the window. To display the status bar, select Status Bar in the View menu.

The status bar describes actions of the menu commands as you use the mouse to navigate through menus. The status bar also describes the actions of the Toolbar buttons as you press them. When you choose a menu command, the status bar describes the progress of the command while it executes. For example, the status bar shows **Printing text** when you choose **Print** from the **File** menu.

Navigator views

The Navigator window displays Telephony Manager systems in the following two views:

- Site View
- Gatekeeper Zones View

Sites view

The Sites view, shown in "Telephony Manager Windows Navigator: Sites view" (page 51), groups systems into sites for more convenient access.

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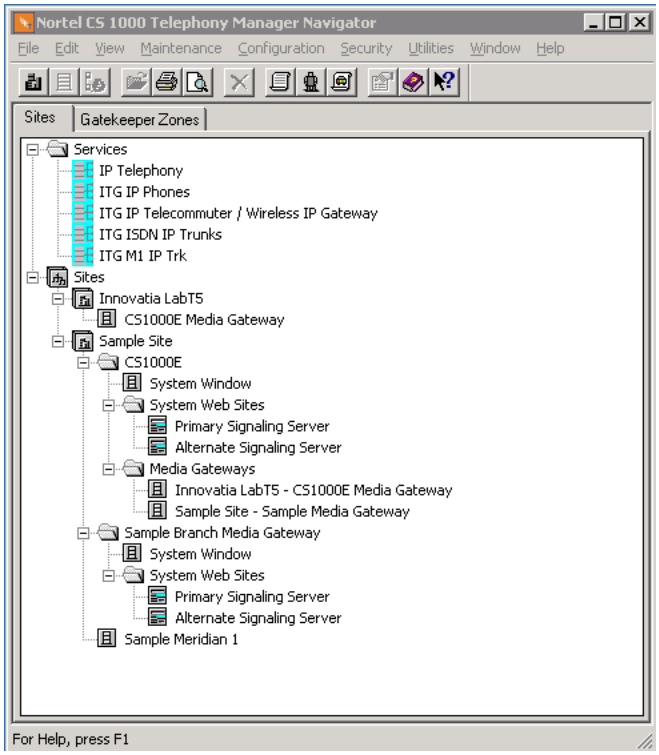
Telephony Manager Windows Navigator: Sites view



Services

The Services folder, displayed only in the Sites view, accesses the following IP Telephony Gateway applications:

- IP Telephony
- ITG IP Phones
- ITG IP Telecommuter/Wireless IP Gateway
- ITG ISDN IP Trunks
- ITG M1 IP Trk

Site folders

The **Site** icon accesses grouped (named) site folders containing the system application and associated subfolders for that site.

To open a site, double-click the site name or click the plus sign (+) next to the site.

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System Window

The System Window application opens the system window containing the suite of applications for that system, as shown in Figure 7 "System Window" (page 55).

To open the System Window, double-click on the **System Window** icon to launch the Telephony Manager system window for that system.

System Web site

The System Web site sub-folder is displayed only when **Signaling Server present** is selected in the network page of Windows System properties

Double-click on the **System Web Sites** icon to launch the Element Management Web pages on the associated Signaling Server

Access to the Command Line Interface (CLI) on the Signaling Server is not included in the tree. You can create a generic system for this purpose.

Media Gateway

The name of the Media Gateway is composed of the Site name and the system name.

The Survivable Cabinets/Media Gateways folder appears only if the system has at least one survivable cabinet or Media Gateway configured.

Double-click a gatekeeper to launch the associated management Web page.

Gatekeeper Zones view

"Telephony Manager Windows Navigator: Gatekeeper Zones view" (page 53) shows the Gatekeeper Zones view of the Windows Navigator.

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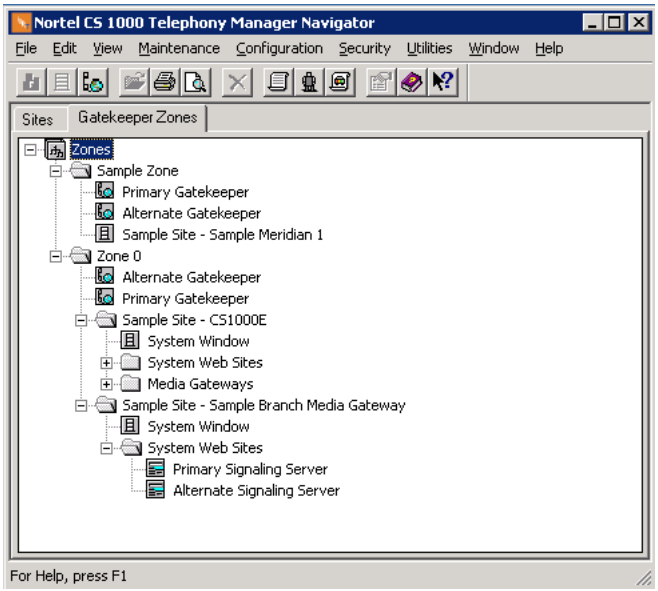
Telephony Manager Windows Navigator: Gatekeeper Zones view



A gatekeeper provides endpoint management, including registration and unregistration, authentication, address resolution (DN-to-IP and endpoint-to-gateway). The gatekeeper also maintains a list of endpoints currently active on the network, as shown in "Telephony Manager Windows Navigator: Gatekeeper Zones view" (page 53). Each gatekeeper controls one H.323 zone; each H.323 zone consists of many H.323 IP clients. For more information on gatekeepers and gatekeeper zones, see *IP Peer Networking Installation and Commissioning (NN43001-313)*.

The Gatekeeper Management URL (Web interface) serves both the H.323 Gatekeeper and the SIP Proxy/Redirection Server. The default Gatekeeper Management URL, populated using the Gatekeeper Zones page shown in Figure 6 "Gatekeeper Zones page" (page 54), must be changed to the Network Routing Services (NRS) URL for CS 1000 Release 4.0 and later.

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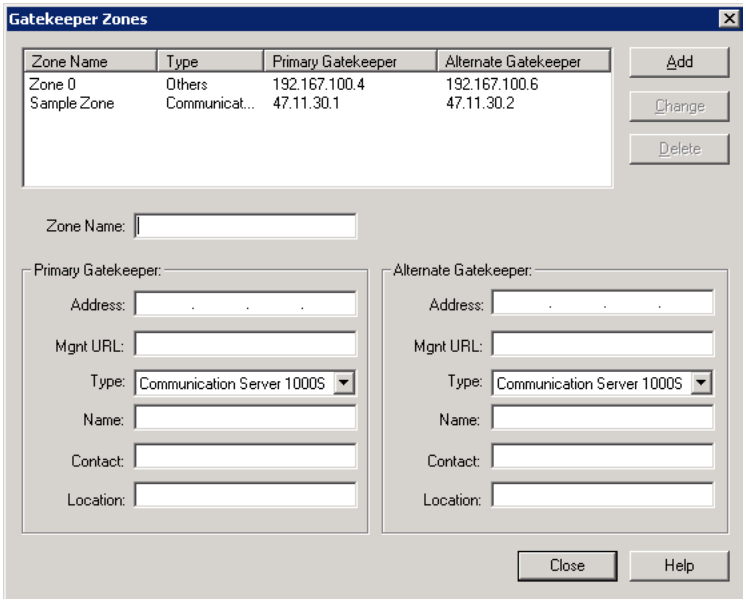
Figure 6
Gatekeeper Zones page



Zone

The Zone folder accesses Gatekeepers and a Site folder.

Double-click a Gatekeeper Zone name or click the plus sign (+) next to the zone to open a Gatekeeper Zone.

Gatekeepers are accessed only in the Gatekeepers Zones view. Systems equipped with IP applications that support gatekeeper operation can be assigned to a gatekeeper zone. Telephony Manager displays gatekeepers in the following ways:

- Media Gateways display within the Media Gateways folder of the associated system.
- Survivable IP Expansion Cabinets display only within the Survivable cabinets folder of the associated Small System.
- Telephony Manager does not display the survivable status of Media Gateways, Survivable IP Expansion cabinets, and Gatekeepers (Primary/Alternate/Out of Service).

Double-click a Gatekeeper to launch the associated management Web page.

Site

The Gatekeeper Zone Site folder contains the same subfolders as in the Sites view (see "Site folders" (page 51)).

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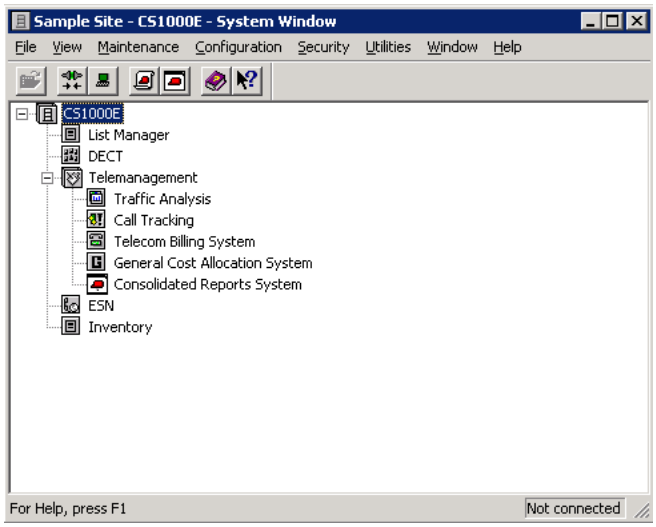
Components in CS 1000 and Meridian 1 systems appear in the system window. Telephony Manager displays a terminal emulation window for systems defined as "Generic."

System Window

To access the System Window, double-click the system in the Telephony Manager Navigator window. If the system has no subfolders, the System Window appears, as shown in Figure 7 "System Window" (page 55). If the system has subfolders, the navigator expands to show all the subfolders of the system. Click System Window.

Figure 7
System Window



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Common services

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- "Adding a site" (page 62)
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- "Adding a system" (page 71)
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"Start a new live data session" (page 173)
"Define session properties for a network connection" (page 174)
"Guidelines for use of DBA CDR and Traffic data" (page 175)
"Schedule a backup or retrieval" (page 176)
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"Configure actions and rules" (page 185)

Introduction

This chapter describes services that are applicable to any system. They are available from the Telephony Manager Windows Navigator.

User groups and access rights

Telephony Manager comes with the following user groups and corresponding access rights:

Administrators Full read/write access rights. Access rights cannot be changed for this user group.

HelpDesk

- Full access to all Web Navigator tree items except those under Web Administration.
- Full Access to Web Desktop Services, including read/write and synchronization capabilities.
- No access to Windows Navigator applications.

EndUser

- No access to Web or Windows Navigator applications.

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- Web Desktop Services is read-only. Only 21 features are available; the rest are hidden.

Default No access.

Authentication for Element Manager Web applications

When you access the Element Manager Web application, the login name and password stored for Customer 0 in the System Properties of the CS 1000 system is used. If the login name and password are correct, the login page is bypassed. If the login name and password are incorrect, Telephony Manager displays the Login page.

There is no automatic login to Gatekeeper management URLs.

Password complexity

Telephony Manager can recognize and store passwords, and to send passwords on the link to other nodes for log on.

ATTENTION

In CS1000 Release 5.0 the PDT password edit box is disabled on the System Data tab.

Because of security enhancements, passwords are case-sensitive. See *Security Management (NN430001-604)* for further details. Telephony Manager does not convert the log on name and password to uppercase before it transmits them. After the session connects with an uppercase log on name and password, the PBX accepts lowercase for the system terminal log on.

New passwords entered for the ADMIN user, the LAPW – OVL user, or the PDT user are evaluated to ensure that the password meets the following criteria:

- The password must contain a combination of at least eight alphanumeric characters.
- The password must include at least one alphabetic character, one numeric character, one special character, one uppercase character, and one lowercase character.
- The password must not contain the User ID, or any portion thereof, in forward or reverse form.
- The password must not be a combination of the year or date.
- The password must not contain three or more letters in forward or reverse alphabetic sequence, ASCII sequence, or QWERTY/ keyboard sequence.

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- The password must not match the system default password.

Initial login on a Windows system

WARNING
To ensure security, you must change the default password after initial login. Follow the steps in this procedure to select a new password.

Windows users are authenticated using either a local account on the Telephony Manager Server, a Windows domain account, or CND. There is no default login name and password for these systems.

Administrators can always log in to Telephony Manager. In a new Telephony Manager installation, use any local Administrators group account, such as Administrator, for your initial login.

Configuring user groups and users

Use Procedure 2 "Setting up users and user groups" (page 61) to configure user groups and users.

Procedure 2
Setting up users and user groups

Step	Action
1	Log in to Telephony Manager.
2	To add user groups: a. Select **Security > User Groups** from the Telephony Manager Navigator window. b. Select **Configuration > Add User Group** from the User Groups window.
3	To add users: a. Select **Security > Users** from the Telephony Manager Navigator window b. Select **Configuration > Add User** from the Telephony Manager Users window. See *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)* for detailed instructions on adding Telephony Manager user groups and users.

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—End—

Users that are not created from within Telephony Manager, such as the Administrator, do not appear in the Telephony Manager Users window.

Site and system administration

Sites and systems must be defined before users can connect to a system and perform maintenance tasks. A site typically represents a physical location containing one or more systems.

Systems are defined as Meridian 1, such as CS 1000S and CS 1000M systems, or as Generic systems (non-Meridian 1 systems).

The CS 1000M Cabinet is recognized by Telephony Manager as *Small Systems*.

The Generic system configuration provides access through a Web browser to systems such as Survivable Remote Gateway (SRG). Meridian Passport, MSL-100, and Business Communication Manager (BCM) are examples of additional systems that you can add to Telephony Manager. The Navigator Configuration menu allows the system administrator to add, change, and delete sites and systems

For more information about the Navigator and System windows, see "Using Windows Navigator" (page 43).

ATTENTION

Before renaming a site/system, ensure that all application windows are closed, and that Data Buffering and Access (DBA) is not running or collecting information. Otherwise, the renaming of the site/system fails.

Adding a site

You can add up to 3000 sites to the Telephony Manager Navigator window.

Procedure 3
Adding a site

Step	Action
1	In the Telephony Manager Navigator window, select **Configuration > Add Site**. The New Site Properties window appears, as shown in Figure 8 "New Site Properties window" (page 63).

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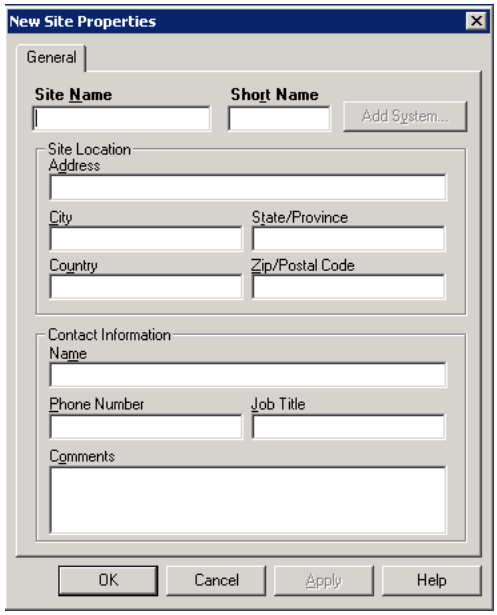
Figure 8
New Site Properties window



2 Enter the **Site Name** and **Short Name** (required fields).

The Site Name appears in the Navigator tree. The Short Name is an abbreviated site name that appears in the Alarm Banner.

3 Configuring Site Name / Short Name with only period (.) or the name start/end with a period (.) will display an error message as shown below.

Bad name

4 In the **Site Location** box, fill in the site address information.

5 In the **Contact Information** box, fill in the contact name and related information.

6 Click **Apply**.

7 To add a new system to this site:

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a. Click **Add System**.

b. Follow the instructions for "Adding a system" (page 71), and "Adding a Generic system or device" (page 104).

8 Do one of the following:

- Click **OK** to add the site and close the property sheet.
- Click **Apply** to add the site and leave the property sheet open, allowing you to add another system to this site. Repeat step 6 to add another system.
- Click **Cancel** to close the window without adding the site.

—End—

Configuring a system to work with Telephony Manager

ATTENTION

If Unsecure Shells are disabled in LD 117, protocols including Telnet, FTP, and RLOGIN are disabled, which prevents Telephony Manager from communicating with the PBX via Ethernet for most functions.

Use Procedure 4 "Configuring a system" (page 64) to configure a system.

Procedure 4
Configuring a system

Step	Action
1	Verify that the system has the following system configuration: • The appropriate release, configured with the appropriate packages • 48 MB or greater of memory • For Ethernet communications: — X11 Release 22 or later — IOP cards (NT6D63BA or later), IOP/CMDU cards (NT5D20BA or later) (not applicable to Meridian 1 PBX 11C Cabinet systems), IODU/C cards (NT5D61AB or later) — One or two Ethernet AUI cables (NT7D90DA or later). You attach one cable to each IOP, IOP/CMDU, or IODU/C. — For 11C, an NTDK27AA Ethernet cable

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2 For Ethernet networks, you need the following:

- One or two Ethernet transceivers (different types for 10BaseT and 10Base2 cabling); attach one transceiver to each AUI cable
  - — Ethernet communications cable: 10BaseT cabling requires Category 5 cable with RJ45 connectors

    Although normal telephone cable and Category 5 cable are similar in appearance, telephone cable is not acceptable for network applications.
  - — For 10Base2 cabling, an RG58 cable with BNC connectors

    Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.
- An Ethernet hub for the 10BaseT interface

CAUTION
Service Interruption
If you plan to connect the system to a corporate network, you require an Ethernet gateway or router to separate the system from the corporate network. If you connect the system without a gateway or router, you adversely affect the call handling ability of that system.

3 For PPP communication, you need the following:

- Hayes command-compatible modem
- Modem cables
- For system SDI ports, user type MTC and SCH set in LD 17

4 For serial communication, you need the following:

- Hayes command-compatible modem only for remote dial-up
- Modem cables
- Direct serial cable connection between the PC and the SDI port on the switch
- For system SDI ports, the appropriate user type as configured in LD 17 for each Telephony Manager application, listed in Table 2 "SDI port settings for Telephony Manager applications" (page 66)

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Table 2
SDI port settings for Telephony Manager applications

Telephony Manager application	SDI port setting
Telephone Manager	SCH
ESN	SCH
Telecom Billing System	CTY
Traffic Analysis	TRF if information is sent to a buffer box; SCH if information is collected hourly from the system

5 Configure Telephony Manager users on the system:

a. Install the appropriate release of software.

b. Perform an INIT.

The Telephony Manager application does not function properly if an INIT has not been performed.

c. Configure a Limited Access Password (LAPW) to collect traffic data from LD 2.

Telephony Manager communicates with the systems through LAPW IDs and passwords configured on the systems.

d. Configure the password to have access to all customers by setting the CUST prompt to **ALL**.

>**logi <ID>**, where **ID** is the login ID.

PASS?> <**XXXXXX**>, where *XXXXXX* is the level 1 or level 2 password.

WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM ARE LICENSED TO OR ARE THE PROPERTY OF NORTEL NETWORKS AND ARE LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR APPROVED PURPOSES. UNAUTHORIZED ACCESS TO ANY PROGRAM OR DATA ON SYSTEM IS NOT PERMITTED. THIS SYSTEM MAY BE MONITORED AT ANY TIME FOR OPERATIONAL REASONS. THEREFORE, IF YOU ARE NOT AN AUTHORIZED USER, DO NOT ATTEMPT TO LOGIN.

TTY #00 LOGGED IN 15:02 9/7/1996

For more information about Limited Access to Overlays, see *Features and Services (NN43001-106-B1, -B2, -B3)*.

e. If login names are not configured:

```
>LD 17
```


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CFN000
MEM AVAIL: (U/P): 3352174 USED: 203153 TOT: 3555327
DISK RECS AVAIL: 2764
DCH AVAIL: 15 USED: 1 TOT: 16
AML AVAIL: 10 USED: 0 TOT: 10

REQ> **chg**
TYPE> **pwd**
PWD2 (Your level 2 password)
LNAME_OPTION> **yes**

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT: 3555327
DISK RECS AVAIL: 2764
DCH AVAIL: 15 USED: 1 TOT: 16
AML AVAIL: 10 USED: 0 TOT: 10

DEFAULT LOGIN NAMES SAVED

At this point, your old passwords work with either the newly assigned user IDs or with the default user ID values associated with your old passwords. See the online Help for LD 17, LNAME_OPTION for more information. Alert others of any changes (for example, all technicians with access to the system, the Distributor, and so on). Continue configuring LAPW and Telephony Manager.

REQ> **chg**
TYPE> **pwd**
PWD2 (Your level 2 password)
LNAME_OPTION> **yes**
NPW1
LOGIN_NAME
NPW2
LOGIN_NAME

Prior to entering n for LAPW, check with your PBX Administrator to ensure that the value for n is not a preconfigured value. For example, LAPW=0 is preconfigured with SpeedCall List denied.

LAPW> <**n**>, where **n** is the Limited Access Password
PWTP
PW*n* where **n** is the Limited Access Password

Enter your new password.

LOGIN_NAME> <**xxxxxx**>, where *xxxxxx* is your login name.
OVLA> **all**
OVLA
CUST> **all**
CUST
HOST

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```
MAT> yes
MAT_READ_ONLY> no
OPT
LAPW
FLTH

LOCK
AUDT
INIT

MEM AVAIL: (U/P): 3352149 USED: 203178 TOT: 3555327
DISK RECS AVAIL: 2764
DCH AVAIL: 15 USED: 1 TOT: 16
AML AVAIL: 10 USED: 0 TOT: 10
REQ> end
```

6 If you are using serial connections, skip this step. If you are using Ethernet or PPP connections, configure a PTY for each Telephony Manager application that runs simultaneously with other applications over Ethernet or PPP. For example, Maintenance Windows and System Terminal each require a pseudo-teletype (PTY) if they run at the same time. If you have enough free ports, Nortel recommends that you configure at least two PTYs. You can allocate a maximum of 8 PTYs (maximum of 4 PTYs on an Cabinet system system).

Find an empty terminal slot:

```
>LD 22
PT2000

REQ> prt
TYPE> adan tty

ADAN TTY 0
 CTYP PTY
 DNUM 0
 PORT 0
 DES pty0
 FLOW NO
 USER SCH
 XSM NO
 TTYLOG 0
 PORT 7
 DES jonspty
 FLOW NO
 USER MTC SCH BUG
 XSM NO
 TTYLOG 0
 BANR YES

ADAN TTY 8
```


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CTYP SDI2
DNUM 8
DES TECHSUN
FLOW NO
USER MTC SCH CTY BUG
XSM NO
TTYLOG 0
BANR YES
...
REQ> ****
OVL000
>LD 17
CFN000
MEM AVAIL: (U/P): 3352149 USED: 203178 TOT: 3555327
DISK RECS AVAIL: 2764
DCH AVAIL: 15 USED: 1 TOT: 16
AML AVAIL: 10 USED: 0 TOT: 10

Choose an empty port number between 0-15. Choose a PTY number 0-7. In this example, we find port 13 to be free, and assign PTY 0.

REQ> **chg**
TYPE> **adan**
ADAN> **new tty <n>**, where n is an available serial port (0-15).
TTY-TYPE> **pty**
PORT> **<z>**, where **z** is an available PTY port (0-7).
DES> **<n>**
DES> **new pty**
FLOW
USER> **mtc bug sch**
TTYLOG
BANR

MEM AVAIL: (U/P): 3345946 USED: 209381 TOT: 3555327
DISK RECS AVAIL: 2764
DCH AVAIL: 15 USED: 1 TOT: 16
AML AVAIL: 10 USED: 0 TOT: 10

ADAN DATA SAVED
ADAN> **end**

Set the BPS for TTY as 9600.

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Go to Id 37 and disable and enable the TTY as follows:

- **stat**
- **dis tty 1**
- **en1 tty 1**

7 Configure Ethernet and PPP on the system:

The host names (**M1ACTIVEIP**, **M1INACTIVEIP**) and IP addresses used in the following instructions are only examples. Actual host names and IP addresses should conform to your network plan.

- In LD 117, configure an IP address on the system:

  ```
  >LD 117
  >NEW HOST M1ACTIVEIP 47.1.1.10
  >CHG ELNK ACTIVE M1ACTIVEIP
  ```

- If you are using a backup (inactive) IP, use LD 117 to configure it as well. This step does not apply to Meridian 1 PBX 11C Chassis systems.
- The backup (inactive) IP is only used when the switch is in split mode.

  ```
  >NEW HOST M1INACTIVEIP 47.1.1.11
  >CHG ELNK INACTIVE M1INACTIVEIP
  ```

- Configure the subnet mask.

  ```
  >CHG MASK 255.255.255.0
  ```

- If you have a default gateway in the network, define the routing table in LD 117.

  ```
  >LD 117
  >NEW ROUTE 47.1.0.0 47.1.1.250
  ```

  The first four digits define the network IP address. The remaining digits specify the gateway IP address.

  >PRT ROUTE (list the configured routing table)
  >ENL ROUTE #, where # is the route number

  If desired, you can print all information about route, host, gateway, and related settings.

  The routing table provides the system with the IP address of the gateway server so the system can send return messages to the gateway for forwarding to the requesting client.

  You can use **PRT ROUTE** for a list of routes with route numbers.

  You can use **STAT ROUTE** to see if the route was successfully enabled.

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- If you are using PPP, use the default addresses unless there is an address conflict. If a conflict exists, obtain a new IP address from your network administrator and configure this address.

  >LD 117
  >PRT PPP
  >NEW HOST REMOTE_PPP 47.0.0.3
  >en1 host 1 (where 1 is the host number for REMOTE_PPP)
  >NEW HOST LOCAL_PPP 47.0.0.2
  >en1 host 2 (where 2 is the host number for LOCAL_PPP)
  >CHG PPP REMOTE REMOTE_PPP 0
  >CHG PPP LOCAL LOCAL_PPP 0
  >en1 PPP

- After you perform a series of **NEW**, **OUT**, **CHG** commands, type

  >UPDATE DBS

  to clean up the database before you get out of LD 117.

  ATTENTION
  When ELNK is disabled, communication between all devices talking to the PBX on the ELNK goes down. Nortel recommends that you perform the following action in a maintenance window.

- Use Overlay 137 to verify the IP address:

  >**LD 137** (***Note***: Overlay 137 prompt is ".")
  .DIS ELNK (disable Ethernet interface)
  .ENL ELNK (enable Ethernet interface)
  .STAT ELNK (verify IP address)

  If the STAT ELNK command displays the correct IP address, your IP address configuration is done. Otherwise, you must INIT the system.

—End—

Adding a system

CS 1000 systems running a software version earlier than Succession Release 2.0 that were added in an earlier version of Telephony Manager cannot be converted to Succession Release 3.1 or later systems. You must delete the older system and add a new Succession Release 3.1 or later system.

You can add as many as 3000 sites to Telephony Manager and 256 systems (including non-CS 1000 systems) to a site. You must have administrator privileges to add a system.

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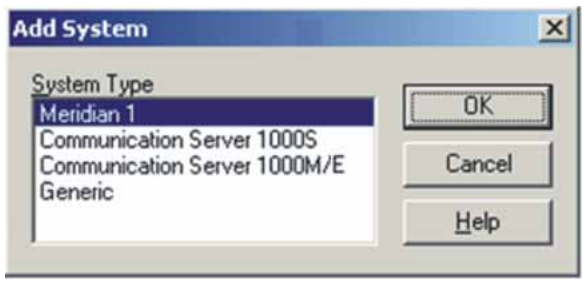
See *Communication Server 1000: System Redundancy (NN43001-507)* for more information on the Geographic Redundancy feature in Telephony Manager.

Procedure 5
Adding a system

Step	Action
1	In the Navigator window, select the site you want. If you are adding a new system from within the New Site Properties window, go to step 3.
2	Select **Configuration > Add System**, or right-click and select **Add System**. The Add System window appears, as shown in Figure 9 "Add System window" (page 72).
3	Select one of the following systems: • **Meridian 1** for a Meridian 1 system running CS 1000 Release 3.0 software or later without a Signaling Server • **Communication Server 1000S** for a CS 1000 system running Succession Release 2.0 or CS 1000 Release 3.0 software or later • **Communication Server 1000M/E** for a Meridian 1 system running CS 1000 Release 3.1 software or later with a Signaling Server • **Generic** You may need to install additional software to enable other system types not listed in Figure 9 "Add System window" (page 72). Follow the installation instructions included with your order.

Figure 9
Add System window



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The System Properties window appears, as shown in Figure 10 "New System Properties window: General tab" (page 73) with the General tab displayed, or in Figure 11 "System Properties window: General tab (Generic system)" (page 74) if a Generic System is selected.

Figure 10
New System Properties window: General tab

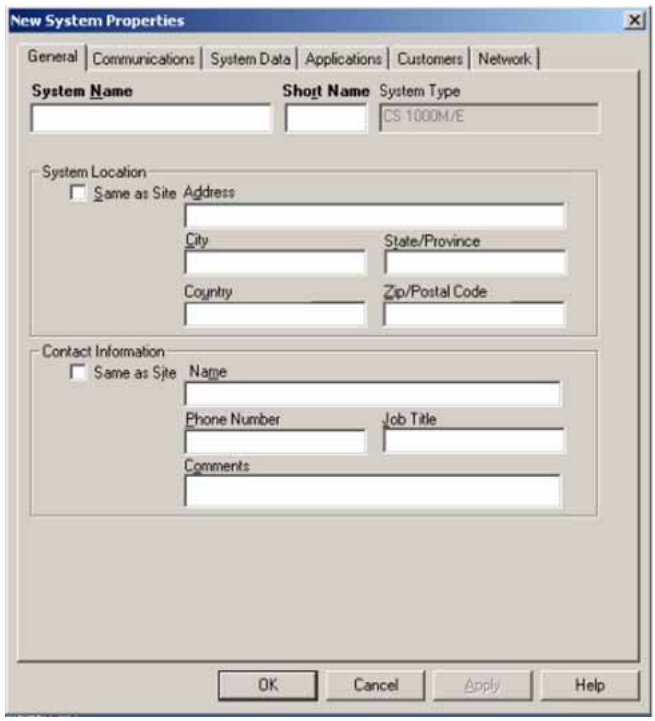

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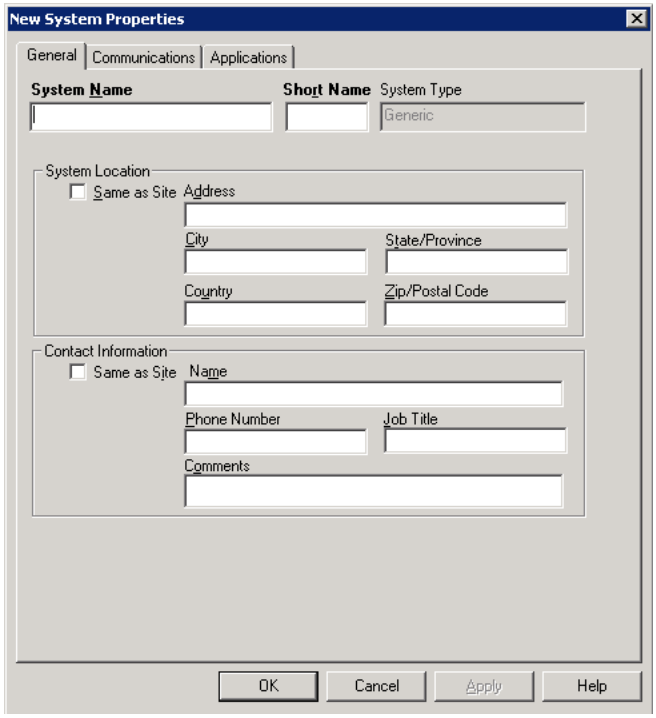
Figure 11
System Properties window: General tab (Generic system)



4 Enter the **System Name** and **Short Name** (required fields) and other information as needed.

Both System Name and Short Name cannot be only period (.) and cannot start or end with a period (.)

Configuring System Name / Short Name with only period (.) or the name start/end with a period (.) will display an error message as shown below.

Figure 12
Bad name

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Selecting the SNMP provisioning check box enables configuration of the SNMP parameters in LD 117 using the system and contact information from Telephony Manager during Update System Data. The check box is enabled if the Release is 4 and the user is an administrator.

You can make system location and contact information the same as site information by selecting the Same as Site check box.

Bold fields indicate required information. To change a value, edit the field. Some fields may have a list of predefined choices. For more detailed information, the online Help.

5 Click Apply.

6 To add a new communications profile, click the **Communications** tab.

This tab defines the types of communications profiles that can be applied to system applications. One profile can be used for multiple applications.

ATTENTION

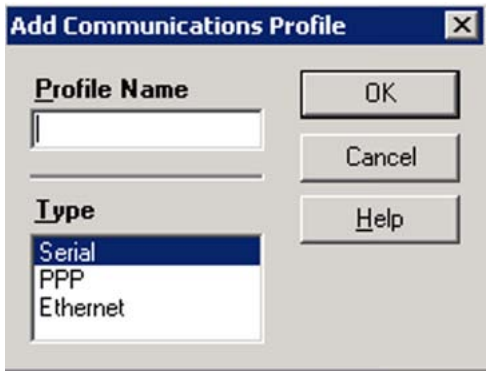
You must configure a Communications Profile for the List Manager application. If you do not, the Update System Data function does not work. Applications such as Maintenance Windows and System Terminal use the Communications Profile for the List Manager application.

Telephony Manager is shipped with a default communications profile. The Default profile is an Ethernet profile, and it cannot be deleted.

a. Click **Add**.

The Add Communications Profile window appears, as shown in Figure 13 "Add Communications Profile window" (page 75).

Figure 13
Add Communications Profile window



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b. Select a communications type from the Type box.

c. Enter a Profile Name

d. Click **OK**.

e. Fill in the communications information for the new profile:

- For the Serial profile (Figure 14 "System Properties: Communications tab Serial profile" (page 77)):

  1. Enter all modem parameters and dial-up information.
  2. Select the appropriate value in the Modem Script list. This is usually None unless a specific value is defined for your system.
  3. Click **Apply**.

- For the PPP profile (Figure 15 "System Properties: Communications tab PPP profile" (page 78)):

  1. Enter all modem parameters and dial-up information.
  2. Select PPP in the Modem Script text box.
  3. Set the IP address to the local IP address, as configured on the system.
  4. Click **Apply**.

- For the Ethernet profile Figure 17 "System Properties: Communications tab Ethernet profile" (page 79):

  1. Select the appropriate network protocol.
  2. Enter the IP address that you configured on the CS 1000 system.
  3. Click **Apply**.

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Figure 14
System Properties: Communications tab Serial profile

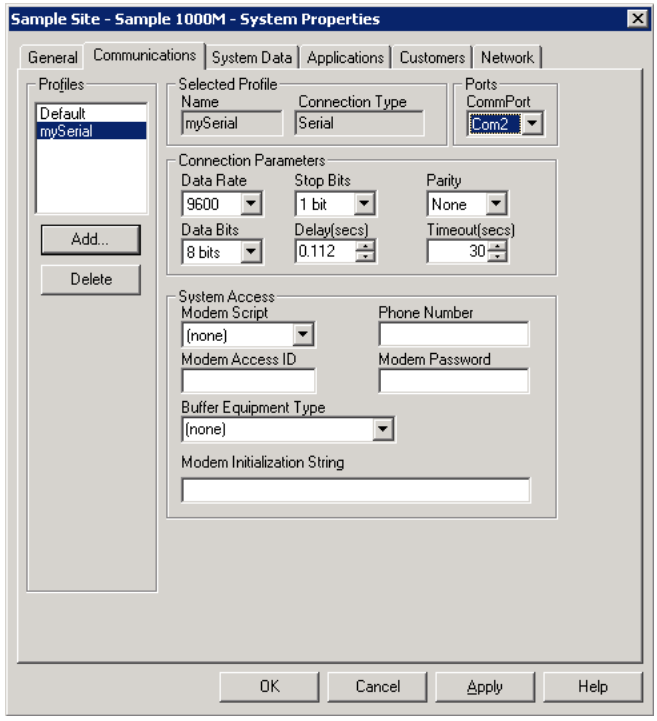

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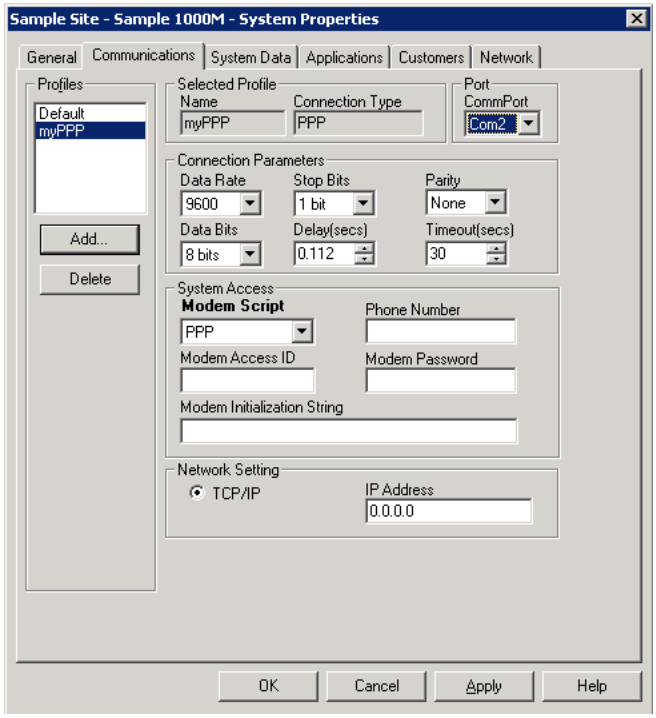
Figure 15
System Properties: Communications tab PPP profile



7 From the configuration menu of Telephony Manager Navigator, launch the System Modem Scripts (see Figure 16 "System Modem Script Properties" (page 79)).

Make the following changes to the PPP modem script:

- The first command is changed from **$USE7BITS** to **$USE8BITS**.
- Change the timeout value of **$USERNAME** and **$USE8BITS** to **1**.

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Figure 16
System Modem Script Properties

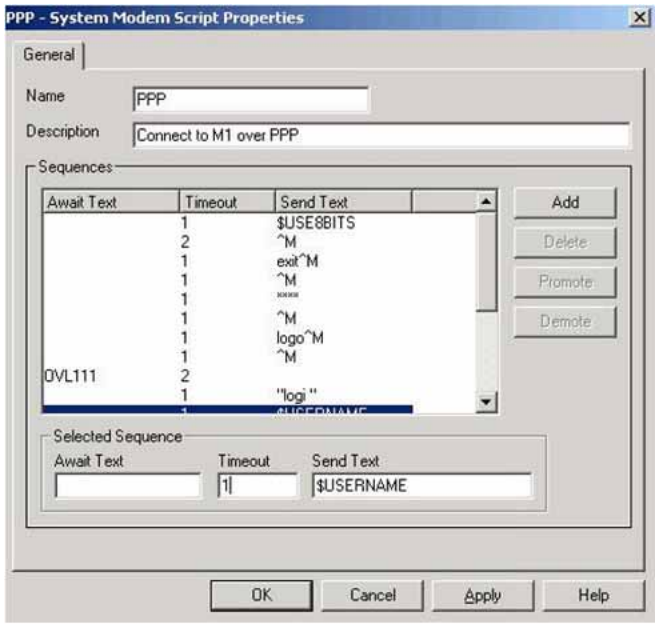
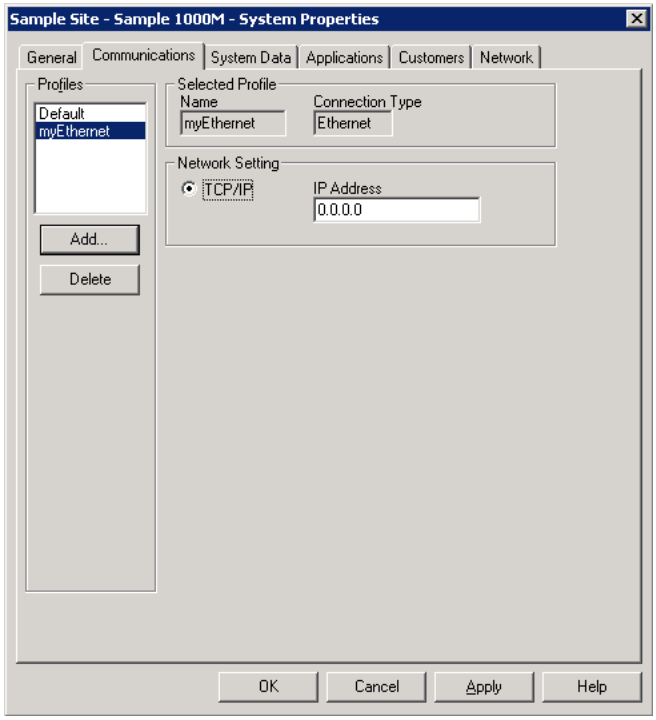


Figure 17
System Properties: Communications tab Ethernet profile



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8 Click **System Data tab**.

The System Data tab appears, as shown in Figure 18 "System Properties: System Data tab" (page 81). The Release is dependent on the machine selected. Only supported releases are displayed in the box.

ATTENTION

Telephony Manager 3.1 supports the new CS 1000 Release 5.0 for CS 1000 and Meridian systems. The **Update System Data** operation populates the release value as "5" and the issue as "0". Figure 18 "System Properties: System Data tab" (page 81). The All Sites and Systems - System Data window displays the new CS 1000 Release 5.0 in the system information for the relevant systems.

Schedule an upload to copy this data directly from an installed managed system. Select **File > Update System Data** in the System window. Update System Data uses the communications profile for Telephone Manager.

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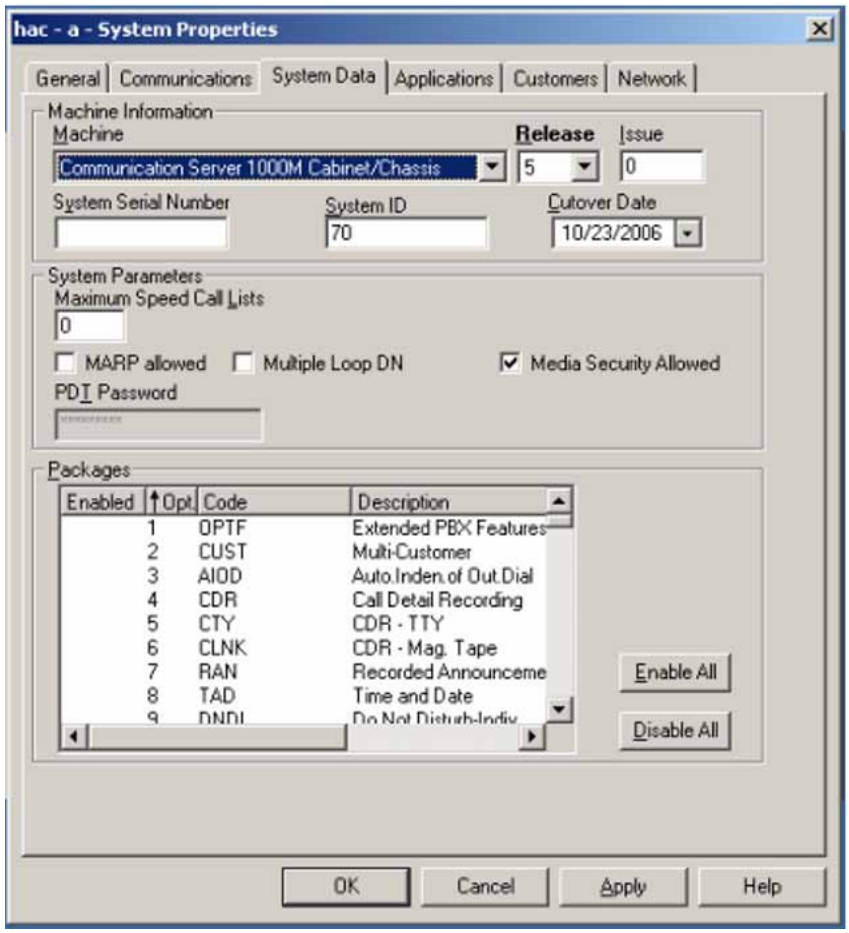
Figure 18
System Properties: System Data tab



a. Select the **Machine** (system type), **Release**, and **Issue** for the system.

   Machine names are associated with the presence or absence of a signaling server. Selecting the Signaling Server box in the Network tab changes the Machine names display.

   If the **Cutover Date** is modified, and a System Update performed, the modification remains as such and no date is retrieved from the switch.

b. Set the **System Parameters**.

   In the System Parameters box, the PDT password edit box lets you set the Level 2 password for the Problem Determination Tool (PDT). If you change this password, you must manually change the PDT password on the system so that they match.

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The **PDT Password** field is used to communicate with the switch and is not retrieved.

This applies to Release 4.5 only. For Release 5.0, the PDT password is disabled.

ATTENTION
The PDT password is disabled for Release 5.0 and higher, as this value is not used for Telephony Manager access to the switch.

c. Enable or disable feature packages.

d. Click **Apply**.

9 Click the **Applications** tab.

The Applications tab appears, as shown in Figure 19 "System Properties: Applications tab" (page 83). This tab defines the Telephony Manager applications that appear in the System window and the communications profile to be used with each application. You must enable an application for it to be available in the System window.

Communications profile settings are defined on a site and system basis and are shared by the Telephony Manager Server and its Clients. Consequently, if you define a serial communications profile for a Telephony Manager application, both the Telephony Manager Server and Telephony Manager Client PCs must have a physical serial connection between the site and system and the PCs. A Telephony Manager Client PC cannot use the COM ports of the Telephony Manager Server. Any communication task uses the resources of the PC on which it is running.

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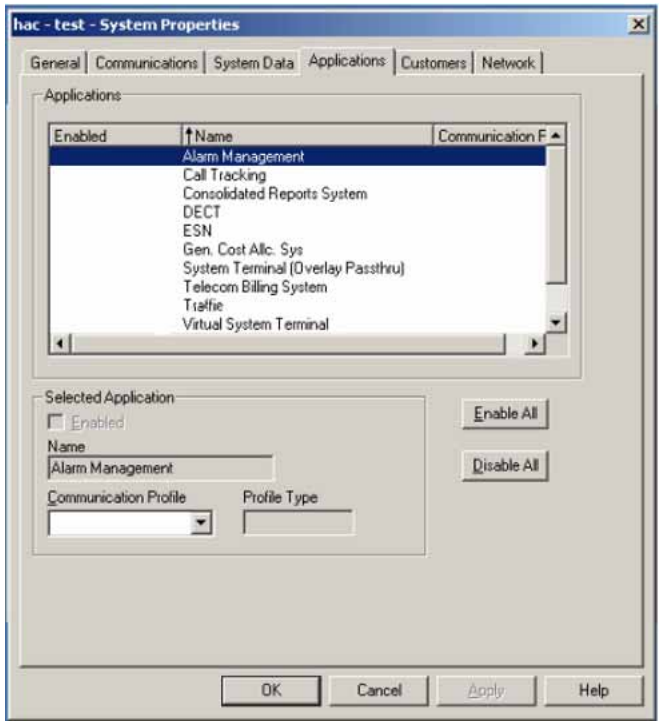
Figure 19
System Properties: Applications tab



- To enable an application:
  1. Select the application in the **Applications** tab.

     By default, each application is selected. Modify these selections by deselecting applications.
  2. Do one of the following:
     - Select a Communications Profile from the list. A check mark appears next to the application, and the Enabled box is also selected.
     - Click **Enable All**: Enables the default communications profile for all available applications under the Application tab (with the exception of Call Tracking which is always serial).

       If there is no serial profile added, then Call Tracking is not enabled. If the user has added any serial profile, then the first profile is set as the communications profile.

       The General Cost Allocation System and Telecom Billing System applications are enabled without a communications profile.

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3. Click **OK**.
4. Click **Apply**.

- To disable an application:
  1. Select the application in the **Applications** tab.
  2. Do one of the following:
     - In the **Selected Application** box, clear the **Enabled** check box.
     - Click **Disable All** to disable the communications profile for all available applications under the **Application** tab.
  3. Click **Apply**.

10 If applicable, click the **Customers** tab.

The Customers tab appears, as shown in Figure 20 "System Properties: Customers tab" (page 85). This tab lists the customers currently defined for this system. Customer information is required for Telephone Manager/CPND and ESN applications.

ATTENTION

This information is not automatically updated and must be updated by using LD 15. LD 15 enables customers to configure their systems on the CS 1000. For more information, online Help.

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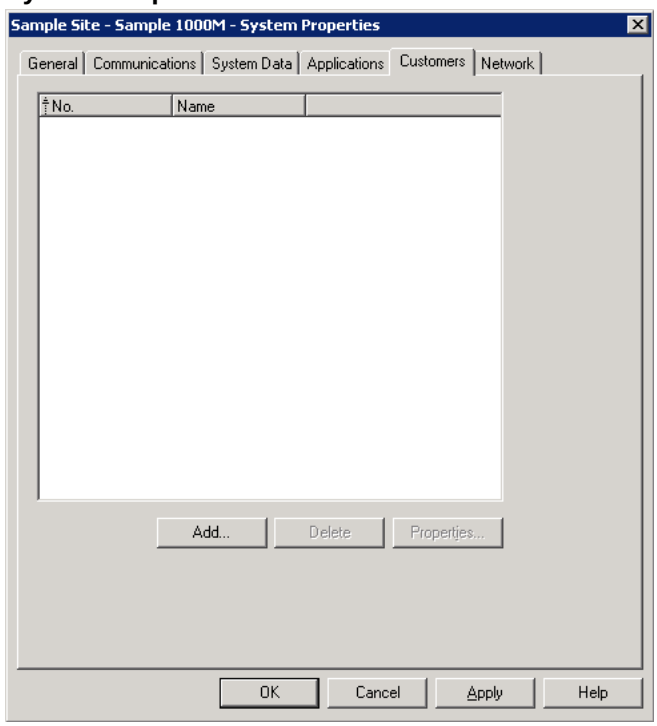
Figure 20
System Properties: Customers tab

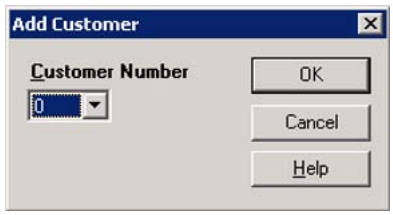


11 To add a customer:

a. Click **Add** in the System Properties—Customers tab.

The Add Customer window appears, as shown in Figure 21 "Add customer window" (page 85).

Figure 21
Add customer window



b. Select a **Customer Number**.

c. Click **OK**.

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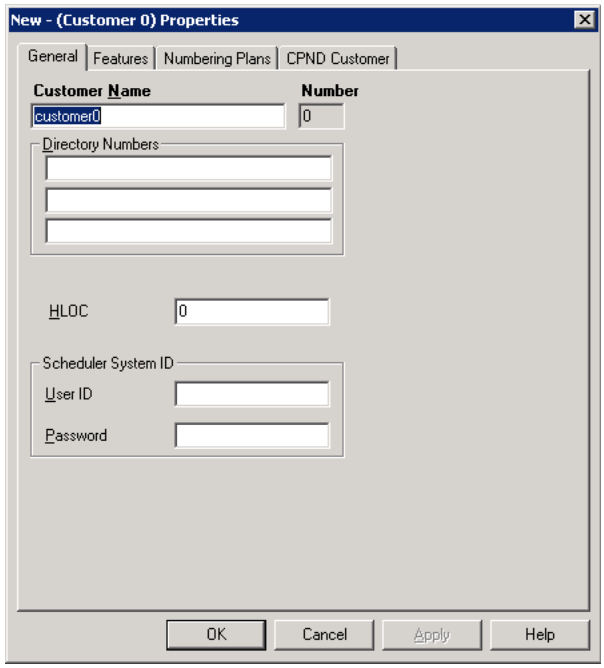
The Customer Properties window appears as shown in Figure 22 "Customer Properties: General tab" (page 86), with the General tab displayed.

Figure 22
Customer Properties: General tab



d. Fill in the general information for the customer.

   Schedule an upload to copy this date directly from an installed managed system. Select **File > Update System Data** in the System window. Update System Data uses the communications profile for Telephone Manager.

e. Enter a **User ID** and **Password** in the **Scheduler System ID** box.

   This is for the system that Telephony Manager is managing.

f. Click the **Features** tab.

   The Features tab appears, as shown in Figure 23 "Customer Properties: Features tab" (page 87).

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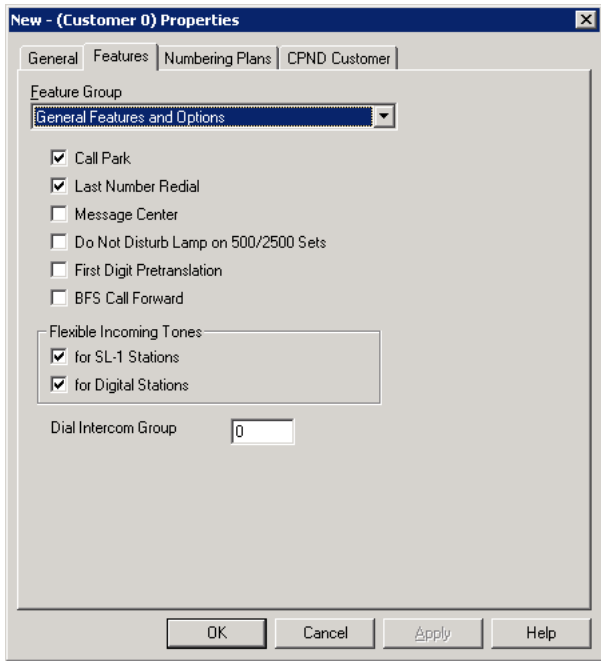
Figure 23
Customer Properties: Features tab



g. Fill in the feature information for the customer.

h. Click the **Numbering Plans** tab.

The Numbering Plans tab appears, as shown in Figure 24 "Customer Properties: Numbering Plans tab" (page 88).

ATTENTION

The **Secure Data Password** field cannot be retrieved from the switch since it is encrypted. The user has the option of entering the password manually after they update system data.

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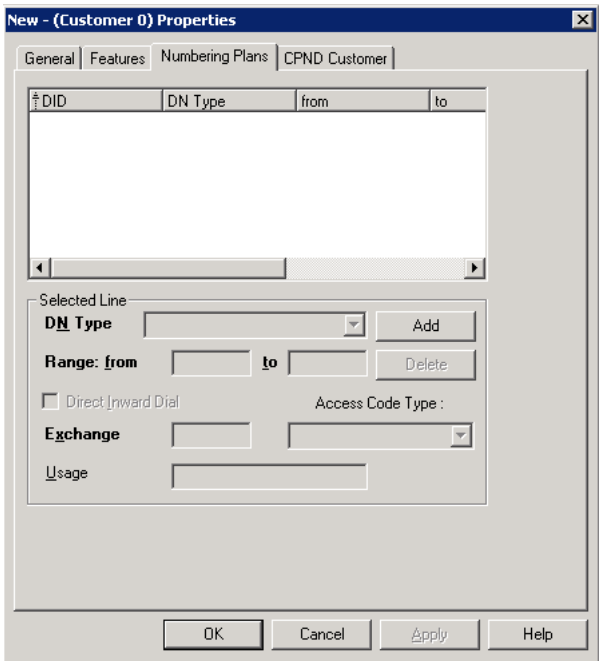
Figure 24
Customer Properties: Numbering Plans tab



i. Fill in the numbering plan information for the customer.

The numbering plan information is used to validate DNs in Telephone Manager.

ATTENTION

The CPND Customer tab in the Customer Properties window, shown in Figure 25 "Customer Properties: CPND Customer tab" (page 89), is auto-filled by the Update System Data process. Do not enter any information in any of the fields in this tab.

The CPND Customer Block must be defined using LD 95. The Update System Process only retrieves the information; it does not transmit any changes.

The CPND Customer block must be defined so CPND names can be configured for telephones.

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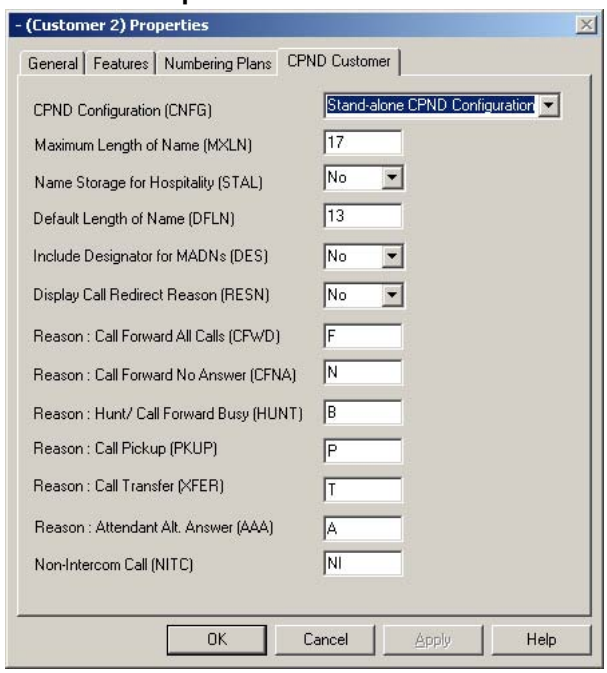
Figure 25
Customer Properties: CPND Customer tab



12 Do one of the following:

- Click **OK** to add the customer and return to the System properties sheet.
- Click **Cancel** to close the window without adding the customer.
- Click **Apply** to add the customer and leave the **Customer Properties** window open so you can add more information for this customer.

13 To delete a customer:

a. Click **Delete** in the System Properties—Customers tab.

A delete confirmation dialog box appears.

b. Click **OK**.

14 To modify customer information:

a. Click **Properties** in the System Properties—Customers tab.

The Customer Properties window appears with the General tab displayed.

b. Modify information in the appropriate tabs.

c. Click **OK**.

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15 Click **Network** tab.

The content of the Network tab depends on the type and size of system being added, as follows:

- CS 1000M systems

  Signaling Server present is selected by default; Primary Signaling Server and Alternate Signaling Server controls are enabled; and Add is enabled for Associated Branch Media Gateways. Figure 26 "CS 1000M/E system with Signaling Server present selected" (page 90).

  If Signaling Server present is cleared (deselected), all of the other controls mentioned above are disabled. A special situation may occur if you clear Signaling Server present when you are adding a CS 1000 Large System, as follows:

ATTENTION

If there is at least one branch office associated with a Large System, clicking OK or Apply after clearing Signaling Server present displays the warning shown in Figure 27 "Large Systems with Associated Branch Offices" (page 91) to confirm the deletion of the associated MG 1000B.

Figure 26
CS 1000M/E system with Signaling Server present selected

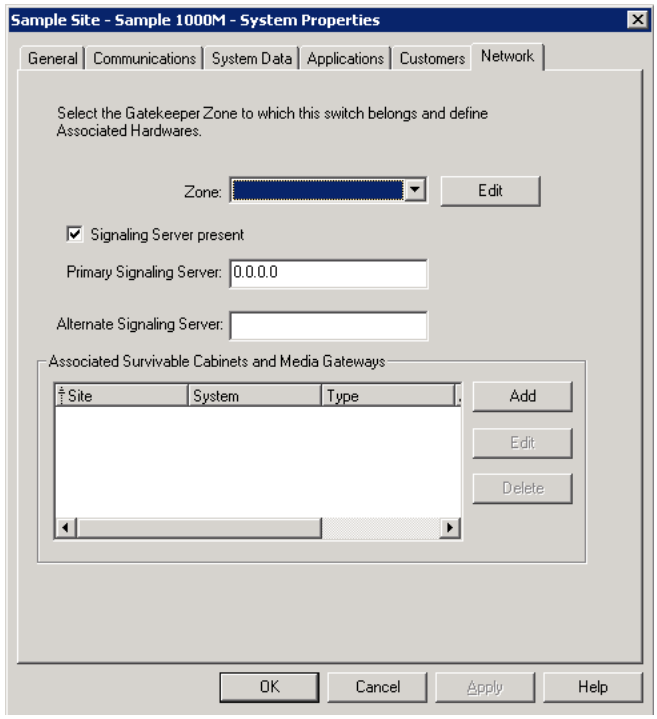

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Figure 27
Large Systems with Associated Branch Offices

If the warning shown in Figure 27 "Large Systems with Associated Branch Offices" (page 91) appears, do one of the following:

— Click **OK** to delete all associated MG 1000B systems.

— Click **Cancel** to re-select the **Signaling Server present** check box and not delete the associated MG 1000B systems.

- CS 1000S systems

  There is no Signaling Server present option; Primary Signaling Server and Alternate Signaling Server controls are disabled; Add is enabled for Associated Branch Media Gateways. See Figure 28 "CS 1000S system" (page 92).

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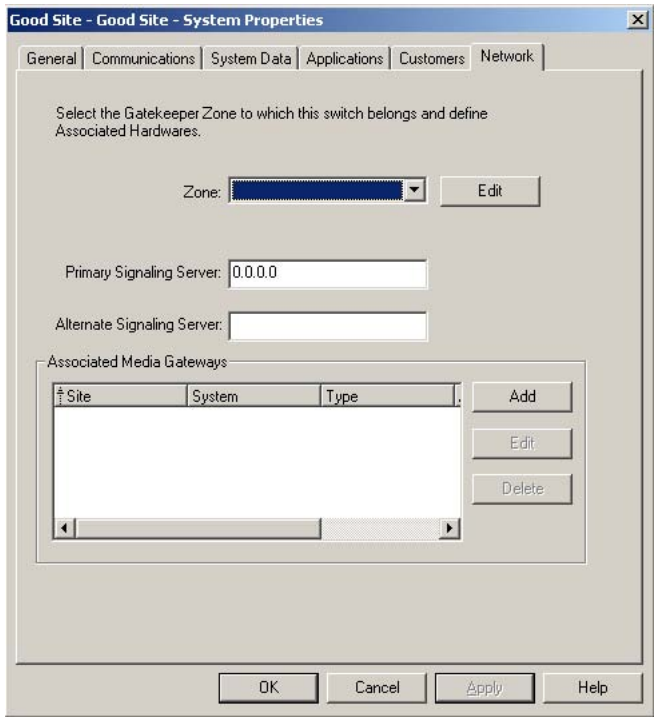
Figure 28
CS 1000S system



- CS 1000 CPPM system

  There is no Signaling Server present option; Primary Signaling Server and Alternate Signaling Server controls are disabled; Add is enabled for Associated Branch Media Gateways.

- Meridian 1 systems

  Signaling Server present is not selected by default; Primary Signaling Server and Alternate Signaling Server controls are disabled; and Add is enabled for Associated Branch Media Gateways. See Figure 29 "Meridian 1 system with Signaling Server present not selected" (page 93).

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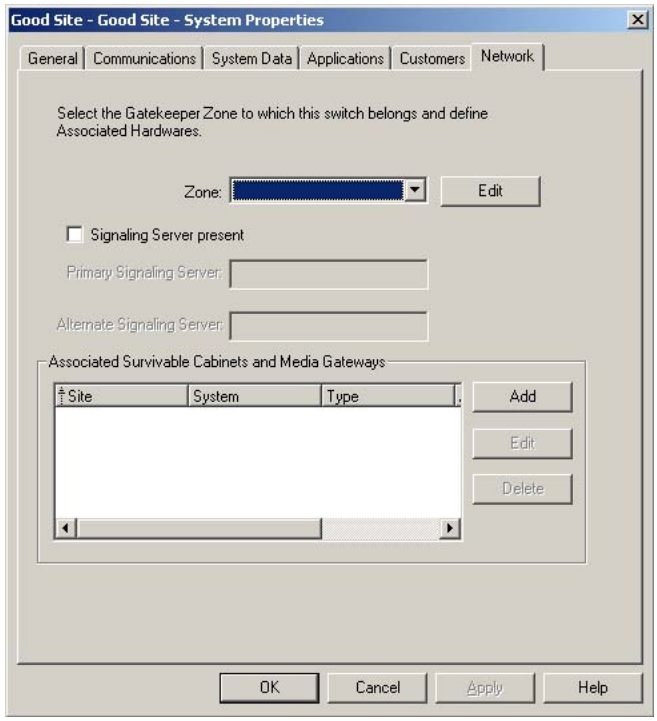
Figure 29
Meridian 1 system with Signaling Server present not selected



In all cases, the Release is dependent on the machine selected. Only supported releases are displayed in the box.

16 To add a Gatekeeper to a system:

For information on managing Gatekeeper Zones, see "Managing gatekeeper zones" (page 101).

a. Select the Gatekeeper **Zone** from the list.

b. Enter the IP address or host name for the **Primary Signaling Server**.

c. (Optional) Enter the IP address or host name for an **Alternate Signaling Server** for redundancy.

d. If you are finished adding the system, go to step 19.

17 (Small System and CS 1000S system only) To add a survivable cabinet to a Small System:

a. Click **Add**.

The Add Associated Equipment window appears, as shown in Figure 30 "Add Associated Equipment window" (page 94).

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ATTENTION
If you are adding a CS 1000S system, the Survivable Media Gateway/MG1000S does not appear in this window.

Figure 30
Add Associated Equipment window

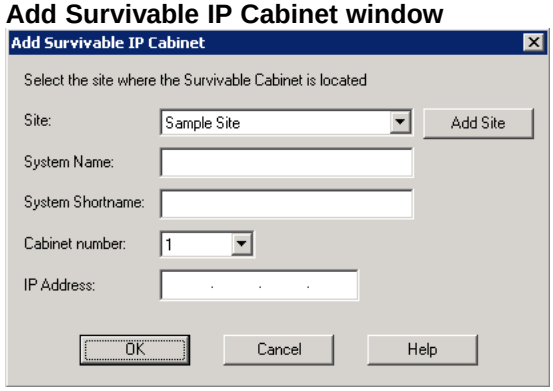
b. Select either **Survivable Media Gateway/MG1000S** or **Branch Media Gateway/MG1000B**.

c. Click **OK**.

If Signaling Server present is selected in the Network tab, the Add Survivable IP Cabinet window appears, as shown in Figure 31 "Add Survivable IP Cabinet window" (page 94).

d. If **Signaling Server present** is cleared in the **Network** tab, go to step o.

Figure 31
Add Survivable IP Cabinet window



e. Select the **Site** from the list.

f. Enter a **System Name** and **System Shortname**.

g. Select the **Cabinet number** from the list.

h. Enter the **IP Address** for this cabinet.

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i. Click **OK**.

The System Properties window appears.

The settings in the Applications tab are copied from the Main Cabinet system properties. If the Default Ethernet communications profile is selected for the applications on the Main Cabinet that are likely to be used by the Survivable IP Expansion Cabinets, you can click OK to add the SIPE Cabinet and return to the Network tab for the Main Cabinet (see step 8).

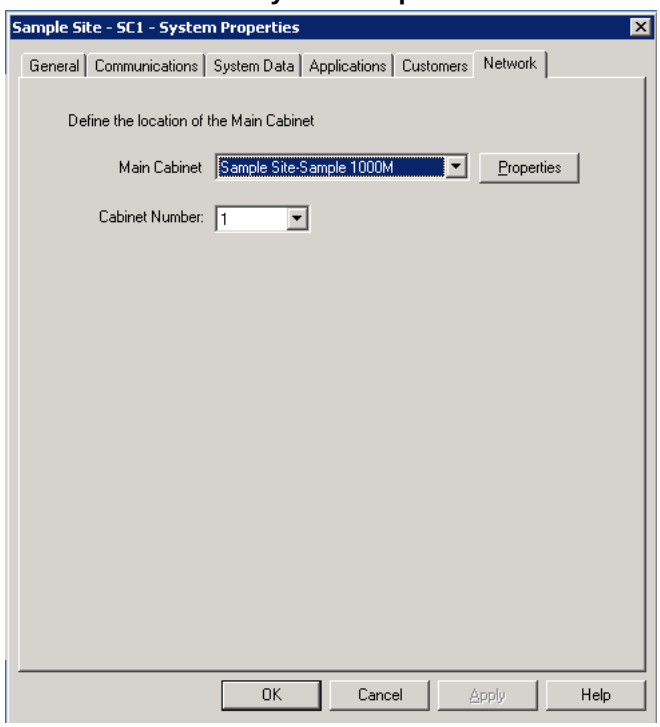
j. Enter the requested information in the General and Communications tabs (use step 4 on page 105 through step 6 on page 106).

The IP address entered in the Add Survivable IP Cabinet window is copied into the default Ethernet communications profile. The System Data and Customers tabs are read-only. These contain the information from the main cabinet.

k. Click the **Network** tab.

The Network tab appears, as shown in Figure 32 "Survivable Cabinet System Properties: Network tab" (page 95).

Figure 32
Survivable Cabinet System Properties: Network tab



l. Select the **Main Cabinet** from the list.

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m. Select the **Cabinet Number** from the list.

n. Click **OK**.

o. If you are finished adding the system, go to step 19.

For more information on survivable expansion cabinets, see *Communication Server 1000M and Meridian 1: Small System Installation and Configuration (NN43011-310)*.

18 (CS 1000 Small Systems only) To add a Survivable Media Gateway/MG1000S to a system:

a. Click **Add**.

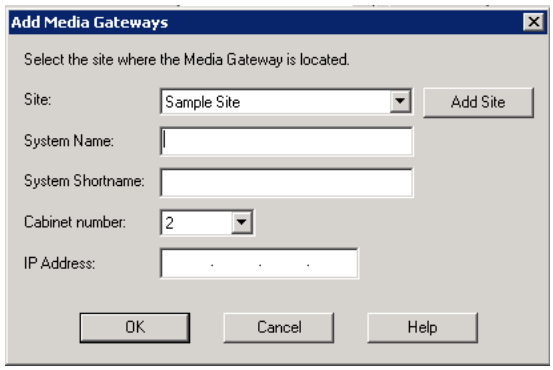
The Add Associated Equipment window open, as shown in Figure 30 "Add Associated Equipment window" (page 94).

b. Select **Survivable Media Gateway / MG1000S**.

c. Click **OK**.

The Add Media Gateways window appears, as shown in Figure 33 "Add Media Gateways window" (page 96).

Figure 33
Add Media Gateways window



d. Do one of the following to identify where the new Media Gateway is located:

- If the Media Gateway is located at an existing site, select the **Site** from the list.
- Add a new site:

1. Click **Add Site**.

The New Site Properties window appears, as shown in Figure 8 "New Site Properties window" (page 63)

2. Complete step 2 to step 5 of Procedure 3 "Adding a site" (page 62).

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3. Select the **Site** from the list.

The System Name and System Shortname appear in the corresponding fields.

e. Select the **Cabinet Number** from the list.

f. Enter the **IP Address** for this Media Gateway.

g. Click **OK**.

h. Do one of the following:

- If you are finished adding the system, go to step 19.
- If you want to add another associated Media Gateway, go to step 16, step 17, and step 18 as required and as applicable for your system.

19 To add a Branch Media Gateway / MG1000B to a system, use Procedure 7 "Adding an MG 1000B" (page 99).

This is the only type of Media Gateway that can be added to a Large System.

20 Click **OK**.

—End—

Converting a Small System to an MG 1000B

There is no automatic conversion utility in Telephony Manager. Therefore the user must manually convert the system. This is a one-time operation.

ATTENTION

This procedure must be performed only after the hardware and software conversion has been completed on the switch.

To convert a Meridian 1 PBX 11C Cabinet system to an MG 1000B system in Telephony Manager, do the following:

Step	Action
1	From Telephony Manager Navigator, add a new MG 1000B system. See "Adding an MG 1000B" (page 98).
2	Retrieve all Station, List Manager, CPND, and ESN data from the switch.
3	Verify that the data is correct for the new MG 1000B system.

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4 Delete the old Small System from Telephony Manager.

—End—

Deleting Survivable Cabinets and Media Gateways

Survivable cabinets and media gateways cannot be deleted from the Telephony Manager Navigator window.

CAUTION
Service Interruption
A system cannot be deleted until all the associated survivable systems are deleted first.

Procedure 6
Deleting survivable cabinets or media gateways

Step	Action
1	From the Main Office system properties, select the **Network** tab.
2	Select the associated system.
3	Click **Delete**.

—End—

Adding an MG 1000B

Telephony Manager supports MG 1000B for Large and Small Systems.

An MG 1000B contains a call processor for connection to the local PSTN and for analog devices such as fax machines. IP Phones are located at the MG 1000B; however, under normal conditions, call processing for these telephones is handled by the call server at the main office. The MG 1000B and the main office are connected by IP trunks, virtual trunks, or through trunks to the PSTN.

For additional information on the MG 1000B, see *Branch Office: Installation and Commissioning (NN43001-314)*.

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Procedure 7
Adding an MG 1000B

Step	Action
1	Select a system and go to the **Network** tab in the **System Properties** window.
2	Click **Add**.
3	For Small Systems and CS 1000S systems: a. Select **Branch Media Gateway/MG1000B** in the **Add Associated Equipment** window (see Figure 30 "Add Associated Equipment window" (page 94)). b. Click **OK**. The Add Survivable Branch Media Gateways window appears, as shown in Figure 34 "Add Survivable Branch Media Gateways window" (page 99).

Figure 34
Add Survivable Branch Media Gateways window

4	Select the appropriate site.
5	Click **OK**. The System Properties window appears.
6	Enter the necessary parameters in the **General** tab.
7	Click **Apply**. The new system is added to the tree under the selected site.
8	Click the **Network** tab. The Network tab appears, as shown in Figure 24 "Customer Properties: Numbering Plans tab" (page 88).

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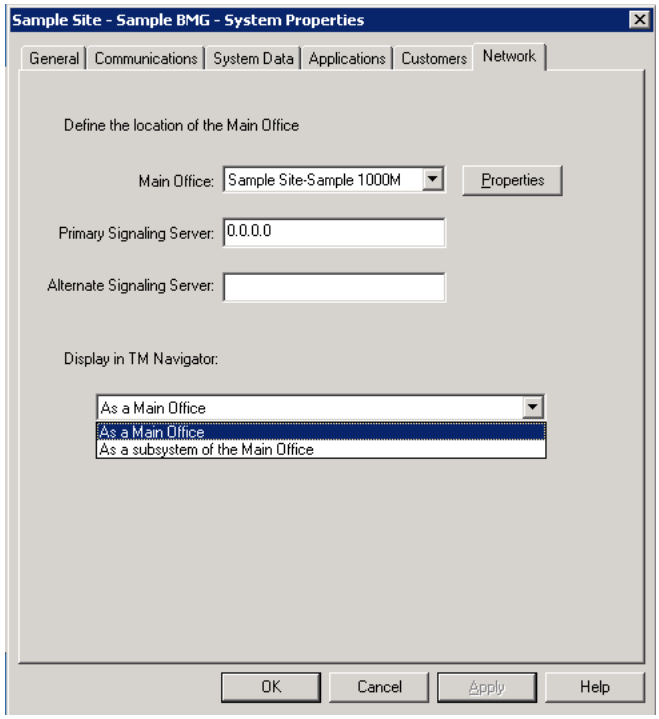
Figure 35
MG 1000B System Properties window: Network tab



9 Select the **Main Office** from the list.

10 (Optional) Click **Properties** to display the System Properties of the selected main office.

11 Enter the IP address of the **Primary Signaling Server**.

12 (Optional) Enter the IP address of the **Alternate Signaling Server** for redundancy.

13 Select how this MG 1000B is displayed in the Telephony Manager Navigator from the list.

The options are As a Main Office and As a subsystem of the Main Office.

14 Click **OK**.

15 Click **OK**.

—End—

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Deleting an MG 1000B

You cannot delete an MG 1000B from the Telephony Manager Navigator window.

Procedure 8
Deleting an MB 1000B

Step	Action

CAUTION
Service Interruption
A system cannot be deleted until all the associated survivable systems are deleted first.

1 From the Main Office system properties, select the **Network** tab.

2 Select the associated system.

3 Click **Delete**.

—End—

Managing gatekeeper zones

The Gatekeeper Zones window is used to add, delete, and change gatekeeper zones.

Procedure 9
Adding a gatekeeper zone

Step	Action

1 In the **Network** tab of the **System Properties** window, click **Edit** next to the **Gatekeeper Zone** list.

The Gatekeeper Zones window appears, as shown in Figure 36 "Gatekeeper Zones window" (page 102).

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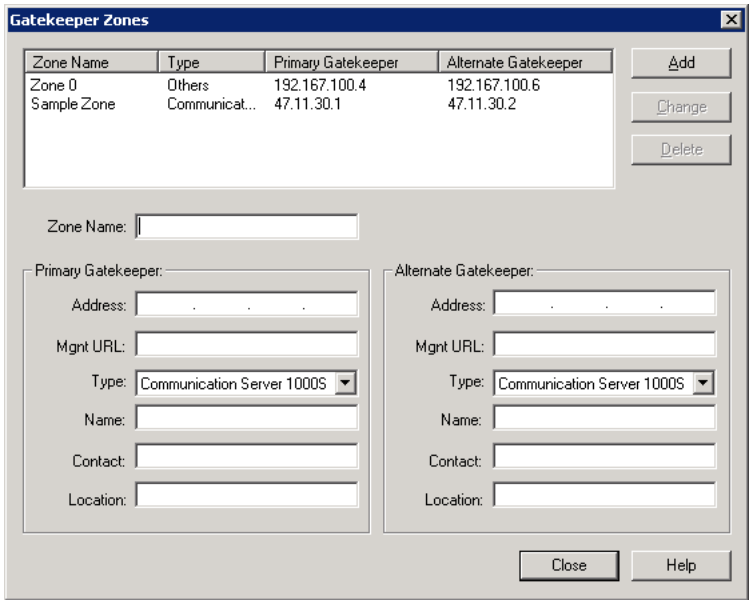
Figure 36
Gatekeeper Zones window



2 Enter a **Zone Name**.

The Zone Name is required and must be unique. The Zone Name appears in the Windows and Web Navigators.

3 Define the **Primary Gatekeeper** for the zone:

a. Enter the **IP Address**.

b. Enter the management URL in the **Mgnt URL** text box.

c. Select the **Type** of gatekeeper from the list:

- CS 1000[S|M|E]—for a Call Server
- Other—for a third-party non-Nortel gatekeeper

d. Enter a **Name**, **Contact**, and **Location**.

These fields each have a maximum length of 30 characters. The Gatekeeper Name is required. The Contact and Location fields are optional.

4 (Optional) Define an **Alternate Gatekeeper** for the zone, using step 3.

5 Click **Add**.

6 Click **OK**.

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—End—

Procedure 10
Modifying the information for a gatekeeper zone

Step	Action
1	In the **Network** tab of the **System Properties** window (see Figure 26 "CS 1000M/E system with Signaling Server present selected" (page 90)), click **Edit** next to the **Gatekeeper Zone** list. The Gatekeeper Zones window appears, as shown in Figure 36 "Gatekeeper Zones window" (page 102).
2	Select a gatekeeper zone from the list.
3	Edit the fields as required.
4	Click **Change**.
5	Click **OK**.

—End—

Procedure 11
Deleting a gatekeeper zone

Step	Action
1	In the **Network** tab of the **System Properties** window (see Figure 26 "CS 1000M/E system with Signaling Server present selected" (page 90)), click **Edit** next to the **Gatekeeper Zone** list. The Gatekeeper Zones window appears, as shown in Figure 36 "Gatekeeper Zones window" (page 102).
2	Select a gatekeeper zone from the list.
3	Click **Delete**.
4	Click **OK**.

—End—

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Adding a Generic system or device

You can add up to 256 systems, including non-Meridian 1 systems to Telephony Manager. You must have administrator privileges to add a system.

Procedure 12
Adding a Generic system

Step	Action
1	In the Navigator window, select the desired site.
2	Select **Configuration > Add** System, or right-click and select **Add System**. The Add System window appears, as shown in Figure 9 "Add System window" (page 72). You may need to install additional software to enable other system types not listed in Figure 9 "Add System window" (page 72). Follow the installation instructions included with your order.
3	Select **Generic** in the **System Type** box.
4	Click **OK**.
5	Select the **General** tab of the **System Properties** window. The General tab for a generic system appears, as shown in Figure 11 "System Properties window: General tab (Generic system)" (page 74). Complete this tab following Procedure 5 "Adding a system" (page 72), step 4 on page 105. If you are adding a Survivable Remote Gateway (SRG), use the naming convention <Main Office name>—<SRG name> to provide a visual association in the Navigator between the SRG and its main office.
6	Select the **Communications** tab. The Add Communications Profile window appears, as shown in Figure 13 "Add Communications Profile window" (page 75). Define the communications profile using Procedure 5 "Adding a system" (page 72), step 6 on page 106.
7	Select the **Application** tab. The Applications tab for non-Meridian 1 devices appears, as shown in Figure 37 "System Properties: Applications tab" (page 105).

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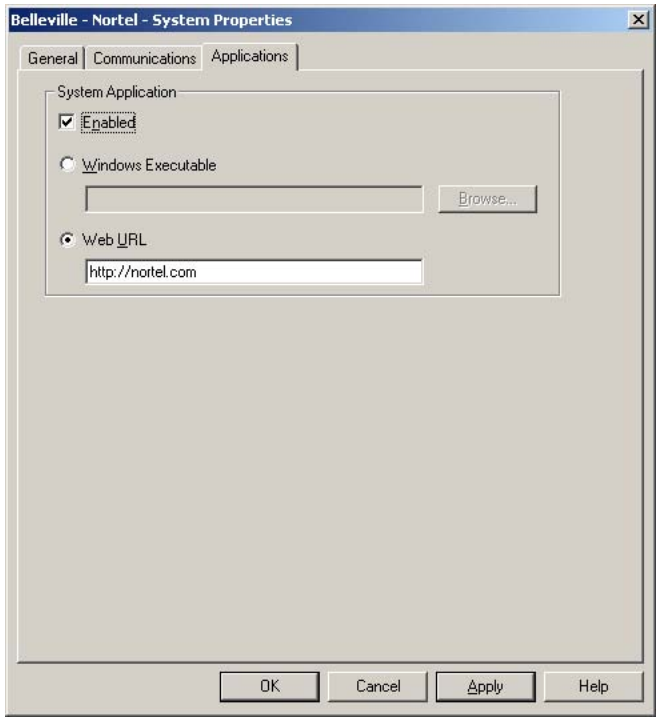
Figure 37
System Properties: Applications tab



8 Define the applications available for the device as follows:

a. In the **System Terminal** section, select the communications profile.

Typically, this is an Ethernet profile. After the profile is defined, the user can double-click the system in the Windows Navigator to launch the Windows System Terminal, or open a Web-based terminal window from the Telephony Manager Web Navigator Systems page, or both.

b. In the **System Application** section, you have the option of launching a Windows Executable or Web browser page for managing the device.

If a Windows executable is selected, it can be accessed only from the Windows Navigator. If a URL is selected, the Web site can be accessed from either the Windows or Web Navigators.

The availability of a terminal connection, executable, or Web site depends on the device.

—End—

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ATTENTION

After adding the new site or system, you must notify the administrators of other Telephony Manager clients on your network to restart their Telephony Manager application to see the new site or system.

Changing site information

You can change any information about a site, including the site name, address, and contact. You must have administrator privileges to change site information.

ATTENTION

To rename the Site and System name and short name when the DBA session is open corrupts the Database. Therefore, the OK and Apply buttons are disabled in the Site and System Properties window when a System runs a live or offline session in the DBA application.

When a live session runs in a system, the following warning message appears in the System Properties window:

Configuration for this system cannot be saved. DBA has an active session for this system. Please remove the DBA session for this system from the DBA application altogether.

When a live session runs in a site for any of its systems, the following warning message appears in the Site Properties window:

Configuration for this site cannot be saved. DBA has an active session for the system(s) in this site. Please remove the DBA session for the system(s) associated in this site from the DBA application altogether.

To change the Site or System name and short name, close the live or offline session for this System in the DBA application. Once you close the session, the OK and Apply buttons are enabled.

Procedure 13
Changing site information

Step	Action
1	In the Navigator window, select the desired site.
2	Select **File > Properties**, or right-click and select **Properties**. The Site Properties window appears with the General tab displayed.
3	Edit fields as required. Bold fields indicate required information. Consult online Help for details on any field.

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4 To add a new system to this site:

a. Click **Add System**.

b. Enter information for the new system.

5 Do one of the following:

- Click **OK** to save the information and close the window.
- Click **Cancel** to close the window without saving.
- Click **Apply** to save the information and leave the window open.

—End—

Changing system information

You can change any information about a system or its communications connection. You must have Administrator privileges to change any system information.

Procedure 14
Changing system information

Step	Action
1	In the Navigator window, select the desired system.
2	Select **File > Properties**, or right-click and select Properties. The System Properties window appears.
3	Select the tab containing the information that you want to change.
4	Edit fields as required. Bold fields indicate required information. Consult online Help for details on any field.
5	Do one of the following: • Click **OK** to save the information and close the window. • Click **Cancel** to close the window without saving. • Click **Apply** to save the information and leave the window open.

—End—

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Moving a Meridian 1 PBX 11C Cabinet or CS 1000 system

Telephony Manager does not allow you to move a system with associated Media Gateways from one site to another. This same limitation also applies to Meridian 1 PBX 11C Cabinet systems with Survivable IP Expansion Cabinets. You must remove the Media Gateways or Survivable IP Expansion Cabinets before moving the Call Server or Main Cabinet.

Application data is not lost during this process.

Deleting a site or system

You must have administrator privileges to delete a site or system from the Navigator window. A record of the deletion is stored in the PC event file.

CAUTION
Service Interruption
Deletion of a site also deletes all of its systems.

Telephones associated with the deleted system are deleted from the Telephone Manager. If there are a large number of telephones, deletion of the system may take several minutes.

When a system is deleted, all databases for that system are also deleted. Table 33 "System with ESN database type deleted" (page 433) describes the effects of deleting an ESN database type with a system. For more information see "Deleting databases" (page 431).

Procedure 15
Deleting a site or system

Step	Action
1	In the Navigator window, select the site or system. To delete all sites and systems, select the Sites icon at the top of the tree.
2	Select **Edit > Delete**.
3	Click **OK**.

—End—

Scheduling guidelines

The guidelines and tables in this section provide suggested scheduling of various Telephony Manager operating procedures.

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Telecom Billing System

See *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)* for complete details on scheduling data collection, database maintenance, and data management. The database maintenance schedules outlined in this chapter should also be used for Telephony Manager Corporate Directories.

Call Tracking

Table 3 "Call Tracking tasks" (page 109) provides guidelines for scheduling Call Tracking tasks.

Table 3
Call Tracking tasks

Task	Schedule
Data collection (real time)	Continuously
Data collection (from a file)	Hourly
Review Alarm Log	No set schedule; review as needed
Backup and archive Call Tracking database	The main Call Tracking database is part of the site and system data files. This is backed up/archived with the other databases.
Restore Call Tracking database	As necessary

Traffic Analysis

Table 4 "Traffic Analysis tasks" (page 109) provides guidelines for scheduling Traffic Analysis tasks.

Table 4
Traffic Analysis tasks

Task	Schedule
Data collection (through direct connection to the system)	Hourly
Data collection (through buffer box or DBA)	Daily
Backup/Archive Traffic database	Archive the Traffic database monthly. Remember to purge old or unneeded data from the working directory during this Archive procedure.
Restore Traffic database	As necessary

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Telephony Manager Site and System data

Table 5 "Telephony Manager Site and System data tasks" (page 110) provides guidelines for scheduling Telephony Manager Site/System data tasks.

Table 5
Telephony Manager Site and System data tasks

Maintenance task	Schedule
Backup Employee database	Weekly
Backup all other databases (Telephony Manager Corporate Directories) for site and system	Monthly
Restore databases for site and system	As needed
Note: Since the Employee database is usually edited more frequently, back up the database on a weekly instead of monthly basis (as with the other Telephony Manager databases).	

Regional Settings

Currency Settings, located under Regional Settings, includes information about local and alternate currencies. Telephony Manager applications use this information to display costs.

Local Currency

The Local Currency tab contains information about the local currency that is used to display costs in Telephony Manager applications. This is useful in situations where a single system manages and processes data from many countries and you want to report costs in different currencies across different systems. Each system can represent sites in different countries. Their costs can then be expressed in their respective local currency.

Currency information, by default, is derived from the client PC regional settings. However, there are cases where systems are required to operate with different currencies. To facilitate this, Telephony Manager allows you to define currency settings for any system as required. In addition, you can configure default settings from the Telephony Manager Navigator main window, which can also be used by the Telephony Manager systems. These default settings are used by any system that does not have its own settings defined. This is useful in an installation where the majority of systems are operating in a common currency and only a few are operating in a different currency. In this case, you can set the default currency settings for the majority of the systems, and you only need to configure the exceptions.

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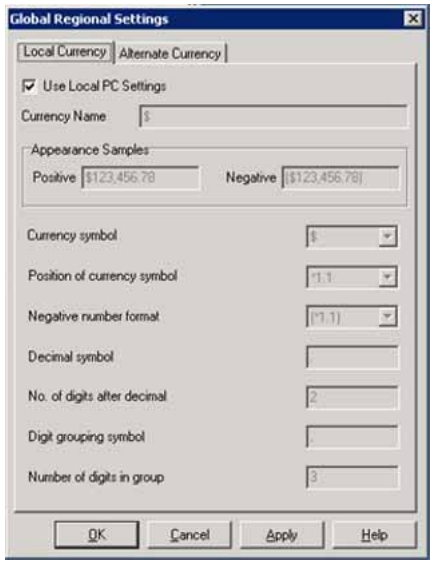
Procedure 16
Defining the local currency

Step	Action
1	In either the Telephony Manager Navigator window or the system window, select **Configuration > Regional Setting** to define the local currency.
2	On the Global Regional Settings dialog, select the **Local Currency** tab.

Figure 38
Local currency setting



3	Enter local currency values in the following fields:

a. **Currency Name:** Enter a descriptive name of this currency (for example, US Dollars).

b. **Appearance Samples:** These read-only fields display samples of the costs based on the selected currency settings (for example, $123,456.78 and ($123,456.78)).

c. **Currency symbol:** Enter the symbol for this currency (for example, enter $). The symbol appears next to the cost values on report summaries. If your keyboard does not support the currency symbol that you want to use, you may need to enter it using alternate key codes. For example, to enter the symbol for the Euro dollar, press and hold the [Alt] key and enter **0128** on your numeric keypad. The Euro dollar symbol appears. If a black square appears instead of the symbol, your system font does not

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support this character. The symbol should, however, still appear correctly on the printed report.

d. **Position of currency symbol:** Select how the currency symbol appears next to cost values. The "*" represents where the symbol appears with respect to the value. For example, *1.1 indicates that the currency symbol appears before the values (for example, $1.00).

e. **Negative number format:** Select how negative values appear. For example, (*1.1) indicates that negative numbers appear with parentheses around them (for example, ($1.00)).

f. **Decimal symbol:** Enter the symbol used for the decimal (for example, for the amount $1,000.00, enter "**.**").

g. **No. of digits after decimal:** Enter the total number of digits that appear after the decimal (for example, for the amount $1,000.00, enter **2**).

h. **Digit grouping symbol:** Enter the symbol used to separate digit groups when displaying currency values (for example, for the amount $1,000.00, enter "**,**").

i. **Number of digits in group:** Enter the number of digits separated by the digit grouping symbol (for example, for the amount $1,000.00, enter **3**).

The Appearance Samples fields display samples of the costs based on the selected currency settings (for example, $123,456.78 and ($123,456.78)).

4 Do one of the following:

- Click **Apply** to save the settings and remain in this tab.
- Click **OK** to save the settings and exit to the previous window.

—End—

Alternate Currency

The Alternate Currency tab contains information about any alternate currencies used when displaying costs in Telephony Manager reporting. This is useful in situations where you want to have reports display monetary values in two currencies. For example, European countries can display summary costs in their local currencies and in Euro dollars.

You can either define the alternate currency settings for specific systems, or have them use the default settings defined in the Navigator level. The alternate currency defined in the Navigator window is used as the default

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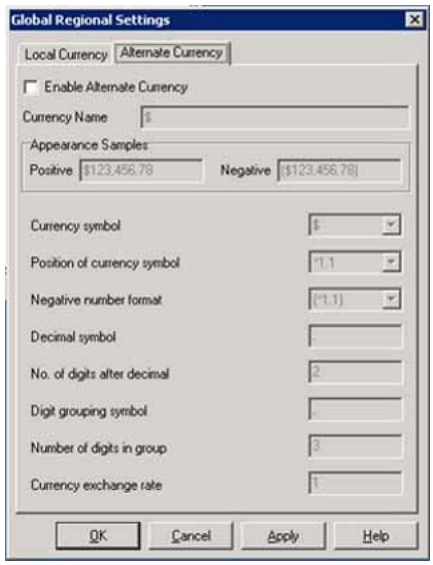
alternate currency. Any systems that do not have alternate currency settings defined for them use the default currency settings defined at the Navigator level. As well, you can specify that a system should use the default currency settings.

Procedure 17
Defining the alternate currency

Step	Action
1	From either the Telephony Manager Navigator window or the system window, select **Configuration > Regional Settings**.
2	On the Global Regional Settings dialog, select the **Alternate Currency** tab.

Figure 39
Alternate currency setting



Step	Action
3	Enter alternate currency values in the following fields: a. **Currency Name:** Enter a descriptive name of this currency (for example, US Dollars). b. **Currency Symbol:** Enter the symbol for this currency (for example, **$**). This appears next to the cost values on report summaries. If your keyboard does not support the currency symbol that you want to use, you may need to enter it using alternate key codes. For example, to enter the symbol for the Euro dollar, press and hold the [Alt] key and enter **0128** on your numeric keypad. The Euro dollar symbol appears. If a black square appears instead of the symbol, your system font does not

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support this character. The symbol should, however, still appear correctly on the printed report.

c. **Position of currency symbol:** Select how the currency symbol appears next to cost values. The "*" represents where the symbol appears with respect to the value. For example, *1.1 indicates that the currency symbol appears before the values (for example, $1.00).

d. **Negative number format:** Select how negative values appear. For example, (*1.1) indicates that negative numbers appear with parentheses around them (for example, ($1.00)).

e. **Decimal symbol:** Enter the symbol used for the decimal (for example, for the amount $1,000.00, enter "**.**").

f. **No. of digits after decimal:** Enter the total number of digits that appear after the decimal (for example, for the amount $1,000.00, enter **2**).

g. **Digit grouping symbol:** Enter the symbol used to separate digit groups when displaying currency values (for example, for the amount $1,000.00, enter "**,**").

h. **Number of digits in group:** Enter the number of digits separated by the digit grouping symbol (for example, for the amount $1,000.00, enter **3**).

i. **Currency exchange rate:** Enter the exchange rate for this currency against the local currency. For example, if the local currency is the U.S. dollar (US$), and the alternate currency is the Canadian dollar (Can$), and the exchange rate is 1.49, enter **1.49** in this field. This means that US$1.00 is equivalent to Can$1.49.

The **Appearance Samples** fields display samples of the costs based on the selected currency settings (for example, $123,456.78 and ($123,456.78)).

4 Do one of the following:

- Click **Apply** to save the settings and remain in this tab.
- Click **OK** to save the settings and exit to the previous window.

—End—

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Access Server

The Access Server provides a Command Line Interface (CLI) for remote access to the Telephony Manager Server. From a remote terminal, you can dial in through a modem or through a direct serial connection to access the Telephony Manager Server.

CAUTION
Service Interruption
Access Server must run under the Windows operating system because it does not function properly under any other operating system.

After you have logged in successfully, you can do the following:

- Change Windows user passwords.
- Connect to different sites and systems as configured in Virtual Terminal Service. See "Virtual System Terminal" (page 483).

ATTENTION
CLI needs a dedicated modem. CLI cannot share the modem with other services.

CAUTION
Service Interruption
If you are not using Access Server, be certain that the Auto Launch check box is cleared (see Figure 41 "CLI configuration window" (page 117)). This action prevents unnecessarily using a COM port on the server.

CLI status window

The CLI launches at Telephony Manager Server startup. The status window, shown in Figure 40 "CLI status window" (page 116), displays CLI status messages.

From the Start menu, select Programs > Nortel CS 1000 Telephony Manager > Command Line Interface to view the CLI status window.

The following status messages may appear in the CLI window:

- Waiting for incoming call
- Answer call and authentication process in progress

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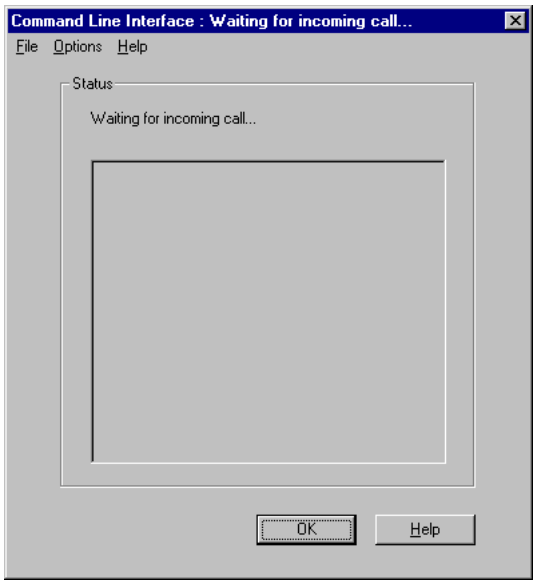
Figure 40
CLI status window



CLI configuration

The CLI configuration window is used to define the following Telephony Manager Server COM port settings:

- **Port**--list of COM ports on the Telephony Manager Server
- **Data Speed of COM port**--4800, 9600, 19200, or 38400
- **Data Bits**--5, 6, 7, or 8 bits
- **Parity**--None, Odd, Even, Mark, or Space
- **Stop Bits**--1, 1.2, or 2 bits
- **Session timeout (secs)**--If current session is idle for the specified time, CLI disconnects the call.

You can use serial port cards and USB serial adapters to increase the number of COM ports available on the Telephony Manager server. Two to ten port expansion is possible, depending on requirements. Each port added should be an industry-standard RS-232 serial port with full modem control.

Before you purchase any serial port cards or USB serial adapters, you must verify that the item is compatible with the particular computer and operating system on which you plan to use it.

The addition of serial port cards or USB serial adapters does not increase the number of synchronization or update tasks that can run concurrently on the server. The number remains at five.

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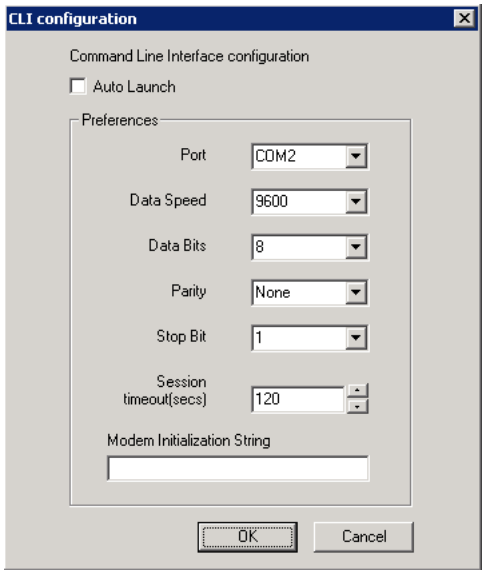
To open the CLI configuration window, select **Options > Configure** in the CLI status window. The CLI configuration window appears, as shown in Figure 41 "CLI configuration window" (page 117).

Figure 41
CLI configuration window

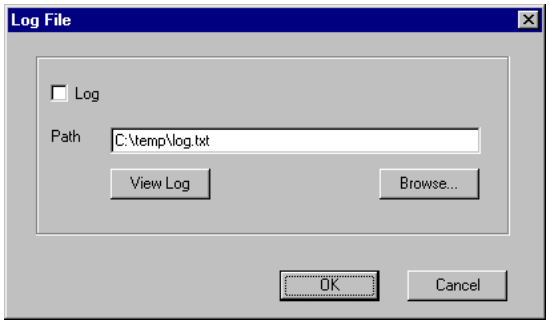


CLI Log File window

The CLI Log File window, shown in Figure 42 "CLI Log File window" (page 117), allows you to turn the log option on or off and specify the log file location. The Log File logs all activities: user login, commands, and so on.

To open the CLI Log File window, select **Options > Log File** in the CLI status window.

Figure 42
CLI Log File window



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CLI Operation

Procedure 18
Operating CLI

Step	Action
1	From a PC other than the Telephony Manager Server, access CLI on the Telephony Manager Server using HyperTerminal or an equivalent Telnet application.
2	Enter a Telephony Manager login name and password to log in. After you have logged in, the following commands are available: • Help or ?—lists all commands • Status—lists all VTS ports associated with configured systems • Connect—connects to a system • Exit—disconnects

—End—

Communication

Both the Terminal Server (Telephony Manager Server) and Terminal Client (Remote PC) can detect when their TCP socket connection is lost. In that case, they log the error, notify the user, or both, and reset themselves for another connection.

The base port number determines the range of socket ports used to communicate with the Terminal Client. Under normal conditions, this should be left as is, and should not be changed unless the default port conflicts with another network application.

By default, the Terminal Server and Terminal Client communicate using network ports 4789 through 5045 (4789 to send connection requests, 4790-5045 for up to 256 terminal sessions). The number of ports actually used depends on the number of virtual ports configured.

Procedure 19
Changing the range of port numbers

Step	Action
1	From the Start menu, select **Programs > Nortel CS 1000 Telephony Manager > Terminal Server**. The Terminal Server window appears, as shown in Figure 43 "Terminal Server window" (page 119).

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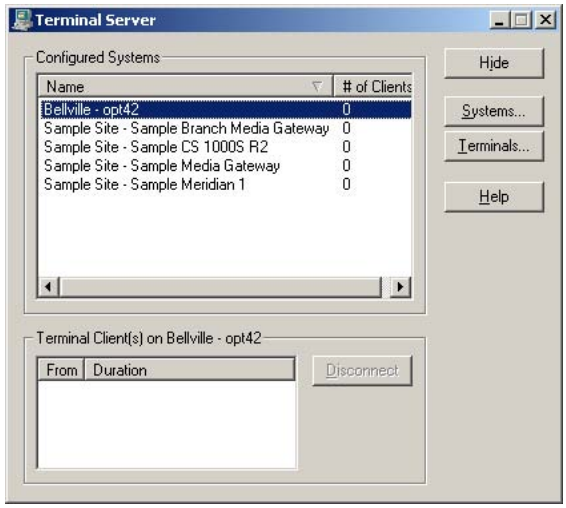
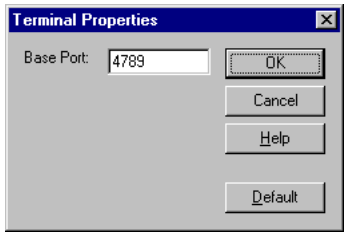
Figure 43
Terminal Server window



2 Click **Terminals**.

The Terminal Properties window appears, as shown in Figure 44 "Terminal Properties window" (page 119).

Figure 44
Terminal Properties window



3 Enter the new **Base Port** number.

4 Click **OK**.

5 Edit the HTML page containing the applet.

Ensure the Base Port parameter of the applet matches the one in the Terminal Properties window.

—End—

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Encryption

Data is encrypted so that someone monitoring the network traffic does not see plain ASCII data (which may contain user login, password, or other sensitive information).

Every packet sent between the Terminal Server and the Terminal Client is 65 bytes and contains data that is masked with a key. This ensures that data is not easily readable, while keeping the overhead low for constant character Input/Output (I/O).

Before sending a packet, the application picks a random location in a 256-byte key (known only to the server and the client), and uses the subsequent bytes to mask the character data. In effect, every packet is masked with one of 256 possible keys.

Synchronization

For information about synchronization with the CND directory, see "CND synchronization" (page 226).

For information about synchronization between CND and the TBS employee database, see "Billing Synchronization" (page 232).

Corporate Directory

ATTENTION

Because there are major changes in Corporate Directory functionality with Telephony Manager 3.1, administrators are advised to check and possibly reschedule the report generation and upload tasks after an upgrade or migration procedure.

FTP Server configuration for Corporate Directory applications

Telephony Manager 3.1 uses the FTP service from Microsoft Internet Information Server. You must configure the correct Telephony Manager 3.1 Server IP address and FTP user account information to support file transfer operations in ITG Services and Corporate Directory applications. The UserID specified should have the read/write permission to the Telephony Manager server.

Procedure 20

Configuring Server IP address and FTP user account information

Step	Action
1	Select **Start > Programs > Nortel CS 1000 Telephone Manager Navigator**.

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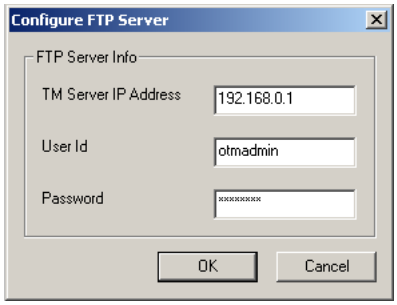
2 Select **Configure FTP Server** from the configuration menu.

3 Enter the correct Telephony Manager Server IP address, FTP UserID, and password.

See Figure 45 "Configure FTP Server" (page 121).

—End—

Figure 45
Configure FTP Server



Corporate Directory utility

The Corporate Directory utility allows you to define and generate reports of data associated with terminal numbers. Report data is collected from telephone data. For more information on reports, see "Report properties" (page 129).

Corporate Directory requires that you have Web Station and Microsoft Excel or WordPad.

Corporate Directory window

The Corporate Directory main window presents a graphical way to work with reports. Use the commands from the menus or the toolbar to view, manage, and generate your reports.

You see two predefined report formats the first time you launch the main Corporate Directory window.

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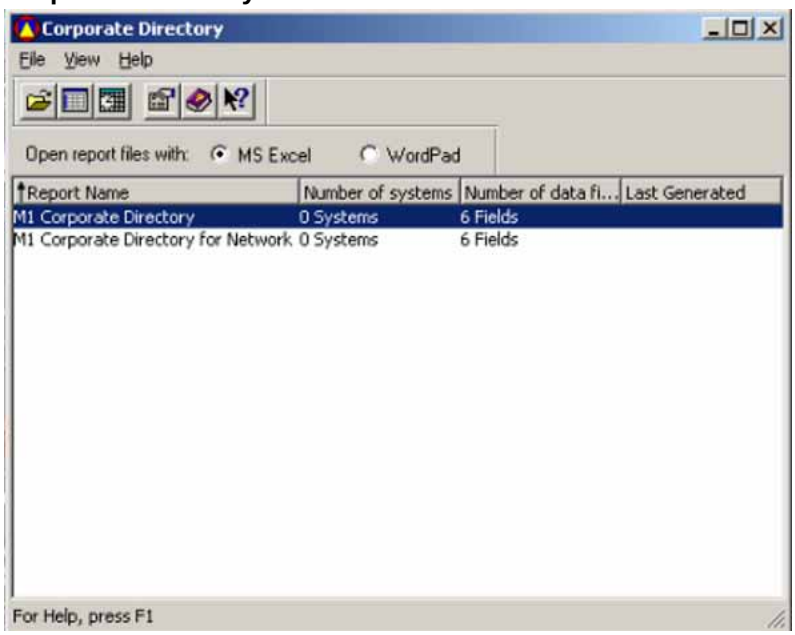
Figure 46
Corporate Directory window



Working with the Corporate Directory window

Use the commands from the menus or the toolbar to view, manage, and generate your reports.

Menu selections Commands in Corporate Directory are available from the lists. Table 6 "File menu selections" (page 122) through Table 8 "Help menu selections" (page 123) describe the available commands.

Table 6
File menu selections

Selection	Description
Generate Report/Now	Shows a window where the user selects a display method for the report. The user may display a report in a spreadsheet, print it to a default printer, or save it to a text file. If MS Excel is not installed, the report opens in WordPad.
Generate Report/Schedule	Shows a window where the user selects a report destination and a specific date and time and other scheduling properties for the report. If MS Excel is not installed, the report opens in WordPad.

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Selection	Description
Generate Report/Open	Displays a previously generated and saved report for the selected item and displays it in a spreadsheet format. If no such report is available, a message box appears asking the user to verify the path and file name of the export file or regenerate the report. If MS Excel is not installed, the report opens in WordPad.
Log/View	Displays an activity log viewer.
Properties	Opens the property sheet for the selected report and allows the user to configure the report.
Close	Saves the current settings of the window and exits the application.

Table 7
View menu selections

Selection	Description
Toolbar	Displays or hides the toolbar. The menu shows a check mark next to the item when the toolbar appears.
Status Bar	Displays or hides the status bar. The menu shows a check mark next to the item when the status bar appears.

Table 8
Help menu selections

Selection	Description
Help Topics	Displays the index of Help topics.
What's This	Provides context-sensitive Help on the next item you select. Click anywhere else to go to the first topic in the Help topic list.

Toolbar The Toolbar, at the top of the Corporate Directory window, provides another way of executing menu commands. Common tasks are available from the Toolbar. Table 9 "Corporate directory toolbar buttons" (page 123) describes the function of each button.

Table 9
Corporate directory toolbar buttons

Button	Description
	Properties: Displays information about the application
	Open Report: Opens the report you selected.

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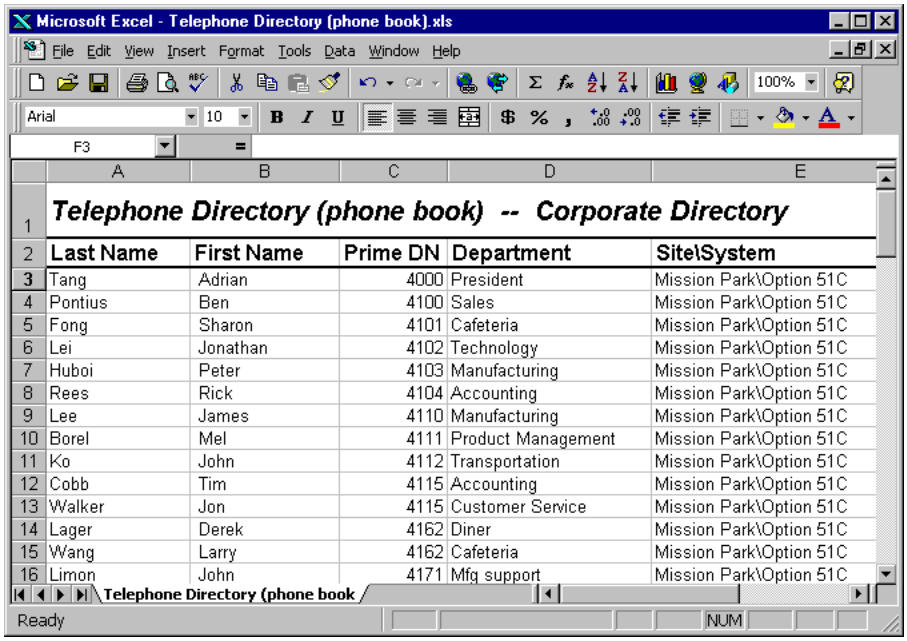
Button	Description
	Generate Report Now: Generates a report.
	Schedule Report: Schedules a report.
	Help Topics: Displays a list of Help topics.
	Context Help: Changes the cursor and displays Help on the next item you select.

Pop-up windows Pop-up windows show the available commands for a selection. Pop-up windows are activated by right-clicking while the cursor is in the report list portion of the Corporate Directory window. Unavailable commands appear dimmed. Menu items from the pop-up windows behave identically to the menu items in the pull-down menus.

Generating M1 Corporate Directory reports

The Corporate Directory feature lets you view, manage, and generate reports using available telephone data from systems configured with at least one user. Reports can be viewed on screen, printed, or saved to a file. Report layout and formatting is done through Microsoft Excel and WordPad.

Figure 47
Typical report format



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You can either generate a report immediately or with a defined schedule with specific dates, times, and intervals. Generated reports use the data extracted from the Telephone Database. These reports are automatically saved with a system default name to the default location unless you specify another name or location.

ATTENTION

Configuration settings are stored in the registry of the local PC and not in the database CorpPReport.mdb file, which is common for both server and client. This results in lack of synchronization between the server and the client.

Each report format has the following attributes, as noted by the column headers:

- Report Name—Name of report
- Number of systems—Number of systems for which the report is generated
- Number of Data Fields—Number of data fields in the report
- Last Generated—Date and time when the report was last generated

Double-click a report name to display the property sheet of that report. See "Report properties" (page 129).

ATTENTION

Before you can generate reports, telephone data must be downloaded from the switch and you must have at least one customer configured for each system.

To access the Corporate Directory tool, select Utilities > Corporate Directory in the Navigator window. The Corporate Directory window appears. See Figure 46 "Corporate Directory window" (page 122).

To generate a report, select File > Generate Report. Select one of the following:

- Now—to immediately display the report in a Microsoft Excel or WordPad window, print the report, or save it to a file
- Schedule—to have the report automatically generated to a printer or Excel/WordPad file at a later time.

To highlight a report, select File > Generate > Open to display the most recently generated version of that report.

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Procedure 21
Generating a report immediately

Step	Action
1	To generate a report immediately, select the report name from the window and click **Generate Report Now** in the toolbar. The Generate Report window appears, as shown in Figure 48 "Generate Report Now window" (page 126).

Figure 48
Generate Report Now window

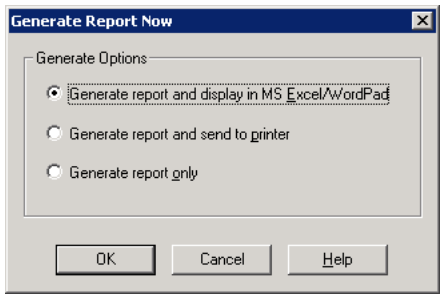

Table 10 "Generate Report Now window controls" (page 126) lists the options in the Generate Report Now window.

Table 10
Generate Report Now window controls

Control	Description
Generate report and display in MS Excel/WordPad	Generates a new report and displays it in MS Excel or WordPad. You must have MS Excel or WordPad installed and configured to use this option.
Generate report and send to printer	Generates a new report and sends it to a specified printer
Generate report only	Generates a report and saves it to disk

2	Select one of the options.
3	Click **OK** to start the report generation process or **Cancel** to abort the process.

—End—

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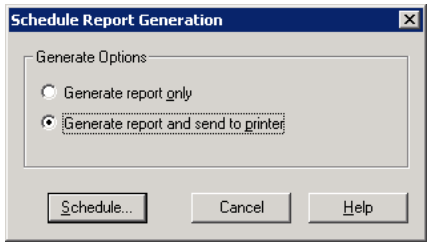
Procedure 22
Scheduling the generation of a report

Step	Action

1 Select the report name from the window and click **Schedule Report** in the toolbar.

The Schedule Report Generation window appears, as shown in Figure 49 "Schedule Report Generation window" (page 127). Use this window to select one of two generation options.

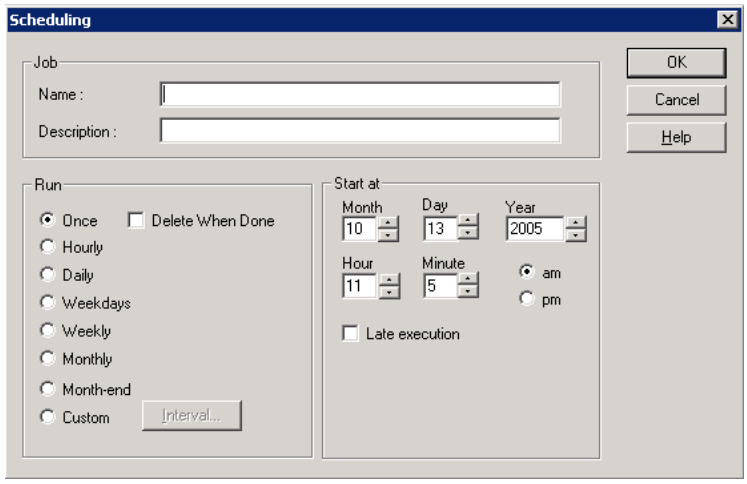
Figure 49
Schedule Report Generation window



2 Click **Schedule**.

The Scheduling window appears, as shown in Figure 50 "Scheduling window" (page 127). Use this window to specify when to start and how often to generate the report.

Figure 50
Scheduling window



—End—

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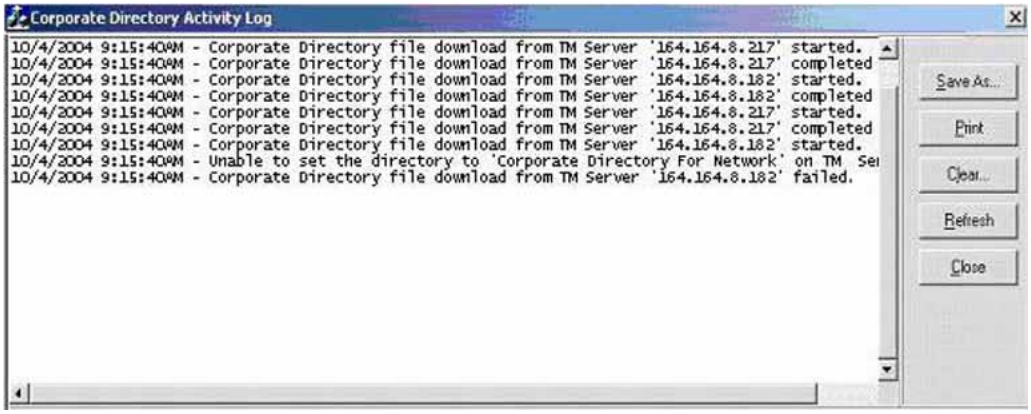
Corporate Directory Activity Log

All information and error messages related to Corporate Directory are logged into the Activity Log.

Select **File > Log > View** to launch the Corporate Directory Activity Log. The Corporate Directory Activity log window, shown in Figure 51 "Corporate Directory Activity Log" (page 128), appears and displays log entries.

Figure 51
Corporate Directory Activity Log



The controls in this window are:

- **Save As**—Save the Corporate Directory Activity Log as a .txt file.
- **Print**—Print the Corporate Directory Activity Log.
- **Clear**—Clear the Corporate Directory Activity Log.
- **Refresh**—Refresh the Corporate Directory Activity Log.
- **Close**—Close the Corporate Directory Activity Log dialog box.

M1 Corporate Directory report

Implementing the Corporate Directory feature for M3900-series and IP Phones

The Corporate Directory feature allows M3903, M3904, M3905 and IP Phones to display and access a corporate-wide directory. For this feature to function across a network of CS 1000 and Meridian 1 systems, each system must access Corporate Directory data from other systems on the network. For more information on the Corporate Directory feature, IP Phones, and M3903, M3904, and M3905 telephones, see *Telephones and Consoles (NN43001-567)* and *IP Phones: Description, Installation, and Fundamentals (NN43001-368)*.

Corporate Directory supports combining telephone data from multiple systems, and uploading this data to a system.

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M1 Corporate Directory file The M1 Corporate Directory report is created by extracting the data from the telephone, specifically: name, phone number, listed directory number, customer number, and department number. The M1 Corporate Directory file is then uploaded to the system where it becomes activated for use by M3903, M3904, M3905, and IP Phone users of that system. You should update the M1 Corporate Directory file with the latest telephone data on a regular basis. Regular updates ensure that telephone user additions and deletions are captured. You can manually schedule the update for a predefined time, or to automatically occur after the report is generated.

Requirements Source systems must be one of the following systems:

- Meridian 1 systems—Meridian 1 Release 25 or higher
- CS 1000 systems—Succession Release 2.0 or higher, IP Line 3.0 or higher

Target systems can be any CS 1000 and Meridian 1 system. Be sure the telephone data is synchronized with the PBX.

Report properties

View report properties by double-clicking, or by right-clicking and selecting Properties for, an available report in the Corporate Directory window. A property sheet window appears with six tabs: General, Data Fields, Options, Output, Get Files, and Upload. The property sheet contains information specific to the selected report.

There are four buttons common to each property sheet:

- **OK**—saves any changes and exits the property sheet
- **Cancel**—exits the property sheet without saving any changes
- **Apply**—saves the changes without exiting the property sheet
- **Help**—displays Help topics for the property sheet

General tab Use the General tab, shown in Figure 52 "Report Properties: General tab" (page 130), to view a report name. Additionally, use the General tab to specify multiple sites and systems for which the report is generated. All available sites and systems are listed. Select the check box next to an entry to include it in the report. Clear the check box to exclude it from the report. Reports are generated with data from all included sites and systems.

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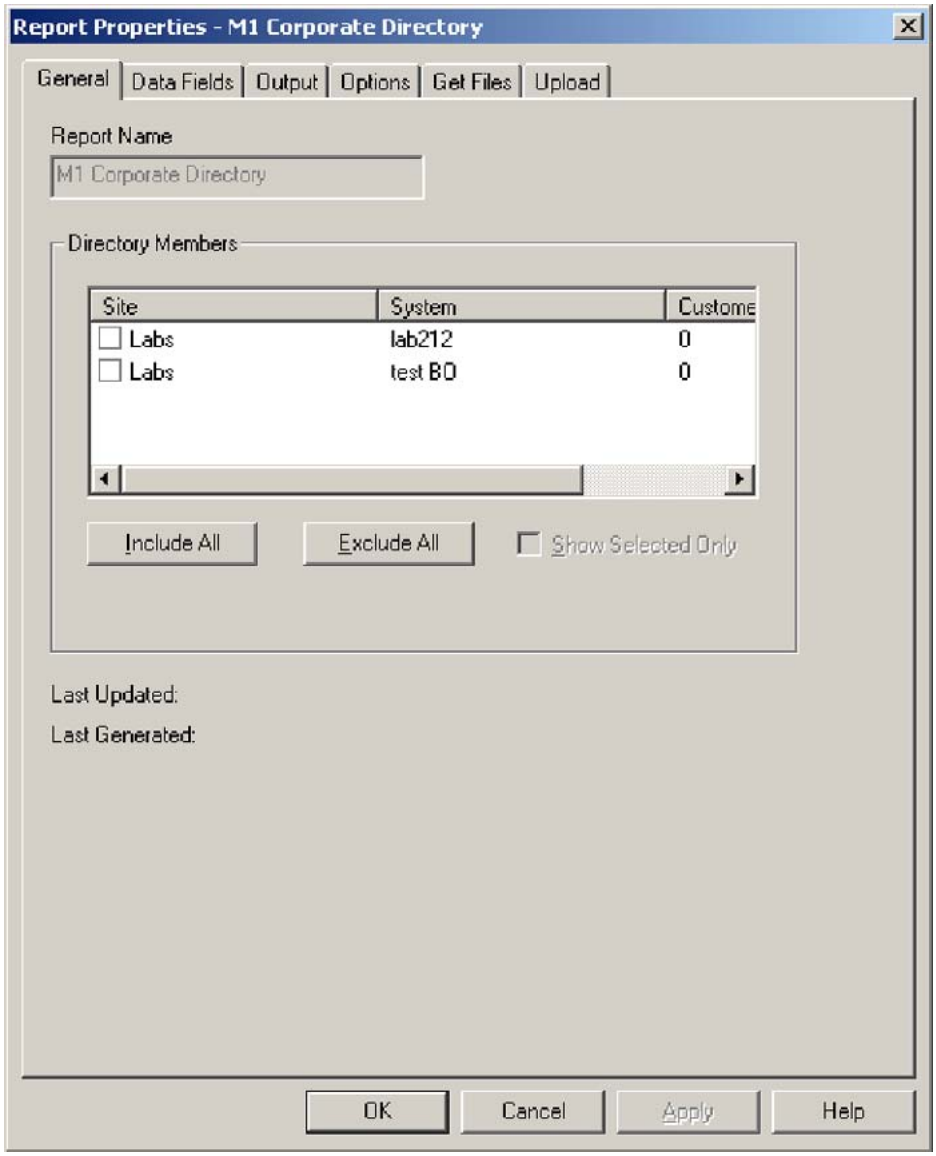
Figure 52
Report Properties: General tab



Controls in the General tab are:

- Report Name—Displays the report name.
- Directory Members
  - — Sites/System/Customer—Displays available sites and system names. Check boxes indicate if the site or system is included in the report.
  - — Include All—Selects all sites and systems; all boxes are selected.

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— Exclude All—Deselects all sites and systems; all boxes are cleared.

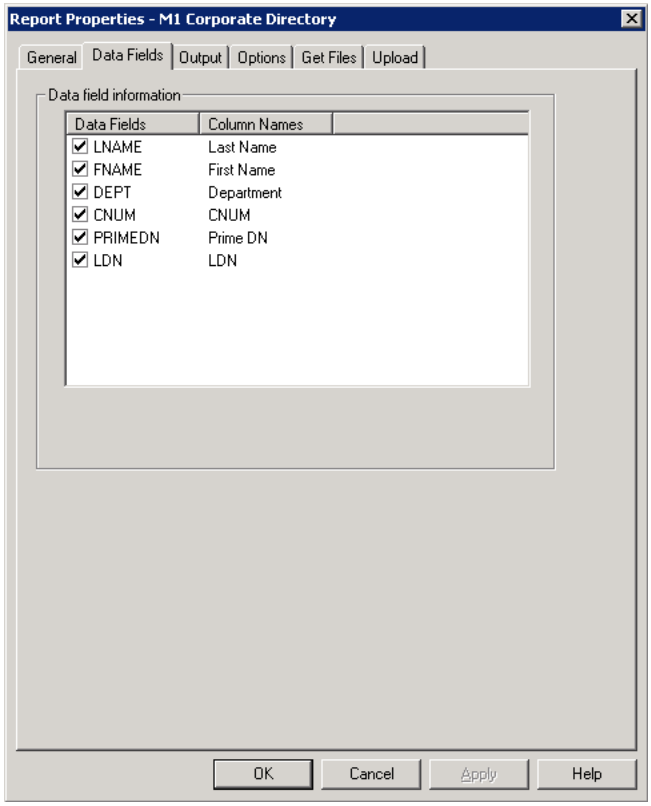
— Show Selected Only check box—Toggles the list to display selected items only or all items.

- Last Updated—Displays when the last change was made to the report.
- Last Generated—Displays when the report was last generated. This field is empty if the report has never been generated.

To preserve leading zeroes, generate reports using the WordPad editor.

Data Fields tab The Data Fields tab, shown in Figure 53 "Report Properties sheet: Data Fields tab" (page 131), lists the fields in the report. You cannot edit any information on this tab.

Figure 53
Report Properties sheet: Data Fields tab



Output tab Use the Output tab, shown in Figure 54 "Report Properties: Output tab" (page 132), to define the export destination of that report for the results.

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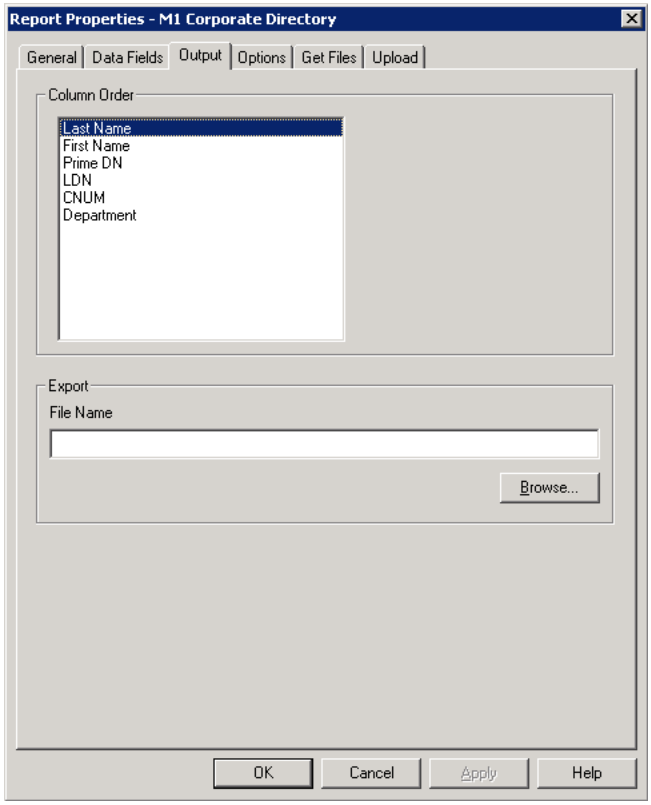
Figure 54
Report Properties: Output tab



Controls in the Output tab include:

- File Name—Allows the user to enter the path and file name for the export file
- Browse—Allows the user to navigate the directory structure to search for a path and file name

The Export pane displays the file and path name to be used when the report is generated and saved to a file.

Type the path and file name or use Browse to navigate the directory structure to find the desired file.

Options tab The Options tab, shown in Figure 55 "Report Properties: Options tab" (page 133), defines the various options for generating the M1 Corporate Directory file.

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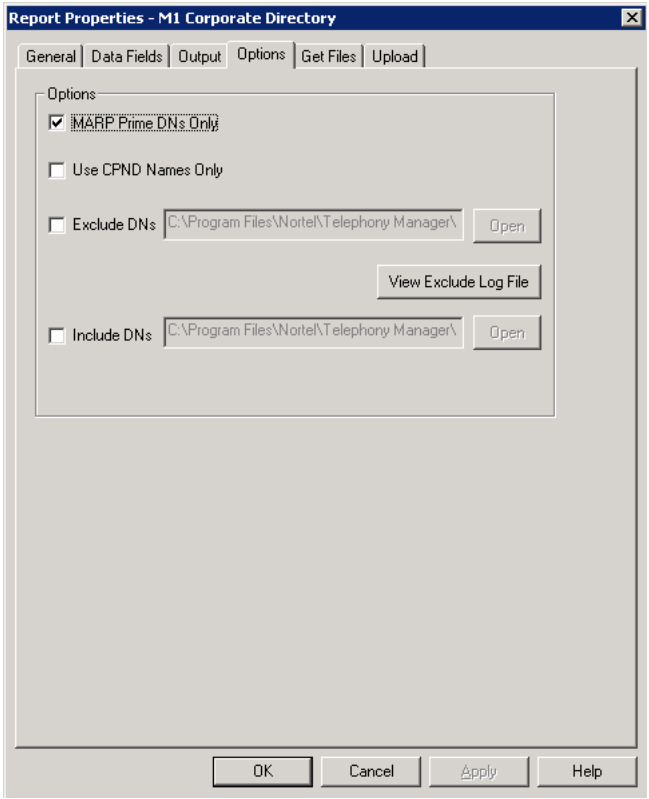
Figure 55
Report Properties: Options tab



The Options tab has the following controls:

- MARP Prime DNs Only—When selected, only Prime DNs with MARP set to Yes are retrieved. Otherwise all Prime DNs (Key 0 DNs) are retrieved. The default setting is selected.
- Use CPND Names Only—When selected, the name for an entry is retrieved from the CPND database instead of the Station database. The customer is given the option of using names defined in the CPND application or the names defined in the Station application. The default setting is cleared.

  When selecting this option, you must ensure the CPND database is up-to-date and the desired DNs in the report have a corresponding CPND entry.
- Exclude DNs—When selected, all entries that match the search criteria are removed. The default setting is cleared.

  — Open: Opens the file specified in the edit text box. The application preformats the file to appear in a more user-friendly Excel format for

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editing. The file is saved and stored in CSV format. If MS Excel is not installed, the file opens in WordPad.

— View Exclude Log File: Opens the file which stores the entries that have been removed from the report based on the criteria specified in the Exclude DNs file. Each time a report is generated, all existing entries in the file are deleted before the new entries are added. If MS Excel is not installed, the file opens in WordPad.

- Include DNs check box: When selected, entries are appended to the M1 Corporate Directory report. The default setting is cleared.

  — Open control button: Opens the file specified in the edit text box. The application preformats the file to appear in a more user friendly Excel format for editing. The file is saved and stored in CSV format. If MS Excel is not installed, the file opens in WordPad. The user adds the entries that must be appended to the report. The required format is: Last Name, First Name, PrimeDN, LDN, CNUM, Department, Site/System.

If Microsoft Excel or WordPad is not installed on the PC, the CSV files cannot be opened in Excel or WordPad format.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

Get Files tab The Get Files tab, shown in Figure 56 "Report Properties: Get Files tab" (page 135), has two sections:

- Telephony Manager Servers List

  This section of the window contains the Telephony Manager Servers that can share their M1 Corporate Directory files. You can select Telephony Manager Servers using the check boxes. A M1 Corporate Directory file is collected from Telephony Manager Servers that are selected in the list.

  Use the Add or Delete buttons to add or delete Telephony Manager Servers respectively. Click the check box in front of the Telephony Manager Server to select it for transferring the M1 Corporate Directory files. When you click **Include All**, all Telephony Manager Servers identified on this server are selected. When you click **Exclude All**, all Telephony Manager Servers are deselected. If you select the **Show Selected Only** check box, only selected Telephony Manager Servers are displayed.

- Get Files

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This section displays the user's settings for getting the M1 Corporate Directory files from other Telephony Manager Servers.

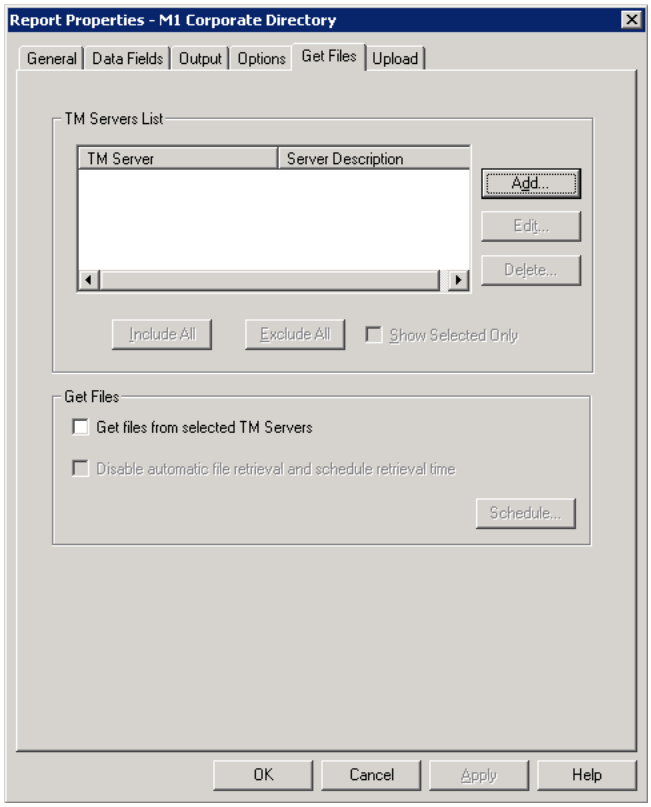
Controls in this section can be used to do the following:

— Choose whether to get the M1 Corporate Directory file from other Telephony Manager Servers. By default, this option is not selected.

— Disable automatic file retrieval and schedule retrieval time. This check box is enabled only if the Get files from selected Telephony Manager servers check box is checked. By default, this option is not selected.

If you do not select Disable automatic file retrieval and schedule retrieval time, the retrieval of M1 Corporate Directory files from other Telephony Manager Servers is automatic. A task is automatically scheduled to transfer M1 Corporate Directory files from other Telephony Manager Servers after generating its own file. When you select the **Disable automatic file retrieval and schedule retrieval time** check box, the Schedule button is enabled and you can schedule the task for transferring the M1 Corporate Directory files from other Telephony Manager Servers.

Figure 56
Report Properties: Get Files tab



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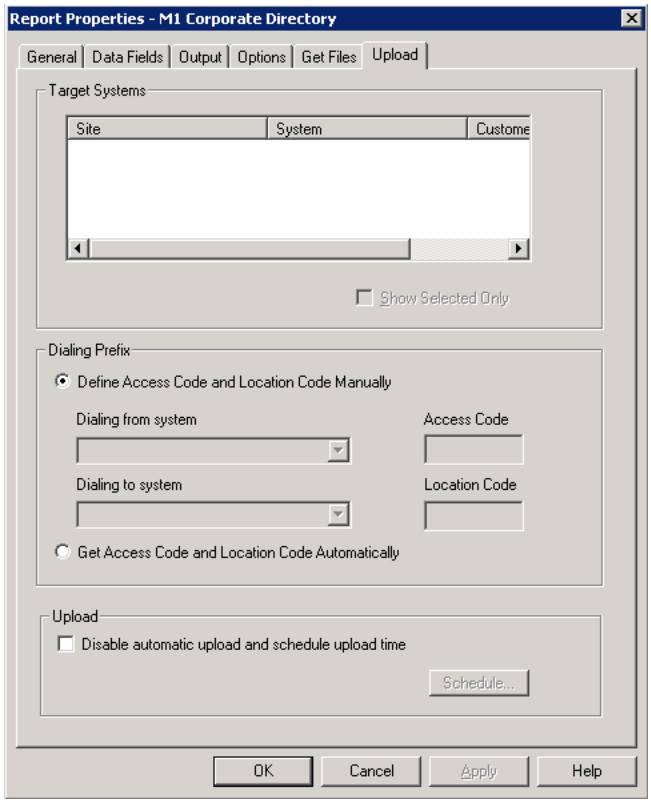
Upload tab

The Upload tab, shown in Figure 57 "Report Properties window: Upload tab" (page 136), is used in conjunction with the Corporate Directory feature for M3900 Series and IP Phones. See "Implementing the Corporate Directory feature for M3900-series and IP Phones" (page 128) for more information. This tab appears only in the property sheet for the M1 Corporate Directory report. Use the Upload tab to configure the following:

- target system—system from which the data is collected
- source selection
- dialing prefix
- upload schedule
- upload members—system to which the data is uploaded

Figure 57
Report Properties window: Upload tab



Target Systems section Select each system to which the Corporate Directory data should be loaded.

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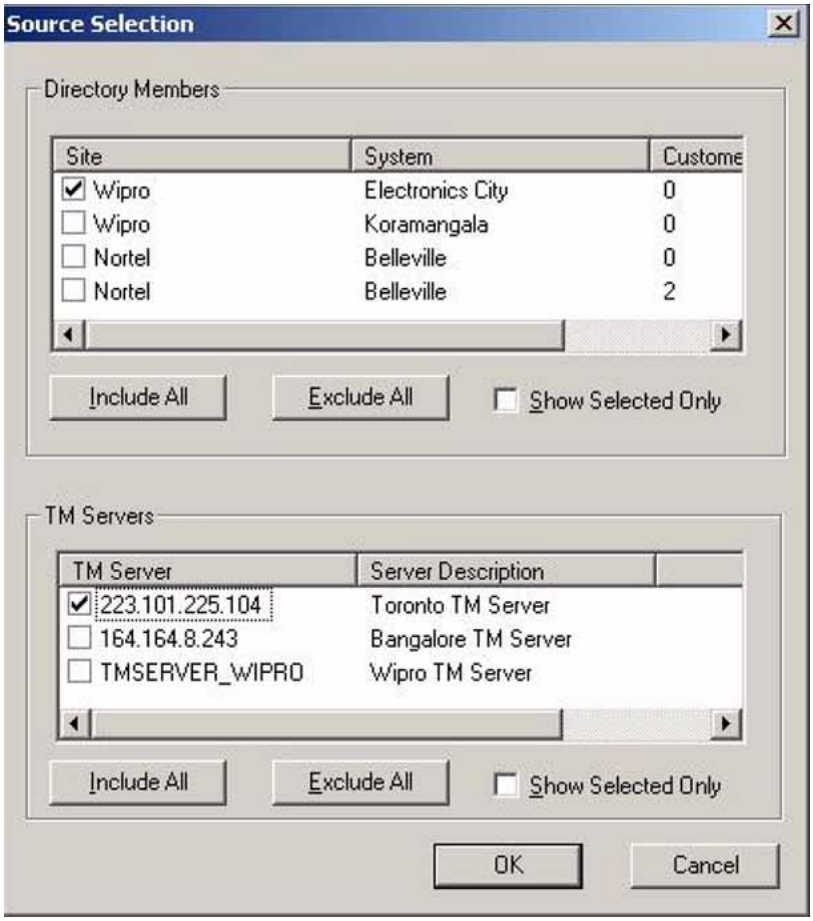
When you select any site-system-customer combination from the Target Systems section of the Upload tab, the Source Selection window appears, as shown in Figure 58 "Source Selection window" (page 137). Source Selection lists all Directory Members whose Corporate Directory data should be uploaded to the site-system-customer combination you selected in the Target Systems section.

This window lists other Telephony Manager Servers along with the site-system-customer combinations of the local Telephony Manager Server. You can choose Telephony Manager Servers along with the site-system-customer combinations of the local Telephony Manager Server for collecting the M1 Corporate Directory file to upload to the site-system-customer combination you selected in the Target Systems section of the Upload tab.

The Source Selection window appears for each site-system-customer combination you select in the Upload tab. This allows you to choose different sources for a M1 Corporate Directory file for each site-system-customer combination.

Figure 58
Source Selection window



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During upload, the Corporate Directory application builds a temporary M1 Corporate Directory file for each site-system-customer combination you selected for upload using the Upload tab. The temporary M1 Corporate Directory file contains the records from the following sources:

- The sites/systems/customers of the local Telephony Manager Server you selected in the Source Selection dialog box. The M1 Corporate Directory file generated by the local Telephony Manager Server is parsed to get the records of sites/systems/customers you selected in the Source Selection window.
- The Telephony Manager Servers you selected in the Source Selection window. The M1 Corporate Directory file transferred from the Telephony Manager Servers is used for getting the records of Telephony Manager Servers you selected in the Source Selection window.

The temporary M1 Corporate Directory file is then uploaded to the PBX using FTP.

Dialing Prefix frame In the Dialing Prefix frame, you configure the Access Code of target systems and the Location Code of the source systems separately. The combination of the Access Code of the target system and the Location Code of the source system constitutes the dialing prefix.

Since the M1 Corporate Directory file generated for a network may already contain the Directory Numbers prefixed with Location Codes, you may only have to configure the Access Code of the target system so it is prefixed to Directory Numbers of PBXs managed by other Telephony Manager Servers.

The configurable components of this frame are:

- **Define Access Code and Location Code Manually** radio button—if selected, Telephony Manager provides the access code and location code manually. The control fields for specifying the access code and location code manually are enabled.
  - — Access Code edit box: type the digits in the access code of the target system
  - — Location Code edit box: type the digits in the location codes of the source systems
- **Dialing from system**—lists all target systems (systems selected for uploading the M1 Corporate Directory file)
- **Dialing to system**—lists all source systems (systems of the local Telephony Manager Server whose data are uploaded to the target system)
- **Get Access Code and Location Code Automatically**—Telephony Manager obtains the access code and location code automatically from

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the Customer Properties sheet in Telephony Manager in one of the following ways:

— In the General tab, input the location code in the HLOC field and in Numbering plans tab, select the ESN AC1 or ESN AC2 feature and enter the access code in the Exchange field.

— Use the Numbering plans tab; see Customer Properties.

Upload frame The Upload frame allows you to schedule the upload of Corporate Directory data. If the Disable automatic upload and schedule upload time check box is cleared, the Corporate Directory data is uploaded automatically after the M1 Corporate Directory report is generated. If this check box is selected, the Schedule button is enabled, and you can schedule the upload, independent of the report generation.

M1 Corporate Directory for Network

Reports produced by the M1 Corporate Directory for Network are to be transferred to a different Telephony Manager Server and uploaded to systems served by that Telephony Manager Server. See "Transferring and merging Corporate Directory files" (page 144) for instructions on transferring and merging reports from different Telephony Manager Servers.

ATTENTION

Since the Corporate Directory application uses Windows FTP Server on the default FTP port, no other product or tool that runs or needs the FTP Server should be running on the Telephony Manager Server computer.

Administrators willing to share their M1 Corporate Directory file with other Telephony Manager Servers must create a user in a Windows user group and share the IP address or DNS Name, user ID and password of this user with administrators of other Telephony Manager Servers. In order to connect via FTP to the Telephone Manager servers to retrieve the Corporate Directory files, the UserID and password are required.

Report properties

Use one of the following methods to access the report properties window:

- Double-click on the highlighted line.
- Click **Properties** in the toolbar.
- Select **File > Properties**.

There are four tabs in the property sheet of the M1Corporate Directory for Network report:

- General tab

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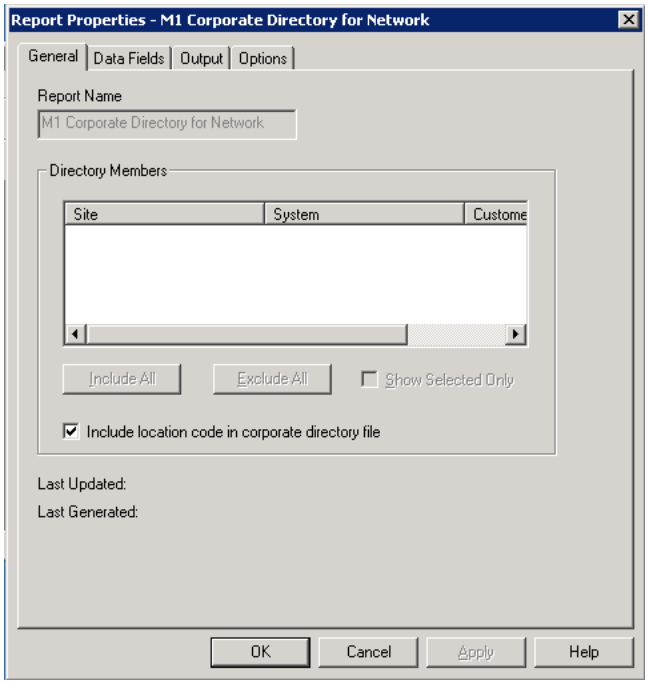
- Data Fields tab
- Output tab
- Options tab

General tab This tab, shown in Figure 59 "Report Properties - General tab - M1 Corporate Directory for Network" (page 140), defines the site-system-customer combination whose data should be included in the M1 Corporate Directory file to be available for network use.

Figure 59
Report Properties - General tab - M1 Corporate Directory for Network



Since the M1 Corporate Directory file generated for the network should contain Directory Numbers prefixed with the Location Code of the system, a check box is provided in the General tab of M1 Corporate Directory for Network to include Location Code in the M1 Corporate Directory file. By default, this check box is checked. If this check box is checked, the generated M1 Corporate Directory file contains Directory Numbers prefixed with a Location Code.

To configure the Location Code, select include location code in corporate directory file in the General tab. The Location Code window appears, as shown in Figure 60 "Location Code window" (page 141).

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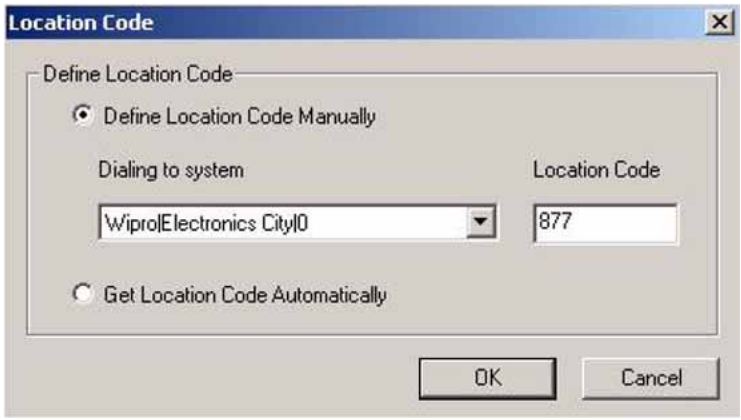
Figure 60
Location Code window



The default selection is **Get Location Code Automatically**. If you select this check box, the location code is automatically retrieved from the remote system properties.

If you select **Define Location Code Manually**, you must provide a location code for each site/system/customer configured on your local Telephony Manager server from which you request M1 Corporate Directory file transfer and upload.

Only Network Alternate Route Selection (NARS) Uniform Dialing Plan (UDP) is supported, if you choose the automatic setting. Select **Define Location Code Manually** if your network has a Coordinated Dialing Plan (CDP).

Data Fields tab This tab, shown in Figure 61 "Report Properties: Data Fields tab M1 Corporate Directory for Network" (page 142), defines the data fields to be included in the M1 Corporate Directory for Network file. The Data Fields tab for this report is exactly the same as it is for the M1 Corporate Directory report.

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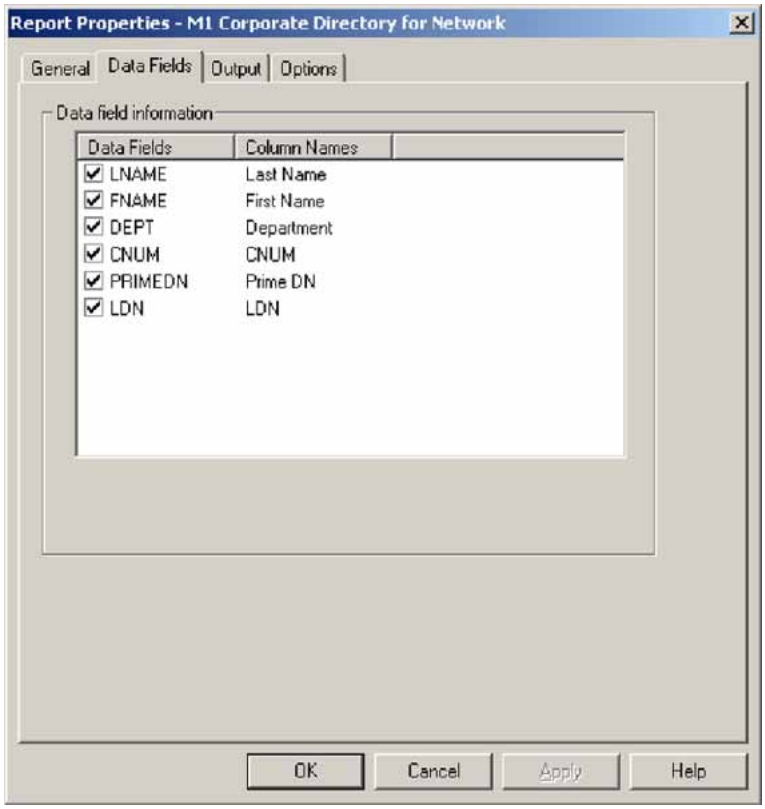
Figure 61
Report Properties: Data Fields tab M1 Corporate Directory for Network



Output tab This tab, shown in Figure 62 "Report Properties: Output tab M1 Corporate Directory for Network" (page 143), shows the order in which columns appear in the M1 Corporate Directory file. The order of these cannot be modified.

This tab shows you:

- the directory path of the M1 Corporate Directory file
- the file name of the M1 Corporate Directory file

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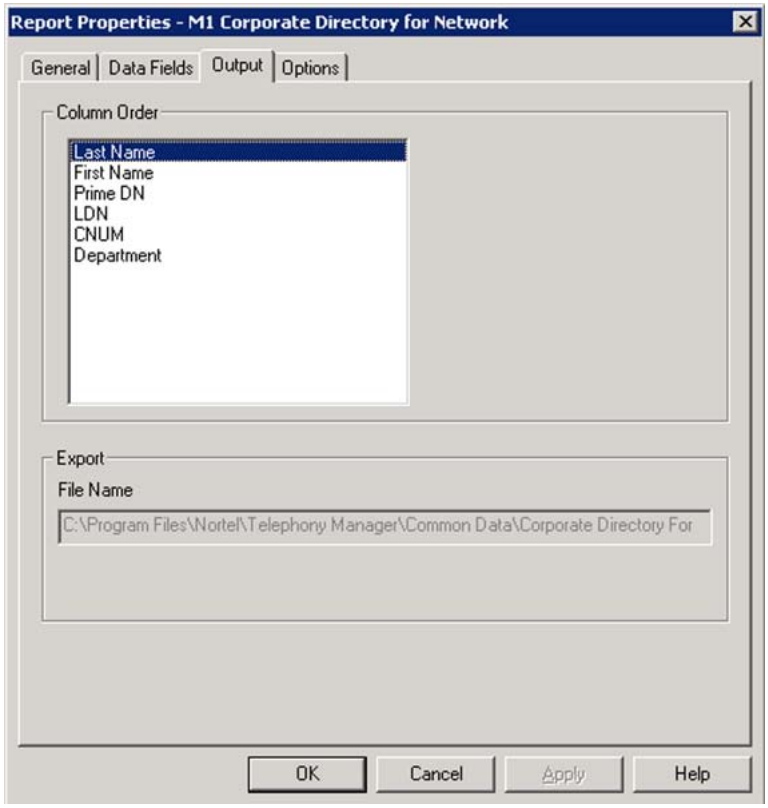
Figure 62
Report Properties: Output tab M1 Corporate Directory for Network



Note: The M1 Corporate Directory file name is read-only in the Output tab. The directory path and the name of the M1 Corporate Directory file for the network are fixed. You are not permitted to change them.

The M1 Corporate Directory for Network file is stored under the following path in Telephony Manager Server:

<TM Root>\Common Data\Corporate Directory for Network\Corporate Directory.csv

where:

<TM Root> refers to the directory where Telephony Manager is installed.

For example, if Telephony Manager is installed in C:\Program Files\Nortel, the M1 Corporate Directory for Network file are stored at:

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C:\Program Files\Nortel\Telephony Manager\Common Data\Corporate Directory for Network\Corporate Directory.csv

Transferring and merging Corporate Directory files

This section describes how to generate individual M1 Corporate Directory files, merge the files from multiple Telephony Manager Servers, and upload the merged file to the systems served by each Telephony Manager server.

Table 11 "Component functions of merging M1 Corporate Directory files" (page 144) summarizes the component functions of merging M1 Corporate Directory files and their descriptions.

Table 11
Component functions of merging M1 Corporate Directory files

Component function	Function description
Generate M1 Corporate Directory file for Network Procedure 23 "Generating an M1 Corporate Directory for Network file" (page 145)	The administrator of each Telephony Manager Server should generate the report called "M1 Corporate Directory file for Network" so that other Telephony Manager Servers can obtain the M1 Corporate Directory file when needed. Note that all records in an M1 Corporate Directory file from a remote Telephony Manager Server are uploaded to a particular Telephony Manager Server. Partial upload of the M1 Corporate Directory file from certain sites/systems/customers on remote Telephony Manager Servers is not allowed.
Add Telephony Manager Server Procedure 24 "Adding a Telephony Manager Server" (page 146)	Administrators add source Telephony Manager Servers from which M1 Corporate Directory files can be transferred.
Edit Telephony Manager Server Procedure 25 "Editing a TM Server" (page 148)	You can modify the IP address or DNS name, User ID, Password or Description of a Telephony Manager Server in the list of Telephony Manager Servers.
Delete Telephony Manager Server Procedure 26 "Deleting a Telephony Manager Server from the list of Telephony Manager Servers" (page 149)	Administrators can delete a Telephony Manager Server from the Telephony Manager Servers list when they no longer want M1 Corporate Directory files from that Server.

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Component function	Function description
Get Files from other Telephony Manager Servers Procedure 27 "Getting a Corporate Directory file from other Telephony Manager Servers" (page 150)	Administrators can configure Corporate Directory to transfer the M1 Corporate Directory files from other Telephony Manager Servers. You may schedule the task of transferring the files from other Telephony Manager Servers. Note that the M1 Corporate Directory files from other Telephony Manager Servers contain the Directory Numbers prefixed with the Location Code of the system.
Uploading the file to PBX Procedure 28 "Uploading the Corporate Directory file" (page 151)	For each target system, administrators can choose the source Telephony Manager Server and local site/system/customers to be uploaded.

Procedure 23
Generating an M1 Corporate Directory for Network file

Step	Action
1	Select **Utilities > Corporate Directory** in the Navigator window. The Corporate Directory window appears, as shown in Figure 46 "Corporate Directory window" (page 122).
2	Select **M1 Corporate Directory for Network**.
3	Select **File > Properties**. The Report Properties window appears with the General tab displayed, as shown in Figure 59 "Report Properties - General tab - M1 Corporate Directory for Network" (page 140).
4	In the **Directory Members** frame, select the sites/systems/customers for which you want to generate the M1 Corporate Directory file.
5	Click **Include location code in corporate directory file**. The Location Code window appears, as shown in Figure 60 "Location Code window" (page 141).
6	Do one of the following: • Select **Define Location Manually** to enter the Location Code for each site/system/customer to which calls are to be made. • Select **Get Location Code Automatically**.

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ATTENTION
It is the responsibility of the administrator to provide valid Location Codes to make valid dialing prefixes. The Corporate Directory application does not check for the validity of the dialing prefix.

7 Save the changes.

8 Generate the M1 Corporate Directory for Network file.

The generated M1 Corporate Directory for Network file is stored in <TM Root>\Common Data\Corporate Directory for Network\Corporate Directory.csv.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

—End—

Procedure 24
Adding a Telephony Manager Server

Step	Action

1 Select **Utilities > Corporate Directory** in the Navigator window.

The Corporate Directory window appears, as shown in Figure 46 "Corporate Directory window" (page 122).

2 Select **M1 Corporate Directory**.

3 Select **File > Properties**.

The Report Properties window appears with the General tab displayed, as shown in Figure 59 "Report Properties - General tab - M1 Corporate Directory for Network" (page 140).

4 In the **Directory Members** frame, select the sites/systems/customers for which you want to generate the M1 Corporate Directory file.

5 Click the **Get Files** tab.

6 Click **Add**.

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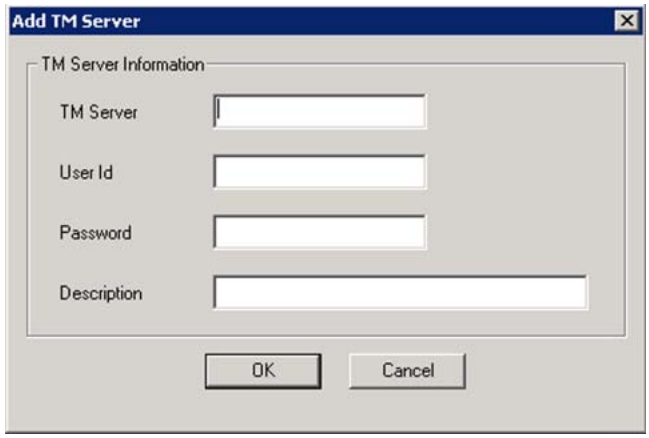
The Add TM Server window appears, as shown in Figure 63 "Add TM Server window" (page 147).

Figure 63
Add TM Server window

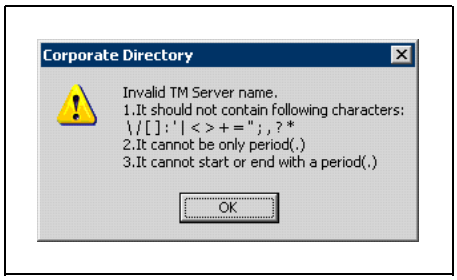


7 Enter the IP address/DNS Name of the **TM Server**, the **User Id**, **Password** and **Description** of the server.

TM Server Name cannot be only period (.) and cannot start or end with a period (.)

Configuring TM Server Name with only period (.) or the name start/end with a period (.) will display an error message as shown below.

Figure 64
Invalid TM Server



The user ID and password is used when FTP is used to transfer the M1 Corporate Directory file from the Telephony Manager Server.

When you add a new Telephony Manager Server, a folder to store the M1 Corporate Directory file of that Telephony Manager Server is created. The new folder is:

<TM Root>\Common Data\Corporate Directory\From Other Servers\<tm_server_name_or_ip_address>

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8 Click **OK**.

—End—

Use Procedure 25 "Editing a TM Server" (page 148)to modify the IP address/DNS name, User Id, Password or Description of a Telephony Manager Server in the list of Telephony Manager Servers.

Procedure 25
Editing a TM Server

Step	Action
1	Select **Utilities > Corporate Directory** in the Navigator window. The Corporate Directory window appears, as shown in Figure 46 "Corporate Directory window" (page 122).
2	Select **M1 Corporate Directory**.
3	Select **File > Properties**.
4	Click the **General** tab.
5	In the **Directory Members** frame, select the sites/systems/customers for which you want to generate the M1 Corporate Directory file.
6	Click the **Get Files** tab.
7	Select the Telephony Manager Server that you want to edit.
8	Click **Edit**. The Edit TM Server window appears, as shown in Figure 65 "Edit TM Server window" (page 149). The TM Server, User Id, Password, and Description fields are populated with the old values for the Telephony Manager Server you selected. You can change the values of all fields in the window.

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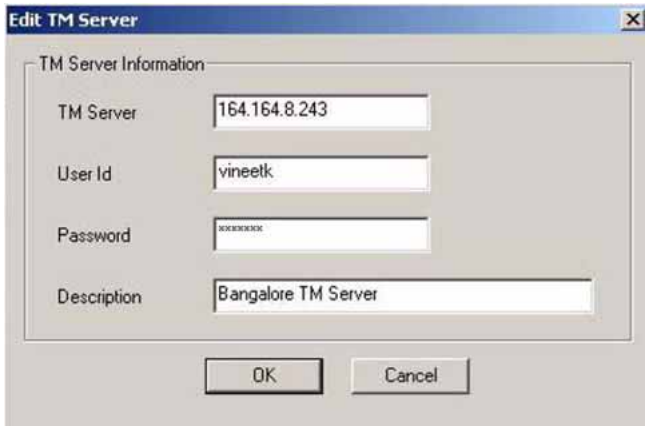
Figure 65
Edit TM Server window



9 Enter the modified IP address or DNS name of the **TM Server**.

10 Enter the modified **User Id**.

11 Enter the modified **Password**.

12 Enter a modified **Description**.

13 Click **OK**.

—End—

Procedure 26
Deleting a Telephony Manager Server from the list of Telephony Manager Servers

Step	Action
1	Select **Utilities > Corporate Directory** in the Navigator window. The Corporate Directory window appears as shown in Figure 46 "Corporate Directory window" (page 122).
2	Select **M1 Corporate Directory**.
3	Select **File > Properties**.
4	Click the **General** tab.
5	In the **Directory Members** frame, select the sites/systems/customers for which you want to generate the M1 Corporate Directory file.
6	Click the **Get Files** tab.

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7 Select the Telephony Manager Server that you want to delete.

The corresponding folders are also deleted from the Telephony Manager Server hard disk.

8 Click **Delete**.

9 Click **Yes** to confirm the deletion of the Telephony Manager Server.

—End—

Procedure 27
Getting a Corporate Directory file from other Telephony Manager Servers

Step	Action

1 Select **Utilities > Corporate Directory** in the Navigator window.

The Corporate Directory window appears, as shown in Figure 46 "Corporate Directory window" (page 122).

2 Select **M1 Corporate Directory**.

3 Select **File > Properties**.

4 Click the **General** tab.

5 In the **Directory Members frame**, select the sites/systems/customers for which you want to generate the M1 Corporate Directory file.

6 Click the **Get Files** tab.

ATTENTION
M1 Corporate Directory files from other Telephony Manager servers are transferred to the local Telephony Manager Server, if they are already generated. Therefore, it is the responsibility of the administrators of each Telephony Manager server to keep the local M1 Corporate Directory file up-to-date so that other Telephony Manager servers can upload it when needed.

7 (Optional) Click **Add** to add one or more Telephony Manager servers.

8 Select the Telephony Manager Servers from which you want to collect data.

9 Select **Get files from selected TM Servers**.

10 Schedule the task to get the M1 Corporate Directory files from other Telephony Manager Servers.

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ATTENTION

If the M1 Corporate Directory file for any of the Telephony Manager Servers is unavailable, the upload is cancelled for all the sites-systems-customer combinations that have selected this Telephony Manager Server as source.

—End—

Procedure 28
Uploading the Corporate Directory file

Step	Action
1	Select **Utilities > Corporate Directory** in the Navigator window. The Corporate Directory window appears, as shown in Figure 46 "Corporate Directory window" (page 122).
2	Select **M1 Corporate Directory**.
3	Click the **Properties** icon in the toolbar or select **File > Properties**.
4	Click the **Upload** tab.
5	Select the site-system-customer from the **Target Systems** frame. The Source window appears, similar to that shown in Figure 58 "Source Selection window" (page 137).
6	Select other Telephony Manager Servers and the site-system-customer of the local Telephony Manager Server whose Corporate Directory data you want to upload to the site-system-customer selected in step 3.
7	Repeat step 3 and step 4 for all site-system-customers to which you want to upload the M1 Corporate Directory file.
8	Schedule a task for upload.

—End—

Event Log Viewer

This section contains a general overview of the Event Log Viewer, and describes its functions and purpose. For complete details on how to use the Event Log Viewer, see online Help.

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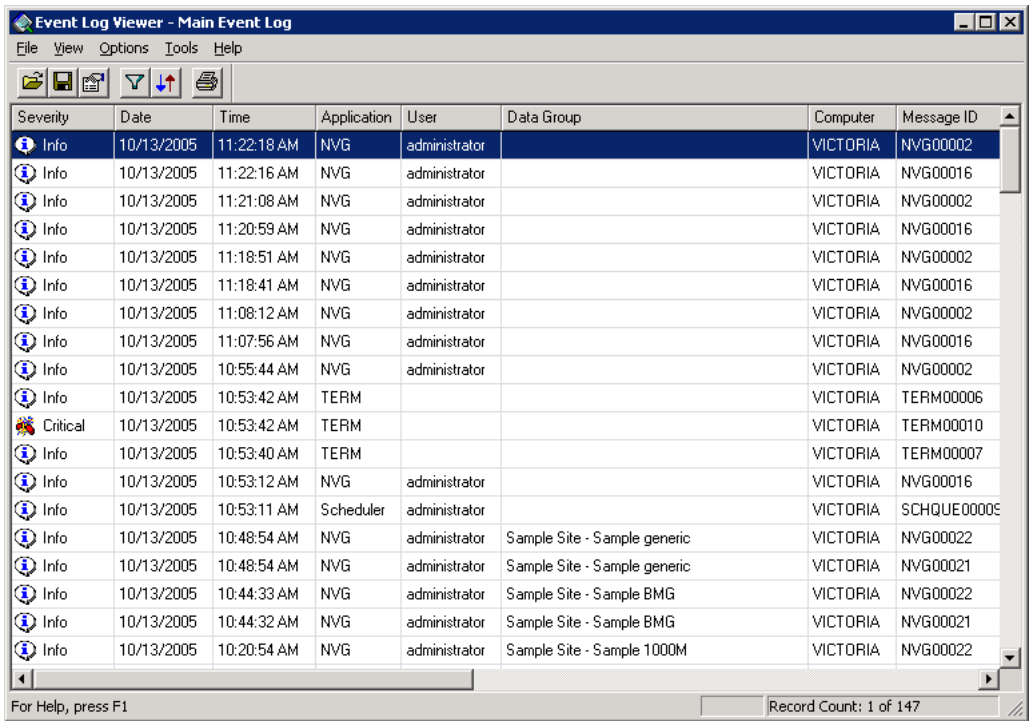
Overview

Use the Event Log Viewer to view the records of all operations that are run from Telephony Manager. The Event Log Viewer displays the event records stored in the Event Log. The Event Log Viewer also has features such as event sorting and filtering.

Interface

Select Event Log Viewer from the Maintenance menu of the Telephony Manager Navigator window. The main window of the Event Log Viewer displays the Event Log data in a report layout, as shown in Figure 66 "Event Log Viewer window" (page 152). Column headings display text that describe the data that it contains. You can change the size of columns by dragging on the divisions that separate the headings.

Figure 66
Event Log Viewer window



File menu The File menu contains commands to open and close Event Logs, print Event Log reports, and maintain the Main Event Log.

View menu The View menu commands allow you to change the way you view an Event Log.

Options menu The Options menu allows you to save the settings you entered in the File and View menus.

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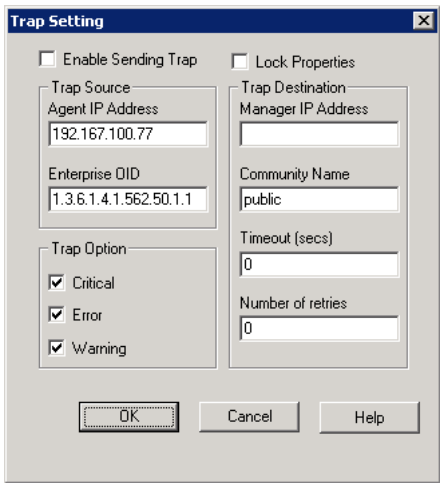
Tools menu The Tools menu, shown in Figure 67 "SNMP Trap Setting window" (page 153), allows you to access the SNMP Trap Setting window.

Figure 67
SNMP Trap Setting window



The Trap Setting window enables SNMP Trap Setting and contains the following options:

- Trap Source:
  - **Agent IP Address:** An agent is an SNMP entity located on the managed node. The Agent IP Address is the IP address of the agent entity (that is, the equipment sending the trap).
  - **Enterprise OID:** The Enterprise OID is a unique value assigned to your organization by the Internet Assigned Number Authority (IANA).
- Trap Destination:
  - **Manager IP Address:** The Manager IP Address is the IP address of the PC that hosts the target SNMP Manager and receives the trap. The Manager IP address is typically the IP address of the Telephony Manager Server.
  - **Community Name:** This name identifies the community string. The default name is "Public."
  - **Timeout:** The Timeout value is a time interval in seconds and determines the length of time that applications wait for an SNMP agent entity to respond to a request.
  - **Number of Retries:** The number of times the system attempts to connect to the SNMP Manager.
- Trap Option:

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— **Critical Events:** This error indicates that the event resulted in a loss of data or system functionality.

— **Error Events:** This error indicates the termination of a process that can result in other processes being terminated (for example, a corrupt DLL).

— **Warning Events:** This error indicates that the event was not necessarily significant but may indicate the possibility of future problems.

System Terminal

System Terminal helps you perform overlay-based tasks directly through the serial port interface. System Terminal provides online, context-sensitive Help for overlays, prompts, and error messages. System Terminal also provides a terminal emulation capability.

In the Web environment, Terminal Client provides the same functionality as System Terminal. For information on Web Virtual System Terminal, see "Virtual System Terminal" (page 483).

System Terminal supports Ethernet or PPP connections using Overlay Passthru. Overlay Passthru supports access to the overlays.

Launching System Terminal (Ethernet or PPP required)

Procedure 29
Launching System Terminal

Step	Action
1	Connect to the system of interest.
2	Select **System Terminal** from the Maintenance menu in the System Window.
3	Log in with your system login name and password. The System Terminal window appears, as shown in Figure 68 "System Terminal window" (page 155). The System Terminal window displays all system events as they occur. It also gives you direct access to any overlay.

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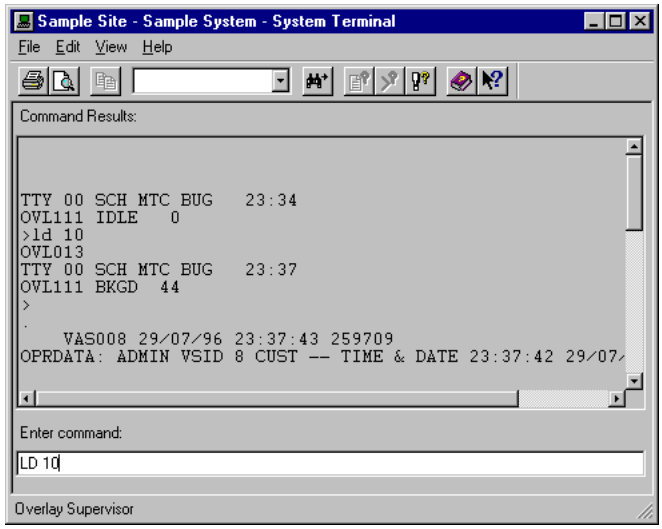
Figure 68
System Terminal window



—End—

For Ethernet or PPP connections, each active System Terminal connection requires a pseudo-teletype (PTY) port. PTYs are software-only I/O ports. The System Terminal and Maintenance Windows applications use these ports to access the overlays.

Ethernet and PPP are available only for Release 23 and above with Alarm Filtering (ALARM_FILTER) package 243 and MAT 5.0 (MAT) package 296.

Configuring a pseudo-teletype port

Telephony Manager applications require that you configure a pseudo-teletype (PTY) port on the system for access to the overlays. A PTY port is a software emulation of a serial port connection to a device or application through an IP network. The primary requirement is that you have a device number (DNUM) available for configuring the PTY port.

To configure a PTY port in LD 17, you must have an unused device number (DNUM) available. There are 16 DNUMs available on the system that must be shared by all input/output devices. These device types include PRT, PTY, AML, and DCH.

Systems can be configured to support a maximum of four PTY ports.

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Procedure 30
Configuring a PTY port with LD 17

Step	Action
1	In the Telephony Manager system window, click on the System Terminal icon. The System Terminal Selection window appears.
2	Click **Ethernet/PPP** (Overlay Passthru).
3	Click **OK**. The System Terminal window appears.
4	Log in with your administrator's login name and password. You must have appropriate access privileges to use LD 17.
5	Enter: **ld 17** The system responds REQ.
6	Enter: **chg** The system responds TYPE.
7	Enter: **cfn** The system responds ADAN.
8	Enter: **new tty <n>** where n is a device number between 0 and 15. The system responds TTY_TYPE.
9	Enter: **pty** The system responds PORT.
10	Enter: **<n>**

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Where n is an available port between 0 and 15 for most large systems. This range varies according to the system option and card/port type. For CS 1000 systems, this range is 0–3. The system responds DES.

11 Enter:

ether

This is a suggestion. You can enter any name that you want to use to describe the port. The system responds FLOW.

12 Enter:

no

The system responds USER.

13 Enter:

mtc bug sch

The system responds TTYLOG.

It does not matter which user types you enter. Telephony Manager makes any required changes when you establish a connection. For example, when the Telephone Manager application accesses a system over a PTY port, only the user type SCH is set for the PTY port.

14 Enter:

no

The system responds BANR.

15 Enter:

yes

16 Log out and close the system terminal window.

To determine how many PTY ports you need to support Telephony Manager, determine how many Telephony Manager clients need to access the system at the same time.

—End—

ATTENTION

The Telephony Manager System Terminal connections (Overlay Passthru, and Virtual System Terminal) require two PTY ports for successful login. Upon login, the first PTY port disconnects immediately. If only one PTY port is free, a connection cannot be established.

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In a normal environment, three or four PTY ports should be sufficient. If you have configured four PTY ports, and three or four of the ports are in use, a fourth user attempting to access the system receives a message requesting that they try the connection later.

Telephony Manager has been designed to make efficient use of the available serial ports. Most Telephony Manager applications access a system on an as-required basis. These applications include Telephone Manager, CPND, ESN, Corporate Directory, Database Backup and Restore, and Traffic. The applications make an Ethernet connection to a system and establish a virtual serial connection for access to the system overlays as required.

Applications such as Alarm Banner, Event Browser, and DBA do not require a PTY port. A special interface exchanges data between the system and Telephony Manager for these applications. There are two exceptions: Overlay Passthru/Virtual Terminal and Maintenance Windows. For Overlay Passthru and Virtual Terminal, when a connection is requested, the connection is established between Telephony Manager and the PTY port on the system. This port is locked until the connection is terminated. Maintenance Windows does not require access to a PTY port when the application is launched. When you execute a maintenance overlay command, a connection is established to execute the command. After the command executes, the connection terminates.

Telephony Manager System Terminal window

The System Terminal window includes the following:

- Enter Command—enter overlay commands
- Command Results—displays your interaction with the overlays and the results
- links to online Help for the following:
  - help on the current overlay
  - help on the current prompt
  - help on the last or selected error message
  - one-line description of prompts in the status bar

You use overlays as you did before a system management tool was available. The one minor difference is that you type into an edit box rather than the last line of the screen as with Terminal Emulation applications. You still use the Enter key to send the typed-in data (an overlay command or response to a prompt).

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Using System Terminal

You can do the following from System Terminal:

- Load an overlay as you normally would on a Terminal Emulation application.
- Cut or copy system events or overlay command results to the clipboard.
- Save or capture command results to a file.
- Get help on an error message.
- Get help on an overlay.
- Get help on a prompt.
- Monitor system events.

Advantages over a TTY

You now have the following advantages over a TTY:

- Type in lowercase letters and use the backspace key.
- Copy and Paste in the Enter Command box (useful for repeated commands with only a TN change).
- Scroll back in the command results.
- Copy and Print the command results.
- Capture output to a file as well as to the screen.
- Save the command results to a file.

Getting help on an error message

System Terminal can distinguish error messages from the other text in the Command Results. The Error Message command in the Help menu provides the error description in Telephony Manager Windows Navigator Help.

You can get help on an error message in the following ways:

- Double-click an error message anywhere in the Command Results.
- Select the Error message command in the Help menu to get help on the last error message (even if it is scrolled off the screen).
- Select an error message anywhere in the Command Results, and then select the Error message command in the Help menu.
- Select the I/O Navigator from the Help menu.

The error message Help window appears when you select the Error message command in the Help menu.

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System Terminal menus

Detailed descriptions about the functions of each command in the System Terminal menus are available by clicking context-sensitive Help in the toolbar. System Terminal menus consist of:

- File
- Edit
- View
- Help

Toolbar

The System Terminal toolbar, shown in Figure 69 "System Terminal toolbar" (page 160), contains shortcuts to menu commands.

Figure 69
System Terminal toolbar

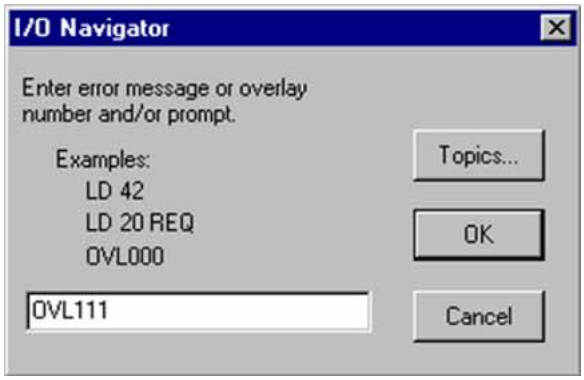
The Find and Find Next icons in the toolbar allow you to search the Command Results for the text string that you enter in the Find box. Find is case-sensitive. The search begins at the current location.

Using the I/O Navigator

The I/O Navigator window, shown in Figure 70 "I/O Navigator window" (page 160), allows you to quickly jump to Help on any overlay, prompt, command, or error message. Select I/O Navigator from the Help menu for the overlay or from the I/O Navigator buttons in the appropriate Help files.

The I/O Navigator allows you to navigate through I/O reference Help independent of your current context within the overlays. For example, you do not need to be logged into a system to look up an error message using the I/O Navigator.

Figure 70
I/O Navigator window



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Procedure 31
Using the Navigator

Step	Action
1	Type the overlay number, error message number, or prompt in the text entry field.
2	Click **OK**. Help information for the specified overlay, prompt, or error message appears. Topics displays the general reference Help Index.

—End—

The Cancel button cancels a search. Enter an overlay (LD XX) or error code mnemonic (ERR, BUG) to go to the contents page of the appropriate Help file. Enter the error code (BUG3001) or an LD number, and a prompt takes you to the Help topic page.

If the prompt or error message you specify does not exist, the Help search window appears with the nearest match selected. If the overlay number or error message type do not exist, a "Help file not found" information dialog box appears.

The I/O Navigator command can be used from within Help. You do not need to be connected to a switch.

There are some combination overlays (for example, one Help file describes two overlays). You can enter either of the overlay numbers. These cases are:

- LD 36 and LD 41
- LD 40 and LD 42
- LD 84 and LD 85

Leading zeros are not required in error messages. For example, entering SCH22 or SCH022 finds the description for SCH0022.

System Monitor

The Telephony Manager System Monitor is a Microsoft Windows executable program that runs in the background on the Telephony Manager Server. System Monitor displays the resources of the PC (such as memory and CPU usage), and issues alarms when system resources are low. The System Monitor utility allows you to do the following:

- Turn a system alarm on or off and define the conditions (where, when, and what type of alarm) for sending alarm messages.

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- Enable the System Monitor to automatically start when Navigator starts.
- View the virtual, physical, and total memory available.
- View the total CPU usage information.
- View the processes now running on the system.
- View the applications now running on the system.
- View the performance of the Windows server.
- Ping another machine to test network connections.

Access System Monitor

Access the Telephony Manager System Monitor using the Microsoft Windows Run command. The path depends on your installation. However, you can locate the System Monitor executable, *SystemMonitor.exe*, in:

Nortel\Telephony Manager\Common Services\Program Files

Double-click the System Monitor executable file. The System Monitor icon appears on the Windows task bar, and the System Monitor starts (the window is minimized on your screen). From this window, you can perform all of the System Monitor functions.

Enable or disable the System Monitor from **Options > Options**.

View the virtual, physical, and total memory available

To view memory information from the System Monitor window, select the Memory tab, as shown in Figure 71 "System Monitor window: Memory tab" (page 163).

The tab displays the amount of virtual and physical memory available, the total memory limit, and the total memory now in use. The progress bar at the bottom of the tab graphically displays the Memory Usage percentage.

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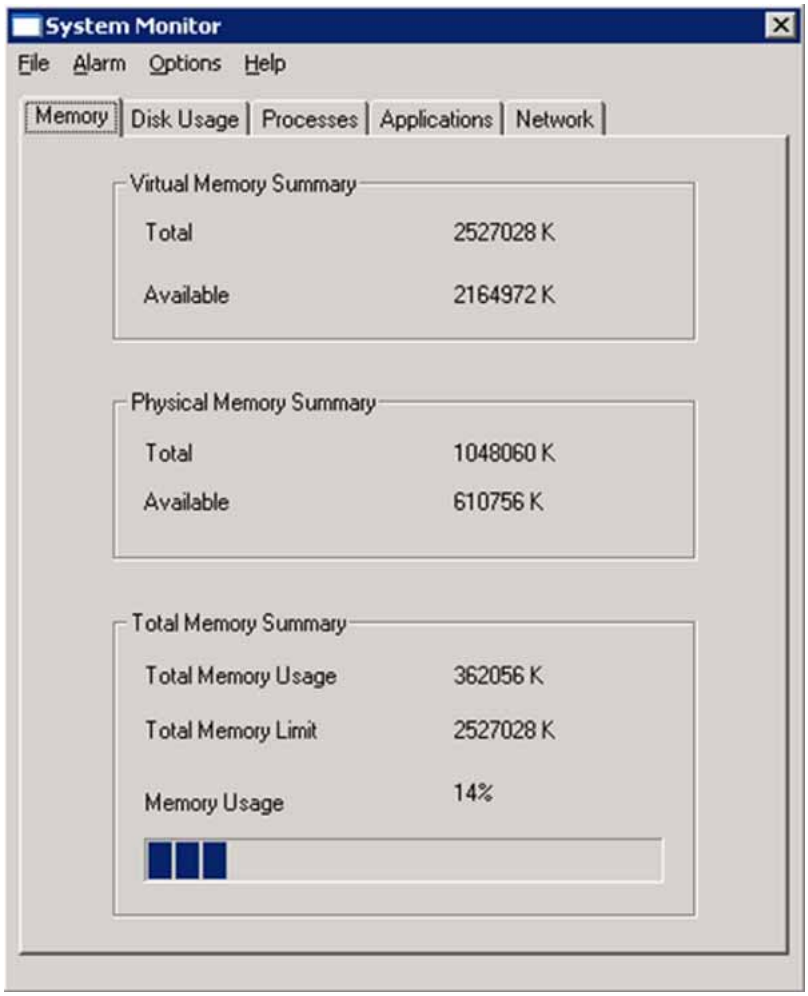
Figure 71
System Monitor window: Memory tab



View Disk Usage information

To view usage information for the disk from System Monitor, select the Disk Usage tab on the System Monitor window, as shown in Figure 72 "System Monitor window: Disk Usage tab" (page 164).

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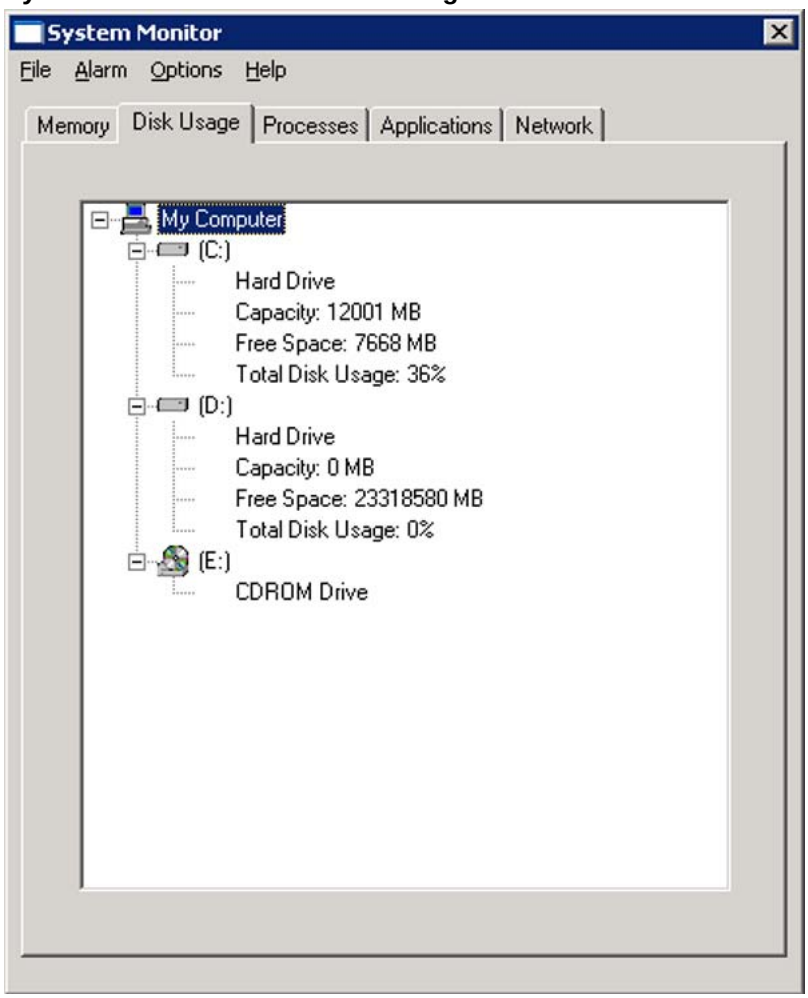
Figure 72
System Monitor window: Disk Usage tab



View CPU information

To view usage information for the CPU from System Monitor, select the Processes tab. As shown in Figure 73 "System Monitor window: Processes tab" (page 165), the tab displays five columns of information for each process that is running. The CPU usage appears graphically at the top of the tab. The tab displays the following information:

- **Processes:** The name of the process
- **ID:** The process ID
- **CPU%:** The percentage of the CPU used for the process
- **MEM USAGE:** The amount of memory used for the process
- **VM SIZE:** The amount of virtual memory used for the process

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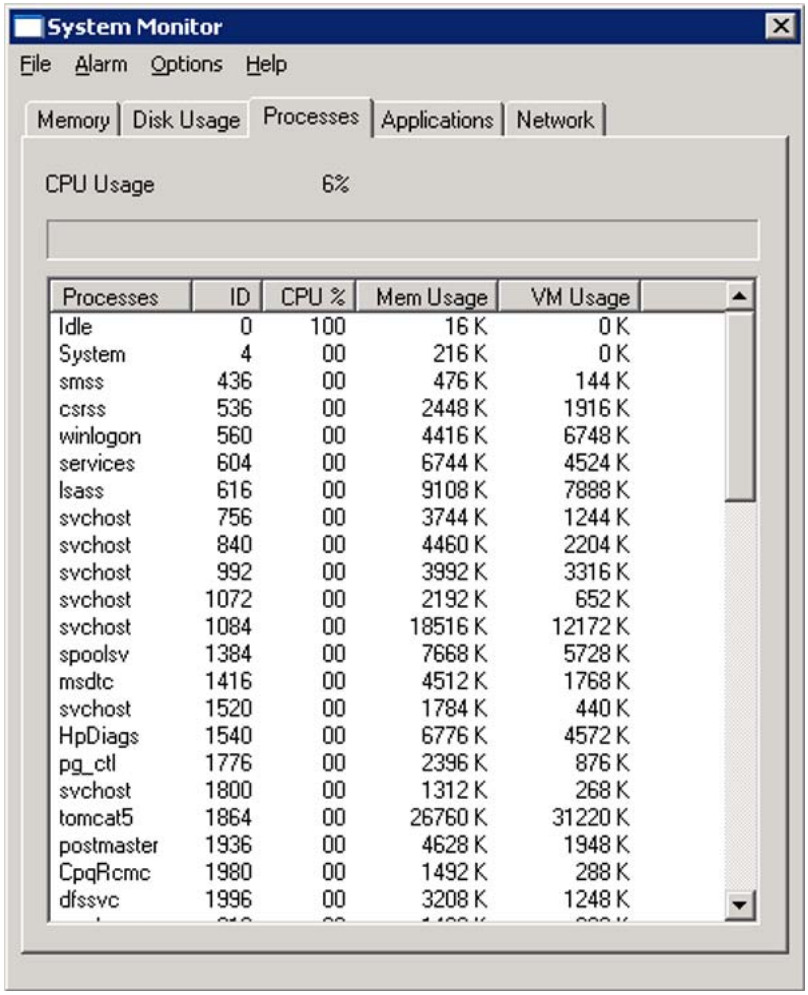
Figure 73
System Monitor window: Processes tab



View and disable applications running on the system

To view and disable applications running on the system, select the Applications tab on the System Monitor window, as shown in Figure 74 "System Monitor window: Applications tab" (page 166).

To stop an application from running, select the application, and then click End Task.

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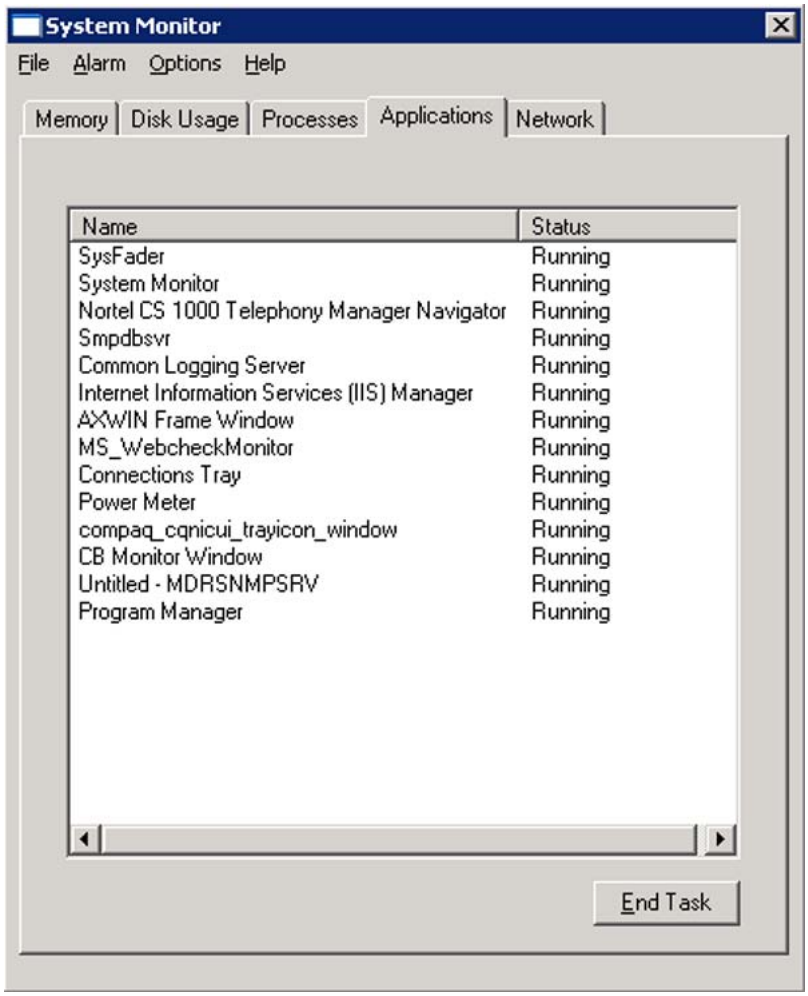
Figure 74
System Monitor window: Applications tab



View the performance of selected equipment

To view the server performance, select the Network tab on the System Monitor window, as shown in Figure 75 "System Monitor window: Network tab" (page 167). The tab displays the number of bytes received and sent per second by the server.

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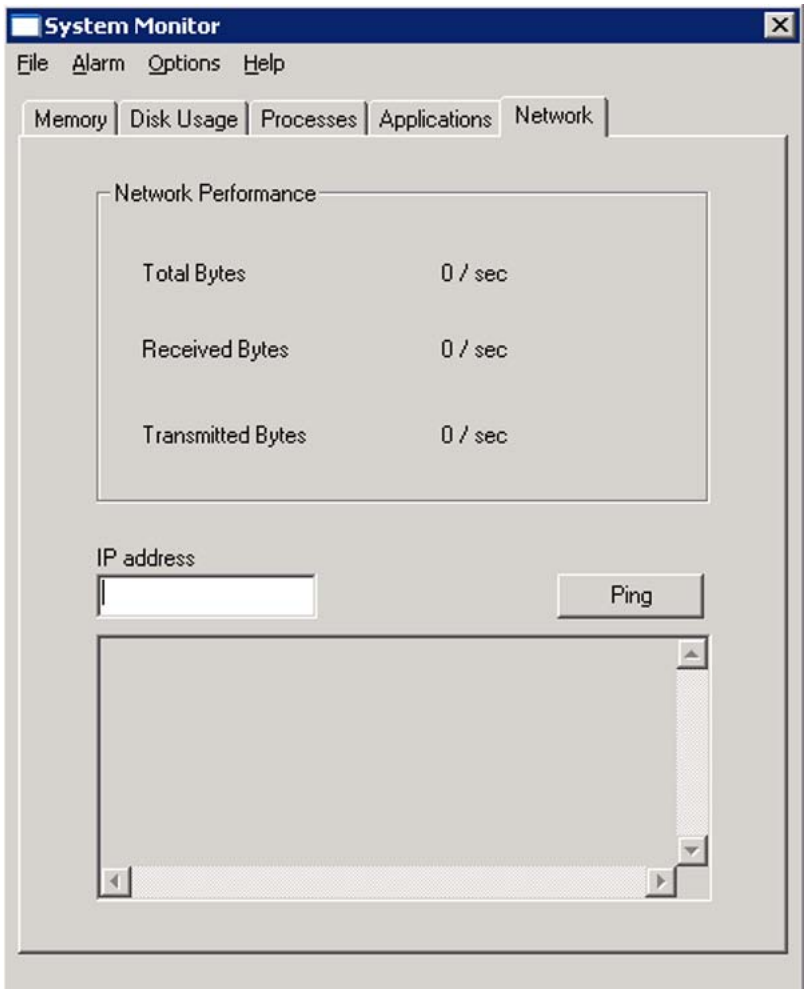
Figure 75
System Monitor window: Network tab



Procedure 32
Viewing the performance of other equipment

Step	Action
1	Select the **Network** tab on the **System Monitor** window.
2	Enter the IP address of the equipment you want to view.
3	Click **Ping**. The performance information for the selected equipment appears.

—End—

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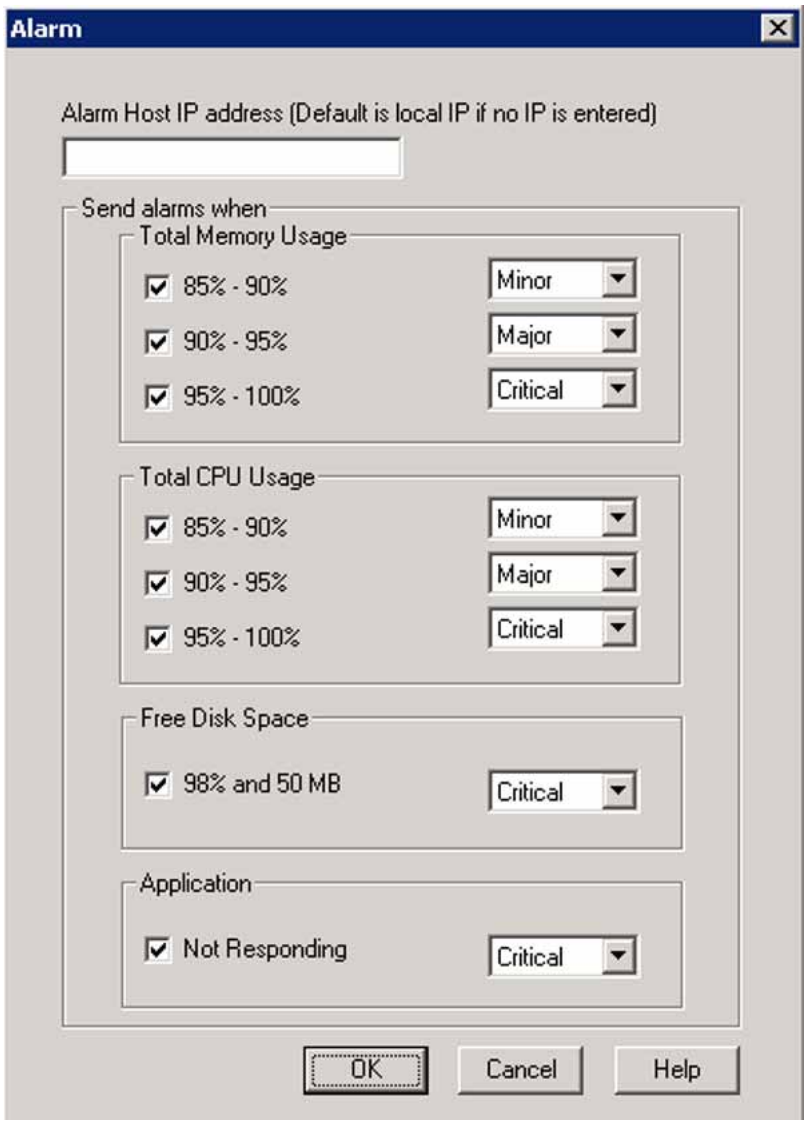
Configure alarms

You can establish where to send alarm messages when system resources are low, and set the conditions for sending alarm messages.

To configure alarms, select Configure from the Alarm menu in the System Monitor window. The Alarm window appears, as shown in Figure 76 "Alarm window" (page 168).

Figure 76
Alarm window



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Emergency Service for Client Mobility

IP telephony allows the convergence of previously separate voice and data networks, as well as freedom from the restrictions of distance. These new capabilities also create a new challenge when providing Emergency Call Services (ECS)--locating IP telephony clients and properly directing emergency calls. This problem also applies to traditional (non-IP) telephones in remote cabinets. The Emergency Services for Client Mobility (ESCM) feature builds upon the Emergency Services Access (ESA) functionality in previous CS 1000 releases and adds new functionality to support IP phone mobility.

Two new features are available in Telephone Manager application: Emergency Response Location (ERL) and Emergency Caller Location (ECL). For further information, see *Emergency Services Access (NN43001-613)*.

Data Buffering and Access (DBA)

The Telephony Manager Data Buffering and Access (DBA) application provides a Windows interface to start a live data buffering session and define the session properties for collecting data from a CS 1000 and Meridian 1 system. A network or PPP connection allows collection of CDR and Traffic data. A serial connection allows collection of ASCII data only.

With a PPP or network connection, you can perform the following tasks:

- Schedule a single or routine backup of the database files for your system.
- Schedule the retrieval of buffered CDR and Traffic data from a system.
- View collected CDR and Traffic data.
- Back up and restore a database for the system to and from a remote device for database recovery.

If you lose a connection or have connection problems during a live data session, the system saves the CDR and Traffic data. You can retrieve the data when the connection is restored.

A serial connection does not support the DBA Backup and Restore functions. With a serial connection, you can perform the following tasks:

- Establish the actions and rules for generating alarms.
- View collected serial data.

If you lose a connection or have connection problems during a live serial data session, data is lost.

Use the DBA application to schedule the following tasks:

- Archive CDR and Traffic from the system.

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- Perform a Database Disaster Recovery (backup only).

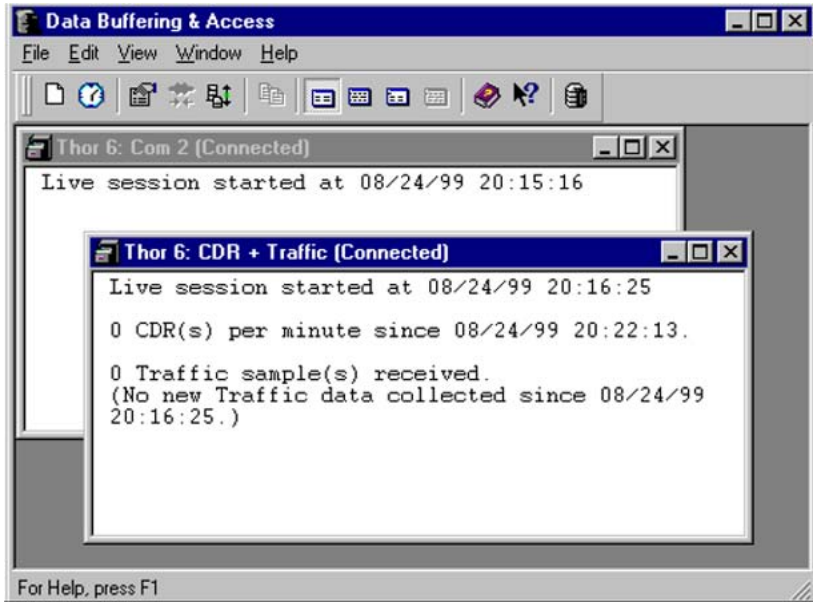
Access DBA

Access DBA in one of the following ways:

- From the Utilities menu in the Telephony Manager Navigator window, select Data Buffering and Access.
- From Start menu, select Programs > Telephony Manager > Data Buffering & Access.

The DBA main window appears, as shown in Figure 77 "DBA main window" (page 170).

Figure 77
DBA main window



DBA menus

Descriptions of each command in the DBA menus are available online. Use the Help command to get detailed descriptions of the commands.

DBA Toolbar The DBA Toolbar provides easy access to many of the menu commands.

Right-click in the session window to view the pop-up window containing a subset of the menu items.

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Enabling DBA with LD 117

The system has to be configured to enable network collection of CDR or Traffic data, or to back up a database for the system to the Telephony Manager server for disaster recovery purposes. Note that the system has to have the appropriate package as documented in *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.

Procedure 33
Enabling DBA with LD 117

Step	Action
1	In the Telephony Manager system window, on the toolbar, click on the System Terminal icon. The System Terminal Selection window appears.
2	Click **Ethernet/PPP (Overlay Passthru)**, and then click **OK**. The System Terminal window appears.
3	Log in with your administrator's user name and password. You must have appropriate access privileges to use LD 117.
4	Enter: `ld 117` The => prompt appears in the Command Results pane indicating that the system terminal application is ready to accept your input.

5	To enable collection of CDR data, enter:
	`ENL BUF CDR`
	
	To enable collection of Traffic data, enter:
	`ENL BUF TRF`
	
	To enable database disaster recovery backup and restore, enter:
	`ENL DBK`
	
	Corresponding operations are available to disable each feature (for example, DIS BUF CDR).

6	To view the status of buffering data enter:

CAUTION
Do not enter ENL BUF ALL. This results in accumulation of other data that is not collected and taking up storage space. Manual removal of the data by support personnel may be required. If this command was inadvertently entered, enter DIS BUF ALL and repeat this step to enable CDR or Traffic collection as required.

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```
STAT BUF
```

—End—

Configuring a DBA serial port session

Procedure 34
Configuring a DBA serial port session

Step	Action
1	From the Navigator window, select **Utilities > Data Buffering & Access**. The DBA main application window appears.
2	From the DBA Main application window, select **File > New Session**. The Select an M1 System for Live session window appears, showing a tree of the Site and Systems that can be used to collect serial data.
3	Select a system from the tree to use for the new session. A New Session window appears.
4	Select a COM port from the Connect Using combo box. The Connect Using combo box retrieves the available serial ports from the Registry. If you are using an Ethernet connection, set Connect Using to Network. Based on whether you have selected a serial or network connection, the fields that can be configured are enabled.
5	Configure the settings for the connection.
6	Select **Connect Now**. If the connection is successful, the session window shows Connected in the window title. For serial connections, the session is connected if the port is available. This does not indicate that the device is connected to the serial port.

—End—

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Start a new live data session

To collect live data, you must start and configure a live data session (an active connection to a system). The DBA application runs continuously during the session, providing access for session configuration and a window for monitoring session information. Special operations, such as a database backup, can be run immediately or scheduled to run within a session.

To maintain a live data session, you must keep the DBA main window open continuously. To minimize screen congestion, hide the DBA main window to remove it from the Windows Desktop. See "Hide and restore the DBA main window" (page 184).

For Small Systems with survivable expansion cabinets and systems with survivable media gateways, it is possible to have live data delivered to DBA from the main cabinet or call server. When the systems are operating in normal mode, there is no call processing taking place on the expansion cabinets or the media gateways; therefore, no CDR data is sent from the expansion cabinets or media gateways.

Procedure 35
Starting a new live data session

Step	Action
1	Select **New Session** from the File menu in the DBA main window. The Select a System for Live Data window appears, as shown in Figure 78 "Select a System for Live Data window" (page 173).
2	Do one of the following: • Select the system for the session from the tree and click **OK**. • Double-click the selected system. The Session Properties window appears, as shown in Figure 79 "New Session Properties window" (page 174).

Figure 78
Select a System for Live Data window

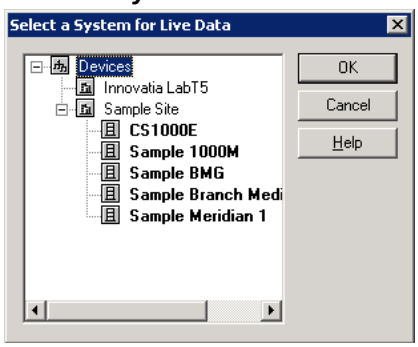

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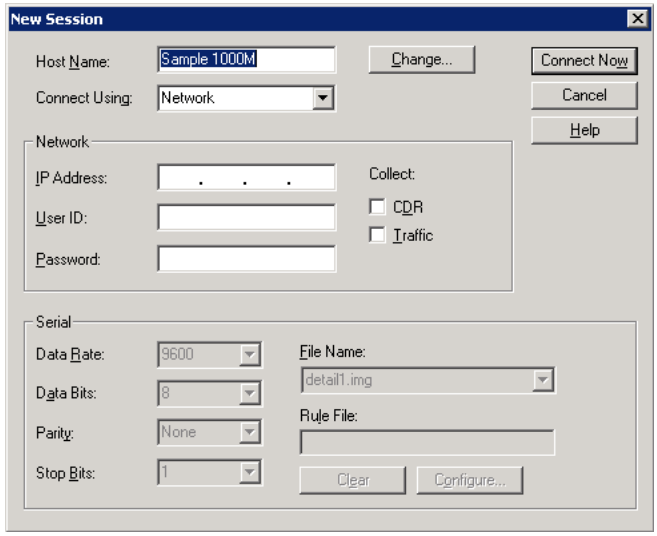
Figure 79
New Session Properties window



—End—

Define session properties for a network connection

Session properties for a network connection are defined in the Session Properties window.

Perform the steps in Procedure 36 "Defining session properties for a network connection" (page 174), in the System Properties window. The Host Name, IP Address, logon name, and password data exist for the selected system in Telephony Manager Navigator. The DBA application automatically fills these fields with values from the Telephony Manager database. Changes that you make in this window are temporary and are lost when the session window closes.

Procedure 36
Defining session properties for a network connection

Step	Action
1	To change your system selection, click **Change** to return to the **Select a System for Live Data** window. The name of the system appears in the Host Name box.
2	Select network connection in the **Connect Using** box.
3	The IP address for the selected system appears in the **IP Address** box.

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4 (Optional) Enter your login name in the **Login Name** box.

5 Enter your login password in the **Password** box.

6 Select the **Collect** boxes to select the types of data (CDR, Traffic, or both) that DBA buffers.

7 Select **Connect Now** to connect to the selected system and begin a live data session.

Nortel recommends using a live connection, rather than using a hard drive, to collect data from Large Systems.

If you do not buffer all available data types, a dialog box appears asking you to confirm your selection. A new window appears within your DBA main window. The host name of the connected system appears on the title bar. DBA uses this session window to provide information about the live data session. See "View session data" (page 178)).

Leave the session window open to maintain the live data session. If you close the window, the live session terminates. If the session terminates, the system begins sending buffered data to one of the following devices, depending on the session parameters you set when establishing the connection:

- Hard drive (not recommended for 11C and CS 1000 systems)
- PCMCIA card (11C and CS 1000 systems)

—End—

Guidelines for use of DBA CDR and Traffic data

The CDR and Traffic data that is collected from a system is normally processed by applications that are integrated with Telephony Manager. This includes the Telecom Billing System and Traffic Analysis. It is possible to have this data processed by third-party vendors, providing the guidelines in this section are followed.

The CDR and Traffic data files are stored on the Telephony Manager server in the folder for the system, for example "Nortel\Common Data\Sample Site\Sample Meridian 1". The following file names are used:

- detail1.img—for CDR data
- traffic.dmp—for Traffic data

DBA collects data from systems continuously and merges it into the detail1.img and traffic.dmp files every 15 minutes. If a file is being used by another application, the merge is done at the next 15 minute interval.

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The system folder containing the data files may be accessed by sharing the Nortel folder on the network, making it available to applications on other PCs. Similar security guidelines should be followed as for sharing the folder for Telephony Manager PC client access (see the Telephony Manager Installation NTP for details). Note that only approved applications may reside on the Telephony Manager server. Running a FTP service on the Telephony Manager server is not supported due to conflicts with Telephony Manager FTP usage for IP Telephony and ITG applications.

The following guidelines must be followed by processing applications accessing the CDR and Traffic data:

- The files should be emptied or deleted after the data is collected. This prevents the files from growing continuously, because new data is appended to the file. Data should be collected on a regular basis (such as daily) for the same reason.
- The files should not be held open for a great length of time. The DBA application retries writing to the file, but if the file is held open for an extensive length of time problems may result. The recommendation is to extract the data and release the file immediately, or alternately, to rename the file prior to processing.
- If the file is busy the application should delay for a minute and retry accessing the file. This allows for the DBA application to update the file.
- Only one application can process the DBA data files. For example, Telephony Manager Telecom Billing System and another vendor's billing software cannot both process the data from the same file. Processing applications may choose to save the raw data in other files that could be manually specified to other applications.

Schedule a backup or retrieval

DBA enables you to schedule a single or routine backup of the database files for your system. You can schedule the retrieval of buffered CDR and Traffic data from the system to the PC.

Supported DBA backups

Telephony Manager DBA backs up files stored only on the Call Server. The backup has the same directory structure as on the switch.

Large system DBA backups

- **`/u/db/`**: config.rec, database.rec, aal.dat, viewcfg.tmp, inet.db, eptflag.db, eptdelta.db, smpconf.db, eset1.db, eset2.db, iprem.db, smpserv.db, surv.db, syscfg.db, zone.db
- **`/u/db/hi/`**: simm.db, inet.db, hi.db, cnib.db, iop.db, cp.db, ipb.db, mud.db, ob_data.db
- **`/u/db/rpt`**: rpt.log

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- **/u/smp_db**: aal.dat, viewcfg.tmp, eptflag.db, eptdelta.db, smpconf.db, dba.ini, *.trf,*.cdr.

Small systems DBA backups

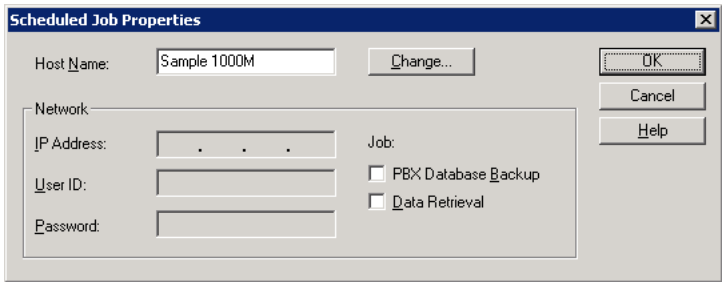
- **c:/u/db**: config.rec, database.rec, aal.dat, viewcfg.tmp, inet.db, eptflag.db, eptdelta.db, smpconf.db, eset1.db, eset2.db, iprem.db, smpserv.db, surv.db, syscfg.db, zone.db
- **c:/u/rpt**: rpt.log
- **c:/u/smp_db**: dba.ini, dbk.ini, *.trf, *.cdr (DBA initialization file, Traffic and CDR data)

A scheduled job does not configure the system. Use the correct LD 117 settings (DBK and BUF) for the system. This procedure describes how to schedule either operation in DBA.

Procedure 37
Schedule a backup

Step	Action
1	Select **File > Schedule** in the DBA main window. The Select a System for Scheduling window appears.
2	Do one of the following: • Select a system to schedule from the tree, and click **OK**. • Double-click on the selected system. The Scheduled Job Properties window appears, as shown in Figure 80 "Scheduled Job Properties window" (page 177).
3	To change your system selection, click **Change** to return to the last window.

Figure 80
Scheduled Job Properties window



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4 (Optional) Enter the Host Name of the System in the corresponding box.

The Host Name, IP Address, login name, and password data for the selected system are stored in the Telephony Manager database. The DBA application automatically fills these fields with the values from the Telephony Manager database. In the Scheduled Job Properties window, these fields are read-only. If necessary, enter the correct values in the Telephony Manager Navigator System Properties.

5 Select the operation you want to schedule:

- **PBX Database Backup**—backs up database files
- **Data Retrieval**—retrieves buffered CDR and Traffic data from the system

  The Data Retrieval check box functions only for small systems. Data retrieval is only available for Meridian 1 PBX 11 C Cabinet, CS 1000S and Communication Server 1000M Cabinet/Chassis in the Telephony Manager Navigator database.

6 Click **OK**.

The Scheduling window appears, as shown in Figure 50 "Scheduling window" (page 127).

7 Enter the scheduling parameters.

8 Click **OK**.

—End—

View session data

In a live session, you can view the collected CDR, Traffic, and serial data, and the session data-collection statistics, as shown in Figure 81 "Sample session window displaying Statistics" (page 179).

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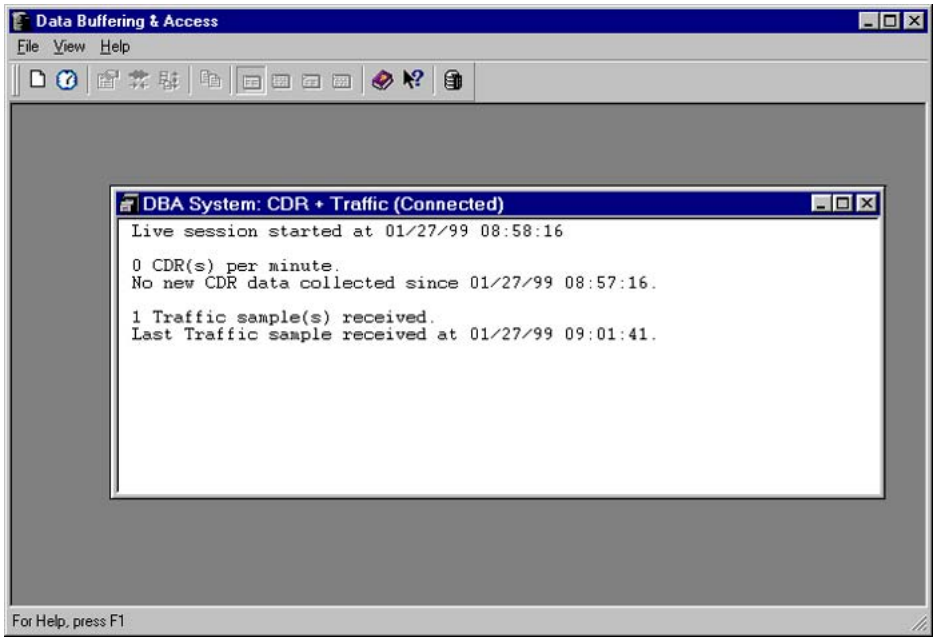
Figure 81
Sample session window displaying Statistics



From the **View** menu, select one of the following:

- CDR Data—to display a snapshot of CDR data collected by DBA (up to the last 15 minutes)
- TRF Data—to display a snapshot of Traffic data collected by DBA (up to the last 15 minutes)
- Statistics—to display the average number of CDRs per minute, the time of the last Traffic Sample, and the time of the last serial data connection
- Refresh—to update CDR, Traffic, and serial data views with the latest collected data

Use the following Edit menu commands to handle text in the session window:

- Copy—to copy text from the session window.
- Select All—to select all text in the session window.
- Find—to locate selected text in the session window.

Retrieving CDR data from Survivable IP systems

When in survival mode, the survivable expansion cabinets and survivable media gateways operate as if they are standalone Meridian 1 PBX 11C Cabinet or CS 1000 systems. Call Detail Records (CDR) and Traffic Measurements (TRF) are generated only by the expansion cabinets and the media gateways when the systems are operating in survival mode.

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In the event that an expansion cabinet or media gateway enters survival mode, it is possible to collect CDR records from the expansion cabinet or media gateway. These records must be manually retrieved, using the XModem procedure, when the expansion cabinet or media gateway returns to normal mode.

XModem procedure

Call Detail Records (CDR) are generated only by the Meridian 1 PBX 11C Cabinet and the survivable media gateways when the system is running in survival mode. The CDR are deleted from the survivable cabinet or survivable media gateway once they have been successfully transferred to the PC. The XCDR command in LD 143 transfers the CDR file from the Meridian 1 PBX 11C Cabinet or the media gateway directly to the Telephony Manager PC. There is one CDR file stored on each expansion cabinet or media gateway.

Use Procedure 38 "Retrieving CDR files" (page 180) to retrieve the CDR files stored on the survivable expansion cabinets or the survivable media gateways using XModem.

Procedure 38
Retrieving CDR files

Step	Action
1	Establish a connection between the PC and the main cabinet of the Meridian 1 PBX 11C Cabinet or the call server of the CS 1000 system. This may be done either remotely through the use of a modem or directly through the use of a serial cable and a modem eliminator.
2	Use a terminal emulation program such as HyperTerminal to begin a TTY session with the system using either the modem or SDI cable.
3	From the PC, go to LD 143 and enter **XCDR**.

4	When the system asks for an expansion cabinet number, enter the number assigned to the expansion cabinet or media gateway that contains the dba.cdr file that you want to retrieve.
	
	The system responds:
	`Getting CDR file for EXP_CAB <num>`
	`Ready to transmit...`

5	Invoke the XModem protocol on the PC to receive the CDR file. For example, use the HyperTerminal transfer function to receive the file using XModem protocol.
6	Name the file.

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You may give any name you want to the file being received. Use a file name that does not overwrite any DBA-specific files if DBA is used to retrieve CDR/Traffic files from the main cabinet of the Meridian 1 PBX 11C Cabinet or the call server of the CS 1000 system.

7 Parse the file into the main cabinet or call server database on the PC.

For information on importing CDR data into Billing applications, see *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)*.

—End—

PBX Database Disaster Recovery

PBX Database Disaster Recovery provides a quick way to perform a database backup and restore or to schedule a database backup. You can schedule or manually start a backup operation, and the application connects to the switch and retrieves the database files. You can manually start a restore operation to restore the database file to the system. Before performing the restore operation, you must establish a live session with the switch.

PBX Database Disaster Recovery runs separate from the normal Electronic Data Dump (EDD) database backup feature.

The PBX Database Disaster Recovery feature is available for all systems configured in the Telephony Manager Navigator. Because survivable expansion cabinets and survivable media gateways are configured as separate systems in the Navigator, the Disaster Recovery feature is available to both the main cabinet, or call server, and the survivable expansion cabinets, or media gateways. You need not back up the expansion cabinets and media gateways. Any data that you restore to an expansion cabinet or media gateway while it is operating in survival mode, is overwritten by the database of the main cabinet or call server when the system returns to normal mode.

You can run a backup on a PC that is not used for collecting live CDR data, live Traffic data, or both. However, you need to select either the CDR or Traffic collection check boxes, or both, to view the backup option under the DBA file menu. The following procedure details this operation.

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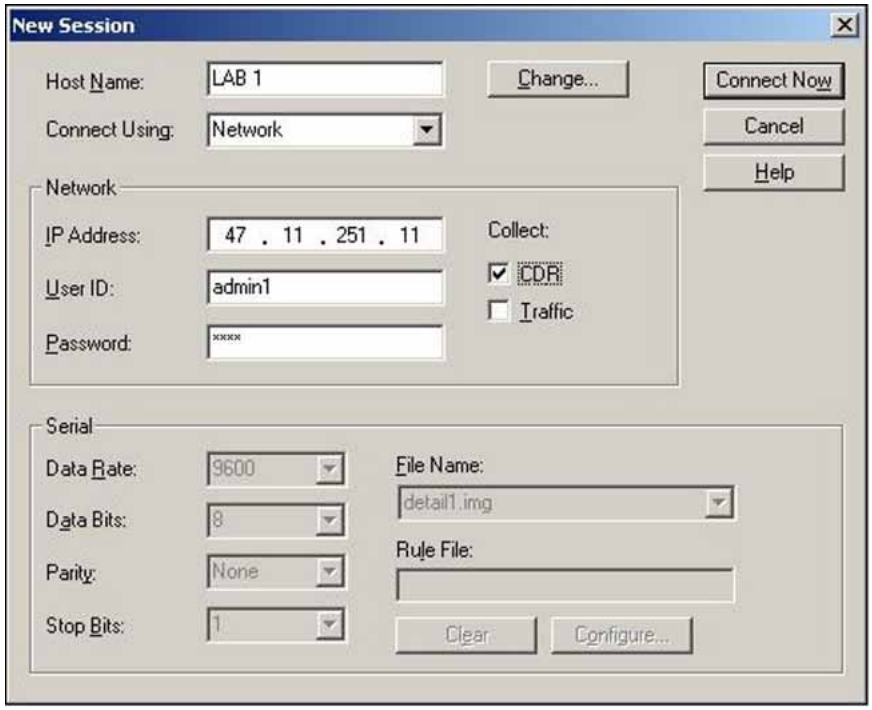
Procedure 39

Performing a database backup on a PC not used for collecting live CDR or Traffic data

Step	Action
1	From the Telephony Manager Navigator, open a new session in DBA (under Utilities).
2	From the New Session window, select the desired system from the Connect Using list.
3	Select the CDR or the Traffic check box, or select both.
4	Click **Connect Now**.

Figure 82
Session setup



Step	Action
5	From each **Are you sure?** dialog box, click **Yes**.
6	In the Data Buffering & Access window, select **File > PBX Database Disaster Recovery**. The PBX Database Disaster Recovery window appears, as shown in Figure 83 "PBX Database Disaster Recovery window" (page 183).

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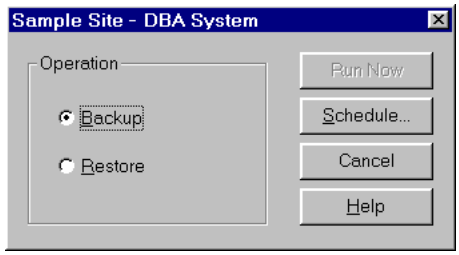
Figure 83
PBX Database Disaster Recovery window



7 Select one of the following:

- **Backup**—to back up database files to the PC.
- **Restore**—to transfer earlier database files from the PC to the system.

Prior to deploying database restoration from Telephony Manager to the system, the procedure Procedure 40 "Steps to be taken prior to deploying Restore from DBA" (page 184) must be completed.

CAUTION
Service Interruption
The Restore operation overwrites the existing database files on the system. Before you use the Restore operation:

- Ensure your backup files are valid
- Ensure that no other PC is performing a Backup or Restore

8 Select one of the following:

- **Run Now**—to begin the selected operation.
- **Schedule**—to indicate a time for routine database backup. You cannot schedule a restore. The Telephony Manager Scheduling window appears. Use the window to schedule your database backup. See "Schedule a backup or retrieval" (page 176).

The DBA application displays the status of the backup or restore operation.

—End—

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Procedure 40
Steps to be taken prior to deploying Restore from DBA

Step	Action
1	Logon to PDT with PDT2 user name.
2	Enter **`dosFsProtect "/p", 0`**.
3	Enter **`ftpUnprotectP`**.
4	Execute the command **`a s r`** or **Allow System Restore** in LD 117.
5	Perform **Restore** from DBA.
6	Upon completion of the restore, logon to PDT with PDT2 user name and enter **`dosFsProtect "/p", 1`**.

—End—

Hide and restore the DBA main window

To maintain a live data session, you must keep the DBA main window open continuously. To minimize screen congestion, hide the DBA main window to remove it from the Windows Desktop. DBA remains active and the DBA tray icon continues to appear on the Windows Toolbar.

To hide the DBA main window, do one of the following:

- Select Hide Application from the View menu.
- Click Hide Main Window on the toolbar.
- Double-click the DBA tray icon.

To restore your DBA main window, double-click the tray icon.

You can right-click the tray icon to display a pop-up window containing the menu items, Hide Window, or Restore Window. Use these commands to hide or restore the DBA main window, or select Exit to end the program.

Define session properties for a serial connection

Procedure 41
Defining session properties for a serial connection

Step	Action
1	Ensure the name of the selected system appears in the **Host Name** box.

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To change your system selection, click **Change** to return to the **Select a System for Live Data** window.

2 Select serial port connection in the **Connect Using** box.

If you select a serial connection, use the Rules Manager window to define the actions taken when a specific data pattern appears in the data stream. "Configure actions and rules" (page 185).

3 Select the data rate for the connection in the **Data Rate** box.

4 Select the data bit setting for the connection in the **Data Bits** box.

5 Select the parity setting for the connection in the **Parity** box.

6 Select the stop bits for the connection in the **Stop Bits** box.

7 Enter the name of the file to store data collected from the serial port in the **File Name** box.

The file exists under the selected site and system. Enter a new file name or select one of the following files from the drop down list.

- *detail1.img*—used for CDR data
- *traffic.dmp*—used for Traffic data

8 Edit the Rule File field.

Rule File is a read-only field containing the name of the rules file for this DBA session. Clear removes the file name from the Rule File field. Configure opens the Rules Manager window shown in Figure 84 "Rules Manager: General tab" (page 186). You can create a new rules file or open and edit an existing rules file. If you create a new rules file, you must define the actions taken when a specific data pattern appears in the data stream. See "Configure actions and rules" (page 185).

—End—

Configure actions and rules

Actions and rules are configured for serial connections. The Rules Manager window allows you to:

- Define the file you want to save or load into the Rules Manager
- Configure new actions or update or delete existing actions
- Configure new rules or update or delete rules, and set the order for applying rules

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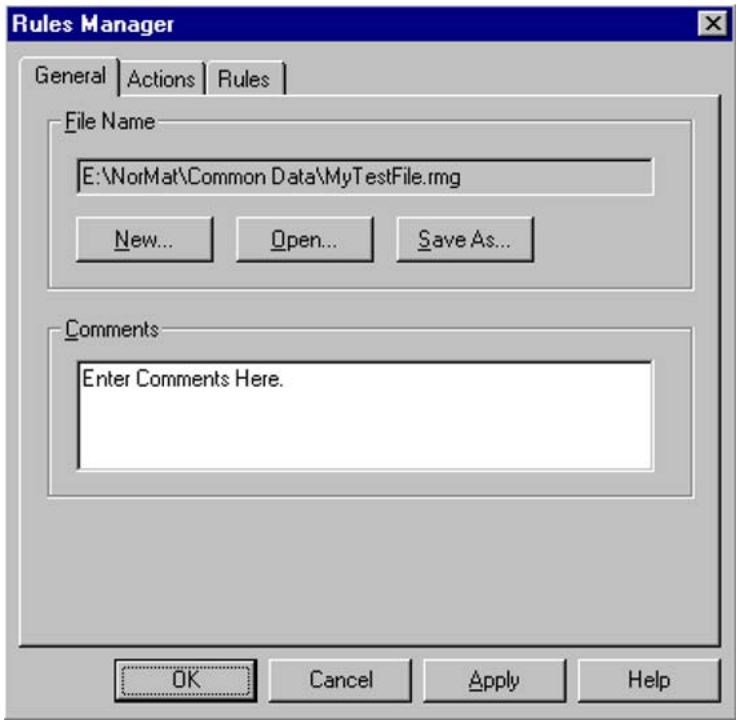
Define the Rules Configurations file

Use the General tab, as shown in Figure 84 "Rules Manager: General tab" (page 186), to select the rules configuration file you want to save and load into the Rules Manager.

Figure 84
Rules Manager: General tab



Procedure 42
Defining the Rules Configurations file

Step	Action
1	To use a different rules configuration file, click one of the following: • **New**—Resets the Rules Manager window to blank. If changes have been made to the current configuration, you are prompted to save the changes. • **Open**—Opens the standard file window, which allows you to select a rules configuration file. If you change the current configuration, you are prompted to save the changes. • **Save As**—Opens the standard file window allowing you to save an existing rules configurations file under another file name. Enter the new name and click **Save**. The Rules Manager window appears with the name of the file in the File Name box.

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2 Click one of the following:

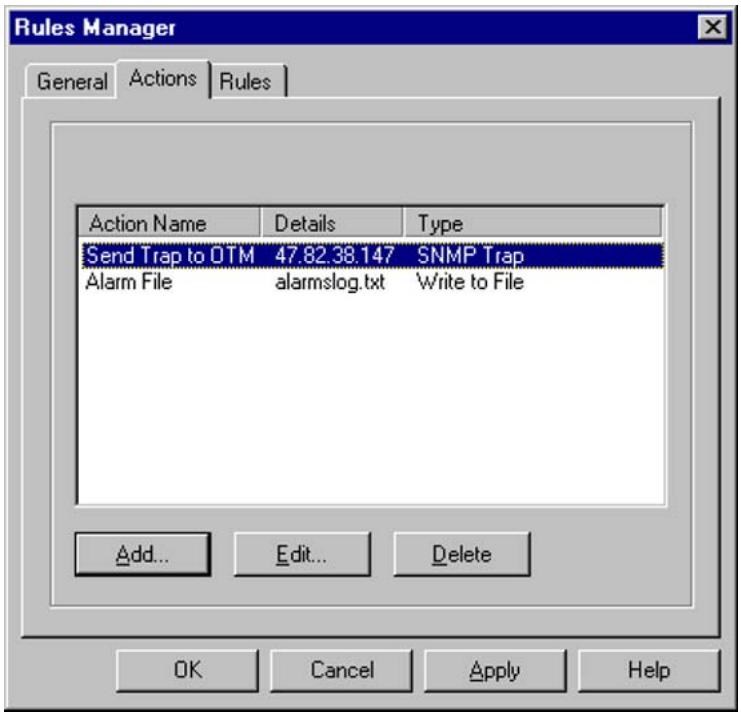
- **OK**—Saves the rules configuration file and closes the Rules Manager window.
- **Cancel**—Discards any changes to the rules configuration file and closes the Rules Manager window.
- **Apply**—Saves the rules configuration file. The file remains open in the Rules Manager window, allowing you to make changes to the file.

—End—

Configured Actions

Use the Actions tab, shown in Figure 85 "Rules Manager window: Actions tab" (page 187), to define new actions or update or delete existing actions.

Figure 85
Rules Manager window: Actions tab



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Procedure 43
Configuring actions

Step	Action
1	Select an action from the displayed list.
2	Click one of the following: • **Add**—Opens the New Action window shown in Figure 86 "New Action window" (page 189). See "Define a New Action" (page 188). • **Edit**—Opens the window to edit configurations for the selected action. • **Delete**—Deletes the action.
3	Click one of the following: • **OK**—Saves the actions in the configuration file and closes the Rules Manager window. • **Cancel**—Discards any changes to the actions and closes the Rules Manager window. • **Apply**—Saves the actions in the configuration file. The file remains open in the Rules Manager window, allowing you to make changes to the file.

—End—

Define a New Action

The New Action window, shown in Figure 86 "New Action window" (page 189) provides a list of configurations you can apply to the selected action. You can configure the SNMP trap and Write to File actions. Based on the configuration you select, another window, such as SNMP Trap, displays for you in which you configure the action.

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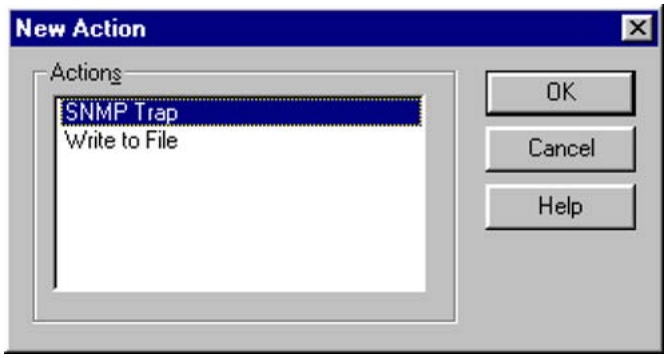
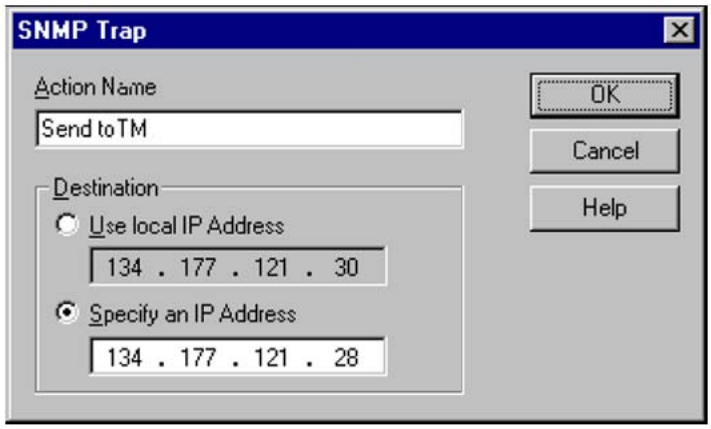
Figure 86
New Action window



SNMP Trap window The SNMP Trap window, shown in Figure 87 "SNMP Trap window" (page 189)defines the destination for the SNMP Trap action. Select the radio button for the destination of the trap. The valid selections are a local IP address or a user-defined address. The destination address must be running an application capable of taking the SNMP trap sent from DBA. When you select a local IP address (the default), it sends all traps to the same system running DBA and the Trap Server.

Figure 87
SNMP Trap window



The local IP address does not exist in the Rules Manager configurations file. You can change the local IP address without resetting the value in the defined action in the configuration file.

Write to File window The Write to File window, shown in Figure 88 "Write to File window" (page 190), allows you to define the destination for a Write to File action. Enter a name for the action and the name of the file for storing the action. The file is in the Telephony Manager Common Data

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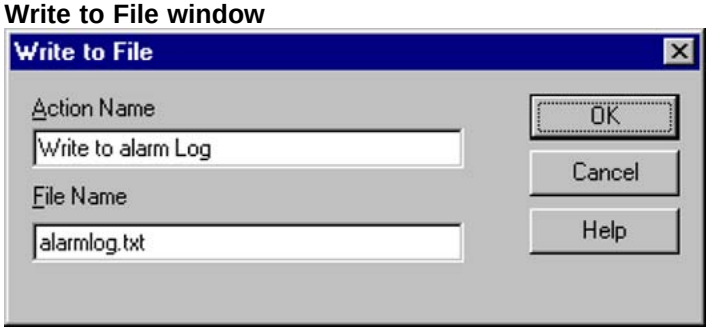
Directory in the system level folder. Since the file exists in the common data directory, multiple sessions defined for different sites and systems can use the same Rules Manager file. You can copy the file to another Telephony Manager system.

Figure 88
Write to File window



Configure Rules

Use the Rules tab, shown in Figure 89 "Rules Manager window: Rules tab" (page 191), to define new rules, update or delete rules, and set the order for applying rules to the data stream.

The order in which the rules appear is important. Order the rules so that the more specific pattern matches occur before the more generic ones. If a generic pattern rule is matched before a more specific pattern rule is tested, the action associated with the generic rule is executed and no additional rule matches are done.

ATTENTION

The system does not check for correct syntax. Run a test on the rule you have configured to ensure your input is correct.

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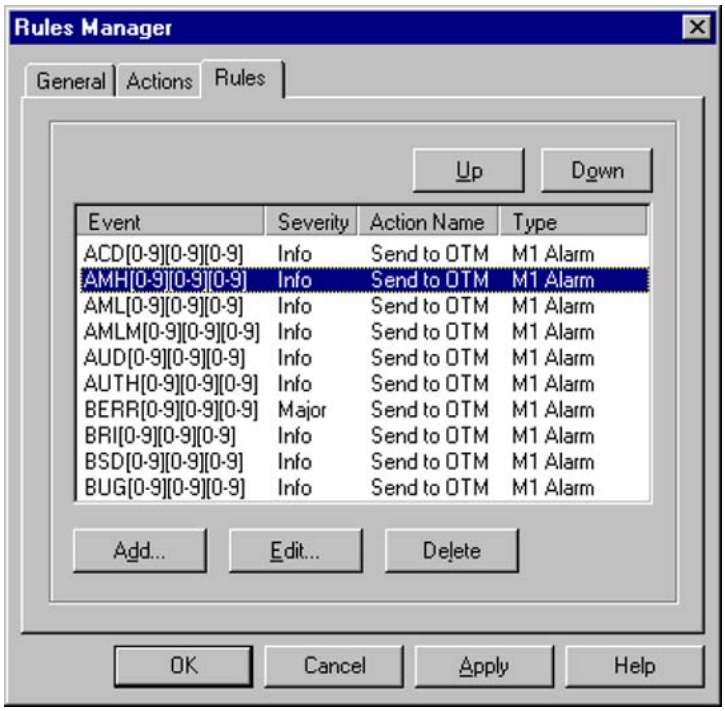
Figure 89
Rules Manager window: Rules tab



Procedure 44
Configuring rules

Step	Action
1	Select an event from the list.
2	Click one of the following: • **Up** or **Down**—Moves the selected event up or down one position in the list. • **Add**—Opens the New Rule window, shown in Figure 90 "New Rule window" (page 192). See "Define a New Rule" (page 192). • **Edit**—Opens the window to change the selected rule. • **Delete**—Deletes the rule.
3	Click one of the following: • **OK**—Saves the rules in the configuration file and closes the Rules Manager window.

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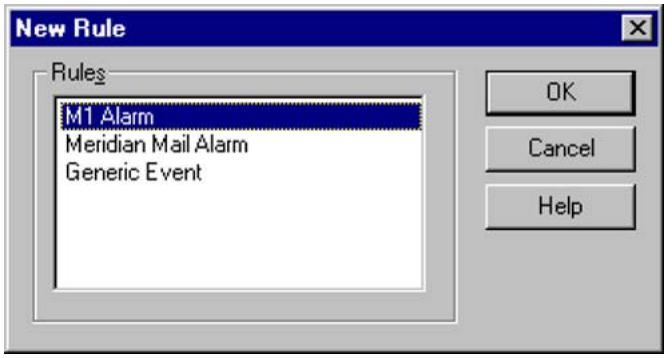
- **Cancel**—Discards any changes to the rules and closes the Rules Manager window.
- **Apply**—Saves the rules in the configuration file. The file remains open in the Rules Manager window, allowing you to make changes to the file.

—End—

Define a New Rule

The New Rule window, shown in Figure 90 "New Rule window" (page 192), provides a list of the types of rules you can define. You can configure the rules for an M1 Alarm or a generic event. For example, an M1 Alarm rule can match a Meridian 1 or CS 1000 system alarm code. A match records the data provided with the alarm. A rule for a generic event is for a system other than those listed.

Figure 90
New Rule window



M1 Alarm window

The M1 Alarm window, shown in Figure 91 "M1 Alarm window" (page 193), defines the values for an M1 Alarm rule.

The Event edit box defines the text to be used to determine if a match is found in the data stream. The Event field accepts regular expressions for performing complex text comparisons. The menu button beside the field provides a list of regular expression options.

The regular expression "." does not include spaces in its evaluation.

The Severity field contains a list of predefined severity values. The values provided are Info, Warning, Minor, Major, Critical, and Clear. The default value is Info.

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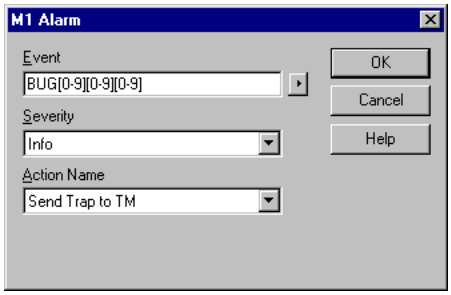
The Action Name field contains a list of actions by action name. This list is dynamically created using the actions defined on the Actions page of the Configuration Property Sheet. The default value is blank, meaning no action occurs if an event match occurs.

Figure 91
M1 Alarm window



Generic Event window

The Generic Event window, shown in Figure 92 "Generic Event window" (page 194), allows you to define the values for a generic event rule. Generic systems are those systems other than CS 1000 and Meridian 1 systems.

The Event edit box defines the text that is used to determine if a match is found in the data stream. The Event field accepts regular expressions for performing complex text comparisons. The menu button beside the field provides a list of regular expression options.

The Number of Lines in Event field defines the number of lines in the data stream to capture. The values are 1 to 5 (0 is the default). A value of zero records the event only.

The Severity field contains a list of predefined severity values. The values provided are Info, Warning, Minor, Major, Critical, and Clear. The default value is Info.

The Action Name field contains a list of actions by action name. This list is dynamically created using the actions defined on the Actions page of the Configuration Property Sheet. The default value is blank, which means that no action occurs if an event match occurs.

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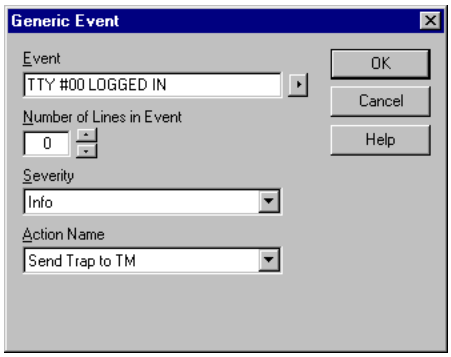
Figure 92
Generic Event window



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Utilities

Contents

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- "Media, files, and data types" (page 202)
- "Benefits" (page 204)
- "Backing up a single CS 1000 system" (page 205)
- "Backing up an MG 1000B" (page 206)
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"Responding to a connection failure" (page 240)

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Overview

This section contains information on the following Telephony Manager utilities:

- Scheduler—required to schedule and run any Telephony Manager processes
- Database Compact and Repair
- Backup and Restore
- Client utility
- Equipment Data Dump
- Patch tool

Scheduler

This section contains a general overview of the Scheduler. For more information about how to use the Scheduler windows, see the menu help for Scheduler.

Changes that are input using Telephone Manager are scheduled using the Web-based scheduling tool. See "Synchronizing telephones" (page 570).

The Scheduler must be running in the Windows environment at the time an event is to run. You can start the Scheduler application any time. An event and its tasks do not execute if the Scheduler is not running at the scheduled time.

ATTENTION

Before you exit Telephony Manager, check the main Scheduler window for pending jobs. If there are pending jobs, click Log out the current user but keep Telephony Manager running. If you click Terminate Telephony Manager, the pending jobs do not run.

Access the Scheduler

Access the Scheduler in one of the two following ways:

- From the Telephony Manager Navigator, select Utilities > Scheduler and schedule the activity directly.
- From any supported application, select the Schedule command where it appears in that application. For example, you can click Schedule in

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the Reporting window of the Telecom Billing System. You can use the Scheduler functions to enter the information to schedule this application.

You must have administrative privileges to run scheduled jobs. A user without administrative privileges is given read access to the registry key HKLM\SYSTEM\CurrentControlSet\Enum\Root\SYSTEM which allows them to run the scheduled jobs.

Jobs and tasks

The Scheduler represents scheduled activities (such as, data collection, synchronization and reporting) as jobs and tasks.

A job contains the scheduling properties of an activity. This includes such information as the initial execution time of the activity; interval for additional executions, status, name, and queue assignments. The job also contains the actual task that identifies the actions of the activity. That is, each task that runs that actual activity is assigned to a job. This way, the task can be scheduled. Only jobs can be scheduled; individual tasks cannot be scheduled without a job.

A task contains the actual command used to invoke the activity from the Telephony Manager application. This includes such information as the command line (the code used to invoke the activity) for the activity; its priority in the list of tasks (when it should be executed in relation to any other tasks in the list); and any dependencies associated with it (physical resources on your PC that are needed to execute the activity).

In most cases, one job has one task. This simplifies the process of defining and scheduling activities. You schedule the activity, assign it as a task to a job, and then enter its scheduling criteria. There are instances, however, when it is beneficial to assign multiple tasks to a single job (such as in situations where you want to run multiple tasks all at the same scheduled time). The Scheduler allows you to assign multiple tasks to each job after they have been defined.

Execution of tasks in the Scheduler queue

Any task in the Scheduler queue can be executed immediately by right-clicking the task in the Scheduler window and selecting Start Now. Tasks in the queue that have the same priority and are scheduled to occur at the same time are executed simultaneously. When tasks in the queue have different priorities and are scheduled to occur at the same time, the higher priority tasks execute first and are followed by the lower priority tasks.

Scheduler window

The following sections describe the Scheduler window and the menus of the Scheduler.

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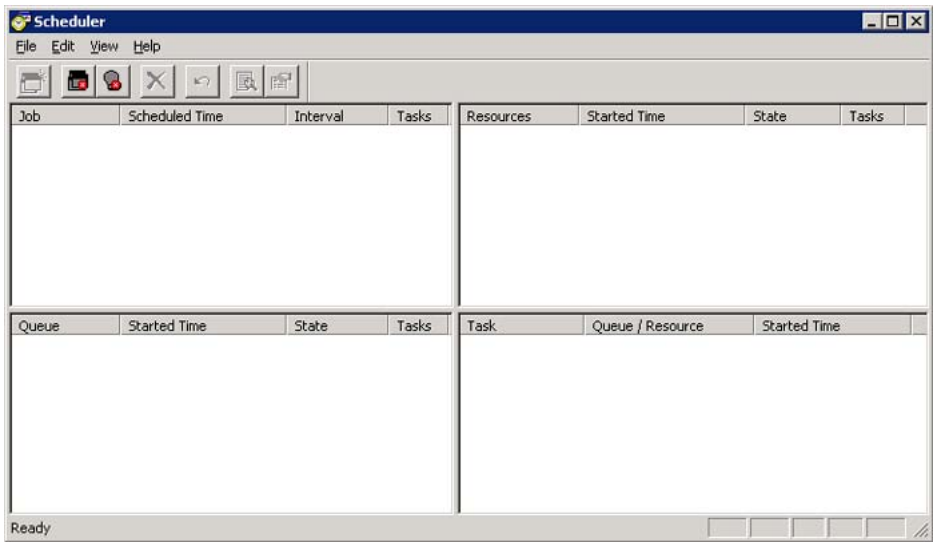
The main Scheduler window shown in Figure 93 "Scheduler window" (page 198) contains sections that list the scheduled jobs and queues. These sections provide the interfaces for the Job, Queue, and Dependency Queue Managers, and list the running tasks for each job. Use these sections to view and access your jobs and queues.

Figure 93
Scheduler window



The main Scheduler window contains the following information sections.

Scheduled jobs section

The Job Manager displays the details of all of the scheduled jobs in the top-left section of the window. The display shows the job name, scheduled date and time for initial execution, intervals, and number of tasks in the job.

Job in the queue section

The Queue Manager displays the current status of jobs in the queue in the bottom-left section of the window. When the last task of a job completes, the queue record disappears.

Dependency resource section

The top-right section of the window displays the current status of the dependency queues whose tasks are executing. The Dependency Queue Manager displays the information. A dependency queue is a collection of tasks requiring the same system resource (such as two tasks needing to access a COM port at the same time).

The properties of the dependency tasks in a queue are as follows:

- Each task in the dependency queue is a top task of some queue.

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- The order of tasks in the task list of a dependency queue defines the order of task execution.
- You can move tasks in the list up or down or edit tasks, except a task that has started processing.
- When a task completes, its record disappears from the task list.
- Tasks requiring more than one system resource appear in more than one dependency queue. If you delete a task record from one dependency queue, the task record is automatically deleted from other dependency queues.

Tasks running section

The bottom-right section shows the tasks that are running now. From here, you can delete any running tasks. When deleted, a task is no longer monitored by the Scheduler. If you delete a task, the application containing that task continues to run.

File Menu

From the File menu commands, you can manage the Scheduler jobs and queues and exit from the Scheduler. Use the Help command to get detailed descriptions about the functions of each command.

Edit Menu

The Edit menu allows you to manage defined jobs or queues. Use its commands to enable or disable the defined jobs or queues. Use the Help command to get detailed descriptions about the functions of each command.

View Menu

The View menu allows you to:

- Display or hide the toolbar for the Scheduler and status bar
- View the task list of the highlighted job or queue
- Arrange the jobs or queues within each section of the window

Help Menu

The Help menu provides assistance on using the Scheduler window.

Scheduled Report Format

When you choose to view a report, you can select the file format in which to view it. However, scheduled reports are always saved in CSV format.

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WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

ATTENTION
Web scheduler used by some of the applications (station, for example) does not use the PC regional settings, it uses a fixed date format of MM/DD/YYYY.

Database Compact and Repair

This section describes the functions and purpose of the Telephony Manager Database Compact and Repair utility. For complete details on using this utility, see the online Help included with the software.

CAUTION
Service Interruption
This utility creates a temporary copy of the databases as they are compacted. Therefore, you must have enough disk space for both the original and the duplicate databases. This operation fails if the system runs out of disk space.

The Compact/Repair Utility is used only with Microsoft Access 95/97 database file formats. The Compact/Repair Utility cannot be used for later versions of Microsoft Access such as 2000, 2002 or to compact password-protected files.

ATTENTION
The Telephony Manager repair option does not repair PostGreSQL.

You cannot run this utility for a specific system if you are running an application within that system. Before using this utility, exit from the application that is running within that system.

Procedure 45
Compacting a database

Step	Action
1	In the Telephony Manager Navigator tree, double-click the desired system.
2	Select **Compact** from the Utilities menu.

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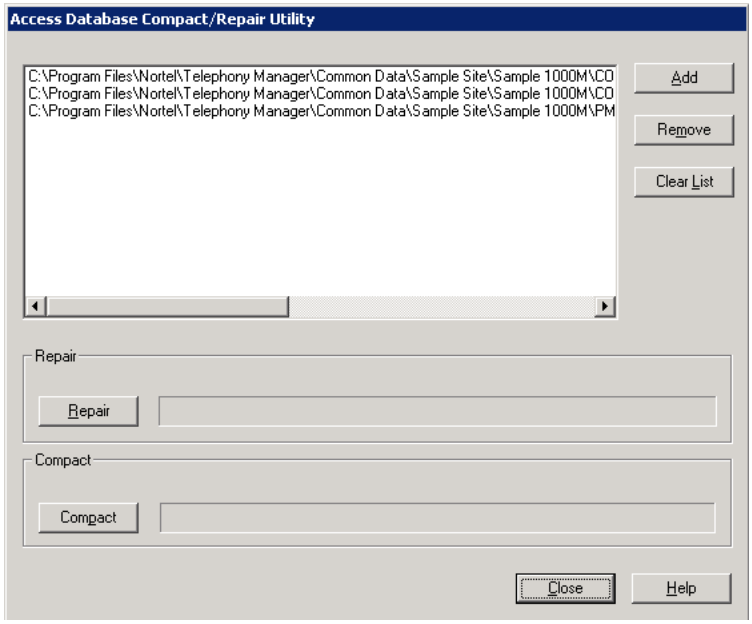
The Access Database Compact/Repair Utility window appears, as shown in Figure 94 "Access Database Compact/Repair Utility window" (page 201).

Figure 94
Access Database Compact/Repair Utility window



3 Specify the files you want to compact or repair.

4 Click **Compact**.

—End—

Backup and Restore

The Telephony Manager Backup and Restore utilities provide convenient options for safeguarding, cloning, and restoring Telephony Manager data on a PC. The Backup utility lets you create a Telephony Manager backup file of PC-based system property and application data for any sites and systems. The Restore utility lets you restore a backup file to the same or different sites and systems on the same or other PCs.

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ATTENTION

It is recommended not to use the backup taken from a Telephony Manager Server to be restored on a Telephony Manager Sever with a different Regional Operating System. For example, back up taken from an English OS should not be restored on to a Telephony Manager Server running on any other regional OS like French, Simplified Chinese or Japanese so on and vice versa.

Doing so will cause adverse effects like administrator not having access to the telephones keys and features.

The only workaround is to create a new Administrator user group and add users to this newly created user group.

The TM Backup and Restore utilities provide convenient options for safeguarding, cloning, and restoring TM data on a PC. The Backup utility lets you create a TM backup file of PC-based system property and application data for any sites and systems. The Restore utility lets you restore a backup file to the same or different sites and systems on the same or other PCs.

The Backup and Restore utilities have no effect on data. To secure Telephony Manager data that has been uploaded to the system, you must use the Electronic Data Dump feature in Telephony Manager, described in "Equipment Data Dump" (page 239).

Please note that the Backup and Restore utilities are not available to a user who has logged in from a Telephony Manager client.

ATTENTION

Prior to doing a Database Backup or Restore, ensure that no other Telephony Manager tasks are in progress. If other tasks are in progress at the same time as the backup or restore is running, the result is an incomplete database backup or restore.

Media, files, and data types

You can create a Telephony Manager backup file on the hard drive of the PC, a network drive, disks and other removable disks, or any other available media that meets your requirements for convenience and file space.

All backup data is written to a single folder for each backup operation. This folder includes the following files:

- Zip file (*.ZIP), the backup file in compressed format
- Log file (*.LOG), providing the date of the backup file; type; Telephony Manager version; and sites, systems, and applications by name

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You can back up and restore data for all or any combination of the following Telephony Manager applications:

- Telecom (including Rate Tables) Billing System
- Call Tracking
- ESN
- Traffic Analysis
- CRS
- DECT
- GCAS

A Full backup includes:

- User groups
- Client List
- DBA settings
- Event Log Viewer trap settings
- Profiles and scripts for Traffic, Call Tracking, and Alarm Notification
- Modem initialization scripts
- Inventory
- CND Server settings
- All files located under the Common Data folder

The following data are not backed up by a Telephony Manager backup:

- Scheduled tasks
- Alarm Notification scripts
- Web Custom Help
- Common Network Directory (CND)

You can back up and restore data for these applications across multiple sites and systems at the same time.

Applications are associated with specific sites and systems. All backups of application data include the system property data associated with the selected site or system.

When you restore data from a backup file, you have the option ***not*** to restore system property data. This option is useful in cases where the destination site or system is preconfigured and you do not want to overwrite its system

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property data. For example, system property data such as communication ports, modem configuration, and user ID and password may be different from one PC to the next.

ATTENTION

To back up the telephone configuration data you must select the Full backup option. The Single Site or the System backup does not backup the telephone database.

The TM backup utility does not backup the Employee details from CND. To backup the Employee details from CND you must use the CND backup utility.

Benefits

The Backup and Restore utilities provide the following key benefits:

- cloning
- moving data off-site
- disaster recovery

Cloning

The process of copying system property and application data associated with one site or system to another site or system is called *cloning*. Copying data to another site or system can be a great time saver. It can save you from having to enter a large amount of similar data one item at a time.

After cloning selected data, you can focus on making whatever changes are necessary to the cloned data. This operation is very flexible. The destination site or system can be new or already exist, and it can be on the same PC or on another PC.

If you back up data from one PC and restore it to another, you must perform this operation under the same version of Telephony Manager. You cannot back up data from a PC with an older version of Telephony Manager and then restore the data to a PC with Telephony Manager. Upgrade the older version of Telephony Manager before performing this type of *cloning* operation.

Moving data off-site

If you want to maintain or occasionally modify Telephony Manager data off-site, a Telephony Manager backup file provides the solution. You can restore the backup file on any PC that has the same version of Telephony Manager installed.

When you finish modifying Telephony Manager data, create a new backup file. Then you can restore the modified data to the original or primary PC where Telephony Manager is installed.

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This operation works particularly well for modifying application data. Remember *not* to restore system property data from one PC to another if the PCs need to have different configurations for the corresponding sites and systems.

Disaster recovery (Full backup)

An important part of safeguarding your Telephony Manager data is having a disaster recovery plan. This plan should consider who makes the backups, what is backed up, how often, on what media, and where the backups are stored.

The full Telephony Manager backup is a more comprehensive backup option that is designed for disaster recovery. Consider performing this type of backup at least once a month and storing the backup file in a safe place.

You should back up the Alarm Notification control and script files separately. The shipped files may be replaced during a software upgrade.

In the event of unrecoverable data loss, restore your full Telephony Manager backup file first. All file contents are restored to the PC. Then, if you have backups for selected sites, systems, and applications that are more recent, restore them next.

Telephony Manager files and executable files that can be reinstalled from the Telephony Manager CD are *excluded* in a disaster recovery backup. If Telephony Manager executable files have been damaged or lost due to a hard-disk crash, for example, you must reinstall Telephony Manager on your repaired or replaced PC before restoring your full Telephony Manager backup.

Backing up a single CS 1000 system

A backup of a single CS 1000 system includes the Call Server and all of its applications, the Gatekeeper Zone (Gatekeeper IP addresses), and Signaling Server IP address(es). All Media Gateways belonging to the system as well as all enabled Media Gateway applications are included in the backup. You are not given the option of selecting the applications that you want to have backed up.

You cannot back up or restore an individual Media Gateway. The Media Gateways are only backed up and restored as components of the CS 1000 system to which they belong.

The backup operation backs up Telephony Manager data. This backup operation does not back up the actual CS 1000 system or MG 1000B.

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Backing up an MG 1000B

Although an MG 1000B is linked to a CS 1000E CPPM Call Server or CS 1000S Call Server, it is backed up like a separate system with the following exceptions:

- When you back up a single MG 1000B, the linked system and the association between the two is backed up. Note that MG 1000B appears as a system type.
- In a full Telephony Manager backup, the system and any associated MG 1000Bs are backed up. The relationship between them is saved.
- When you back up a single CS 1000 system, its Media Gateways are backed up; however, any MG 1000Bs are not.

Backing up Telephony Manager

ATTENTION

A Survivable Media Gateway or Survivable MG 1000B cannot be backed up or restored alone. It must be associated with a CS 1000 system.

Procedure 46

Backing up your Telephony Manager data and applications

Step	Action
1	In Telephony Manager Windows Navigator, select **Utilities > Backup**. The Backup Wizard window appears.
2	Do one of the following: • To back up a single system: 1. Select **A single system**. 2. Click **Next**. The single system selection window appears, as shown in Figure 95 "Backup Wizard: single system selection" (page 207).

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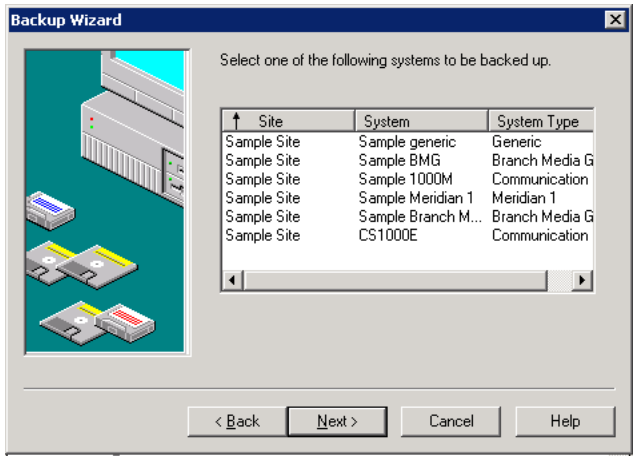
Figure 95
Backup Wizard: single system selection



ATTENTION
To back up the telephone configuration data you must select the Full backup option. The Single Site or the System backup does not backup the telephone database.

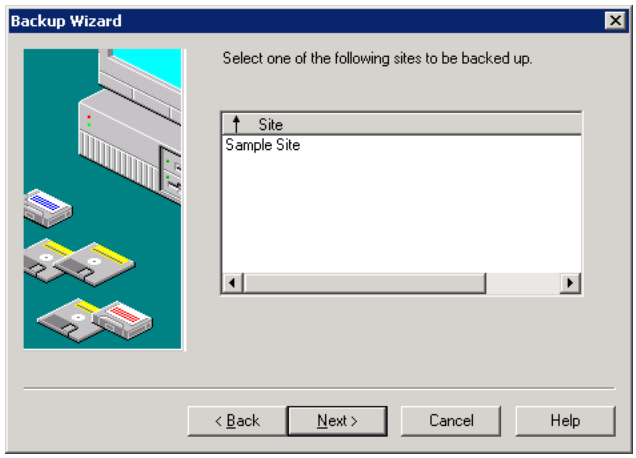
3. Go to step 3.

- To back up a single site:

  1. Select **A single site**.
  2. Click **Next**.

     The single site selection window appears, as shown in Figure 96 "Backup Wizard: single site selection" (page 207).

Figure 96
Backup Wizard: single site selection



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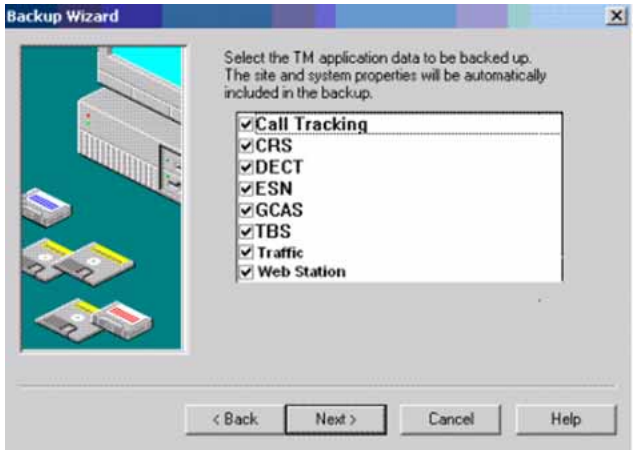
3. Go to step 4.

Figure 97
Backup Wizard: application data selection

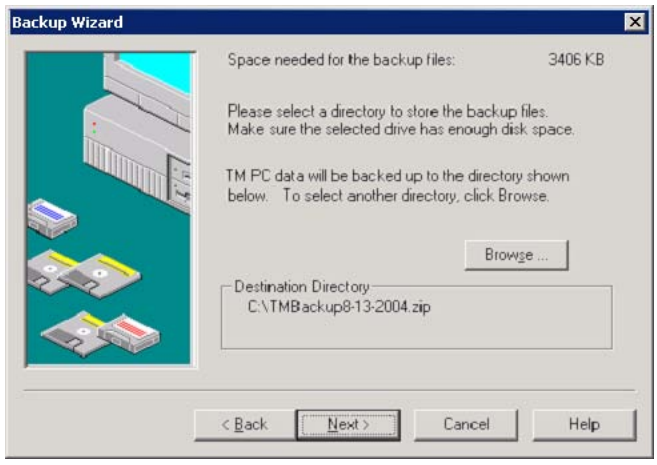


- To perform a full backup:

  1. Select **Full**.
  2. Click **Next**.

     The backup file directory selection window appears, as shown in Figure 98 "Backup Wizard: directory selection" (page 208).

     Figure 98
     Backup Wizard: directory selection



  3. Go to step 6.

3 To back up a single system:

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a. Select the system to be backed up.

b. Click **Next**.

The application data selection window appears, as shown in Figure 97 "Backup Wizard: application data selection" (page 208).

c. Select the application data to be backed up.

d. Click **Next**.

The backup directory selection window appears, as shown in Figure 98 "Backup Wizard: directory selection" (page 208).

e. Select the directory in which to store the backup files.

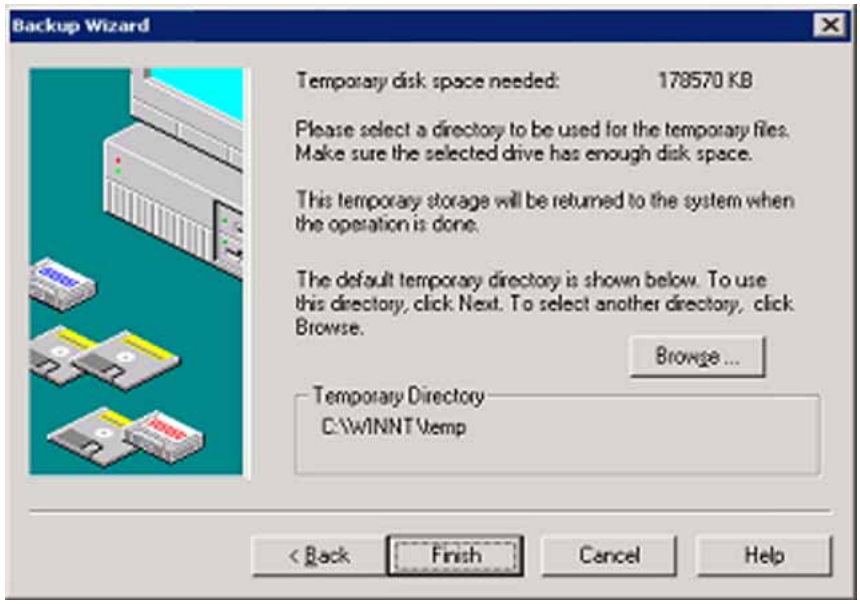
ATTENTION

Saving backups overwrite existing backup files. Ensure you are choosing the correct directory.

f. Click **Next**.

The temporary directory selection window appears, as shown in Figure 99 "Backup Wizard: temporary directory selection" (page 209).

Figure 99
Backup Wizard: temporary directory selection



g. Select the directory in which to store the temporary files created during the backup process.

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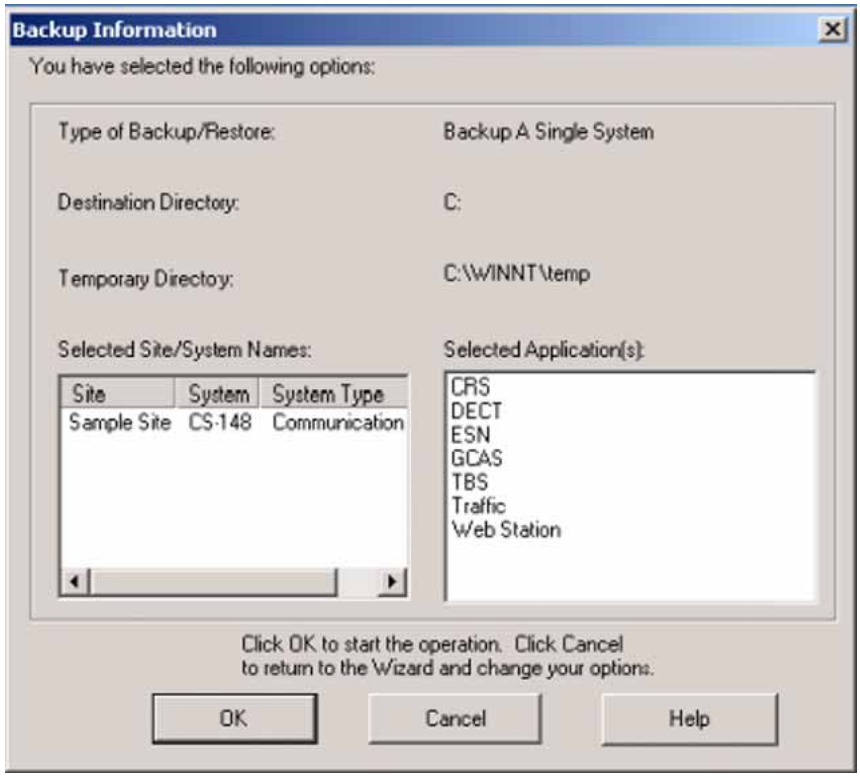
h. Click **Finish**.

The Backup Information window appears, as shown in Figure 100 "Backup Information: Single System" (page 210).

Figure 100
Backup Information: Single System



i. Go to step 7.

4 To back up a single site:

a. Select the site to be backed up.

b. Click **Next**.

The application data selection window appears, as shown in Figure 97 "Backup Wizard: application data selection" (page 208).

c. Select the application data to be backed up.

d. Click **Next**.

The backup directory selection window appears, as shown in Figure 98 "Backup Wizard: directory selection" (page 208).

e. Select the directory in which to store the backup files.

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ATTENTION
Saving backups overwrite existing Backup files. Ensure you are choosing the correct directory.

f. Click **Next**.

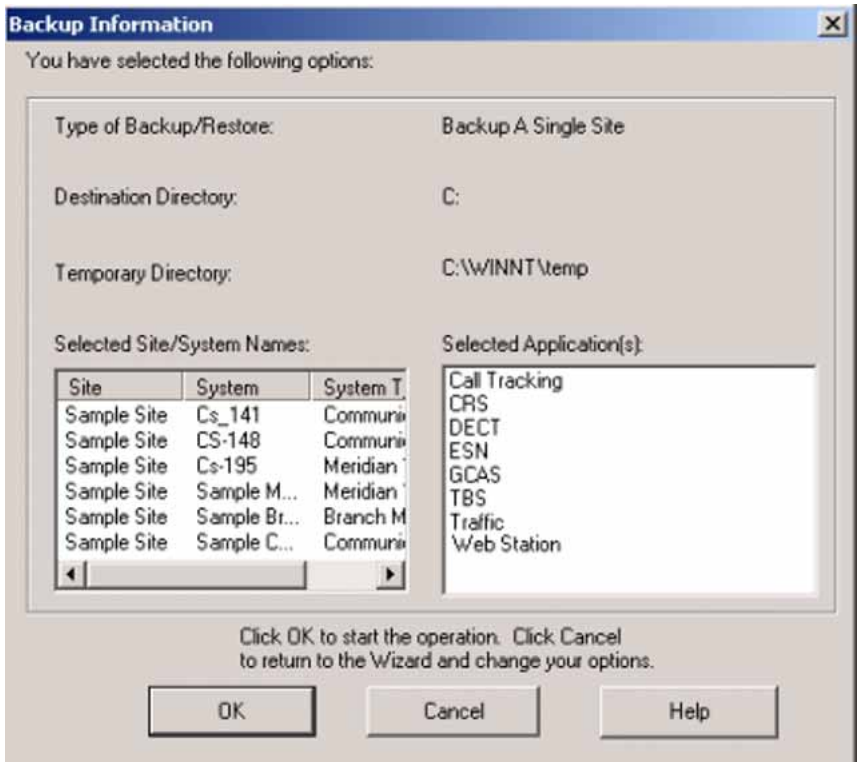
The temporary directory selection window appears, as shown in Figure 99 "Backup Wizard: temporary directory selection" (page 209).

g. Select the directory in which to store the temporary files created during the backup process.

h. Click **Finish**.

The Backup Information window appears, as shown in Figure 101 "Backup Information: Single Site" (page 211).

Figure 101
Backup Information: Single Site



i. Go to step 7.

5 To perform a full backup:

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a. Select the directory in which to store the backup files.

ATTENTION
Saving backups overwrite existing Backup files. Ensure you are choosing the correct directory.

b. Click **Next**.

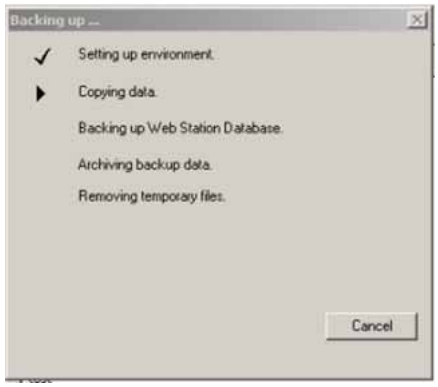
The temporary directory selection window appears, as shown in Figure 99 "Backup Wizard: temporary directory selection" (page 209).

c. Select the directory in which to store the temporary files created during the backup process.

d. Click **Finish**.

The Backup Information window appears, as shown in Figure 102 "Backup Information: Full" (page 212).

Figure 102
Backup Information: Full



6 Review the backup options in the Backup Information window.

7 Do one of the following:

- To change any of the options:
  1. Click **Cancel** to return to the Backup Wizard.
  2. Repeat this procedure, starting at step 2.
- To start the backup without changing any options, click **OK**.

  The Backing up window appears, as shown in Figure 103 "Backing up" (page 213).

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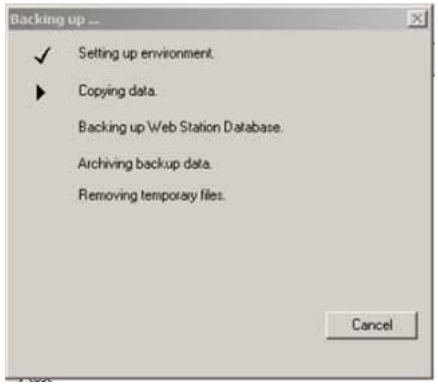
Figure 103
Backing up



—End—

Restoring a CS 1000 system

There are two scenarios for restoring a CS 1000 system:

- Replace—Deletes the existing Call Server and its Media Gateways, and creates a new system from the backup file
- Clone—Creates a new Call Server and its Media Gateways from the backup file

The backup file may contain a different list of Media Gateways than the system you are replacing. Also, the Media Gateways in the backup file may now belong to a different Call Server. For these reasons, before creating a Media Gateway from the backup, a check is made using the site-system name to determine whether or not the Media Gateway already exists. If Telephony Manager finds that the Media Gateway already exists, the Telephony Manager Restore Wizard window appears, as shown in Figure 104 "Restore Wizard window" (page 214).

ATTENTION

If any other database-related files are open, a runtime error is produced during a Full Restore. Ensure all other database tasks have been closed prior to performing a Full Restore.

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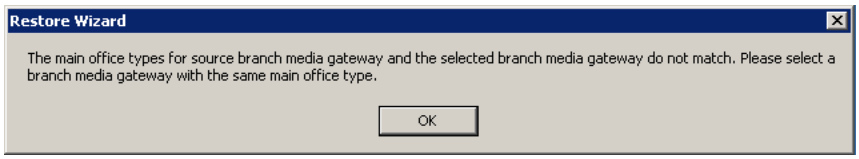
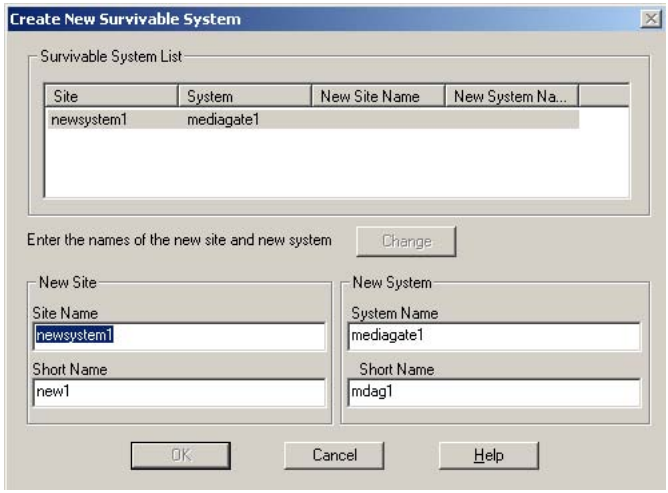
Figure 104
Restore Wizard window



Click OK. The Create New Survivable System window appears, as shown in Figure 105 "Create New Survivable System window" (page 214) appears, and you are prompted to enter a new site-system name for the Media Gateway that is in the backup file.

Figure 105
Create New Survivable System window



If the gatekeeper zone for the CS 1000 system does not exist, Telephony Manager creates it.

Table 12 "Using the restore utility to replace a CS 1000 system" (page 214) shows an example of the changes that occur when you restore a CS 1000 system using the replace scenario.

Table 12
Using the restore utility to replace a CS 1000 system

Backup file	Existing	Result
CSa_BK	CSa	CSa_BK
MGa_BK	MGa	MGa_BK
MGb_BK	MGc	MGb_BKnewName

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Backup file	Existing	Result
	CSb	CSb
	MGb	MGb

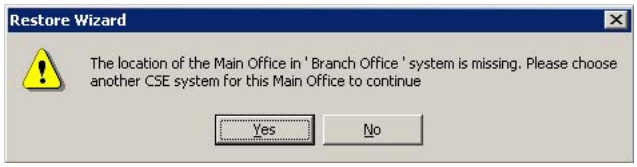
In this example, MGc no longer exists since it was not in the backup file. There is no change made to MGb, which is currently associated with CSb. Since MGb is now associated with CSb, MGb_BK is restored with a new site-system name as MGb_BKnewName.

Restoring an MG 1000B

When you restore a single CS 1000 system, its Media Gateways are restored; however, its MG 1000Bs are not.

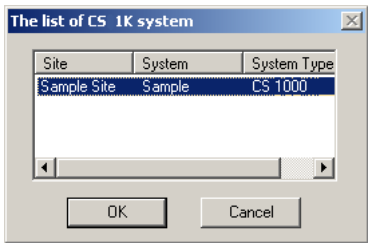
Although an MG 1000B is linked to a Call Server, it is restored up like a separate system. When you restore a MG 1000B from either a Full Telephony Manager backup or a single site backup, the relationship between the MG 1000B and its associated system is recognized. If the system has been deleted, the Telephony Manager Restore Wizard dialog box appears, as shown in Figure 106 "Restore MG 1000B dialog box" (page 215).

Figure 106
Restore MG 1000B dialog box



Click Yes. The list of CS 1000 systems appears, as shown in Figure 107 "List of available CS 1000 systems" (page 215).

Figure 107
List of available CS 1000 systems



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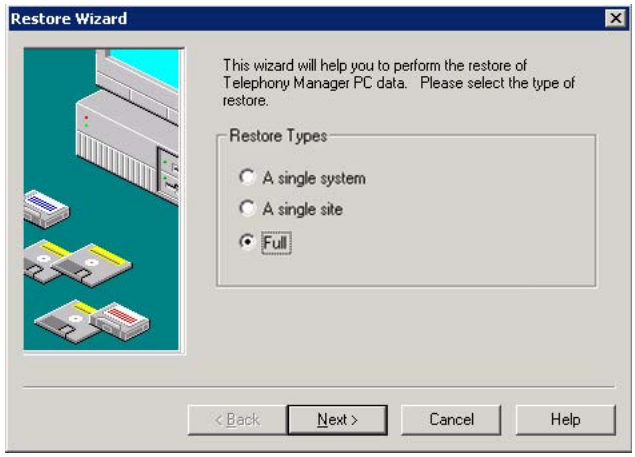
Restoring Telephony Manager

Procedure 47
Restoring Telephony Manager data and applications

Step	Action
1	In Telephony Manager Windows Navigator, select **Utilities > Restore**. The Restore Wizard window appears, as shown in Figure 108 "Restore Wizard" (page 216).

Figure 108
Restore Wizard



ATTENTION
The Telephone or the Web Station data can only be restored using the Full restore option. Restoring a single system or a single site does not restore the Telephone or the Web Station data.

2 Do one of the following:

- To restore a single system:
  1. Select **A single system**.
  2. Click **Next**.

     The backup file selection window appears, as shown in Figure 109 "Restore Wizard: backup file selection" (page 217).

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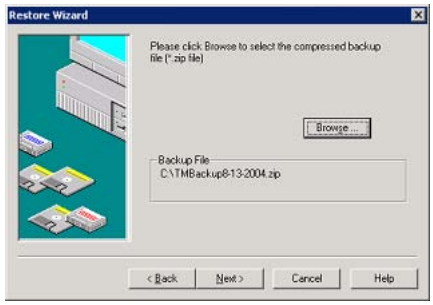
Figure 109
Restore Wizard: backup file selection



3. Go to step 3.

- To restore a single site:
  1. Select **A single site**.
  2. Click **Next**.

     The backup file selection window appears, as shown in Figure 109 "Restore Wizard: backup file selection" (page 217).
  3. Go to step 4.

- To perform a full restore:
  1. Select **Full**.
  2. Click **Next**.

     The backup file selection window appears, as shown in Figure 109 "Restore Wizard: backup file selection" (page 217).
  3. Go to step 6.

3 To restore a single system:

a. Select the backup file to be restored.

b. Click **Next**.

The system selection window appears, as shown in Figure 110 "Restore Wizard: system selection from backup file" (page 218).

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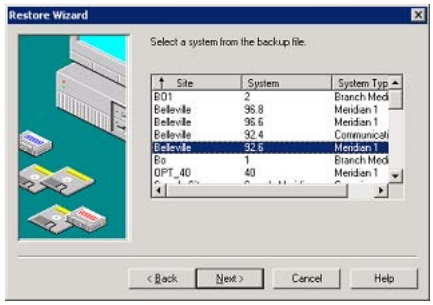
Figure 110
Restore Wizard: system selection from backup file

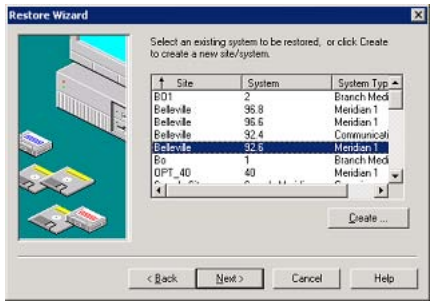


c. Select a system from the backup file.

d. Click **Next**.

The system selection window appears, as shown in Figure 111 "Restore Wizard: site and system to be restored" (page 218).

Figure 111
Restore Wizard: site and system to be restored



e. Do one of the following:

1. Select an existing system to be restored.
2. Click **Create** to restore the data to a new site and system.

f. Click **Next**.

A confirmation dialog appears, warning that the data on the destination system is going to be overwritten by the restore operation.

g. Click **Yes**.

The application data selection window appears, as shown in Figure 112 "Restore Wizard: application data selection" (page 219).

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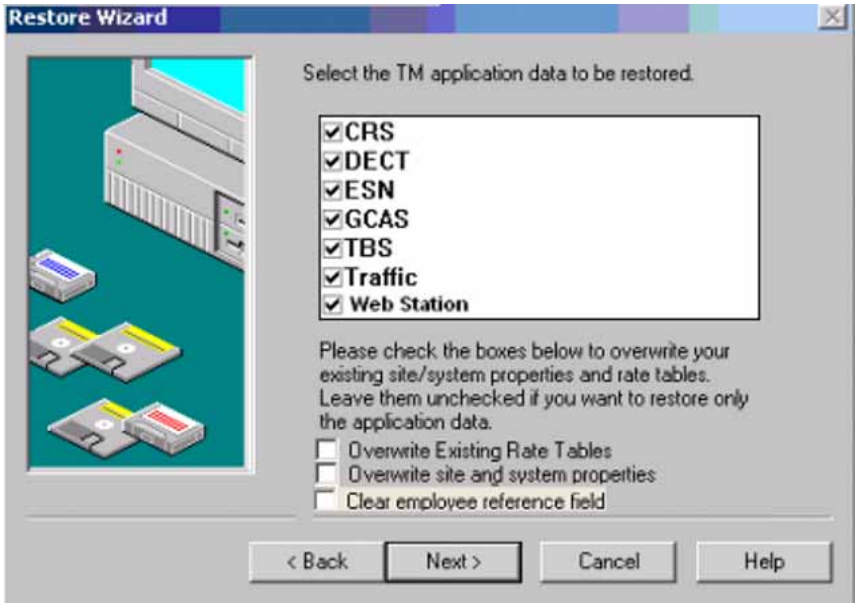
Figure 112
Restore Wizard: application data selection



h. Select the application data to be restored.

i. Do one of the following:

   1. If you are restoring only the application data, clear **Overwrite Existing Rate Tables** and **Overwrite site and system properties**.

   2. If you are restoring the application data, the system data, and the rate tables, select **Overwrite Existing Rate Tables** and **Overwrite site and system properties**.

j. Click **Next**.

   The temporary directory selection window appears, as shown in Figure 113 "Restore Wizard: temporary directory selection" (page 220).

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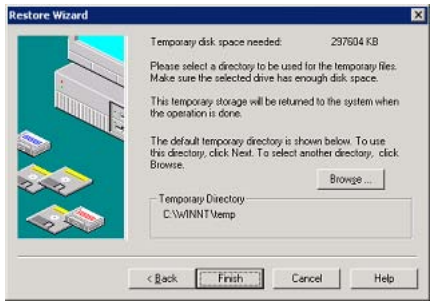
Figure 113
Restore Wizard: temporary directory selection

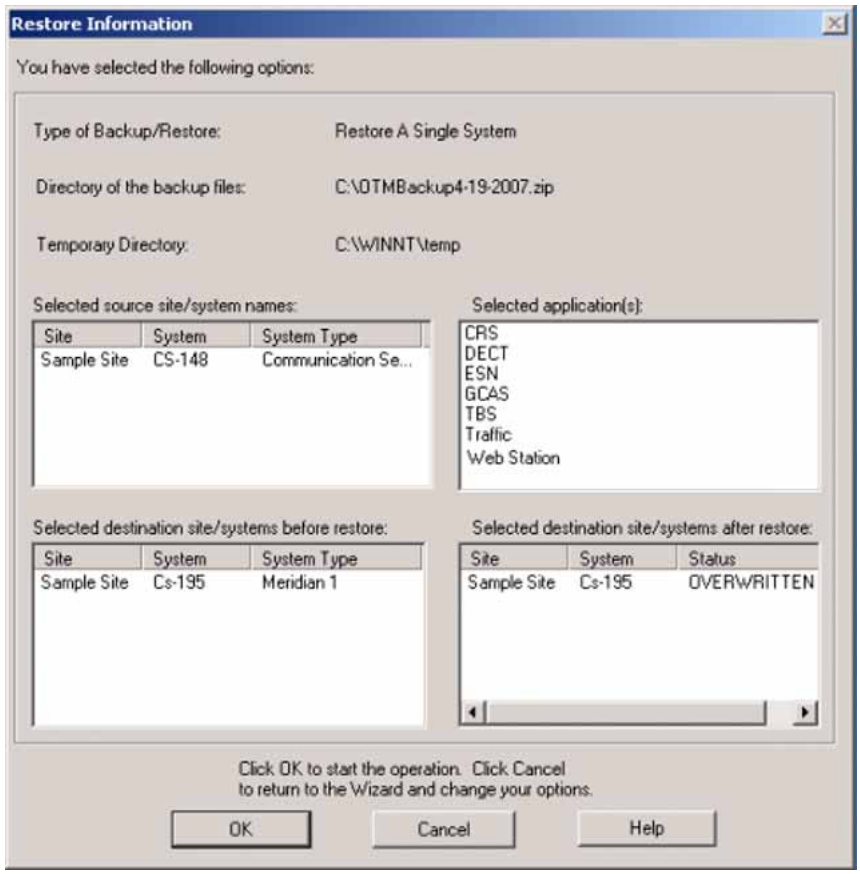


k. Select the directory where temporary files created during the restore operation are to be stored.

l. Click **Finish**.

The Restore Information window opens, as shown in Figure 114 "Restore Information: Single System" (page 220).

Figure 114
Restore Information: Single System



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m. Go to step 7.

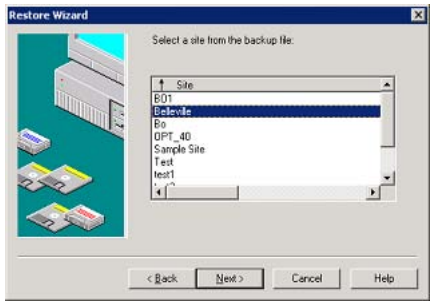
4 To restore a single site:

a. Select the backup file to be restored.

b. Click **Next**.

The site selection window appears, as shown in Figure 115 "Restore Wizard: site selection from backup file" (page 221).

Figure 115
Restore Wizard: site selection from backup file

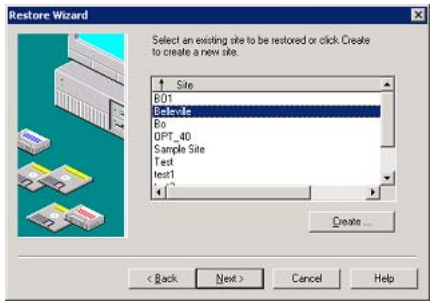


c. Select a site from the backup file.

d. Click **Next**.

The site selection window appears, as shown in Figure 116 "Restore Wizard: site selection to be restored" (page 221).

Figure 116
Restore Wizard: site selection to be restored



e. Do one of the following:

- Select an existing site to be restored.
- Click **Create** to restore the data to a new site.

f. Click **Next**.

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A confirmation dialog appears, listing the systems at the destination site and warning that the data on those systems will be overwritten by the restore operation.

g. Click **Yes** to continue.

   The application data selection window appears, as shown in Figure 112 "Restore Wizard: application data selection" (page 219).

h. Select the application data to be restored.

i. Do one of the following:

   1. If you are restoring only the application data, clear **Overwrite site and system properties**.
   2. If you are restoring the application data and the system data, select **Overwrite site and system properties**.

j. Click **Next**.

   The temporary directory selection window appears, as shown in Figure 113 "Restore Wizard: temporary directory selection" (page 220).

k. Select the directory where temporary files created during the restore operation will be stored.

l. Click **Finish**.

   The Restore Information window opens, as shown in Figure 117 "Restore Information: Single Site" (page 223).

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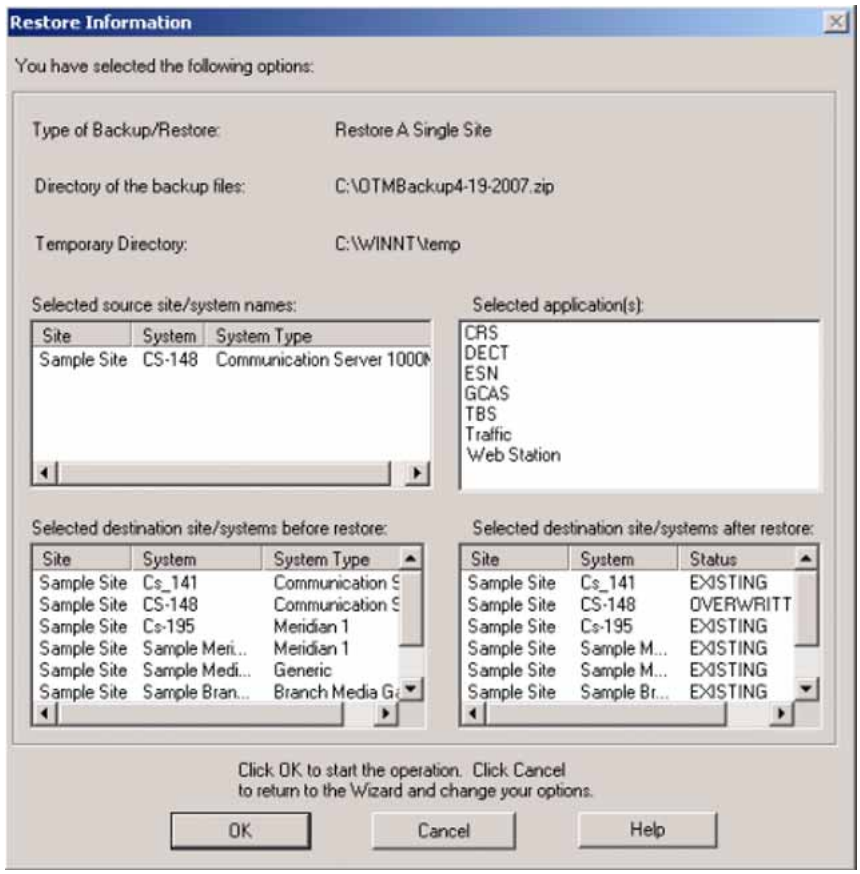
Figure 117
Restore Information: Single Site



m. Go to step 7.

5 To perform a full restore:

a. Select the backup file to be restored.

b. Click **Next**.

The temporary directory selection window appears, as shown in Figure 113 "Restore Wizard: temporary directory selection" (page 220).

c. Select the directory where temporary files created during the restore operation will be stored.

d. Click **Finish**.

The Restore Information window opens, as shown in Figure 118 "Restore Information: Full" (page 224).

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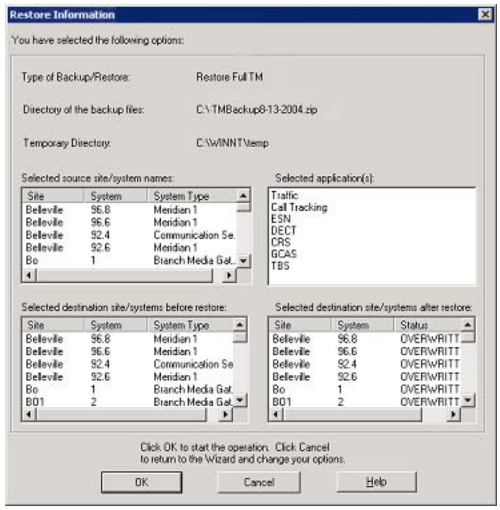
Figure 118
Restore Information: Full



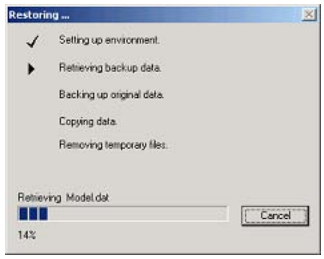
6 Review the restore options in the Restore Information window.

7 Do one of the following:

- To change any of the options:
  1. Click **Cancel** to return to the Restore Wizard.
  2. Repeat this procedure, starting at step 2.
- To start the restore without changing any options, click **OK**.

  The Restoring window appears, as shown in Figure 119 "Restoring" (page 224).

Figure 119
Restoring



—End—

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Synchronization

Please note that the Common Network Directory and Billing Synchronization utilities are not available to a user who has logged in from a Telephony Manager Client.

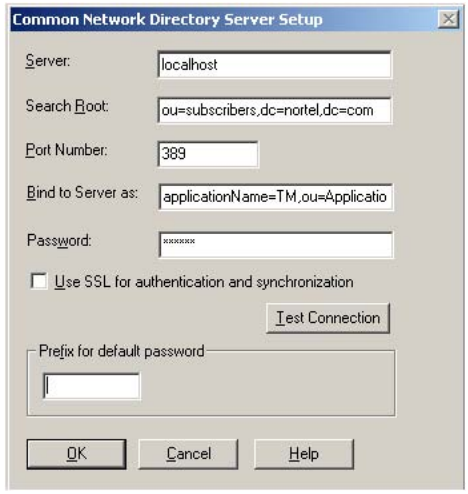
CND Server setup

Before you configure CND synchronization, you must setup the CND server. This is done using the Telephony Manager Windows Navigator, as described in Procedure 48 "Setting up the CND server" (page 225).

Procedure 48
Setting up the CND server

Step	Action
1	Select **Utilities > Common Network Directory > Server Setup** from the Telephony Manager Windows Navigator. The Common Network Directory Server Setup window appears, as shown in Figure 120 "Common Network Directory Server Setup window" (page 225). This window contains default values for the setup operation.
2	Enter the IP address of the CND server to be used in the **CND Server** box.
3	Change any of the other values as appropriate. The default password for the Telephony Manager application account on the CND Server is tmpass.

Figure 120
Common Network Directory Server Setup window



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If you modify the password for the Telephony Manager application account in the CND Manager, you must update the Password field of the TM Windows Navigator > Utilities > CND Server setup window to the same password for Telephony Manager to connect to CND successfully.

For security reasons, Nortel recommends that you change this password in CND Manager and make the corresponding change in the Password field of the Telephony Manager Windows Navigator > Utilities > CND Server setup window.

—End—

CND synchronization

Use the CND synchronization utility to synchronize data between CND and Telephony Manager, this utility will assign a set to an employee. This utility is available only on the Telephony Manager server, not on the CND server.

When synchronizing, CND forms a commonName by concatenating the First Name and Last Name of the employee associated with the telephone in the Telephone Details. This commonName is then compared with those in the CND database to find a matching entry.

The CND Synchronization utility updates the CND employee record in the following scenarios:

- If there is a match between the commonName of CND with the First name and Last Name of the employee fields present in Station data of Telephony Manager.
- If there is a mismatch in the above operation CND Sync will next attempt to map CPND data with the commonName field of CND.
- If no match is found in either Station or CPND data, a record is created if the ‘Add Employee to directory if no match is found’ option is selected (see Figure 121 "Common Network Directory Synchronization: Add Employee to directory if no match is found " (page 227)) otherwise no action would be taken

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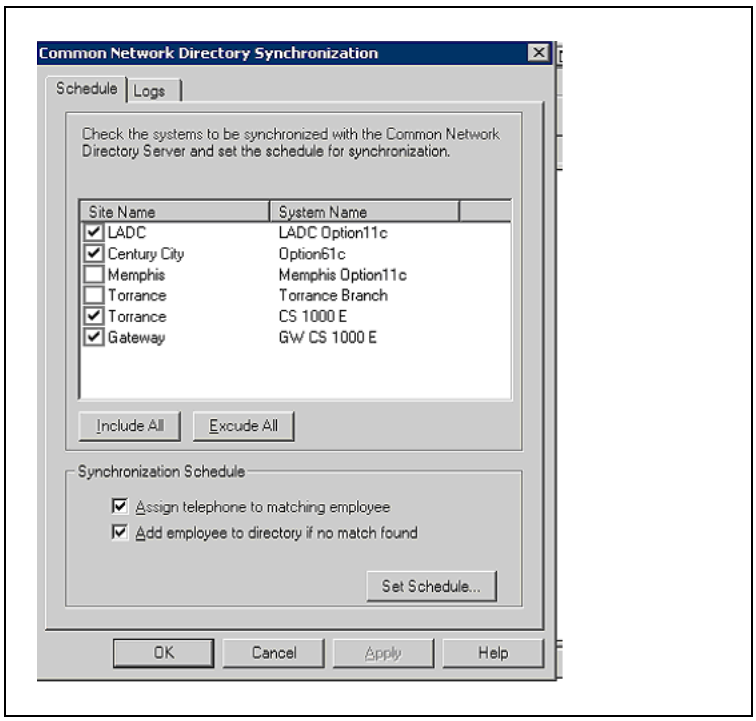
Figure 121
Common Network Directory Synchronization: Add Employee to directory if no match is found



If a match is achieved by any of the above steps, the FirstName and the LastName fields of Station data will be updated if they are empty and a match is achieved using CPND data.

ATTENTION
CND is designed to reject automatic removal of records. They can be removed through the directory link of the TM web page.

Procedure 49
Synchronizing CND

Step	Action
1	Select **Utilities > Common Network Directory > Synchronization** from the Telephony Manager Windows Navigator. The Common Network Directory Synchronization window appears, as shown in Figure 122 "Common Network Directory Synchronization: Synchronization tab" (page 228). The Synchronization tab shows the list of the systems which can be synchronized with CND. All the systems are selected for synchronization by default.

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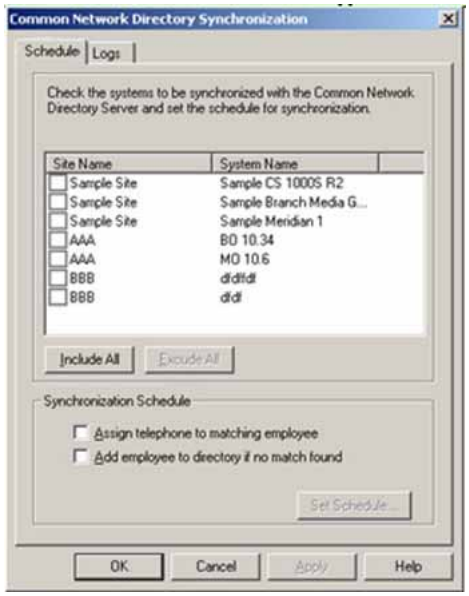
ATTENTION

This option is not available if you are logging in from a Telephony Manager Client.

Figure 122
Common Network Directory Synchronization: Synchronization tab



2 Select the systems to be synchronized by ensuring the corresponding check box is checked:

- If you do not want to synchronize all systems:
  1. Click **Exclude All** to deselect all systems.
  2. Select each system to be synchronized.
- If you want to synchronize all systems, click **Include All**.

3 Select the behavior of the CND synchronization operations by selecting one, both, or none, of the **Global Options**:

- Select **Assign telephone to matching employee** to assign telephones to an employee if the CPND name of the prime DN of the telephone matches the employee's CPND name or employee name.
- Select **Add employee to directory if no match found** to create a new employee in CND based on the CPND name of the prime DN of the telephone. This option is useful for automatically

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creating employee records for telephones which are new to the system.

4 Click **Apply** to save the synchronization settings.

5 Click **Schedule** to schedule the synchronization.

The Scheduling window appears, as shown in Figure 50 "Scheduling window" (page 127).

6 Enter the job **Name, Description**, frequency, date and time when the synchronization is to run.

7 Click **OK** in the scheduling window.

8 Click **OK** in the CND Synchronization window.

The synchronization will run at the scheduled time, and create a log file with a date-time stamp.

ATTENTION

If the CND Synchronization window is not closed as mentioned in step 8, the log files for the recently run task will not be updated in the CND Synchronization window – Logs tab. To view the latest log file, the CND Synchronization window should be launched again.

—End—

Procedure 50

Viewing and deleting CND synchronization log files

Step	Action

1 Select **Utilities > Common Network Directory > Synchronization** from the Telephony Manager Windows Navigator.

The Common Network Directory Synchronization window appears as shown in Figure 122 "Common Network Directory Synchronization: Synchronization tab" (page 228), with the Synchronization tab displayed.

2 Click the **Logs** tab.

The Logs tab, shown in Figure 123 "Common Network Directory Synchronization: Logs tab" (page 230), displays a list of all CND synchronization log files.

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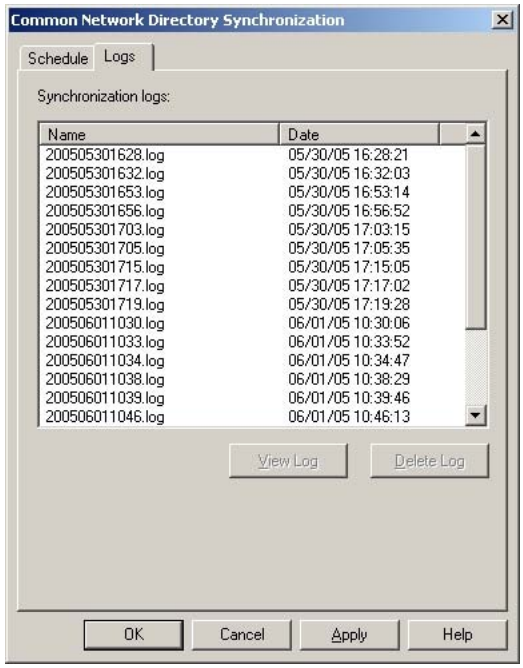
Figure 123
Common Network Directory Synchronization: Logs tab



3 To view a log file:

a. Select a log file name in the list.

b. Click **View Log**.

4 To delete a log file:

a. Select a log file name in the list.

b. Click **Delete Log**.

—End—

Updates performed by the CND synchronization operation

For each of the selected systems, CND synchronization processes the telephones configured for that system as follows:

1. If the telephone is assigned to an employee, CND synchronization determines if the employee reference (common name of the CND employee) is a valid reference. If a matching employee is found, and if the telephone is marked as "Employee Prime Telephone", CND synchronization publishes the following telephone attributes to CND:

   - Directory Number

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- External telephone number
- ESN telephone number
- Location
- CPND Name

The Prime DN is used as the "Directory Number" value, and the CPND name associated with the Prime DN is used as the "CPND name". The external telephone number and the ESN telephone number are also computed based on the Prime DN value.

2. If a matching employee is not found in Step 1, the employee reference field is cleared for the given telephone. This removes any invalid employee references from the telephone database.
3. If a telephone is not assigned to any employee, CND synchronization performs one of both of the following operations based on the Global Options selected by the user:

   a. If the Global Option "Assign telephone to matching employee" option is selected, CND synchronization looks in CND for an employee whose CPND name value matches the CPND name of the prime DN of the given telephone. If a match is not found, CND synchronization looks in CND for an employee whose employee name matches the CPND name of the prime DN of the given telephone.

      If a matching employee is found by either of the look-ups, the telephone is assigned to the employee by storing the common name of that employee as the employee reference value for that telephone in the telephone database.

   b. If the Global Option "Add employee to directory if no match found" option is selected, CND synchronization creates a new employee in CND based on the CPND name of the prime DN of the telephone. This action is only performed if no match is found by step a.

      The updates performed during CND synchronization are also noted in the synchronization log file, which can be viewed using Procedure 50 "Viewing and deleting CND synchronization log files" (page 229).

      When you do not select either of the Global Options, only the telephones having the prime DN and employee assigned with “Employee Prime Telephone” enabled is synchronized. Other phones are discarded and their details are not synchronized to CND. These unsynchronized telephone details do not appear in the TBS Employee database when Billing synchronization is performed.

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Search criteria for a matching employee

The search criteria for finding a matching employee are as follows:

- Only Prime DNs with MARP enabled are included in the search.
- The CPND name must be associated with the DN.
- The CPND name must match the Employee Name in the CND database.

Billing Synchronization

Use the Billing synchronization utility to synchronize Telephony Manager data in CND with the TBS employee database. It is a one-way synchronization—changes in the TBS employee database are not propagated to CND. This utility is available only on the Telephony Manager server.

ATTENTION

Prior to generating billing reports in TBS, you must run Billing Synchronization to update the Telephony Manager data in CND to the TBS employee database. Nortel recommends that this Billing Synchronization operation be scheduled on a recurring basis to avoid having to run it manually before generating billing reports in TMS.

Procedure 51

Synchronizing the Billing system

Step	Action
1	Select **Utilities > Billing Synchronization** from the Telephony Manager Windows Navigator. The Billing Synchronization window appears, as shown in Figure 124 "Billing Synchronization: Synchronization tab" (page 233). The Synchronization tab shows the list of the systems which can be synchronized with the Employee Directory database in TBS. All the systems are selected for synchronization by default.

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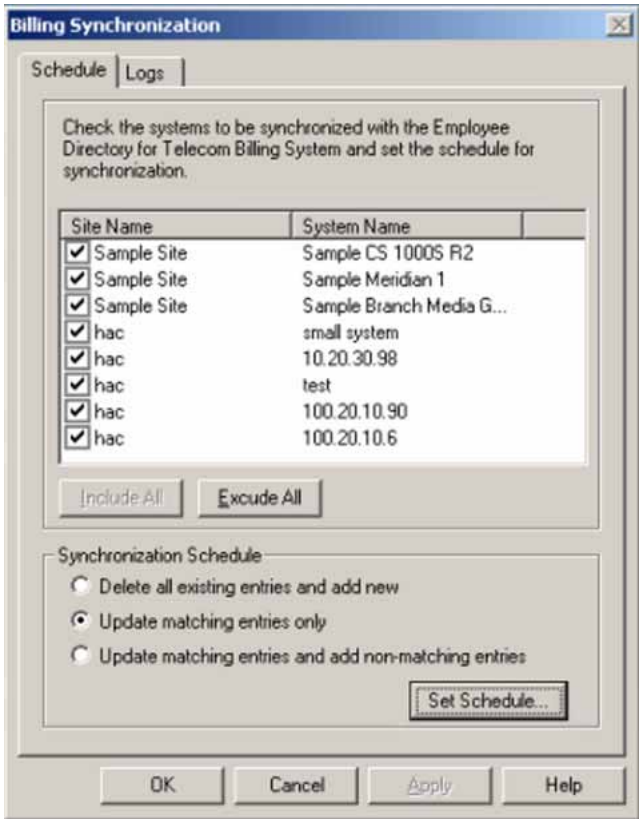
Figure 124
Billing Synchronization: Synchronization tab



2 Select the systems to be synchronized by ensuring the check box next to the desired system is checked:

- If you do not want to synchronize all systems:
  1. Click **Exclude All** to deselect all systems.
  2. Select each system to be synchronized.
- If you want to synchronize all systems, click **Include All**.

3 Select the behavior of the synchronization operation by selecting one of the **Global Options**:

- Select **Delete all existing entries and add new** to delete all entries in the TBS employee database and add new employee records from CND.
- Select **Update matching entries only** to update existing entries in the TBS employee database with the information in the corresponding (matching) CND record. No new records are added to the TBS employee database.

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- Select **Update matching entries and add non-matching entries** to update existing entries in the TBS employee database with the information in the corresponding CND record. If there are CND records which do have a corresponding (matching) record in the TBS employee database, this option adds new records in the TBS employee database.

4 Click **Apply** to save the synchronization settings.

5 Click **Schedule** to schedule the synchronization.

The Scheduling window appears, as shown in Figure 50 "Scheduling window" (page 127).

6 Enter the job **Name, Description**, frequency, date and time when the synchronization is to run.

7 Click **OK** in the scheduling window.

8 Click OK in the Billing Synchronization window.

The synchronization will run at the scheduled time, and create a log file with a date-time stamp.

ATTENTION

If the Billing Synchronization window is not closed as mentioned in step 8, the log files for the recently run task will not be updated in the Billing Synchronization window – Logs tab. To view the latest log file, the Billing Synchronization window should be launched again.

—End—

Procedure 52
Viewing and deleting Billing synchronization log files

Step	Action

1 Select **Utilities > Billing Synchronization** from the Telephony Manager Windows Navigator.

The Billing Synchronization window appears as shown in Figure 124 "Billing Synchronization: Synchronization tab" (page 233), with the Synchronization tab displayed.

2 Click the **Logs** tab.

The Logs tab, shown in Figure 125 "Billing Synchronization: Logs tab" (page 235), displays a list of all Billing synchronization log files.

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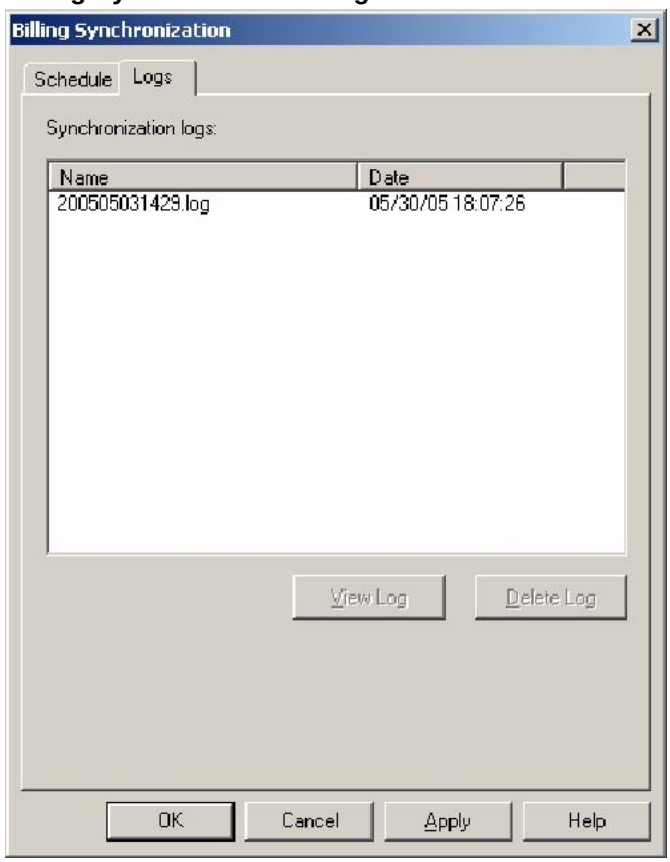
Figure 125
Billing Synchronization: Logs tab



3 To view a log file:

a. Select a log file name in the list.

b. Click **View Log**.

4 To delete a log file:

a. Select a log file name in the list.

b. Click **Delete Log**.

—End—

Updates performed by the Billing synchronization operation

For each of the selected systems, Billing synchronization processes the telephones configured for that system as follows:

1. If the telephone is assigned to an employee, Billing synchronization reads the employee details from CND.

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2. Billing synchronization looks for the employee in the TBS employee database, matching the common name of the CND employee with the Identification field in the TBS employee database. If a matching employee is found in the TBS employee database, the TBS employee database record is updated with the information in the CND record.

   Table 13 "Mapping between fields of CND and the TBS employee database" (page 236) shows the mapping between CND fields and the TBS employee database fields.

Table 13
Mapping between fields of CND and the TBS employee database

Description	CND field	TBS employee database field
Account code	billingAccountCode	Account Code
Authorization code	billingAuthorizationCode	Authorization Code
City	l	City
Country	country	Country
CPND name	cpndName	Display Name
E-mail	mail	Email
Directory number	preferredDirectoryNumber	Extension
First name	givenName	First name
Common name	cn	Identification
Job title	title	Job Title
Last name	sn	Last Name
Middle name	initials	Middle Name
Postal Code or Zip code	postalCode	Postal/Zip
Province or State	st	Prov./State
Street number	street	Street/No
Common name	cn	Unique Identifier
Common Name	cn	Login Name
User group	tmUserGroup	User Group
Web reporting access rights	billingWebReportingAccessRights	Web Reporting Access Rights
Department *The department must already exist in the organizational hierarchy.*	departmentNumber	Department
Location	officeLocation	Station Location

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3. If "Update matching entries and add new entries" is selected in Synchronization tab of the Billing Synchronization window, a new employee record is added to the TBS employee database. The mapping shown in Table 13 "Mapping between fields of CND and the TBS employee database" (page 236) is used to populate the fields in new record from the information in the CND record.

ATTENTION

The department field in the CND must contain the complete path of the hierarchy (separated by commas) in order for the department field of the TBS to be populated with the correct organizational hierarchy. For example, if an employee belongs to the organizational hierarchy structure ORB\Division1\Department1, the departmentNumber field of CND should have the complete path as ORG,Division1,Department1. The tree structure should be separated by commas, with no space following a comma.

If the complete path is not designated, the employee is placed in the root of the organizational hierarchy. In the above example, if the departmentNumber field contains only Department1, the employee is placed in the ORG.

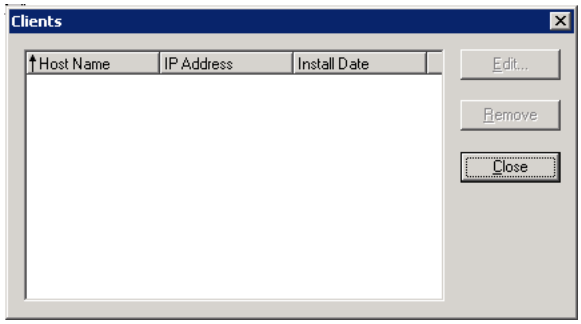
The organizational hierarchy must be present in the TBS application before running the Billing Synchronization. The Billing Synchronization application will not create or modify the hierarchy.

Client utility

Client utility is supported only from Telephony Manager Server Navigator Utilities. Use the Clients utility to update the Telephony Manager database when the host name or IP address of a Telephony Manager Client computer has changed. You also use the Clients utility to remove a Telephony Manager Client computer from the Telephony Manager database when you want to reassign the Client license to a new Telephony Manager Client.

To launch the Client utility from Telephony Manager Server, select Utilities > Manage Clients in the Telephony Manager Navigator window. The window shown in Figure 126 "Clients window" (page 237) appears.

Figure 126
Clients window



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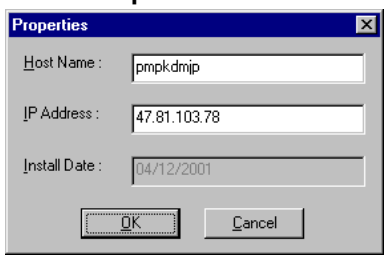
Use Procedure 53 "Changing the host name or IP address" (page 238) to change the host name or IP address assigned to a Telephony Manager Client.

Procedure 53
Changing the host name or IP address

Step	Action
1	Select a Telephony Manager Client from the Clients window.
2	Click **Edit**. The Client Properties window appears, as shown in Figure 127 "Client Properties window" (page 238).

Figure 127
Client Properties window



3	Edit the host name or IP address as required.
4	Click **OK** to update the Telephony Manager database.

—End—

Procedure 54
Removing a Telephony Manager Client

Step	Action
1	Select a Telephony Manager Client from the Clients window.
2	Click **Remove**. A confirmation window appears.
3	Click **OK** to remove the Telephony Manager Client from the database.

—End—

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Equipment Data Dump

The Equipment Data Dump (EDD) in Telephony Manager is a critical database update operation. This operation saves modified data from the resident memory of the switch to database files on the hard disk of the switch. These database files contain the active configuration information for phone-system terminals and users.

Synchronizing and securing data

Use the Telephone Manager and Electronic Switched Network (ESN) in Telephony Manager applications to modify station data, Call Party Name Display (CPND) data, and ESN data. Telephony Manager stores these changes in its PC database files. The phone system cannot recognize these changes, however, until you upload the modified data to the system. This operation synchronizes switch data with current Telephony Manager data on the PC.

Updating the data of the switch is a two-step process. The first step is to transmit modified Telephony Manager data from the PC to the resident memory of the switch. The Telephone Manager of Telephony Manager and ESN applications include a Synchronize menu for this purpose. The second step is to use the EDD feature in Telephony Manager to dump modified data from the resident memory of the switch to the hard disk of the switch.

To secure modified data on Large Systems, you must dump it to the hard disk of the switch.

Power interruptions erase all data in resident memory. When power is restored, switch data is automatically restored from its database files on the hard disk. Modified data that was not previously dumped to these database files is lost at the switch. Further, this data may be difficult to isolate in the Telephony Manager applications of the PC, since all previously uploaded data shares the same Transmitted status. For these reasons, always perform or schedule data dumps after uploading data to the switch.

Accessing EDD

You access EDD from the File menu of the System window. The EDD selection is called Data Dump. This selection has its own submenu with the options Now, Schedule, and View Log.

Select Now to perform the data dump immediately, Schedule to configure the operation to run automatically, or View Log to review status and error information from the most recent data dump.

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If you select Now, your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first.

The data-dump operation takes a few minutes. While modified Telephony Manager data is being dumped at the switch, status and error information about the data dump is actively logged to the PC. Both Now and View Log open the EDD Data Dump dialog box for viewing or reviewing, respectively, this status and error information. This log is saved to the hard disk of the PC and each data dump overwrites the existing log file.

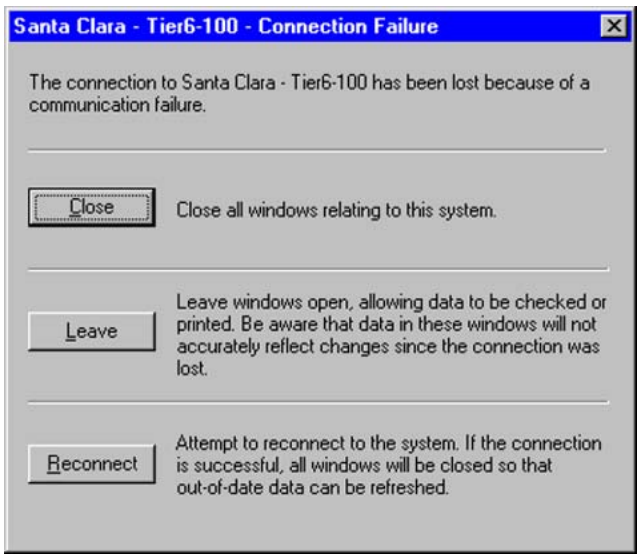
To access error information, open the Events window after the data dump, and double-click each error event of interest. This invokes help that is specific to each error.

The Schedule option opens the Scheduling window. Here you can select when and how often you want to dump data at the switch. It is best to schedule this operation for a time soon after uploading Telephony Manager data to the switch. The Telephony Manager Scheduler sends the job to the Queue Manager at the designated time.

Responding to a connection failure

If you are connected to a system and that connection fails, a warning message appears, as shown in Figure 128 "Connection Failure dialog box" (page 240).

Figure 128
Connection Failure dialog box



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You are given the following options:

- Close all system windows and reconnect to the system.
- Leave the system windows open so that you can copy or print any or all of the following information:
  - Command results in the System Terminal window or any open Maintenance window
  - Alarms or events in the System Event Log
  - Maintenance window objects, such as network loops within the Network Loops window

When you have finished printing the desired information, close the system window and reconnect to the system.

Patch Utility tool

This tool is used as the primary vehicle for installing any PEPs (patches) or service updates (SU) that are required and provides the following functionality:

- Track all detailed patch information such as patch version number, date of creation, date of installation, Administration user who installs the enhancement/bug fix and a description of the patch
- Maintain backup folders for each patch
- Uninstall patches

The patch utility automatically prompts for reboot if required. The utility patch is supported on the Telephony Manager Client as well.

ATTENTION

Read through the instructions prior to installing or uninstalling the patch.

Procedure 55

Installing the Telephony Manager patch utility tool

Step	Action
1	Close the Telephony Manager application.
2	Go to **Start > Nortel CS 1000 Telephony Manager > Patch Utility**.
3	Log on to the Patch Utility. See Figure 129 "Login screen for patch utility" (page 242).

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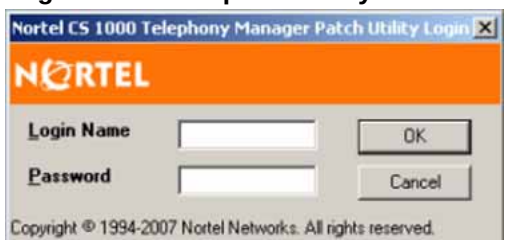
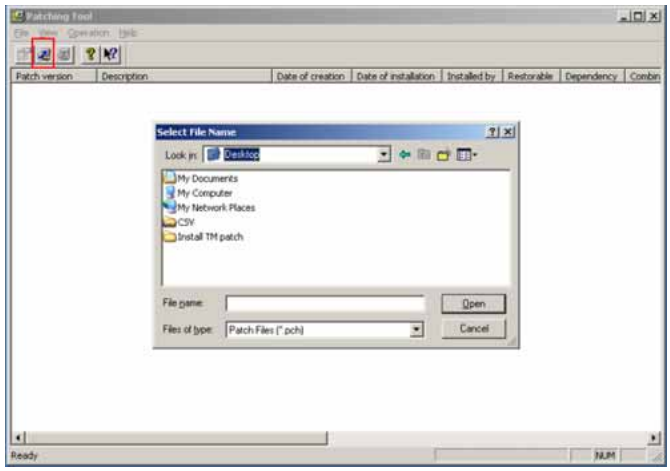
Figure 129
Login screen for patch utility



The Patching Tool window appears.

4 Click **Install**. See Figure 130 "Patching Tool window" (page 242).

Figure 130
Patching Tool window



5 In the Select File Name dialog box, browse to the Patch File.

6 Click **Open**.

The Patching Tool confirmation dialog box will appear.

7 Click **Yes** to confirm installation of the patch.

The Patch Utility is installed.

—End—

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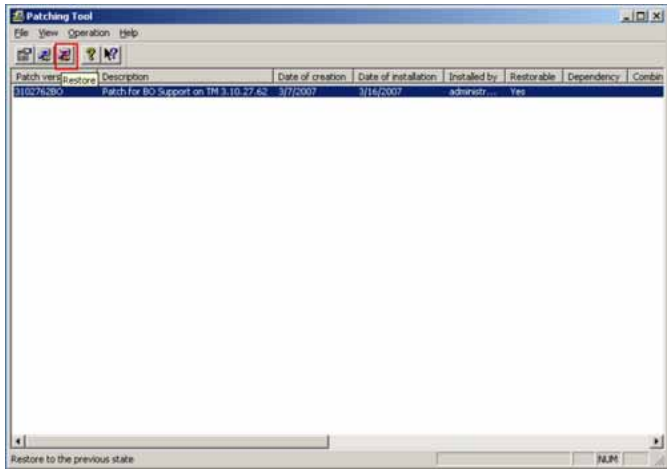
Procedure 56
Uninstalling the Telephony Manager patch utility tool

Step	Action
1	Close the Telephony Manager application.
2	Go to **Start > Nortel CS 1000 Telephony Manager > Patch Utility**.
3	Log on to the Patch Utility. See Figure 129 "Login screen for patch utility" (page 242). The Patching Tool window appears.
4	Select the patch.
5	Click **Restore**. See Figure 131 "Restore button in Patching Tool window" (page 243).

Figure 131
Restore button in Patching Tool window



The Patching Tool confirmation dialog box will appear, asking if you want to uninstall the selected patch.

6	Click **Yes**. The patch is uninstalled, and a confirmation of rollback dialog window appears. See Figure 132 "Confirmation of uninstallation of Patch Utility " (page 244).

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Figure 132
Confirmation of uninstallation of Patch Utility

—End—

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Alarm management

Contents

This section contains information on the following topics:

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- "System and device level management" (page 247)
- "Site level management" (page 248)
- "Network level management" (page 248)
- "NMS InfoCenter" (page 249)

"Alarm management" (page 250)
- "Text Handler" (page 250)
- "Alarm Banner dialog box" (page 250)
- "Opening the Alarm Banner dialog box" (page 251)
- "Alarm Banner notifications" (page 252)
- "Events Monitor window" (page 252)
- "Using the Events Monitor window" (page 252)
- "Opening the Events Monitor window" (page 253)
- "Sorting the event list" (page 254)
- "Re-sizing a column in the event list" (page 254)
- "Using the shortcut menu" (page 254)
- "Event list" (page 255)
- "Determining the cause of an alarm" (page 255)
- "Acknowledging an alarm that you plan to clear" (page 255)
- "Marking an alarm as cleared" (page 256)
- "Getting details about an alarm" (page 257)
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- "Viewing the Event Default Table" (page 257)
- "Creating and customizing event preferences" (page 258)

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"Creating an Event Preference definition" (page 259)
"Configuring alarms on the system" (page 261)
"Enabling Meridian 1 system alarms with LD 117" (page 261)
"Alarm Notification application" (page 263)
"Telephony Manager alarm notification process" (page 264)
"Opening the Alarm Notification window" (page 266)
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"Scripting" (page 275)
"Data types" (page 276)
"Referencing variable names from Config.txt" (page 278)
"Defining devices in Devices.txt" (page 280)
"Scripts" (page 281)
"Operators" (page 283)
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"Rules" (page 296)
"Comments" (page 297)
"Functions" (page 298)
"Using script files" (page 298)
"Script examples" (page 303)

Alarm management configurations

Telephony Manager is the collection point for alarms from Meridian 1 and CS 1000 workgroup devices. It provides an integrated system view of these alarms. It also provides a gateway to monitor, access, and correct faults for those devices.

You can configure Telephony Manager alarm management to meet the needs of different users. Typically, there are three levels of administrative responsibilities:

- A single system
- Multiple systems in one or more sites
- A large network of voice and data products

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For Alarm Management to function, the user must disable the SNMP Trap Service. Use Procedure 57 "Disabling SNMP Trap Service" (page 247) to disable the SNMP Trap Service.

Procedure 57
Disabling SNMP Trap Service

Step	Action
1	From the Start menu, click **Control Panel > Administrative Tools > Services**.
2	Right-click the **SNMPTrapService** and select **Properties**.
3	In the **Startup type** list, select **Disabled**.
4	Reboot the Telephony Manager PC.

—End—

The following sections provide an overview of how Telephony Manager alarm management can meet the needs of these different users.

System and device level management

You can configure the system to send SNMP traps to the Telephony Manager Server (X11 Release 22 and later for the Meridian 1). You can also configure the system to filter the traps being sent (for example, only send critical alarms to Telephony Manager). The user responsible for the system can use the Telephony Manager Windows Alarm Browser to see all the system events and alarms.

You can configure other Meridian products to send traps to Telephony Manager. Telephony Manager can recognize these traps and provide help for individual alarms. See the respective product documentation for current software release and configuration procedures for the following Meridian products:

- IP Telephony Gateway (ITG)
- CallPilot
- Symposium Call Center Server (SCCS)
- Common Device

The user responsible for these devices can use the Telephony Manager Web Alarm Browser to display alarms from a single device.

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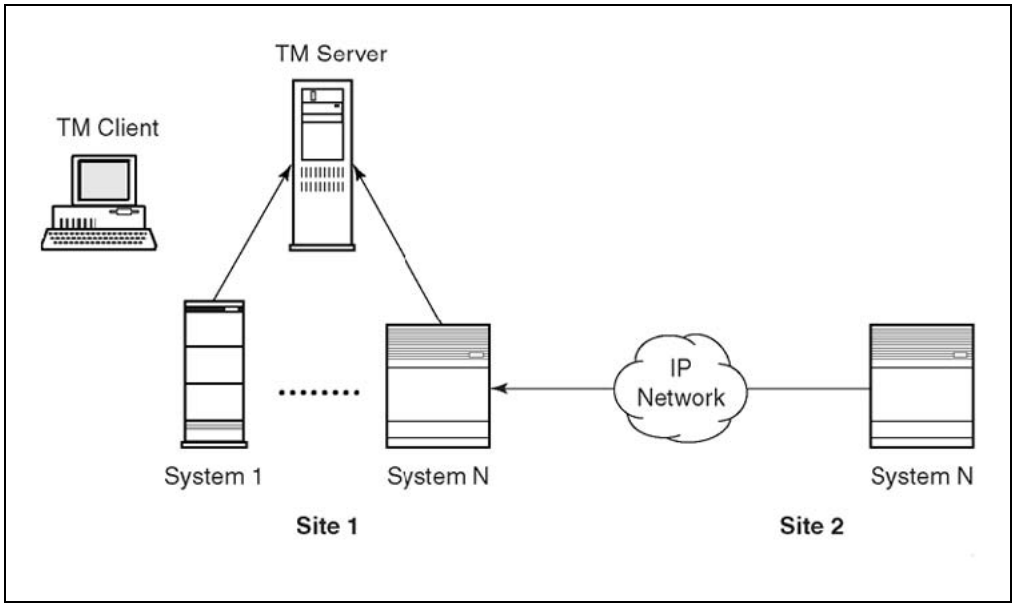
Site level management

Telephony Manager collects alarms from multiple devices in one or more sites. You can use the Web Alarm Browser to view all of these alarms.

Use the Alarm Notification application when critical alarms occur to identify the notices that are sent and to whom they are sent. shows devices transmitting alarms to the Telephony Manager Server.

Figure 133
Site Alarms



Network level management

The devices represented in NMS are Telephony Manager Servers that manage individual voice elements. The Telephony Manager Servers are manually added to the NMS network by the administrator.

The Telephony Manager Alarm Notification application reformats, filters, and forwards traps to NMS. Because Telephony Manager forms the main representative agent for Meridian 1 systems, CS 1000 systems, and related voice devices, all alarms received by NMS result in the change of status state of Telephony Manager depicted in the NMS InfoCenter. The traps are reformatted into the open alarm II format. Typically, only critical alarms are forwarded to NMS.

When NMS and Telephony Manager coreside on the same server, the Telephony Manager trap system disables its Trap Server and instead sends traps to the Trap Server.

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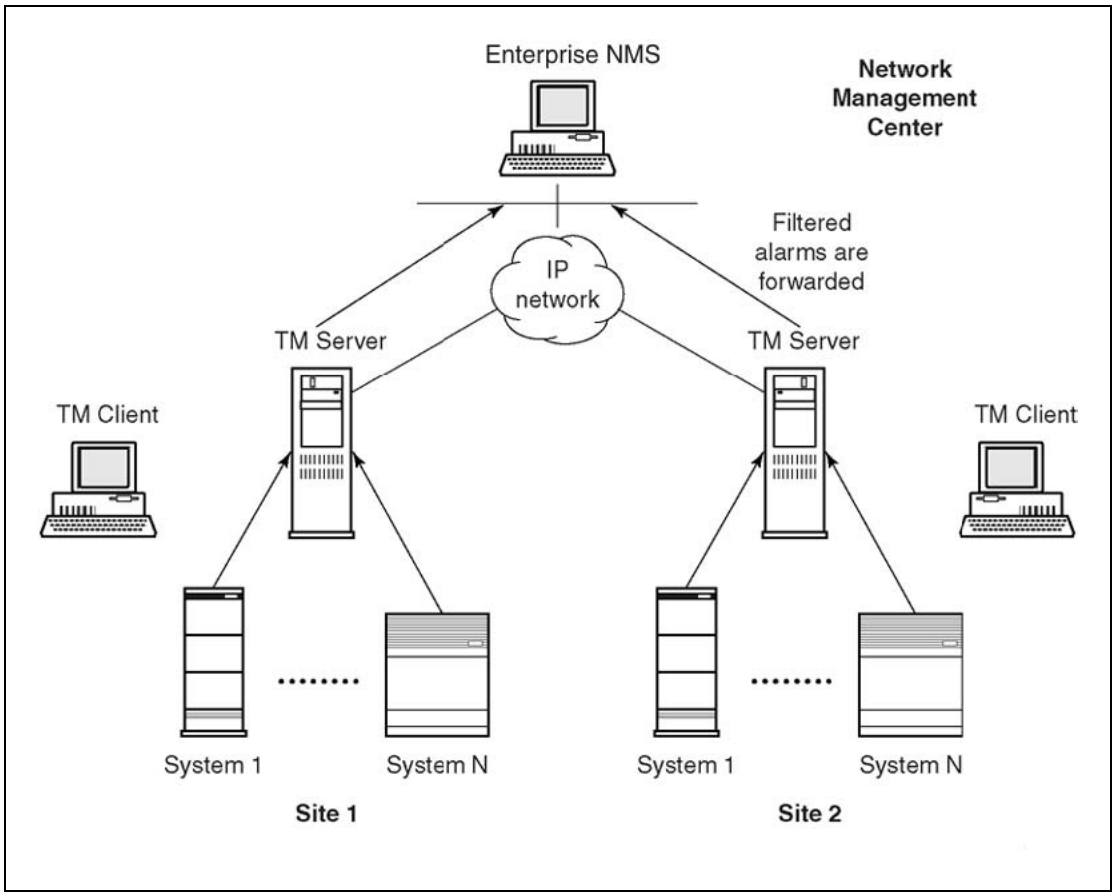
Figure 134 "Network alarms" (page 249) shows alarms being forwarded from Telephony Manager Servers to NMS.

Figure 134
Network alarms



NMS InfoCenter

NMS InfoCenter graphically displays inter-networking device fault status in color. Other NMS applications are available to help you identify the source of the fault.

You can configure the Telephony Manager as an object in InfoCenter, representing the systems that it manages. Systems connected to Telephony Manager forward faults to InfoCenter. The fault color represents the fault status of the device.

The applications that you can open for a device depend on the settings in the Application Launch application. For more information on using Application Launch, see the NMS Application Launch online Help system.

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To resolve faults on switches managed by a Telephony Manager server, launch the Telephony Manager application. This starts a Web browser session with the Telephony Manager server. You can then access the Web applications available on the server through the Telephony Manager Web Navigator.

The Path Trace feature discovers and displays the connections between resources in the network, including physical and logical paths, and also graphically identifies faults.

The Fault Summary feature displays the faults (or traps) for a single device, multiple devices, or the entire network. Based on the information provided, you can use other NMS applications to take corrective actions.

Alarm management

Alarm management consists of a number of components that improve handling of system-generated alarms and events. On Meridian 1 systems, alarm management is only available for systems running X11 Release 23 or later that are configured with the alarm management package (296).

The Meridian 1 and CS 1000 alarm management components are:

- Text Handler
- Alarm Banner dialog box
- Events Monitor window

Text Handler

For older Meridian 1 systems, you can use the Text Handler to parse maintenance terminal output and generate traps on error messages. The Text Handler is intended primarily for Meridian 1 systems running X11 Release 21 and earlier. You can also use the Text Handler to create rules to support serial devices. The Text Handler is a part of the Database Buffering and Access (DBA) application. see "Data Buffering and Access (DBA)" (page 169) for details.

Alarm Banner dialog box

You can determine system status by reviewing the history file to look for problems, and by issuing a number of status commands in various overlays to look for disabled or faulty hardware. The Alarm Banner dialog box automatically alerts you to this information.

The Alarm Banner dialog box alerts you to new critical alarms and gives you the count of all new alarms. To learn more about an alarm, you can open the Events Monitor window. If there are no alarms, you can log out or leave the Alarm Banner displayed and go on to another task.

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When a new critical alarm arrives, the system beeps if the notification option has been set, and the Alarm Banner title bar icon and Events Monitor window task bar icon flash. The flashing continues until you click anywhere in the Alarm Banner dialog box or Events Monitor window.

Opening the Alarm Banner dialog box

Use Procedure 58 "Opening the Alarm Banner dialog box" (page 251) to open the Alarm Banner dialog box.

Procedure 58
Opening the Alarm Banner dialog box

Step	Action
1	In the System window, select **Maintenance > Alarm Banner** or click on the **Alarm Banner** icon.
2	Enter your **System User ID** and **Password**.
3	Click **OK**. The Alarm Banner dialog box appears, as shown in Figure 135 "Alarm Banner dialog box" (page 251). Table 14 "Alarm Banner dialog box fields" (page 251) describes the fields in the Alarm Banner dialog box.

Figure 135
Alarm Banner dialog box

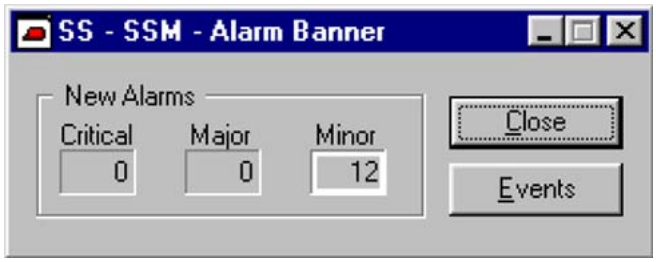

Table 14
Alarm Banner dialog box fields

Item	Description
Critical	An alarm that requires your immediate attention.
Major	An alarm that needs your attention.
Minor	An alarm that you can address anytime.
Events	Displays more information about the events that triggered the alarms.

—End—

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The Alarm Banner keeps you informed about the current status of the system. You might typically check the current status of the system for the following reasons:

- Standard operating procedure (for example, check every morning)
- Investigating a suspected or reported problem
- Checking and monitoring the system while performing other tasks

Alarm Banner notifications

The primary function of the Alarm Banner is to notify you when a new alarm arrives. It notifies you in the following ways:

- The outline of the boxes displaying the critical, major, and minor alarm counts flash to indicate the arrival of new alarms.
- The event counts in the Alarm Banner are incremented appropriately.
- One or more beeps sound. This is optional. See "Creating an Event Preference definition" (page 259).

The Events Monitor window must be active for the beep to sound. If you have closed the Alarm Banner dialog box, the sound notification is provided by the Events Monitor window. The window is not brought to the front, because this may interfere with your current task.

There is no alarm notification beep if the sound has been disabled. The count field outline still flashes and the count increments to indicate the arrival of a new alarm.

Events Monitor window

The Events Monitor window displays the Event Log of the system, allowing you to view all recent system alarms and events previously stored in the history file of the system. The Events Monitor window displays active events in a way that lets you quickly view the most important events. System events with a severity of critical, major, or minor are considered alarms—alarms are events that can require some corrective action. System events with a severity of Info are for informational purposes only and are not considered alarms.

The Event Log is preserved during and after a sysload and initialization of a system.

Using the Events Monitor window

After you open the Events Monitor window, you can do the following:

- Obtain a description of an event.

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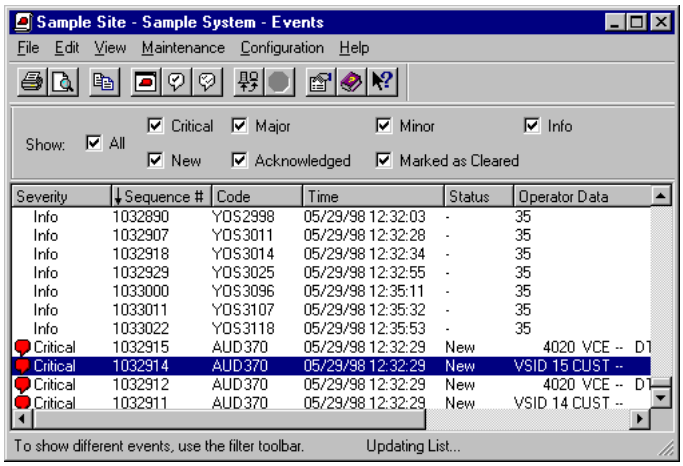
- Acknowledge an alarm you intend to clear—this communicates your intention to others who may be working on the system.
- Locate an alarm in the Event file to identify the cause of the problem.
- Learn more detail about an alarm.
- Mark an alarm as cleared in the list after you have corrected the problem.
- Change system event preferences for all subsequent alarms:
  - — Severity of the alarm
  - — Escalation threshold for an alarm type

Opening the Events Monitor window

To open the Events Monitor window, select Maintenance > Events, or click on the Events icon in the System window toolbar.

If you are not connected to a system, the connection login window appears. Once you have connected, the Events Monitor window appears, as shown in Figure 136 "Events Monitor window" (page 253).

Figure 136
Events Monitor window



An event remains displayed in the list until expired by the system. The column headings identify and describe the events.

To view detailed information about the menus, toolbar, buttons, and other functions available in the Events Monitor window, use online Help.

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Sorting the event list

Alarms and events are listed in order of occurrence. You can sort the list according to another column by clicking in that column heading. This is useful for prioritizing your work when you deal with a large number of alarms.

Click to sort in ascending order; click again for descending order. An arrow in the column heading indicates the current sort column and sort order.

Re-sizing a column in the event list

If the data does not all fit in a column, you can re-size a column by dragging the column divider. You can also select File > Properties to display complete information about a selected event.

Double-click an alarm, or click What's This to see reference information in Windows Help.

New critical alarms are indicated by an icon located to the left of the word "Critical" in the Severity column. The icon disappears when the alarm is acknowledged.

Using the shortcut menu

When you right-click on an alarm, a shortcut menu appears. Table 15 "Shortcut menu commands" (page 254) describes the shortcut menu commands.

Table 15
Shortcut menu commands

Command	Description
Copy	Copies selected events to the clipboard. You can then insert the text into another document. Copy is not available when no text is selected.
Select All	Selects all events in the list. You can print the selected text or copy it to the clipboard and insert it into another document.
Acknowledge	Changes the status of the selected alarm to Acknowledged. This informs technicians on other Telephony Manager systems that the problem is being investigated.
Mark as Cleared	Changes the status of the selected alarm to Marked as Cleared. This informs users on other Telephony Manager systems that the problem is solved.
Properties	Displays complete information about the selected event.
What's This? General help option	Changes the cursor to a "question mark" cursor and displays help on the next item you select.

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Event list

The event list provides information about each active alarm. You can re-size a column by dragging the column divider to make more room for text. Table 16 "Columns in the event list" (page 255) describes the event list columns.

Table 16
Columns in the event list

Column	Description
Severity	The alarm severity (critical, major, or minor) or a non-alarm event (info). An icon indicates an unacknowledged critical alarm.
Sequence	All events are given a unique sequence number.
Code	A code that identifies the event. It includes the error category (for example NWS) and a 5-digit error number.
Time	The date and time that the alarm occurred.
Status	Current alarm status (appears with a dash (-) for non-alarms). New—an alarm has not been acknowledged or cleared Acknowledged—an alarm in the process of being cleared Marked as Cleared—the alarm has been cleared manually
Operator Data	Data produced by the equipment that generated the event. Its contents may vary. Typically, it includes a description of the event and the equipment affected (component ID information, such as the loop number or TN).

Determining the cause of an alarm

An alarm may be caused by another system event, such as a BUG message. By examining the events immediately preceding an alarm, you may be able to isolate the source of the problem. Use the scroll bar to browse through the event list.

To display Help on a selected alarm, do one of the following:

- Right-click on an alarm and choose item "What's This?".
- Double-click the alarm.

Acknowledging an alarm that you plan to clear

You can acknowledge a new alarm to inform others that you will investigate the problem and clear the alarm. Your acknowledgment appears in the Status column of the event list. The events are updated for all Telephony Manager users.

You cannot acknowledge, or mark as cleared, events with a status of Info. You cannot acknowledge alarms that have been marked as cleared.

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Procedure 59
Acknowledging an alarm

Step	Action
1	Select the desired alarm(s) in one of the following ways: • Click to select a single alarm. • Shift+click to select a range of alarms. • Ctrl+click to select multiple alarms. • Select **Edit > Select** All to select all alarms. You can usually save time by displaying the type of alarm of interest using the Filter bar before selecting individual alarms.
2	Change the status to acknowledged in one of the following ways: • Select **Maintenance > Acknowledge**. • Right-click and select **Acknowledge an alarm** from the shortcut menu. Once you acknowledge an alarm, the Status field for all selected alarms in the Events Monitor window is marked "Acknowledged."

—End—

Marking an alarm as cleared

After you fix a problem, you typically mark the associated alarm as cleared. The term *Mark as Cleared* is used because clearing an alarm only indicates that the problem has been fixed—it does not actually fix the problem.

Procedure 60
Marking an alarm as cleared

Step	Action
1	Select the desired alarm(s) in one of the following ways: • Click to select a single alarm. • Shift+click to select a range of alarms. • Ctrl+click to select multiple alarms. • Select **Edit > Select All** to select all alarms. You can usually save time by displaying the type of alarm of interest using the Filter bar before selecting individual alarms.

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2 Change the status to mark as cleared in one of the following ways:

- Select **Maintenance > Mark as Cleared**.
- Right-click and select Mark as Cleared from the shortcut menu.

Acknowledgment and clearing of alarms is optional. You can clear alarms without first acknowledging them. If you do not clear alarms, the oldest alarms are deleted by the system when it reaches the maximum number of alarms.

—End—

Nortel recommends that you clear alarms as you fix problems so that the Events Monitor window accurately reflects the state of the system. Events with a status of Info cannot be acknowledged or marked as cleared. Alarms that have been marked as cleared cannot be acknowledged.

When you clear an alarm, the following happens:

- The Alarm Status field for all selected alarms is updated in the System Event File with "Marked as Cleared."
- The counts in the Alarm banner dialog box are adjusted appropriately for all users.

Getting details about an alarm

To learn more about selected alarms, do one of the following:

- Select File > Properties.
- On the toolbar, click Properties.
- Double-click on an alarm to see online Help information.

Changing alarm severity or escalation

To specify the severity of events (critical, major, minor, or info) on a per-system basis, select Configuration > Event Preferences.

The system uses an Event Default Table that predefines the severity of all events. Typically, you modify these settings only when you install or upgrade the system. See "Creating and customizing event preferences" (page 258).

Viewing the Event Default Table

The Event Default Table contains the default severity settings of all system events. Use the table to verify default settings before you add event preferences.

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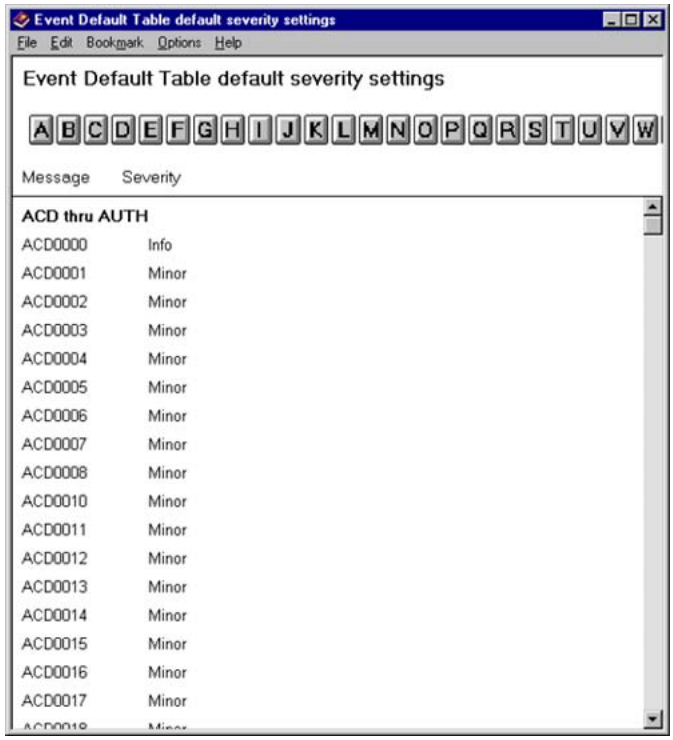
Procedure 61
Viewing the Event Default Table

Step	Action
1	Select **Configuration > Event Preferences**.
2	Select **Event Default Table** from the **Help** menu in the **Event Preferences** window. The Event Default Table window appears, as shown in Figure 137 "A portion of the Event Default Table window" (page 258).

Figure 137
A portion of the Event Default Table window



—End—

Creating and customizing event preferences

You can change alarm severities for this system by changing the default alarm severity and escalation threshold using the Event Preferences window. The escalation setting defines the maximum number of times an event can occur within a defined period of time before it escalates to the next higher level of severity. For example, if you set escalation to "10 occurrences in 1 minute" for a minor alarm, the alarm escalates to a major

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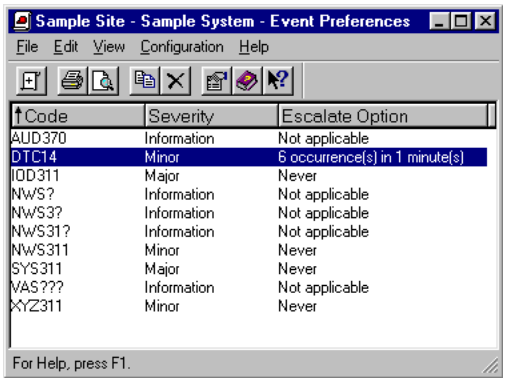
alarm when it occurs more than 10 times within a one-minute period. See "Creating an Event Preference definition" (page 259) for steps describing how to set escalation parameters.

Before changing an alarm definition, you may want to look up the default settings in the Event Default Table. See "Viewing the Event Default Table" (page 257).

To open the Event Preferences window, select Configuration > Event Preferences: The Event Preferences window appears, as shown in Figure 138 "Event Preferences window" (page 259).

Figure 138
Event Preferences window



Creating an Event Preference definition

Use Procedure 62 "Creating an Event Preference definition" (page 259) to create an Event Preference definition.

Procedure 62
Creating an Event Preference definition

Step	Action
1	Select **Configuration > Add Event Preference**. The Event Preference window appears, as shown in Figure 139 "Event Preference Properties window" (page 260).

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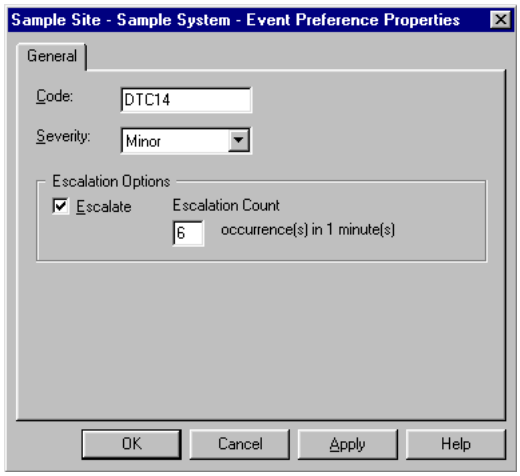
Figure 139
Event Preference Properties window



2 In the **Code** field, type the alarm or event ID.

The ID includes the event category, such as BUG, or NWS, and the 5-digit event number.

You can use the wildcard symbol (?) to represent a group of error code numbers. For example, NWS3?? represents all error codes between NWS300 and NWS399.

Use one of the following wildcard designations when representing a group of error code numbers. XXX=a selected event category, for example, BUG?,BUG??,or BUG???.

- XXX? = XXX001 through XXX009
- XXX?? = XXX010 through XXX099
- XXX??? =XXX100 through XXX999

3 To change the alarm severity, from the **Severity** list, select a severity type.

4 To change the escalation threshold, check the **Escalate** box, and type a number in the **Escalation** field.

The escalation setting defines the maximum number of times an event can occur within a defined period of time before it escalates to the next higher level of severity. This defined period of time is determined by the Global Window Timer of the system. For example, if you set escalation to "10 occurrences in 1 minute" for a minor alarm, the alarm escalates to a major alarm when it occurs more than 10 times within a one-minute period.

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The Global Window Timer is set in LD 117 and can range from 0 to 60 minutes. In this example, the Global Window Timer is set to 1 minute.

5 Click **OK**.

—End—

Configuring alarms on the system

The Events Monitor window displays the events stored in the Meridian 1 or Event Log of the system. To display the events of the system in the Telephony Manager Web-based Alarm Browser, you must enable the open alarms feature in LD 117. You may also want to suppress minor and informational alarms going to the Telephony Manager Server.

Enabling Meridian 1 system alarms with LD 117

Use Procedure 63 "Enabling Meridian 1 system alarms with LD 117" (page 261) to enable system alarms using LD 117.

Procedure 63
Enabling Meridian 1 system alarms with LD 117

Step	Action
1	In the Telephony Manager system window, on the toolbar, click the System Terminal icon. The System Terminal Selection window appears.
2	Click **Ethernet/PPP** (Overlay Passthru), and then click OK. The System Terminal window appears.
3	Log in with your administrator's user name and password.
4	Enter: `ld 117` The => prompt appears in the Command Results pane indicating that the system terminal application is ready to accept your input.
5	Enter: `prt open_alarm` A list of slots currently in use appears. Slots are numbered from 0 to 7, for a total of 8 available slots. Note the number of the next available slot.
6	Enter: `set open_alarm <n> <IP_address>`

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where n is the next available slot number, and IP_address is the IP address of your Telephony Manager Server. See "Sample LD 117 session" (page 263)for more information.

CAUTION
Service Interruption
If you assign your IP address to a slot currently in use, you disconnect the current user from the system, and prevent them from receiving alarm information.

7 Enter:
prt open_alarm

The list of slots and IP addresses receiving alarms appears. Verify that your particular slot and IP address are included.

LD 117 accepts abbreviations of the various commands. For example, you can type the abbreviation **prt op** instead of **prt open_alarm**.

8 Enter:
prt suppress
prt suppress_alarm

This shows the current alarm suppression settings.

9 Enter:
chg suppress_alarm <n>

This sets the alarm suppression, where n is 0 = All, 1 = Minor, 2 = Major, 3 = Critical. For example, to suppress all alarms except critical, enter 3.

10 Enter:
prt suppress
prt suppress_alarm

This allows you to verify the changes.

11 Enter:
prt timer

This allows you to view the Global Window Timer setting. The escalation and suppression thresholds are based on the Global Window Timer. The default value is one minute. To change the timer, enter **chg timer** <n>, where n is 0 to 60 minutes.

12 Log out and close the system terminal window.

—End—

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Sample LD 117 session

The following is a representative sample of a system terminal session using LD 117 to enable alarms. In this example, the Telephony Manager PC that will receive alarms has the IP address 47.82.40.6. Slots 0 and 1 are already in use by other PCs. Use the next available slot 2 to enter the new Telephony Manager PC IP address. Note the => prompt used by the overlay. All IP addresses are for example purposes only. Additional information about LD 117 is available in the online Help.

```
login admin1
PASS?
WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM ARE
LICENSED TO OR ARE THE PROPERTY OF NORTEL NETWORKS AND ARE
LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR APPROVED
PURPOSES. UNAUTHORIZED ACCESS TO ANY PROGRAM OR DATA ON
SYSTEM IS NOT PERMITTED. THIS SYSTEM MAY BE MONITORED AT ANY
TIME FOR OPERATIONAL REASONS. THEREFORE, IF YOU ARE NOT AN
AUTHORIZED USER, DO NOT ATTEMPT TO LOGIN.
BSD000
  .ld 117
OAM000
=> prt open_alarm
Open Alarm destination #0 is 47.82.40.237
Open Alarm destination #1 is 47.82.40.119
=> set open_alarm 2 47.82.40.6
=> prt op
Open Alarm destination #0 is 47.82.40.237
Open Alarm destination #1 is 47.82.40.119
Open Alarm destination #2 is 47.82.40.6
```

Alarm Notification application

The Alarm Notification application uses the existing Telephony Manager architecture to connect to Meridian 1 systems, CS 1000 systems, and other supported systems and equipment that can generate SNMP events, to detect specified events. For systems, the SNMP Open Alarms package (315) must be present and activated, along with the packages required for Telephony Manager.

The traps received from Call Server and Signaling Server prior to Release 4.5 have a different format than those of traps received in Release 5.0. The traps received in Release 5.0 follow the common MIB format.

The following devices adhere to the common MIB format in Release 5.0:

- Call Server (CS)
- Signaling Server (SS)
- Voice Gateway Media Card (VGMC)

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- Linux Machine running NRS and ECM
- MGC with DSP daughterboard

Telephony Manager alarm notification process

The Alarm Notification application receives SNMP events from designated network equipment over an Ethernet network and sends out alarm notifications when specified event conditions are detected. Received events are compared to a set of rules which may activate notifications of different types. These notifications include the following:

- Console
- SNMP traps or events transmitted to predefined destinations
- Text notification over a modem
- Pager notification to alpha or numeric pagers
- Electronic mail using Simple Mail Transfer Protocol (SMTP)
- Log

The log is not an alarm notification but is included because it describes system events.

SNMP events appear at the Telephony Manager PC in the Alarm Notification window. You can also view events with a Web browser connected to a configured Web server. When the application starts, three application control files are loaded: a devices file, a configuration file, and a scripts file.

These control files must be present and configured for the Alarm Notification application to work correctly. See "Configuring alarm notification" (page 267).

The devices file specifies the SNMP devices to be monitored. You must define the devices file before you can start alarm monitoring. A sample devices file, Devices.txt, is provided with Telephony Manager.

The configuration file defines the event information (SNMP traps) that may be received. The file should contain definitions for all SNMP traps that may be sent by devices specified in the devices file. Event values are mapped to variable names, which you may use in the scripts file. You must define the configuration file before you can start alarm monitoring. A sample configuration file, Config.txt, is provided in the Telephony Manager directory.

The scripts file defines how alarms are processed and which notifications are used.

Three sample control files are provided with the Telephony Manager application. The three sample files are:

- Devices.txt

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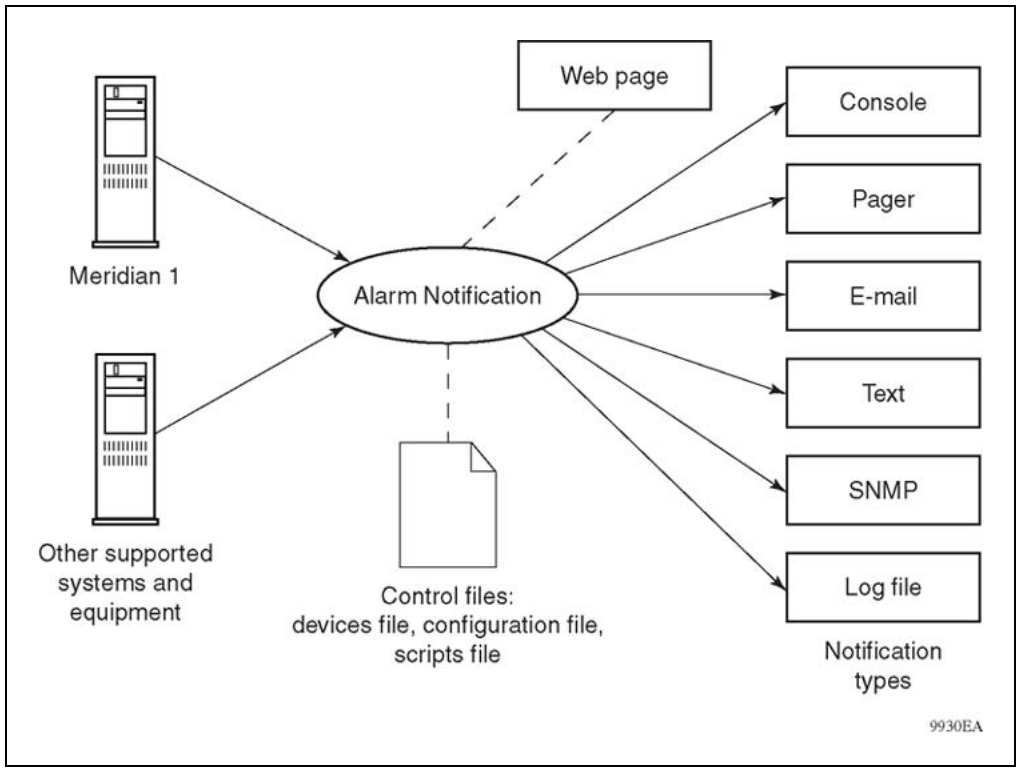
- Config.txt
- sample_an_script.txt

These sample files are located at the following location:

<TM Root>/Common Data/Alarm Notification/Control Files

Figure 140 "Overview of Alarm Notification application" (page 265) shows a functional overview of the Alarm Notification application.

Figure 140
Overview of Alarm Notification application



A scripting language is included with the application to allow you to define alarm processing and notifications. An external text editor is required to create scripts.

Use the scripting language to define the following:

- How to process events
- New responses and notifications to predefined events

Events from undefined devices are ignored.

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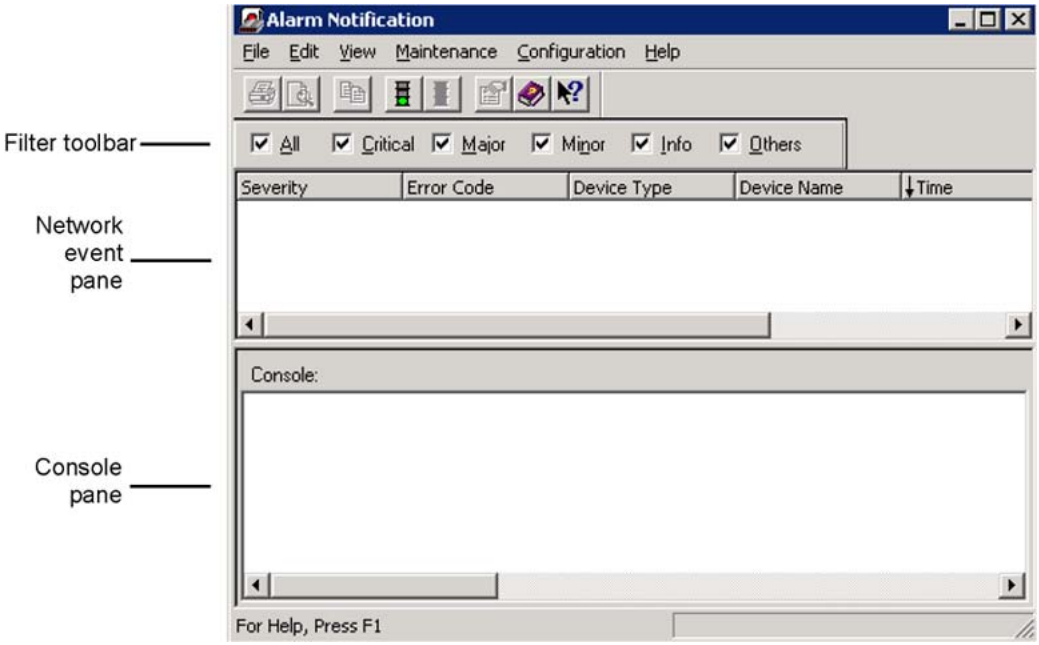
Opening the Alarm Notification window

To access the Alarm Notification window, select Utilities > Alarm Notification. The Alarm Notification window appears, as shown in Figure 141 "Alarm Notification window" (page 266).

Figure 141
Alarm Notification window



The top pane of the Alarm Notification window, the Network Events browser, displays all events received since starting the application. The bottom pane, called the console, displays notifications defined in the script sent to *con*.

To view information about the menus, toolbar, column headings, window panes, and other functions available in the Alarm Notification window, use Help.

Use the Alarm Notification window to do the following:

- Start, stop, and restart alarm processing.
- Specify the control files used by the application.
- View events as they are received from defined systems and devices.
- View script and notification output in the console as they are received.
- View received events.

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Configuring alarm notification

Before alarm notification can function correctly, you must configure control files. Control files include the devices file, the configuration file, and the scripts file.

To configure alarm notification, complete the following tasks:

Step	Action
1	Make sure you have the control files correctly installed and the Run Options defined. See "Setting up a devices file" (page 267) for more information. You can also use Help in setting up the control files.
2	Determine the IP address of your Telephony Manager PC on which you will view the events. This PC must have Alarm Notification correctly installed. The PC must be networked with the system to be monitored. See "Sample LD 117 session" (page 263) for information on determining the IP address.
3	Use LD 117 to enable alarms to be sent to your Telephony Manager PC. See "Enabling Meridian 1 system alarms with LD 117" (page 261).

—End—

Installing Alarm Notification control files

Make sure you have the control files correctly installed. Control files define which systems are monitored and which events are processed. For detailed instructions about defining Run Options, consult the online Help.

Setting up a devices file

The *devices file* contains the list of monitored systems. SNMP traps that a device sends must be defined in the configuration control file. You can add reference information to monitored systems specifying the following:

- The IP address of the system or its system name
- An alias for any system name or IP address

Within the Alarm Notification application, you can reference systems by the specified alias.

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Procedure 64
Setting up a devices file

Step	Action
1	In Windows Explorer, rename a copy of the sample Devices.txt file, located in the Telephony Manager directory: `<tmroot>\Telephony Manager\Common Data\Alarm Notification\Control Files` For example, the new file name might be *my_devices*. The new file needs to be placed in the above path. If the file resides on the network you must copy the file to the above location for the web alarm browser to function.

CAUTION
Service Interruption
Do not work directly in the sample Devices.txt file. This file is overwritten when Telephony Manager is reinstalled or upgraded and any changes will be lost.

2	In the Alarm Notification application, select **Configuration > Run Options**. The Alarm Notification Run Options window appears with the General tab displayed.
3	Click the **Control Files** tab. The Control Files tab is displayed, as shown in Figure 142 "Alarm Notification Run Options window: Control Files tab" (page 269).

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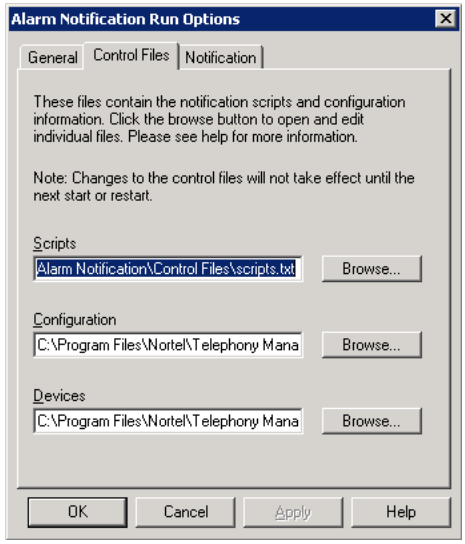
Figure 142
Alarm Notification Run Options window: Control Files tab



4 Next to the Devices field, click **Browse**.

The Open window appears.

Ensure device is added to receive alarms from CS 1000 systems.

5 Find and select the new devices file, and then click **Open**.

6 Replace the IP address with the IP address of your system.

You may also provide an alias.

7 For each additional system or non-Meridian device to be monitored, enter a device type name, an IP address, and (optionally) an alias:

- Device type represents the type of device (for example, XYZrouter). You use this name in the configuration file to identify SNMP traps.
- IP address or PC host file name. If the PC host file is used, the address is obtained from the PC host file.
- Aliases are alternate names you can define that identify each device within the Alarm Notification window.

8 Save the file as text and close the window.

Keep a backup copy of your devices file on your local drive.

—End—

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Example of device file entries listing monitored Meridian 1 systems:

```
Meridian1 147.114.45.6 nmkpy716
Meridian1 147.114.45.4
Meridian1 nmkpy711 myM1
```

Setting up a configuration file

A sample configuration file is provided. Complete the following procedure only if you want to monitor additional devices, such as routers or printers. Otherwise, you may skip this procedure.

Procedure 65
Setting up a configuration file

Step	Action

1 In the Windows Explorer, rename a copy of the sample Config.txt file, located in the Telephony Manager directory:

```
<tmroot>\Telephony Manager\Common Data\Alarm
Notification\Control Files
```

For example, the new file name might be *my_config*.

CAUTION
Service Interruption
Do not work directly in the sample Config.txt file. This file is overwritten when Telephony Manager is reinstalled or upgraded, and any changes will be lost.

2 In the Alarm Notification application, select **Configuration > Run Options**.

The Alarm Notification Run Options window appears with the General tab displayed.

3 Click the Control Files tab.

The Control Files tab appears, as shown in Figure 142 "Alarm Notification Run Options window: Control Files tab" (page 269).

4 Next to the Configuration field, click Browse.

The Open window appears.

5 Find and select the new configuration file, and then click **Open**.

6 To add a new SNMP trap, type the word **`device`** followed by the device name (as defined in the devices file), followed by the major and minor trap types associated with the device (see the device manual), or the appropriate SNMP MIB.

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7 Below the device name, enter the following information for each event to be monitored on the device:

- Object identifier associated with the event (see the device manual to find this information).
- Variable type (only "integer" and "string" are supported).
- Variable name (you use the variable name to see this event in notification scripts).
- Event name (in quotations). This name identifies the event in the Alarm Notification window.

You can use the standard system event definitions (variable type, variable name, and event name) to define similar variables for non-Meridian devices. The standard Meridian event names map the event values to corresponding fields within the Alarm Notification window and Event Properties sheet. If non-standard definitions are used, event information appears in the Additional Information field.

8 Repeat steps 6 and 7 for each non-Meridian 1 or CS 1000 device to be monitored.

9 Save the file as text and close the window.

—End—

The lines of code below is from the standard configuration file to process Meridian 1 and CS 1000 system events. Modify this file to add other systems to be managed. Users should be familiar with scripting logic and programming principles to effectively use and extend the capabilities of this application.

```
device Meridian1 6.10 {
    1.3.6.1.4.1.562.3.3.7.1.0integer $CurrentAlarmSeqNum
    1.3.6.1.4.1.562.3.3.7.2.0 string $CurrentAlarmTime
    1.3.6.1.4.1.562.3.3.7.3.0integer $CurrentAlarmSeverity "Severity"
    1.3.6.1.4.1.562.3.3.7.4.0 string $CurrentAlarmErrorCode "Error Code"
    1.3.6.1.4.1.562.3.3.7.5.0 string $CurrentAlarmComponentId
    1.3.6.1.4.1.562.3.3.7.6.0 string $CurrentAlarmComponentAddress
    1.3.6.1.4.1.562.3.3.7.7.0 string $CurrentAlarmDescriptiveText "Text"
    1.3.6.1.4.1.562.3.3.7.8.0 string $CurrentAlarmOperatorData
OperatorData"
    1.3.6.1.4.1.562.3.3.7.9.0 string $CurrentAlarmExpertData
"Expert Data"
    1.3.6.1.4.1.562.3.3.7.10.0string $CurrentAlarmCounts
```


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Contained in the configuration file is a set of SNMP trap definitions, each followed by a list of the monitored devices of that type. Each trap definition begins with the word device, followed by the device name, and followed by a list of variables for the defined trap. For the example above, the designated name is Meridian 1, and the trap number is 10.

The next lines contain SNMP object identifiers, followed by a variable type, and followed by a variable name and an optional printable name in quotes. The variable name may be referenced in the scripting language and the printable name appears in the Network Event browser pane in the Alarm Notification window.

Only integer and string values are supported in the device definition entries.

Setting up a scripts file

The scripts file defines alarm processing and notification. A sample scripts file is provided, which you can modify. See Appendix "Script file summary" (page 651), for more information about the contents of the scripts file.

Procedure 66
Setting up a scripts file

Step	Action
1	In Windows Explorer, rename a copy of the sample Scripts.txt file, located in the Telephony Manager directory: `<tmroot>\Telephony Manager\Common Data\Alarm Notification\Control Files` For example, the new file name might be *my_scripts*.

CAUTION
Service Interruption
Do not work directly in the sample Scripts.txt file. This file is overwritten when Telephony Manager is reinstalled or upgraded, and any changes will be lost.

2	In the Alarm Notification application, select **Configuration > Run Options**. The Alarm Notification Run Options window appears with the General tab displayed.
3	Click **Control Files** tab. The Control Files tab appears, as shown in Figure 142 "Alarm Notification Run Options window: Control Files tab" (page 269).

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4 Next to the Scripts field, click **Browse**.

The Open window appears.

5 Find and select the new scripts file, and click **Open**.

6 Use the sample script as a guide to create your own notification script file.

For an example of scripts files, see "Script examples" (page 303), and Appendix "Script file summary" (page 651).

7 Save the file as text and close the window.

—End—

A script includes variables, rules, notifications, functions and logical expressions that evaluate and may apply to event data. See "Scripting" (page 275). Values defined within a script are exclusive and visible only to that script. The script container is delimited by braces {}. You can define global values that are visible to all scripts.

When the Alarm Notification application starts, each script is executed in the order defined in the script file.

Setting up auto-start for scripts

Once the control files are defined, use the following procedure to automatically load the scripts when you start the Alarm Notification application:

Procedure 67
Setting up auto-start for scripts

Step	Action
1	In the Alarm Notification application, select **Configuration > Run Options**. The Alarm Notification Run Options window appears with the General tab displayed.
2	Click **Auto-start scripts on program launch** box. The scripts are automatically loaded each time that you start the application.

—End—

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Events processing

Events received appear in the network event pane. As each event is received, it is placed in a queue for processing by the application. Each event is checked to see if it originates from a defined system or supported equipment. Events received from undefined systems devices are ignored and discarded from the queue.

The application executes every applicable script for each specific event type. If a rule is matched to an event type, the output appears in the Alarm Notification window console pane or is sent as one of the other available notification types (for example, e-mail or pager), according to the script. Output to the console pane occurs immediately, but notifications are written to disk.

The notification process periodically polls the notifications and sends them to the specific device or function for this notification type. If directed by the script, results of the notification appear in the console pane. If a failure occurs due to power interruption or software or hardware error, the unprocessed notifications are completed on restart.

Viewing event properties

The Alarm Notification application receives events from many different systems and devices. Each event source may have different characteristics requiring you to enter different information to fully define an event source. You can identify the event source in the Event Properties window.

Procedure 68
Viewing event properties

Step	Action
1	In the Network Event panel, select an event.
2	Click **Properties**. The Event Properties window appears, as shown in Figure 143 "Event Properties window" (page 275).

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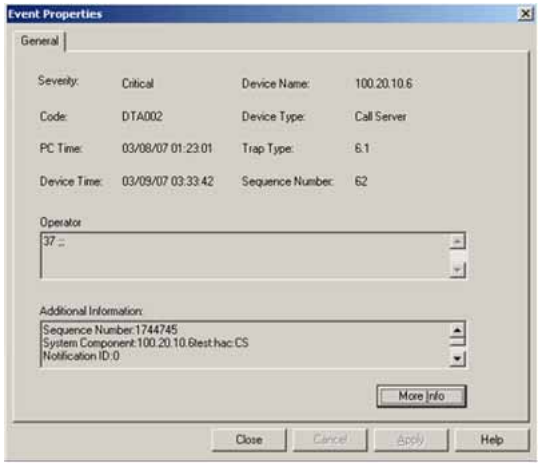
Figure 143
Event Properties window



—End—

For information on the fields in the Event Properties window, see online Help.

The Event Properties window is optimized for system events.

The Alarm Notification application processes events you have defined in the configuration file from specific systems or devices you have defined in the devices file. Events from undefined systems or devices are ignored.

Scripting

Scripting is the process of using the syntax of the programming language in the Alarm Notification application to create text files specifying that certain actions be taken for defined events. A script includes one or more logical expressions that evaluate event data and provide notification instructions. The script file may contain many scripts. When the Alarm Notification application starts, all scripts are run against each new event as it is received.

Scripts are run in the order defined in the script file. To cause a script to be skipped when it is not applicable, use the *when* operator. You must be familiar with scripting logic and programming principles to effectively use and extend the capabilities of this application.

Scripting syntax includes the following:

- Data types
- Referencing variable names from *Config.txt*
- Scripts

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- Operators
- Conditional expressions
- Notifications
- Rules
- Comments
- Functions

The syntax is described in the following sections. Consult the online Help for specific examples of scripting syntax.

The indentations in the examples presented in this section facilitate reading the script and do not affect how the script is interpreted by the application.

ATTENTION

Because support for the device name and namespace "SUCCESSION" was removed in Telephony Manager 2.2, perform a global search on all your customized scripts and configuration for Alarm Management and rename all occurrences of "SUCCESSION" to "CALL_SERVER". If you use a third-party alarm management application, the Succession namespace "nsSuccession" is obsolete and is no longer used by Telephony Manager. Here are some sample script file changes:

- Devices file: Change SUCCESSION 47.99.99.99 to CALL_SERVER 47.99.99.99
- Scripts file: Change $CurrentTrapDevice = "SUCCESSION" to $CurrentTrapDevice = "CALL_SERVER"

Data types

The scripting language supports three data types: counter, timer, and string. Variables of these types may have names of any length, but must begin with a letter. Variable names are case-sensitive.

Counter

Counters contain signed integer values. You can assign values to counters when you define them, and you can include multiple variables of the same data type in the same statement. Counters can be global to a script or local to a function.

Syntax:

```
counter variable_name:=0;
```

Example:

```
counter n;
```


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```
n:=n+1;
if(n=5)
{
.../*Send notification*/
}
```

Timer

Timers are counters that increment automatically when the time changes. Default timers increment once every minute. You may define specific update intervals other than the default increment. Timers cannot be defined in a function; they must be used globally in a script.

Syntax:

```
timer variable_name[:interval];
```

An example of the options to set the interval is as follows:

```
timer mytimer; // mytimer will increment once every
minute
timer tFiveSec:5s; // tFiveSec will increment every 5
seconds
timer tTwoMin:1m; // tTwoMin will increment every 2
minutes
```

Example:

```
script SampleScript {
/*Notification Counters definition*/
  counter count_ns_Meridian1:=0;
/*Notification Timer definition*/
  timer time_Meridian1;
.........

if(time_Meridian1>3) /*that is, after 3 minutes*/
 {
  .../*Send notification*/
 }
}
```

String

Strings contain arbitrary alphanumeric data. A default string contains up to 80 characters. If more data is placed in a string than the string definition allows, the application truncates the entry.

Syntax:

```
string variable_name;
```

Example:

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```
string severity;
if(severity="critical")
{
.../*Send notification*/
}
```

Longer or shorter strings may be explicitly specified and initialized as follows:

```
string more_stuff[255]:="Alarm Notification";
```

Referencing variable names from *Config.txt*

Alarm Notification processes events of a specified type from specified devices. These events are SNMP traps. Values contained in SNMP traps are mapped to variables that are referenced in Alarm Notification scripts. All relevant variables are updated with each incoming event.

Table 17 "Variables included in all incoming events" (page 278) lists the four variables that are defined for all incoming events.

Table 17
Variables included in all incoming events

Name	Type	Contents
`$CurrentTrapSource`	string	Name or IP address of the event source
`$CurrentTrapDevice`	string	Name of the device as defined in the configuration file
`$CurrentTrapMajor`	string	Major trap type
`$CurrentTrapMinor`	string	Minor trap type

The configuration file *Config.txt* contains a device definition for each type of device that is monitored by Telephony Manager. The *Devices.txt* file contains a list of monitored devices. All events from undefined devices are ignored. See "Defining devices in Devices.txt" (page 280).

The following example shows the standard configuration information required to process events from Meridian 1 systems as contained in the *Config.txt* file:

Example:

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```
device Meridian1 6.10 {
   1.3.6.1.4.1.562.3.3.7.1.0  integer $AlarmSeqNum        "Alarm Seq Num"
   1.3.6.1.4.1.562.3.3.7.2.0  string  $DeviceTime         "Device Time"
   1.3.6.1.4.1.562.3.3.7.3.0  integer $Severity           "Severity"
   1.3.6.1.4.1.562.3.3.7.4.0  string  $ErrorCode          "Error Code"
   1.3.6.1.4.1.562.3.3.7.5.0  string  $SystemComponent
"System Component"
   1.3.6.1.4.1.562.3.3.7.6.0  string  $ComponentAddress
"Component Address"
   1.3.6.1.4.1.562.3.3.7.7.0  string  $Text               "Text"
   1.3.6.1.4.1.562.3.3.7.8.0  string  $OperatorData       "Operator Data"
   1.3.6.1.4.1.562.3.3.7.9.0  string  $ExpertData         "Expert Data"
   1.3.6.1.4.1.562.3.3.7.10.0 string  $CurrentAlarmCounts
```

Each device definition begins with the word device followed by the device name and a list of SNMP traps allowed from the device. The first column in the list of SNMP traps contains SNMP object identifiers. The second column gives the variable type; only integer and string type variables are permitted. The third column lists the variable name, and the fourth column provides the optional printable name of the variable. The printable name appears in quotes. The variable name is referenced in the scripting language while the printable name appears in the Alarm Notification window and Alarm browser.

With Release 5.0, one common device name COMMON_MIB_DEVICE is used for all the elements (Call Server, Signaling Server, NRS, VGMC and MGC) which send traps in common MIB format. For the elements with release prior to 5.0, the old device names such as CALL_SERVER and SIGNALING_SERVER, for example, are still applicable.

The following example shows the standard configuration information for Release 5.0 required to process events from Meridian 1 systems as contained in the *Config.txt* file:

```
#Common MIB trap format
device COMMON_MIB_DEVICE 6.1 6.2 6.3 6.4 6.5 6.6 6.7 {
   1.3.6.1.4.1.562.3.10.10.2.1.0 integer  $commonMIBSeqNumber
"Sequence Number"
  1.3.6.1.4.1.562.3.10.10.2.2.0 string    $commonMIBDateAndTime
"Device Time"
 1.3.6.1.4.1.562.3.10.10.2.3.0 integer  $commonMIBSeverity
"Severity"
   1.3.6.1.4.1.562.3.10.10.2.4.0 string  $commonMIBComponentID
"Component ID"
   1.3.6.1.4.1.562.3.10.10.2.5.0 integer  $commonMIBNotificationID
"Notification ID"
  1.3.6.1.4.1.562.3.10.10.2.6.0 string    $commonMIBSourceIPAddress
"Source IP"
```


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```
   1.3.6.1.4.1.562.3.10.10.2.7.0 string    $commonMIBErrCode
"Error Code"
  1.3.6.1.4.1.562.3.10.10.2.8.0 integer  $commonMIBAlarmType
"Alarm Type"
  1.3.6.1.4.1.562.3.10.10.2.9.0 integer  $commonMIBProbableCause
"Probable Cause"
   1.3.6.1.4.1.562.3.10.10.2.10.0 string  $commonMIBAlarmData
"Operator Data"
}
```

In the following example, the variables `$ErrorCode, $DeviceTime, $Text,` and `$OperatorData` are referenced from the *Config.txt* file. `$CurrentTrapSource` is a variable that is defined for all events (See Table 17 "Variables included in all incoming events" (page 278)).

Con is a predefined variable or reserved name that you use to write to the console window. For further reference, see "Attendant Console scenario" (page 376).

Example:

```
send(con,
   "--> Critical Meridian1 alarm received!",
   $ErrorCode,"-", //M1 error code
   $CurrentTrapSource,"-", //Name of this M1
   $DeviceTime,"-", //Timestamp from M1
   $Text,"-", //Text with error message
   $OperatorData //More text with error message
);
```

You may add definitions to the *Config.txt* file for non-Nortel devices; however, you should not attempt to modify the definitions associated with the Nortel devices provided in this file.

Defining devices in *Devices.txt*

The *Devices.txt* file contains a list of the devices to be monitored. For each device, list the device type as it appears in the *Config.txt* file, followed by one of the IP address of the system or host name of the device. You may also include an alias for the device. If an alias is defined for the device, the device is referenced using only the specified alias in the Alarm Notification application.

Examples:

```
Meridian1 147.114.45.6 nmkpy716
Meridian1 147.114.45.4
```


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COMMON_MIB_DEVICE refers to any device sending traps in common MIB format in Release 5.0 and onwards. The device can be Call Server, Signaling Server, Voice Gateway Media Card (VGMC), Network Routing Server (NRS), Media Gateway Controller (MGC), and Media card. During a system upgrade from Release 4.5 and prior to Release 5.0 and onwards CALL_SERVER, Meridian1 and SIGNALING_SERVER should be replaced with COMMON_MIB_DEVICE. For the devices with release prior to 5.0 the old names such as CALL_SERVER and SIGNALING_SERVER should be used.

For Release 5.0, the device.txt file is updated with the IP address of the device sending trap in common MIB format, as shown by the following example:

```
SIGNALLING_SERVER  47.32.164.90
  MEDIA_CARD   47.147.74.41
  CALL_SERVER   47.147.74.51
 #Call Server IP address
  COMMON_MIB_DEVICE 47.147.74.61
```

Scripts

A script is a container for variables, rules, notifications, and functions. Anything defined in a script is only visible in that script. Rules may only be defined within a script, they may not be defined globally. Variables, notifications, and functions may be defined inside or outside of scripts. These definitions outside of scripts are known as global definitions. Global definitions are available to be used in all scripts. If a definition with the same name as a global definition exists within a script, the script definition takes precedence over the global definition for the given script.

Scripts are defined as shown in the example.

Example

```
script example1 {
}
```

At run time, each script is executed in the order in which it is defined. To skip non-applicable scripts, use the *when* operator. In the following example, the code declared in `example2` only executes if the incoming event is from a device that is defined as being a Meridian 1.

Example

```
script example2 when
($CurrentTrapDevice="Meridian1"){
}
```


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For Release 5.0, the scripts are modified to include COMMON_MIB_DEVICE. It should be noted that for the traps received from the devices for Release 4.5 and prior, the alarm notification window displays the device type as whatever is mentioned in config.txt and device.txt files. This existing functionality continues for Release 4.5 and prior release devices. In Release 5.0, the config.txt and device.txt file specifies the device type as COMMON_MIB_DEVICE irrespective of the actual device type, but the alarm notification window displays the actual device type received through 'CommonMIBComponentID' variable binding.

This variable binding contains colon (:) separated string uniquely representing the system component that sends the trap. Format of the string is as follows:

```
systemName:  siteName:  componentName
```

`SystemName` and `sitename` denote the name of the system and the site from where the trap is generated. `ComponentName` denotes the original source of the trap. One of the following values is received for component name.

System element	Component Name
Call Server	CS
Signaling Server	SS
Voice Gateway Media Card	VGMC
SIP NRS Linux	NRS
EM (when deployed on ECM)	MGMT
Media Gateway Controller	MGC

If the component name is CS or SS, the alarm notification window displays the device type as **Call Server** and **Signaling Server** respectively. If the component name is other than CS or SS the value as received in the component name is displayed under device type.

The `siteName` and `systemName` are not shown under device type in the alarm notification main window. These values are shown under additional information provided in event properties dialog as shown in Figure 144 "Alarms received in windows alarm notification" (page 283). `SiteName` and `systemName` received through CommonMIBComponentID variable binding are not shown in the alarm notification main window as this may lead to confusion with Telephony Manager site name and system name which may differ from the names received through variable binding.

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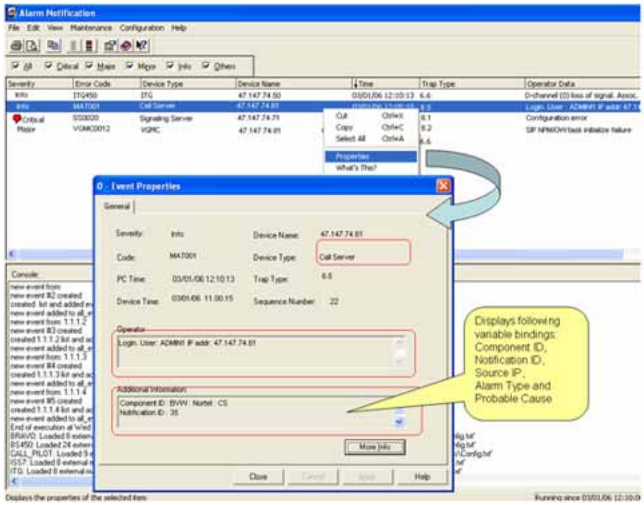
Figure 144
Alarms received in windows alarm notification



Operators

Scripts usually contain a logical expression for testing event data. Logical expressions support operators that you can use in any combination. Use parentheses to clarify the order of operations.

Table 18 "Operators" (page 283) shows the operators supported by the Alarm Notification application.

Table 18
Operators

Operator	Description
+, -, *, /	Addition, subtraction, multiplication, division
<, <=	Less than, less than or equal to
>, >=	Greater than, greater than or equal to
=, !=	Equal to, not equal to
<>	Contains (look for substrings)
and, or	Logical and, logical or (case sensitive)
:=	Assigns a value to a variable. The data types must agree or a compiler error results when the script is executed. If a value is assigned to a string value, the string must be declared large enough to contain the new value.

The logical operators *and* and *or* are case-sensitive.

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Example:

```
counter n;
if(
  (($CurrentTrapSource="164.164.8.99") or
   ($CurrentTrapSource="164.164.8.98"))
and (($CurrentTrapDevice="Meridian1") and
   ($NormalizedSeverity=Critical))
){
n:=n+1;
if(n=3)
}
   {
.../*Send notification*/
    }
```

For additional examples of how these operators are used, see "Script examples" (page 303), and Appendix "Script file summary" (page 651).

Conditional expressions

This section describes the conditional expressions that are available for use in Alarm Notification scripts.

if/else

The *if* and *else* expressions can be used with both arithmetic and logical operators.

Syntax:

```
.
if (condition A){
...
}
else
{
...
}
.
```

Example:

```
if($CurrentTrapDevice="Meridian1" or
$CurrentTrapDevice="CALL_SERVER"){
   convertit(); //Any function
}
.
counter count_ns_samplesnmp_MMAIL := 0;
.
count_ns_samplesnmp_MMAIL :=
   count_ns_samplesnmp_MMAIL+1;
if(count_ns_samplesnmp_MMAIL = 4)
{
```


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```
...
}
else
{
...
count_ns_samplesnmp_MMAIL :=
    count_ns_samplesnmp_MMAIL+1;
}
```

The following is an example using conditional expressions that is not allowed:

```
if (condition A){
...
}
else if (condition B){
...
}
else {
...
}
```

Instead, use the following:

```
if (condition A){
...
}
else {
  if (condition B){
  ...
  }
  else {
   ...
 }
}
```

do while loop

The *do while* loop can be used only inside a function.

Syntax:

```
do{
...
} while (Condition);
```

Example:

```
.
counter c;
do{
 send(con,
     "--> Critical Meridian1 alarm received! ",
     $ErrorCode," - ",//M1 error code
      $CurrentPCTime," - ",//Time that PC received alarm
```


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```
      $CurrentTrapSource," - ",//Name of this M1
      $DeviceTime," - ",//Timestamp from M1
      $Text," - ",//Text with error message
      $OperatorData//More text with error message
  );
  c:=c+1
} while (c<3);//Send any notification (in this case
to console) three times
.
```

for

The *for* loop can be used only inside a function.

Syntax:

```
for(count:-0;count<n;count:-count+1){
...
}
```

Example:

```
.
counter c:=0;
for(c:=0; c<2; c:=c+1){
   send(OtmOpenAlarm1,
   "1.3.6.1.4.1.562.50.1.2.1.0",  "Integer",
$AlarmSeqNum,          // Alarm's Seq Number
   "1.3.6.1.4.1.562.50.1.2.2.0",  "OctetString",
$DeviceTime,           // Date and Time
   "1.3.6.1.4.1.562.50.1.2.3.0",  "Integer",
$NormalizedSeverity,  // Severity
   "1.3.6.1.4.1.562.50.1.2.4.0", "Integer",
$NameSpace,            // Name Space
   "1.3.6.1.4.1.562.50.1.2.5.0",  "OctetString",
$ErrorCode,            // Error Code
  "1.3.6.1.4.1.562.50.1.2.6.0", "OctetString", $Site,
// Site
  "1.3.6.1.4.1.562.50.1.2.7.0",  "OctetString",
$ComponentAddress,               // System
   "1.3.6.1.4.1.562.50.1.2.8.0",  "OctetString",
$SystemComponent,      // System Component
   "1.3.6.1.4.1.562.50.1.2.9.0",  "OctetString",
$CurrentTrapSource,    // Originating Agent
   "1.3.6.1.4.1.562.50.1.2.10.0",  "Integer", $TrapType,
// Trap Type
   "1.3.6.1.4.1.562.50.1.2.11.0",  "OctetString",
$AssocUser,    // Associated User
   "1.3.6.1.4.1.562.50.1.2.12.0", "OctetString",
$OperatorData,         // Problem Isolation Data1
   "1.3.6.1.4.1.562.50.1.2.13.0", "OctetString",
$ExpertData,           // Problem Isolation Data2
   "1.3.6.1.4.1.562.50.1.2.14.0", "OctetString", $Text
```


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```
// Problem Isolation Data3
 );
} //Send any notification (in this case a trap) twice
.
```

when

Use the *when* construct to execute a script only when a particular condition is satisfied. In other words, use *when* to skip a script when it is not applicable.

Syntax:

```
script convert when (condition){
    function convertit(){
        ...
    }
    rule conversion {
        ...
    }
    ...
}
```

Example:

```
     script convertM1Severities when
($CurrentTrapDevice="Meridian1" or
$CurrentTrapDevice="CALL_SERVER"){
     function convertit(){
      if ($Severity=1){
       $NormalizedSeverity:=Minor;
      }
     else{
       if ($Severity=2){
        $NormalizedSeverity:=Major;
        }
       else {
        if ($Severity=3){
         $NormalizedSeverity:=Critical;
        }
        else{
          if ($Severity=4){
           $NormalizedSeverity:=Unknown;
         }
         else {
           if ($Severity=5){
            $NormalizedSeverity:=Warning;
           }
          else{
            if ($Severity=6){
             $NormalizedSeverity:=Cleared;
            }
           else{
             if ($Severity=7){
```


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```
                $NormalizedSeverity:=Undetermined;
               }
              else{
                 $NormalizedSeverity:=Info;
              }
             }
            }
           }
          }
         }
        }
      rule severity_conversion {
       if ($CurrentTrapDevice="Meridian1" or
$CurrentTrapDevice="CALL_SERVER"){
          convertit();
       }
      }
}
```

Notifications

Notifications define the message text and the means by which it is conveyed. The Alarm Notification application supports the notification types shown in Table 19 "Notification types" (page 288).

Table 19
Notification types

Name	Definition
console	Sends output to the console pane in the Alarm Notification window. This type of notification is the simplest and contains no fields.
npager, apager	Sends messages to numeric (npager) or alphanumeric (apager) pagers.
email	Sends an e-mail message to a remote system using Simple Mail Transfer Protocol (SMTP). For e-mail to work correctly, an SMTP-capable host must be accessible to the Telephony Manager PC.
modem (text)	Sends message text from the Telephony Manager PC to a remote system, such as an alarm collection management workstation through an attached modem. To use this feature, a modem and a phone line must be connected, supported, and available. If the destination is busy, the Alarm Notification application retries later or sends the message to an alternate destination. Use the Alarm Notification Run Options window to define additional actions.
snmp	Sends SNMP traps to a remote system.
file	Saves the output to disk as a text file.

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Notification types All notification types except console accept the fields days and times. The days field may contain a quoted list of valid days, such as "Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday", or a range of valid days, such as "Sunday-Saturday". You can specify different destinations depending on the current day, date, time, or alarm notification type.

Use the send syntax to direct Alarm Notification to deliver six types of notifications:

- Console
- Pager
- E-mail
- Text (over modem)
- SNMP
- Log file

Console

The console notification type displays a notification in the console pane in the Alarm Notification window. No parameters are required. A default console notification con is provided.

Example:

```
// No definition necessary
.
// Send a console notification
if($CurrentTrapDevice="Meridian1" and
$NormalizedSeverity=Critical){
   //Print event to console
send(con,
  "--> Critical Meridian1 alarm received!",
  $ErrorCode," - ",// M1 error code
  $CurrentPCTime," - ",// Time PC received the alarm
  $CurrentTrapSource," - " ,// Name of this M1
  $DeviceTime," - " ,// Timestamp from M1
   $Text," - ", // Text with error message
   $OperatorData // More text with error message
    );
}
```

This script displays the text "--> Critical Meridian1 alarm received!" followed by the values for the listed traps, which includes the error code, the Current PC Time, the Name of the M1, the time when the alarm occurred, the text associated with the error code, and the Operator data.

Note the use of con with the send syntax in the script.

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Pager

Alarm Notification supports both alphanumeric and numeric pagers. You define the list of paging destinations and supported functionality for each pager. Be sure you have a modem and a valid phone line connection. Messages must match the pager type: up to 30 characters for alphanumeric pagers, and only digits for numeric pagers.

Mandatory parameters are:

- `phone:="408-555-1212";`

  phone number you dial to connect to your pager service

- `pin:="123456";`

  the PIN of the alphanumeric pager, for the type *apager* only

Examples: The first example shows a script defined to call an alphanumeric pager named "my_pager" only on Monday and Thursday through Saturday, from 9:00 a.m. to 5:00 p.m. The PIN and the pager service number are specified. Note that the number needed to access an external phone line (9) is included.

```
/* Alphanumeric pager notification definition */
notification apager my_pager
{
   days:="monday,thursday-saturday";
   times:="9am-5pm";
   pin:="123456";
   phone:="9,408-555-1212"; // Note: No space after comma
}
.
// Send an alphanumeric pager notification
send(my_pager,
  $CurrentTrapSource,":",severity_level," ",$CurrentTrapMajor,".
",$CurrentTrapMinor);
```

The second example shows a script defined to call a numeric pager named "numeric_pager" only on Tuesdays and Wednesdays from 9:00 a.m. to 5:00 p.m. In this example, a PIN is not required.

```
/* Numeric pager notification definition */
notification npager numeric_pager
{
days:="tuesday-wednesday";
times:="9am-5pm";
phone:="9,555-555-5555"; // Note:  No space after comma
}
.
//Send a numeric pager notification
send(numeric_pager,"5554321"); /* 2nd parameter is the
telephone number that the person who is paged should call */
```


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E-mail

You can write a message that the application sends to a specified list of recipients. The application uses Simple Mail Transfer Protocol (SMTP) to send the message. To make this notification type work correctly, you must have an SMTP-capable host connected and accessible to the Telephony Manager PC. You must configure the host in Telephony Manager before activating this feature.

Each *send* statement is treated as a separate e-mail message.

E-mail messages coming from Alarm Notification are sent with "Telephony Manager" as the sender. The receiving e-mail program may try to match Telephony Manager with a corresponding local user account and display the closest match in the header of the e-mail. Although the header information may not be accurate due to mismatches between the term "Telephony Manager" and the local user account information, the e-mail message still appears as defined by the notification.

Mandatory parameters are:

- `from:="TM@domain";`

  The valid e-mail address of the sender.

- `address:="support@tech.com";`

  The recipient's valid e-mail address.

- `server:="192.9.200.1";`

  IP address or host name of SMTP mail server.

Example:

```
// define an e-mail notification
notification email my_email {
from:="TM@acme.com";
address:="joe@acme.com";
server:="192.9.200.1";
}
.
// send an e-mail message
send (my_email,
  $DeviceTime,":Device ",$CurrentTrapSource,
  " generated a ",$CurrentTrapMajor,".",$CurretTrapMinor,
  " trap with severity level: ",severity_level,",
  ErrorCode:",$ErrorCode,".");
```

The preceding example defines an e-mail notification named "my_email," which has an associated recipient address and the mail server IP address. This script sends e-mail to the address stating the source of the alarm and the alarm error code. Note the use of the named e-mail notification "my_email" with the send syntax in the script.

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The following sample script adds multiple e-mail notifications.

Example

```
/* Email/SMS notification definition */
notification email ne_abc {
        from:=”Nortel_TM@nortel.com”;
        address:="abc@nortel.com";
        server:="192.9.200.1";
}
notification email ne_efg {
        from:="Nortel_TM@nortel.com";
        address:="efg@nortel.com";
        server:="192.9.200.1";
}
notification email ne_xyz {
        from:="Nortel_TM@nortel.com";
        address:="xyz@nortel.com";
        server:="192.9.200.1";
}
script SampleEMail {
        function forward_email() {
                if ($CurrentTrapDevice = "Meridian1") {
                        // send an email message
                        send(ne_abc,
                            $DeviceTime,":  Device:
",$CurrentTrapSource,
                                " generated a:  ",$CurrentTrap
Major,".",$CurrentTrapMinor,
                                " trap with critical severity
"," ErrorCode:  ",
                                $ErrorCode,
                                ", OperatorData:  ",$Operato
rData, ".");
                        send(ne_efg,
                            $DeviceTime,":  Device:
",$CurrentTrapSource,
                                " generated a:  ",$CurrentTrap
Major,".",$CurrentTrapMinor,
                                " trap with critical severity
"," ErrorCode:  ",
                                $ErrorCode,
                                ", OperatorData:  ",$Operato
rData, ".");
                        send(ne_xyz,
                            $DeviceTime,":  Device:
",$CurrentTrapSource,
                                " generated a:  ",$CurrentTrap
Major,".",$CurrentTrapMinor,
                                " trap with critical severity
"," ErrorCode:  ",
                                $ErrorCode,
```


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```
                                        ", OperatorData:  ",$Operato
rData, ".");
                        }
                }
                rule forward_email_critical {
                        if ($NormalizedSeverity = Critical) {
                                forward_email();
                        }
                }
                }
```

Text (over modem)

The text notification type allows you to write a message that the application sends to a remote modem. The application connects to the remote modem, usually a remote support site that you have defined, and transmits the message. Be sure that you have a modem and a valid phone line connection.

If the remote modem is busy, the application stores the message and marks it for a later delivery, or sends the message to a specified alternate destination.

The only mandatory parameter is:

- `phone:="408-555-4321";`

  The phone number you dial to connect to the remote modem.

Example: This example defines a modem notification named "tech_center," which has an associated number to dial to connect to the remote modem. This script sends text to the dialed remote modem stating the source of the alarm and the alarm error code. Note the use of the named modem notification tech_center with the send syntax in the script.

```
//define text over modem notification
notification modem tech_center   {
phone:="9,555-4321";
  }
.
//send text over modem notification
send(tech_center,$CurrentTrapSource,"-MPK alarm:",
$CurrentAlarmErrorCode);
```

SNMP

You can request that the Telephony Manager PC generate Simple Network Management Protocol (SNMP) traps. You define SNMP Object Identifiers (OID) as parameters in the send syntax. Specify a list of TCP/IP addresses or registered host names on the Ethernet network to receive the trap;

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however, receipt is not guaranteed once messages are transmitted. You must be knowledgeable about SNMP to effectively utilize this notification type.

Mandatory parameters are:

- `address:="192.9.200.1";`

  IP address or hostname of the destination for the trap.

- `trap:="6.1";`

  Trap type in Major type.Trap number format.

This is usually done to forward traps to Higher-level Network Management Systems such as NMS and HP OpenView.

For NMS, the Major type.Trap number format also indicates the severity level, as shown in Table 20 "NMS severity levels" (page 294).

Table 20
NMS severity levels

Major type.Trap number	Severity level
6.1	Critical
6.2	Major
6.3	Minor
6.4	Warning
6.5	Info
6.6	Clear

Example: In this example, control_center is defined as an SNMP notification.

```
// define an SNMP notification
notification snmp control_center {
 address:="192.9.200.1";
 trap:="6.1";
}
.
// send an SNMP notification to the control center with
// the same trap format as the M1
send(control_center,
   "1.3.6.1.4.1.562.50.1.2.1.0",  "Integer",
$AlarmSeqNum,          // Alarm's Seq Number
   "1.3.6.1.4.1.562.50.1.2.2.0",  "OctetString",
$DeviceTime,           // Date and Time
   "1.3.6.1.4.1.562.50.1.2.3.0",  "Integer",
$NormalizedSeverity,  // Severity
```


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```
   "1.3.6.1.4.1.562.50.1.2.4.0", "Integer",
$NameSpace,            // Name Space
   "1.3.6.1.4.1.562.50.1.2.5.0",  "OctetString",
$ErrorCode,            // Error Code
   "1.3.6.1.4.1.562.50.1.2.6.0", "OctetString", $Site,
// Site
    "1.3.6.1.4.1.562.50.1.2.7.0",  "OctetString",
$ComponentAddress,               // System
   "1.3.6.1.4.1.562.50.1.2.8.0",  "OctetString",
$SystemComponent,      // System Component
   "1.3.6.1.4.1.562.50.1.2.9.0",  "OctetString",
$CurrentTrapSource,    // Originating Agent
   "1.3.6.1.4.1.562.50.1.2.10.0",  "Integer", $TrapType,
// Trap Type
    "1.3.6.1.4.1.562.50.1.2.11.0",  "OctetString",
$AssocUser,    // Associated User
   "1.3.6.1.4.1.562.50.1.2.12.0", "OctetString",
$OperatorData,         // Problem Isolation Data1
   "1.3.6.1.4.1.562.50.1.2.13.0", "OctetString",
$ExpertData,           // Problem Isolation Data2
   "1.3.6.1.4.1.562.50.1.2.14.0", "OctetString", $Text
// Problem Isolation Data3
);
```

The preceding notification should be framed as shown and include all OIDs; otherwise, the Management Station may not properly receive the notification. The third parameter, variable name, is different for each device. For example, ITG has the variable names for component address, text, and expert data set as "na." Sample trap formats for all supported devices are included in the sample_an_script.txt file located in

<TM Root>\Common Data\Alarm Notification\Control Files

The script identifies the value of each variable in the generated trap, whether an integer or an octet string.

On a freshly installed system <TM Root> is:
`<drive>:\Nortel\Telephony Manager`

but on an upgraded system, it is:
`<drive>:\Nortel`

<TM Root> may have a different value if the default was changed during a custom installation.

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Log file

The log file notification type writes a message that the application saves to a text file. You specify the storage location of this text file in the script. If no path name is specified, the file is saved in the same directory as the Alarm Notification application. If the file already exists, the new message is appended to the existing file. If the file does not exist, it is created.

Mandatory parameters are:

- `filename:="c:\Normat\sample_log";`

  Full path name and file name.

Example: This script defines a log file notification named *sample_file* having an associated path name defining a storage location on the C: drive. The stored file is named *eventlog.txt*. Note the use of the named file notification *sample_file* with the send syntax in the script.

```
// define a file notification
notification file sample_file {
  filename  :=  "c:\eventlog.txt";
}
.
// send a file notification
send(sample_file, "M1 alarm: ",
  $CurrentTrapSource," - " , // Name of this M1
  $CurrentAlarmErrorCode," - " ,      // M1 error
code (that is, BUG1234)
   $CurrentAlarmTime," - " ,           // Timestamp from M1
  $CurrentAlarmDescriptiveText," - ", // Text
with error message
  $CurrentAlarmOperatorData);         // More text
with error message
```

Rules

Rules allow you to define actions that may be applied to a given event. Rules are defined only in scripts. By default, rules are examined in a top-down manner. You use an infer statement to explicitly specify the order in which rules are examined.

A *rule* consists of an *if* statement containing a logical expression, followed by an instruction. A rule may also include an *else* statement, which is only executed if the logical expression in the *if* statement is false. Within a rule, a send statement or a function may be called. New variables may not be defined within the scope of a rule.

Example: This script defines the rule *check_Meridian1_critical*, which sends critical Meridian 1 alarms to the console and appends other events to the log file *sample_file*.

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```
rule check_Meridian1_critical {
  if($CurrentTrapDevice="Meridian1" and
$NormalizedSeverity=Critical) {
  // print event to console
   send( con,
   "--> Critical Meridian1 alarm received! ",
   $ErrorCode," - " ,      // M1 error code
   $CurrentPCTime, " - ",     // Time PC received alarm
   $CurrentTrapSource," - " , // Name of this M1
   $DeviceTime," - " ,        // Timestamp from M1
   $Text," - ",               // Text with error message
   $OperatorData              // More text with error message
  );
}
  else{
  // append event to log file
   send(sample_file,"--> Critical alarm received! ",
    $ErrorCode," - " ,      // error code
    $CurrentPCTime, " - ",     // Time PC received alarm
    $CurrentTrapSource," - " , // Name of this Device
    $DeviceTime," - " ,        // Timestamp
    $Text," - ",               // Text with error message
    $OperatorData              // More text
with error message
  );
 }
}
```

While rules may invoke functions, the *infer* command allows functions to call rules. Rules may be invoked in any order and repeatedly until a logical expression is satisfied or while a rule has not been triggered.

Examples:

```
infer{Rule1, Rule2, Rule3} until Rule4;
```

or

```
infer{RuleA, RuleB, RuleC} while (c>5);
```

Comments

Comments provide a convenient way of adding informational notes within a script. Comments can be placed in a single line or in multiple lines. Single-line comments begin with //. Block comments and multiple-line comments start with /* and end with */.

Example:

```
// This is a single-line comment.
/* This is a multiple-line comment
   or
   a block comment. */
```


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```
/* This is also a valid comment line */
```

Functions

Functions contain a combination of logical expressions and optional variable declarations. They accept parameters and return a single result. You may invoke functions either within logical expressions or rules, or within themselves. Within a function, assignments may occur with *if* and *loop* statements.

Example:

```
function counter samplefile(counter n) {
  string severity_level;
  severity_level :=
AlarmLevelToString($NormalizedSeverity); //
Calling another function
      n:=n+1;
      if (n=1) {
          send(nf_samplefile, $DeviceTime,": Device ",
           $CurrentTrapSource," generated a ",
            $CurrentTrapMajor,".",
               $CurrentTrapMinor,
              " trap with severity level:",
              severity_level,", ErrorCode: ",
              $ErrorCode, ".");
          n:=0;
       }
       return(n);
}
rule r_samplerul {
  if ($CurrentTrapDevice="ITG")
     {
     count_samplefile:=samplefile(count_samplefile);
     }
}
```

Using script files

CAUTION
Service Interruption
Always use a copy of these files when customizing them for your specific environment. Do not use the original files supplied with your Telephony Manager product. These files are overwritten when Telephony Manager is reinstalled or upgraded; if you have customized the original files, any changes will be lost.

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You have two methods available for writing scripts. You can have a single script in the script file and define all of the rules and functions in this one script, or you can have multiple scripts in the script file and define rules and functions for each script.

Single script

An example of a script file that contains a single script is *sample_wizard_script.txt* included with your Telephony Manager software. In this example, there is only one script titled "GeneratedScript". This script has multiple rules to check for a condition and perform a defined task when the condition occurs. Typically, if the rule is satisfied, the script calls a function that initiates an action. The notifications can be located outside the script, and the function can call the notification from inside the script.

Multiple scripts

An example of a script file that contains multiple scripts is *sample_an_script.txt*, which is also included with your Telephony Manager software. If you are using this method, you define a separate script for each activity. For example, you can define a script for all e-mail notifications, a second script for all console notifications, and a third script for all pager notifications. Each script can have multiple rules and functions.

ATTENTION

Nortel recommends that you save a copy of the file *sample_an_script.txt* under a new name (for example *notify.txt*), and modify the copy of the file to create your scripts.

A portion of the sample Alarm Notification script file *sample_an_script.txt* follows. Add your scripts after the following sections of the file:

```
// ********************************************************************
// Map severities from the various traps that TM receives into a standard
// severity list.
// ********************************************************************

counter $NormalizedSeverity := 0;

counter Undetermined         := 0;
counter Critical             := 1;
counter Major                := 2;
counter Minor                := 3;
counter Warning              := 4;
counter Info                 := 5;
counter Cleared              := 6;
counter Unknown              := 7;

//================================================================
```


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```
//                            Map TM severities
//=================================================================
// 1->Critical;2->Major; 3->Minor; 4->Info; 5->Info; 6->Cleared;
// 7->Unknown; x-//>Undetermined

script AssignOTMSeverities when ( $CurrentTrapDevice = "TM" ) {
   function assignit() {
      if ($Severity=Critical) {
          $NormalizedSeverity:=Critical;
       }else{ if ($Severity=Major) {
          $NormalizedSeverity:=Major;
       }else{ if ($Severity=Minor) {
          $NormalizedSeverity:=Minor;
       }else{ if ($Severity=Info) {
          $NormalizedSeverity:=Info;
       }else{ if ($Severity=Unknown) {
          $NormalizedSeverity:=Unknown;
       }else{ if ($Severity=Warning) {
          $NormalizedSeverity:=Warning;
       }else{ if ($Severity=Cleared){
          $NormalizedSeverity:=Cleared;
       }else{
         $NormalizedSeverity:=Undetermined;
       }}}}}}}
  }
   rule assign_severity {
      if ($CurrentTrapDevice="TM") {
         assignit();
      }
   }
}

//=================================================================
//        Map severities from Meridian1 Open Alarms
//=================================================================
// 1->Minor;2->Major;3->Critical;4->Unknown;5->Warning;6->Clear;
// 7->Undetermined; //x->Info

script convertM1Severities when ( $CurrentTrapDevice = "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER") {
   function convertit() {
       if ($Severity=1){
         $NormalizedSeverity:=Minor;
       }else{ if ($Severity=2){
         $NormalizedSeverity:=Major;
       }else{ if ($Severity=3){
         $NormalizedSeverity:=Critical;
       }else{ if ($Severity=4){
         $NormalizedSeverity:=Unknown;
       }else{ if ($Severity=5){
```


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```
          $NormalizedSeverity:=Warning;
        }else{ if ($Severity=6){
          $NormalizedSeverity:=Cleared;
        }else{ if ($Severity=7){
          $NormalizedSeverity:=Undetermined;
        }else{
          $NormalizedSeverity:=Info;
        }}}}}}}
    }
     rule severity_conversion {
if ($CurrentTrapDevice="Meridian1" or
                  $CurrentTrapDevice="CALL_SERVER"){
           convertit();
      }
     }
}

// ================================================================
// Map severities from devices other than TM and Meridian1
// ================================================================
// 1 -> Critical; 2 -> Major; 3 -> Minor; 4 -> (CallPilot::Info,
// Warning); 5 -> //(CallPilot::Unknown, Cleared); x -> Undetermined

script convertSeverities when ($CurrentTrapDevice!="TM" and
$CurrentTrapDevice!="Meridian1" and
$CurrentTrapDevice!="CALL_SERVER") {
   function convertit() {
      if ($Severity=1) {
         $NormalizedSeverity:=Critical;
      }else{ if ($Severity=2){
         $NormalizedSeverity:=Major;
      }else{ if ($Severity=3){
         $NormalizedSeverity:=Minor;
      }else{ if ($Severity=4){
         if ($CurrentTrapDevice="CALL_PILOT"){
             $NormalizedSeverity:=Info;
          }else{
            $NormalizedSeverity:=Warning;
          }
      }else{ if ($Severity=5){
          if ($CurrentTrapDevice="CALL_PILOT"){
             $NormalizedSeverity:=Unknown;
          }else{
            $NormalizedSeverity:=Cleared;
          }
      }else{
          $NormalizedSeverity:=Undetermined;
       }}}}}
   }
   rule severity_conversion {
```


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```
      if ($CurrentTrapDevice!="TM" and $CurrentTrapDevice!="Meridian1"
           and $CurrentTrapDevice!="CALL_SERVER") {
          convertit();
      }
    }
}

//*********************************************************************
//                    Assign $NameSpace
//*********************************************************************

counter nsOtm               := 1; // Originated from an TM
counter nsMeridian1         := 2;
counter nsCallPilot         := 3;
counter nsMeridianMail      := 4;
counter nsSl100             := 5;
counter nsPassport          := 6;
counter nsItg               := 7;
counter nsBravo             := 8;
counter nsIss7              := 9;
counter nsMDECT             := 10;
counter nsCallServer        := 11;
counter nsMediaCard         := 12;
counter nsSigServer         := 13;
counter nsSccs              := 14;
counter nsMeridianMailLink  := 15;
counter nsGenericOrUnknown  := 16;

script assignNameSpace {
   function ns() {
      if ($CurrentTrapDevice="TM") {
          // Original $CurrentTrapDevice is retained
      }else{ if ( $CurrentTrapDevice = "Meridian1") {
          $NameSpace := nsMeridian1;
      }else{ if ( $CurrentTrapDevice = "CALL_PILOT" ) {
          $NameSpace := nsCallPilot;
      }else{ if ( $CurrentTrapDevice = "MMCS" ) {
          $NameSpace := nsMeridianMail;
      }else{ if ( $CurrentTrapDevice = "ITG"
          or $CurrentTrapDevice = "ITG_ISDN_TRK"
          or $CurrentTrapDevice = "ITG_IP_LINE"
          or $CurrentTrapDevice = "ITG_IP_PHONE" )
      {
          $NameSpace := nsItg;
      }else{ if ( $CurrentTrapDevice = "BRAVO" ) {
          $NameSpace := nsBravo;
      }else{ if ( $CurrentTrapDevice = "ISS7" ) {
          $NameSpace := nsIss7;
      }else{ if ( $CurrentTrapDevice = "MDECT" ) {
          $NameSpace := nsMDECT;
```


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```
        }else{ if ( $CurrentTrapDevice = "SCCS" ) {
            $NameSpace := nsSccs;
        }else{ if ( $CurrentTrapDevice = "CALL_SERVER" ) {
           $NameSpace := nsCallServer;
        }else{ if ( $CurrentTrapDevice = "MEDIA_CARD" ) {
            $NameSpace := nsMediaCard;
        }else{ if ( $CurrentTrapDevice = "SIGNALLING_SERVER" ) {
            $NameSpace := nsSigServer;
        }else{
            $NameSpace := nsGenericOrUnknown;
        }}}}}}}}}}}}
     }
    rule ns1 {
        if (1) {
                ns();
        }
    }
}
```

Script examples

This section contains examples of user-defined notifications and functions to perform common alarm notification tasks. Review "Using script files" (page 298) before writing a script. The code described in that section must appear in the script file before you add the additional user-defined notifications and functions described in these examples.

Example 1

This example describes the scripting to forward an alarm to an e-mail address or send as SMS (through e-mail). If the condition given below is true, the alarm is forwarded to the specified e-mail address mentioned; otherwise, the alarm is forwarded as SMS through e-mail.

Condition:

1. Trap is received from source— "47.114.45.3"

   AND

2. Trap received from the device type = "Meridian1" OR "CALL_SERVER"

Action taken if TRUE: Send an e-mail notification.

Action taken if FALSE: Send an SMS to the e-mail address of the telephone.

The script must contain the following definitions and functions.

- e-mail notification definition
- SMS notification definition
- script definition

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E-mail notification definition See "E-mail" (page 291) for information on defining the e-mail notification.

```
 /* E-mail notification definition */
 notification email my_email
 {
    from:="OTM_AlarmNotification@company.com";
    address:="name@company.com";
    server:="192.9.200.1";
}
```

SMS notification definition The following definition is for sending SMS Notification through e-mail. The address should be the e-mail address of the telephone for which the SMS is to be sent. The server address is the IP address of the SMTP server of the service provider.

```
/* SMS notification definition */
notification email my_sms
{
   from:="OTM_AlarmNotification@company.com";
   address:="14165551234@sms.serviceprovider.com";
   server:="192.9.200.1";
}
```

Script definition: The script definition contains the following:

- the functions to send an e-mail
- the function to send SMS through e-mail
- the rule definition

According to the rule definition, the alarm is forwarded either as an e-mail or SMS under the desired condition.

```
 /* Script definition */
 script MyScript
{
   /*Function to send an e-mail*/
   function forward_email()
   {
      send(my_email, $DeviceTime,
          ": Device ", $CurrentTrapSource,
          " generated a ",$CurrentTrapMajor,".",
          $CurrentTrapMinor,
          " trap with severity level: ",
          $NormalizedSeverity,",
          ", AlarmCode: ", $AlarmCode,
           ", OperatorData: ",$OperatorData,
           ".");
      }
     /*Function to send SMS through e-mail*/
```


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```
    function forward_sms ()
    {
        send(my_sms, $DeviceTime,
          ": Device ", $CurrentTrapSource,
           " generated a ",$CurrentTrapMajor,".",
           $CurrentTrapMinor,
            " trap with critical severity ",
           " ErrorCode: ",$ErrorCode, ".");
        send(my_sms,
          "OperatorData: " ,$OperatorData,
       ".");
     }
     /*Rule definition*/
     rule forward_email_or_sms
    {
       if (($CurrentTrapSource="47.114.45.3") and
(($CurrentTrapDevice = "Meridian1") or
($CurrentTrapDevice = "CALL_SERVER")))
        {
           forward_email();
        }
       else
        {
          forward_sms();
        }
    }
} /* End of GeneratedScript script */
```

The functions forward_email() and forward_sms() forward any alarm to the specified e-mail address or telephone number as SMS.

The same script definition can be written in another way, as shown below. The functions forward_M1orCallServer_email() and forward_M1orCallServer_sms() forward only those alarms which are generated from the device types "Meridian1" or "CALL_SERVER".

```
/* Script definition */
script MyScript
{
   /*This is a function to forward only Meridian or
    CallServer alarms to the e-mail address*/
    function forward_M1orCallServer_email()
    {
       if ($CurrentTrapDevice= "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER")
       {
          send(my_email,$DeviceTime,
            ": Device ", $CurrentTrapSource,
            " generated a ",$CurrentTrapMajor,".",
            $CurrentTrapMinor,
           " trap with severity level: ",
```


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```
            $NormalizedSeverity,",
            AlarmCode: ", $AlarmCode,
            ", OperatorData: ", $OperatorData,
            ".");
        }
      }
    /*Function to forward M1 or Call_Server alarms as SMS
to the specified phone number*/
    function forward_M1orCallServer_sms ()
    {
       if ($CurrentTrapDevice = "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER")
        {
         send(my_sms,$DeviceTime,
             ": Device ",$CurrentTrapSource,
             " generated a ",$CurrentTrapMajor,".",
             $CurrentTrapMinor,
            " trap with critical severity ",
             " ErrorCode: ", $ErrorCode,
             ".");
         send(my_sms,
             "OperatorData: ",$OperatorData,
             ".");
        }
      }
    /*Rule definition*/
     rule forward_email_or_sms
    {
       if  ($CurrentTrapSource="47.114.45.3")
        {
          forward_M1orCallServer_email ();
       }
       else
       {
          forward_M1orCallServer_sms ();
        }
  }
} /* End of GeneratedScript script */
```

Example 2

This example describes the scripting to send an e-mail or pager notification. If the condition below is true, the alarm is forwarded to the specified e-mail address; otherwise, the alarm is forwarded to the pager.

Condition:

1. Trap is received from source— "47.114.45.3"

   AND

2. Trap received from the device type = "Meridian1" OR "CALL_SERVER"

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Action taken:

- Condition is TRUE—Send an e-mail notification.
- Condition is FALSE—Send an alphanumeric pager notification.

The script must contain the following definitions and functions:

- e-mail notification definition
- alphanumeric pager notification definition
- script definition

E-mail notification definition See "E-mail" (page 291) for information on defining the e-mail notification.

```
/* E-mail notification definition */
notification email my_email
{
   from:="OTM_AlarmNotification@company.com";
   address:="name@company.com";
   server:="192.9.200.1";
}
```

Pager notification definition See "Pager" (page 290) for information on defining the pager notification.

```
/* Alphanumeric pager notification definition */
notification apager alpha_pager
{
    phone:="9,555-555-555";
    pin:="101565";
}
```

Script definition The script definition contains the following:

- the function to send an e-mail
- the function to send a pager message
- the rule definition.

According to the rule definition, the alarm is sent as an e-mail or as a pager message under the desired condition.

```
/* Script definition */
script MyScript
{
   /*Function to send an e-mail*/
   function forward_email()
   {
       send(my_email,$DeviceTime,
          ": Device ",$CurrentTrapSource,
```


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```
            " generated a ",$CurrentTrapMajor,".",
            $CurrentTrapMinor,
            " trap with severity level: ",
            $NormalizedSeverity,
            ", AlarmCode: ", $AlarmCode,
            ", OperatorData: ",$OperatorData,
            ".");
      }
    /*Function to send a numeric Pager message*/
    function forward_apager ()
    {
        send(alpha_pager,
           $CurrentTrapSource,":", $AlarmCode,
           "!");
    }
     /*Rule definition*/
     rule forward_email_or_pager
    {
       if  ($CurrentTrapSource="47.114.45.3" and
           ($CurrentTrapDevice = "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER"))
        {
           forward_email ();
       }
       else
       {
          forward_apager ();
       }
  }
} /* End of GeneratedScript script */
```

The functions forward_email() and forward_apager() forward any alarm to the specified e-mail address or the pager.

The same script definition can be written in another way, as shown below. The functions forward_M1orCallServer_email() and forward_M1orCallServer_apager() forward those alarms which are generated only from the device types "Meridian1" or "CALL_SERVER".

```
/* Script definition */
script MyScript
{
  /*This is a function to forward only Meridian or
    CallServer alarms to the e-mail address*/
    function forward_M1orCallServer_email()
    {
       if ($CurrentTrapDevice= "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER")
        {
         send(my_email,$DeviceTime,
            ": Device ",$CurrentTrapSource,
```


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```
            " generated a ",$CurrentTrapMajor,".",
            $CurrentTrapMinor,
            " trap with severity level: ",
            $NormalizedSeverity,
            ", AlarmCode: ", $AlarmCode,
            ", OperatorData: ",$OperatorData,
            ".");
        }
     }
   /*Function to send M1 or Call_Server alarms to
numeric Pager message*/
    function forward_M1orCallServer_apager ()
    {
       if ($CurrentTrapDevice = "Meridian1" or
$CurrentTrapDevice = "CALL_SERVER")
       {
          send(alpha_pager,
$CurrentTrapSource,":", $AlarmCode,
"!");
        }
    }
    /*Rule definition*/
     rule forward_email_or_pager
    {
       if  ($CurrentTrapSource="47.114.45.3")
        {
           forward_M1orCallServer_email ();
       }
       else
       {
          forward_M1orCallServer_apager ();
        }
  }
} /* End of GeneratedScript script */
```

Example 3

This example describes the scripting to forward alarms to another machine.

Condition:

1. The trap source is not equal to 47.114.45.3 OR 47.114.45.5.

   AND

2. The Device Type of the Trap is equal to CALL_PILOT.

   AND

3. The Severity of the Trap is equal to Critical.

   AND

4. The Major Trap Number is less than 3.

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AND

5. The Minor Trap Number is either greater than or equal to 4 OR less than or equal to 6.

Action taken:

- Condition is TRUE—Forward the alarm to another machine for which the IP address is 144.14.80.14. This is also called as sending upstream.
- Condition is FALSE—No action taken.

The script must contain the following definitions and functions:

- upstream manager notification definition
- script definition

Up-stream manager notification definition

```
/* Up-stream manager notification definition */
notification snmp OtmOpenAlarm
 {
   address:="144.14.80.14";
    trap:="6.1";
}
```

Script definition The script definition contains the following:

- the function to forward or send SNMP trap notification to another machine
- the rule definition

According to the rule definition, SNMP traps (alarms) which satisfy the condition are forwarded or sent to the machine at IP address 144.14.80.14. SNMP traps can be sent for all device types or sent only for the desired device type. The following device types are available:

- BRAVO
- BS450
- CALL_PILOT
- ISS7
- ITG
- ITG_ISDN_TRK
- ITG_IP_LINE
- ITG_IP_PHONE
- MDECT

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- MMAIL
- MMCS
- MMCS_AP
- TM
- SCCS
- SL100
- Meridian1
- CALL_SERVER
- MEDIA_CARD
- SIGNALLING_SERVER
- SRG
- BCM
- COMMON_MIB_DEVICE

In the following script, the variables map to entities as follows:

- $AlarmSeqNum—Alarm Sequence Number
- $DeviceTime—Date and Time
- $NormalizedSeverity—Severity
- $NameSpace—Name Space
- $ErrorCode—Error Code
- $Site—Site
- $System—System
- $SystemComponent—SystemComponent
- $OriginatingAgent—OriginatingAgent
- $TrapType—TrapType
- $AssocUser—Associated User
- $OperatorData—Problem Isolation Data1
- $ExpertData—Problem Isolation Data2
- $Text—Problem Isolation Data3

```
script MyScript
{
/*Function to send SNMP trap notification for all device
type*/
    // ---------------------------------------
```


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```
//      Forward all Alarms
// ---------------------------------------
function forwardAlarms()
{
 if ( $CurrentTrapDevice = "TM" ) {
   send( OtmOpenAlarm,
          "1.3.6.1.4.1.562.50.1.2.1.0",
              "Integer", $AlarmSeqNum,
          "1.3.6.1.4.1.562.50.1.2.2.0",
              "OctetString", $DeviceTime,
          "1.3.6.1.4.1.562.50.1.2.3.0",
              "Integer", $NormalizedSeverity,
          "1.3.6.1.4.1.562.50.1.2.4.0",
              "Integer", $NameSpace,
          "1.3.6.1.4.1.562.50.1.2.5.0",
              "OctetString", $ErrorCode,
          "1.3.6.1.4.1.562.50.1.2.6.0",
              "OctetString", $Site,
          "1.3.6.1.4.1.562.50.1.2.7.0",
              "OctetString", $System,
          "1.3.6.1.4.1.562.50.1.2.8.0",
              "OctetString", $SystemComponent,
          "1.3.6.1.4.1.562.50.1.2.9.0",
              "OctetString", $OriginatingAgent,
          "1.3.6.1.4.1.562.50.1.2.10.0",
              "Integer", $TrapType,
          "1.3.6.1.4.1.562.50.1.2.11.0",
              "OctetString", $AssocUser,
          "1.3.6.1.4.1.562.50.1.2.12.0",
              "OctetString", $OperatorData,
          "1.3.6.1.4.1.562.50.1.2.13.0",
              "OctetString", $ExpertData,
          "1.3.6.1.4.1.562.50.1.2.14.0",
              "OctetString", $Text);
 }else{ if ( $CurrentTrapDevice = "Meridian1"
              or $CurrentTrapDevice = "MMCS"
             or $CurrentTrapDevice = "CALL_SERVER" ){
send( OtmOpenAlarm,
          "1.3.6.1.4.1.562.50.1.2.1.0",
              "Integer", $AlarmSeqNum,
          "1.3.6.1.4.1.562.50.1.2.2.0",
              "OctetString", $DeviceTime,
          "1.3.6.1.4.1.562.50.1.2.3.0",
              "Integer", $NormalizedSeverity,
          "1.3.6.1.4.1.562.50.1.2.4.0",
              "Integer", $NameSpace,
          "1.3.6.1.4.1.562.50.1.2.5.0",
              "OctetString", $ErrorCode,
          "1.3.6.1.4.1.562.50.1.2.6.0",
```


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```
                    "OctetString", $Site,
"1.3.6.1.4.1.562.50.1.2.7.0",
                  "OctetString", $ComponentAddress,
               "1.3.6.1.4.1.562.50.1.2.8.0",
                    "OctetString", $SystemComponent,
               "1.3.6.1.4.1.562.50.1.2.9.0",
                    "OctetString", $CurrentTrapSource,
              "1.3.6.1.4.1.562.50.1.2.10.0",
                    "Integer", $TrapType,
               "1.3.6.1.4.1.562.50.1.2.11.0",
                    "OctetString", $AssocUser,
              "1.3.6.1.4.1.562.50.1.2.12.0",
                    "OctetString", $OperatorData,
              "1.3.6.1.4.1.562.50.1.2.13.0",
                    "OctetString", $ExpertData,
              "1.3.6.1.4.1.562.50.1.2.14.0",
                    "OctetString", $Text );
    } else{ if ( $CurrentTrapDevice = "ITG" or
              $CurrentTrapDevice = "ITG_ISDN_TRK" or
              $CurrentTrapDevice = "ITG_IP_LINE" or
              $CurrentTrapDevice = "ITG_IP_PHONE" or
              $CurrentTrapDevice = "ISS7" or
              $CurrentTrapDevice = "BRAVO" or
              $CurrentTrapDevice = "MMCS_AP" or
              $CurrentTrapDevice = "MEDIA_CARD" or
              $CurrentTrapDevice =  "SIGNALLING_SERVER"){
    send( OtmOpenAlarm,
              "1.3.6.1.4.1.562.50.1.2.1.0",
                  "Integer", $AlarmSeqNum,
              "1.3.6.1.4.1.562.50.1.2.2.0",
                    "OctetString", $DeviceTime,
              "1.3.6.1.4.1.562.50.1.2.3.0",
                  "Integer", $NormalizedSeverity,
              "1.3.6.1.4.1.562.50.1.2.4.0",
                  "Integer", $NameSpace,
              "1.3.6.1.4.1.562.50.1.2.5.0",
                    "OctetString", $ErrorCode,
               "1.3.6.1.4.1.562.50.1.2.6.0",
                    "OctetString", $Site,
              "1.3.6.1.4.1.562.50.1.2.7.0",
                    "OctetString", "na",
              "1.3.6.1.4.1.562.50.1.2.8.0",
                    "OctetString", $SystemComponent,
              "1.3.6.1.4.1.562.50.1.2.9.0",
                    "OctetString", $CurrentTrapSource,
              "1.3.6.1.4.1.562.50.1.2.10.0",
                    "Integer", $TrapType,
               "1.3.6.1.4.1.562.50.1.2.11.0",
                    "OctetString", $AssocUser,
              "1.3.6.1.4.1.562.50.1.2.12.0",
```


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```
                "OctetString", $OperatorData,
           "1.3.6.1.4.1.562.50.1.2.13.0",
                "OctetString", "na",
            "1.3.6.1.4.1.562.50.1.2.14.0",
                "OctetString", "na");
} else{ if ( $CurrentTrapDevice = "CALL_PILOT" or
          $CurrentTrapDevice = "SCCS" ) {
 send( OtmOpenAlarm,
           "1.3.6.1.4.1.562.50.1.2.1.0",
                "Integer", $AlarmSeqNum,
            "1.3.6.1.4.1.562.50.1.2.2.0",
                "OctetString", $DeviceTime,
           "1.3.6.1.4.1.562.50.1.2.3.0",
               "Integer", $NormalizedSeverity,
           "1.3.6.1.4.1.562.50.1.2.4.0",
               "Integer", $NameSpace,
           "1.3.6.1.4.1.562.50.1.2.5.0",
                "OctetString", "na",
            "1.3.6.1.4.1.562.50.1.2.6.0",
                "OctetString", $Site,
           "1.3.6.1.4.1.562.50.1.2.7.0",
                "OctetString", "na",
           "1.3.6.1.4.1.562.50.1.2.8.0",
                "OctetString", $SystemComponent,
           "1.3.6.1.4.1.562.50.1.2.9.0",
                "OctetString", $CurrentTrapSource,
           "1.3.6.1.4.1.562.50.1.2.10.0",
                "Integer", $TrapType,
            "1.3.6.1.4.1.562.50.1.2.11.0",
                "OctetString", $AssocUser,
           "1.3.6.1.4.1.562.50.1.2.12.0",
                "OctetString", $OperatorData,
           "1.3.6.1.4.1.562.50.1.2.13.0",
                "OctetString", "na",
            "1.3.6.1.4.1.562.50.1.2.14.0",
                "OctetString", "na");
} else{ if ( $CurrentTrapDevice = "MMAIL" ) {
  send( OtmOpenAlarm,
           "1.3.6.1.4.1.562.50.1.2.1.0",
                "Integer", 0,
            "1.3.6.1.4.1.562.50.1.2.2.0",
                "OctetString", $DeviceTime,
           "1.3.6.1.4.1.562.50.1.2.3.0",
               "Integer", $NormalizedSeverity,
           "1.3.6.1.4.1.562.50.1.2.4.0",
               "Integer", $NameSpace,
           "1.3.6.1.4.1.562.50.1.2.5.0",
                "OctetString", $ErrorCode,
            "1.3.6.1.4.1.562.50.1.2.6.0",
                "OctetString", $Site,
```


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```
            "1.3.6.1.4.1.562.50.1.2.7.0",
                 "OctetString", "na",
            "1.3.6.1.4.1.562.50.1.2.8.0",
                 "OctetString", $SystemComponent,
            "1.3.6.1.4.1.562.50.1.2.9.0",
                 "OctetString", $CurrentTrapSource,
            "1.3.6.1.4.1.562.50.1.2.10.0",
                 "Integer", $TrapType,
             "1.3.6.1.4.1.562.50.1.2.11.0",
                 "OctetString", $AssocUser,
            "1.3.6.1.4.1.562.50.1.2.12.0",
                 "OctetString", $OperatorData,
            "1.3.6.1.4.1.562.50.1.2.13.0",
                 "OctetString", $Text,
             "1.3.6.1.4.1.562.50.1.2.14.0",
                 "OctetString", $ExpertData);
      }else{ if ($CurrentTrapDevice = "SL100" ){
       send( OtmOpenAlarm,
            "1.3.6.1.4.1.562.50.1.2.1.0",
                 "Integer", 0,
             "1.3.6.1.4.1.562.50.1.2.2.0",
                 "OctetString", $DeviceTime,
            "1.3.6.1.4.1.562.50.1.2.3.0",
                "Integer", $NormalizedSeverity,
            "1.3.6.1.4.1.562.50.1.2.4.0",
                "Integer", $NameSpace,
            "1.3.6.1.4.1.562.50.1.2.5.0",
                 "OctetString", $ErrorCode,
             "1.3.6.1.4.1.562.50.1.2.6.0",
                 "OctetString", $Site,
            "1.3.6.1.4.1.562.50.1.2.7.0",
                 "OctetString", "na",
            "1.3.6.1.4.1.562.50.1.2.8.0",
                 "OctetString", $SystemComponent,
            "1.3.6.1.4.1.562.50.1.2.9.0",
                 "OctetString", $CurrentTrapSource,
            "1.3.6.1.4.1.562.50.1.2.10.0",
                 "Integer", $TrapType,
             "1.3.6.1.4.1.562.50.1.2.11.0",
                 "OctetString", $AssocUser,
            "1.3.6.1.4.1.562.50.1.2.12.0",
                 "OctetString", $OperatorData,
            "1.3.6.1.4.1.562.50.1.2.13.0",
                 "OctetString", $Text,
             "1.3.6.1.4.1.562.50.1.2.14.0",
                 "OctetString", $ExpertData);
      } else{ if ($CurrentTrapDevice = "SRG" or
                 $CurrentTrapDevice = "BCM") {
        send( OtmOpenAlarm,
            "1.3.6.1.4.1.562.50.1.2.1.0",
```


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```
                    "Integer", 0,
                 "1.3.6.1.4.1.562.50.1.2.2.0",
                    "OctetString", $DeviceTime,
                "1.3.6.1.4.1.562.50.1.2.3.0",
                   "Integer", $NormalizedSeverity,
                "1.3.6.1.4.1.562.50.1.2.4.0",
                   "Integer", $NameSpace,
                "1.3.6.1.4.1.562.50.1.2.5.0",
                    "OctetString", $AlarmCode,
                 "1.3.6.1.4.1.562.50.1.2.6.0",
                    "OctetString", $Site,
                "1.3.6.1.4.1.562.50.1.2.7.0",
                    "OctetString", "na",
                "1.3.6.1.4.1.562.50.1.2.8.0",
                    "OctetString", $SystemComponent,
                "1.3.6.1.4.1.562.50.1.2.9.0",
                    "OctetString", $OriginatingAgent,
                "1.3.6.1.4.1.562.50.1.2.10.0",
                    "Integer", $TrapType,
                 "1.3.6.1.4.1.562.50.1.2.11.0",
                    "OctetString", "na",
                 "1.3.6.1.4.1.562.50.1.2.12.0",
                    "OctetString", $OperatorData,
                "1.3.6.1.4.1.562.50.1.2.13.0",
                    "OctetString", "na",
                 "1.3.6.1.4.1.562.50.1.2.14.0",
                    "OctetString", "na");
    }}}}}}}
  }
/*Rule Definition*/
rule forward_alarm_rule
 {
    if (
         (
            ($CurrentTrapSource!="47.114.45.3") or
            ($CurrentTrapSource!="47.114.45.5")
          )
         and
          ($CurrentTrapDevice="CALL_PILOT")
       )
      {
          forwardAlarms();
      }
  }
} /* End of script */
```


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You can modify this script to forward only alarms of a given severity (Critical, Major, Minor, Info or Warning) to another machine by adding one more condition in the rule to check the severity of the alarm. The rule definition for the rule *forward_critical_alarms* shows the modification required to forward only alarms of Critical severity.

```
/*Rule Definition*/
rule forward_critical_alarms
{
  if (
       ( ($CurrentTrapSource!="47.114.45.3") or
         ($CurrentTrapSource!="47.114.45.5")
        )
       and
        ( ($CurrentTrapDevice="CALL_PILOT") and
          ($NormalizedSeverity = Critical)
        )
      )
       {
          forwardAlarms();
        }
}
```

Procedure 69

Configuring your system to forward alarms

Step	Action
1	Write the script described in "Example 3" (page 309) in the section and run Alarm Notifications on your computer (at IP address 164.164.164.55, for example).
2	Launch Telephony Manager Alarm Notifications on the machine to which you want to forward the alarms (at IP address 144.14.80.14, for example).
3	Select Click **Configurations > Run Options** and select the **Control files** tab.
4	Open the device file and add Telephony Manager <your machine IP address> (for example TM 164.164.164.55) at the end of the file.
5	Save the changes and run Alarm Notifications. The alarms generated in your machine (for example, at 164.164.164.55) will be forwarded to the other machine (for example, at 144.14.80.14).

—End—

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Example 4

This example describes how to use the console and log files. All events sent to this notification are shown on the console and are appended to the specified file name.

```
/* Log file notification */
notification file sample_file
{
   filename:="c:\sample_log.txt";
 }
script ConsoleAndLog
 {
  rule check_Meridian1_critical
   {
    if ( $CurrentTrapDevice = "Meridian1" and
$NormalizedSeverity = Critical)
     {
      // print event to console
       send( con,
            "--> Critical Meridian1 alarm received! ",
             $ErrorCode," - " ,    // M1 error code
            $CurrentPCTime, " - ",     // Time
PC received alarm
            $CurrentTrapSource," - " , // Name of this M1
            $DeviceTime," - " ,   // Timestamp from M1
             $Text," - ",           // Text
with error message
            $OperatorData // More text with error message
      );
      // append event to log file
      send( sample_file,
  "--> Critical M1 alarm received! ",
             $ErrorCode," - " , // M1 error code
            $CurrentPCTime, " - ",      // Time
PC received alarm
            $CurrentTrapSource," - " ,  // Name of this M1
            $DeviceTime," - " , // Timestamp from M1
             $Text," - ", // Text with error message
             $OperatorData // More text with error message
);
    }
   }
} /* End of the script*/
```

In this example, the two send functions could also be written in a function. That function would then be called from the rule definition.

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Inventory Reporting

Contents

This section contains information on the following topics:

"Introduction" (page 319)
"Launching Inventory Reporting" (page 319)
"Main window menus" (page 321)
"Card Inventory files" (page 322)
"Set Inventory files" (page 324)
"Generate an inventory file" (page 325)
"Download an inventory file" (page 326)
"Check file generation status" (page 327)
"Abort file generation" (page 328)
"Location Report files" (page 328)

Introduction

The Telephony Manager Inventory Reporting application allows you to generate system inventory files and download them to your PC. The inventory files list cards and sets installed in your system.

You must have Microsoft Excel to use the Inventory Reporting application. You also need an Ethernet connection to your system. For more information on coresidency compatibility, see *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.

Inventory Reporting is based on LD 117. For additional overlay information, see *Software Input/Output: Administration (NN43001-611)* and *Software Input/Output: Maintenance (NN43001-711)*.

Launching Inventory Reporting

Use Procedure 70 "Launching Inventory Reporting" (page 320) to launch the Inventory Reporting application.

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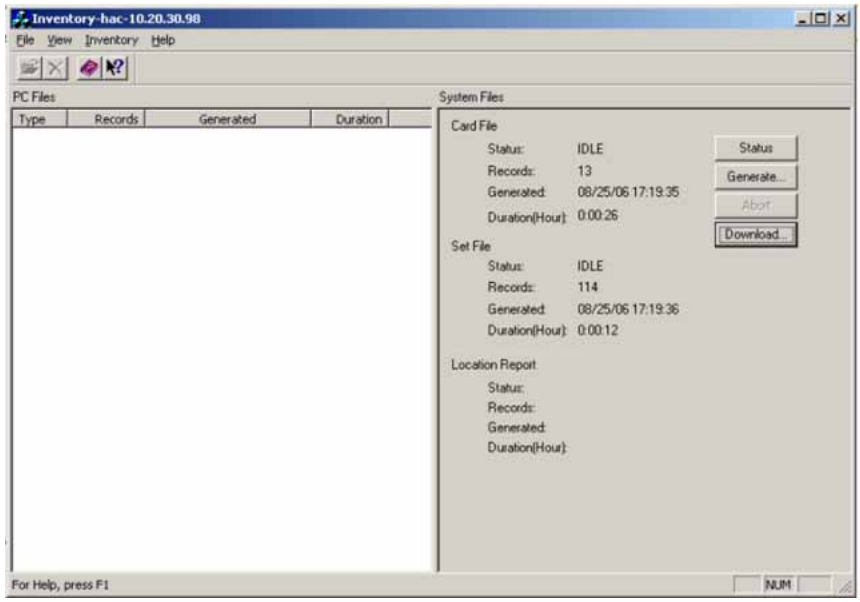
Procedure 70
Launching Inventory Reporting

Step	Action
1	In the Telephony Manager Navigator window, open the System Window for the Meridian 1 or CS 1000 system for which you want to create an inventory.
2	Connect to that system. See "Using Windows Navigator" (page 43) for procedures. If you do not connect to a system before opening Inventory Reporting, some features are disabled.
3	Double-click the System Window Inventory icon. The Inventory window appears, as shown in Figure 145 "Inventory window" (page 320). If you do not connect to a system, a dialog box appears asking if you want to connect. Click **Yes** to connect to a system, or click No to proceed without connecting.

Figure 145
Inventory window



—End—

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The main Inventory window contains the PC Files frame and the System Files frame. The PC Files frame lists inventory files downloaded from the system. The System Files frame provides status and statistics for the system.

Main window menus

The main window menus in Inventory Reporting include the following commands:

- File
  - Open: Open the file selected in the list view of the PC File frame.
  - Delete: Delete the file selected in the list view of the PC File frame.
  - Exit: Exit the Inventory window.
- View
  - Toolbar: Toggle the Inventory toolbar.
  - Status Bar: Toggle the status bar.
  - Automatic Status: If selected, Inventory Reporting updates the inventory file status displayed on the System File frame every 10 seconds.
- Inventory
  - Download: Download one or more inventory files from the system.
  - Generate: Generate one or more inventory files.
  - Status: Query the inventory status of the system.
  - Abort: Stop any file generation now running on the system.
- Help
  - Help Topic: Provide a list of Help topics.
  - What's This?: Change the cursor and display Help information about the next item you select.

Inventory files

The PC Files frame lists all inventory files downloaded from the system. Two types of inventory files are available:

- Card Inventory files
- Set Inventory files
- Location Report files

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Procedure 71
Opening an inventory file

Step	Action
1	Select a file in the list.
2	Click **File > Open**. Inventory Reporting creates a temporary report file (*.CSV), which appears in Microsoft Excel.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

—End—

Procedure 72
Deleting an inventory file

Step	Action
1	Select a file in the list.
2	Click **File > Delete**.

—End—

Card Inventory files

The Card Inventory file provides columns of information in Excel about each card configured in the system. A sample inventory report for cards is shown in Figure 146 "Sample Card Inventory file" (page 323). Table 21 "Card Inventory file column descriptions" (page 323) describes each column.

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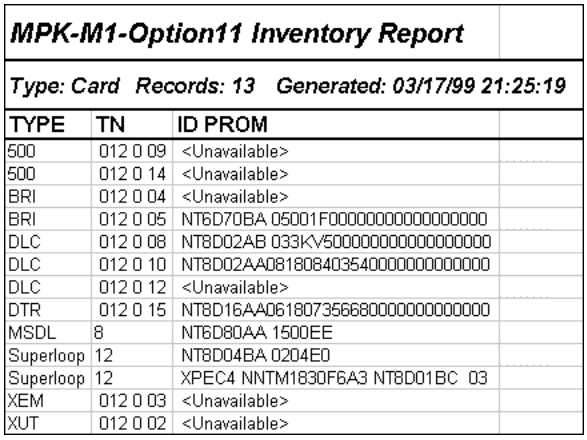
Figure 146
Sample Card Inventory file



MPK-M1-Option11 Inventory Report

Type: Card Records: 13 Generated: 03/17/99 21:25:19

TYPE	TN	ID PROM
500	012 0 09	<Unavailable>
500	012 0 14	<Unavailable>
BRI	012 0 04	<Unavailable>
BRI	012 0 05	NT6D70BA 05001F00000000000000000
DLC	012 0 08	NT8D02AB 033KV500000000000000000
DLC	012 0 10	NT8D02AA0818084035400000000000
DLC	012 0 12	<Unavailable>
DTR	012 0 15	NT8D16AA0618073566800000000000
MSDL	8	NT6D80AA 1500EE
Superloop	12	NT8D04BA 0204E0
Superloop	12	XPEC4 NNTM1830F6A3 NT8D01BC 03
XEM	012 0 03	<Unavailable>
XUT	012 0 02	<Unavailable>

Table 21
Card Inventory file column descriptions

Column name	Description
TYPE	Card type.
TN	Terminal number address associated with the card.
ID PROM	32-byte ASCII string whose characters (in order) represent: • Product Engineering Code (PEC) • Color (numeric representation) • Release • One blank character • Product Serialization ID • One blank character • Other (free field)

The following card types are included in the Card Inventory file:

- All IPE and common equipment cards
- All Meridian 1 or CS 1000 cards that have a Hardware ID (also known as ID PROM)

The following card types are not included in the Card Inventory file:

- Cards manufactured without an ID PROM
- PC cards
- Power Supply

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- Any non-Nortel (third-party) cards, including those designed to simulate included cards

Set Inventory files

The Set Inventory file provides columns of information in Excel about each set configured in the system. A sample inventory report for sets is shown in Figure 147 "Sample Set Inventory file" (page 324). Table 22 "Set Inventory file column descriptions" (page 324) describes each column.

Figure 147
Sample Set Inventory file

MPK-M1-Option11 Inventory Report				
Type: Set Records: 20 Generated: 03/17/99 21:25:19				
TYPE	TN	ID PROM	DESIGNATOR	PRIMARY DN
2016	012 0 08 06	<Unavailable>	2016	2032
2016	012 0 08 22	<Unavailable>	MCA	2332
2216	012 0 08 03	<Unavailable>	AGNT1	2951
2216	012 0 08 08	<Unavailable>	NAGNT1	3951
2216	012 0 08 09	<Unavailable>	NACD	4950
2216	012 0 08 10	<Unavailable>	NAGNT1	4951
2616	012 0 08 00	<Unavailable>	2616	2020
2616	012 0 08 02	M2616 NT2K16WK 35 01 C31632	2616	20210
2616	012 0 08 04	M2616 NT2K16WM 35 01 C310C8	2616	2022
2616	012 0 08 11	M2616 NT2K16WN 35 01 33A45D	2616	3021
2616	012 0 08 12	<Unavailable>	2616	4021
2616	012 0 08 16	<Unavailable>	MCA	2320
2616	012 0 10 00	<Unavailable>	DJL	0
3901	012 0 08 15	<Unavailable>	TAUR	0
3905	012 0 08 14	<Unavailable>	TAUR2	0
AWR	012 0 02 06	<Unavailable>	AGNT1	0
R232	012 0 12 00	<Unavailable>	R232	2301
R232	012 0 12 01	<Unavailable>	R232	2302
R232	012 0 12 04	<Unavailable>	R232	2303
R232	012 0 12 05	<Unavailable>	R232	2304

Table 22
Set Inventory file column descriptions

Column name	Description
TYPE	Set type.
TN	Terminal number address associated with the set.
ID Prom	32-byte ASCII string whose characters (in order) represent: • Set Type • 6 Blank Characters • Product Engineering Code (PEC) • Color (numeric representation) • Release • One blank character

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Column name	Description
	• Product Serialization ID • One blank character • Other (free field)
DESignator	6-character ASCII string used by Telephone Manager and LD 11.
Primary DN	Primary directory number.

The following telephones are included in the Set Inventory file:

- M2006
- M2016
- M2216
- M3110
- M3820
- M2008
- M2616
- M390X
- M3310
- IP Phones

The following telephones and data units are not included in the Set Inventory file:

- Data units on:
  - M2006
  - M2016
  - M2216
  - M3110
  - M3820
  - M2008
  - M2616
  - M390X
  - M3310
- SL-1 sets and data units
- 500/2500 sets and data units
- Any other digital sets or data units
- Any non-Nortel (third-party) sets, including those designed to simulate included sets

Generate an inventory file

You need System Administrator privileges to generate an inventory file.

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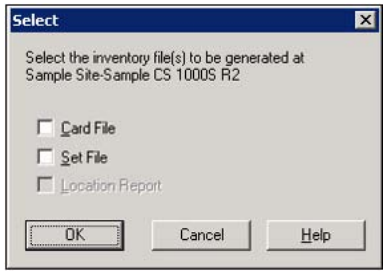
Procedure 73
Generating an inventory file

Step	Action
1	In the Inventory window, select **Inventory > Generate...** The Select file to generate window appears, as shown in Figure 148 "Select file to generate" (page 326).
2	Select **Card File** check box to generate the Card Inventory file.
3	Select **Set File** check box to generate the Set Inventory file. If both boxes are selected, both files are generated.
4	Click **OK** to begin generating the files. If the Inventory program is opened for two systems on two PCs, and both of these IP addresses of the PCs are set in LD 117 to receive SNMP traps, both PCs receive the "Generate Complete" message even if inventory was generated for only one of the systems.

—End—

Figure 148
Select file to generate



Download an inventory file

You need System Administrator privileges to download an inventory file.

Procedure 74
Downloading an inventory file

Step	Action
1	In the Inventory window, select **Inventory > Download...** The Select file to download window appears, as shown in Figure 149 "Select file to download" (page 327).

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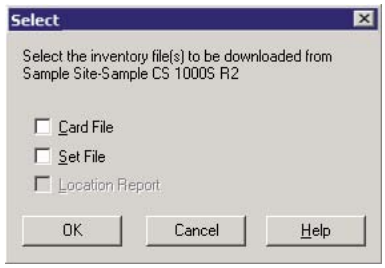
Figure 149
Select file to download



2 Select the Card File check box to download the Card Inventory file.

3 Select the Set File check box to download the Set Inventory file. If both boxes are selected, both files are downloaded.

4 Click **OK** to begin downloading the files.

—End—

Check file generation status

To check file status, select **Inventory > Status** in the Inventory window.

The System Files frame information is updated. Set and Card Inventory status consists of a state value and a substate value. See Table 23 "Valid state values" (page 327) and Table 24 "Valid substate values" (page 327) for descriptions of the values.

Table 23
Valid state values

State value	Meaning
IDLE	There is no activity on the switch involving the inventory files.
BUSY	An inventory file is in use.

Table 24
Valid substate values

Substate value	Meaning
NONE	There is no activity on the switch involving the inventory files.
GENERATING	An inventory file is being generated by the switch software.
DOWNLOADING	An inventory file is being downloaded from the switch to the PC.

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Abort file generation

You need System Administrator privileges to abort generation of an inventory file.

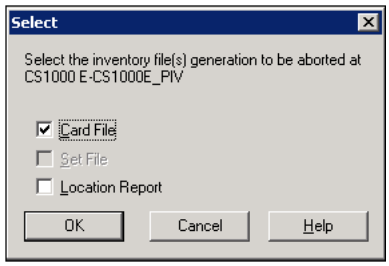
Procedure 75

Aborting file generation

Step	Action
1	In the Inventory window, select **Inventory > Abort**. The Select file to abort window appears, as shown in Figure 150 "Select file to abort" (page 328).
2	Do one or both of the following: a. Select **Card File** to abort generation of the Card Inventory file. b. Select **Set File** check box to abort generation of the Set Inventory file.
3	Click **OK** to abort generation of the files.

—End—

Figure 150
Select file to abort



Location Report files

The Location Report file provides columns of information in Excel about location information for all IP sets configured in the system. The location information displays ERL and ECL fields for all IP sets. A sample inventory report is shown in Figure 151 "Sample Location Report file" (page 329).Table 25 "Location Report file column descriptions" (page 329) describes each column.

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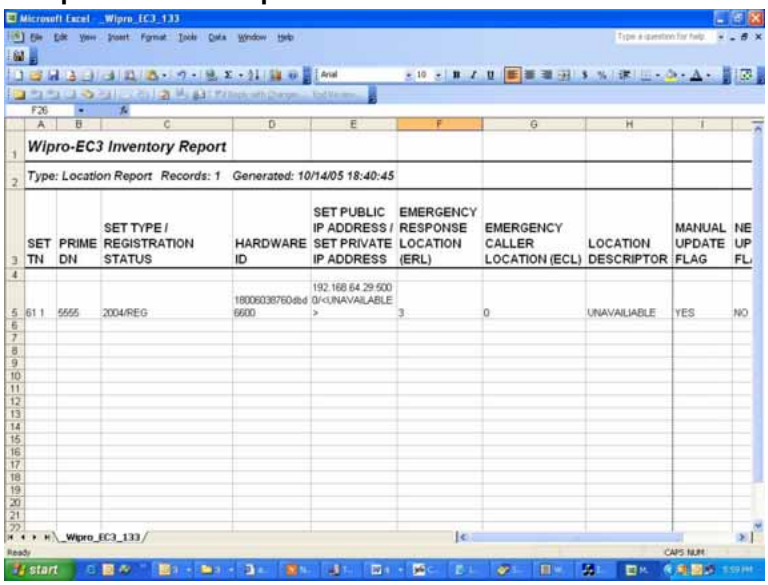
Figure 151
Sample Location Report file



Wipro-EC3 Inventory Report

Type: Location Report Records: 1 Generated: 10/14/05 18:40:45

SET TN	PRIME DN	SET TYPE / REGISTRATION STATUS	HARDWARE ID	SET PUBLIC IP ADDRESS / SET PRIVATE IP ADDRESS	EMERGENCY RESPONSE LOCATION (ERL)	EMERGENCY CALLER LOCATION (ECL)	LOCATION DESCRIPTOR	MANUAL UPDATE FLAG	NE UP FL
61 1	5555	2004/REG	180060387600d 6600	192.168.64.29:500 0/<UNAVAILABLE >	3	0	UNAVAILABLE	YES	NO

Table 25
Location Report file column descriptions

Column name	Description
SET TN	Set terminal number
PRIME DN	Prime directory number
SET TYPE/REGISTRATION STATUS	Type of set and registration status
HARDWARE ID	Hardware identification (HWID) for the IP set
SET PUBLIC IP ADDRESS/SET PRIVATE IP ADDRESS	Public and private IP addresses for the set
EMERGENCY RESPONSE LOCATION (ERL)	The range of ERL values is from 0 to 65535.
EMERGENCY CALLER LOCATION (ECL)	The range of ECL values is from 0 to 65535.
LOCATION DESCRIPTOR	If the location descriptor is not configured, the column on the location report file will display "Unavailable".
MANUAL UPDATE FLAG	"Yes" or "no" will be displayed.
NEEDS UPDATE FLAG	"Yes" or "no" will be displayed.

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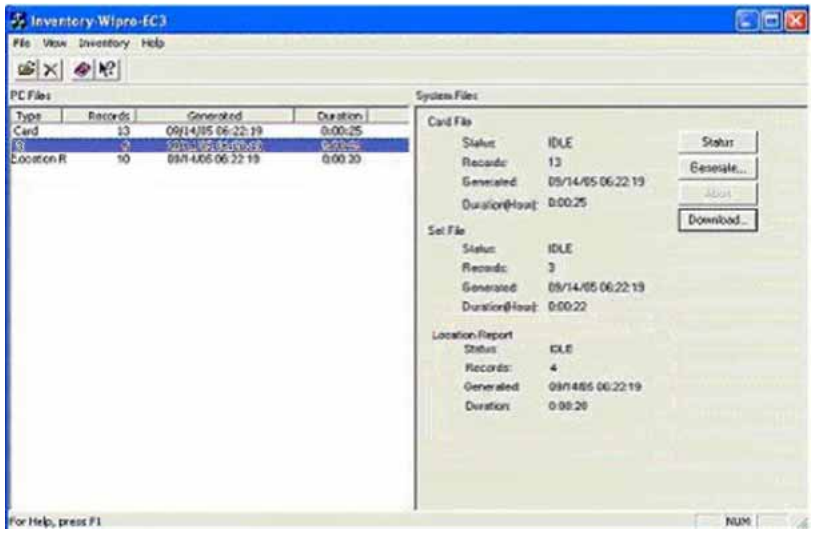
Procedure 76
Generating a Location Report

Step	Action
1	In the Inventory application window (see Figure 152 "Location Report in Inventory application" (page 330)), click **Generate**.

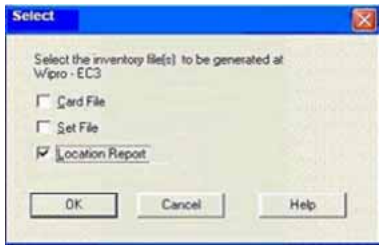
Figure 152
Location Report in Inventory application



The Select file to generate dialog window appears.

2	Select the **Location Report** check box to generate the Location Report file. (See Figure 153 " Generate Location Report dialog" (page 330)).

Figure 153
Generate Location Report dialog



—End—

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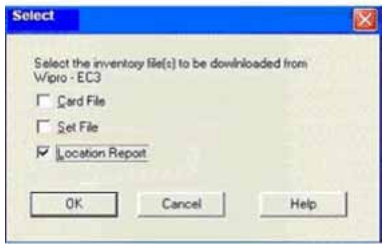
Procedure 77
Downloading a Location Report file

Step	Action
1	In the Inventory application window (see Figure 152 "Location Report in Inventory application" (page 330)), click **Download**. The Select file to download dialog window appears.
2	Select the **Location Report** check box to download the Location Report file. (See Figure 154 "Download Location Report dialog" (page 331)).

Figure 154
Download Location Report dialog

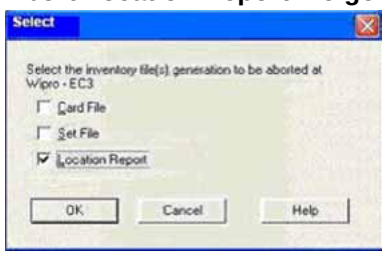


—End—

Procedure 78
Aborting the generation of a Location Report file

Step	Action
1	In the Inventory application window (see Figure 152 "Location Report in Inventory application" (page 330)) click **Abort**.
2	Select the **Location Report** check box to abort the generation of the Location Report file. (See Figure 155 "Abort Location Report file generation" (page 331)).

Figure 155
Abort Location Report file generation



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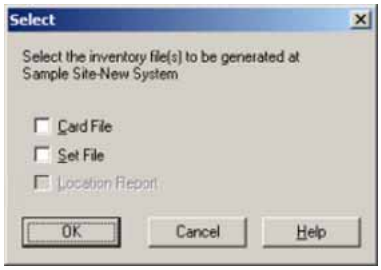
—End—

If a Release value of less than 5 is displayed on the System Data tab of the System Properties window (see Figure 18 "System Properties: System Data tab" (page 81)), the location report is disabled in the inventory application. See Figure 156 "Disabled Location Report in Select file to generate dialog" (page 332).

Figure 156
Disabled Location Report in Select file to generate dialog



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Call Tracking

Contents

This section contains information on the following topics:

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- "Call Tracking functionality" (page 334)
- "CDR collection" (page 334)

"Configuring and running Call Tracking" (page 337)
- "Steps to connecting Call Tracking to a system" (page 339)
- "Running Call Tracking" (page 339)
- "Start CDR collection" (page 346)
- "Setup for alarm generation" (page 349)
- "View the alarm log" (page 353)
- "Log file operations" (page 354)

Introduction

Call Tracking is the real time telephone call monitoring and alarm application for Nortel Telephony Manager (TM). Call Tracking monitors and displays information output from the CS 1000, Meridian 1, or their buffer unit. It then accumulates the data and displays the information in different formats in its CDR displays.

Call Tracking consists of several CDR displays that list your monitored call data. Each of these is a separate window or dialog box, which displays the call information in a unique format.

The main window is the background for these CDR display windows. The commands in its main window provide you with the overall functions of these CDR displays.

Call Tracking also provides alarm generating functions, which can be configured to warn you of unusual calling patterns. This is useful in the quick detection of unauthorized telephone calls that occur with toll fraud. You can

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define multiple alarm templates to detect different calling patterns, including calls exceeding a certain duration, calls made at unusual times, and toll calls. Call Tracking can also be configured to output visual alarms or send to a log file on an external device such as a printer or network workstation.

Call Tracking functionality

The functionality and usage of the 32-bit call tracking application is:

- Current call information display—display of information about the call record just analyzed.
- Recent call history display—display of a line-by-line listing of the last 20, 50, 100, or 250 call records collected. Also display of the total number of call records collected from the beginning of the session and the durations of longest calls (internal, tandem, incoming and outgoing).
- Schedule operations—Start CDR collection and Stop CDR collection
- Real time CDR collection—collection of real time CDR from the system or its buffer unit. Supported buffer units are:
  - MDR 2000
  - POLLCAT NETLINK, and
  - SEB II
- Alarm definitions and generation—define alarms to warn the administrator of suspicious calls.
- Modes of alarms—visual and log file to external printer or network workstation.

CDR collection

Call tracking collects CDR by:

- Collecting real time CDR from the PBX, and
- Collecting CDR from the buffer unit.

Real time CDR collection from the PBX

Call tracking collects real time CDR through a serial connection to the PBX. The parameters required to start a CDR collection session with the PBX are explained in Table 26 "Session parameters" (page 344). All the parameters (except for collection parameter) are obtained from the properties of the system being monitored. and are displayed to the user for information. These parameters can be modified in system properties, if desired.

CDR Analysis and alarm generation

Alarm definitions have to be set before starting a CDR collection session. This is required for each record being collected for verification against the alarm definitions during analysis.

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Call tracking generates an alarm for all the call detail records that match at least one of the alarm definitions. It stores the alarm information in a log file. Call tracking also gives an indication in the form of an icon, as part of the call record in the recent call history. "Recent call history" (page 336) The detailed alarm information: alarm description, and action string are shown as part of call detail information. "Current call detail information" (page 336)

Alarm generation setup

Alarm definition contains the alarm conditions that a call record should satisfy. It can be based on any of the fields of the CDR data or a combination of them. see Table 28 "Alarm definition parameters" (page 350). The user has to choose the alarm definitions to be applied during a CDR collection session. A maximum of 10 alarm definitions are allowed.

For example, set the alarm conditions in an alarm definition as Originating ID in the range D0002003 to D0002005, terminating ID in the range D0002005 to D0002007, and the date of the call between 12 July and 30 July. Call Tracking generates alarms for all the calls that meet these conditions.

Alarm notifications

Call tracking supports the following modes of alarm notifications. The modes described below are enabled by default and cannot be disabled.

- Log file—the call details along with the details of the alarm are logged into a file, where:
  - — An interface is provided to view a listing of the last 200 calls that have generated an alarm. Refresh the interface to view the latest logs.
  - — The log file can be cleared or exported to a comma separated values (CSV) text file, in which the comma character (,) usually separates each field of text. When the number of logs in the alarm log file goes beyond 10,000, the user is asked to export the logs to a CSV file and clear the alarm log file. Nortel recommends that the log file be exported and cleared at regular intervals for consistent management.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

- Visual—Visual mode is used to provide an indication of the alarm in the recent call history against the call. It also provides the details of the alarm in the call detail information.

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CDR display

The analyzed CDR data is displayed in two forms:

- Recent call history
- Current call information

The user can clear the recent call history and current call information, when required.

Recent call history The Recent Call History dialog box lists the details of the call records. By default, call tracking displays the details of the last 20 CDR in the recent call history. The user can configure the number of call detail records for which the details are provided. Call tracking can display the information for a maximum of 250 call detail records. Call tracking uses the first in first out method to display CDR data. For example, if the user has chosen to view 250 calls and call tracking receives the 251st CDR record, the first record gets deleted to accommodate the new record received. The Call tracking main window Figure 160 "Call Tracking main window" (page 341) is divided into two panes. The top pane shows the list of recent calls. Each call record consists of:

- originating ID
- terminating ID
- date and time
- indication of an alarm, if the call generated one.

Current call detail information The Call Detail Information in the bottom pane shows the detailed information of each call (the row) that is selected in the top pane. The detailed call information consists of:

- Originating ID
- Terminating ID
- Date and time of the call
- Authorization code and account code
- Digits dialed
- Duration of the call
- Alarm information like alarm description and alarm action string when the call has generated an alarm

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Access control

There are three levels of access control. The access control for the application is set through user group management.

- Read-write access—the user with Read-Write access can work with all the functions of call tracking
- Read-only access—the user who has 'Read-Only' access cannot work with the following functions:
  - Clearing the CDR data from recent call history and current call information
  - Collection of CDR data
  - Scheduling of start and stop of collection session
  - Enabling alarms
  - Editing the real time session parameters
- No access—the user who has 'No access' access cannot launch call tracking.

Configuring and running Call Tracking

Sample setup for real-time monitoring

The following sample setup provides information on setting up Call Tracking to connect to the system and collect CDR data in real-time mode.

Sample scenario

A user requires a connection between Call Tracking and the system. CDR data is output through the SDI port and is routed using a y-cable to a CDR buffer unit and to a modem (connected to Telephony Manager Call Tracking). This y-cable allows the CDR data to be output in two identical data streams: one for real-time monitoring by Call Tracking (see Figure 157 "Schematic for sample scenario" (page 338)), and the other for storage in the buffer unit (optional) (see Figure 158 "Serial connection to the buffer unit" (page 338)).

The following details apply:

- Meridian 1 for the company is located in the switch room of the Head Office and is configured to output CDR information from its SDI port.
- A y-cable is connected to the SDI port with one connection to a CDR buffer unit (optional), and the second to a modem.
- The modem at the CS 1000 is configured to communicate with another modem at the Head Office in the PC room. This second modem is attached to the PC (on COM1) on which Call Tracking is installed.

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Since this scenario outlines the steps required to configure Call Tracking, it assumes that you have already entered the following information:

- Call Tracking was installed as part of the Telephony Manager installation on a PC in the Head Office.
- A site and system have been created and configured for this connection to the CS 1000. The site is entitled Acme Company, and the system is entitled Head Office. Its communications parameters for the SDI port have already been entered in the Communications tab of the Telephony Manager System Configuration function.

ATTENTION

The Call Tracking application supports only the SL1 OLD and NEW Type of CDR for parsing the records.

If the connection between the PC and the buffer box is direct or dial-up, the Call Tracking application cannot reestablish the call, if it drops.

The Call Tracking application deletes all the records in the buffer box after collection has been completed.

Figure 157
Schematic for sample scenario

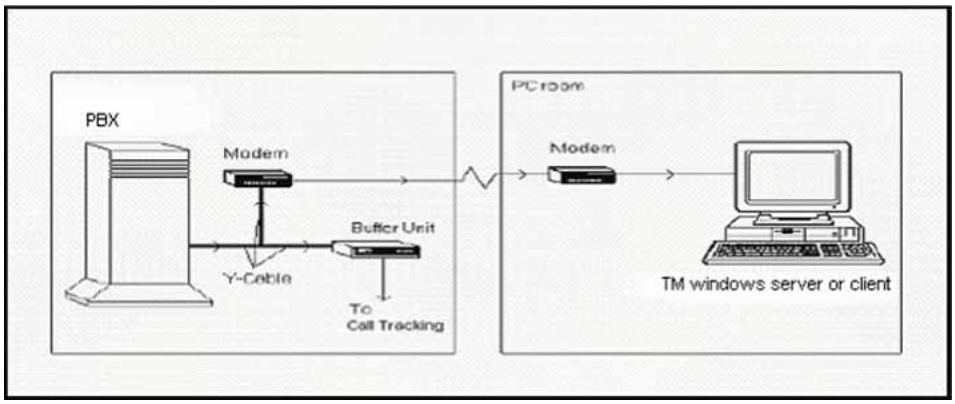
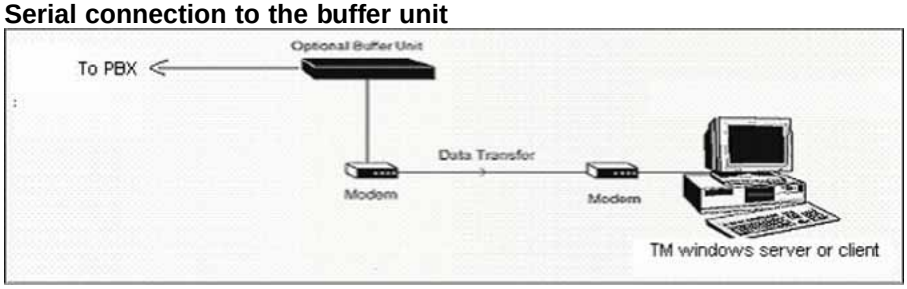


Figure 158
Serial connection to the buffer unit



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Steps to connecting Call Tracking to a system

The following procedures assume that you have already installed the Telephony Manager software and completed the Telephony Manager configuration tasks described *Telephony Manager 3.1 System Administration (NN43050-601)*. It also assumes that you have created a site and system on which you can assign Call Tracking.

Procedure 79
Connecting Telephony Manager to a system

Step	Action
1	Run the **Telephony Manager Navigator** by clicking the **Telephony Manager Navigator** icon.
2	At the **Login window**, enter your user ID and password.
3	Click **OK** to continue.
4	Click on the site and system. To open the site and system for this example, click Acme Company in the Telephony Manager Navigator window, and then double-click Head Office from this site.

—End—

Running Call Tracking

Procedure 80
Running Call Tracking

Step	Action
1	Logon to Telephony Manager, and select the system that the call tracking application is to monitor.
2	In the Telephony Manager System Window, access the Call Tracking option from the Telemanagement navigation menu.
3	Verify the communications parameters for **Call Tracking** for this system. a. Select **Session > Edit Session Parameters**. The Session Parameters dialog box appears displaying the communications and connection criteria for the system. These appear for informational purposes.

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b. Review the data in these fields to ensure that they correspond to the connection parameters for your system.

4 Ensure necessary hardware is connected.

Since this system requires a modem connection between the PC and the system, you must ensure that the equipment used in this connection is turned on and running properly.

a. Check the y-cable attached to the CS 1000 or Meridian 1 system (switch room).

b. Check the modem attached to the y-cable (switch room).

c. Check the modem attached to the PC (PC room).

see the documentation provided with this equipment to ensure that they are properly connected and configured.

5 In the System Window, shown in Figure 159 "Starting Call Tracking" (page 340), double-click on **Call Tracking** under **Telemanagement**.

The main window appears, as shown in Figure 160 "Call Tracking main window" (page 341).

Figure 159
Starting Call Tracking

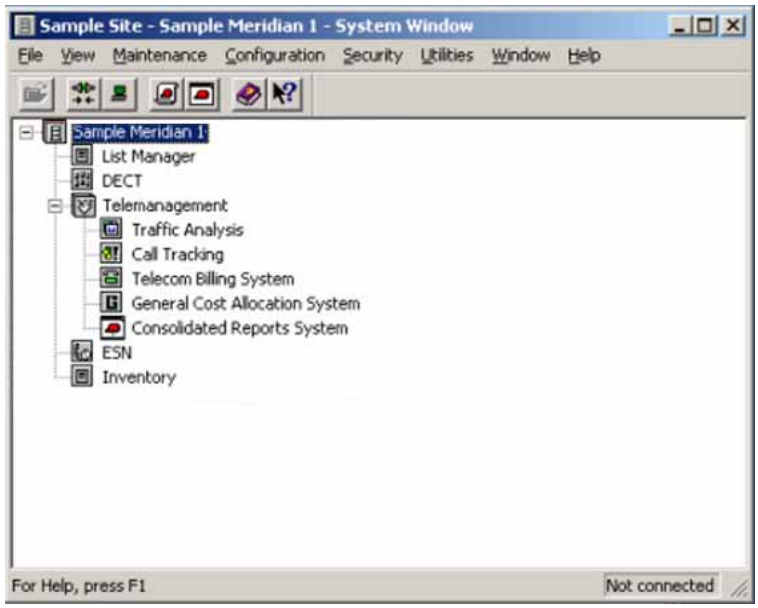

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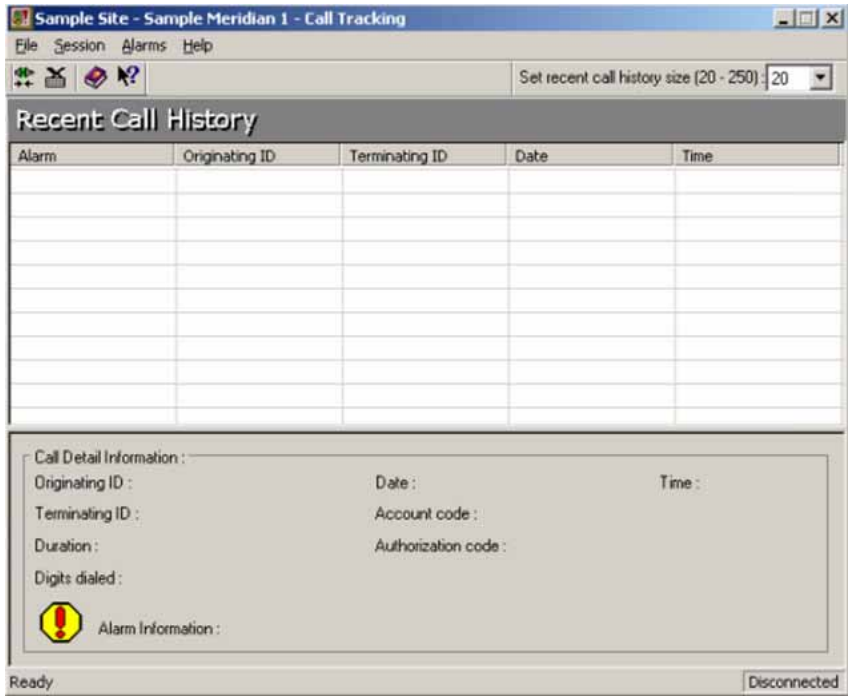
Figure 160
Call Tracking main window



—End—

Procedure 81
Configuring the number of records for recent call history

Step	Action
1	Select a predefined value from the **Set recent call history size** list.
2	To view the detailed information of any of the calls listed in the top pane, or to view the alarm information for a call that has generated an alarm, click on that particular row. The detailed information for that call is displayed in the bottom pane, as shown in Figure 161 "Call detail information for the call selected" (page 342).

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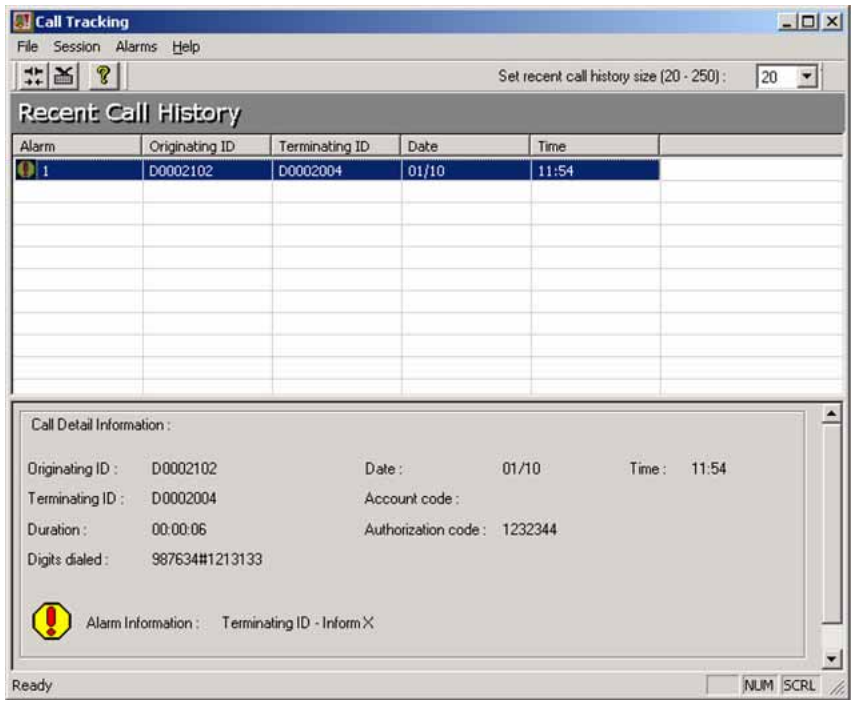
Figure 161
Call detail information for the call selected



—End—

Procedure 82
Clearing recent call history and call detail information

Step	Action
1	Select **File > Clear call history**.
2	Click **Yes** in the confirmation dialog box.

—End—

Procedure 83
Configuring settings for real time CDR collection

Step	Action
1	Select **Session > Edit session parameters**.

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This opens the window shown in Figure 162 "Edit session parameters" (page 344). The window is divided into five sections. See Table 26 "Session parameters" (page 344).

- Selected profile: This section displays the values selected (in the system properties dialog) for profile name and profile type. These values can not be edited. These values are taken from the applications tab of the system properties page.
- Ports: This section displays the value of the communication port selected in the system properties dialog box. These values can not be edited. These values are taken from the applications tab of the system properties page.
- Connection parameters: This section displays the values selected (in the system properties dialog) for data rate, stop bits, data bits, parity, delay and timeout. These values can not be edited. These values are taken from the communications tab of the system properties page.
- System access parameters: This section displays the values selected (in the system properties dialog) for modem script, phone number, modem access ID, modem password and buffer equipment type. These values can not be edited. These values are taken from the communications tab of the system properties page.
- CDR collection parameter: This section contains one combo box to choose the CDR collection parameter. See Table 27 "Collection parameters" (page 345) for the list of CDR collection parameters for each of the devices supported.

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Figure 162
Edit session parameters

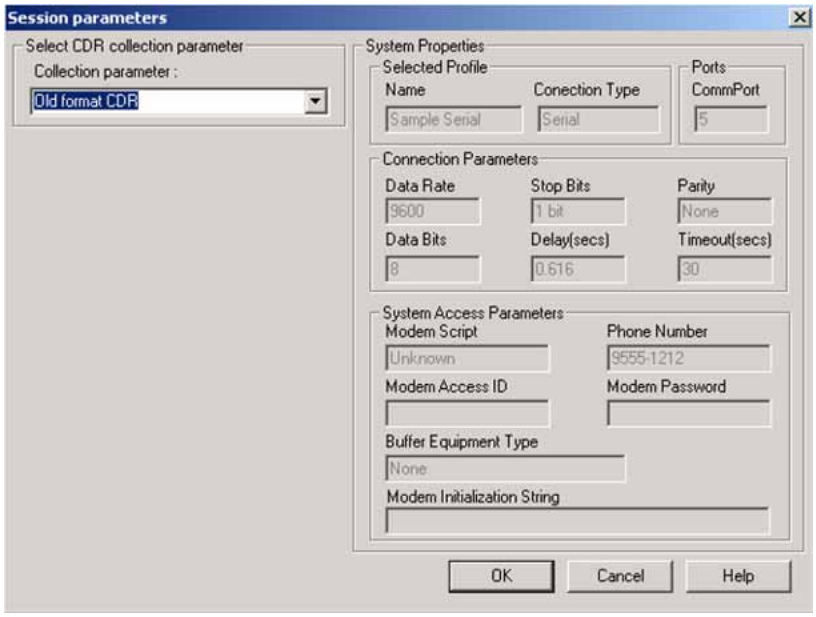

Table 26
Session parameters

Selected Profile	
Name	The name of the profile used to work with call tracking application.
Connection type	The type of connection made to the PBX or the buffer unit. The only value supported is serial.
Port	
Comm port	The Telephony Manager server or client communication port from which the connection to the PBX is made.
Connection Parameters: Communication parameters used for real time monitoring.	
Data rate	The baud rate at which Call tracking communicates with the PBX through its connected modems. The supported values are 300, 1200, 2400, 4800, 9600 and 19200.
Stop bits	The stop bits for this modem connection. The values supported are 1, 1.5, or 2 bits.
Data bits	The data bits required for the modem connection. The values supported are 5, 6, 7, and 8
Parity	The parity for the modem connection. The values supported are none, odd, even, mark, and space.
Delay (seconds)	The time in seconds for which the system waits before initiating communication with the PBX. The delay can have any value between 0 and 1 second up to a millisecond level.

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Timeout (seconds)	The time in seconds for which the system waits for a connection response from the PBX before stopping the communication attempt. This value can be anywhere between 5 and 60 seconds.
System access parameters	
Modem script	The file name of the script used for communication with a remote modem connected either to the PBX or the buffer unit.
Phone number	The telephone number of the remote modem.
Modem access ID	The access ID of the remote modem.
Modem password	The password of the remote modem.
Buffer equipment type	The type of buffer unit from which CDR is collected. The buffer units supported are MDR2000, POLLCAT NETLINK, and SEB II.
Modem Initialization String	The string required to initialize the connection using the modem.
Collection parameter	
Collection parameter	The format of CDR along with the way of collection from the device selected. See Table 27 "Collection parameters" (page 345) for the list of collection parameters supported for each of the devices.

Table 27
Collection parameters

Device name	Collection parameter
PBX	Old format CDR New format CDR Old format CDR with periodic pulse metering New format CDR with periodic pulse metering
MDR 2000 buffer unit	Old format CDR Old format CDR—real time New format CDR New format CDR—real time
POLLCAT NETLINK buffer unit	Old format CDR New format CDR
SEB II buffer unit	Old format CDR New format CDR

2 In the Select CDR collection parameter section, select the collection parameter.

3 Review the values in the sections selected profile, ports, communication parameters and system access parameters, and change them if necessary:

a. Close call tracking window.

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b. Close the system window.

c. Open the properties of the system.

d. Change the values in the communication tab for the selected profile.

e. Save the changes.

f. Open the system window.

g. Open Call Tracking.

4 Select **Session > Edit session parameters**.

The changes are displayed.

5 Click **OK**.

—End—

Start CDR collection

Procedure 84
Starting CDR collection

Step	Action
1	Select **Session > Connect**. The status of the collection is displayed, as shown in Figure 160 "Call Tracking main window" (page 341).
2	Click **Yes** in the confirmation dialog box.

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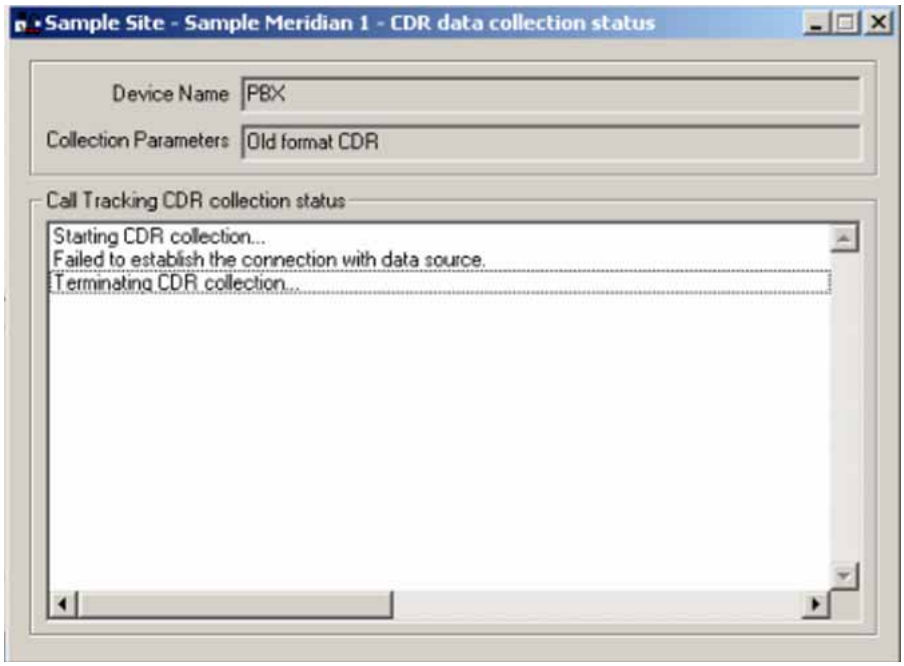
Figure 163
CDR collection status



—End—

To stop a CDR collection session that is running, select Session > Disconnect.

Procedure 85
Scheduling the start of CDR collection

Step	Action
1	Select **File > Schedule > Start CDR collection**. The Scheduling window appears, as shown in Figure 164 "Scheduling window" (page 348).

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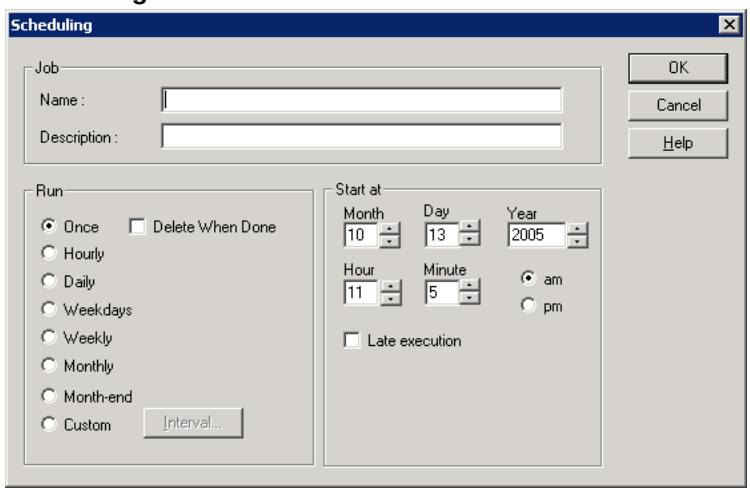
Figure 164
Scheduling window



2 Enter a job **Name** and **Description**.

3 Set the job frequency in the **Run** section.

4 Enter the start date and time in the **Start at** section.

5 (Optional) Select **Late execution**.

6 Click **OK**.

The CDR collection starts at the scheduled time.

—End—

Procedure 86
Scheduling the end of CDR collection

Step	Action
1	Select **File > Schedule > Stop CDR collection**. The Scheduling window appears, as shown in Figure 164 "Scheduling window" (page 348).
2	Enter a job **Name** and **Description**.
3	Set the job frequency in the **Run** section.
4	Set the stop date and time in the **Start at** section.
5	Click **OK**.

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The CDR collection stops at the scheduled time.

—End—

Setup for alarm generation

Procedure 87
Setting alarm definitions

Step	Action
1	Select **Alarms > Alarm definitions**. The window shown in Figure 165 "Alarm definitions window" (page 350).
2	Do one of the following: • If there is no alarm definition defined previously, select **Alarm 1**. • If one or more alarm has been defined, select **Alarm<n>**, where n is the number of the next alarm to be defined. For example, if Alarm 1 and Alarm 2 are already defined, the list of alarms shows Alarm 1, Alarm 2 and Alarm 3. Alarm 3 is the next alarm definition to be defined by the user if required. This is extended to a maximum limit of 10 alarm definitions.
3	Enter a mandatory description and an optional action string in the selected alarm details.
4	Fill the rest of the fields. See Table 28 "Alarm definition parameters" (page 350) for alarm field definitions.
5	Check **Enable** to apply the alarm definition to the CDR collected.
6	Do one of the following: • Click **Save** to save the alarm definition. • Click **Clear** to clear the values in the dialog box. • Click **Cancel** to cancel the modifications made to the values in the dialog box. • Click **Help** to view the help contents for the dialog box.
7	Click **OK** to close the dialog box.

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Figure 165
Alarm definitions window

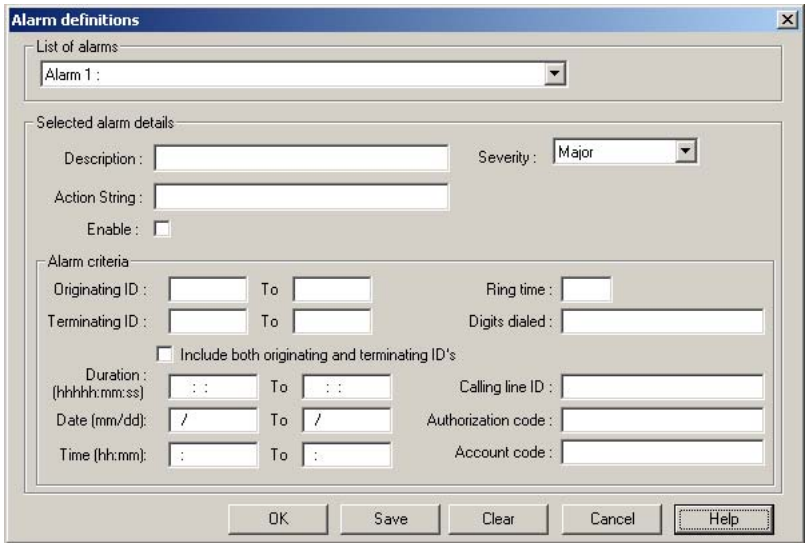

Table 28
Alarm definition parameters

Parameter	Description
Description	The description of the alarm for information only. The description can contain up to 30 characters.
Action	This is an optional action message for the alarm. It provides additional information about the alarm and reminds the user to perform a specific activity when the alarm occurs.
Originating ID	The range for the originating ID for the call records for which the alarm is generated. The originating IDs are preceded by single letter designators to describe the type of originating agent. The designators supported are D = DN or extension, T = trunk, and A = attendant. The designator is followed by up to 7 characters, usually digits.
Terminating ID	The range for the terminating ID for the call records for which the alarm occurs. The terminating IDs are preceded by single letter designators to describe the type of terminating agent. The designators supported are D = DN or extension, T = trunk, and A = attendant. The designator is followed by up to 7 characters, usually digits.
Includes both originating and terminating IDs	This option, when selected, considers the ranges in both the originating and the terminating ID fields (using a logical AND) while deciding when to generate an alarm. If this feature is on, then only calls made from the extensions or trunks in the originating ID fields and to the extensions or trunks in the terminating ID fields generate alarms.
Date	The range of call record dates in the format mm/dd for which the alarm is generated.

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Parameter	Description
Severity	The severity field defines the severity of the SNMP traps. A list identifies the values for this field: Critical, Major, Minor, and Information. This is a mandatory field, and the default value is Major.
Time	The range of call record times in 24-hour format hh:mm for which the alarm is generated.
Duration	The range of call record duration for which the alarm occurs is in the format hhhhh:mm:ss.
Digits dialed	The digits of the call records dialed for which the alarm occurs. The digits can be in the range 0–999999999999999999999999. Wild characters can also be used. The question mark (?) is a wild card mask used to replace one character. The asterisk (*) is a wild card mask used to replace all the consecutive characters.
Authorization code	The authorization code for the call records for which the alarm occurs. The authorization code should be in the range 0–9999999999. Wild characters can also be used. The question mark (?) is a wild card mask used to replace one character. The asterisk (*) is a wild card mask used to replace all the consecutive characters.
Account code	The account code for the call records for which the alarm occurs. The account code should be in the range 0–99999999999999. Wild characters can also be used. The question mark (?) is a wild card mask used to replace one character. The asterisk (*) is a wild card mask used to replace all the consecutive characters.
Calling line ID	The calling line ID for the call records for which the alarm occurs. The calling line ID should be in the range 0–999999999999999999999999. Wild characters can also be used. The question mark (?) is a wild card mask used to replace one character. The asterisk (*) is a wild card mask used to replace all the consecutive characters.
Ring time	The ring time value (if applicable) for the call records for which the alarm occurs. The ring time should be in the range 0–999 seconds. Wild characters can also be used. The question mark (?) is a wild card mask used to replace one character. The asterisk (*) is a wild card mask used to replace all the consecutive characters. The ring time value is equal to the entered value.

—End—

For the Severity parameter in the Alarm Definitions, the community string for the SNMP trap has the value public. The destination IP value is the Telephony Manager Server address. The definition of the SNMP trap is as follows:

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```
device OTM 6.1 6.2 6.3 6.4 6.5 6.6 { 1.3.6.1.4.1.5
62.50.1.2.1.0integer$AlarmSeqNum "Alarm Seq Num"
1.3.6.1.4.1.562.50.1.2.2.0string $DeviceTime "Device Time"
1.3.6.1.4.1.562.50.1.2.3.0integer$Severity "Severity"
1.3.6.1.4.1.562.50.1.2.4.0integer$NameSpace "Name Space"
1.3.6.1.4.1.562.50.1.2.5.0string $ErrorCode "Error
Code" 1.3.6.1.4.1.562.50.1.2.6.0string $Site "Site"
1.3.6.1.4.1.562.50.1.2.7.0string $System "System"

1.3.6.1.4.1.562.50.1.2.8.0string $SystemComponent"System
Component" 1.3.6.1.4.1.562.50.1.2.9.0string $OriginatingAg
ent"Originating Agent" 1.3.6.1.4.1.562.50.1.2.10.0 integer
$TrapType "Trap Type" 1.3.6.1.4.1.562.50.1.2.11.0 string $Ass
ocUser "Associated User" 1.3.6.1.4.1.562.50.1.2.12.0 string
$OperatorData "Operator Data" 1.3.6.1.4.1.562.50.1.2.13.0
string $ExpertData "Expert Data" 1.3.6.1.4.1.562.50.1.2.14.0
string $Text "Text"
```

The information sent in the trap is:

- Device Time = PC time
- Severity = <Severity> specified in the SNMP configuration dialog
- Name Space = nsOtm
- Error Code = <Description> specified in Alarm definition
- Site = <site>
- System = <system>
- System Component = Call Tracking
- Operator Data = <action string> specified in Alarm definition
- Expert Data = parsed CDR record

Procedure 88
Disabling all alarm definitions

Step	Action
1	Select **Alarms > Disable all alarm definitions**. A confirmation dialog box appears to confirm the operation.
2	Do one of the following: • Click **Yes** to confirm the operation. • Click **No** to cancel the operation.

—End—

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View the alarm log

Procedure 89
Viewing the alarm log

Step	Action
1	Select **Alarms > Log > View recent alarms**. The Alarm log appears, as in Figure 166 "Alarm log window" (page 353).
2	To view the latest contents of the alarm log, click **Refresh**. This is required only after opening the window. Opening the log itself ensures that the latest information is displayed.
3	To view the details of any record, double-click on that record in the log list. The details of the record are shown in the dialog box, as shown in Figure 167 "Call detail information for alarm log contents" (page 354).

Figure 166
Alarm log window

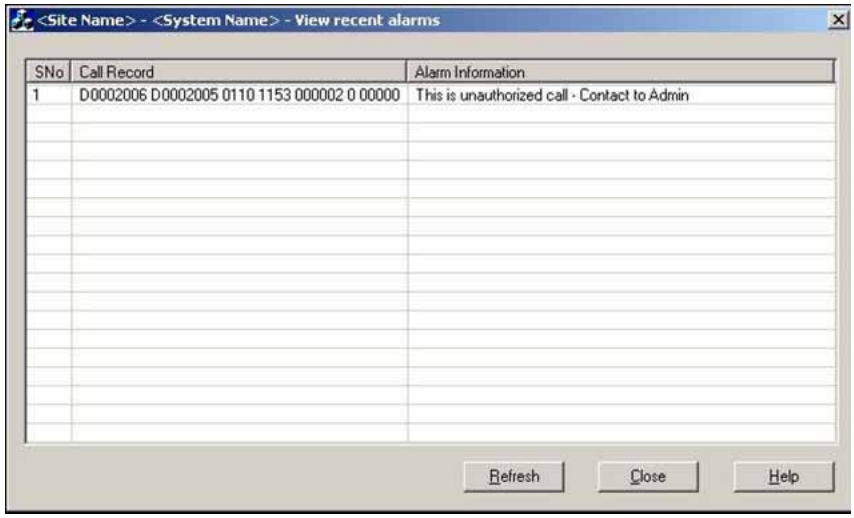

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Figure 167
Call detail information for alarm log contents

4 To close the alarm log dialog box, click **Close**.

—End—

Log file operations

When the alarm log file contains more than 10,000 records, the message 'The alarm log has exceeded the limit of 10,000 records. Export them and clear the log" appears. Click OK in the message box. Export the alarm log to a CSV file and clear the log as explained below.

Procedure 90
Exporting the contents of alarm log file

Step	Action
1	Select **Alarms > Log > Export log file**.
2	Enter a name for the file in the windows file selection dialog that appears, as shown in Figure 168 "Selection of export file" (page 355). The exported file contains details like the serial number, call detail record and the alarm information.

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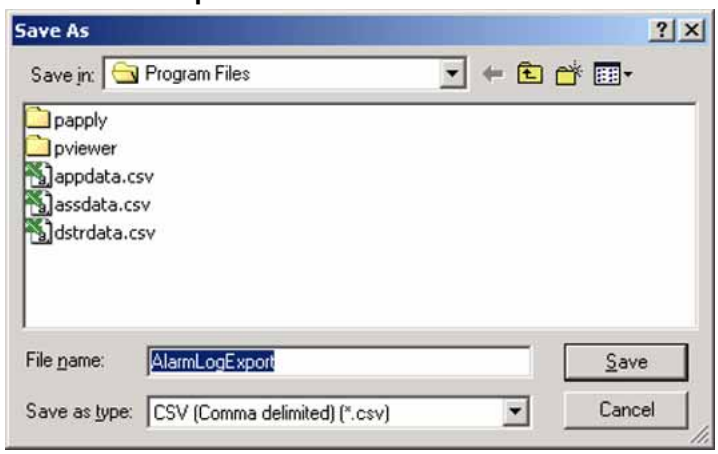
Figure 168
Selection of export file



—End—

Procedure 91
Clearing the contents of alarm log file

Step	Action
1	Select **Alarms > Log > Clear log file**. A confirmation dialog box appears.
2	From the confirmation dialog box, perform one of the following options: • Click **Yes** to confirm the operation. • Click **No** to cancel the operation.

—End—

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Traffic analysis

Contents

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- "Communications throughput" (page 359)
- "System resources" (page 361)
- "Access Control" (page 361)

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- "Access Control" (page 361)
- "Before you begin" (page 362)
- "Online Help" (page 362)
- "Task summary" (page 362)
- "Launch Traffic Analysis" (page 362)
- "Initialize the system for traffic data collection" (page 364)
- "Select a printer for the reports" (page 366)
- "Collect traffic data from the system" (page 367)
- "Process traffic data from a file" (page 369)
- "Generate a traffic report" (page 371)
- "Exit Traffic Analysis" (page 375)

"Running what-if? scenarios" (page 375)
- "Attendant Console scenario" (page 376)
- "Processor Load scenario" (page 380)
- "Trunks scenario" (page 385)

"Tools menu" (page 390)
- "Traffic data maintenance" (page 390)
- "Profile maintenance" (page 396)

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"Filter maintenance" (page 398)
"Traffic Analysis reports" (page 402)
"Troubleshooting" (page 405)

Traffic Analysis system sizing guidelines

System sizing for Traffic Analysis must consider several factors to ensure adequate capacity and throughput to retrieve, store, and report on traffic data. The major factors are as follows:

1. Does the system have enough free disk space to store and maintain the traffic data?
2. Is there sufficient communications bandwidth to perform traffic data collection from all systems in time?
3. Does the system have sufficient resources to provide reports on time?

Traffic Database capacity

The size of the Traffic Database varies depending on the system. The Traffic Database will also grow rapidly depending on how much data is kept for reporting purposes. Since the active database should normally be archived monthly (thus retaining the traffic data for the previous month for reporting, as well as updating statistics on the current month), you should expect to store about two months of data in the Traffic Database. Older data should be routinely archived and moved to external storage. Since, however, it is normally stored transiently on disk as well, you should reserve capacity for the archive operation.

The actual size of the database depends on your specific configuration parameters, such as the number of loops, trunks, consoles, and so on.

Use the following example formula to estimate the size of the Traffic Database (including a one-month archive). This example formula assumes that traffic data collection is scheduled for each hour in the day (that is, you are not excluding any time for maintenance on the system), and that you have 31 days of archived data and 61 days of active data:

24 hours x (61 days + 31 days of archive) = 2208 Traffic Database samples

Thus, you should allow for 2500 samples (this allows for temporary files used during reporting). Use the following calculation to determine the total bytes required for one (1) Traffic Database sample, where one character is equal to one byte. Once you have calculated the total bytes (characters) for 1 sample, multiply it by the total number of samples:

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1 Traffic Database sample =

[(Network Loops x 29) + (Junctor Groups x 17) +
((C/S Links + A/M Links) x 240) + (D-Channels x 115) +
(Multi-Purpose ISDN Signaling Processors x 59) +
(Customers x 424) + (Route Lists x 299) +
(Individual Attendants x 39) + (Network Classes of Service x 35) +
(Incoming Trunk Groups x 35) + <any additional factors>]

To determine the size of newer reports, perform a character count on the report generated on the Meridian 1 or CS 1000.

Communications throughput

The amount of time that it takes a system to collect traffic data depends on the number of systems to collect, the system configuration, the communication line speed, and the number of communication ports available on the Telephony Manager (TM) system.

Traffic data is produced hourly by the systems. This data is either collected hourly by Traffic Analysis from the Meridian 1 or CS 1000 system, or daily from an optional data buffer device, which is connected to the system and stores the hourly data.

The goal is to ensure that the time required to collect data from all systems, using all available communications paths, is less than the interval between collection cycles. Note that modem speeds are typically rated by baud rate, which roughly translates to bits per second. As a rule of thumb, use 10 bits per character in calculating modem speed. For example, a 9600 baud modem delivers about 960 characters per second.

See the sample calculation that follows.

Sample calculation

The following is an example for Traffic Database sizing and a communication throughput estimate, using a 9600 baud modem.

Switch Meridian 1 PBX 61 + 9600 baud modem (no buffer device)

7 Network Loops	x 29	= 203
1 Junctor	x 17	= 17
1 Link	x 240	= 240
0 D-Channels	x 115	= 0
0 MISPs	x 59	= 0
1 Customer	x 424	= 424
9 Route Lists	x 299	= 2691

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1 Ind. Attendant	x 39	= 39
0 NCOSs	x 35	= 0
2 In. Trunk Groups	x 35	= 70
		3684 bytes total
Compression Ratio	= 4:1	= 4
Disk Requirements	= 2500 x 3684	
	= 9,210,000 bytes (assumes two months online)	

Hourly:

Data Collection Duration	= 40 + (4 x 3684) ÷ (960 x 0.85)
	= 59 seconds each hour

Daily:

Data Collection Duration	= 40 + (24 x 4 x 3684) ÷ (960 x 0.85)
	= 474 seconds = 7:54 minutes each day

Impact on bandwidth

The amount of traffic data, as reported by traffic management reports (see *Traffic Measurement: Formats and Output (NN43001-750)*) sent from the Call Server depends on three factors:

- what the user has configured for traffic analysis in LD 2
- how large the switch is
- number of customers on the switch

Traffic information can be sent to a PTY. The previous discussion about baud rate, and the example, apply primarily to a serial port. If a PTY is used, the same amount of data is still transmitted, but over the ELAN.

Traffic reports are only generated periodically (for example, hourly and daily), so there is not a steady stream of output to consume ELAN bandwidth. The traffic output is a burst at corresponding intervals.

If you calculate the total number of characters to be output by the traffic report and multiply that by 10, you get the total number of bits output over the ELAN to a PTY. The speed with which that information is output depends on CPU loading and the speed of the ELAN (10BT or 100BT). The PTY output is limited to the speed of the slowest port that is being used for traffic output.

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System resources

The resources required to produce reports are provided by the Windows environment and are affected by activities on the system. System loads use CPU, memory, disk storage, and bandwidth. A typical application such as a word processor or electronic mail may generate little CPU load, but can put large demands on memory.

In any Windows environment, memory (RAM) can be extended through the use of virtual memory. Virtual memory allows the PC to use disk space as if it were RAM. Both RAM and virtual memory must be available in sufficient quantity for all concurrent system activities. A shortage of memory either prevents an application from running or slows the overall system.

CPU loading depends on the frequency and number of reports. While the system is designed to concurrently generate multiple reports (only for multiple systems), the system runs at maximum throughput when generating one report at a time.

The Windows Print Manager ensures that data from separate reports are not mixed up on the printer. To perform this function, the Print Manager temporarily stores reports on disk (the Print Manager has a backlog limit of 99 print jobs). Therefore, the CPU speed, available virtual memory, and printer speed dictate the time required to produce the reports and the practical system limits to traffic data throughput.

Configuring and running Traffic Analysis

This section provides a step-by-step description of how to access and use Traffic Analysis.

Access Control

ATTENTION

When a Limited Access Password (LAPW) is defined to collect traffic data from LD 02, configure the password to have access to all customers by setting the CUST prompt to ALL. For more information about Limited Access to overlays, see *Features and Services (NN43001-106-B1, -B2, -B3)*.

There are three levels of access control:

- Read-Write access—The user can work with all the functions.
- Read-Only access—The user cannot work with the following functions:
  - — Data maintenance
  - — Saving of profiles, filters
- No access: The user cannot launch traffic analysis.

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Access to Traffic Analysis is determined by the access privileges of User Groups of which the user is a member. See "User groups" (page 637).

Before you begin

Before using Traffic Analysis, you must install and configure it as part of the Telephony Manager system. See "Site and system administration" (page 62) for complete details on configuring Traffic Analysis and assigning it to a site and system.

This system must already have been created using the System Configuration function. See Section 2: Windows Navigator-Common Services for more details on the System Configuration function.

Online Help

To obtain Help for a topic, press **F1** or click **Help** in the currently selected dialog box or window. This accesses the Windows Help function and displays context-sensitive Help information on the current topic. Once you have accessed Help, use it to scroll through the other Help topics, search for a specific topic, and print Help information.

Task summary

The following is a summary of the steps required to access, configure, and use Traffic Analysis:

- "Launch Traffic Analysis" (page 362)
- "Initialize the system for traffic data collection" (page 364)
- "Select a printer for the reports" (page 366)
- "Collect traffic data from the system" (page 367)
- "Process traffic data from a file" (page 369)
- "Generate a traffic report" (page 371)
- "Exit Traffic Analysis" (page 375)

Launch Traffic Analysis

To launch Traffic Analysis, you must first run Telephony Manager and open the site and system. You then select Traffic Analysis from the Telemanagement menu in the system window.

Procedure 92
Launching Traffic Analysis

Step	Action
1	Log in to Telephony Manager. The Telephony Manager Navigator window appears.

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2 In the **Sites** tab, click on **Sites** to expand the list of available sites.

3 Click on the site where the system on which to run Traffic Analysis is located.

4 Click on the system for which the Traffic Analysis application is to be launched.

The System Window for the selected system appears.

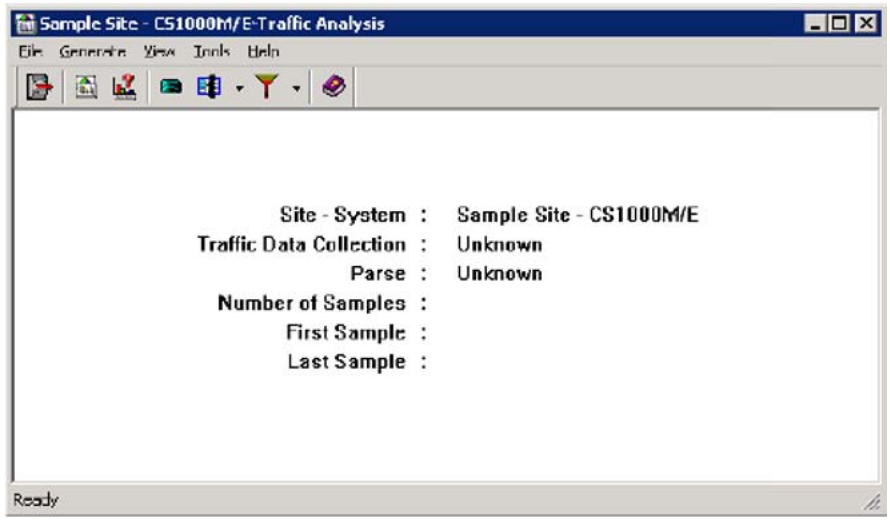
5 Click on **Telemanagement**.

6 Double-click on **Traffic Analysis** to launch the Traffic Analysis application.

The Traffic Analysis main window appears, as shown in Figure 169 "Traffic Analysis main window" (page 363).

If Traffic Analysis is not listed, use Procedure 93 "Assigning Traffic Analysis to system (if not already assigned)" (page 364) to assign Traffic Analysis to the site.

Figure 169
Traffic Analysis main window



This window of the Traffic Analysis application is the focal point for all the functionality provided by the application. The main window also shows the following information about the status of the application:

- **Site-System** —Name of the site and system to which this particular instance of traffic analysis belongs to.
- **Traffic Data Collection** —The date and time of the last traffic data collection. Also indicates whether the collection was a success or a failure.

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- **Parse** —The date and time of the last traffic data parse. Also indicates whether the parse was a success or a failure.
- **Number of Samples** —The number of traffic samples present in the system.
- **First Sample** —Date and time when the first sample was parsed and the sample number.
- **Last Sample** —Date and time when the last sample was parsed and the sample number.

—End—

Assign Traffic Analysis to system (if not already assigned)

If Traffic Analysis has not been assigned to this system, it does not appear in the Telemanagement folder.

Procedure 93
Assigning Traffic Analysis to system (if not already assigned)

Step	Action
1	Click **Applications** tab to assign Traffic Analysis to this system.
2	Click **Traffic Analysis** in the **Application** list box.
3	From the **Communications Profile** list box, select the communications profile that you entered in the Communications tab.
4	Click **Traffic Analysis** in the Applications list box to highlight it and select the **Enable** check box. The flag Yes appears in the Enabled field next to Traffic Analysis in this list box.

—End—

After you have assigned Traffic Analysis to a site and system, you can use it to collect traffic data, generate reports, and maintain its databases.

Initialize the system for traffic data collection

Use Procedure 94 "Initializing the system for traffic collection" (page 365) to initialize the system for traffic data collection. You only need to perform this step once, when you initially configure Traffic Analysis on the system.

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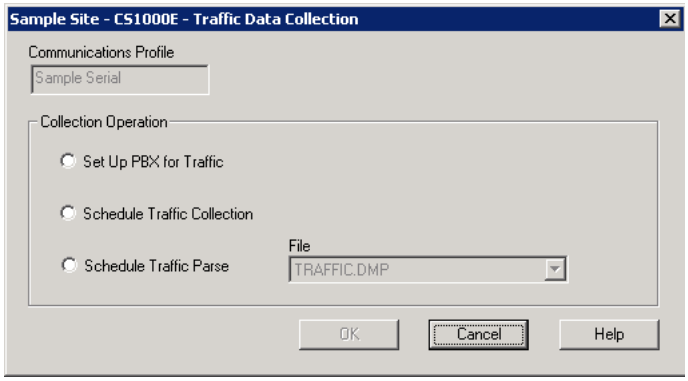
Procedure 94
Initializing the system for traffic collection

Step	Action

1 Select **File > Traffic Data Collection** in the Traffic Analysis main window.

The Traffic Data Collection window appears, as shown in Figure 170 "Traffic Data Collection window" (page 365).

Figure 170
Traffic Data Collection window



2 Select **Set up PBX for Traffic**.

3 Click **OK**.

The Traffic Data Collection window closes. A Traffic data collection status window appears (minimized) showing the status of the operation. Maximize the status window to view the status. See Figure 171 "Traffic data collection status window" (page 366).

Once the operation is complete, the status window closes and the status (success, or failure and reason for failure) is logged to the event log viewer.

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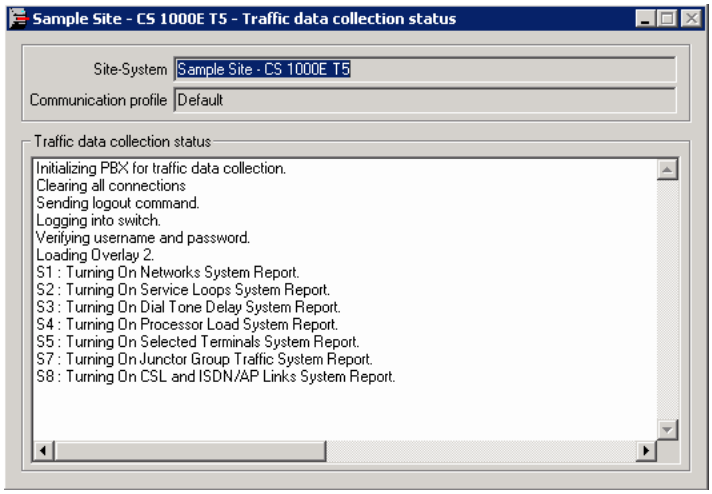
Figure 171
Traffic data collection status window



—End—

Select a printer for the reports

Before generating a report to be printed, you must select a printer to which the reports will be sent. Use Procedure 95 "Selecting a printer for reports" (page 366) to select the printer.

This procedure can be used as often as required, so long as it is done before a report is generated.

Procedure 95
Selecting a printer for reports

Step	Action
1	Select **File > Print** setup in the main window. The **Print** window appears, as shown in Figure 172 "Print window" (page 367).

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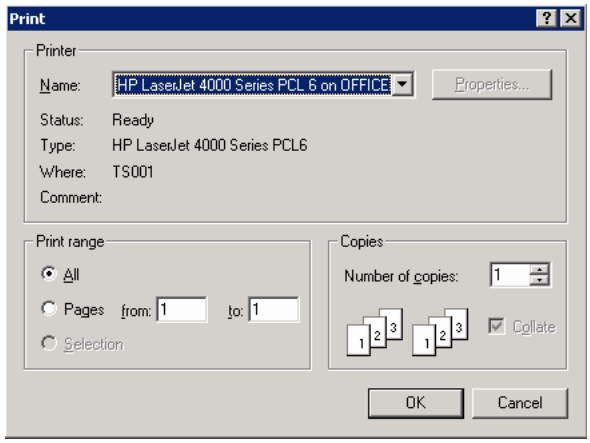
Figure 172
Print window



2 Select a printer from the **Name** list.

3 Set the **Print Range**.

4 Select the **Number of copies**.

5 Click **OK**.

—End—

Collect traffic data from the system

There are various methods to collect traffic data from the system, but only one collection method should be employed during any period, otherwise duplicate records will result. Some collections methods require a separate parsing step. The three main methods of collecting traffic data are:

1. The switch transmits a report to Telephony Manager, using DBA.

   If DBA is used, parsing should be set to occur once a day, in the middle of the night at a quarter to the hour, to improve the possibility that all the data will be available when the parse occurs.

2. The switch transmits a report to a data collector. The data is collected from the data collector via TBS which parses the data into a traffic file for further processing by the traffic application.

   If TBS is being used to collect the data, then a task to parse traffic data should be put into the same queue or job so that as soon as the CDR tasks have completed, traffic is parsed. This prevents the necessity of guessing when the data will be ready.

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3. Telephony Manager calls the switch and requests a report (The traffic application collects the report from the PBX).

The traffic report is typically generated at the top of the hour and will only be available for that hour. Depending upon the collection method selected, you must time processes to allow for maximum reliability, taking clock slip into account.

If DBA is used, data is transferred to the Telephony Manager PC hourly using FTP, so FTP data must be able to flow on the Ethernet network. The data is initially put into a file in the DBA folder and then transferred to traffic.dmp in the system folder. Although the data moves quickly, timers may cause this process to take up to half an hour.

If a data collector is used, collections must be scheduled frequently enough to prevent the collector from filling completely and overwriting or discarding data. Collection should start at the half hour to ensure the entire report has been sent to the data collector prior to data retrieval. Otherwise, only half the report may be retrieved, and the other half will be included in the next collection, causing parsing problems that result in lost data.

If Telephony Manager is configured to connect to the PBX, that should be scheduled for the bottom of the hour to ensure the current hour's report is the one collected. If the Traffic application collects the report from the PBX, Telephony Manager must be scheduled to do that every hour, and the connection method must be available for the use of Telephony Manager, both at the PC and also at the PBX. Also, the overlay set for LD 2 must be available, as an overlay conflict will prevent the report from being collected.

Procedure 96
Processing traffic data

Step	Action
1	Select **File > Traffic Data Collection** in the **Traffic Analysis** main window. The Traffic Data Collection window appears, as shown in Figure 170 "Traffic Data Collection window" (page 365).
2	Select **Schedule Traffic Collection**.
3	Click **OK**. The Scheduling window appears, as shown in Figure 173 "Scheduling window" (page 369).

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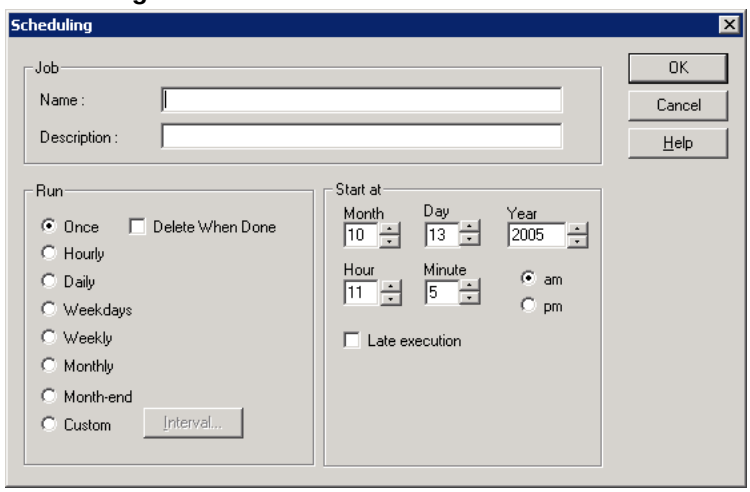
Figure 173
Scheduling window



4 Enter a **Name** and **Description** in the **Job** section.

5 Select a frequency in the **Run** section.

6 Enter the date and time at which it should start in the **Start at** section.

7 (Optional) Select **Late execution** to allow late execution.

If there are several processes scheduled to begin at the same time as the traffic collection process, the Late execution option lets the other processes finish before the traffic collection process starts.

8 Click **OK**.

—End—

Process traffic data from a file

Traffic collected by an application other than Traffic Analysis, such as Data Buffering and Access (DBA), has to be parsed to be included in Traffic Analysis.

If the data was collected from Telephony Manager using the traffic application, the report will be processed automatically, and no additional parsing step is required.

The parse process may be scheduled in advance of having collected any data to parse. Typically, a traffic parse is scheduled to run at a set period to repeat endlessly.

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Use Procedure 97 "Scheduling a traffic parse" (page 370)to parse traffic data collected via DBA (see "Data Buffering and Access (DBA)" (page 169)) or data collected from an MDR2000 or Pollcat.

Procedure 97
Scheduling a traffic parse

Step	Action
1	Select **File > Traffic Data Collection** in the Traffic Analysis main window. The Traffic Data Collection window appears, as shown in Figure 170 "Traffic Data Collection window" (page 365).
2	Select **Schedule Traffic Parse**.
3	Select one of the following files from the File list: • Select **TRAFFIC.DMP** if you are collecting from a DBA. • Select **TBSIMAGE.DAT** if you are collecting from a file that was originally collected by the Telecom Billing System.
4	Click **OK**. The Scheduling window shown in Figure 173 "Scheduling window" (page 369) appears.
5	Enter a **Name** and **Description** in the **Job** section.
6	Select a frequency in the **Run** section.
7	Enter the date and time at which it should start in the **Start at** section.
8	Select **Late execution** to allow late execution.
9	Click **OK**. The traffic data parse starts at the scheduled time. Once the parsing starts, the status of the operation appears in the Traffic data parse status window.
10	Optionally, select the **Scheduler**. • Right-click on the newly created traffic job. • Select **Properties**. • Change the queue as required to position the start of the job relative to others in the desired queue.

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If you are collecting via TBS, you can schedule collection at 10:30 p.m. and assign a queue named CDR. Then you can schedule TBS costing for 10:31 p.m. and assign it to the same queue. Finally you can schedule the traffic parse for 10:32 p.m. and assign it to the same queue, CDR. Regardless of the time taken to collect the CDR and traffic data, costing will run immediately following the completion of collection and traffic parsing will run immediately after costing.

—End—

Generate a traffic report

The list of reports that can be generated by Traffic Analysis is given in "Traffic Analysis reports" (page 402). Reports can be viewed on screen, saved (exported) to a file, or printed when generated or at a scheduled time.

Before printing a report, you must select the printer to which the report will be sent. See "Select a printer for the reports" (page 366).

Each Traffic Analysis report has one or more associated profiles and filters.

Profiles

Profiles define the kind of information to include in a report. Each report requires at least one profile. Traffic Analysis includes several default profiles for commonly used reports. You can define a new profile by editing one of the default profiles and saving it with a new profile name. Profile file names use the .PRO extension.

Filters

Filters define the range of traffic data to be included on a report, such as data for a specific month. Filter file names use the .FLT extension.

Exporting a traffic report

Traffic reports can be exported to a file for subsequent reference and further processing. The following file formats are supported:

- Hyper text Markup Language (HTML) 3.2 and 4.0
- Microsoft Excel 97 to 2003
- Microsoft Excel 97 to 2003 (data only)
- Microsoft Word
- ODBC – can be imported into Microsoft Access
- Rich Text Format (RTF)
- Separated Values (CSV)

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- Tab-separated text
- Text

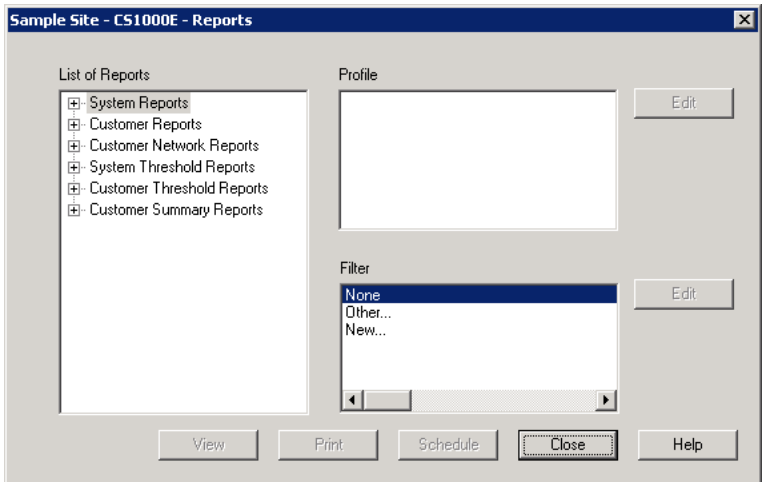
Because of limitations of export functionality in Crystal Reports 10, there may be a loss in some or all of the formatting that appears in the report when a report is exported to a file format other than HTML 4.0, Microsoft Excel 97 to 2003, Microsoft Word, and RTF. However, Crystal Reports attempts to preserve as much formatting as the export format allows when you export to HTML 3.2, Microsoft Excel 97 to 2003 (data only), CSV, ODBC (can be imported into Microsoft Access), Tab-separated text, or Text format.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

Procedure 98
Generating a report

Step	Action
1	Select **Generate > Reports** in the **Traffic Analysis** main window. The Traffic Analysis Reports window appears, as shown in Figure 174 "Reports window" (page 372).
2	Expand the report category in the **List of Reports** section.

Figure 174
Reports window



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3 Select the report to be generated from the expanded list in the **List of Reports** section.

4 Select the appropriate profile (.PRO) or template (.TEM) file in the **Profile** section:

- To select one of the files listed, click on the file.
- To select a profile other than those listed in the **Profile** section:

  1. Double-click on **Other** in the **Profile** section.
  2. Select an appropriate profile (.PRO) or template (.TEM) file from the file selection window.

     If a profile or template that is not compatible with the report is selected, an error window appears with the error Invalid profile type: The Profile type should be compatible with the current report. Please use an appropriate Profile.

- To review or modify a profile or template listed in the **Profile** section, do one of the following:

  — Click on a profile or template name and click **Edit** beside the Profile list.

  — Double-click on the profile or template to be edited.

  The Edit Profile window appears. See Procedure 107 "Editing a profile" (page 396) for directions on editing a profile or template file.

  The .TEM file cannot be modified. If modified, it has to be saved to a different file with .PRO extension.

  If you edit a profile or template and save it under a different name, and the new file has to be used to generate the report, double-click on **Other** to select the new file.

5 Select a filter from the **Filter** section:

- If you do not require a filter, select **None**.

  The Edit button is disabled.

- Select a filter from the list.
- If the filter you require is not listed:

  1. Select **Other**.
  2. Select the filter from the Windows file selection window.

  The selected filter gets added to the list of filters and is selected by default.

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- To create a new filter, select **New** in the **Filter** list.

  Create the new filter in the filter editor window and save the new filter as a .FLT file.

- To review or modify a filter listed in the **Filter** section, do one of the following:

  — Click on a filter name and click **Edit** beside the **Filter** list.

  — Double-click on the filter to be edited.

  The Edit Filter window appears. See Procedure 110 "Editing a filter" (page 400) for directions on editing a filter file.

  If you create or edit a filter and save it under a different name, and the new filter has to be used to generate the report, select Other and select the new filter.

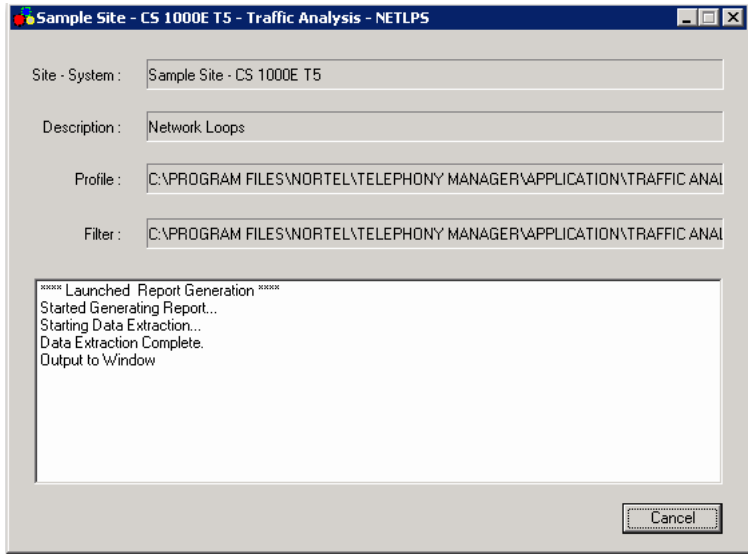
6 Generate the report:

- Click **View** to view the report on the screen, and optionally export the report to file.

  A status window appears (minimized). Figure 175 "Report generation status window" (page 374) shows this window. The report is displayed after it has been generated.

  To save the report to a file, click on the export icon (the envelope icon in the report window). Select the format, and location and file name for the report. See "Exporting a traffic report" (page 371) for a list of formats supported and related limitations.

Figure 175
Report generation status window



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- Click **Schedule** to schedule report generation at a given time.

  The Scheduler window (shown in Figure 173 "Scheduling window" (page 369)) appears. Enter the job name and description, and select the scheduling options, and click **OK**. The report is sent to the printer specified in Procedure 95 "Selecting a printer for reports" (page 366) at the scheduled time.

- Click **Print** to send the report to the printer selected in Procedure 95 "Selecting a printer for reports" (page 366).

  A status window (minimized) appears, similar to that shown in Figure 175 "Report generation status window" (page 374). After the report is printed, the status window closes.

—End—

Exit Traffic Analysis

Close all Traffic Analysis windows except the main window. Select File > Close from the main window to exit the Traffic Analysis application.

Running what-if? scenarios

In addition to generating reports, you can use Traffic Analysis to ask What-if? questions on data output from the system. This is accomplished by defining scenarios and viewing hypothetical results. These What-if scenarios provide different results based on new situations that you input into the system.

To define a scenario, select it from the list of available scenarios. Next, select a profile to define its contents and a filter to set a range for its data.

You can define the following What-if scenarios:

- Attendant Console
- Processor Load
- Trunks

Like reports, scenarios have profiles and filter associated with them. These profiles and filters are manipulated the same as those for reports, as described in step 4 and step 5, respectively, of Procedure 98 "Generating a report" (page 372).

What-If scenarios are activated from the What-If main window, as shown in Figure 176 "What-If main window" (page 376).

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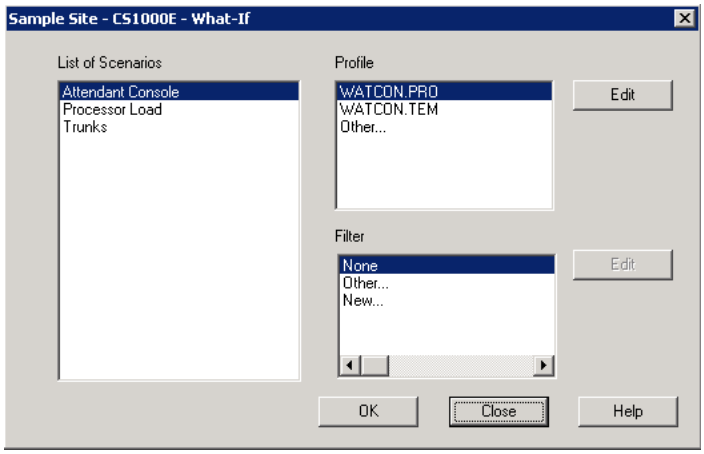
Figure 176
What-If main window



Attendant Console scenario

The Attendant Console scenario allows users to determine if the current number of attendant consoles satisfies their current and future performance requirements. The user can change the number of consoles, the average speed of answer, the average attendant service time and the probability that calls are delayed more than the average speed of answer. By changing any of these parameters the user can make decisions regarding the acceptability of their current configuration.

Table 29 "Attendant Console scenario parameters" (page 376) describes the Attendant Console scenario parameters.

Table 29
Attendant Console scenario parameters

Parameter	Explanation
Current configuration	Information obtained from the traffic data samples provided.
Attendant consoles	Number of attendant consoles for that customer number specified in the profile.
Average number of calls	Approximation based upon the traffic offered to the consoles, and average agent service time.
Average speed of answer	Average time a call waits between the time it was presented to the console and the attendant answers it.
Average attendant service time	Average amount of time the attendant spends with each call.
Probability of calls being delayed by more than average speed of answer	Probability of a new call being delayed longer than the average speed of answer.

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Parameter	Explanation
Offered traffic	Approximates the number of calls per hour to the attendant consoles.
Units of measure	Unit of measurement for answer and service times. The options available are CCS and ERLANGS.

To actually perform the Attendant Console what-if scenario, the user selects the value he wishes to calculate. The selected value is calculated using the other information that has been modified by the user. This shows the impact of the changed values on the value selected.

The user can reset the values to the current configuration values if required. The following questions can be answered within the Attendant Console scenario:

- How many attendant consoles are required to service X calls/hour, assuming that the console services the call within Y seconds, spends Z seconds servicing the call, and the call has a W percent probability of having a delay greater than Y seconds?
- What is the average number of calls per hour that X attendant consoles can handle assuming the average speed of answer is Y seconds, the average attendant service time is Z seconds, and the probability that the caller experiences a delay greater than Y is W?
- On average, how long does each attendant spend servicing calls assuming there are X consoles, Y Calls/Hour serviced within Z seconds of being presented to the console, with a W percent probability of delay greater than Z seconds?
- What is the probability that a call will be delayed more than the average speed of answer, assuming that there are X attendant consoles servicing Y calls/hour, with an average speed of answer of Z, and an average attendant service time of W?

The Attendant Console scenario algorithm performs all calculations using the ErlangC delay model.

It is very important that filters are used to present reasonable data to the Attendant Console scenario. The values provided to the user in the Attendant Console scenario are statistical means of all the traffic samples presented to the scenario. Therefore, averaging high usage values that would typically occur during business hours and low usage values that would typically occur at night would not provide an accurate representation of the daytime use and suitability of the attendant consoles.

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Procedure 99
Using the Attendant Console what-if scenario

Step	Action
1	Select **Generate > What-if** in the Traffic Analysis main window. The What-If main window appears, as shown in Figure 176 "What-If main window" (page 376).
2	Select **Attendant Console** from the **List of Scenarios**.
3	Select one of the existing profiles in the **Profile** list, or click **Edit** next to the **Profile** list to modify a profile to suit your needs. Follow the same profile selection and modification procedures as you use in generating a report (see step 4 of Procedure 98 "Generating a report" (page 372)). The data displayed in the subsequent Attendant Console scenario window is based on the values selected for the parameters in the profile. The values for customer number and the engineering method are taken from the values of the parameters in the selected profile. Modify the values as appropriate.
4	Select one of the existing filters in the **Filter** list, or click **Edit** next to the **Filter** list to modify a profile to suit your needs. Follow the same filter selection and modification procedures as you use in generating a report (see step 5 of Procedure 98 "Generating a report" (page 372)).
5	Click **OK**. The Attendant Console scenario window appears, as shown in Figure 177 "Attendant Console scenario window" (page 379). This window shows the attendant console data retrieved from collected traffic data based on the profile settings. For example, if the value of customer number is 0 in the profile, the data related to attendant consoles of customer 0 is displayed. The attendant console information shown as part of current configuration consists of: • Attendant consoles • Average number of calls • Average speed of answer • Average attendant service time • Probability of calls being delayed by more than average speed of answer

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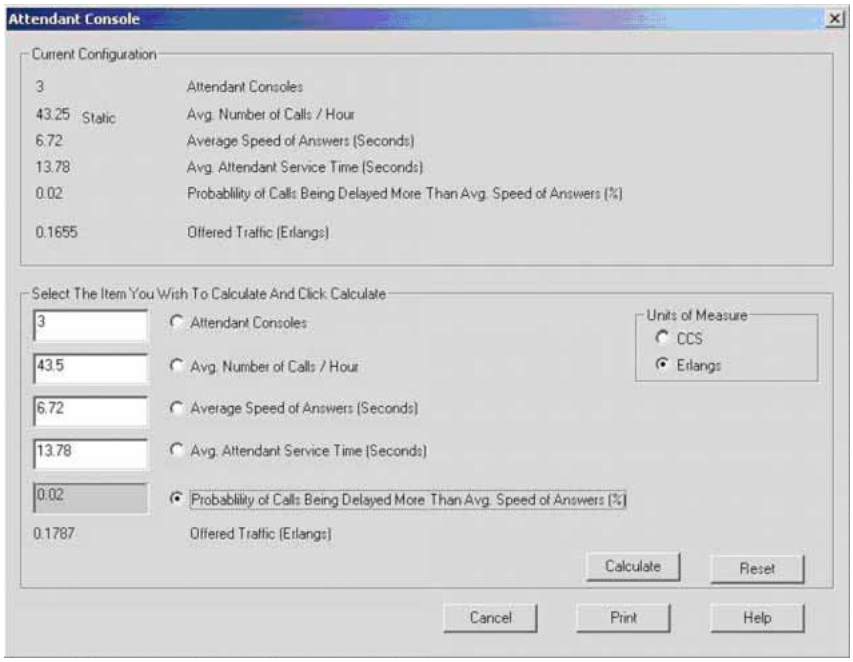
- Offered traffic

Figure 177
Attendant Console scenario window



6 Select **CCS** or **Erlangs** for the Units of Measure.

The displayed values change according to the unit of measure selected.

7 Perform the desired calculations as follows:

a. Select the field to be calculated.

The selected field is disabled as shown in Figure 177 "Attendant Console scenario window" (page 379).

b. Modify the values in the other fields.

c. Click **Calculate**.

The calculated value for the selected field is displayed.

8 (Optional) Click **Print** to print the current configuration information and the calculated information to the selected printer. See "Select a printer for the reports" (page 366) for information on selecting a printer.

9 (Optional) To do more what-if calculations:

a. Click Reset to reset all values to their original state.

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Click Yes in the confirmation window.

b. Repeat these steps starting at step 6 as often as required.

—End—

Processor Load scenario

The Processor Load scenario displays the call attempt and CPU loading values for each hour in the data sample. The user can adjust the call attempt values to simulate how the CPU loading would change if more users or features were added to the switch. With this information, the user is able to determine the suitability of their current CPU for their current and future telephony needs.

In addition to providing CPU loading for the user's current telephone switch, the Processor Load scenario can assist in assessing the suitability of other Nortel switches. The user can select a new switch and observe the effect their current data sample has on its loading.

Regular use of this Processor Load scenario allows users to recognize CPU usage trends enabling them to evaluate new options before their current system becomes burdensome.

The default value for percentage by which the call attempts can be adjusted is initially defined in the profile file. A minimum of 24 hours worth of data is required to perform this calculation. It allows a maximum of 200 data samples (8 days) to be analyzed at any given time. Filters can be used to provide data samples of the required size.

The Processor Load scenario is divided into three areas:

- Current configuration
- CPU option and associated rated capacity
- Current and adjusted data

The current configuration provides the following information to the user which is obtained from the data samples presented to it:

- Current CPU: The current CPU type is obtained from the machine type stored in the Site Configuration dialog box. If the current CPU is not the machine from which the data was obtained, the results may be erroneous.
- Rated capacity (Calls/Hour): The CPU is required to process calls and to perform general switch housekeeping tasks. Thus, the rated capacity of the switch depends upon its size and the number of features the switch supports. The rated capacity of the CPU is determined from the data presented to the Processor Load scenario and represents the total number of CPU attempts which can be made within one hour.

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- Busy hour: The busy hour is the hour with the greatest number of CPU attempts.
- Busy hour CPU loading (%): The busy hour CPU loading is expressed as a percentage of the rated capacity.

The user can assess the suitability of other Nortel CPUs by selecting a new CPU type from the list of CPU options provided to him. The selected CPU and its rated capacity are used for analysis throughout the scenario. The user can return to the original CPU by selecting the original CPU type.

The following CPUs and machine types are supported:

- Nortel Meridian 1 PBX 11C Cabinet
- Nortel Meridian 1 PBX 11C Chassis
- Nortel CS 1000M Cabinet
- Nortel CS 1000M Chassis
- Nortel Meridian 1 PBX 51C 060
- Nortel CS 1000M Half Group 060
- Nortel Meridian 1 PBX 51C, 060E
- Nortel CS 1000M Half Group 060E
- Nortel Meridian 1 PBX 61C 060
- Nortel CS 1000M Single Group 060
- Nortel Meridian 1 PBX 61C 060E
- Nortel CS 1000M Single Group 060E
- Nortel Meridian 1 PBX 81, 81C 060
- Nortel CS 1000M/E Multi Group 060
- Nortel Meridian 1 PBX 81, 81C 060E
- Nortel CS 1000M/E Multi Group 060E
- Nortel CS 1000M/E Multi Group PII
- Nortel Meridian 1 PBX 61C CPPIV
- Nortel Meridian 1 PBX 81C CPPIV
- Nortel CS 1000M Single Group CPPIV
- Nortel CS 1000M/E Multi Group CPPIV
- Nortel CS 1000S
- Nortel CS 1000E CPPM

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The current and adjusted data provides the user with the following information: date, time, current attempts, current %loading, adjusted attempts, and adjusted %loading.

The date and time indicate the date and time associated with the data sample. The values of attempts and %loading are presented twice, once for the actual or "current" values obtained from the physical CPU during traffic collection, and again when these values are adjusted during the scenario. The adjusted values can be changed in two ways:

- User can change the CPU Attempts. Changing the CPU attempts affects the adjusted %loading values.
- User can change the CPU type. Changing the CPU type may or may not change the rated capacity. If the rated capacity of the new CPU is different from the old CPU then the adjusted %loading values are affected.

The Processor Load algorithm sorts out unreasonable data, and uses the validated data to perform a linear regression analysis upon call attempt and idle cycle count pairs (obtained from traffic data samples). Therefore, it determines the rated capacity of the current processor.

The rated capacities of the different CPUs supported are obtained by using the pre defined scaling factors for the processors.

ATTENTION

You must meet the following conditions for the What-If scenario to function properly:

- The valid number of samples must be between 24 and 200.
- Less than 12 invalid samples are discarded for a time period of 48 hours or more.
- Less than 8 invalid samples are discarded for a time period of less than 48 hours.

A sample is invalid if it does not meet the following requirements:

- A formula compares the idle cycle count with the summation of the idle cycle count and average idle cycle by a formula. Their division must be less than 0.05.
- A correlation is established between the idle cycle count, average idle cycle, and call attempts. This correlation must be greater than 0.8.

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Procedure 100
Using the Processor Load what-if scenario

Step	Action

You must acquire at least 24 hours of data to effectively use this scenario.

1 Select **Generate > What-if** in the Traffic Analysis main window.

The What-If main window appears.

2 Select **Processor Load** from the **List of Scenarios**.

3 Select one of the existing profiles in the **Profile** list, or click **Edit** next to the **Profile** list to modify a profile to suit your needs.

Follow the same profile selection and modification procedures as you use in generating a report (see step 4 of Procedure 98 "Generating a report" (page 372)).

4 Select one of the existing filters in the **Filter** list, or click **Edit** next to the **Filter** list to modify a profile to suit your needs.

Follow the same filter selection and modification procedures as you use in generating a report (see step 5 of Procedure 98 "Generating a report" (page 372)).

5 Click **OK**.

The Processor Load scenario window appears, as shown in Figure 178 "Processor Load scenario window" (page 384).

This window lists the following information in the current configuration:

- Current CPU—Number ID of the CPU for this system
- Rated capacity (Call/Hour)—Number of calls per hour that the processor can handle.
- Busy hour—The hour with the greatest number of call attempts (date and time).
- Busy hour CPU loading (%)—The number of attempts at the busy hour.

This window also lists the traffic data records. The field in these records include date, time, current call attempts, current percentage loading, adjusted call attempts and adjusted percentage loading. Click on a sample to select it.

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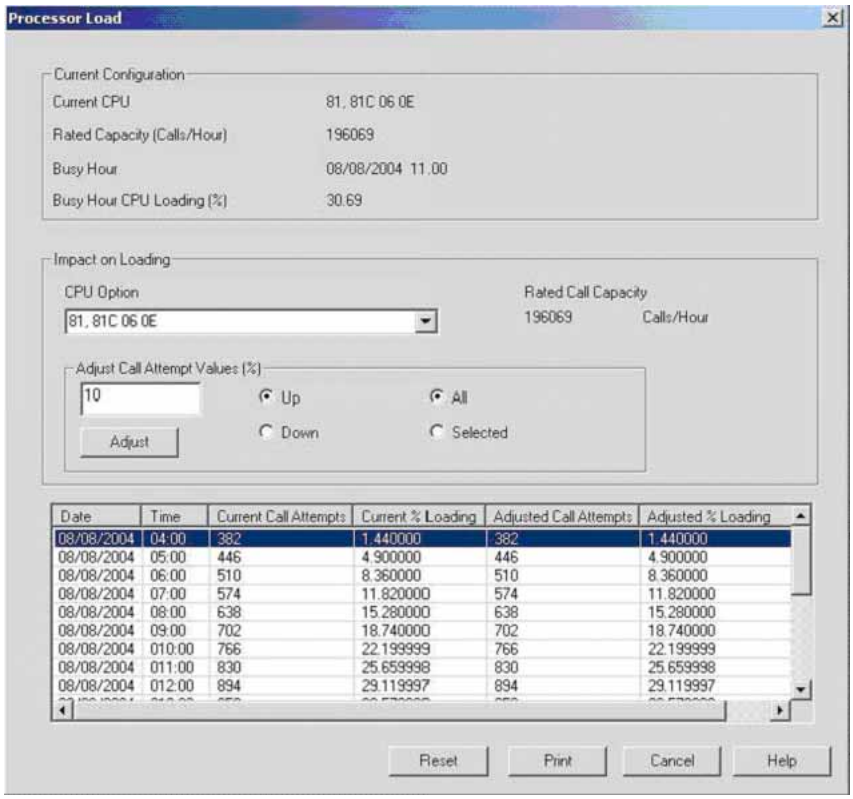
Figure 178
Processor Load scenario window



6 Click on a row in the table to select that record.

7 Change one of the following parameters to determine the effect on percentage loading:

- Type of CPU—Select a different CPU from the **CPU Option** list and the **Adjusted % Loading** values change in the table.
- Call attempt values—To adjust the call attempt values:

  1. Enter a value in the **Adjust Call Attempt Values** (%) text box.

     The current value in the Adjust Call Attempt Values (%) text box is the default value for the field that is taken from the selected profile. The values in the Adjusted Call Attempts and Adjusted % Loading columns do not change until this step (step 7) is complete.

  2. Click **Up** to increment or **Down** to decrement the call attempt values.

  3. Do one of the following:

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- Click **All** if the change is to be applied all the rows in the table.
- Click **Selected** if the change is to be applied only to the selected row in the table.

4. Click **Adjust**.

   The values in the Adjusted Call Attempts and the Adjusted % Loading columns change for all the rows (All) or only the selected rows (Selected).

8 (Optional) Click **Print** to print the current configuration information and the calculated information to the selected printer. See window for information on selecting a printer.

9 (Optional) To do more what-if calculations:

a. Click **Reset** to reset all values to their original state.

b. Click **Yes** in the window.

c. Repeat these steps starting at step 6 as often as required.

—End—

Trunks scenario

The Trunks scenario provides the user with information regarding the current usage of their trunk routes. With this information, the user is able to determine if they have too many or too few trunks based on their call blocking requirements.

Regular use of the Trunks scenario allows users to recognize trends in trunk usage and thus predict when trunks should be added to maintain acceptable performance levels.

Table 30 "Trunks scenario parameters" (page 385) describes the Trunks scenario parameters.

Table 30
Trunks scenario parameters

Parameter	Explanation
Hour to be analyzed	The user has the option of examining the data for either the Busy Hour or from a Specific Hour. By default, analysis is performed on the busiest hour, which the hour having the greatest is offered traffic. If the user selects the specific hour the analysis is performed on that data.

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Parameter	Explanation
Units of measure	The user has the option of viewing offered traffic values in units of CCS or Erlangs.
Engineering method	The calculations for probability of blocking, traffic and number of trunks performed throughout the Trunks scenario are based upon one of three statistical distributions: Poisson, ErlangB or ErlangC.
Current configuration	The following information is provided to the user for the hour selected. This data is retrieved from the traffic data samples used to create this scenario.
Route number	The trunk route number to be analyzed is specified in the profile.
Offered traffic	The offered traffic to the trunks within the trunk route is determined from the data presented in the data samples. The units are CCS or ERLANGS.
Monthly cost per trunk	The monthly cost per trunk is defined in the profile.
Total monthly cost	The total monthly cost is obtained using the monthly cost per trunk and the number of trunks.
Probability of blocking	The probability that a call is not connected. This is listed as a percentage value. The probability of blocking is determined by the engineering method and uses the offered traffic and number of trunks values.

To actually perform the Trunks what-if scenario, the user selects the value to be calculated. The selected value is calculated using the other information that has been modified by the user. This shows the impact of the changed values on the value selected.

The user can reset the values to the original values if required. The following questions can be answered within the Trunks Scenario:

- What is the probability of a call being blocked given X trunks, and Y offered traffic?
- How many trunks are required to handle X offered traffic, assuming that Y percent of calls may be blocked?
- What is the maximum offered traffic that can be handled given X trunks and Y probability of blocking?

The calculations for probability of blocking, traffic and number of trunks performed throughout the Trunks scenario are based upon one of three statistical distributions: Poisson, ErlangB or ErlangC:

- The Poisson method of analysis assumes that the system has an infinite number of sources, and that any blocked or lost calls are held. This method of analysis overestimates the number of trunks required resulting in fewer blocked calls than anticipated.

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- The ErlangB method of analysis assumes that blocked calls are not held and do not attempt to obtain a future connection. This method underestimates the number of trunks required resulting in more blocked calls than anticipated.
- The ErlangC method of analysis assumes that all blocked calls are held and will wait for service for an indefinite period of time. This method of analysis overestimates the number of trunks required resulting in fewer blocked calls than anticipated. It is a mathematical requirement of the ErlangC method of analysis that the offered traffic in Erlangs must be less than the number of trunks. If this condition is not met, the system will have an infinite queue, and will be unstable. Therefore if the offered traffic is equal to or greater than the number of trunks, the probability of blocking will be 100%.

In answering the question "How many trunks are required to handle X offered traffic, assuming that Y percentage of calls may be blocked?" it is impossible to require 8.3 trunks. In cases where the mathematical algorithm returns a decimal value for the number of trunks, the answer is rounded up to the next whole number.

Procedure 101
Using the Trunks what-if scenario

Step	Action
1	Select **Generate > what-if** in the Traffic Analysis main window. The What-If main window appears.
2	Select **Trunks** from the **List of Scenarios**.
3	Select one of the existing profiles in the **Profile** list, or click **Edit** next to the **Profile** list to modify a profile to suit your needs. Follow the same profile selection and modification procedures as you use in generating a report (see step 4 of Procedure 98 "Generating a report" (page 372)). The data displayed in the subsequent Trunks scenario window is based on the values selected for the parameters in the profile. The values for cost per trunk ($), route number, customer number and the engineering method are taken from the values of the parameters in the selected profile. Modify the values as appropriate. The default profile selects a specific route, which you must have configured on your system. If you do not have this route configured, the report will be empty. The defaults routes are: • WTRNKS.TEM = route 0 • WTRNKS.PRO = route 6

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4 Select one of the existing filters in the **Filter** list, or click **Edit** next to the **Filter** list to modify a profile to suit your needs.

Follow the same filter selection and modification procedures as you use in generating a report (see step 5 of Procedure 98 "Generating a report" (page 372)).

5 Click **OK**.

The Trunks scenario window appears, as shown in Figure 179 "Trunks scenario window" (page 389).

The Trunks scenario window shows the trunk data retrieved from collected traffic data based on the profile settings. For example, if the values of customer number and route number are 0 and 6 in the profile, the data related to trunks in route number 6 of customer 0 is displayed.

By default, the values for the busiest hour during the period selected through filter are shown. To view the data for some other hour, click Specific Hour and select an hour from the Select Specific Hour window, as shown in Figure 180 "Select Specific Hour window" (page 389).

The current configuration and adjacent calculation section initially show the following information for the hour selected. These values are retrieved from the collected traffic data:

- route number
- monthly cost/trunk
- number of trunks
- offered Traffic
- probability of blocking
- total monthly cost

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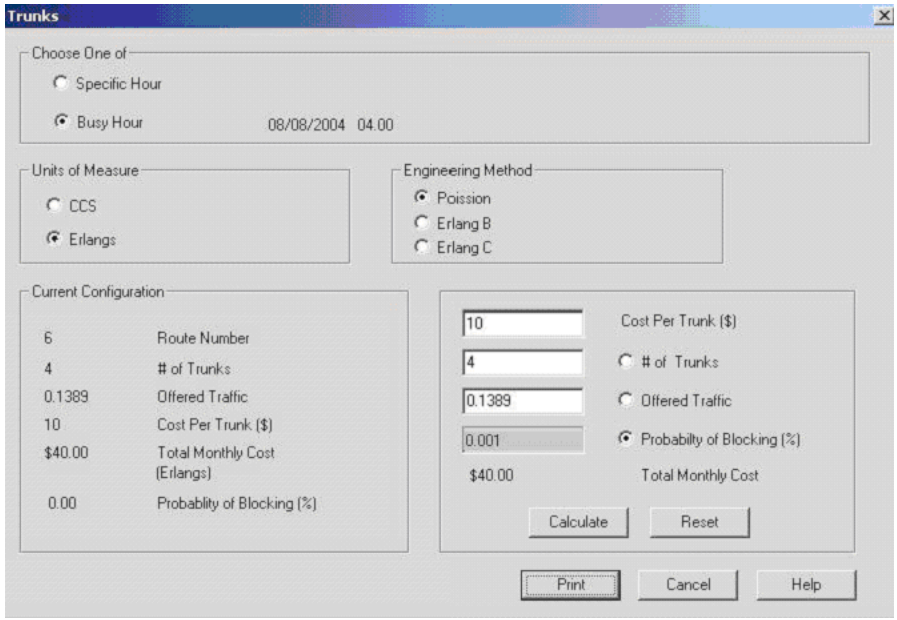
Figure 179
Trunks scenario window

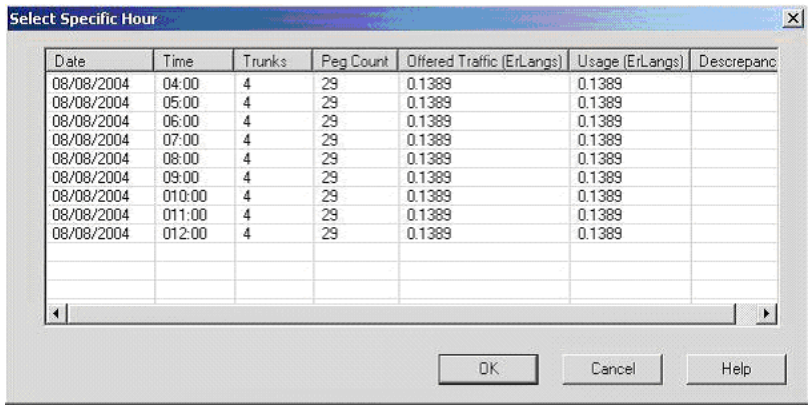


6 Do one of the following:

- Select **Busy Hour** (default) to view data for the busiest hour.
- Select **Specific Hour** to view data for a specific hour.

  Select an hour from the Select Specific Hour window, as shown in Figure 180 "Select Specific Hour window" (page 389).

Figure 180
Select Specific Hour window



7 Select **CCS** or **Erlangs** for the **Units of Measure**.

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The displayed values change according to the unit of measure selected.

8 Select the **Engineering Method**, which determines the probability of blocking.

9 Perform the desired calculations as follows:

a. Select the field to be calculated.

The selected field is disabled as shown in Figure 179 "Trunks scenario window" (page 389).

b. Modify the values in the other fields.

c. Click **Calculate**.

The calculated value for the selected field is displayed.

10 (Optional) Click **Print** to print the current configuration information and the calculated information to the selected printer. See "Select a printer for the reports" (page 366) for information on selecting a printer.

11 (Optional) To do more what-if calculations:

a. Click **Reset** to reset all values to their original state.

b. Click **Yes** in the confirmation window.

c. Repeat these steps starting at step 6 on step 6 as often as required.

—End—

Tools menu

The Tools menu in the Traffic Analysis main window provides access to many maintenance activities, specifically:

- Traffic maintenance
- Profiles
- Filters

Traffic data maintenance

Traffic data maintenance involves the following operations on traffic data samples:

- Archiving
- Deleting
- Merging

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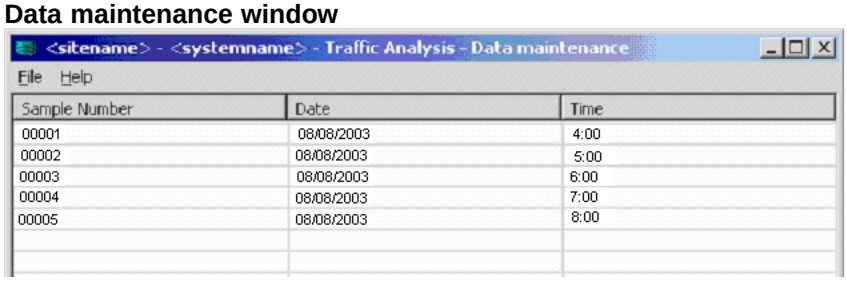
- Repairing
- Upgrading the archive

All operations occur from the Data maintenance window, as shown in Figure 181 "Data maintenance window" (page 391). This window gives the following information about traffic samples already collected:

- Sample number
- Date collected
- Time collected, in 24-hour format

Figure 181
Data maintenance window



Archiving traffic data samples

Over time, the size of the traffic data files grows, becoming filled with aged data. This tends to affect the performance of the system. See "Traffic Analysis system sizing guidelines" (page 358) for guidelines on the frequency of archiving and the amount of data that can be stored without degrading the performance of the system. Archiving stores data belonging to selected samples from all traffic data files to a separate file. You can archive specific traffic samples or use filters to archive a range of traffic samples based on date and time. You can archive the traffic data to the default file provided or rename the file.

Procedure 102
Archiving traffic data samples to a file

Step	Action
1	Select **Tools > Traffic Data Maintenance** in the Traffic Analysis main window. The Data maintenance window appears, as shown in Figure 181 "Data maintenance window" (page 391).
2	Select the samples from the list which are to be archived.

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Select consecutive samples by selecting the first sample in the range, holding down the Shift key and selecting the last sample in the range. Select all samples by pressing Ctrl+A.

3 Select **File > Archive**.

If you did not select any files in step 2, you must select a filter to use for selecting the files to be archived. Once selected, the filter is opened in the filter editor dialog for editing. See Procedure 110 "Editing a filter" (page 400) for instructions on editing a filter.

4 Select the location and the name of the file to which the selected data is to be archived.

The default location is the system folder under the common data directory. The default file name is archive.dat. The file extension must be .DAT.

—End—

Deleting traffic data samples

The delete operation removes data related to selected samples from the current traffic data files. The user can manually select the samples or use a filter to mark the samples for deletion.

Use Procedure 103 "Deleting traffic data samples" (page 392) to delete traffic data samples.

Procedure 103
Deleting traffic data samples

Step	Action
1	Select **Tools > Traffic Data Maintenance** in the Traffic Analysis main window. The Data maintenance window appears, as shown in Figure 181 "Data maintenance window" (page 391).
2	Select the samples from the list which are to be deleted. Select consecutive samples by selecting the first sample in the range, holding down the Shift key and selecting the last sample in the range. Select all samples by pressing Ctrl+A.
3	Select **File > Delete**.

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If you did not select any files in step 2, you must use a filter to selecting the files to be deleted. Once selected, the filter is opened in the filter editor dialog for editing. See Procedure 110 "Editing a filter" (page 400) for instructions on editing a filter.

4 Click **Yes**.

—End—

Merging traffic data samples

You can merge archived traffic samples into the traffic data files. The file you select that contains the archived traffic samples is merged into the current traffic data files.

Use Procedure 104 "Merging traffic data samples" (page 393) to merge previously archived traffic data samples with current data samples. The archive file must be from the same version of Telephony Manager software.

If the archive file is from a version of Telephony Manager software earlier than Telephony Manager 3.1, you must use Procedure 106 "Upgrading the archive" (page 395) to upgrade the archive file before merging, to avoid corruption.

Procedure 104
Merging traffic data samples

Step	Action
	The archive file must be from the same version of Telephony Manager software.
1	Select **Tools > Traffic Data Maintenance** in the Traffic Analysis main window. The Data maintenance window appears, as shown in Figure 181 "Data maintenance window" (page 391).
2	Select **File > Merge**.
3	Select the file to be merged from the file selection window.

—End—

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Repairing traffic data samples

As each data portion is added to the traffic database, its date and time stamp are removed and replaced with a sample number. This avoids a large amount of duplicated date and time information. The index file contains a matching sample number which supplies the date and time corresponding to the sample number.

If the traffic database is found to be corrupt during any of the database access operations, the user is informed and recommended that they repair it. The repair operation removes any traffic data which does not have a corresponding entry in the index file. By default, the corrupted portion of data is moved in to a file called LOST.DAT. The user can provide a different file name and location if required.

Use Procedure 105 "Repairing traffic data samples" (page 394) to repair traffic data samples in the event of a corruption.

Procedure 105
Repairing traffic data samples

Step	Action
1	Select **Tools > Traffic data maintenance** in the Traffic Analysis main window. The Data maintenance window appears, as shown in Figure 181 "Data maintenance window" (page 391).
2	Select **File > Repair**. A file selection window appears.
3	Select the file to which the corrupt data should be moved. The default file is LOST.DAT, stored in the system folder under Common Data. The corrupt data is moved to the file.

—End—

Upgrading the archive

You can merge archived traffic samples into the traffic data files. The file you select that contains the archived traffic samples is merged into the current traffic data files.

Use Procedure 106 "Upgrading the archive" (page 395) to merge previously archived traffic data samples with current data samples. The archive file must be from a version of Telephony Manager software earlier than Telephony Manager 3.1.

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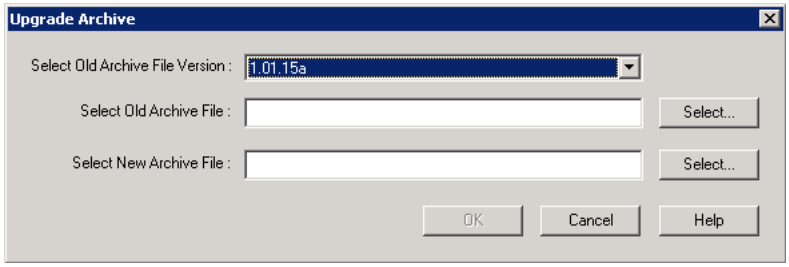
If the archive file is from the same version of Telephony Manager software, you must use Procedure 104 "Merging traffic data samples" (page 393) to merge the archive file.

Procedure 106
Upgrading the archive

Step	Action
1	Select **Tools > Traffic Data Maintenance** in the Traffic Analysis main window. The Data maintenance window appears, as shown in Figure 181 "Data maintenance window" (page 391).
2	Select **File > Upgrade Archive**.
3	Select the file to be merged from the file selection window. The Upgrade Archive window appears, as shown in Figure 182 "Upgrade archive window" (page 395).

Figure 182
Upgrade archive window



Step	Action
4	Select the Telephony Manager version of the old archive file from the **Select Old Archive File Version** from the list.
5	Click **Select** for **Select Old Archive File** to select the file to be converted.
6	Click **Select** for **Select New Archive File** to select the file to which the converted data is to be written.
7	Click **OK**. Once the upgrade operation is complete, the data from the upgraded archive file is merged into the current traffic data.

—End—

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Profile maintenance

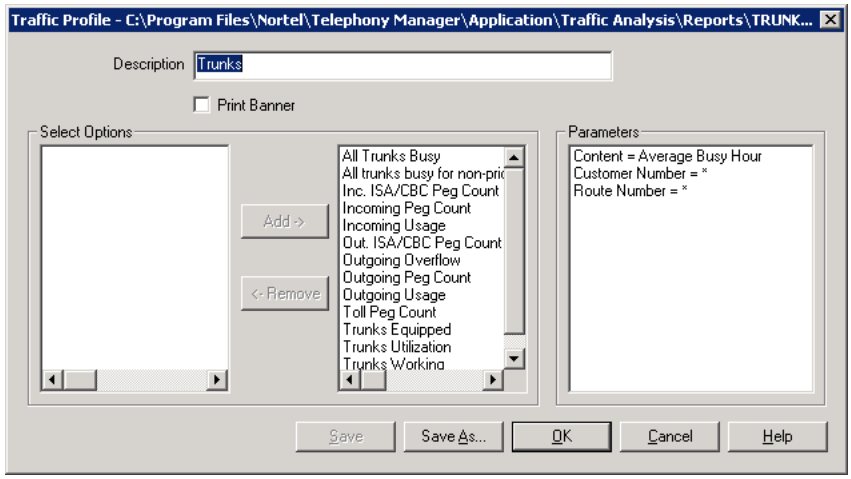
Profile maintenance involves the following operations on profiles:

- editing
- deleting

Procedure 107
Editing a profile

Step	Action
1	Select **Tools > Profiles > Edit** in the Traffic Analysis main window. A file selection window appears.
2	Select the profile file to edit. The profile appears in a Traffic Profile window, as shown in Figure 183 "Traffic Profile window" (page 396).

Figure 183
Traffic Profile window



Step	Action
3	Edit the profile as follows, if required: a. Enter a new heading in the **Description** text box. Do not leave Description blank—this field is the header for the report. b. Select **Print banner** to print a report summary page when this profile is used to print a report. c. To change an option in the **Select Options** section: 1. To remove an option, select it from the list on the left and click **Remove**.

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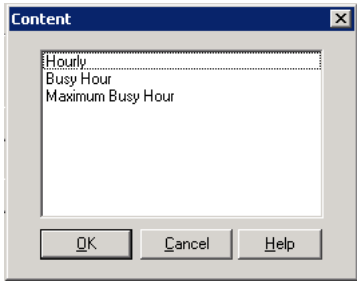
2. To add an option, select it from the list of the right and click **Add**.

d. Double-click on a parameter from the **Parameters** section and do one of the following to change its value:

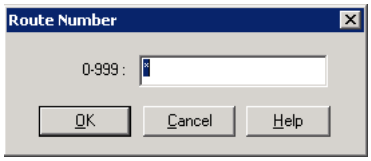
- If the value of the parameter is a single text value, select one of the values from the list in the edit window, as shown in Figure 184 "Parameter edit window: single text value" (page 397).

Figure 184
Parameter edit window: single text value



- If the value of the parameter is numeric, do one of the following:
  - If the value is a single value, enter the value in the edit window shown in Figure 185 "Parameter edit window: numeric values" (page 397), ensuring that the value is within the given range.
  - If the value is multiple numeric values, enter the values in the edit window shown in Figure 185 "Parameter edit window: numeric values" (page 397), ensuring that the values are within the given range. Multiple values are separated by a comma (,) and ranges are indicated by a hyphen (-).

Figure 185
Parameter edit window: numeric values



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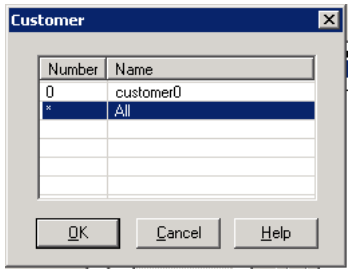
- If the parameter is **Customer**, select one or more customers from the **Customer** window shown in Figure 186 "Parameter edit window: Customer window" (page 398).

Figure 186
Parameter edit window: Customer window



4 Click **OK**.

5 Do one of the following:

- Click **Save** to save the changes to the same file.
- Click **Save As** to save the changes to the different file.

—End—

Procedure 108
Deleting a profile

Step	Action
1	Select **Tools > Profiles > Delete** in the Traffic Analysis main window. A file selection window appears.
2	Select the profile file to delete. A confirmation message window appears.
3	Click **Yes**.

—End—

Filter maintenance

Filter maintenance involves the following operations on filters:

- creating
- editing

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- deleting

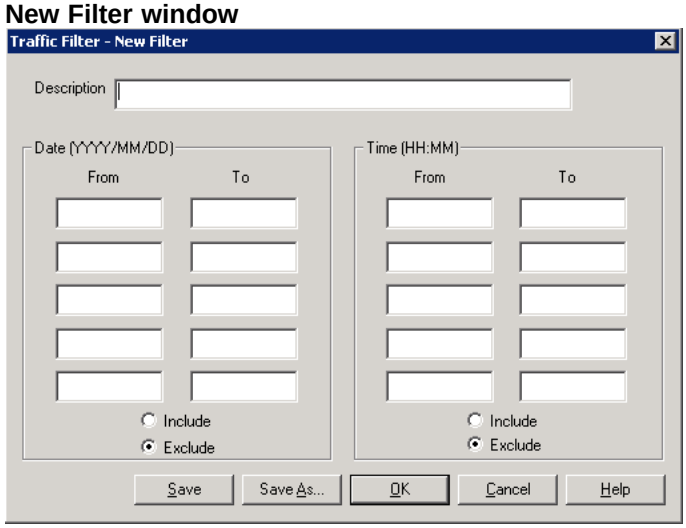
ATTENTION

The analysis period in the reports indicate the time stamp of the first and the last actual samples collected within the specified filter period and not the FROM and TO values specified in the filter. For example, the Time Filter Criteria is between 2.00 and 16:00 hours, however, if the first sample is collected at 3:00 hours and last sample is collected at 14:00 hours, the analysis period in the report is between 3:00 and 14:00 hours and not between 2.00 and 16:00 hours.

Procedure 109
Creating a new filter

Step	Action
1	Select **Tools > Filters > New** in the Traffic Analysis main window. The New Filter window appears, as shown in Figure 187 "New Filter window" (page 399).

Figure 187
New Filter window



2	Enter a description for the filter in the **Description** field.
3	Enter values for **Date** and **Time** ranges, subject to the following constraints: • For each range, you must enter a **From** value and a **To** value. If you enter only a From date or time in the range, a message window stating *Both FROM and TO date or time should be entered in a range* appears when you try to save the new filter.

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If you only enter a To date or time in the range, a message window stating *Both FROM and TO date or time should be entered in a range* appears when you try to save the new filter.

- For each range, the **From** date or time must be less than the **To** date or time.

  If not, a message window stating *FROM date should be less than TO date* or *FROM time should be less than TO time* appears when you try to save the new filter.

4 Select **Include** or **Exclude** to include or exclude the date and time ranges during data selection.

5 Click **Save as** to save the filter.

—End—

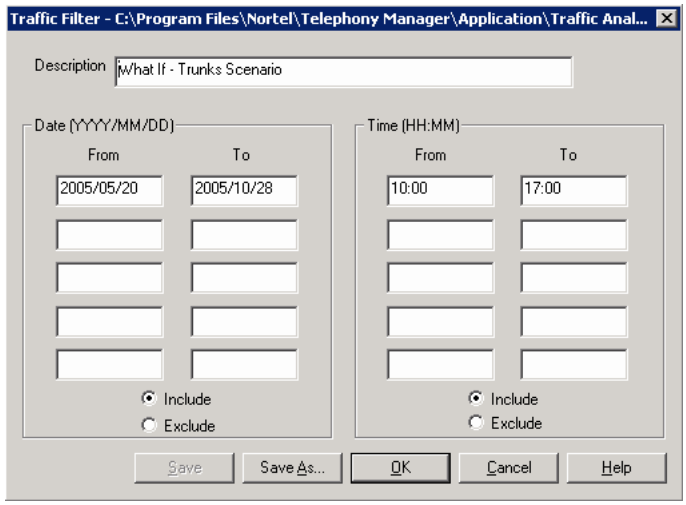
Procedure 110
Editing a filter

Step	Action

1 Select **Tools > Filters > Edit** in the Traffic Analysis main window.

The Traffic Filter window appears, as shown in Figure 188 "Traffic Filter window" (page 400).

Figure 188
Traffic Filter window



2 Modify the filter as required:

a. Modify the description for the filter in the **Description** field.

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b. Modify values for **Date** and **Time** ranges, subject to the following constraints:

- For each range, you must enter a **From** value and a **To** value.

  If you enter only a From date or time in the range, a message window stating *Both FROM and TO date or time should be entered in a range* appears when you try to save the changes.

  If you enter only a To date or time in the range, a message window stating *Both FROM and TO date or time should be entered in a range* appears when you try to save the changes.

- For each range, the **From** date or time must be less than the **To** date or time.

  If not, a message window stating *FROM date should be less than TO date* or *FROM time should be less than TO time* appears when you try to save the changes.

3 Select **Include** or **Exclude** to modify any included or excluded ranges.

4 Do one of the following:

- Click **Save** to save the changes to the same file.
- Click **Save As** to save the changes to the different file.

—End—

Procedure 111
Deleting a filter

Step	Action
1	Select **Tools > Filters > Delete** in the Traffic Analysis main window. A file selection window appears.
2	Select the filter file to delete. A confirmation message window appears.
3	Do one of the following: • Click **Yes** to delete the file. • Click **No** to keep the file.

—End—

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Traffic Analysis reports

The following are the reports available from Traffic Analysis:

System Reports

Network Loops

Service Loops

Dial Tone Delay

Processor Load

Selected Terminals

Junctor Group

Command and Status Links and Application Module Links

Command and Status Links—Outgoing Message Types

Command and Status Links—Incoming Message Types

D-Channel

Multi-Purpose ISDN Signaling Processor Traffic

Multi-Purpose ISDN Signaling Processor DCH Management

Multi-Purpose ISDN Signaling Processor Messages

ISDN Generic Functional Protocol

General Microcellular Operational Measurements

UWIN Operational Measurements

Intrazone Etherset Data Report

Interzone Etherset Data Report

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Intrazone QoS Data Report

Interzone QoS Data Report

Intrazone Media Security Calls Data

Interzone Media Security Calls Data

Customer Reports

Networks

Trunks

Customer Console Measurements

Individual Console Measurements

Feature Key Usage

Radio Paging

Parallel Radio Paging

Serial Radio Paging

Call Park

Auxiliary Processor Links

Output Message Traffic

Input Message Traffic

Message Attendant Queue

Telephone Set Status

Telephone Messaging

Network Attendant Service

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Semi-Permanent Connection Links Establishment

Music Broadcast

RAN Broadcast

DSN Peg Counts

DSN Pre-empt Peg Counts

DSP Peg Count available for CS 1000E type Rls 5.0 system

Customer Network Reports

Route Lists

Off Hook Queuing

Call Back Queuing

Remote Virtual Queuing

Network Class-of-Service

Incoming Trunk Group

System Threshold Reports

Dial Tone Speed

Loop Traffic

Junctor Traffic

Super Loop Traffic

Customer Threshold Reports

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Incoming Matching Loss

Outgoing Matching Loss

Average Speed of Answer (seconds)

Percent Last Trunk Busy

Off-Hook Queue Overflow Threshold

Customer Summary Reports

Traffic System Summary

Trunks Summary

Customer Console Summary

Individual Console Summary

Troubleshooting

Table 31 "Traffic Analysis error messages" (page 405) lists error messages that can be displayed, and their probable cause.

Table 31
Traffic Analysis error messages

Message	Probable cause
Invalid profile type—The type of the profile does not match the report type. Please select an appropriate profile.	The user had tried to associate a wrong profile or template with a report.
Invalid filter—The year information is missing in the filter. Please correct the filter	The user tried to open a filter created in the previous version of Telephony Manager in the filter editor. or The user tried to use that filter for report generation or what-if scenarios.

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Message	Probable cause
Invalid filter—The FROM or TO date or time fields are missing in one of the ranges provided in the filter. Please correct the filter.	The user tried to open a filter created in the previous version of Telephony Manager in the filter editor. or The user tried to use that filter for report generation or a what-if scenario, and the filter contained only one field filled in for any of the date or time ranges.
Invalid filter—The FROM field is greater than the TO field in one or more of the date or time ranges in the filter. Please correct the filter.	The user tried to open a filter created in the previous version of Telephony Manager in the filter editor. or The user tried to use that filter for report generation or what-if scenarios, and the filter contained a FROM field greater than the TO field in one or more of the date or time ranges.
Unable to complete what-if scenario. Invalid sample size. Require database sample size between 24 and 200 hours.	In the Processor Load what-if scenario, the user entered a processor load of less than 24 hours or greater than 200 hours.
What-if scenario cannot be completed due to the high number of statistically invalid data samples.	In the Processor Load what-if scenario, the database contains invalid samples.
Database contains no data records. Cannot complete what-if scenario.	In the Processor Load or Attendant Console what-if scenario, the user is using an empty database. Either no data samples were collected or all data samples were deleted from the database.
Probability should be greater than 0	In the Trunks what-if scenario, the user entered a value of 0 for Probability of blocking (%) while calculating one of the other values such as Offered traffic.
Unable to complete what-if scenario. Database contains no data records for the specified route.	In the Trunks what-if scenario, the user is using the default profile without having the default routes in the database.

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ESN Analysis and Reporting Tool

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"Using object manager features" (page 412)
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"Printing ESN reports" (page 425)
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"Create a secondary database" (page 430)
"Understanding Primary and Secondary ESN Databases" (page 430)
"Adding a Secondary database" (page 430)
"Deleting databases" (page 431)
"Deleting a Primary database" (page 431)
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"Replacing the ESN database" (page 434)
"Changing Databases" (page 434)
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"Abnormal Conditions" (page 437)
"ESN ART software dependencies" (page 438)

Introduction

This section provides an introduction to the Telephony Manager Electronic Switched Network Analysis and Reporting Tool (ESN ART) application, as well as an overview of its major functions.

ESN ART

ESN ART allows you to manage the ESN data quickly and easily in the following ways:

- ESN data retrieval—You can retrieve ESN data blocks from the Meridian 1 or CS 1000 overlays, and ESN ART converts and stores the data in a PC database. You can then view and print the data.
- ESN data installation—You can clone the PC-based ESN data from an existing switch to install a new ESN configuration on a similar switch.
- ESN data modification—You can add, change, or delete the retrieved or cloned ESN data using the ESN object managers (windows that simplify ESN data definition). You can then transfer the modified ESN data from Telephony Manager on the PC to the system.
- ESN data reporting—You can create reports ranging from basic data to data analysis reports. You can send these reports to the screen, to a printer, or to a file.

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- Export ESN data—You can export Report data to a file. Various file formats are supported (for example, Excel or comma-separated values [CSV] format).
- ESN global change data—You can make global changes to these six ESN reference objects: DMI, FCI, FSNI, ITEI, RLI, and ROUT.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

Help

This chapter does not discuss each ESN ART function and command in detail. It only discusses the major functions and how they are accessed. For detailed information on each ESN ART function, use the online Help function. You can use the Help function to obtain Help for topics either directly or using its index and word-search functions. While running ESN ART, you can obtain context-sensitive Help on any topic you require by clicking Help from a specific dialog box or window.

To obtain Help for a topic, click Help from the currently selected dialog box or window. This accesses the Windows Help function and appears context-sensitive Help information on the current topic.

Once you have accessed Help, use it to scroll through the other ESN ART Help topics, search for a specific topic, or print the Help information.

To view a list of Help topics for ESN ART, click Contents from the Help menu. Choose from one of the items in this list to load the Help file and display its information.

Launching ESN ART

ATTENTION
Before you launch the ESN ART application, you must enable the BARS and NARS packages in system properties.

To launch the ESN ART application, double-click the ESN icon from the System window.

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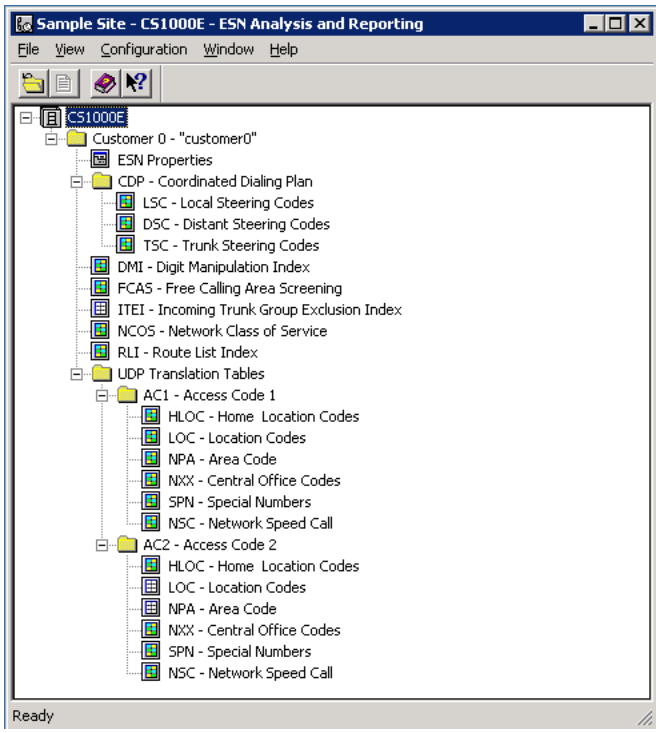
The ESN ART window uses the standard Telephony Manager tree control and appears as a folder for each Meridian 1 or CS 1000 customer (as defined in the Telephony Manager System Window properties or retrieved from the Meridian 1 or CS 1000 system). See Figure 189 "ESN Analysis and Reporting window" (page 410).

Figure 189
ESN Analysis and Reporting window



Each customer folder expands to show a list of ESN object manager icons. Each icon represents a specific type of ESN data or object, such as Digit Manipulation Indexes (DMI).

Editing ESN data

Use Procedure 112 "Editing ESN data for a customer" (page 410) to edit ESN data for a customer.

Procedure 112
Editing ESN data for a customer

Step	Action
1	Double-click the customer's folder. If ESN data has been defined for that customer, a list of ESN object manager icons appears in the tree under the customer. An object manager is a window that contains a

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list of instances of the particular ESN object (for example, a list of DMI numbers and their attributes).

2 Double-click an ESN object manager icon to view and manage the associated ESN data.

If a customer does not have any ESN data defined on the Telephony Manager PC, then the customer folder expands to show the ESN Setup Wizard. This wizard helps you to create the ESN data for the customer. See "ESN Setup Wizard" (page 428).

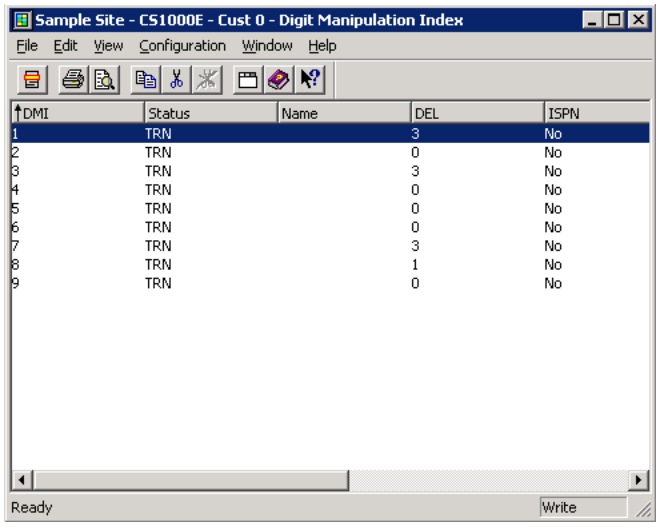
—End—

Working with ESN object managers

The ESN data is made up of many types of objects, such as Route List Indexes (RLI), Digit Manipulation Indexes (DMI), and Location Codes. In a typical ESN installation, most types of objects have many instances. For example, there are several instances of DMI numbers for the DMI object.

ESN ART uses object managers to assist you in viewing and managing all ESN objects. For example, double-click the DMI icon to open the DMI object manager. The DMI object manager provides a list of each DMI number defined for the customer and the values of the various DMI attributes. See Figure 190 "ESN object manager window (for example, DMI)" (page 411).

Figure 190
ESN object manager window (for example, DMI)



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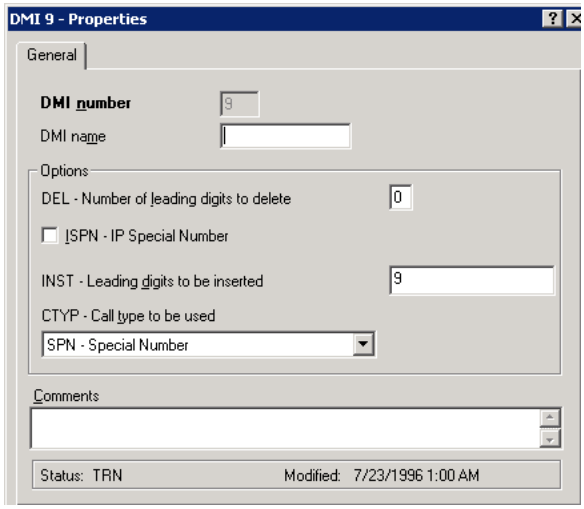
Each object manager is a separate window (using the standard Telephony Manager list control) containing the list of instances of the ESN object. The number and content of the columns varies for each object manager. Typically, there is one column for each property of the object. Most properties correspond to an overlay prompt.

In the example, the DMI list manager shows you the list of all DMI numbers and their attributes. To edit the attributes of a particular DMI number, double-click that line in the list. The property sheet for that DMI number appears, as shown in Figure 191 "ESN Properties window (for example, DMI)" (page 412). This is the window that you use to change the values of the DMI feature prompts.

Figure 191
ESN Properties window (for example, DMI)



Using object manager features

You can perform the following actions in an object manager:

- Double-click an object to view and modify the properties of the object.
- Add, change, delete, and undelete the selected objects using the EDIT pull-down or pop-up windows.
- Change the status of selected objects to New, Transmitted, Delete, or Change using the EDIT pull-down or pop-up windows. Use this function only if the status between the system and the PC is not synchronized.
- Click a column title to sort the column. Click again to reverse the order of the sort; an arrow icon in the column title indicates ascending (up arrow) or descending (down arrow) sort.
- Re-size the window and columns.

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- Use a horizontal scroll bar to see all the columns (if required).
- Select all or some rows, and then perform the following operations:
  - Copy the text of each selected row to the clipboard.
  - Delete the selected objects.
- Print all objects using the basic report for the object manager.

Each object manager in ESN ART works as described above. Some object manager windows have more than one list displayed in the window, and some property sheets have more than one tab, but the principal is always the same.

Working with property sheets

Each instance of an ESN object in the object manager's list has an associated property sheet. The property sheet is a window that allows you to modify the ESN data for the object Figure 191 "ESN Properties window (for example, DMI)" (page 412).

The property sheet contains all attributes of an object. Each attribute typically corresponds to a prompt in an ESN overlay.

If the associated package is not equipped, its controls are disabled in the property sheet.

The Name and Comments fields are exceptions to this convention. Any information that you enter into these fields is optional, for your reference only, and is saved only in the PC database. This data cannot be transmitted to the system.

Some ESN property sheets have more than one tab. Click a tab to edit the ESN data in that tab.

Property sheet controls

The attributes of an object are represented as Windows controls, such as edit boxes and list boxes. Names of prompts appear next to the controls. Property sheets share the following controls:

- The appearance of the property sheet for adding a new object is different from the appearance when changing an object. The title bar is different and the object ID (for example, DMI number) is disabled when you are changing an object.

  You must delete an object and add it again to change the object ID.
- Edit boxes are used for Object IDs and names; multiline edit boxes are used for the Comments field and some repeating data, such as lists

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of allowed dialed digits. Mandatory edit boxes have bold label text. Optional edit boxes typically have a default value. Edit boxes have a tool tip describing the allowed values (for example, "Enter a value between 1 and 32").

- Check boxes represent the Yes or No type of prompts, where selected means Yes.
- List boxes present a list of choices. These correspond to prompts with multiple responses. You can type the first letter to make a selection. The text in list boxes includes the actual prompt response followed by a short description. For example:
  - NPA: Area Code
  - NXX: Central Office Code
- Each control has an associated Help description. Click a control, and then press <F1> for help on the selected control. This opens the description on the associated prompt in the I/O guide Help.
- Most ESN objects also have a Last Modified date field and a Synchronization Status field. These fields appear as read-only text in the property sheet. The Status field can have the following values in Telephony Manager:
  - New: added on the PC but not on the system. Deleting a new object removes it from the list because this change does not need to be synchronized to the system. Changing a New object only changes the Modified timestamp (that is, it is still New until synchronized with the system). See "Synchronizing the Telephony Manager ESN database and the system" (page 418).
  - Transmitted: The object has been synchronized with the system. The object has been successfully transmitted to or retrieved from the system.
  - Change: The object has been changed on the PC but not on the system.
  - Delete: The object has been deleted on the PC but not on the system. The object remains on the PC until successfully removed from the system.
  - Swapped: The telephone has been swapped with another telephone. That is, the two telephones have exchanged TNs.
  - Replace: The telephone has been defined in Telephony Manager to replace synchronized data.

The initial state of all objects after being cloned from another customer is New.

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Example

In the DMI example, you may want to change the Call type (CTYP prompt). The following steps describe how to edit the CTYP prompt for a particular DMI:

Step	Action
1	In the DMI list, double-click the DMI instance that you want to change. This opens the property sheet for that DMI.
2	Move to the CTYP list box, and select a new value from the list of appropriate values.
3	Click OK. The data is stored in the Telephony Manager database ready for transmission to the system. You can click Cancel to close the property sheet without changing the ESN data.
4	Later, when you synchronize the data between Telephony Manager and the system, this change is made in the ESN data for the system. "Synchronizing the Telephony Manager ESN database and the system" (page 418).

—End—

This document does not cover the details of each object type because each object manager and property sheet is designed to be fully documented in the online Help. You can also request What's This? Help for any field or button while using ESN ART.

Shortcuts

To open a property sheet for an object, you can double-click the object in the list in the object manager window. Alternately, right-click the object to open the pop-up window, and select Properties to open the property sheet for that object.

The right mouse-button appears a pop-up window that allows you to add, delete, and undelete an object, open the property sheet for the object, and get Help on the object.

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Defining ESN properties

Some ESN data is defined once per customer. The ESN Properties property sheet allows you to configure this data in a property sheet (no object manager is needed, since there is only one instance of these values for the customer.) To open the ESN Properties property sheet, select ESN Properties from the tree.

The following tabs make up the ESN Properties property sheet:

- General Tab: The General tab contains data from ESN Features sections in LD 86.
- Limits Tab: The Limits tab contains data from ESN options in LD 86.
- TOD Schedules Tab: The TOD Schedules tab contains Time of Day Schedules and Extended TOD schedules from LD 86.
- Network Control Tab: The Network Control tab contains data from ESN Network Control section in LD 87.
- NCOS Map Tab: The NCOS Map tab contains data from Network Class of Service mapping from LD 87.

ESN global change

Global change enables you to change all references to DMI, FCAS, FSNI, ITEI, RLI, and ROUT (located within ITEI and RLI) objects. For example, use global change to find all places where DMI 3 is used, and optionally change it to DMI 11, as described in Procedure 113 "Changing references to a DMI" (page 416).

Procedure 113
Changing references to a DMI

Step	Action
1	Select **Global Change** in the **Configuration** menu. The Global Change window appears, as shown in Figure 192 "ESN Global Change window" (page 417).

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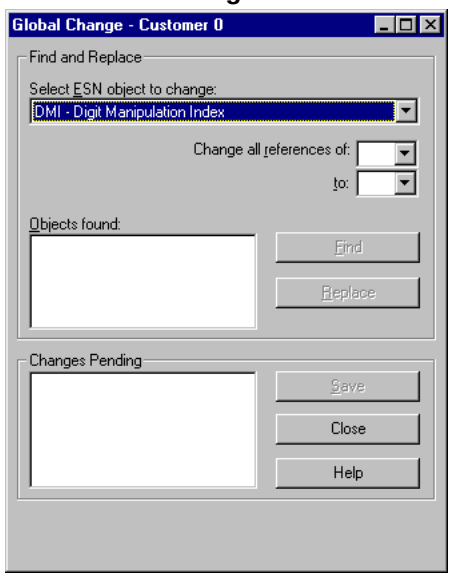
Figure 192
ESN Global Change window



2 Select **DMI** in the first list.

3 Enter the DMI number to be changed and its new number.

4 Click **Find**.

This generates a list of ESN objects using the DMI number. DMIs occur in RLEs, HLOCs, LSCs, NPAs, NXXs, and SPNs.

5 Click **Replace**.

This performs the change in memory and adds the change to the Changes Pending list box. The DMI itself is not changed.

6 Repeat step 4 and step 5 as required.

7 Click **Save** to save the changes.

The Save cannot be undone.

—End—

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Synchronizing the Telephony Manager ESN database and the system

When you have finished defining the ESN data for a customer, you are ready to transmit the data to the system. Alternately, you may be ready to retrieve data from a system to bring your Telephony Manager PC up to date. This is called *synchronizing* the data—guaranteeing that the ESN data in Telephony Manager and on the system are synchronized.

Use the Synchronize menu to select Transmit To Meridian 1 or Retrieve From Meridian 1. You have the option of scheduled or immediate transmission or retrieval. You also have the option to view the last transmit or retrieve.

Preparing the ESN ART environment for synchronization

Follow these guidelines to assure seamless synchronization:

- The customer data, system software release, and software package information stored in the Telephony Manager System Property Sheet must be correct. You can define this data manually in the System Property sheet under the System Data tab, or by using the Update System Data item in the System window.

  Update System Data retrieves the list of customers from the system. This does not include the User ID and password for the customer. Before retrieving or transmitting data, ensure that the correct User ID and password are defined in the Telephony Manager System Properties.

- When copying an ESN database, if the release numbers and packages are different between Telephony Manager and the system, the ESN data may be impacted as follows:

  — Data is lost if the package is not enabled on the destination.

  — Default data is used if the package is not enabled on the source.

- ESN ART does not retrieve LD 16 route data. Transmission errors occur if you enter invalid route numbers.

- Nortel recommends that you validate ESN data before you transmit it to the system.

Validating ESN data

Whenever you transmit ESN data to the system, the ESN ART software automatically examines the data to ensure it is valid. However, it is a good practice to validate the data before transmitting. From the Configuration menu, select Validate ESN Data. The results of the validation process appear in a log file and also appear in Windows Word Pad.

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For IP Overlap Signalling, all routes in an RLI block should be either overlap or en bloc. In LD 86, if an en bloc route is configured as an alternate route for an overlap route or vice versa, the warning message SCH1569 appears. The validation process in Telephony Manager will not issue this warning message.

Retrieval and transmission

After you have completed the ESN ART environment for synchronization, you can retrieve ESN data from the system, or transmit ESN data to the system.

For more information on primary and secondary databases see "Understanding Primary and Secondary ESN Databases" (page 430).

Synchronization: Retrieval

Use Procedure 114 "Retrieving data from the system to the Primary ESN database" (page 419) to retrieve data from the system to the Primary ESN database.

Procedure 114

Retrieving data from the system to the Primary ESN database

Step	Action
1	Launch the ESN application from the site and system that you want.
2	From the ESN main window, select the customer from whom you want to retrieve the data.
3	Select **File > Synchronize > Retrieve > Now** (or **Schedule**). If you select Now, your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first. The Synchronization application is launched and begins the retrieval process. When the retrieval is done, the Synchronization application disconnects from the system and parses the downloaded ESN data.
4	Select **Update DB** to store the parsed ESN data into the PC database. Selection Update DB deletes all existing ESN data for the selected customer before saving the new parsed data. The data base will be updated. The Retrieve All overwrites all entries in the database. Telephony Manager does not keep track of which entries have been overwritten.

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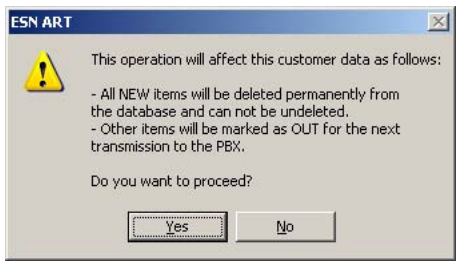
If the Retrieve All operation is performed on a Primary ESN database, the ESN Retrieve all warning dialog is displayed, as shown in Figure 193 "ESN Retrieve all warning" (page 420).

5 Click **Yes** to proceed.

The changes are not propagated to the linked Secondary ESN databases. All of the new data objects have the status Transmitted after the database has been updated, indicating the data on the PC database and the system is synchronized. The data can now be modified using the list managers and property sheets, and then transmitted back to the system.

Figure 193
ESN Retrieve all warning



—End—

Synchronization: Transmit

Use Procedure 115 "Transmitting data on the PC database to the system" (page 420) to transmit data on the PC database to the system.

Procedure 115
Transmitting data on the PC database to the system

Step	Action
1	Launch the ESN application from the site and system that you want.
2	From the ESN main window, select the customer from whom you want to transmit the data. The user must schedule transmissions for Primary and each Secondary database separately.
3	Select **Synchronize > Transmit > Now** (or **Schedule**) from the File menu.

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If you select Now, your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first.

The Synchronization application is launched and begins the transmit process. It begins by loading ESN data for the selected customer and validates all the ESN data objects (on the PC side). The Synchronization application only transmit ESN data objects that have the status Delete, New, or Change. However, not all data objects are transmitted and updated in the same manner. Based on the status and the data objects, they are transmitted to the system differently. Other data objects that have the Transmitted status are not transmitted to the system. They remain unchanged on the PC database.

—End—

ESN data block

The ESN data block is transmitted in a different order when it has the status Delete or New. If the ESN data block has the Delete status, it is deleted from the system last because the system does not allow deletion of the ESN data block when there are data remaining in the ESN overlays (LD 86, LD 87, and LD 90). This also means that the Synchronization application must successfully delete (from the system) all ESN data for the selected customer to be able to successfully delete the ESN data block. However, if an error occurs while attempting to delete all the ESN data, the Synchronization application does not attempt to delete the ESN data block from the system.

If the ESN data block has the New status, it is transmitted twice. The first time, the NEW response (to an REQ prompt) is used to add the new ESN data block. However, the system does not ask for the NMAP and the ETOD prompts when a New response is used, but does so for a CHG response. Therefore, the ESN data block is transmitted a second time using the CHG response to transmit all of the NMAP and ETOD.

CHG status

To change the Sync Status of an entry, right-click on an entry, select Change Status To, select New, Transmitted, Delete, or Change.

The Sync Status of each entry is used only by Telephony Manager to keep track of the state of the entry. The meaning of the status is specific to each individual database and therefore any change in the Sync Status of an entry in the Primary database does not propagate to the linked Secondary databases.

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Based on the prompt groups, the transmit behaves differently for the status Change. For the simple prompt groups, when their data objects have the status Change, they are transmitted to the system using the CHG response, which is straightforward. For the special (more complex) prompt groups, they are first deleted from the system using the OUT response, and then added (includes the new changes) back to the system using the NEW response. These special prompt groups include FCI, FSNI, LOC, NPA, NXX, and SPN.

When these data objects are transmitted to the system, they are first deleted from the system, and if the deletion was successful, their status is immediately changed from Delete to New. Then they are added back to the system. If that is also successful, their status is immediately changed from New to Transmitted. This way, if the PC loses connection to the system, or if there is a system failure between the delete and the add, then the next transmit adds these prompt groups (with the New status) back to the system.

Status updates and transmission errors

During transmission of the ESN data objects to the system, the Synchronization application updates the status of each prompt group accordingly. Table 32 "Synchronization status updates" (page 422) lists synchronization status updates for before and after a successful transmission.

Table 32
Synchronization status updates

Synchronization status before transmission	ESN data	Synchronization status update on Telephony Manager PC after transmission
Delete	All	Remove from database
New	All	Transmitted
Change	All (except special prompt groups)	Transmitted
*1. Change (Delete)	Special prompt groups only	New
*2. Change (New)	Special prompt groups only	Transmitted
* The items indicated by this symbol have one status Change, but they are transmitted in two steps: deleted from Meridian 1 using the OUT response, and added back to the Meridian 1 using the NEW response. For each step completed successfully, the sync status is changed and updated to the PC database.		

If the Synchronization application detects errors during transmission of ESN data, it does not update the status for that data. The status remains unchanged as prior to transmission, and the errors are logged in a file.

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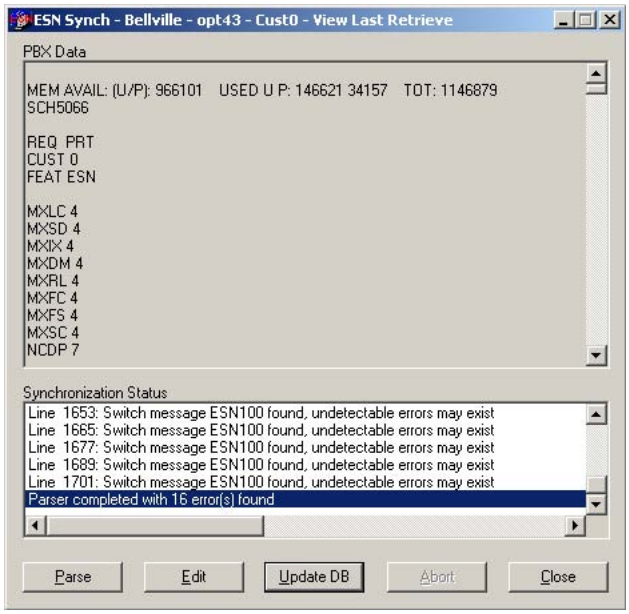
Console window

Once synchronization starts, the ESN synchronization console appears, as shown in Figure 194 "Synchronization console window" (page 423). This window shows the interactions between the Telephony Manager PC and the Meridian 1 or CS 1000 overlays (LD 86, LD 87, and LD 90).

Figure 194
Synchronization console window



The top part of the console window—the Meridian 1 Data section—allows you to view the interactions between the PC and the system. For example, when retrieving ESN data from the system, the printout from the ESN overlays appears in this window.

Synchronization log files

The bottom part of the console window (the Synchronization Status section) lists the errors found during transmission, retrieval, or parse operations. When retrieving the data from the switch, the interactions include many print sequences. This process has the potential to pick up transmission errors or TIMxxx (time messages) generated by the system. All transmission or retrieval information is saved on the Telephony Manager PC in the following synchronization files (XX represents the customer number).

Nortel\Common Data\[sitename]\[systemname]\ESN\ESNRetrieve*XX*.dld
Nortel\Common Data\[sitename]\[systemname]\ESN\ESNTransmit*XX*.log

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If you encounter retrieval or transmission problems, you can view the retrieve or transmit log file to find the basis for the errors.

Login log file

The login information in the Console window can help you determine the reasons for login failures. This information is saved in the following login file:

Nortel\Common Data\[sitename]\[systemname]\ESN\SyncLogin.log

Exiting ESN ART or Telephony Manager while synchronizing

If you exit the ESN ART application while synchronizing data, the synchronization console stays open to allow synchronization to finish.

If you exit Telephony Manager while synchronizing data, a confirmation window lets you know that synchronization is still in progress. You are given the option to abort the synchronization or to allow synchronization to finish. To protect data integrity, Nortel strongly recommends that you allow synchronization to finish normally.

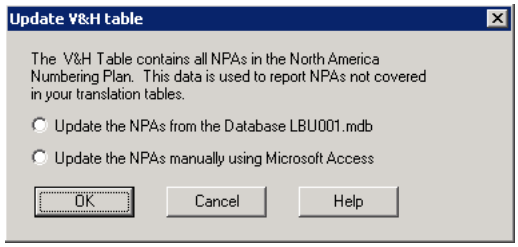
Updating the VH table

The V&H (Vertical and Horizontal) table contains all North American NPAs and the associated state or province. This information is used by the analysis report, which checks for NPAs not covered in the NPA object manager.

Procedure 116
Updating the VH table

Step	Action
1	Select **File > Update V&H table** to open the window shown in Figure 195 "Update VH table window" (page 424), which allows you to: • Import new NPAs from the Call Accounting rate table disk • Manually update the NPAs using Microsoft Access

Figure 195
Update VH table window



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2 To import NPAs:

a. Select **Update the NPAs from file Database LBU001.mdb** option from the Update V&H table window.

The standard File Open window appears.

b. Select **LBU001.mdb file**.

ESN ART reads the NPAs and updates the appropriate datafile. This operation takes approximately one minute. You can click Cancel to close the window without updating the datafile. A backup of the datafile is made in case of a PC failure during the operation. If this occurs, you can try the update again, or rename the old database file (called vhDB.mdb) in the ESN Program folder.

3 To manually update NPAs:

a. Select **Update the NPAs manually using Microsoft Access** option from the Update V&H table window, ESN ART opens the database file using Microsoft Access.

b. Add, change, or delete NPAs as desired and save the file. This operation fails if the PC does not have Access.

—End—

Printing ESN reports

ESN ART includes many predefined reports to help you in your work.

To open the Reports window, select **File > Reports**. The Reports window (shown in Figure 196 "Reports window" (page 426)) allows you to select one or more reports, configure print settings, and schedule the report(s) for a particular time. You can print more than one Basic report at a time.

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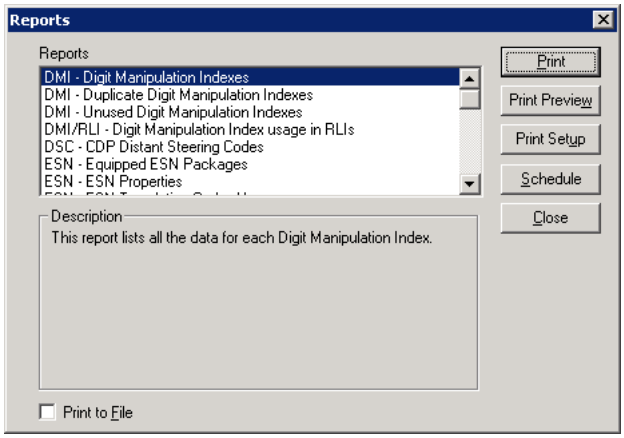
Figure 196
Reports window



The following predefined reports are available.

Basic Reports

DMI—Digit Manipulation Indexes

DSC—CDP Distant Steering Codes

ESN—Equipped ESN Packages

FCAS—Free Calling Area Screening Indexes

FSNI—Free Special Number Screening Indexes

HNPA/HLOC—Translation Tables Summary

ITEI—Incoming Trunk Group Exclusion Indexes

LOC—Location Codes

LSC—CDP Local Steering Codes

NCOS—Network Class of Service

NPA—Numbering plan Area Codes

NSCL—Network Speed Call

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NXX—Central Office Translations

RLI—Route List Index usage in NPAs, NXXs, and SPNs

SPN—Special Number Translations

TSC—CDP Trunk Steering Codes

Analysis Reports

DMI—Duplicate Digit Manipulation Indexes

DMI—Unused Digit Manipulation Indexes

DMI/RLI—Digit Manipulation Index usage in RLIs

ESN—Translation Codes Usage

NPA—Area Codes not covered in translation tables

NPA—Area Codes with no associated SDRR codes

NPA—Invalid Area Codes in FCAS and Translation Tables

RLI—Route List Index usage in NPAs, NXXs, SPNs

RLI—Route List Index TOD Schedules

Grouping Reports

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OVL86, OVL87, OVL90

Special—All ESN specialized reports

Note that the user can enter a partial translation code and retrieve all matching codes that contain the entered value in a printed report using LD 90. This allows the user to find a single translation code or group of translation codes. The resulting report can be sorted by clicking on a column heading. The sorting algorithm sorts the entries by numerical order.

ESN Setup Wizard

The ESN Setup Wizard helps you configure the ESN database for a Meridian 1 or CS 1000 customer. Use Procedure 116 "Updating the VH table" (page 424) to create a database using the ESN Setup Wizard.

Procedure 117

Creating a database using the ESN Setup Wizard

Step	Action
1	From the System window, double-click the ESN icon to launch the ESN ART application.
2	Select the customer's folder.
3	Select **Configuration > ESN Setup**. The ESN Set Up Wizard window appears, as shown in Figure 197 "ESN Setup Wizard" (page 429).
4	Select one of the following methods for creating a database: • Copy from an existing ESN ART PC database. • Retrieve data from a Meridian 1 or CS 1000 system. • Create an empty database. • Create a secondary database.

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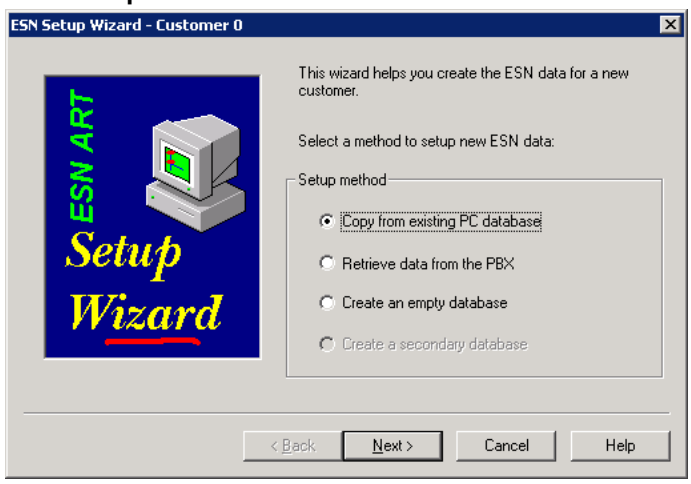
Figure 197
ESN Setup Wizard



5 Click **Next**.

The second page appears. This window page shows information on one of the methods that you chose in the first page, as described in the following sections.

—End—

Copy from an existing ESN ART PC database

This option appears a tree with all sites, system, and customers with a PC-based ESN database. Select the customer with the data that you want to copy, and then click Finish. This creates the ESN database for the customer. All ESN objects are given a status of New. You can then modify the data, such as changing the Home Area Code, and then transmit the data to the system using the Transmit Now or Scheduled option in the File Menu.

When copying an ESN database, if the X11 release and packages are different between Telephony Manager and the system, the ESN data may be impacted as follows:

- Data is lost if the package is not enabled on the destination.
- Default data is used if the package is not enabled on the source.

Retrieve data from the PBX

This option retrieves the ESN data from the system. This is the same as using the Retrieve Now or Schedule option in the File menu.

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Create empty database

This option creates an empty database. Before the database is created, you must fill in the mandatory fields (such as the Home Area Code) in the ESN Properties.

Create a secondary database

This option enables you to create a secondary database copied from an existing database. See the next section "Understanding Primary and Secondary ESN Databases" for details.

The ESN Setup Wizard is designed to be documented fully in the online Help. If you have any questions while using the Wizard, click Help. You can also request What's This? Help for any field or button.

Understanding Primary and Secondary ESN Databases

The concept of Primary and Secondary relationship is introduced to allow changes made to one ESN database (Primary) to be automatically propagated to one or more linked databases (Secondary).

The Primary and Secondary databases have a one-to-many relationship.

Note the following important conditions:

- The use of this feature is recommended only for ESN databases that have the same X11 releases and software packages.
- The propagation mechanism is not capable of performing validation on the secondary database. It is highly recommended that this feature be used only on systems where the numbering plan on the Primary and Secondary ESN databases are identical.
- If the preceding assumptions are false, it is up to the system administrator to ensure that data in the Secondary ESN database does not cause transmission failure.
- Should the Primary and Secondary ESN databases become out of sync, the recommended procedure for synchronizing Primary and Secondary is to delete the Secondary ESN database, transmit the changes to the Communication Server, then re-add the Secondary ESN database.

Adding a Secondary database

Use Procedure 118 "Adding a Secondary database" (page 431) to add a secondary database.

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Procedure 118
Adding a Secondary database

Step	Action
1	From the ESN Setup Wizard, shown in Figure 197 "ESN Setup Wizard" (page 429), select the option to create a secondary database.

Figure 198
Adding a Secondary database

2	From the databases listed in Figure 198 "Adding a Secondary database" (page 431), select a primary database to copy
3	Click **Finish**. A Secondary database is created that is an exact duplicate of the Primary database. A link is created from the Primary to the Secondary database, and the Secondary database is flagged as a "Secondary" database. The list of databases shown in Figure 198 "Adding a Secondary database" (page 431) do not contain databases flagged as "Secondary". This prevents daisy-chaining of Primary to Secondary databases.

—End—

Deleting databases

Deleting a Primary database

When deleting a Primary database, all linked Secondary databases are also deleted.

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Procedure 119
Deleting a Primary database

Step	Action
1	Click **Yes** in the dialog box shown in Figure 199 "First warning" (page 432). A second warning dialog box appears, as shown in Figure 200 "Second warning" (page 432).

Figure 199
First warning

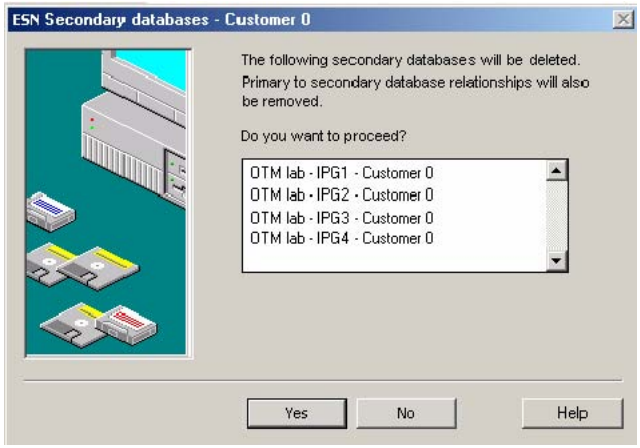
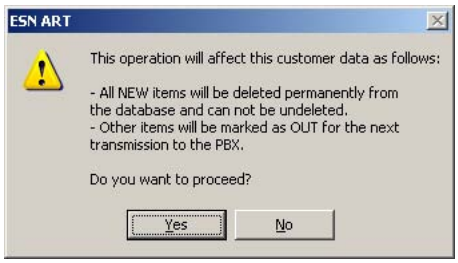


Figure 200
Second warning



2	Click **Yes**.

—End—

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Deleting a Secondary database

When only the Secondary ESN database is deleted, the link from Primary to Secondary is not cleared, as described in Table 33 "System with ESN database type deleted" (page 433). The user has to remove the link to the Secondary database from the Primary database.

Table 33
System with ESN database type deleted

Database type	Description
Primary ESN database deleted	The table storing the association between Primary and Secondary databases will be deleted along with the system. **Limitation:** The Secondary flag associated with the Secondary database will not be cleared. The database will continue to be tagged as a Secondary but with no Primary. The only way to clear the flag is to delete the Secondary database.
Secondary ESN database deleted	Only the Secondary database is deleted, the Primary – Secondary association in the Primary database is not updated. The Secondary entry has to be manually deleted from the Primary database See "Deleting a Secondary database" (page 433)

ATTENTION

Deletion of a site also deletes all of its systems.

Use Procedure 120 "Deleting a Secondary database" (page 433) to remove the link to a Secondary database from the Primary database:

Procedure 120
Deleting a Secondary database

Step	Action
1	From the ESN Analysis and Reporting toolbar **Configuration** menu, select and click **View Secondary Databases**. The ESN Secondary databases window appears, as shown in Figure 201 "ESN Secondary databases" (page 434).

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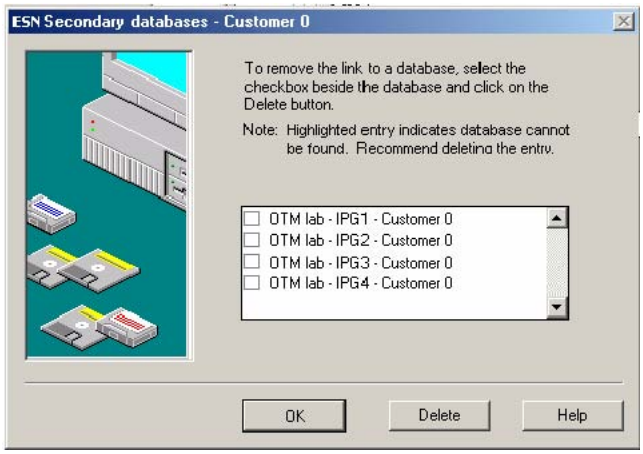
Figure 201
ESN Secondary databases



2 From the list of databases, select one or more databases for deletion.

3 Click **Delete**.

The Secondary Databases Confirmation dialog box appears.

4 Click **Yes**.

The Secondary entry is deleted from the Primary database, and the Secondary flag in the Secondary database is cleared.

—End—

Replacing the ESN database

To replace a database, delete the existing database and synchronize with the Communication Server. A new database can then be added.

You cannot replacing a Primary or a Secondary ESN database—the menu item that launches the ESN Setup Wizard is disabled.

Changing Databases

Change operations (NEW, CHG, OUT) performed on the Primary ESN database are automatically propagated to all linked Secondary databases.

Modules in the ESN ART application have dependencies to each other that can result in data conflict if certain properties are not set correctly. Table 34 "ESN Dependency Matrix" (page 435) describes the dependencies between the modules.

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Table 34
ESN Dependency Matrix

	Depends On															
	ESN	LSC	DSC	TSC	DMI	FCAS	FSNI	ITEI	NCOS	RLI	HLOC	LOC	NPA	NXX	SPN	NSC
ESN																
LSC	X				X											
DSC	X									X						
TSC	X									X						
DMI	X															
FCAS	X															
FSNI	X															
ITEI	X															
NCOS																
RLI	X				X	X	X									
HLOC					X											
LOC	X									X						
NPA								X		X						
NXX								X		X						
SPN								X		X						
NSC																

Changing primary databases

Use Procedure 121 "Changing primary databases" (page 435) to ensure changes in the Primary ESN database are propagated to the Secondary ESN databases.

Procedure 121
Changing primary databases

Step	Action
1	Make a change in the Primary ESN database.
2	Click **OK** to save the change. The ESN Slave Databases window opens, as shown in Figure 202 "ESN Slave Database" (page 436).

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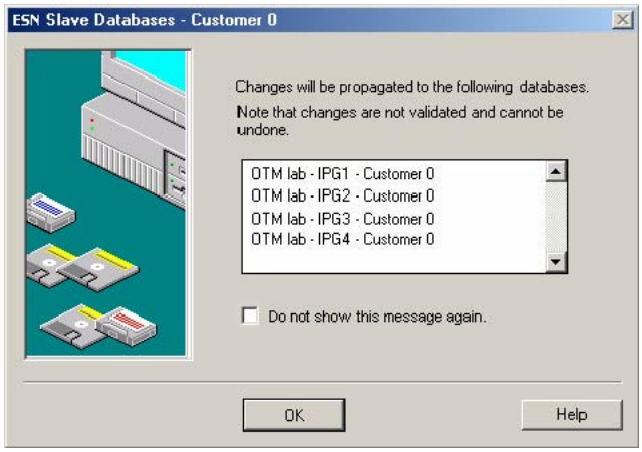
Figure 202
ESN Slave Database



3 (Optional) Select **Do not show this message again** to disable the display.

This check box setting clears when the main ESN application is closed. The check box setting persists only while the ESN application is open.

4 Click **OK** to propagate changes in the Primary Database to the Secondary ESN databases.

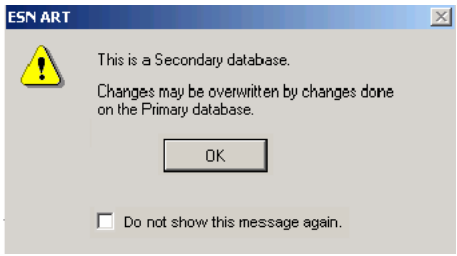
An INFO message is logged if successfully propagated.

—End—

Changing secondary databases

Changes in the Primary database may overwrite changes in the Secondary database. The warning shown in Figure 203 "Secondary Database warning" (page 436) appears prior to any change being committed to the Secondary database for all modules.

Figure 203
Secondary Database warning



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In the warning dialog box shown in Figure 203 "Secondary Database warning" (page 436), do one of the following

- Select OK to enable changes to the Secondary ESN databases.
- Select Do not show this message again to disable the display.

  This check box setting clears once the main ESN application is closed. The check box setting persists only while the ESN application is open.

Global Change

Updates made to the Primary database using global change will not be propagated to the linked Secondary databases.

If linked Secondary databases detected before a change is committed, a warning dialog appears. In the warning dialog box, do one of the following

- Select Yes to enable changes to the Primary ESN database.
- Select No to cancel changes to the Primary ESN database.

Abnormal Conditions

Table 35 "Abnormal conditions" (page 437) lists the possible abnormal conditions that might occur and the associated action.

Table 35
Abnormal conditions

Abnormal conditions	Action
When creating a Secondary database, Primary database selected is locked.	Warning dialog appears. Close all property sheets and click **OK** to proceed. Or click **Cancel** to abort the operation. Warning message logged to Event Log Viewer.
When propagating changes to Secondary database, Secondary database is locked.	Warning dialog appears. Close all property sheets and click **OK** to proceed. Or click **Cancel** to abort the operation. Warning message logged to Event Log Viewer.
When propagating changes to Secondary database, Secondary database cannot be found.	Warning dialog appears. Database will be skipped. Warning message logged to Event Log Viewer.
Changes to the Secondary database causes data conflict and transmission fails.	Manually update the Secondary database prior to transmission.
Any other error condition that prevents the changes from being propagated to the Secondary database.	An error message will be logged to Event Log Viewer.

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ESN ART software dependencies

Table 36 "X11 packages required for the ESN ART object managers" (page 438) shows all object managers in the ESN window tree. Some items appear only if the associated software package is equipped on the system. The system must have the multi-customer package for the customer folders to appear.

Table 36
X11 packages required for the ESN ART object managers

ESN object manager	Software package
Customer x—Customer Name	cust
ESN Features and Network Control	bars/nars
CDP—Coordinated Dialing Plan	cdp
• LSC—Local Steering Codes	cdp
• DSC—Distant Steering Codes	cdp
• TSC—Trunk Steering Codes	cdp
DMI—Digit Manipulation Index	bars/nars
FCAS—Free Calling Area Screening Index	bars/nars
FNSI—Free Special Number Screening Index	fnp
ITEI—Incoming Trunk Group Exclusion Index	bars/nars
NCOS—Network Class of Service	ncos
RLI—Route List Index	bars/nars
Translation Tables	bars/nars
• HNPA/HLOC—Home NPA and Location Codes	bars/nars
• LOC—Location Codes	bars/nars
• NPA—Area Codes	bars/nars
• NXX—Central Office Codes	bars/nars
• SPN—Special Numbers	bars/nars
• NSCL—Network Speed Call	nars

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List Manager

Contents

This section contains information on the following topics:

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"Open List Manager" (page 441)
"Download list data from the system" (page 442)
"List Manager window" (page 443)
"List Details view" (page 444)
"Template view" (page 444)
"Menus" (page 444)
"Toolbar" (page 446)
"Synchronization in List Manager" (page 446)
"Synchronization status" (page 447)
"Change synchronization status" (page 447)
"Station synchronization versus List synchronization" (page 447)
"Synchronize List Manager with the system" (page 448)
"Creating and managing lists and templates" (page 449)
"Create a new list" (page 449)
"Create a list template" (page 450)
"Create multiple lists" (page 451)
"Create a new list by modifying an existing list" (page 453)
"Copy a list from one system to another" (page 454)
"Delete lists" (page 454)
"Manage list data" (page 456)
"Using List Manager with Pilot DNs" (page 459)
"Assign a Pilot DN" (page 460)

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"Associate Pilot DN with a Group Hunt list" (page 461)
"Set global options for a list type" (page 461)
"Default options" (page 461)
"Memory optimization" (page 462)
"Available list numbers" (page 462)
"List Manager reports" (page 462)
"Reports and text files" (page 463)
"Generate reports" (page 463)
"Predefined reports" (page 464)

Introduction

List Manager allows you to perform the following functions:

- Create and modify lists.
- Create multiple lists with one operation.
- Copy and paste lists from one system to another.
- Work with list templates.
- Set default properties for all lists of a given type.
- Assign a Pilot DN to a list.
- Print reports on list usage.

The List Manager module allows you to work with the following list types:

- Speed Call and System Speed Call—Allows a user to place a call to a telephone number by dialing a short code. These codes are managed as entries in a Speed Call list.
- Group Call—Allows a user to place a call to a list of DNs at the same time by pressing the Group Call key.
- Group Hunt—Allows the system to route an unanswered call to the next idle DN in a prearranged hunt chain (or list), based on the Group Hunting Pilot DN linked with the Prime DN for the station.

ATTENTION
The Group Hunt feature is not applicable to the North American market.

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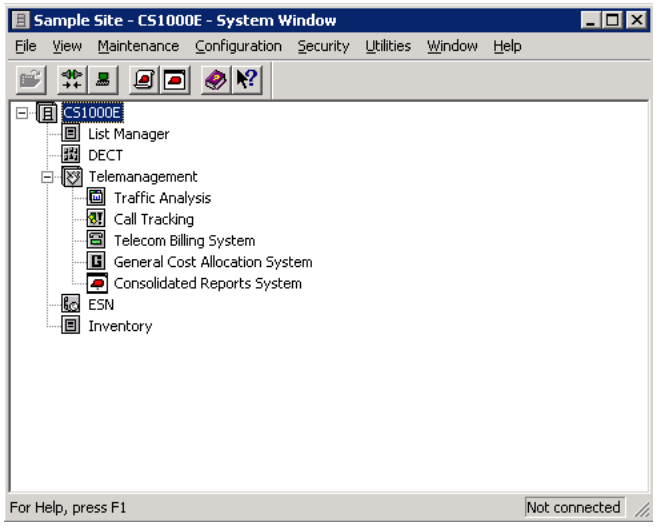
Accessing List Manager

Open List Manager

List Manager is accessed from the System Window, as shown in Figure 204 "Telephony Manager System Window" (page 441). Use Procedure 122 "Opening List Manager for a system" (page 441) to access List Manager for a specific system.

Figure 204
Telephony Manager System Window



Procedure 122
Opening List Manager for a system

Step	Action
1	From the **Telephony Manager Navigator**, open the system window for the selected system.
2	In the System window, double-click **List Manager**. The List Manager window opens, as shown in Figure 205 "List Manager window" (page 442).

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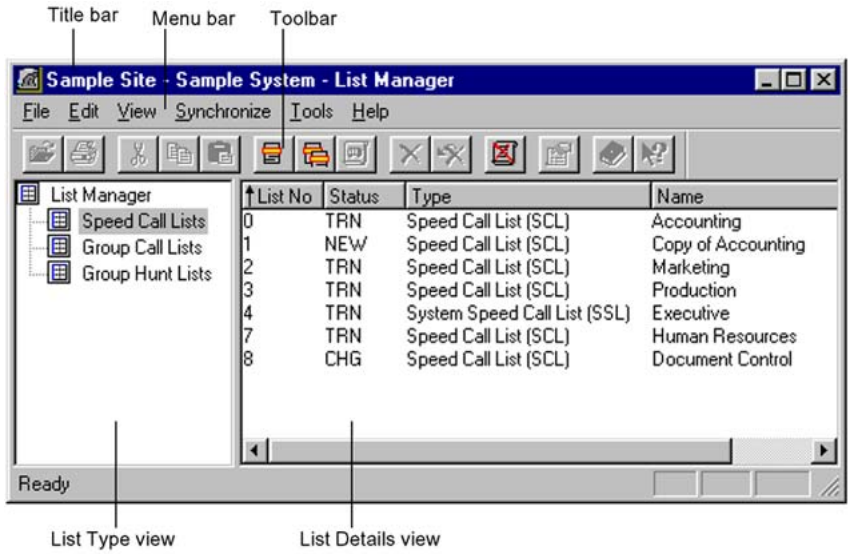
Figure 205
List Manager window



—End—

Download list data from the system

If list data is present on the system, download the list data to Telephony Manager the first time you open List Manager. You can synchronize each list type separately or synchronize all list types at once.

Procedure 123
Downloading list data from the system

Step	Action
1	Select a list type in the List Type view, or select **List Manager** to download data for all list types.
2	Select **Synchronize > Retrieve > Now**. Your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first. The List Manager Sync window opens, as shown in Figure 206 "List Manager Sync window" (page 443). List Manager automatically downloads list data.

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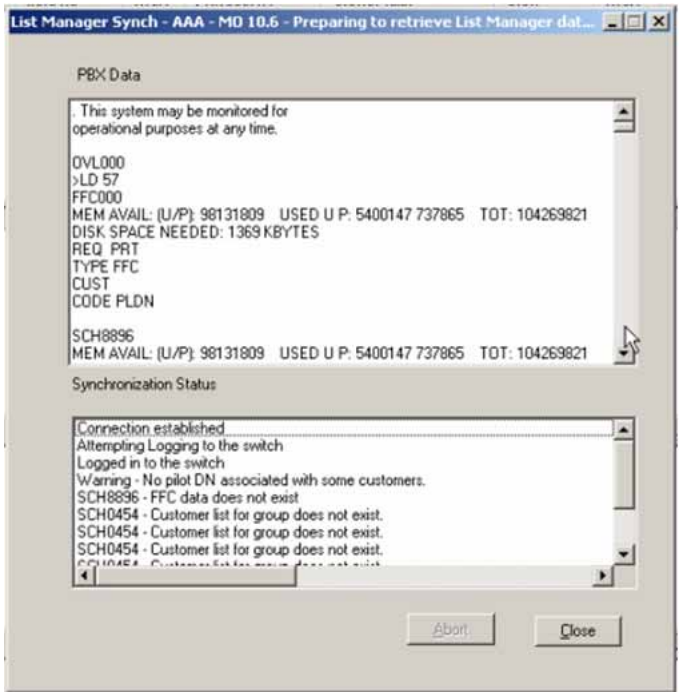
Figure 206
List Manager Sync window



3 Wait until the following text appears in the Synchronization Status area:

Logged out from the switch

4 Click **Close**.

—End—

List Manager window

The List Manager window shown in Figure 205 "List Manager window" (page 442) is divided into two sections:

- List Type view—Allows you to select a list type. Lists of the selected type appear in the List Detail view. You can also select List Manager to perform global operations.
- List Details view—Allows you to select one or more lists of a specific type. You can select a list and edit its properties, or copy the list data.

If you select View > Templates, the List Details view shows list templates.

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List Details view

Select View > Lists to display the lists defined for the system. Each list has the following attributes:

- List Number: Unique number used to identify the list on the system.
- Type: Type of list, based on the feature it supports (Speed Call, System Speed Call, Group Call, Group Hunt).
- Sync Status: An indication of whether the data for the system and the data in Telephony Manager are synchronized. The following information defines the synchronization status for each list:
  - NEW: List data defined in Telephony Manager, but not uploaded to the system
  - TRN: List data is synchronized with the system
  - CHG: List data has been modified in Telephony Manager but not in system
  - RPL: List data defined in Telephony Manager to replace synchronized station data
  - OUT: A synchronized list deleted from Telephony Manager but not yet from the system
- Name: A name entered in List Manager, used to identify this list.

Template view

Select View > Templates to display list templates defined for the system. The display contains the same information for a template as the List view contains for a list.

Templates provide data that is common among many individual lists. In a single operation, using a template, you can define multiple lists which have data in common. A template can contain all or part of a list definition. You can change template data in exactly the same way as station data.

Menus

The List Manager menus are as follows:

- File
  - Open: Display the property sheet of the selected list or template.
  - New:
    - List: Create a new list.
    - Multiple Lists: Create more than one new list.
    - Template: Create a new template.

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- Print Setup: Select a printer and a printer connection.
- Reports: Select a Report.
- Properties: Display the property sheet of the selected list or template.
- Close: Close the List Manager window.

- Edit
  - Undo: Reverse the most recent command.
  - Cut: Remove the selected lists or text and place it on the clipboard.
  - Copy: Place a copy of the selected lists on the clipboard.
  - Paste: Insert a copied list into the List Details view.
  - Delete: Remove the selected lists from the List Manager window.
  - Select All: Select all lists in the List Manager Display View.
  - Change Status to:
    - NEW: Change the synchronization status of the selected list to NEW (data is defined but not uploaded to the system).
    - TRN: Change the synchronization status of the selected list to TRN (transmitted—data is synchronized with the system).
    - OUT: Change the synchronization status of the selected list to OUT (data is removed from Telephony Manager and will be deleted from the system during the next synchronization).
    - CHG: Change the synchronization status of the selected list to CHG (change—data has been changed, but the changes have not been uploaded to the system).
    - RPL: Change the synchronization status of the selected list to RPL (replace—data in the system is replaced with new data during the next synchronization).

- View
  - Toolbar: Show or hide the Toolbar.
  - Status Bar: Show or hide the Status Bar.
  - Lists: Change the display view to show lists.
  - Templates: Change the display view to show templates.

- Synchronize
  - Transmit:
    - Now: Transmit data from Telephony Manager to the system.

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- Schedule: Schedule a transmission of data from Telephony Manager to the system.
- View Last Transmit: Display a log file showing results of the last data transmission.

— Retrieve:

- Now: Retrieve data from the system to Telephony Manager.
- Schedule: Schedule a retrieval of data from the system to Telephony Manager.
- View Last Retrieve: Display a log file showing results of the last data retrieval.

• Tools

— Delete Unused Lists: Display the Delete Unused Lists window.

— Options: Display the Options window.

• Help

Toolbar

The function of each button in the List Manager toolbar appears when you hold the mouse cursor over the button. Toolbar buttons provide shortcuts to some of the same commands found in the menus.

Synchronization in List Manager

You can transmit data to program a system with relevant list data defined in the List Manager application. List Manager can also retrieve list data from a system, where it can be viewed and modified.

If you have a system with list data already programmed, first download the data to Telephony Manager. See "Download list data from the system" (page 442). Then modify the data and upload the changes to the system.

Use the Synchronize menu to schedule communications with the system. Synchronization is a task that ensures the list data in Telephony Manager matches the data on the system. Synchronization is achieved in one of two ways, as follows:

• Retrieve data from the system to Telephony Manager (download)

• Transmit data from Telephony Manager to the system (upload)

Generally, you should transmit list data before transmitting station data. This ensures that the list is present on the system before Telephone Manager assigns feature key access to the list.

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Synchronization status

When Telephony Manager performs a data retrieval, the synchronization status of each list determines whether the data is updated. The following status indicators define how the list is affected during a synchronization:

- NEW: Data has been defined, but not uploaded to the system.
- TRN (transmit): Data is synchronized with the system.
- OUT: Data is removed from Telephony Manager and will be deleted from the system during the next synchronization.
- CHG (change): Data has been changed, but the changes have not been uploaded to the system.
- RPL (replace): Data in the system is replaced with new data during the next synchronization.

List Manager automatically sets the synchronization status of each list. For example, if you modify parameters of an existing list, the synchronization status is set to CHG (change).

Change synchronization status

You can change the synchronization status of each list in List Manager. For example, if you change parameters for a list, but do not want the changes to take affect on the system right away, you can change the synchronization status of the list to TRN.

Procedure 124

Changing the synchronization status of a list in List Manager

Step	Action
1	Select a list.
2	Select **Edit > Change Status**.
3	Select a new status from the available choices.

—End—

Station synchronization versus List synchronization

List Manager synchronization is a separate task from telephone. After you synchronize list data, you should synchronize telephone data.

Transmit list data to the switch before transmitting telephone data. Some List Manager settings make changes in the Telephone Manager module (for example, feature key assignment). You must ensure the list data is present on the system so that telephone validation does not fail.

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Synchronize List Manager with the system

You must periodically synchronize List Manager data with data on the system. Use Procedure 125 "Uploading data from List Manager to the system" (page 448) to upload data from List Manager to the system, or use Procedure 126 "Downloading data from the system to List Manager" (page 448) to download data from the system to List Manager.

Procedure 125
Uploading data from List Manager to the system

Step	Action
1	In the **List Type** view, do one of the following: • Select the list type that you want to synchronize. • Select **List Manager** to synchronize all list types.
2	Select **Synchronize > Transmit > Now**. Your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first. The List Manager Sync window opens, as shown in Figure 206 "List Manager Sync window" (page 443).
3	Wait until the following messages appears in the Synchronization status area: *Logged out from the switch*
4	Click **Close**. The selected list type is synchronized with the system.

—End—

Procedure 126
Downloading data from the system to List Manager

Step	Action
1	In the **List Type** view, do one of the following: • Select the list type that you want to synchronize. • Select **List Manager** to synchronize all list types.
2	Select **Synchronize > Retrieve > Now**.

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Your request is sent to the scheduler queue, which executes the task within the next minute. If there are tasks in the queue that have a higher priority and are scheduled to be executed at the same time, they are executed first.

The List Manager Sync window opens, as shown in Figure 206 "List Manager Sync window" (page 443).

3 Wait until the following messages appears in the Synchronization status area:

Logged out from the switch

4 Click **Close**.

The selected list type is synchronized with the system.

—End—

Creating and managing lists and templates

This section provides procedures to use List Manager to perform common tasks.

Create a new list

Create a new list in List Manager and upload the data to the system. The synchronization status of the new list is NEW. You must transmit the list data to the system for the new list to become active.

Procedure 127
Creating a list

Step	Action
1	In the List Type view, select the type of list you want to create.
2	Select **File > New > List**. The New List window opens with the General tab displayed, as shown in Figure 207 "New List window: General tab" (page 450). The New List window for each list type is the same as the standard property sheet for that list type. Some default values for the new list are automatically entered. You can edit some of the default values for a new list. To edit the list number, the option for Auto List Number Allocation (Tools - Options) must be cleared.

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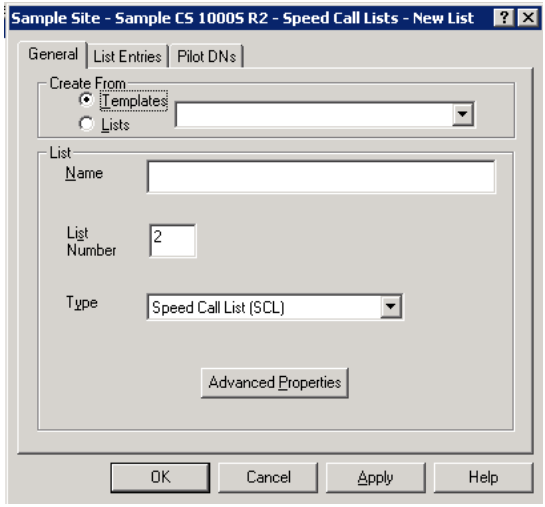
Figure 207
New List window: General tab



3 Select either a template or an existing list to use as a basis from which to create the new list.

4 Enter a list name (up to 50 characters, alphanumeric).

5 Select the list type.

6 Do one of the following:

- Click **OK** to save the new list and close the window.
- Click **Apply** to save the new list and modify its parameters. Select the tabs at the top of the window to view the parameters.

—End—

Create a list template

You can create a list template or modify an existing template. Templates provide data that is common among many individual lists. A template allows you to define multiple lists that share common elements.

Procedure 128
Creating a list template

Step	Action
1	Select **View > Templates**.
2	Select **File > New > Template**.

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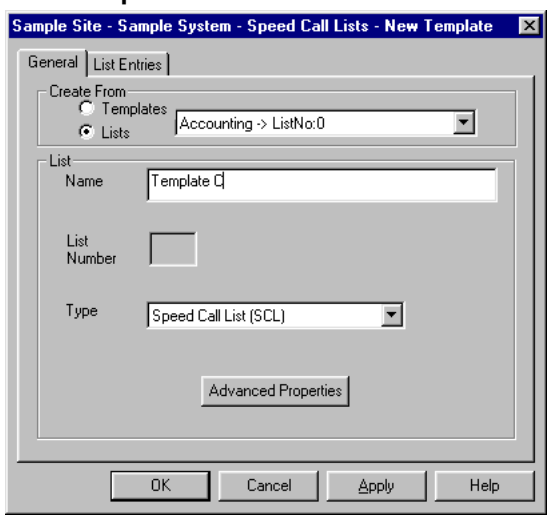
The New Template window opens with the General tab displayed, as shown in Figure 208 "New Template window: General tab" (page 451).

Figure 208
New Template window: General tab



3 Select either a template or a list to use as a basis from which to create the new template.

4 Enter a template name (up to 50 characters, alphanumeric).

The List Number field does not apply when creating a template.

5 Select the list type to which this template applies.

6 Do one of the following:

Click **OK** to save the new list and close the window.

Click **Apply** to save the new list and keep the window open.

—End—

Create multiple lists

You can create multiple lists with a single operation. You must have a valid template that corresponds to the list type that you want to create. After creating the lists, modify each list to provide its unique parameters.

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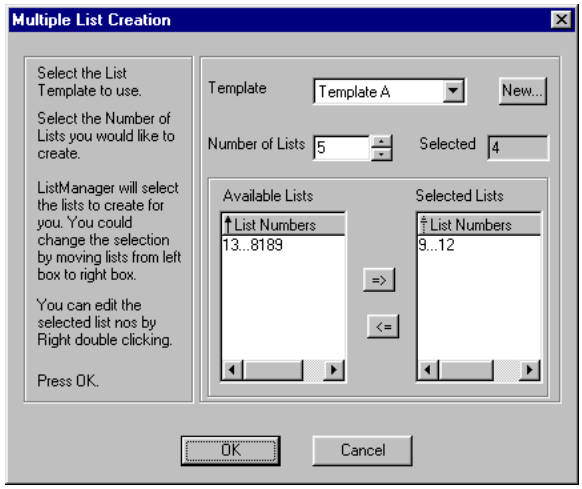
Procedure 129
Creating multiple lists

Step	Action
1	Select **View > Lists**.
2	Select **File > New > Multiple Lists**. The Multiple List Creation window appears, as shown in Figure 209 "Multiple List Creation window" (page 452).

Figure 209
Multiple List Creation window



3	Select a template on which to base the new list. Do one of the following: • Select a template from the list • Click **New** to create a template The template provides common data shared among the lists.
4	Select the **Number of Lists** to create.
5	Select the list numbers of the lists to create. a. Select a range of numbers in the **Available Lists** field. b. Click the right arrow. If there are not enough list numbers available in the selected range, select another range and click the right arrow. List Manager places the correct number of lists into the Selected Lists field.

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In the Available List field and the Selected List field, list numbers are represented as ranges. For example, a range of list numbers from 11 to 20 is represented as 11...20. If you want to create 25 lists and you select the above range, you must still select 15 more list numbers. Select another range to continue adding list numbers to the Selected Lists field. List Manager automatically stops adding list numbers when you reach the correct number, as set in the Number of Lists field.

You can select a subset of a list range. After moving a range from one side to the other, use the right mouse-button to double-click on the selected range. You can edit the range to select a subset of the range. For example, if the selected range is 2...10, you can enter 2...9 or 3...8 (but not 1...11).

6 Continue until you reach the correct number of lists to create.

7 Click **OK**.

—End—

Create a new list by modifying an existing list

Use the copy and paste commands to duplicate a list, then modify the new list to make it unique. When you copy and paste a list, the synchronization status of the new list is set to NEW. The new list is added to the system during the next synchronization.

Procedure 130
Creating a new list from an existing list

Step	Action
1	Select **View > Lists**.
2	Select a list and select **Edit > Copy**. The list data is saved to the PC clipboard.
3	Select **Edit > Paste**.

CAUTION
A confirmation window appears asking if you want to overwrite the current list with the copied list. Normally, you do not want to overwrite the current list.

4 Click **Change Properties** and give the pasted list a new list number.

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5 Make any other changes that are appropriate.

6 Click **OK**.

—End—

Copy a list from one system to another

You can also paste a list into the List Manager window for a different system.

Procedure 131
Copying a list and pasting to another system

Step	Action
1	Select **View > Lists**.
2	Select one or more lists and select **Edit > Copy**. The list data is saved to the PC clipboard.
3	Open another List Manager application for the system.
4	Select **View > Lists**.
5	In the **List Type** view, select the appropriate list type.
6	Select **Edit > Paste**.

CAUTION
If the list number of the list you copied is present on this system, a confirmation window asks if you want to overwrite the current list with the copied list. Normally, you do not want to overwrite the current list.

7	Click **Change Properties** and give the pasted list a new list number.
8	Make any other changes that are appropriate.
9	Click **OK**.

—End—

Delete lists

You can select a list or a template and delete it from the system. You can delete all unused lists from the system with one command. The next time you synchronize List Manager lists, the deleted lists are removed from the system.

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Procedure 132
Deleting a list from the system

Step	Action
1	Select **View > Lists**.
2	In the **List Type** view, select the list type.
3	In the **List Details** view, select the list.
4	Select **Edit > Delete**.
5	Click **Yes** in the confirmation window.

—End—

Procedure 133
Deleting a template from List Manager

Step	Action
1	Select **View > Templates**.
2	In the **List Type** view, select the list type.
3	In the **List Details** view, select the template.
4	Select **Edit > Delete**.
5	Click **Yes** in the confirmation window.

—End—

Procedure 134
Deleting all unused lists of a specific type from the system

Step	Action
1	In the **List Type** view, select the list type.
2	Select **Tools > Delete Unused Lists**. The Delete Unused Lists window appears. All unused Speed Call lists appear.
3	Select the lists you want to delete.
4	Click **OK**. The synchronization status of the deleted lists changes to OUT.

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—End—

Manage list data

Telephony Manager shows list data in a property sheet that graphically represents the list data. You can manage individual list entries. Data update is described for a typical list is described in this section. Most lists contain a subset of the data for this example, and the update procedure for each field and function is the same as that described here.

Whenever you modify list data that has already been synchronized with the switch, the Sync Status for that list is set to CHG. This indicates Telephony Manager and the system are not synchronized.

View and modify list (or template) details

Each list has various properties that define the list. Some properties are shared among all lists of a given type; some properties are unique to a specific list. List Manager property sheets allow you to view and modify all of the various list properties.

Procedure 135
Viewing and modifying list details

Step	Action
1	Select **View > Lists**. To work with templates, select **View - Templates**.
2	In the **List Type view**, select a list type.
3	In the **List Details** view, double-click a specific list. The property sheet for the selected list appears.
4	Make changes as desired.
5	Click **Apply**.
6	Click the next tab and repeat step 4 and step 5 as required.
7	When you have completed the changes, click **OK**.

—End—

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Set advanced properties

You can change advanced properties for a specific list. Most of the advanced properties have default values that are set in the Options window. See "Set global options for a list type" (page 461).

Procedure 136
Setting advanced properties for a list

Step	Action
1	Select a list and select **File > Properties**. The List Properties window appears with the General tab selected, as shown in Figure 207 "New List window: General tab" (page 450).
2	Click **Advanced Properties**. The Advanced Properties window appears. Table 37 "Advanced properties for Speed Call lists and Group Hunt lists" (page 457) describes the fields in this window.
3	Make any desired changes.
4	Click **OK**.

—End—

Table 37
Advanced properties for Speed Call lists and Group Hunt lists

Field	Description
Network Class of Service	Select a Network Class of Service, as defined on the (applies to System Speed Call lists).
Max. DN Size	Select the maximum length of DNs in the list. The default value is set in the Options window (**Tools - Options**).
Max. List Size	Select the maximum number of entries allowed in the list. The default value is set in the Options window (**Tools - Options**).
Memory Usage - in Words	
Free Memory Available	Indicates how much system memory is available for all lists, as of the last synchronization.
Used by List	Meridian 1 or CS 1000S system memory required for this list.

Modify list entries

You can view and modify list entries within each list.

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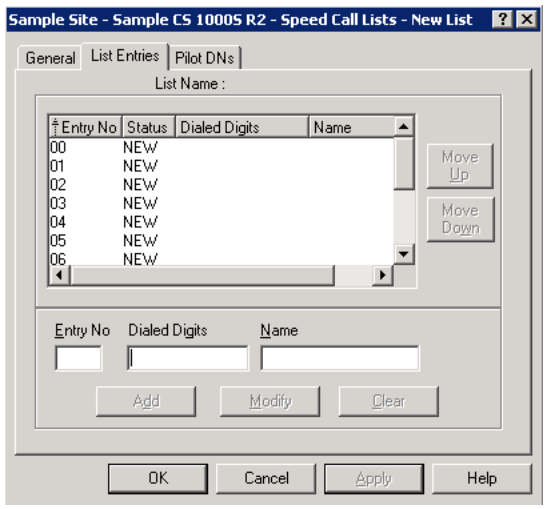
Procedure 137
Modifying list entries

Step	Action
1	Select **View > Lists**.
2	In the **List Type** view, select a list type.
3	In the **List Details** view, double-click a specific list. The property sheet for the selected list appears.
4	Click the **List Entries** tab. The List Entries tab, shown in Figure 210 "New List window: List Entries tab" (page 458), lets you modify parameters for each list entry number.

Figure 210
New List window: List Entries tab



5	Use the buttons in this window to modify list entries, as described in Table 38 "List Entries buttons" (page 458).

Table 38
List Entries buttons

Button	Description
Add	Add a new entry to the list.
Modify	Modify the selected list entry.

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Button	Description
Clear	Clear the selected list entry.
Move Up Move Down	Use these buttons to change the entry number of the selected entry. **CAUTION** Be careful when you make changes to list entry numbers. This operation reorders the entry numbers in a list. For example, if you move entry number 10 up to number 2, then entry number 2 becomes number 3, number 3 becomes number 4, and so on. For Speed Call lists, these changes affect the short key used to dial each list entry. For Group Hunt lists, these changes affect the order of the hunt chain.

6 Click **OK**.

—End—

Using List Manager with Pilot DNs

Pilot DNs provide access to Speed Call Lists. A Pilot DN can also activate Group Hunting.

Pilot DNs must conform to the customer numbering plan. Use Procedure 138 "Viewing the customer numbering plan" (page 459) to view the customer numbering plan.

Procedure 138
Viewing the customer numbering plan

Step	Action
1	In the Telephony Manager Navigator, select the system and select **File > Properties**.
2	Select the **Customers** tab.

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3 Select the customer and click **Properties**.

4 Select the **Numbering Plans** tab.

—End—

Assign a Pilot DN

Procedure 139
Assigning a Pilot DN to a list:

Step	Action

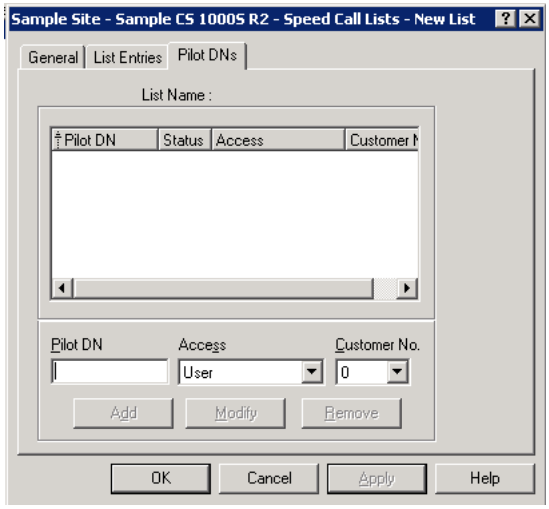
1 Select a Speed Call list and select **File > Properties**.

The List Properties window appears with the General tab selected, as shown in Figure 207 "New List window: General tab" (page 450).

2 Select the **Pilot DNs** tab.

The Pilot DNs tab appears, as shown in Figure 211 "List properties: Pilot DNs tab" (page 460).

Figure 211
List properties: Pilot DNs tab



3 Use the buttons to **Add**, **Modify**, or **Remove**Pilot DNs associated with this list.

Pilot DNs must conform to the customer Numbering Plan.

4 Click **OK**.

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—End—

Associate Pilot DN with a Group Hunt list

Procedure 140
Associating a Pilot DN with a Group Hunt list:

Step	Action
1	Select a Group Hunt list and select **File > Properties**. The List Properties window appears with the General tab selected, as shown in Figure 207 "New List window: General tab" (page 450).
2	Enter the pilot DN in the **Pilot DN** field.
3	Click **OK**.

—End—

Set global options for a list type

Use the Options window to set general parameters that apply to all lists of a specific type. To display the Options window, select Tools > Options.

The Options window has separate tabs for Speed Call, Group Call, and Group Hunt lists. Some options apply only to lists of a specific type.

List Manager options apply when you create new lists. For a specific list, you can override most of these options. Click Advanced Properties in General tab of the list properties window.

Default options

Default options allow you to manage list allocation efficiently:

- List size—Default number of entries created for a new list.
- Network Class of Service (System Speed Call)—Default Network Class of Service associated with entries in a new list.
- DN size—Default maximum length of Directory Numbers associated with entries in a new list.
- Originator Control over list (Group Call)—Determines if the originator of the Group Call can terminate the call.
- Max. length of queue (Group Hunt)—Default maximum number of calls that can be queued against the Pilot DN for new lists.

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- Call Forward All Calls (Group Hunt)—Check to allow Group Hunt to terminate at a station that has Call Forward All Calls allowed.

Memory optimization

The following options help you manage system memory on the systems. These options allow you to restrict the amount of system memory required to support the lists:

- Maximum List Size—Maximum number of entries allowed in a new list.
- Memory Water Mark—Memory threshold. When the system memory used by lists is at or above the Memory Water Mark, the Auto Increase List Size check box is cleared.
- Auto Increase List Size—When selected, lists are allowed to grow as new entries are added (until the Memory Water Mark is reached).
- Read Only Auto List Number—When selected, List Manager allows you to edit the automatically generated list numbers as you create new lists.

Available list numbers

Options for Speed Call and Group Hunt lists include controls where you can set the available list ranges. These options let you restrict the total number of lists allowed for the system. Enter the starting list number and ending list number in the range.

List Manager reports

List Manager lets you view, manage, and generate reports using list data from systems configured in Telephony Manager. You can view each report on screen, print the report, or save the report to a file. Report layout and formatting is done through Microsoft Excel.

You can generate a report immediately. You can schedule report generation with specific dates, times, and intervals. Generated reports use the data extracted from the Telephony Manager database. These reports are automatically saved with a system default name to the default location unless you specify otherwise.

Each report format has the following attributes, as noted by the column headers:

- Report Name—names of available reports
- Type—the report is either predefined or customized
- Number of systems—number of systems for which the report will be generated
- Number of Data Fields—number of data fields in the report
- Last Generated—date and time when the report was last generated

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Each report shows a specific set of list data. List Manager provides a set of predefined reports, listed in "Predefined reports" (page 464).

Reports and text files

All log report activity is performed, by default, in the current working directory for the System (the system subdirectory in your PC system). Other reports are sent to the PC directory of your choice. Typically, the following text files, with the appropriate extension, are found in the working directory:

- Reports (*filename*.TXT)
- Communications logs (*filename*.LOG)

Supply only the *filename* when prompted to save these files—Telephony Manager automatically supplies the appropriate extension.

Generate reports

You can generate a report and display it immediately, send it to a printer, or save it to a file. You can also schedule report generation to take place at predefined intervals.

Procedure 141
Generating a report

Step	Action
1	Select **File > Reports**. The Reports window appears.
2	Select a report in the window display.
3	Do of the following: • Click **Print** to print the report to the selected printer. • Click **Print Preview** to view the report on your PC. • Click **Print Setup** to select a printer to print reports. • Click **Schedule** to display the Scheduler window. Use this window to specify when and how often to generate the report.

—End—

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Procedure 142
Saving a report to a file

Step	Action
1	Select **File > Reports**. The Reports window appears.
2	Select a report in the window display.
3	Select **Print to File**.
4	Click **Print**. The Export window appears.
5	Select a file format and destination type.
6	Enter a file name (or use the default name), and select a directory in which to place the file.
7	Click **Save**. List Manager saves the report to the file name and location specified.

—End—

Predefined reports

List Manager includes several predefined reports. These are listed below along with a short description of each report type. You cannot customize List Manager reports.

Group Call

- Group Call lists—Group Call lists, sorted by list number
- Group Call lists by name—Group Call lists, sorted by list name
- Group Call lists with entries—Group Call lists including information about their entries
- Group Call lists with associated DNs—Group Call lists including information about their associated DNs

Group Hunt

- Group Hunt lists—Group Hunt lists, sorted by list number
- Group Hunt lists by name—Group Hunt lists, sorted by list name
- Group Hunt lists with entries—Group Hunt lists including information about their entries

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Options

- List Manager Options—List options for each list type

Speed Call

- Speed Call list by name—Speed Call lists, sorted by list name
- Speed Call lists—Speed Call lists, sorted by list number
- Speed Call lists by list type—Speed Call lists, sorted by list type (Speed Call or System Speed Call)
- Speed Call lists by SYNC status—Speed Call lists, sorted by synchronization status
- Speed Call lists with associated DNs—Speed Call lists including information about their associated DNs
- Speed Call lists with entries—Speed Call lists including information about their entries

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Web Navigator: Introduction

Contents

This section contains information on the following topics:

"Overview" (page 467)
"Web Navigator navigation tree" (page 467)
"Administrators" (page 468)
"End-users" (page 469)
"Logging in to Web Navigator" (page 469)
"Search Results section" (page 470)

Overview

The Web Navigator is a Web-based user interface to most of the functionality contained in Telephony Manager 3.1. It enables the administration of telephone equipment, employees information, and related tasks by the administrator, as well as an end-user application.

Web Navigator navigation tree

Web Navigator is implemented with a navigation tree to all its functionality. Figure 212 "Web Navigator navigation tree" (page 468) shows the navigation tree.

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Figure 212
Web Navigator navigation tree

The actual contents of the navigation tree differs depending on the category of user that is logged in to Web Navigator. There are two classes of Access Rights in Web Navigator:

- Administrators—The Telephony Manager administrator has the responsibility of installing, configuring, and maintaining Telephony Manager Web Services
- EndUser—Telephony Manager end users

Administrators

If a user is logged in as an administrator, the navigation tree displays the following five sections, as follows:

- **Equipment**—Provides links to the Telephony Manager Status page, the System Navigator, and the Alarm browser. See "Web Navigator: Equipment" (page 473).
- **Telephones**—Also known as Telephone Manager. You add, update, and delete telephones in this section. You also perform various tasks related to synchronization, telephone templates, configure line card, and reports. See "Web Navigator: Telephones (Telephone Manager)" (page 513).
- **Directory**—The user interface to the Common Network Directory (CND) where employee information is maintained. You administer employee data—add, update, and delete—in this section. See "Web Navigator: Directory" (page 611).

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- **Telecom Billing System**—Provides applications and management for the Telecom Billing System (TBS). See *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)* for complete instructions.
- **Web Administration**—Provides links to Custom Help pages, the User Authentication page, the User Groups page and Java-based User Properties application. See "Web Navigator: Web Administration" (page 629).

End-users

End-users have access only to the Desktop Services application. Desktop Services is an end-user application that provides Web pages that display the configuration of the user's telephone as well as provide telephone troubleshooting and feature information. With appropriate permissions, the end user is also provided with the ability to change keys and features. Access to Desktop Services is through CND authentication only.

For more information, see "Web Desktop Services" (page 649) and the *Telephony Manager 3.1 Desktop User Guide (NN43050-100)*.

Logging in to Web Navigator

Procedure 143
Logging in to Web Navigator

Step	Action
1	Enter the URL of the Web Navigator application in the Address bar of your browser. The URL is composed of the following: • http://<ip address>/admin or • http://<server hostname>/admin

ATTENTION

On a standalone installation, when not connected to the network, use one of the following URLs to access the Administrator Login page:

- http://localhost/admin
- http://127.0.0.1/admin
- http://<hostname>/admin (<hostname> is the computer name)
- http://<ipaddress>/admin (<ipaddress> is one of the following)
  - The default IP address of the PC
  - The static IP address assigned to the PC

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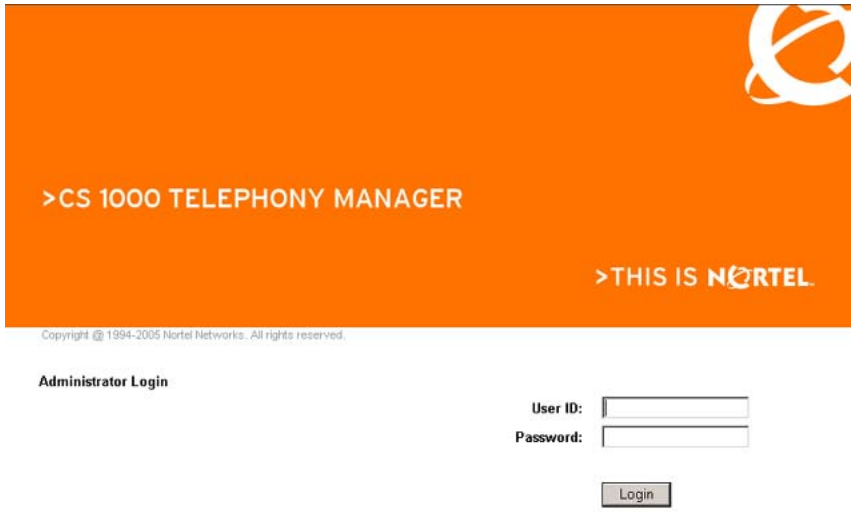
The Administrator Login page appears, as shown in Figure 213 "Web Navigator Administrator Login page" (page 470).

Figure 213
Web Navigator Administrator Login page



2 Log in with your administrator user name and password.

3 Click **Login**.

The Web Navigator application appears, displaying only the navigation tree.

ATTENTION

The user login name cannot be blank and cannot contain the following reserve characters: **+ / \ ; " < > , * #**.

The Web Navigator application appears, displaying only the navigation tree.

—End—

Search Results section

Most telephone and employee administration is performed on selected telephones or employees. The selected telephones or employees are the results of a user-defined query, with the results appearing in the Search Results section of the Search window. The type of information displayed in the Search Results window is different depending on what is being searched (telephones or employees), but the structure and use of the Search Results

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section is identical. This section describes the generic Search Results section of the Search window. The actual search methods are described in the procedures which populate the Search Results window.

Telephones that are not supported by Telephony Manager are displayed in the Search Results section, but cannot be selected for any operation.

The Search Results section is a part of the Search window, appearing below the query. Figure 214 "Search Results section for a Telephones search" (page 471) shows an example of a Search Results section for a search of the telephone database. The Search Results section is almost identical for all queries, with only the information fields being different, depending on what database is being searched.

WARNING
Do not use the browser Refresh control to refresh the Search Results section in Web Navigator. Doing so can cause incorrect operation and results.

Figure 214
Search Results section for a Telephones search

The Search Results section consists of the following components:

- An action bar with the following:
  - — Action buttons: to perform operations on records selected in the display of results.
  - — list with additional actions: for telephone searches only
  - — Results per page list: to set the number of records that are displayed per page; default value is 20

    To display all the records on one page, select ALL. However, a maximum of 1000 records can be displayed on a single page. A message will appear informing you that you have reached the limit. You must go to the next page to view the additional records.
- Display of results—one record per line, with the following

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— Selection check box

  – To select one or more records, select the box next to the corresponding records.

  – To select all the records, select the check box in the column header.

    This check box only selects all the records on that page. If the number of records exceeds the lesser of 1000 or the page size as shown in the Results per page list, select All from that list to move all records onto a single page. Then select the check box in the column header, thereby selecting all the records.

    If there are more than 1000 records to be selected, you must select and process them one page at a time.

— Records of information, one field in each column

  – The records are sorted by the search field by default. Click on a field name to sort the results differently. An arrow next to a column name indicates that the records are sorted in ascending (up-arrow) or descending (down-arrow) order. Click on the column title to toggle between ascending and descending order.

  – A maximum of 1000 records can be displayed in a single page.

  – If no records meeting the search criteria are found, the following is displayed:

    No records to display.

— A footer with page information and, if there is more than one page of results, page navigation controls to go to the first, previous, next, or last page.

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Web Navigator: Equipment

Contents

This section contains information on the following topics:

"Current Status" (page 474)

"System Navigator" (page 475)

"Web DECT Application" (page 478)

"Web system alarm management" (page 479)

- "Logging in to the Alarm Browser" (page 480)
- "Viewing the alarms for a single system" (page 480)
- "System Alarms table" (page 481)
- "Alarm Filter pane" (page 482)
- "Alarm details" (page 483)
- "Status bar" (page 483)

"Virtual System Terminal" (page 483)

- "Telephony Manager Web Virtual System Terminal menus" (page 485)

"Web Maintenance Pages" (page 487)

- "Core CPU page" (page 490)
- "I/O Ports page" (page 494)
- "UIPE D-Channel Monitoring tool enhancement" (page 496)
- "Groups page" (page 497)
- "Loops page" (page 498)
- "B-channels maintenance page" (page 501)
- "PE Shelves page" (page 504)
- "PE Cards page" (page 504)

"Find Telephones (Telephony Manager)" (page 506)

"Find PE Units (PBX)" (page 507)

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Current Status

Select **Equipment > Current Status** from the Telephony Manager navigation tree to access the **current Status** page, as shown in Figure 215 "Telephony Manager current Status page" (page 474).

The current Status page contains:

- Release version of the Telephony Manager software
- Last login date and time
- Real time status of Telephony Manager Server applications:
  - Started
  - Running
  - Not Responding
  - Stopped

Figure 215
Telephony Manager current Status page

The Services window can be opened by running services.msc or from within the Windows Administrative Tools menu, by clicking on Services.

Current status displays the availability and status of applications and systems on the TM server. It is associated with the TM services.

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The Data Buffering and Access (DBA) application is part of the TM watch dog service which can be started from the Services window. DBA can be launched from the TM Windows Navigator.

DECT JVM is in started status only when it is connected to a DECT card otherwise it is always in stopped status.

Dongle Checker and **System Sanity** are part of the TM watch dog service which can be started from the Services window, or by launching the TM Windows Navigator.

Terminal Server application can be started when the Terminal server is configured or connected to the System Terminal.

TM Resource Manager present in the Services window is the service for TM Remote application.

Trap Master and **Trap Server** are for Alarm management and the application can be started by launching alarm management in TM windows or TM web navigator.

System Navigator

Select Equipment > System Navigator from the navigator tree to access the Telephony Manager System navigator page. This page shows the names and types of all systems available to the current user, and allows you to group the systems into sites for more convenient access. Once grouped, the systems can be viewed by site as shown in the example in Figure 216 "System navigator: Sites view" (page 477), or by gatekeeper zone as shown in Figure 217 "System navigator:Gatekeeper Zones view" (page 478). The sites, systems, and applications shown are dependent on the software packages installed, your security access permissions, and the type of system device you select.

The gatekeepers only appear in the Gatekeepers Zones view. Although primarily used for CS 1000 systems, Meridian 1 systems can be assigned to a gatekeeper zone. This functionality is intended for Meridian 1 systems that are equipped with IP Line/ IP Trunk applications that support gatekeeper operation.

In the Sites view, Media Gateways appear in the tree under their associated site, as well as under the heading Media Gateways beneath the appropriate system. Under the Media Gateways heading, the Media Gateway name is composed of the Site name and the system name. If the Call Server and Media Gateway are in the same site, the Media Gateway only appears under the Media Gateways heading of the associated system.

In the Gatekeeper Zones view, Media Gateways only appear beneath the Media Gateways heading of the associated system.

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In the Sites view, Survivable IP Expansion cabinets appear in the tree under their associated site, as well as under the heading Survivable Cabinets beneath the appropriate Nortel Meridian 1 PBX 11C Cabinet. If the main cabinet and Survivable IP Expansion cabinet are in the same site, the Survivable IP Expansion cabinet only appears under the Survivable Cabinets heading of the associated Nortel Meridian 1 PBX 11C Cabinet system.

In the Gatekeeper Zones view, Survivable IP Expansion Cabinets only appear beneath the Survivable cabinets heading of the associated Nortel Meridian 1 PBX 11C Cabinet system.

Telephony Manager does not display the survivable status of Media Gateways and Survivable IP Expansion cabinets.

The System Navigator allows you to do the following:

- Display a tree structure for the Gatekeeper Zones on the network that you manage. Access systems in a particular zone by opening the zone.
- Display a tree structure for the Sites and Systems on the network that you manage. Access systems at a site by opening that site.
- Launch Web applications such as Maintenance Pages and the Alarm Browser.

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Figure 216
System navigator: Sites view

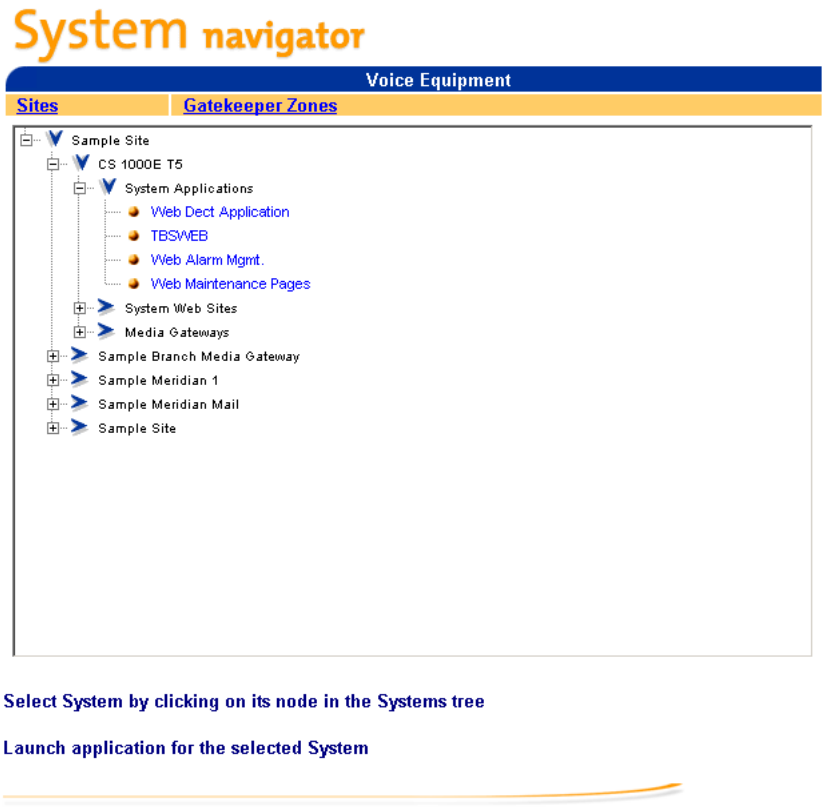

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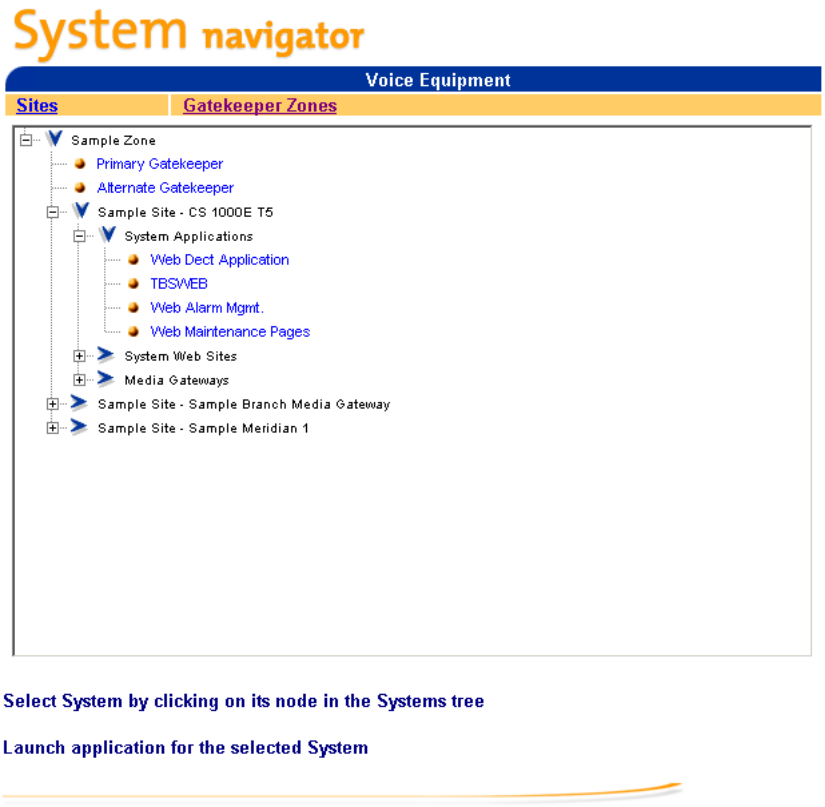
Figure 217
System navigator:Gatekeeper Zones view



Web DECT Application

Launches the Digital Enhanced Cordless Telecommunications (DECT) system management tool.

In Telephony Manager 3.1, users of DECT handsets can see the unique Hex ID on the display in site survey mode.

To access the site survey mode in DECT handsets C4010/20, follow Procedure 144 "Site survey mode access" (page 478).

Procedure 144
Site survey mode access

Step	Action
1	In communication mode, press **Menu**, and then simultaneously press keys 1, 5, and 9.
2	In idle mode, press **Menu** press keys 7 and 6, and then long-press the left softkey.

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a. Press **Menu**.

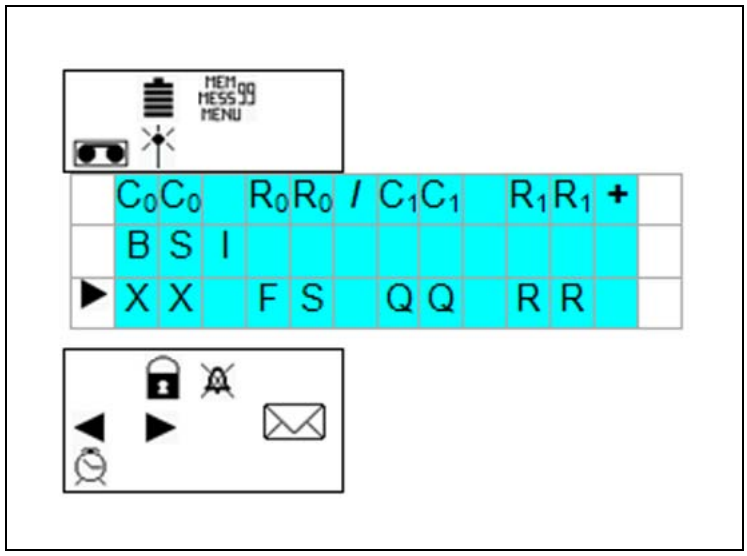
b. Press keys 7 and 6.

c. Long press the left softkey.

3 To exit, hold the **Cancel** key. (With the latest software you must press the reset pin.)

—End—

Figure 218
DECT site survey mode



The DECT product is not distributed in North America. See *DECT: Description, Planning, Installation, and Operation (NN43120-114)*.

Web system alarm management

The Alarm browser page contains a list of alarms received by the Alarm Manager Service running on the Telephony Manager Server. The list contains alarms and events from multiple systems and devices. You can perform the following actions:

- Sort the alarms by clicking on a column header.
- Re-size the columns.
- Filter the list using the Show check boxes.
- Page through the list using the First/Last/Next/Previous buttons, or use the Page list to jump to a particular page.
- Set the auto refresh interval.

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- Double-click an alarm for help.
- Single-click an alarm to view full alarm details in the Alarm details pane.

Access to the Alarm browser page is controlled at the Web Navigator level for each User Group. The users in the User Group either have access to the alarms for all monitored devices, or no access to alarms.

Logging in to the Alarm Browser

Procedure 145
Logging in to the Alarm Browser

Step	Action

To view the alarms for all systems monitored by Telephony Manager:

1 Log in to Web Navigator, using Procedure 143 "Logging in to Web Navigator" (page 469).

2 Select **Equipment > System Alarms** in the navigation tree.

The Alarm Browser page appears, as shown in Figure 219 "Alarm browser page" (page 481). This page displays the alarms for all systems monitored by Telephony Manager.

—End—

Viewing the alarms for a single system

Procedure 146
Viewing the alarms for a single system

Step	Action

1 Log in to Web Navigator, using Procedure 143 "Logging in to Web Navigator" (page 469).

2 Select **Equipment > System Navigator**.

The System navigator page appears. This page displays the systems managed by Telephony Manager.

3 Select the system for which you want to view alarms.

4 Select **System Applications > Web Alarms Mgmt**.

The Alarm browser page appears, as shown in Figure 219 "Alarm browser page" (page 481). This page displays the alarms for the selected system.

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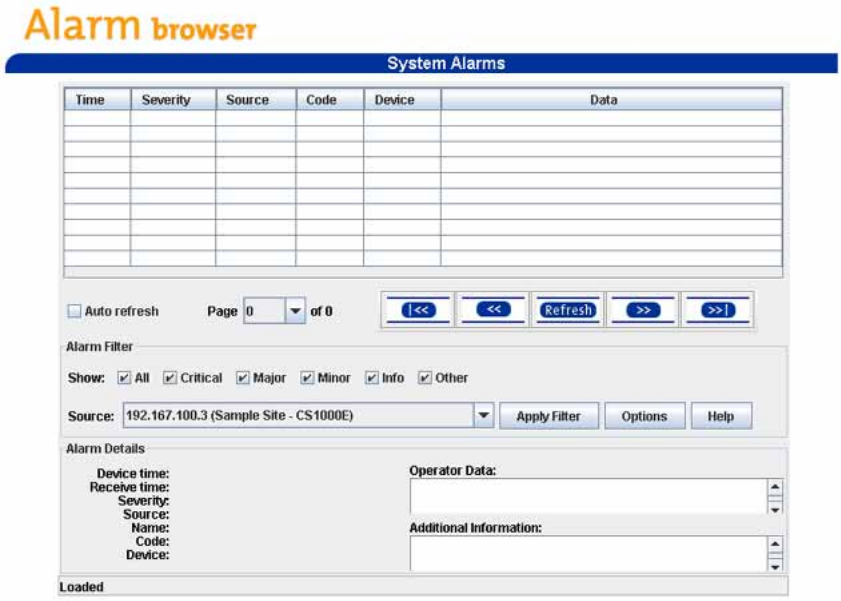
Figure 219
Alarm browser page



—End—

You can perform the following actions within the Alarm Browser page:

- Filter the list based on severity and system.
- Page through the list.
- Sort the alarms.
- Re-size a column to see more information.
- View Help on an alarm.

The list of alarms is not dynamic. Use the Telephony Manager Alarm Browser Options window, shown in Figure 219 "Alarm browser page" (page 481), to set the auto refresh interval and select the number of alarms to be displayed on each page.

System Alarms table

The System Alarms table in the Alarm browser page, shown in Figure 219 "Alarm browser page" (page 481), displays six fields associated with each alarm entry. These fields are Time (received), Severity, Source, Code, Device, and Data. Click the appropriate column heading to sort the entries by the field of your choice. Double-click the alarm entry to display online Help for the alarm.

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Alarm Filter pane

Use the Alarm Filter section in the Alarm browser page (Figure 219 "Alarm browser page" (page 481)) to select alarm severity, monitored system, and to set Alarm Browser options.

Select alarm severity and monitored system

Use the Show check boxes to select the severity of the alarms that are to be retrieved from the Telephony Manager Server. You may select the All check box or any combination of the other five check boxes.

Use the Source list to select the system to be monitored. You may select All to view alarms from all systems, including all the devices configured in the *Devices.txt* file.

The default selections are all systems and all alarms.

When the status of a check box is changed or a new selection is made from the Source list, the change is reflected in the next auto refresh or when Refresh or Apply Filter is clicked. Refresh and Apply Filter initiate a new retrieval and reset the polling timer.

Set Alarm Browser options

Use Procedure 147 "Setting Alarm Browser options" (page 482) to set the options for the Alarm Browser.

Procedure 147
Setting Alarm Browser options

Step	Action
1	Click **Options** in the **Alarm Filter** section of the **Alarm browser** page. The Alarm Browser Options window appears, as shown in Figure 220 "Alarm Browser Options window" (page 482).

Figure 220
Alarm Browser Options window

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2 From the **Auto refresh** list, select a refresh interval between three and ten minutes. The default value is three minutes.

The Auto refresh check box in the System Alarms section of the Alarm browser page must be selected for auto refresh to occur.

3 Enter the number of alarms you want Telephony Manager to display on each alarm browser page in the Alarms per page box. The number must be in the range 10 to 100. The default value is 10 alarms per page.

4 Click **OK**.

The settings in the Alarm Browser Options window and the Alarm Filter section are temporary. These settings revert to the default values when the browser is closed and reopened.

—End—

Alarm details

When an alarm entry is selected, the alarm information and data associated with the alarm appear in the Alarm details section of the Alarm Browser page (Figure 219 "Alarm browser page" (page 481)).

The left side of the Alarm details section displays the complete information for the selected alarm.

The Operator data box contains all other data for the selected alarm. In addition to operator data, this box may include expert data and sequence number.

The Additional Information data box contains other miscellaneous information specific to the device.

Status bar

The status bar at the bottom of the Alarm browser page provides a visual indication that new alarms are being retrieved from the Telephony Manager Server.

To view information about the menus, toolbar, column headings, and other functions available on the Alarm browser page, use Help.

Virtual System Terminal

To enable the Web Virtual System Terminal you must configure Terminal Servers. See "Setting up a virtual terminal", *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.

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The Web Virtual System Terminal provides a single point of connectivity for a Web-based terminal window. Launch the Telephony Manager System Navigator from Internet Explorer or Netscape Navigator, and select the system to connect to from the GUI. This does not require knowledge of such items as IP addresses and serial port settings because the information is stored on the server. You determine who gets access to what, and you can change the settings without interrupting everyday operation.

ATTENTION

Web Virtual System Terminal does not support connection to Meridian Mail regardless of the type of communications profile (serial/PPP/Ethernet).

The Telephony Manager server connects to devices over IP network and serial ports on the Telephony Manager server. Web Virtual System Terminal supports connection primarily to a system using:

- Meridian 1 or CS 1000 system pseudo-teletype (PTY) port
- Direct serial connection
- Telnet

The Web Virtual System Terminal resembles the Telephony Manager Windows System Terminal application. When you connect to a system, it provides similar context-sensitive Help for the overlays and error messages. When you connect to other devices, it provides a basic Telnet connection. The Web Virtual System Terminal is a Java applet embedded in an HTML page. Once connected to the Terminal Server, the Web Virtual System Terminal communicates with the selected device through the Terminal Server.

ATTENTION

Only the first client that connects to a port can send character input to the host.

The Web Virtual System Terminal displays most messages in a window. However, some messages that do not require immediate attention appear between the < > characters in the terminal screen Figure 221 "Terminal client showing messages" (page 485). These messages are not sent to the host device or logged on the server. The messages can be:

- Status of this client (connected, disconnected, read-only connection, and so on)
- Status of other client (monitoring this port, disconnected)
- Broadcast message (received from another client, sent to another client)

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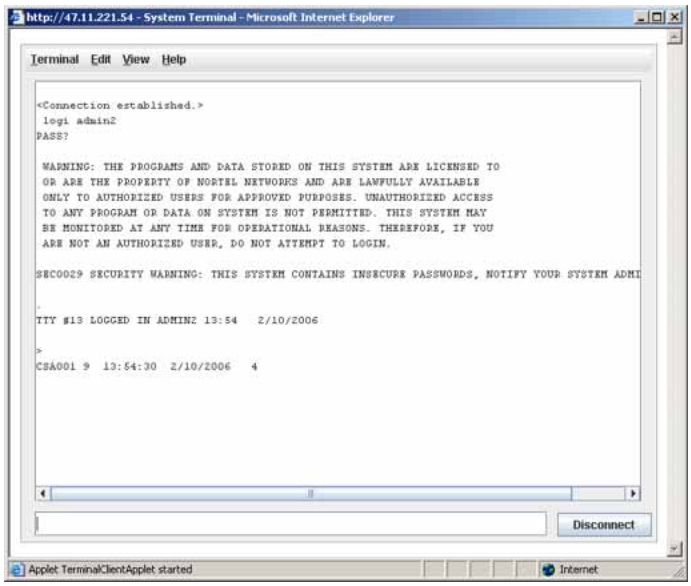
Figure 221
Terminal client showing messages



Telephony Manager Web Virtual System Terminal menus

The Telephony Manager Web Virtual System Terminal window has the following menu items:

- Terminal
- Edit
- View
- Help

Terminal menu

- Connect—Connect to a virtual port. This item appears when the client is not connected to a port.

  For a non-administrator user, if a port is already in use by someone else, then the connection is not allowed.
  If you have administrator privilege, you may connect to a port already in use by someone else. However, you may only monitor the session, and cannot send text to the host.

- Disconnect—Disconnect from a virtual port. This item appears when the client is connected to a port.

- Disconnect Others—Disconnect all other clients from a virtual port. This item appears only for a user with administrator privilege.

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If you select Terminal > Disconnect Others, then all other clients to the virtual port are disconnected, and you are then allowed to send text to the host.

- Send Message—Display a Send Message window, as shown in Figure 222 "Send Message window" (page 486). This allows you to "broadcast" a message to all other users on the same virtual port.

Figure 222
Send Message window

Edit Menu

- Copy—Copy the selected text to the clipboard.
- Select All—Select all text in the output window.

View Menu

- Look & Feel—Cascading menu determines the look of and feel of the user interface. You can choose:
  Java
  Windows
  Motif
- Overlay Passthru—The applet provides a separate edit box to enter commands, which allows for backspace while working in the M1 overlay environment.

  If this menu item is selected, the Help > Search M1 Help Files menu item becomes visible. If this menu item is cleared, it behaves like a standard terminal window.

Help Menu

- Current Overlay—Display Help for the current overlay in a separate browser window. The Telephony Manager Web System Terminal monitors character I/O to keep track of the overlay information.
- Current Prompt—Display Help for the current overlay prompt in a separate browser window. The Telephony Manager Web System Terminal monitors character I/O to keep track of the overlay information.
- Last System Message—Display Help for the last system message in a separate browser window.

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- Search M1 Help file—Display the Overlay Enhancer window Figure 223 "I/O Navigator Overlay Enhancer window" (page 487). This allows you to search for Help on an overlay, overlay prompt, or error message.
- About Terminal Client—Display release information for Web Terminal Client.

Like the Telephony Manager System Terminal, the Telephony Manager Web Virtual System Terminal has context-sensitive Help. It monitors system input and output to determine the current overlay and prompt. You can also search for help for an overlay (LD22, for example), overlay prompt (LD22 REQ, for example), or M1 message (AMH0007, for example). You can either highlight text in the terminal screen and then select Help > Search, or select Help > Search, and then type in the string that you want to search.

Figure 223
I/O Navigator Overlay Enhancer window

Web Maintenance Pages

To access Web Maintenance, the administrator must establish Login and Password for the selected system in Windows. For more information about accessing the Web Maintenance, see *Telephony Manager 3.1 Installation and Commissioning* (NN43050-300).

ATTENTION
To use Web Maintenance pages, the Login and Password to the system must be configured in the administrator's User group.

You can use Web Maintenance to perform maintenance operations on system hardware.

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ATTENTION

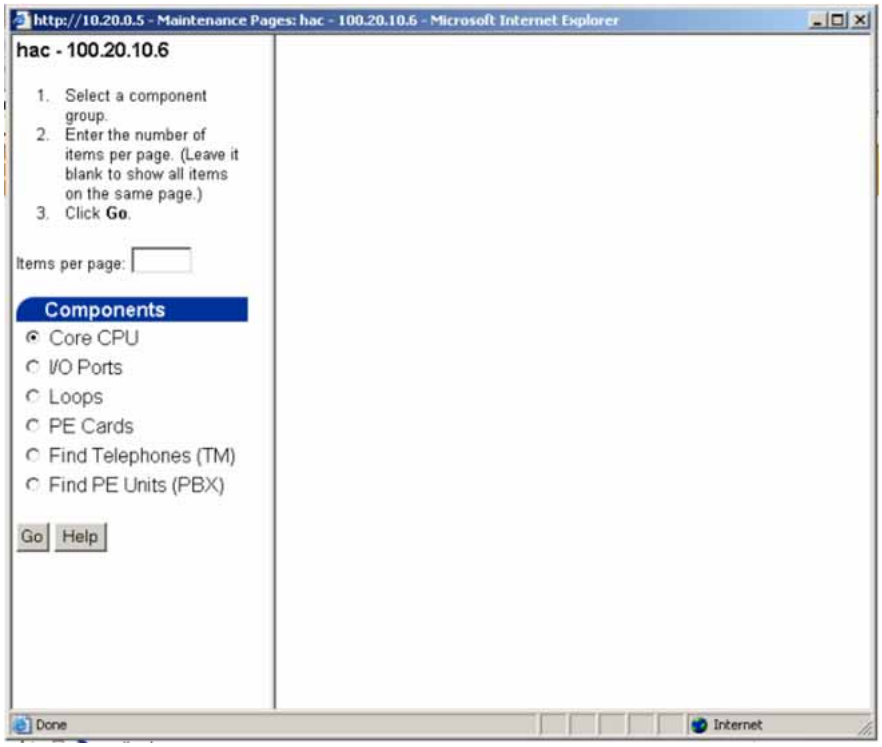
The following operations are not supported in TM:

- Single web client running maintenance commands on different systems simultaneously.
- Multiple web clients, each running a maintenance command on the same system simultaneously.
- Multiple web clients, each running a maintenance command on multiple systems simultaneously.

If you attempt to execute these operations, the application may become completely or partially unusable. You must restart the TM Server or the Web Services to restart the application.

Figure 224 "Maintenance pages" (page 488) shows the main Web Maintenance Pages window.

Figure 224
Maintenance pages



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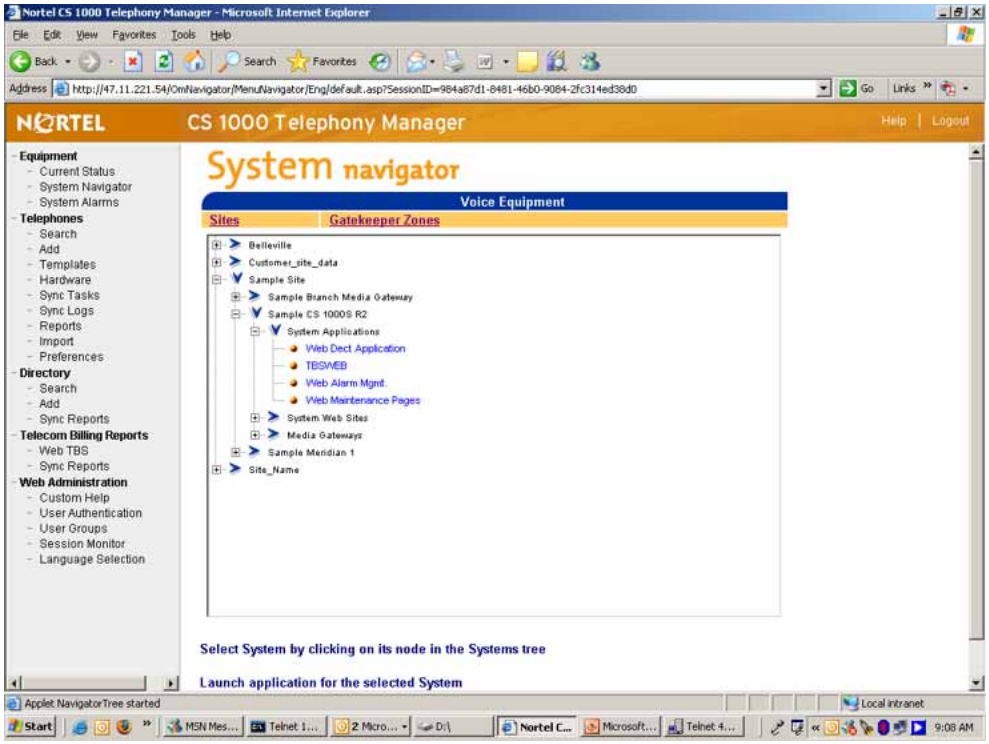
Procedure 148
Launching Web Maintenance

Step	Action
1	Go to the System Navigator page.
2	Select the target site and system.
3	Select **System Applications**.
4	Double-click **Web Maintenance Pages**, see Figure 225 "Launch Web Maintenance" (page 489).

—End—

Figure 225
Launch Web Maintenance



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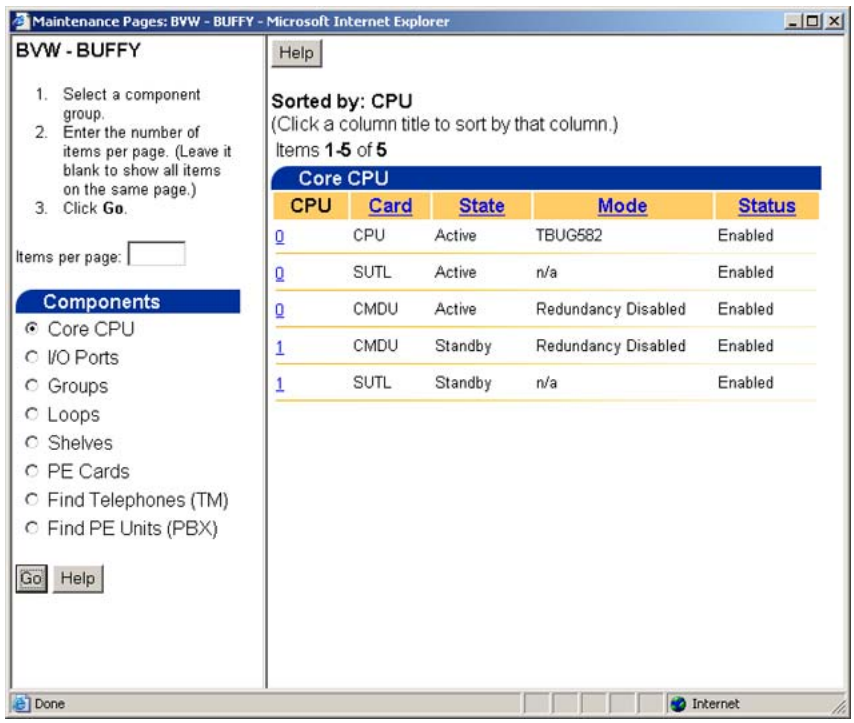
Core CPU page

Procedure 149
Opening the Core CPU page

Step	Action
1	Select **Core CPU**.
2	Click **Go**. The Core CPU page appears, as shown in Figure 226 "Core CPU summary page" (page 490).

Figure 226
Core CPU summary page



—End—

Procedure 150
Performing maintenance operations on a CPU

Step	Action
1	Click on the CPU number that corresponds to the CPU on which you want to perform maintenance operations.

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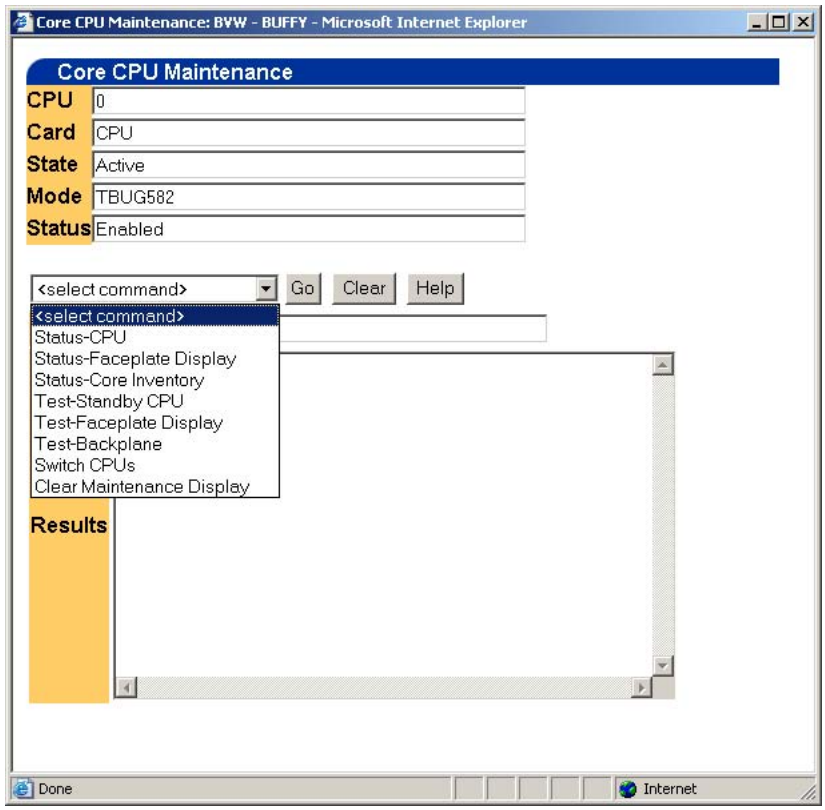
The Core CPU Maintenance Page for the selected CPU appears, as shown in Figure 227 "Core CPU Maintenance page" (page 491).

Figure 227
Core CPU Maintenance page



2 Select a command from the list.

3 Click **Go**.

The results appear in the Results section.

—End—

Some of the Core CPU cards require that you input additional information prior to the execution of the Go command. The following example outlines the procedure for sending maintenance commands to a CMDU.

To perform maintenance commands on a CMDU, first select a CMDU, click the CPU number link that corresponds to the CMDU on which you want to perform maintenance commands. The Core CPU Maintenance Page for the selected CMDU appears, as shown in Figure 228 "Core CPU Maintenance page for a CMDU" (page 492).

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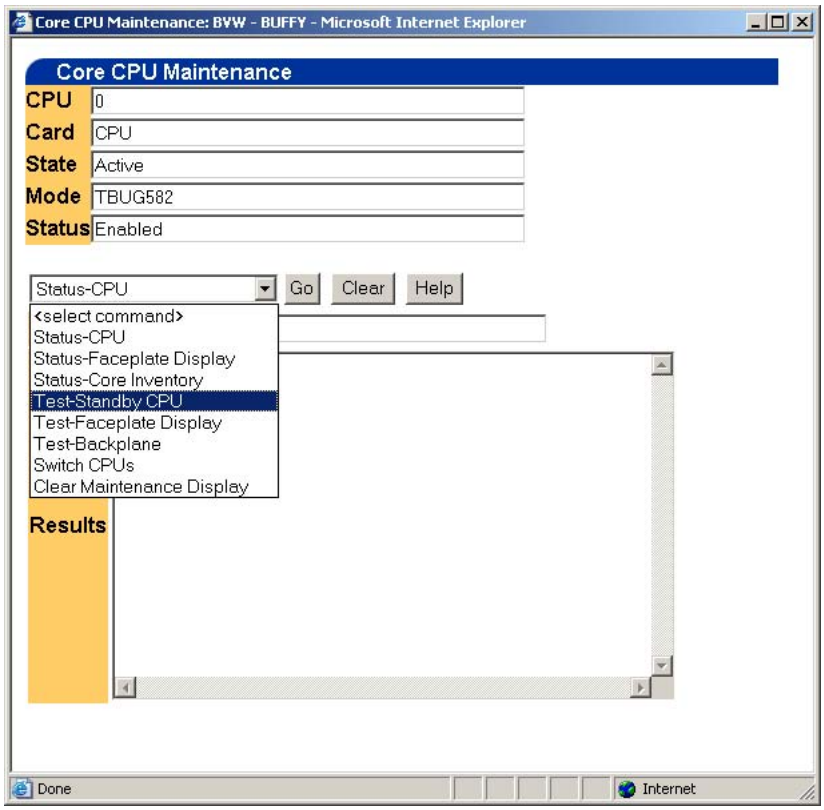
Figure 228
Core CPU Maintenance page for a CMDU



Procedure 151
Testing the selected CMDU

Step	Action
1	Select **Test-StandbyCPU** from the list.
2	Click **Go**.
3	Click **Options**. The CMDU Test Options page appears, as shown in Figure 229 "CMDU Test Options" (page 493).

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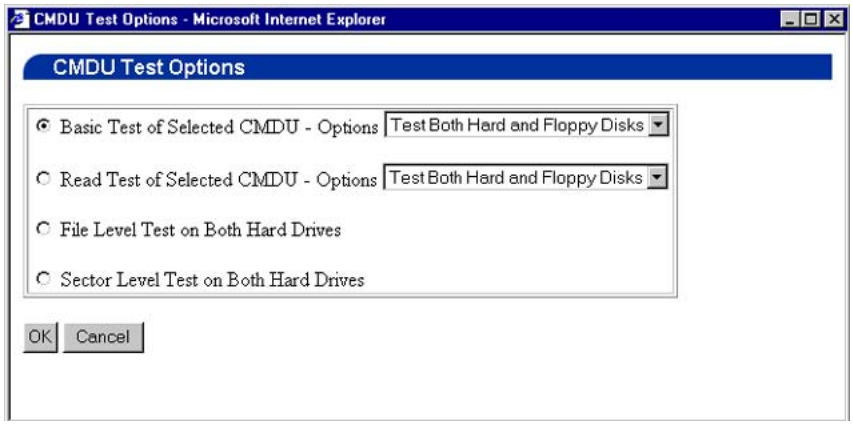
Figure 229
CMDU Test Options



4 Click the radio button corresponding to the type of CMDU test that you want to perform.

To perform a basic test of the selected CMDU:

a. Click **Basic Test of Selected CMDU**.

b. Select an option from the list.

c. Click **OK**.

The Options button is replaced with a Go button.

5 To perform a read test of the selected CMDU:

a. Click **Read Test of Selected CMDU**.

b. Select an option from the list.

The Test CD-ROM Only option only appears when you are connected to a Meridian 1 system running Release 23 or later software.

c. Click **OK**.

The Options button is replaced with a Go button.

6 To perform a file level test on both hard drives:

a. Click **File Level Test on Both Hard Drives**.

b. Click **OK**.

The Options button is replaced with a Go button.

7 To perform a sector level test on both hard drives:

a. Click **Sector Level Test on Both Hard Drives**.

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b. Click **OK**.

The Options button is replaced with a Go button.

8 Click **Go**.

The test results are displayed in the Results section. The Go button is replaced with an Options button since Test-CMDU is still selected in the menu.

—End—

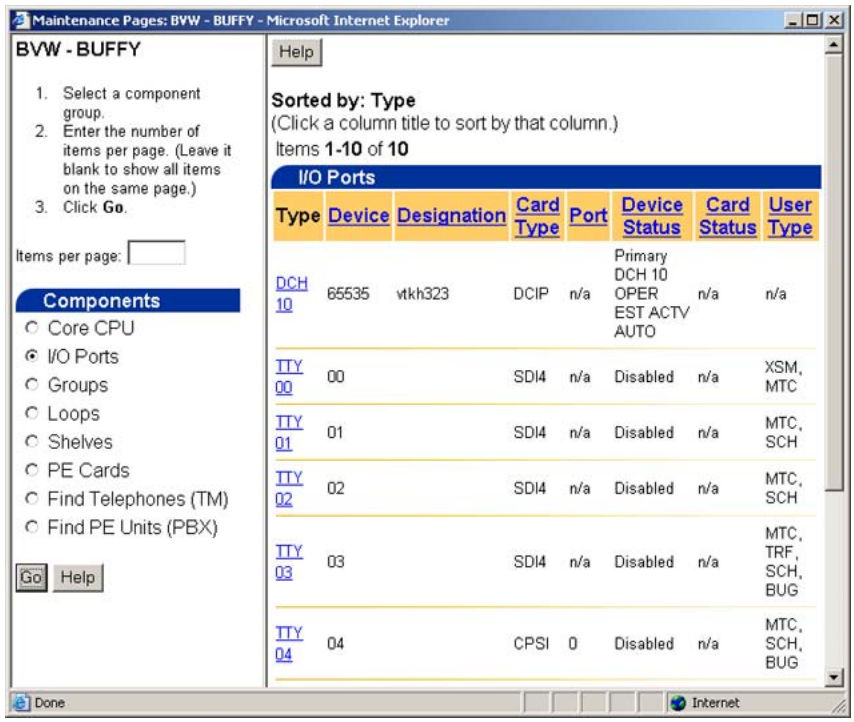
I/O Ports page

Procedure 152
Performing maintenance operations on an I/O Port

Step	Action
1	Select **Core I/O Ports**.
2	Click **Go**.

The I/O Ports summary page appears, as shown in Figure 230 "I/O Ports summary page" (page 494).

Figure 230
I/O Ports summary page



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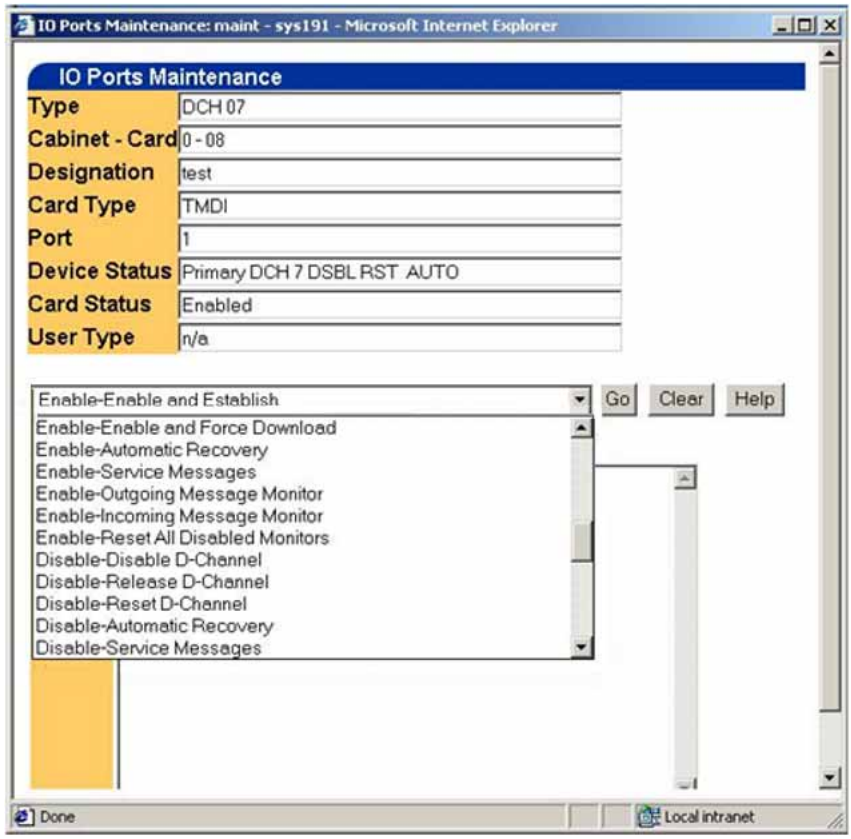
3 Click on the **Type** of port on which you want to perform maintenance operations.

The I/O Port Maintenance page for the selected port appears, as shown in Figure 231 "I/O Ports Maintenance page" (page 495).

Figure 231
I/O Ports Maintenance page



4 Select a group number, if required:

a. Click **Options**.

b. Select the group number from the list, as shown in Figure 232 "Group number option window" (page 496).

The command that you selected from the select command list appears as the title in the select group number window.

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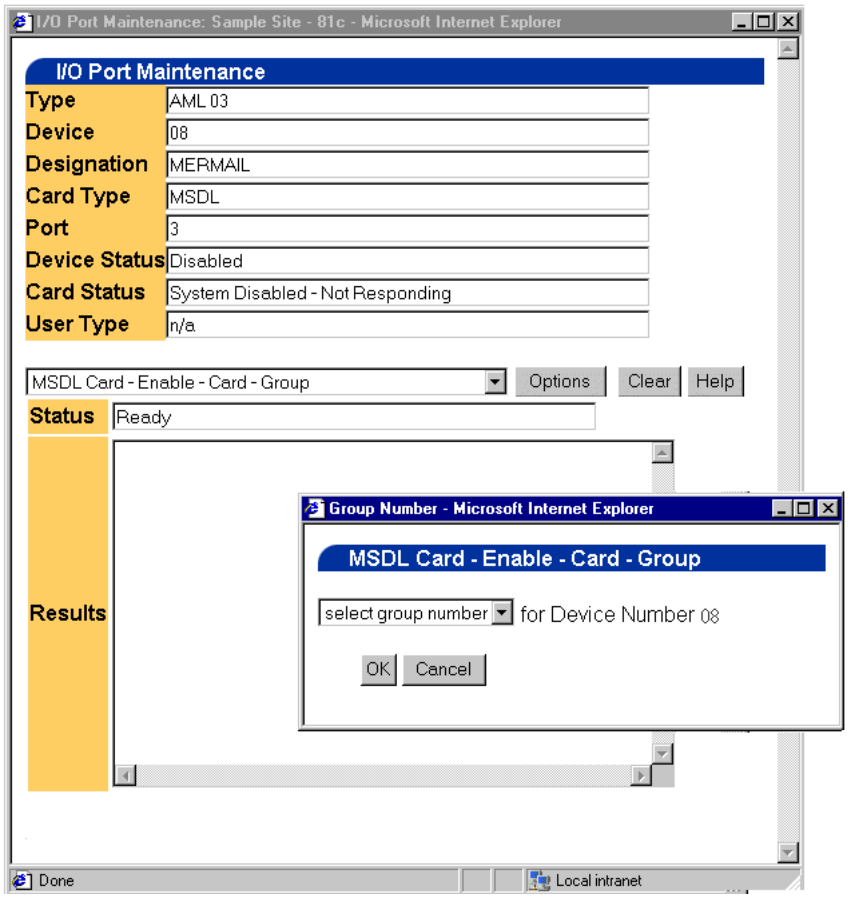
Figure 232
Group number option window



c. Click **OK**.

5 Click **Go**.

The Device Status field is updated to indicate that the card is enabled.

—End—

UIPE D-Channel Monitoring tool enhancement

Procedure 153
Enabling or disabling a message, or enhancing monitoring

Step	Action
1	Select **I/O Ports** in the **Components** section.

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2 Click **Go**.

3 Select the **DCH02** option in the **I/O Ports** section.

4 Select the **Channels** option

5 Configure the information.

—End—

The commands for UIPE proprietary messages and Q.931 messages can be executed from Loops option of Components section by selecting "Loops" in the Components section.

Groups page

Procedure 154
Opening the Groups page

Step	Action
1	Select **Groups**.
2	Click **Go**. The Groups summary page appears, as shown in Figure 233 "Groups summary page" (page 498).

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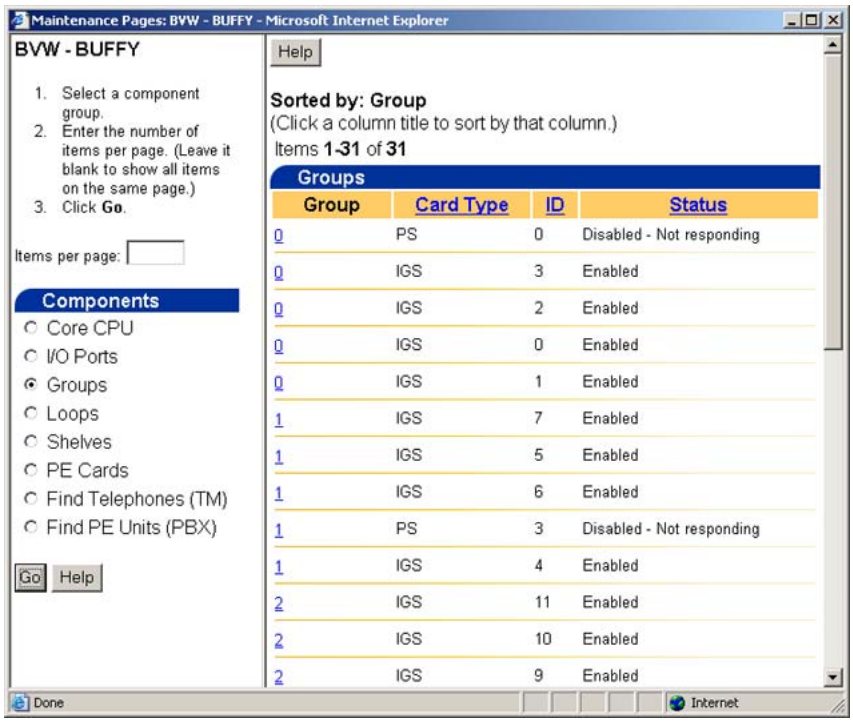
Figure 233
Groups summary page



—End—

Loops page

Procedure 155
Performing maintenance operations on a Loop

Step	Action
1	Select **Loops**.
2	Click **Go**. The Loops summary page appears, as shown in Figure 234 "Loops summary page" (page 499).

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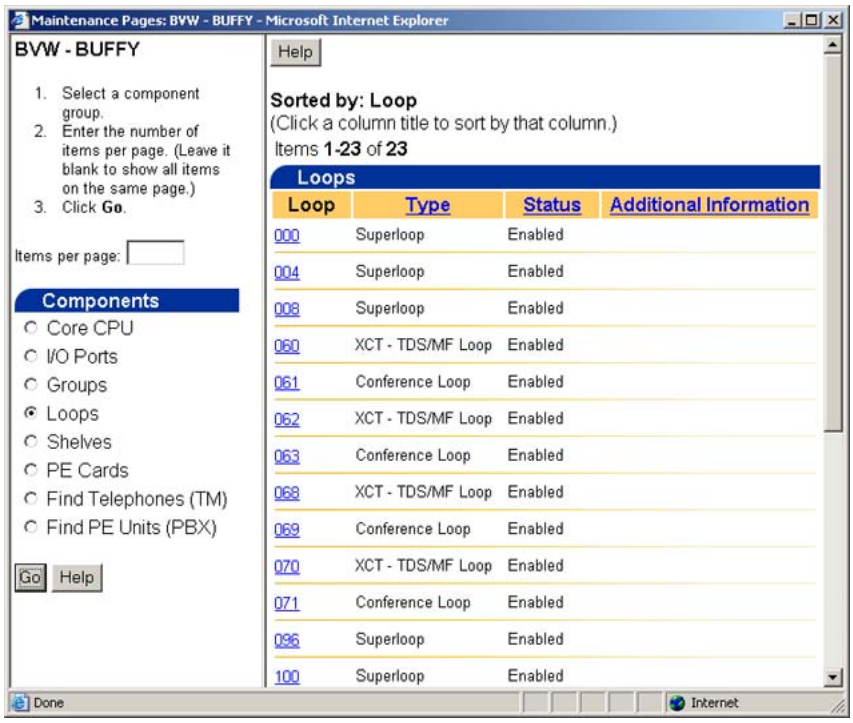
Figure 234
Loops summary page



3 Click on the **Loop** on which you want to perform maintenance operations.

The Loop Maintenance page for the selected loop appears, as shown in Figure 235 "Loop Maintenance page" (page 500).

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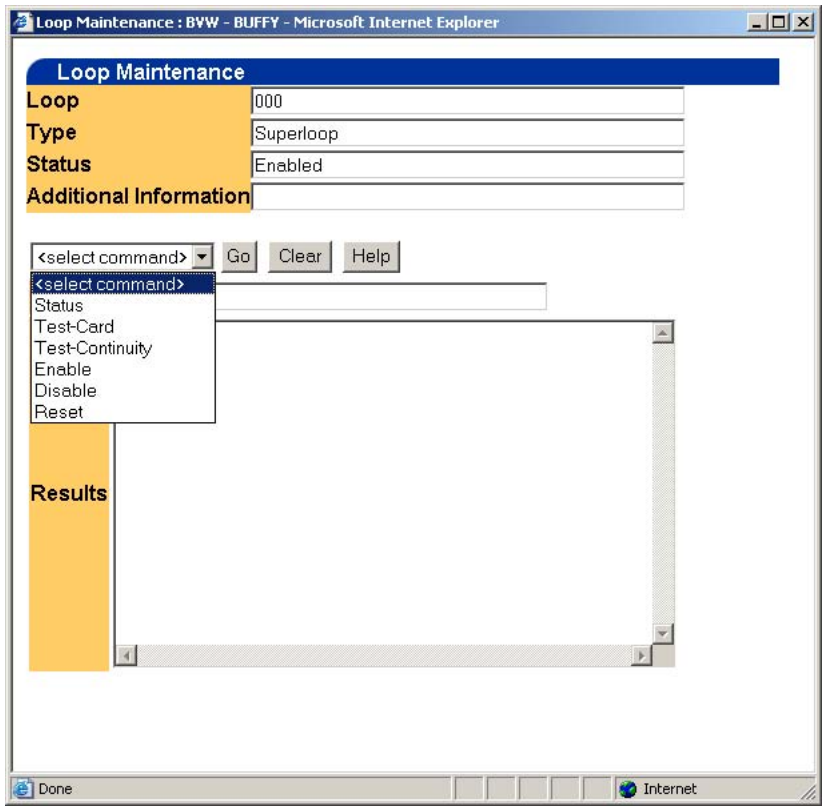
Figure 235
Loop Maintenance page



4 If the **Go** button has been replaced by the **Options** button, select a shelf number:

a. Click **Options**.

b. Select the shelf number from the list, as shown in Figure 236 "Shelf Number window" (page 501).

The command that you selected from the select command list appears as the title in the select shelf number window.

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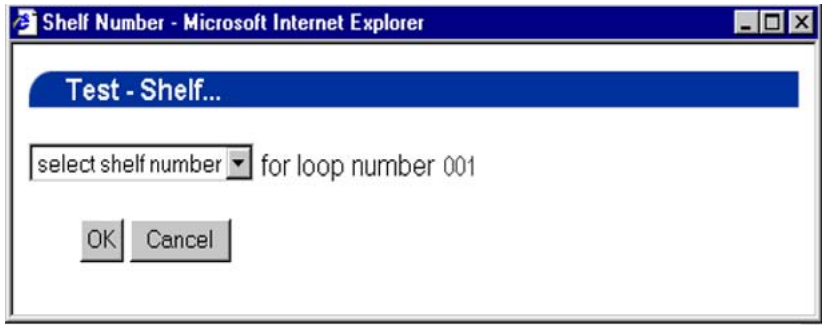
Figure 236
Shelf Number window



c. Click **OK**.

5 Click **Go**.

The test results are returned in the **Results** frame.

—End—

B-channels maintenance page

Procedure 156
Performing maintenance operations on B-channels

Step	Action
1	From the **Loops** summary page shown in Figure 237 "Loops summary page with PRI and DTI2 loops" (page 502), click on the **Loop** for the Superloop on which you want to perform maintenance.

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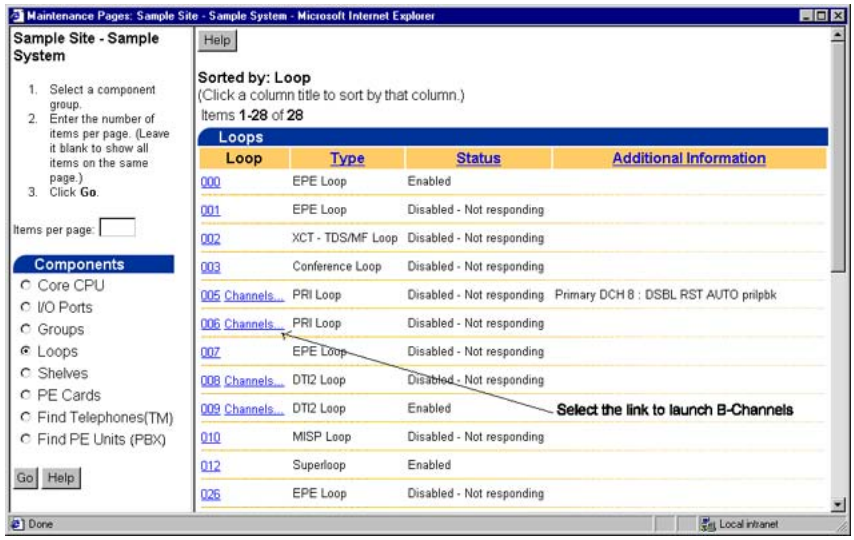
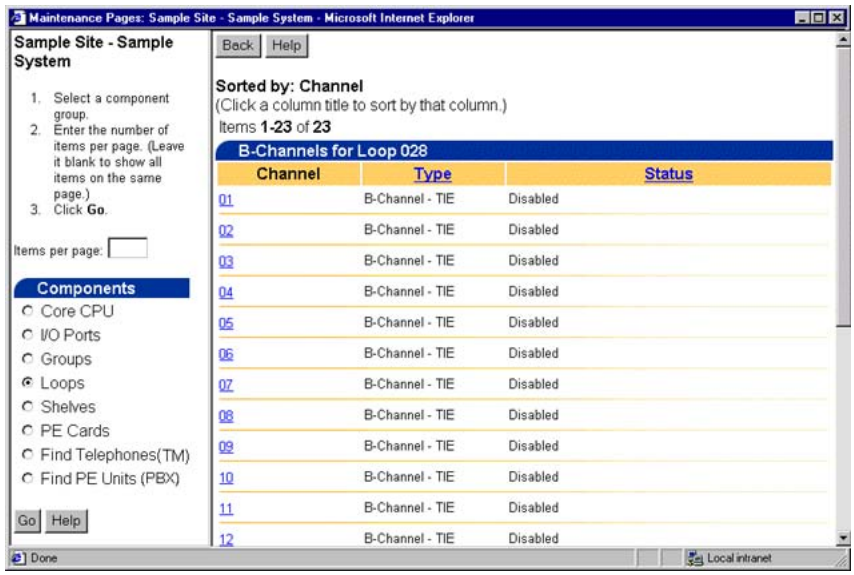
Figure 237
Loops summary page with PRI and DTI2 loops



The B-channels summary page for the selected loop appears, as shown in Figure 238 "B-Channels summary page" (page 502).

Figure 238
B-Channels summary page



2 Click on the **Channel** on which you want to perform maintenance operations.

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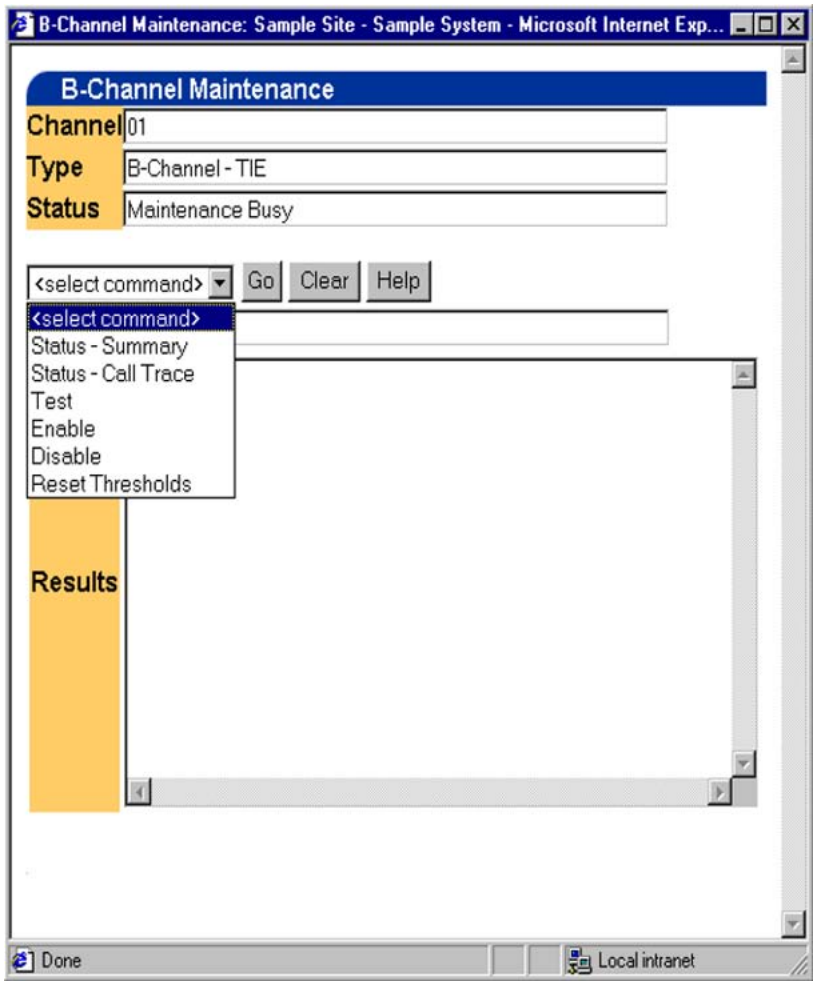
The B-Channel Maintenance page for the selected channel appears, as shown in Figure 239 "B-Channel Maintenance page" (page 503). The available maintenance commands are dependent on the type of B-Channel selected.

Figure 239
B-Channel Maintenance page



3 Select a command from the list.

4 Click **Go**.

The results of the command appear in the Results section.

—End—

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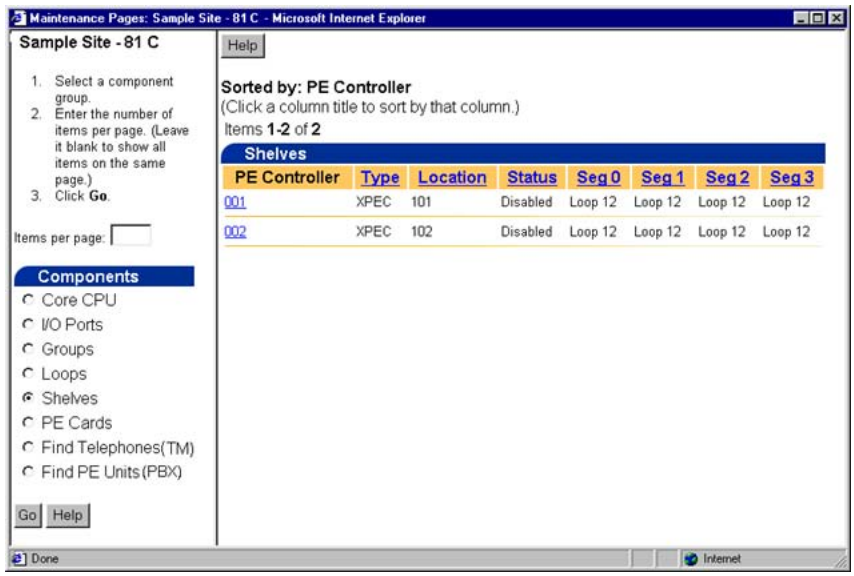
PE Shelves page

Procedure 157
Opening the PE Shelves page

Step	Action
1	Select **Shelves**.
2	Click **Go**. The PE Shelves summary page appears, as shown in Figure 240 "PE Shelves summary page" (page 504).

Figure 240
PE Shelves summary page



—End—

PE Cards page

Procedure 158
Performing maintenance commands on a PE card

Step	Action
1	Select **PE Cards**.
2	Click **Go**.

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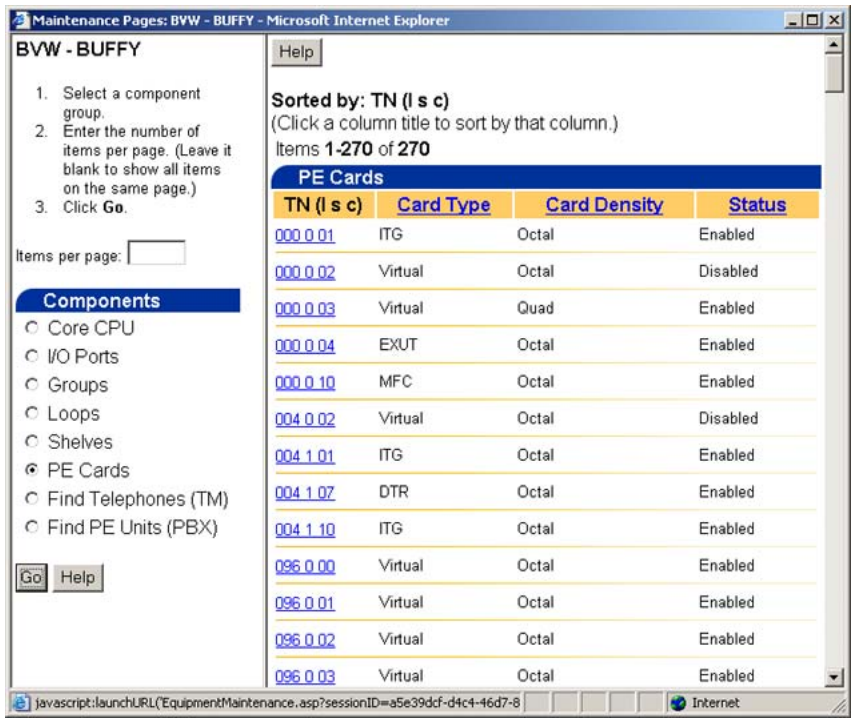
The PE Cards summary page appears, as shown in Figure 241 "PE Cards summary page" (page 505).

Figure 241
PE Cards summary page



3 Click the **TN** for the PE card on which you want to perform maintenance commands.

The PE Card Maintenance page for the selected PE card open as shown in Figure 242 "PE Card Maintenance page" (page 506). This example shows the maintenance page for TN 001 0 01.

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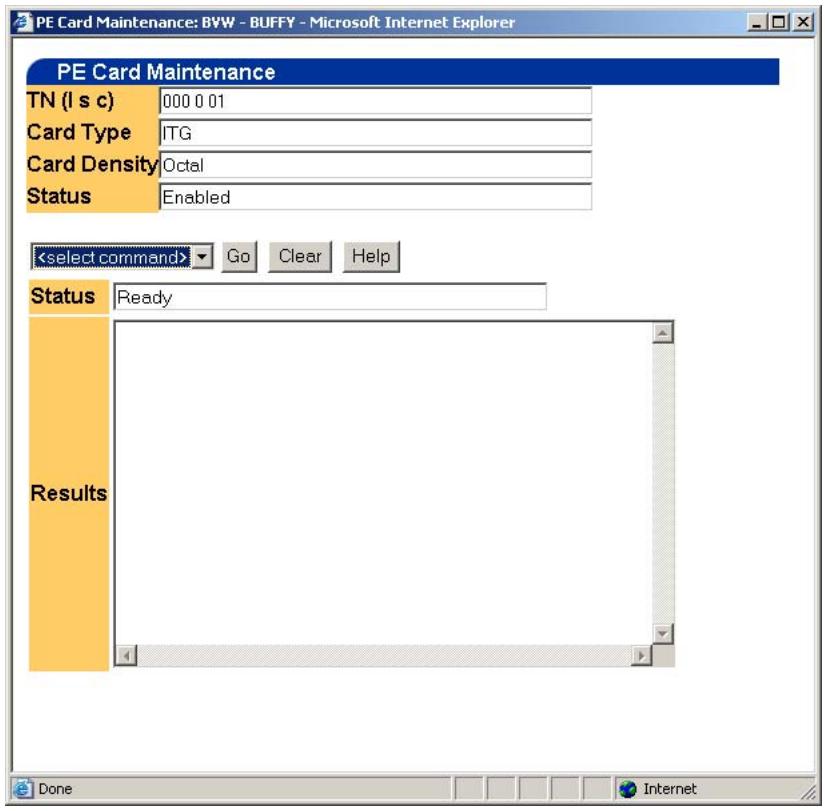
Figure 242
PE Card Maintenance page



4 Select a command from the list.

5 Click **Go**.

The results of the command are displayed in the Results section. Once the command has been executed, the component state is updated.

—End—

Find Telephones (Telephony Manager)

Use Procedure 159 "Opening the Find Telephones (Telephony Manager) page" (page 507) to retrieve the list of PE Units from the telephones database on the Telephony Manager Server.

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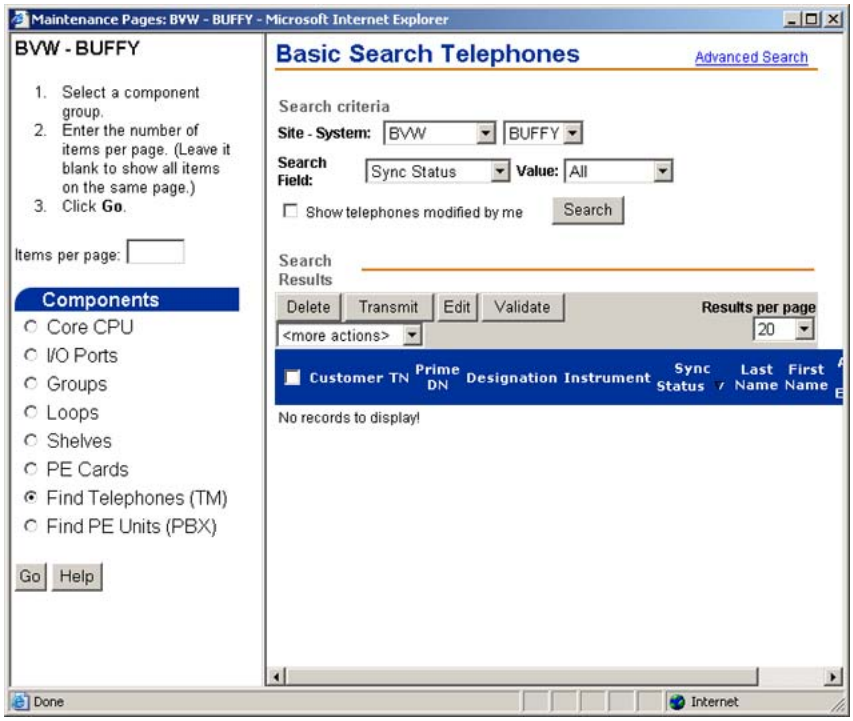
Procedure 159
Opening the Find Telephones (Telephony Manager) page

Step	Action
1	Click **Find Telephones (TM)** in a Web Maintenance page.
2	Click **Go**. The Find Telephones page appears, as shown in Figure 243 "Find Telephones (Telephony Manager) Maintenance page" (page 507).

Figure 243
Find Telephones (Telephony Manager) Maintenance page



—End—

Find PE Units (PBX)

Use the procedures in this section to retrieve the list of PE Units directly from the system.

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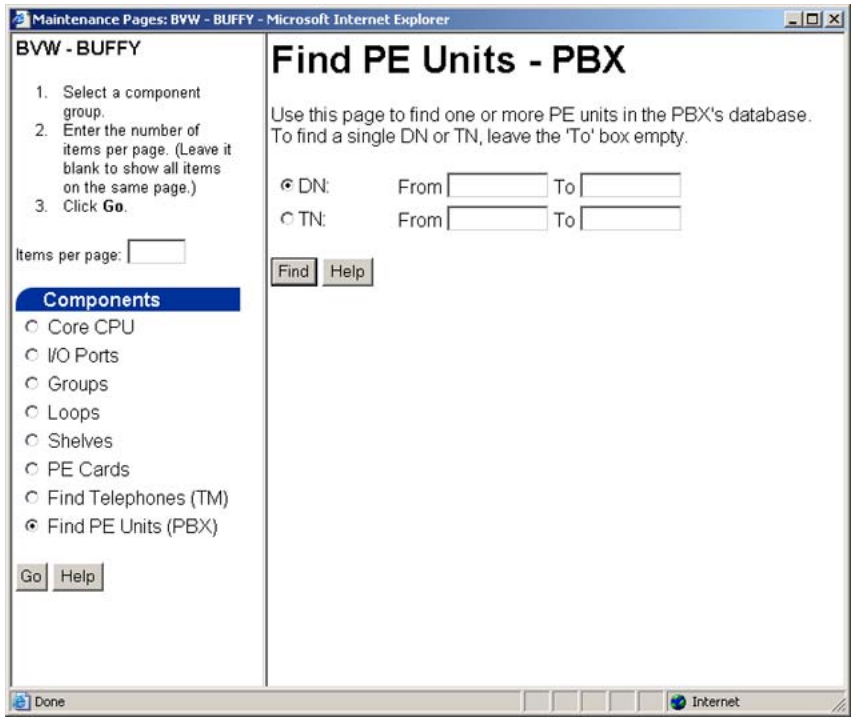
Procedure 160
Opening the Find PE Units (PBX) page

Step	Action
1	Select **Find PE Units (PBX)** in a Web Maintenance page.
2	Click **Go**. The Find PE Units (PBX) page appears, as shown in Figure 244 "Find PE Units (M1) Maintenance page" (page 508).

Figure 244
Find PE Units (M1) Maintenance page



—End—

PE Units maintenance

Procedure 161
Performing PE Units maintenance

Step	Action
1	Enter a single DN or TN, or a range of DNs or TNs, in either the **Find Telephones** page of the **Find PE Units** page.

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Note: The “From” DN and “To” DN should be within the range of 1000 DNs.

2 Click **Find**.

The results are displayed as shown in Figure 245 "Find PE Units results (by DN)" (page 509) if you entered DNs, or as shown in Figure 246 "Find PE Units results (by TN)" (page 509) if you entered TNs.

Figure 245
Find PE Units results (by DN)

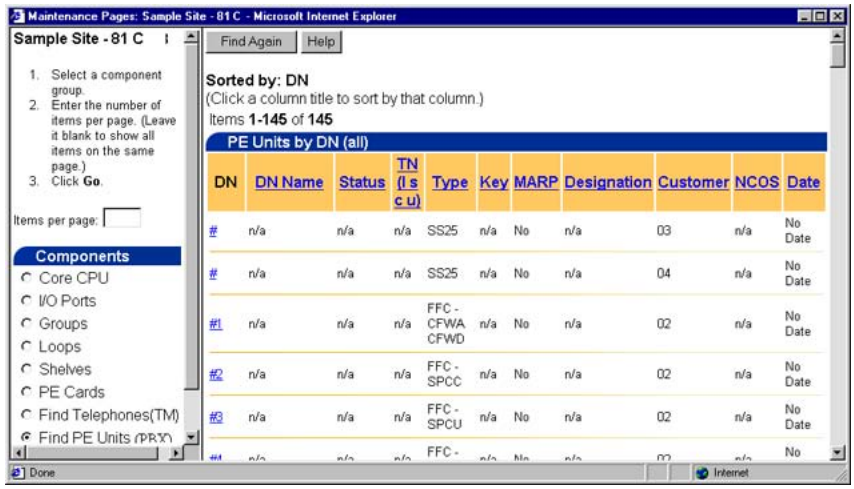
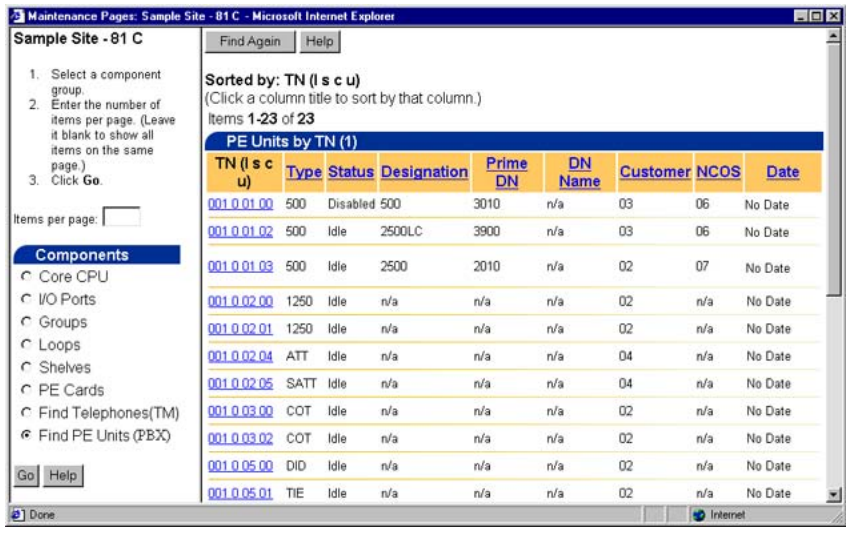


Figure 246
Find PE Units results (by TN)



3 Click on a **DN** or a **TN**.

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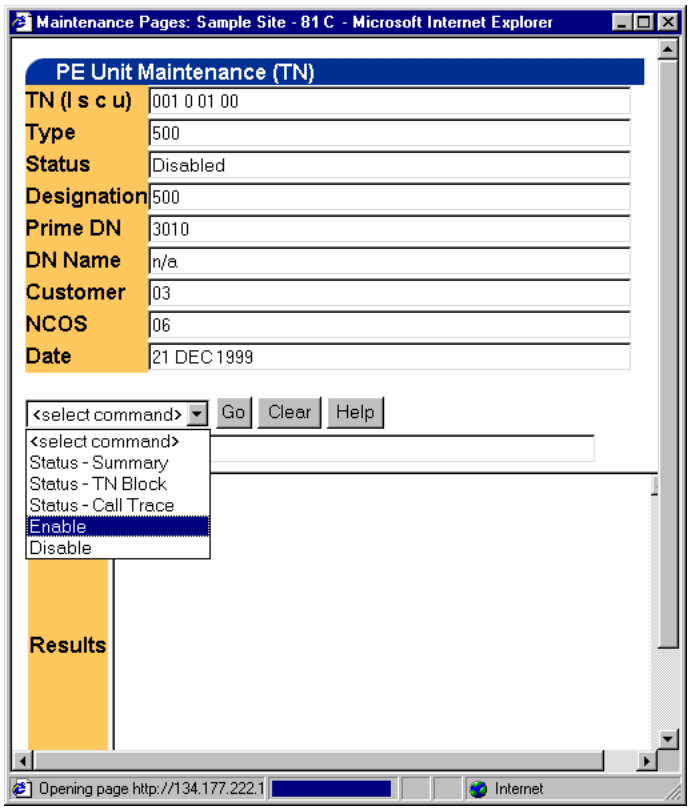
A new browser window appears, as shown in Figure 247 "PE Unit Maintenance (TN) page" (page 510). This example shows the maintenance page for TN 001 0 01 00.

Figure 247
PE Unit Maintenance (TN) page



4 Select a command from the list.

5 Click **Go**.

The command status goes through the following sequence:

- Ready
- Logging In...
- Retrieving Results...
- Updating Status...
- Logging Out...
- Ready

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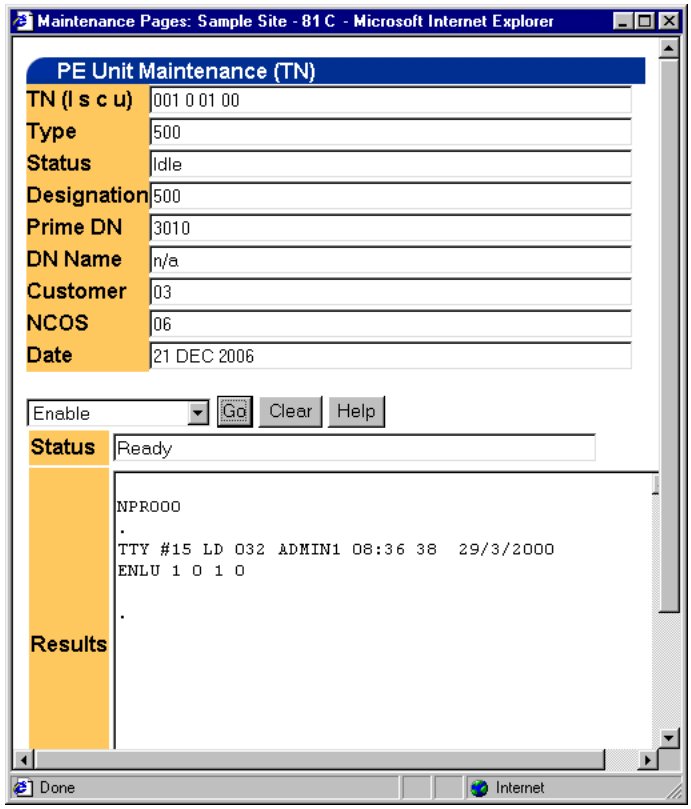
In this example, the Enable command is selected. Figure 248 "PE Unit Maintenance (TN) page after applying enable command" (page 511) shows that the status of this unit has been updated to Idle from Disabled in Figure 247 "PE Unit Maintenance (TN) page" (page 510).

Figure 248
PE Unit Maintenance (TN) page after applying enable command



6 Do one of the following:

- Select another command.
- Close the browser window.

—End—

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Web Navigator: Telephones (Telephone Manager)

Contents

This section contains information on the following topics:

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"Supported telephones" (page 515)

"IP Phone features, key features, and operations" (page 517)

"Synchronization" (page 524)

"Telephone Details page" (page 524)

"Administering telephones" (page 534)

- "Adding telephones" (page 534)
- "Configuring branch office IP Phones at the main office" (page 542)
- "Searching for and selecting telephones" (page 544)
- "Updating telephones" (page 550)
- "Swapping telephones" (page 554)
- "Manually converting IP telephones" (page 556)
- "Deleting telephones" (page 559)
- "Restoring telephones" (page 561)
- "Validating telephones" (page 562)
- "Searching for TNs" (page 563)
- "Searching for DNs" (page 565)
- "Searching for speed call lists" (page 566)
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"Synchronizing telephones" (page 570)

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- "Retrieving telephones" (page 571)
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"Reconcile CPND" (page 576)
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"Sync Logs" (page 580)
"Using telephone templates" (page 582)
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"Viewing templates" (page 585)
"Editing templates" (page 585)
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"Configuring line cards" (page 587)
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"Adding a line card" (page 588)
"Viewing configuration of a line card" (page 589)
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"Generating a report" (page 592)
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"Deleting a report definition" (page 601)
"Importing telephones and telephone data" (page 601)
"Source file format" (page 601)
"Importing telephones" (page 606)
"Viewing import logs" (page 607)
"Clearing import logs" (page 608)
"Setting preferences" (page 608)
"Troubleshooting" (page 610)

Overview

The Telephones section of the Web Navigator make up the Telephone Manager application. The Web pages in this section are used to add, search for, and administer a telephone or a group of telephones. Administrative tasks are performed from the Search Results section in the Basic Search Telephones or Advanced Search Telephones windows.

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WARNING
You must not modify Web station tasks from **Windows > Control Panel > Scheduled Tasks**. You can modify Web station tasks by using the **Sync Tasks** link in Web Navigator.

Telephones are assigned to individual employees and departments. Employee and department information is stored in the Common Network Directory (CND) database, and is accessible from either this section or the Directory section of the Web Navigator.

WARNING
Do not use the browser Back, Forward, or Refresh controls to navigate between pages in Web Navigator. Doing so can cause incorrect operation and results.

Supported telephones

Telephony Manager 3.1 Telephone Manager supports operations only on the following telephones:

- Digital Phones:
  - M2006
  - M2008
  - M2008HF
  - M2216
  - M2216-1
  - M2216-2
  - M2616
- Digital Meridian Phones:
  - M3901
  - M3902
  - M3903
  - M3903H
  - M3903V
  - M3904
  - M3904H

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  - M3904V
  - M3905

- IP Phones:
  - IP Phone 2001
  - IP Phone 2002
  - IP Phone 2004
  - IP Softphone 2050 MC
  - IP Softphone 2050 PC

- Next generation IP phones:
  - IP Phone 1110
  - IP Phone 1120
  - IP Phone 1140
  - IP Phone 1150

- IP wireless phones:
  - 2210
  - 2211
  - 2212

- IP Audio Conference Phone 2033—This phone will have the same features and key features as the IP Phone 2001, with hands-free allowed.
- IP Phone 2007—configured as, and appears to the user as, as an IP Phone 2004
- Analog and Digitone standard (500/2500 type) telephones
- M3110, M3310, and M3820
- Digital Cordless Set (DCS)
- Personal Call Assistant (PCA)
- CallPilot Virtual IP Ports (CPIVP)
- Meridian Communication Unit (MCU)
- R232 and R422
- Portable telephones (PORT)

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Telephony Manager 3.1 supports all associated add-on modules, both key-based and display-based modules, as well as key-expansion modules.

Telephony Manager 3.1 supports operations on the following telephones only as part of the generic 500-type analog telephone set:

- M8009, M8314, and M8417
- M9216 and M9316
- Unity I, Unity II, and Unity III
- M9009

Telephones that are not supported by Telephony Manager are displayed in the Search Results section, but cannot be selected for any operation.

IP Phone features, key features, and operations

The PBX Release 5.0 supports a set of new Internet Protocol (IP) telephones, new features, key features, and new operations on IP telephones.

KEMCLS is a new feature in Telephony Manager 3.1 for all IP telephones that support NextGen key expansion module to configure the class of services KEM2 and KEM3 incorporated in PBX Release 4.5 and later. The value of this class of service is KEM3 if the phone is attached to NexGen KEM; otherwise it is KEM2. KEM3 is the only possible value for the new IP phones added in PBX Release 5.0, which supports only NextGen KEM. See Table 39 "Support of CLS KEM2/KEM3 in IP telephone" (page 517).

NextGen IP phones (supports NextGen KEM) support an additional Key expansion module. Telephony Manager 3.1 includes an additional option (3) to configure the number of key expansion modules. This option applies only if you configure the KEMCLS value as KEM3. Table 40 "Number of extra keys for 2002P1, 2002P2, 2004P1 and 2004P2 telephones" (page 518) explains the different values of KEM prompts and KEMCLS class of service pertaining to different IP phones. The modified Web Station UI for configuring KEMCLS class of service and number of key expansion modules is shown in Figure 249 "CLS KEM2 and KEM3 with KEM prompt" (page 518).

Table 39
Support of CLS KEM2/KEM3 in IP telephone

IP Telephone	KEM2	KEM3
2002P1, 2002P2, 2004P1, and 2004P2	Yes	Yes
2050PC, 1120, 1140, and 1150	No	Yes
2001P2, 2033, 2050MC, 2210, 2211, 2212, 2007, 1110, PCA and CPVIP	No	No

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Figure 249
CLS KEM2 and KEM3 with KEM prompt

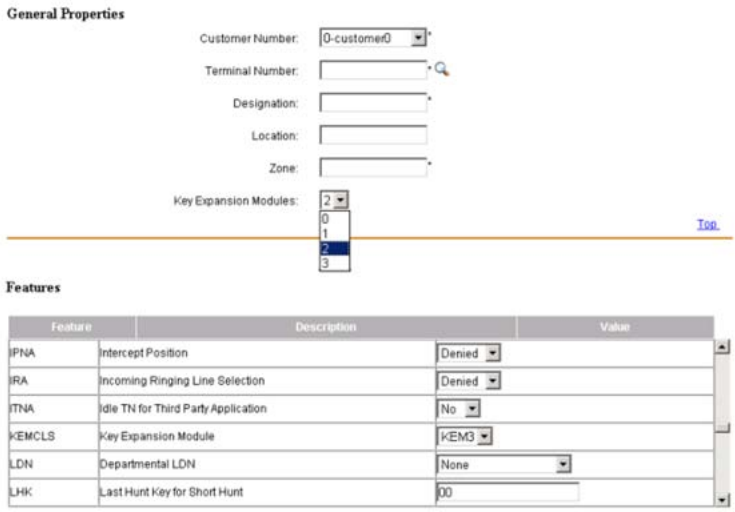

Table 40
Number of extra keys for 2002P1, 2002P2, 2004P1 and 2004P2 telephones

Telephone type	KEMCLS	KEM = 0, 1, 2 and 3	Multiplication factor (Physical Keys)	Number of extra keys (Physical Keys)
2002P1, 2002P2, 2004P1 and 2004P2	KEM2	0, 1, 2,	KEM * 24	0 if KEM = 0, 48, if KEM is 1, 2
2002P1, 2002P2, 2004P1 and 2004P2	KEM3	0, 1, 2, 3	KEM * 18	0 if KEM = 0, 48, if KEM is 1, 2 54, if KEM is 3

The IP telephone IPACD (Release 4.5) is renamed in Release 5.0 to IP telephone 1150. The features and key features of this telephone are the same as the 2004P1/2004P2 telephone. The only change in this telephone is the value of KEM3 class of service. See Table 41 "List of CLS, KEM and Key feature of 1150 telephone" (page 519).

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Table 41
List of CLS, KEM and Key feature of 1150 telephone

Prompt (CLS or Key)	Description
CLS	All the class of services supported for i2004 are supported for IPACD (Except KEM2). The set by default is assigned with the following class of services: UNR FBD WTA LPR MTD FND HTD TDD CRPD MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1 POD DSX VMD CMSD SLKD CCSD SWD LND CNDD CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBD ICDD CDMD LLCN MCTD CLBD AUTU GPUD DPUD DNDD CFXD ARHD CNTD CLTD ASCD CPFA CPTA HSPD ABDD CFHD FICD NAID DNAA BUZZ UDI RCC HBTD AHD IPND DDGA NAMA MIND PRSD NRWD NRCD NROD DRDD EXR0 USMD USRD ULAD CCBD RTDD RBDD RBHD PGND FLXD FTTC DNDY DNO3 MCBN FDSD NOVD VOLA VOUD CDMR KEM3
KEM	KEM = 0, 1, 2, and 3
KEY	Key configuration for IPACD telephone(s) are as follows: Key 0 can be an ACD (ACD agent key) key or Regular (SCR, SCN, MCR, MCN, PVR and PVN) DN key. The In-calls key duplicates the programming of Key 0; it is not individually programmable. Key numbers 1-11 are used for Programmable feature keys. These keys can be any DN or key feature except for Message Waiting (MWK) and those configured on keys 17-31. Key numbers 12-15 are used only for ACD specific key features. These key features are NRD, MSB, AAG, AMG, DWC, ACNT, ASP, EMR, OBV, RAG, ATW, AWC. Configuring keys 12-15 with key features other than those mentioned above will print an error (same error while configuring I2004 telephone). By default these keys are configured as: Not Ready (NRD) on key 12 Make Set Busy (MSB) on key 13 Call Supervisor / Answer Agent (AAG) on key 14 Emergency / Answer Emergency (EMR) on key 15 Key numbers from 17 to 26 are used as soft keys and these keys are configured with TRN on key 17, A06 (default), A03 on key 18, CFW on key 19, RGA on key 20, PRK on key 21, RNP on key 22, SCU/SCC/SSU/SSC on key 23, PRS on key 24, CHG on key 25 and CPN on key 26. Key numbers 27-31 are reserved.

All IP phones are rebranded in Telephony Manager 3.1.Table 42 "New IP Phone TN Type naming convention" (page 520) lists the old and new name of all IP telephones, with the exception of PCA and CPVIP. If the PBX release is 5.0, the new telephone name is used during synchronization. For example, the I2001 telephone in Release 5.0 is rebranded 2001P2. If the user performs synchronization for a system release less than 5.0 then the string “I2001” is used in the TYPE prompt of LD 11 and in Release 5.0 the string “2001P2” is used in the TYPE prompt.

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Table 42
New IP Phone TN Type naming convention

Release	Phone Names				
4.5	I2001	I2002	I2004	I2050	IPACD
5.0	2001P2	2002P1, 2002P2	2004P1, 2004P2	2050PC, 2050MC	1150

In Telephony Manager 3.1, thirteen (13) new IP telephones are added in Release 5.0. Table 43 "New IP Telephone support summary" (page 520) and Telephony Manager 3.1 provides the option to manage these telephones. All the new telephones can be configured in Web Station as shown in Figure 250 "New IP telephone (displaying IP Phone 1150)" (page 521). These new phones are supported in Branch Office.

Table 43
New IP Telephone support summary

Phone Type	Feature
2001P2	
2002P1	2002P1 and 2002P2 are same type of telephone
2002P2	
2004P1	2004P1 and 2004P2 are same type of telephone
2004P2	
2050PC	Only CLS KEM3 is supported
2050MC	No KEM support
2033	Only HFA is allowed. No KEM support.
2210, 2211 and 2212	
2007	No KEM support
1110	
1120E	Only KEM3 is supported
1140E	Only KEM3 is supported
1150E	Only KEM3 is supported

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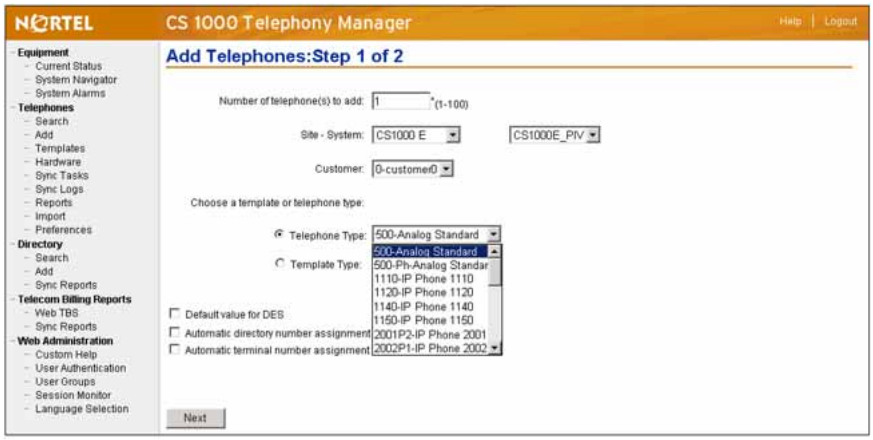
Figure 250
New IP telephone (displaying IP Phone 1150)



The key feature applicability for the different telephone types is shown in Figure 251 "Key feature applicability" (page 522).

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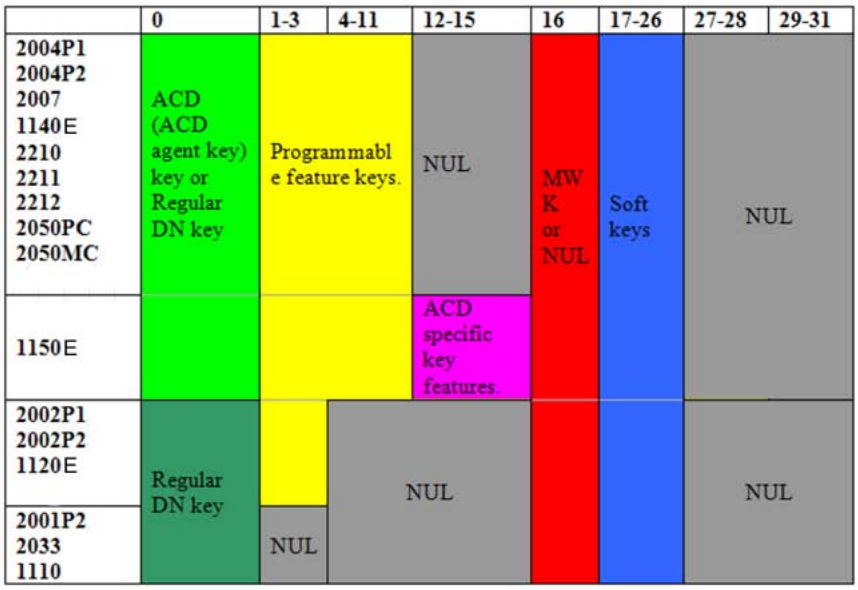
Figure 251
Key feature applicability



The detailed color code description is as follows:

- An ACD (ACD agent key) key or Regular (SCR, SCN, MCR, MCN, PVR and PVN) DN key

- Regular (SCR, SCN, MCR, MCN, PVR and PVN) DN key

- Programmable feature keys: these keys can be any DN or key feature except for Message Waiting (MWK) and those configured on keys 17-31

- ACD specific key features. These key features are NRD, MSB, AAG, AMG, DWC, ACNT, ASP, EMR, OBV, RAG, ATW, AWC Configuring keys 12-15 with key features other than those mentioned above will print an error. (Same error while configuring I2004 telephone) By default these keys are configured as:
  Not Ready (NRD) on key 12
  Make Set Busy (MSB) on key 13
  Call Supervisor / Answer Agent (AAG) on key 14
  Emergency / Answer Emergency (EMR) on key 15

- Message Waiting Key or NUL

- Soft keys These keys are configured with TRN on key 17, A06 (default), A03 on key 18, CFW on key 19, RGA on key 20, PRK on key 21, RNP on key 22, SCU/SCC/SSU/SSC on key 23, PRS on key 24, CHG on key 25 and CPN on key 26

- Reserved keys. No features can be configured on those

The Nortel IP Phone 1150E is a Next Generation IP Phone.

When key 0 is configured as ACD, DN automatically assigns default key features for keys 12 to 15. These key features are NRD, MSB, AAG, AMG, DWC, ACNT, ASP, EMR, OBV, RAG, ATW, and AWC.

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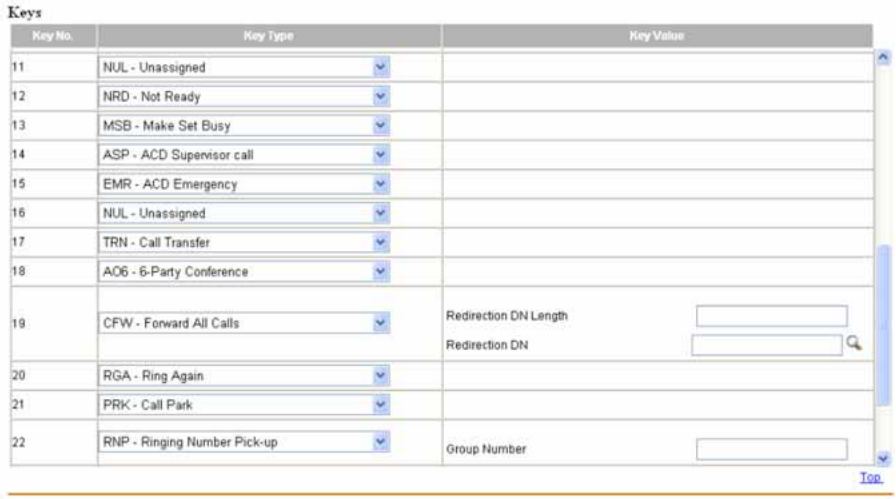
This phone can support up to 54 additional line/feature keys with 3 Expansion Modules. Using the Shift key functionality and one Expansion Module, it can provide up to 36 additional line/feature keys. With more than one Expansion Module connected, the Shift key functionality does not affect the Expansion Module since the maximum number of line/feature keys is already available. Expansion Module 2 contains keys 50-67 and Expansion Module 3 contains keys 68-85.

Figure 252
Key features on 1150E telephone

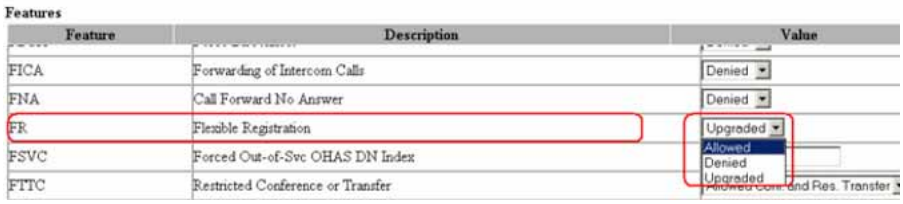


A new class of service, “Flexible Registration”, is introduced for IP phones. This class of service is configured with one of the following values:

- FRA (Flexible Registration Allowed)
- FRU (Flexible Registration Upgrade)
- FRD (Flexible Registration Denied)

By default this class of service is set to “FRA”, as shown in Figure 253 "Class of service Flexible Registration with all values" (page 523).

Figure 253
Class of service Flexible Registration with all values



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Synchronization

The telephone database is a part of the switch. Changes to records in the database—additions, deletions, or modifications—are essentially made to a copy of the records. The changed telephones must be transmitted to the switch before the changes take effect. This transmission is also referred to as synchronization.

Some changes, such as assigning an employee to a telephone, do not affect the configuration of the telephone, and therefore do not change the synchronization status of the telephone.

Synchronization status is indicated by the "sync status" field of a telephone. The sync status field can have the following values:

- Transmitted—The telephone is synchronized with the switch; that is, there are no changes outstanding.
- New—The telephone has been added to the system, and has not yet been transmitted to the switch.
- Delete—The telephone has been deleted from the database, but the change has not been transmitted to the switch. The telephone still appears in the switch database on the switch.
- Swapped—The telephone has been swapped with another telephone. That is, the two telephones have exchanged TNs.
- Change—The telephone has been modified, but the changes have not been transmitted to the switch.
- Replace—The telephone has been defined in Telephony Manager to replace synchronized data.

The key point to remember is that you must synchronize a telephone with the switch so that any changes made to that telephone take effect.

Telephone Details page

The Telephone Details page shows all the attributes of a telephone. Use this page to view the attributes of an existing telephone, and if required, make changes to those attributes.

The Telephone Details page has the following sections:

- A header section.
- Five information sections of attributes, as follows:
  - "General Properties" (page 526)
  - "Directory Options" (page 529)
  - "Features" (page 530)

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— "Keys" (page 530) (or Single Line Features for an analog (500/2500-type) telephone)

— "Administration" (page 532)

These sections are described in the following section.

- Five control buttons, as follows:
  — Save—Save changes.
  — Validate—Identify changes that will cause the transmission process to fail. A dialog box is displayed showing the validation results—either no errors, or a list of the errors that were found.
  — Print—Print changes of telephone details page.
  — Transmit—Transmit changes to the switch.
  — Restore—Restores telephone details to original attributes.

All input fields are validated for input type (for example, character versus numeric) and range.

The buttons displayed in the header section of the Telephone Details pages depend on the Employee User Group Attributes, as shown in the following table.

Table 44
Buttons displayed per Employee User Group Attribute

User Group Attribute	Buttons Displayed
Administrators	Save, Validate, Print, Transmit, Restore
HelpDesk	Save, Validate, Print, Transmit, Restore
EndUser	Save, Validate, Print
Default	Save, Validate

Header section

The header section of the Telephone Details page section shows a facsimile of the telephone, the site and system with which the telephone is associated, and synchronization status of the telephone. Figure 254 "Telephone Details header" (page 526)shows a sample header section.

Clicking on the phone image will automatically open the new phone help content.

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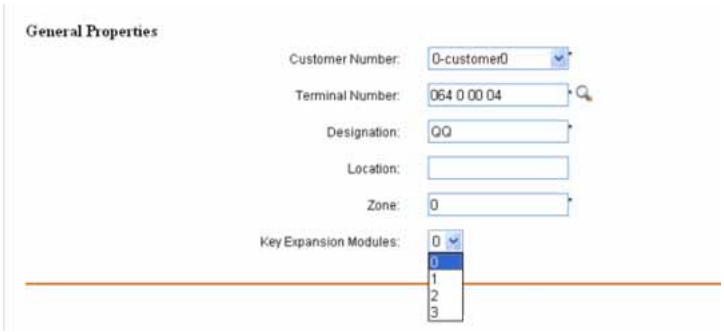
Figure 254
Telephone Details header

If a User Group has been setup with the "Show troubleshooting link" option, the link "Troubleshoot Problems" will also appear in the header.

General Properties

Figure 255 "Telephone Details: General Properties" (page 526) shows the General Properties section of the Telephone Details page. This section shows the general attributes of the telephone.

Figure 255
Telephone Details: General Properties



The General Properties page contains the following fields:

- Customer number—The number of the customer associated with the telephone.

  If the telephone is an existing telephone, this field is automatically filled with the customer number of the selected telephone as displayed in the Search Results window. You can change the assigned number.

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- Terminal Number (ll s cc uu)—The Terminal Number (TN) of the telephone.

  If the telephone is an existing telephone, this field is automatically filled with the TN of the selected telephone as displayed in the Search Results window. If this telephone is a new telephone, and Automatic terminal number assignment is selected, the next available terminal number is assigned to this field (see step 8 of Procedure 162 "Adding a single telephone" (page 534)). In either case, you can change the assigned number.

  To view the list of available terminal numbers, click the magnifying glass icon next to the field.

- Designation—A unique 1–6 character telephone identifier. This data is stored in station data and the overlays. This field is often used to identify the location of the phone within the building, and is the response to the prompt DES in LD 10 and LD 11.
- Location—A unique station identifier. Telephony Manager uses the value here as an index to the telephone.
- Zone—The geographic location of Ethersets.
- Key Expansion Modules—The number of Key Expansion Modules connected to the IP Phone (for Nortel IP Phones 2002, 2004, and 2007). The valid range is 0 to 3; the default is 0.

If the telephone is an analog (500/2500-type) telephone If the telephone is an analog (500/2500-type) telephone, the General Properties section contains the Customer Number, Terminal Number, Designation, and Location fields, as previously described. It also contains the following fields:

- Directory Number
- ANIE Entry
- Multiple Appearance Redirection Prime (MARP)—If this check box is selected, the MARP details are also displayed.

Figure 256 "Telephone Details: General Properties for analog (500/2500-type) telephones with MARP selected" (page 528) shows the General Properties section for an analog (500/2500-type) telephone with the MARP check box selected.

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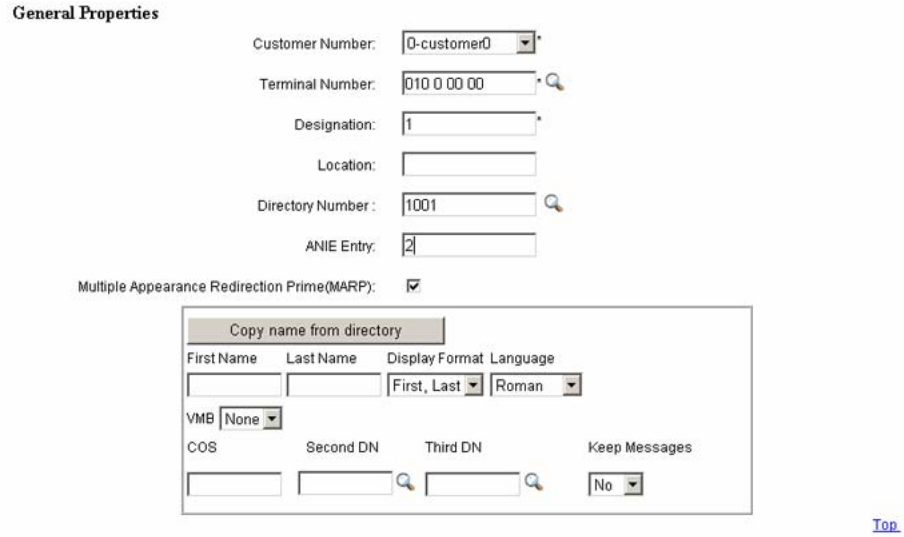
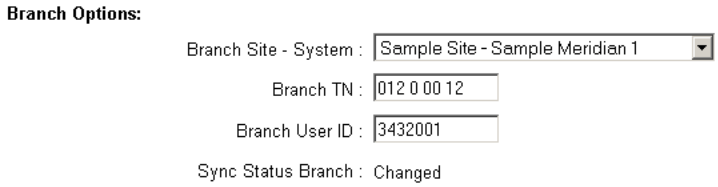
Figure 256
Telephone Details: General Properties for analog (500/2500-type) telephones with MARP selected



If the Site-System is a main office If the Site-System is a main office, the General Properties section also contains the fields shown in Figure 257 "Telephone Details: General Properties for main offices" (page 528). This section displays information for the branch office telephones associated with this main office telephone.

This section would only apply if the Branch Office patch is activated.

Figure 257
Telephone Details: General Properties for main offices



The additional fields are as follows:

- Branch Site – System: site and system of branch office
- Branch TN: the TN of the branch office system
- Branch User ID: unique user ID for each branch office telephone
- Sync Status Branch: for IP Phones in the branch office only

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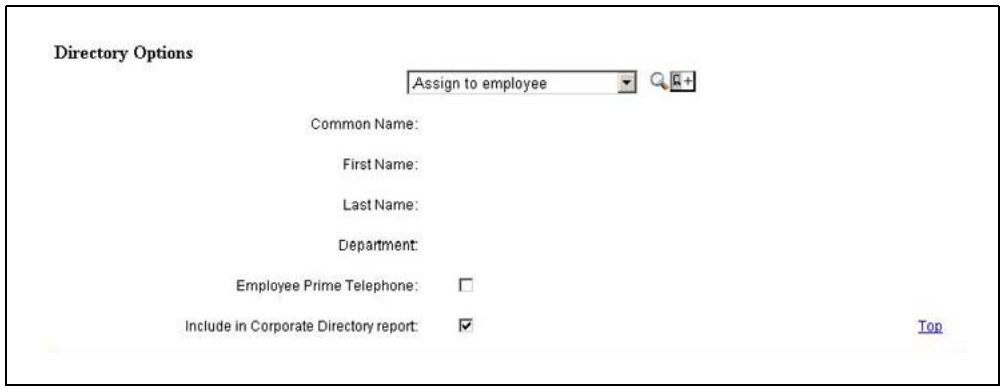
These Branch Office options will only be available if the Branch Office patch is installed

Directory Options

Figure 258 "Telephone Details: Directory Options" (page 529) shows the Directory Options section of the Telephone Details page. This section shows the details of the employee or department to whom the telephone is assigned, if assigned at all. It is also one of the pages from which directory information for the telephone can be updated.

Figure 258
Telephone Details: Directory Options



The Directory Options page contains the following fields:

- Assign to Employee—The telephone is either assigned to an employee or department, or the telephone is not assigned. The two choices are Assign to Employee and Do not assign to an employee. Use the magnifying glass icon to search for an employee. Use the plus icon to add a new employee.
- Common Name—The common name used to index employees in the employee directory. Click on this link to view or modify the details for this employee (see "Editing employees" (page 621)).
- First Name, Last Name, Department—Name and departmental information about the person or department to whom the telephone is assigned.
- Employee Prime Telephone—Identifies the telephone as the prime telephone for the employee, when the employee has been assigned two or more telephones. The information in this field is used primarily for synchronization to the employee database.

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- Include in Corporate Directory report—Indicates if the telephone record is to be included in the Corporate Directory report. This field is selected by default for new telephones.

Features

Figure 259 "Telephone details - features" (page 530) shows the Features section of the Telephone Details page. This section shows the features and class of services of the telephone. The features available depend on the telephone type, the system configuration, and the access permissions of the group to which the user belongs.

Figure 259
Telephone details - features

The Features section contains the following columns:

- Feature—The feature mnemonic.
- Description—The name of the feature.
- Value—The values required to configure the feature. Depending on the feature, the value field is either a text box or a list.

Keys

If the telephone is an analog (500/2500-type) telephone, the Keys section is replaced by the Single Line Features section, as described on "Single Line Features" (page 532).

Figure 260 "Telephone Details: Keys" (page 531) shows the Keys section of the Telephone Details page. This section shows the list of all programmable keys available on the telephone. The keys available depend on the telephone type.

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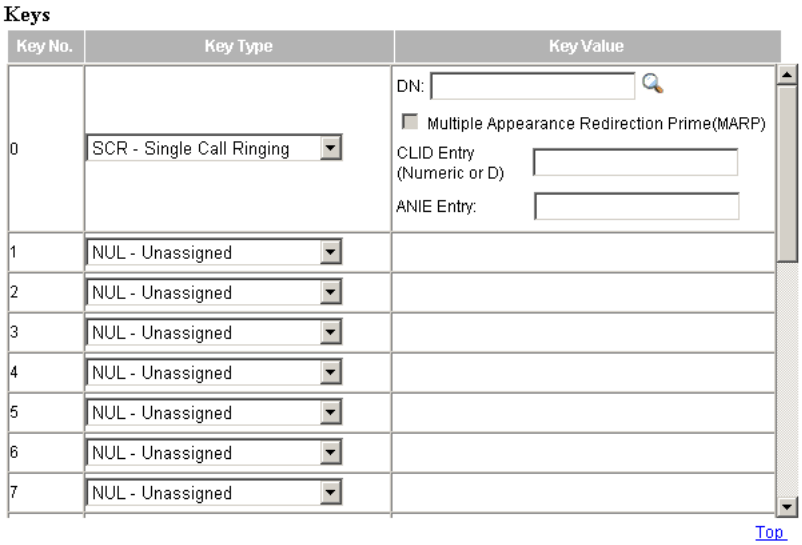
Figure 260
Telephone Details: Keys



The Keys section contains the following columns:

- Key No—The key number.
- Key Type—The key feature, as selected from a list. The key features available depends on the telephone type, key number, and system configuration.
- Key Value—The parameters for the selected Key Type. The fields in the Key Value column depends upon the key feature selected in the Key Type column.

The Key Value field can be any combination of text boxes, check boxes, and lists. Note the following:

- If there is a DN parameter, the default value is one of the following:
  - — If the telephone is an existing telephone, the DN field is automatically filled with the DN of the selected telephone as displayed in the Search Results window.
  - — If the telephone is a new telephone, and Automatic directory number assignment is selected, the next available DN is assigned to this field (see step 7 of Procedure 162 "Adding a single telephone" (page 534)).

    In either case, you can change the assigned number by entering it manually or clicking on the magnifying glass icon to search for available DNs.

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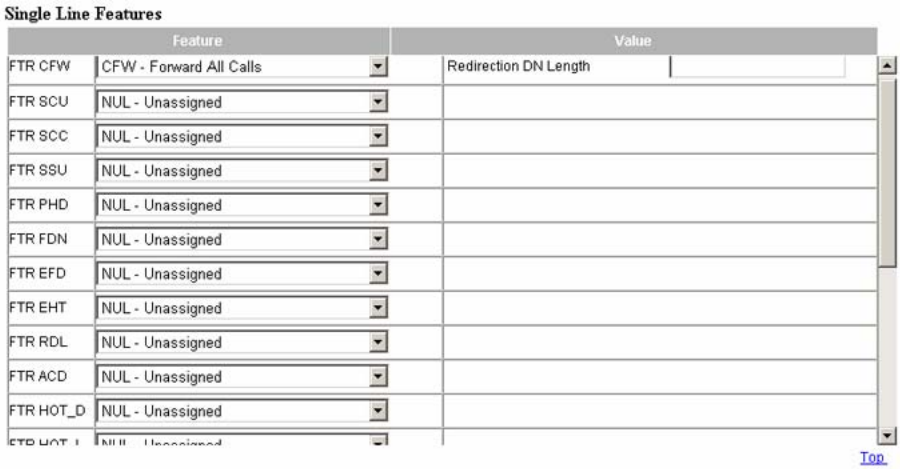
- Only one DN can be designated as Multiple Appearance Redirection Prime (MARP). To remove this designation, you must designate another DN as MARP.

Single Line Features

This section appears only if the telephone is an analog (500/2500-type) telephone.

Figure 261 "Telephone Details: Single Line Features" (page 532) shows the Single Line Features section of the Telephone Details page for an analog (500/2500-type) telephone. This section shows the list of all single line features available on the telephone.

Figure 261
Telephone Details: Single Line Features



The Single Line Features section contains the following columns:

- Feature—The single line feature, as selected from a list.
- Value—The parameters for the selected Feature. The fields in the Value column depends upon the key feature selected in the Feature column

Administration

Figure 262 "Telephone Details: Administration" (page 533) shows the Administration section of the Telephone Details page. This section shows administrative information and user-defined fields associated with the telephone.

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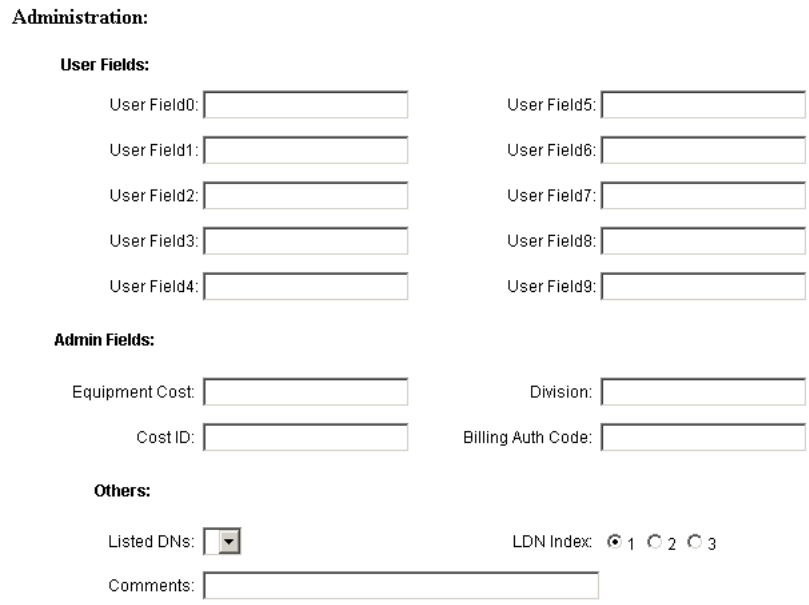
Figure 262
Telephone Details: Administration



The Administration section contains the following fields:

- User Fields
  - User Field*n*: A user-defined field, where *n* is the field number. For example, User Field7. You can define up to 10 user fields, numbered 0 to 9. You can give the fields more meaningful names; see "Setting preferences" (page 608).
- Admin Fields
  - Equipment Cost: The cost of the telephone.
  - Cost ID: A cost identifier, for accounting purposes.
  - Division: The division of the customer with which the telephone is associated.
  - Billing Auth Code: User-defined information relating to billing.
- Others
  - Listed DNs: DNs for print-out on a Designation Strip. A telephone can have up to three Listed DNs.
  - LDN Index: Which of three indexes contains the DN for this station. A DN index is created at the system level when the Numbering Plan is defined. The index is used while viewing and printing designation strips for this instrument.

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— Comments: General comments about or concerning the telephone and its configuration.

Administering telephones

Adding telephones

You add new telephones to the telephones database using one of the following methods:

- Add each telephone individually—The attributes of each new telephone or telephones are entered individually.
- Use a template that defines data for the specific type of telephone being added—The attributes are already defined for the telephone or telephones, and are automatically copied from the template to each new telephone. See "Using telephone templates" (page 582) for more information on templates.

The instructions for adding a single telephone differ from those for adding multiple telephones. For this reason, two separate procedures are provided. See "Adding a single telephone" (page 534) " below, or "Adding multiple telephones" (page 539) as appropriate.

Adding a single telephone

Use Procedure 162 "Adding a single telephone" (page 534) to add a single telephone.

Procedure 162
Adding a single telephone

Step	Action
1	Select **Telephones > Add** from the navigation tree. The Add Telephones:Step 1 of 2 window appears, as shown in Figure 263 "Add Telephones:Step 1 of 2 page" (page 535).

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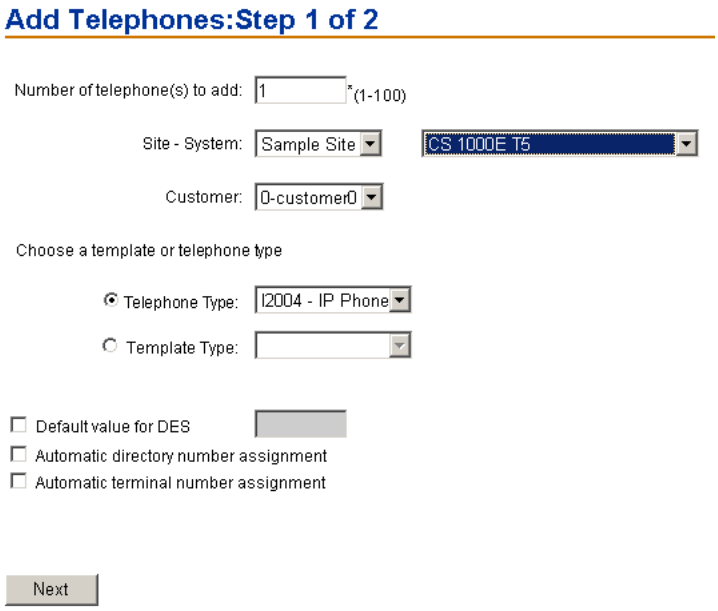
Figure 263
Add Telephones:Step 1 of 2 page



2 Ensure **1** (the default value) is entered in the **Number of Telephone(s) to add** field.

3 Select the site and system with which this telephone is associated from the **Site – System** lists.

4 Select the customer with which this telephone will be associated from the **Customer** list.

This list is a list of all customers for the system selected in step 3. The new telephone is added using the hardware and numbering plan defined in the site module for this customer.

5 Do one of the following:

- If you are going to add the telephone manually, select **Set Type** and select the telephone type from the **Set Type** list.
- If you are going to use a template to add the new telephone, select **Template Type** and select the template from the **Template Type** list.

6 (Optional) Select **Default value for DES** and type the value in the text box.

This value takes precedence over any value specified in a template, if a template is being used.

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7 (Optional) Select **Automatic directory number assignment** to automatically assign the next available Direct Inward Dialing (DID) DN in the Customer Numbering Plan for the specific system.

8 (Optional) Select **Automatic terminal number assignment** to automatically assign the next available TN (Loop, Shelf, Card, Port or Unit) to the specified telephone as defined in the Hardware database for the specific system.

9 Click **Next**.

The Telephone Details page appears, as shown in Figure 254 "Telephone Details header" (page 526). The System and Phone Type fields are those values you entered in the Add Telephones:Step 1 of 2 page, and the Sync Status is New, indicating a new telephone.

On the Template Details page, all fields marked with an asterisk (*) are mandatory.

If you selected Template Type in step 5, many of the other fields on the Telephone Details page are already filled. You can change the values, if required.

10 Update the **General Properties** section (see Figure 255 "Telephone Details: General Properties" (page 526)):

a. (Optional) Select another customer from the **Customer Number** list.

The default Customer Number will be that chosen on the Add Telephones:Step 1 of 2 page, but can be changed if required.

b. If the **Terminal Number** field is empty, click on the magnifying glass icon and select an available TN from the list.

If you selected Automatic terminal number assigned in step 8, the Terminal Number field will have an entry. You can change this value, if required, as described in this step.

c. Enter or update the DES value in the **Designation** field.

d. (Optional) Enter a value in the **Location** field.

e. If the telephone is not an analog (500/2500-type) telephone:

1. Enter a value in the **Zone** field.
2. (Optional) Select the number of **Key Expansion Modules** from the list.

The default value is **0**.

3. Go to step 11.

f. If the telephone is an analog (500/2500-type) telephone:

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1. Enter the DN in the **Directory Number** field.
2. Enter the **ANIE Entry** value.
3. If the telephone has MARP enabled, select **Multiple Appearance Redirection Parameter (MARP)** and enter the CPND and VMB configuration details.

11 Update the **Directory Options** section (see Figure 258 "Telephone Details: Directory Options" (page 529)) by doing one of the following:

- If the new telephone is not to be assigned to an employee, select **Do not assign to an employee** from the list.
- If the new telephone is to be assigned to an employee:
  1. Select **Assign to employee** from the list.
  2. Select the employee in one of the following ways:
     - To assign the telephone to an existing employee, click the magnifying glass icon and use Procedure 204 "Selecting employees" (page 621) to select the employee. Then click **Assign** to assign the employee to the telephone.
     - To assign the telephone to an new employee, click on the **+** icon and add the new employee to the database. See Procedure 202 "Adding an employee" (page 616) for instructions on creating new employees.

     The assignee's name and information is displayed on the Telephone Details page.
  3. Click **Employee Prime Telephone** if this telephone is the prime telephone for an employee who has two or more telephones assigned to them.

     An employee can have only one prime telephone. If the user already has another telephone set as prime telephone when Employee Prime Telephone is set for the current telephone, the current telephone will become the prime telephone, and the telephone previously set as the prime will no longer be the prime.

12 In the **Features** section (see Figure 259 "Telephone details - features" (page 530)), configure the **Values** for each **Feature** available for that system and telephone type.

This section is one that is often defined by a template. Update the Features and values as required.

13 Do one of the following:

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- If the telephone is not an analog (500/2500-type) telephone, update the **Keys** section (see Figure 260 "Telephone Details: Keys" (page 531)). For each **Key No.**:

  1. Select a key type from the corresponding list in the **Key Type** column.
  2. Configure the key values by entering appropriate values in the fields in the **Key Values** column.

     This section is one that is often defined by a template. Update the Key Type and Key Values as required.

- If the telephone is an analog (500/2500-type) telephone, update the **Single Line Features** section (see Figure 261 "Telephone Details: Single Line Features" (page 532)).

  1. Select a single line feature from the list in the **Feature** column.
  2. Configure the feature by entering appropriate values in the fields in the **Value** column.

  This section is one that is often defined by a template. Update the Feature and **Value** as required.

14 (Optional) Update the Administration section (see Figure 262 "Telephone Details: Administration" (page 533)):

a. Enter or update any user-defined fields in any of the **User Fields**.

   Use Procedure 200 "Setting site and system preferences" (page 608) to specify names for the fields.

b. Enter or update values in any of the **Admin Fields**.

c. In the **Others** fields:

   1. Update the number of **Listed DNs** by selecting a value from the list.
   2. Select an **LDN Index**.
   3. Enter or revise any **Comments**.

15 Click **Validate** to save and validate the new telephone.

The status of the Validation process appears, listing any validation errors that occur.

16 If there are validation errors, repeat the relevant sections of this procedure to correct the errors.

17 Click **Save** to add the new telephone to the database.

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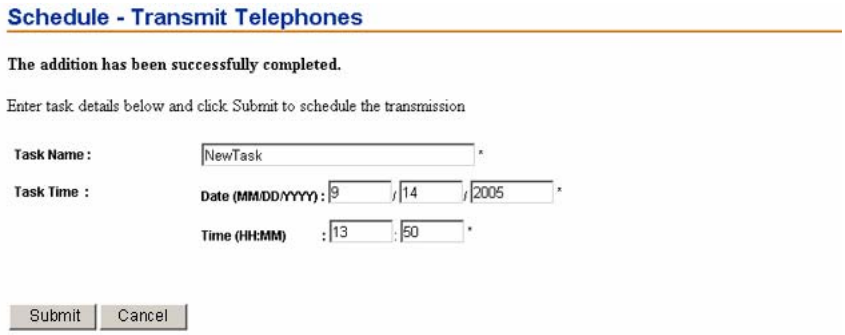
The status of the add operation is displayed. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 264 "Schedule Transmission (after adding telephones)" (page 539), prompting you to schedule the transmission of the addition.

Figure 264
Schedule Transmission (after adding telephones)



18 If Telephony Manager is in maintenance mode, do one of the following:

- To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**.
- Click **Cancel** to quit without scheduling the transmission.

—End—

Adding multiple telephones

Use Procedure 163 "Adding multiple telephones simultaneously" (page 540) below to add multiple telephones simultaneously.

If you are adding multiple telephones for which the card type is not octal, Nortel recommends that you create and use a template to enter the telephone characteristics (see "Using telephone templates" (page 582)) in step 5 of Procedure 163 "Adding multiple telephones simultaneously" (page 540) on step 5. Define the template so the card type in the template matches that of the telephones being added. If you choose not to use the template, you must select and update the card type in the Features section of the Telephone Details page for each telephone individually.

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Procedure 163
Adding multiple telephones simultaneously

Step	Action
1	Select **Telephones > Add** from the navigation tree. The Add Telephones:Step 1 of 2 window appears, as shown in Figure 263 "Add Telephones:Step 1 of 2 page" (page 535).
2	Enter the number of telephones to be added in the **Number of Telephone(s) to add** field. You can add up to 100 telephones each time.
3	Select the site and system with which the telephones are associated from the **Site – System** lists.
4	Select the customer with which the telephones are associated from the **Customer** list. This list is a list of all customers for the system selected in step 3. The new telephones are added using the hardware and numbering plan defined in the site module for this customer. If the new telephones are associated with more than one customer, select the customer with which most of the new telephones are associated. You can change this value for each new telephone in step 10. This will reduce the number of telephones for which you will have to change the Customer value in step 10.
5	Do one of the following: • If you are going to add the telephones manually, select **Set Type** and select the telephone type from the **Set Type** list. • If you are going to use a template to add the new telephones, select **Template Type** and select the template from the **Template Type** list. Nortel recommends that you use a template if the card type of the telephones being added is not octal.
6	(Optional) Select **Default value for DES** and type the value in the text box. This value takes precedence over any value specified in a template, if a template is being used. If the new telephones have more than one DES, select the DES associated with most of the telephones. You can change this value for each new telephone in step 10. This will reduce the number of telephones for which you will have to change the DES in step 10.

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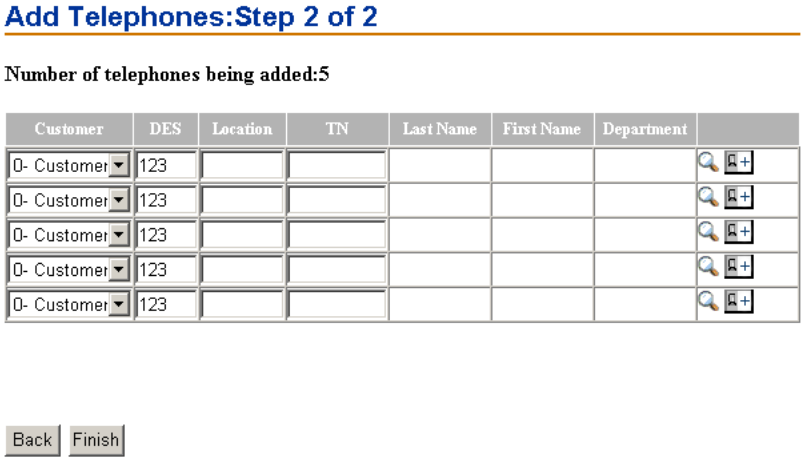
7 (Optional) Select **Automatic directory number assignment** to automatically assign the next available Direct Inward Dialing (DID) DN in the Customer Numbering Plan for the specific system to each telephone.

8 (Optional) Select **Automatic terminal number assignment** to automatically assign the next available TN (Loop, Shelf, Card, Port or Unit) to each telephone as defined in the Hardware database for the specific system.

9 Click **Next**.

The Add Telephones:Step 2 of 2 page appears, as shown in Figure 265 "Add Telephones:Step 2 of 2 page" (page 541), with one row for each new phone to be added. This page lists the attributes of each new telephone based on the selections you entered on the Add Telephones:Step 1 of 2 page in previous steps. You can change any of these attributes for any of the telephones, as described in the following steps.

Figure 265
Add Telephones:Step 2 of 2 page



10 For each new telephone:

a. If the **Customer number** is incorrect, select the correct value from the list.

The default value is the Customer number entered in step 4.

b. If the **DES** field is empty or incorrect, type in the correct value.

The default value is the DES entered, if any, in step 6.

c. If the **DN** field is missing or incorrect, type in the correct value.

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If you selected Automatic directory number assignment in step 7, the default DN is the next available DID DN.

ATTENTION

DN field is populated for analog phones only. This field is not applicable when you add multiple non-analog phones.

d. If the **TN** field is missing or incorrect, type in the correct value.

If you selected Automatic terminal number assignment in step 8, the default TN is the next available TN.

e. To assign the telephone to an employee, do one of the following:

- To assign the telephone to an existing employee, click the magnifying glass icon and use Procedure 204 "Selecting employees" (page 621) to select the employee. Then click **Assign** to assign the employee to the telephone.
- To assign the telephone to an new employee, click on the **+** icon and add the new employee to the database. See Procedure 202 "Adding an employee" (page 616) for instructions on creating new employees.

11 Click **Finish** to add the telephones to the database.

The status of the add operation is displayed. You must correct all errors before any of the telephones can be added. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 264 "Schedule Transmission (after adding telephones)" (page 539), prompting you to schedule the transmission of the addition.

12 If Telephony Manager is in maintenance mode, do one of the following:

- To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**.
- Click **Cancel** to quit without scheduling the transmission.

—End—

Configuring branch office IP Phones at the main office

Use Procedure 164 "Configuring branch office IP Phones" (page 543) to configure IP Phones located in the branch office from the main office.

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ATTENTION

IPL 5.0 nodes should always be configured using Element Manager. Telephony Manager cannot be used to configure IPL 5.0 nodes.

Procedure 164
Configuring branch office IP Phones

Step	Action
1	Select **Telephones > Add** from the navigation tree. The Add Telephones:Step 1 of 2 window appears, as shown in Figure 263 "Add Telephones:Step 1 of 2 page" (page 535).
2	Select **Set Type** and select the IP Phone type from the **Set Type** list.
3	Click **Next**. The Telephone Details page appears, as shown in Figure 254 "Telephone Details header" (page 526). The General properties sections contains the additional fields for the branch office information shown in Figure 257 "Telephone Details: General Properties for main offices" (page 528).
4	In the **General Properties** section: a. Select the site and branch office system where the telephone is located from the **Branch Site – System** lists. The default value is No Branch Office System. b. Enter the TN at the branch office in the **Branch Office TN** text box. c. Enter the BUID in the **Branch User ID** text box.
5	Update the **Features** section, as described in step 12 of Procedure 162 "Adding a single telephone" (page 534), on step 12.
6	Update the **Keys** section, as described in step 13 of Procedure 162 "Adding a single telephone" (page 534), on step 13.
7	Click **Finish**. The telephone record is created in the main office system and in the branch office system.

—End—

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Searching for and selecting telephones

Before performing any operation on an existing telephone (that is, for all operations except adding a telephone), the user must first select the phone upon which the operation will be carried out. The telephone is selected from the search results.

Telephones that are not supported by Telephony Manager are displayed in the Search Results section, but cannot be selected for any operation.

Searching for telephones

To search for telephones, you must specify the site and system in which to search. You can then optionally narrow your search based on one of the following:

- a value or range of values of a specified attribute (a basic search)
- a combination of specified attributes with one or a range of values (advanced search)

The advanced search allows you to search on the basic attributes used in the basic search, and on keys and features assigned to the telephones.

Table 45 "Wildcard symbols" (page 544) shows the wildcard symbols that can be used in both Basic and Advanced searches. The Comparison operators in Table 45 "Wildcard symbols" (page 544)are used only in Advanced searches, and are used to combine multiple search criteria.

Table 45
Wildcard symbols

Symbol	Meaning
%	Any string of zero or more characters.
_ (underscore)	Any single character.

Table 46
Advanced searches: comparison operators

Operator	Meaning
=	Equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

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Operator	Meaning
LIKE	Matches a pattern specified in the **Value** field; used only for fields containing character string values. Pattern can contain wildcard symbols given in Table 45 "Wildcard symbols" (page 544).
NOT LIKE	Does not matches a pattern specified in the **Value** field; used only for fields containing character string values. Pattern can contain wildcard symbols given in Table 45 "Wildcard symbols" (page 544).
IN	Operand is one of the values specified in a list of comma-separated values in parenthesis.
NOT IN	Operand is not one of the values specified in a list of comma-separated values in parenthesis.
AND	Used to connect two Boolean expressions; TRUE if both expressions are TRUE.
OR	Used to connect two Boolean expressions; TRUE if one or both expressions are TRUE.

You can also choose to display only those telephones that you have modified during the current session.

WARNING
Do not use the browser Refresh control to refresh the Search Results section in Web Navigator. Doing so can cause incorrect operation and results.

Procedure 165
Searching for one or more telephones

Step	Action
1	Select **Telephones > Search** from the navigation tree. The Basic Search Telephones window appears, as shown in Figure 266 "Basic Search Telephones window: Search section" (page 546). The system administrator may also allow other user groups, usually HelpDesk users, to access this page. See "User groups" (page 637).

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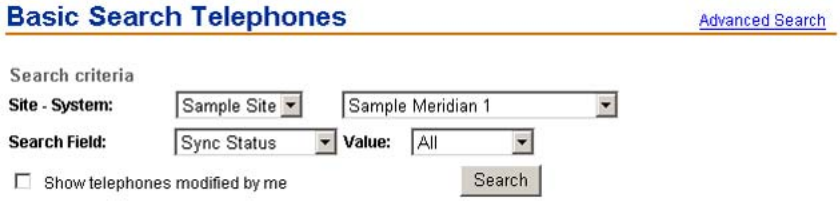
Figure 266
Basic Search Telephones window: Search section



2 Select the site and system from the respective **Site** and **System** lists.

The lists contain only those sites and systems to which the user has access.

3 (Optional) To narrow your search, perform either a basic search or an advanced search:

- To perform a basic search:
  1. Select a search field from the **Search Field** list.

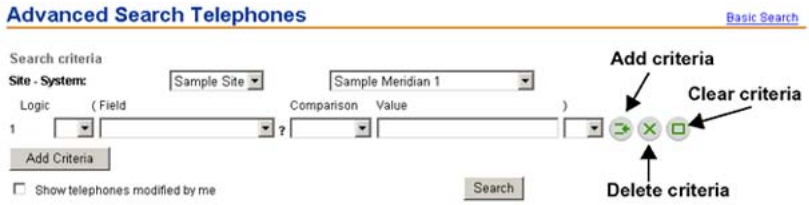
     The Value field will be either a list or text box depending on the selection in the Search Field.
  2. Select a value from the **Value** list, or enter a value or range of values in the **Value** text box.

     You can also use the wildcard operators given in Table 45 "Wildcard symbols" (page 544).

- To perform an advanced search:
  1. Click on **Advanced Search**.

     The Advanced Search Telephones window appears, as shown in Figure 267 "Advanced Search Telephones window: Search section" (page 546). This window provides additional search options, combining fields using Boolean operators.

     Figure 267
     Advanced Search Telephones window: Search section



  2. Enter a Boolean search expression:

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a. Select a value from the **Field** list.

   The corresponding Value field changes to a text box or a list depending on what field is selected.

b. Select the appropriate comparison operator from the **Comparison** list, referring to Table 46 "Advanced searches: comparison operators" (page 544) if necessary.

c. Select a value from the **Value** list, or enter a single, list, or range of values in the **Value** text box.

   You can also use the wildcard operators given in Table 45 "Wildcard symbols" (page 544), especially if you selected LIKE or NOT LIKE in the Operator field.

d. (Optional) To extend the expression to another row:

   - Click the Add Criteria button or **Add Criteria**.
   - Select AND or OR from the **Logic** list, referring to Table 46 "Advanced searches: comparison operators" (page 544) if necessary.
   - Repeat step b to enter the next expression.

e. (Optional) Click the Delete Criteria button to remove the corresponding row.

f. (Optional) Click the Clear Criteria button to clear the row and reenter the expression.

g. Select the appropriate number of parenthesis from each (and) list to set the precedence of evaluation of each expression in the search criteria.

4 Click **Search**.

The search window expands to include the telephone Search Results section, as shown in Figure 266 "Basic Search Telephones window: Search section" (page 546).

If the search returns no telephones matching the specified criteria, the following message appears in the telephone Search Results section:

No records to display.

5 (Optional) Select **Show telephones modified by me** to display only the telephones that you have modified during the current session.

—End—

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Search Results section

The telephones Search Results is the same as that described in "Search Results section" (page 470). The following fields of information are displayed in the telephones Search Results window:

- Customer—customer with which the telephone is associated
- TN—Terminal Number of the telephone; Click on this link to view or modify the telephone (see "Updating telephones" (page 550)).
- Prime DN—Prime DN associated with the telephone
- Designation—identifier of the telephone
- Instrument—telephone type, for example IP Phone 2004.
- Sync Status—synchronization status
- Last Name—last name of employee or department, if assigned to an employee or department; otherwise blank
- First Name—first name of employee if assigned to an employee; otherwise blank
- Assigned to Employee—yes if telephone is assigned to an employee; otherwise no

The telephones are sorted by the search field by default. Click on a field name to sort the results differently. For example, if the search field is **TN**, but you want the results sorted by telephone type, click on **Instrument**. An arrow next to a column name indicates that the telephones are sorted in ascending (up-arrow) or descending (down-arrow) order. Click on the column title to toggle between ascending and descending order.

If no telephones meeting the search criteria are found, the following is displayed:

No records to display.

If you are searching for more than one telephone, you may not be able to specify a set of search criteria that cause all the required telephones to appear in the same Search Results page. In this case, you have the following two alternatives:

- Do not specify any search criteria. This will cause all telephones to be listed in the Search Results window. This may not be feasible if the telephone database contains more than 1000 telephones, because only a maximum of 1000 telephones are displayed on a single page of the Search Results window.

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- You can repeat the search, selection, and subsequent action several times. Each time, you search for and select a few of the telephones, and perform the required action on them.

Selecting telephones

You select telephones in the Search Results section from the results of Procedure 165 "Searching for one or more telephones" (page 545). Then you perform various administrative and maintenance procedures on the selected telephones. Use Procedure 166 "Selecting telephones" (page 549) to select telephones in the Search Results section.

Telephones that are not supported by Telephony Manager are displayed in the Search Results section, but cannot be selected for any operation.

Procedure 166
Selecting telephones

Step	Action
1	Use Procedure 165 "Searching for one or more telephones" (page 545) to search for and find each telephone you want to select. To be selected, a telephone must be listed in the Search Results window, similar to that shown in Figure 214 "Search Results section for a Telephones search" (page 471). **Hint:** To make the process more efficient, search for the telephones using the minimum common criteria shared by all, or as many as possible, of the telephones to be selected. Telephones that are not supported by Telephony Manager are displayed in the Search Results section, but cannot be selected for any operation.
2	In the **Search Results** section, select each telephone by doing one of the following: • To select all the telephones on the page, click the box in the column header next to **Customer**. • To select an individual telephone, click the box for the particular telephone.

—End—

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Updating telephones

Updating a single telephone is very different from updating multiple telephones simultaneously. Accordingly, two procedures are provided:

- Use Procedure 167 "Updating a single telephone" (page 550) to update a single telephone.
- Use Procedure 168 "Updating multiple telephones simultaneously" (page 551) to update multiple telephones.

Updating a single telephone

If you change the employee assignment option in the Directory Options section to Do not assign to an employee, the employee attributes associated with that telephone are cleared from the database only if the following two conditions are met:

- The telephone must be the Prime telephone for that employee.
- The Prime DN of the telephone must match the extension published in the employee database.

Procedure 167
Updating a single telephone

Step	Action
1	Use Procedure 165 "Searching for one or more telephones" (page 545) to search for and find the telephone to be updated. The telephone must appear in the Search Results section.
2	In the **Search Results** section, click on the **TN** of the telephone. The Telephone Details page appears, as described in "Telephone Details page" (page 524), displaying all the attributes of the selected telephone.
3	Update the attributes of the telephone as appropriate, following the steps of Procedure 162 "Adding a single telephone" (page 534) as follows: a. To update **General Properties**, use step 10. b. To update **Directory Options**, use step 11. c. To update **Features**, use step 12. d. To update **Keys**, use step 13. e. To update **Administration**, use step 15.
4	Click **Finish** to save the changes.

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The status of the add operation is displayed. You must correct all errors before the changes can be transmitted. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 264 "Schedule Transmission (after adding telephones)" (page 539), prompting you to schedule the transmission of the addition.

Multiple users can access the same telephone simultaneously. However, when updating the same telephone simultaneously, only the update of the last user to click Finish is saved. In other words, an update made by one simultaneous user is overwritten by the update of the last simultaneous user to click Finish.

5 If Telephony Manager is in maintenance mode, do one of the following:

- To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**.
- Click **Cancel** to quit without scheduling the transmission.

—End—

Updating multiple telephones

To update multiple telephones simultaneously, do the following:

- Select the telephones to be updated.
- Select a field to be updated.
- Specify the value in the field to be updated.
- Specify the new value for that updated.

You can update multiple values of a field. All fields can be updated except for employee details, VMB, CPND, MARP, and ANIE fields.

Use Procedure 168 "Updating multiple telephones simultaneously" (page 551) to updated multiple telephones simultaneously.

Procedure 168
Updating multiple telephones simultaneously

Step	Action
1	Use Procedure 166 "Selecting telephones" (page 549) to select the telephones to be updated.
2	Click **Edit** in the **Search Results** section.

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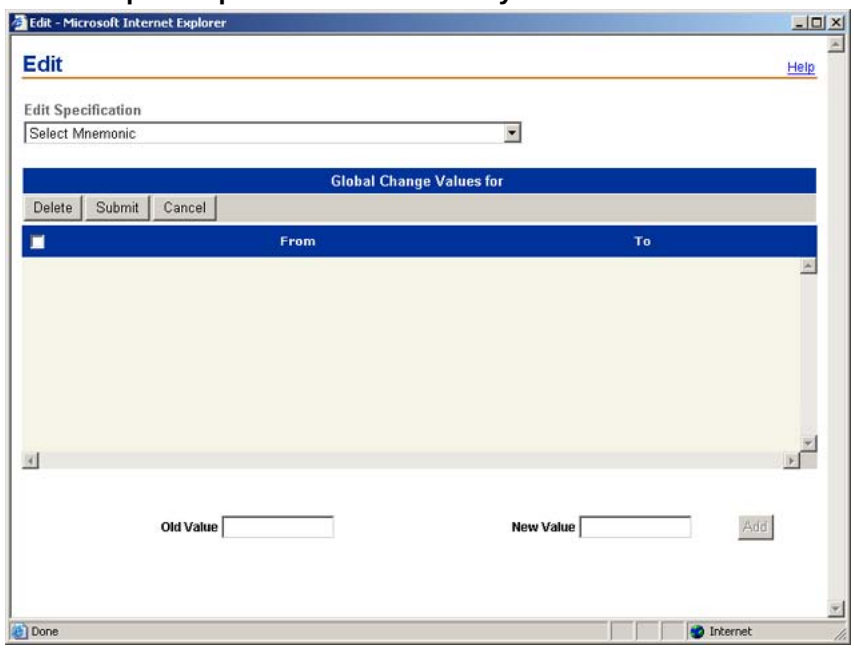
The Edit window appears, as shown in Figure 268 "Edit multiple telephones simultaneously" (page 552).

Figure 268
Edit multiple telephones simultaneously



3 Select a field to be updated from the **Edit Specification** list.

The Edit Specification list contains all of the fields from the Telephone Details page that you can update.

Depending on the field to be updated, the Old Value and New Value fields are text boxes or lists.

If you select a Key field to update, additional old and new value fields are displayed corresponding to the parameters of the Key field. You can change these additional parameters at the same time, if required.

4 Enter the old value to be changed in the **Old Value** text box or select it from the **Old Value** list.

If you are updating a Key field, enter the old value of any parameter to be changed in the corresponding box on the left side.

5 Enter the new value in the **New Value** text box or select it from the **New Value** list.

If you are updating a Key field, enter the new value of any parameter to be changed in the corresponding box on the right side.

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6 Click **Add**.

The old and new values for the field are displayed.

7 (Optional) To change additional values, repeat steps step 4 to step 6.

8 (Optional) To remove any changes:

a. Select the check box for the change to be removed.

To select all the changes, select the check box in the **From To** column header.

b. Click **Delete**.

9 To submit the changes to the database:

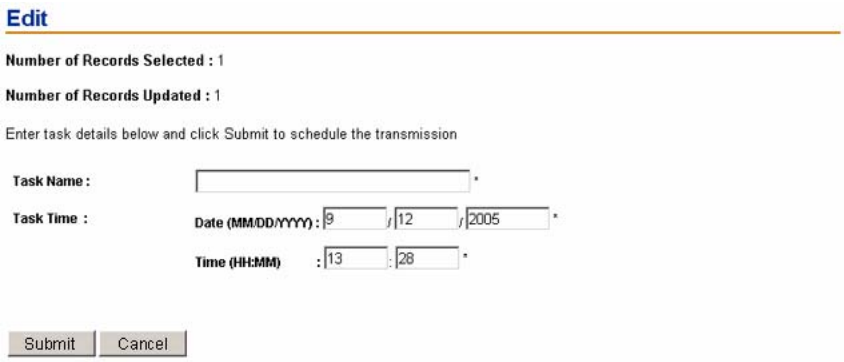
a. Select individual changes by selecting the check box for each change to be removed.

Select all the changes by selecting the check box in the **From To** column header.

b. Click **Submit**.

The changes are submitted to the database. The status of the operation is displayed. You must correct all errors before any of the changes can be transmitted. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 269 "Scheduling Transmission (after updating multiple telephones simultaneously)" (page 553), prompting you to schedule the transmission of the changes.

Figure 269
Scheduling Transmission (after updating multiple telephones simultaneously)



10 If Telephony Manager is in maintenance mode, do one of the following:

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- To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**.
- Click **Cancel** to quit without scheduling the transmission.

—End—

Swapping telephones

When you perform a swap, two telephones exchange their TNs. Table 47 "Example of swapping telephones" (page 554) shows a before-and-after example of a swap operation.

Table 47
Example of swapping telephones

	TN before swap	TN after swap
Telephone A	123 4 56 78	234 5 67 89
Telephone B	234 5 67 89	123 4 56 78

The following limitations apply to the swap operation:

- You can swap only two telephones at a time.
- The telephones to be swapped must have compatible TN types. For example, you cannot swap an analog (500/2500-type) telephone with a digital telephone.
- SWAP is not supported for DCS telephones. TM Telephone Manager does not control the allocation of virtual TNs for DCS telephones.
- If the sync status of one of the telephones to be swapped is New, you must swap it with another telephone with a synchronization status of New.
- The telephones to be swapped must have the same VCE or DTA Class of Service.
- Swap is not supported for IP Phones.
- Swap is not supported with the BFS feature.
- Swap is not supported if one of the telephones is an ACD set in the acquired state.
- Swap is not supported for telephones with a branch office link.

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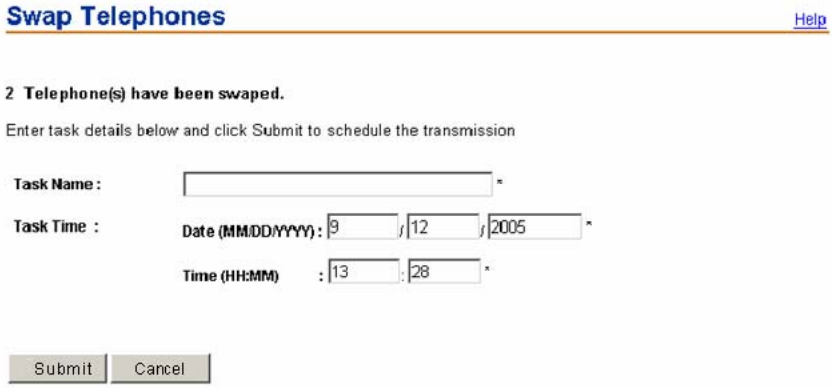
CAUTION
Service Interruption
Before proceeding with this procedure, ensure that none of the limitations listed above apply to you.

Procedure 169
Swapping telephones

Step	Action
1	Use Procedure 166 "Selecting telephones" (page 549) to select two telephones to be swapped.
2	Select **Swap** from the **<more actions>** list in the **Search Results** section. The changes are submitted to the database. The status of the operation is displayed. You must correct all errors before any of the changes can be transmitted. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 270 "Scheduling Transmission (after swapping telephones)" (page 555), prompting you to schedule the transmission of the changes.

Figure 270
Scheduling Transmission (after swapping telephones)



3	If Telephony Manager is in maintenance mode, do one of the following: • To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**. • Click **Cancel** to quit without scheduling the transmission.

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—End—

The synchronization status of the swapped telephones changes to Swapped. You can further swap either telephone as required, subject to the limitations given on page 649. However, you cannot delete a telephone with a synchronization status of Swapped, nor can you modify its TN or Customer fields.

Manually converting IP telephones

An administrator can replace IP telephones with other models while preserving most of the features and key features by using the manual conversion of IP telephones procedure. A “CHGTYP” response to “REQ:" prompt of overlay 11 will convert an IP telephone to another IP telephone (excluding PCA and CPVIP telephones). The telephone manager application does not show an error message if it finds any difference of configured keys and features between old and new telephone types.

The Change Type operation can be performed only on the IP telephones with the sync status “Transmitted” (TRN).

Procedure 170
Manually converting IP telephones

Step	Action
1	Use Procedure 166 "Selecting telephones" (page 549) to select the telephones to be converted.
2	Click **Edit** in the **Search Results** section, resulting in a new page being displayed.
3	Select **Change Telephone Type** from the **Edit Specification** list. This page has two lists of supported IP telephones for conversion as shown in the **From** and **To** lists. See Figure 271 "Edit specification page" (page 556).

Figure 271
Edit specification page

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This feature supports the conversion of multiple IP telephones, which can be achieved by clicking **Add** on the **Edit** page.

4 Click **Submit** and the number of updated records is displayed, as shown in Figure 272 "Number of updated records displayed" (page 557).

Figure 272
Number of updated records displayed

5 Click **OK** to save the new telephone in Telephone Manager with status **Change Type**.

In Telephony Manager 3.1, **Change Type** is a new sync status in the Telephone Manager application. This status is stored internally in the Telephone Manager database as **CHT** but is displayed as **Change Type** on the Search page as shown in Figure 273 "Change type displayed in search results" (page 558). **Change Type** status is also included in the **Search Field** values so that the user can search for all the phones with the Sync Status of **Change Type**.

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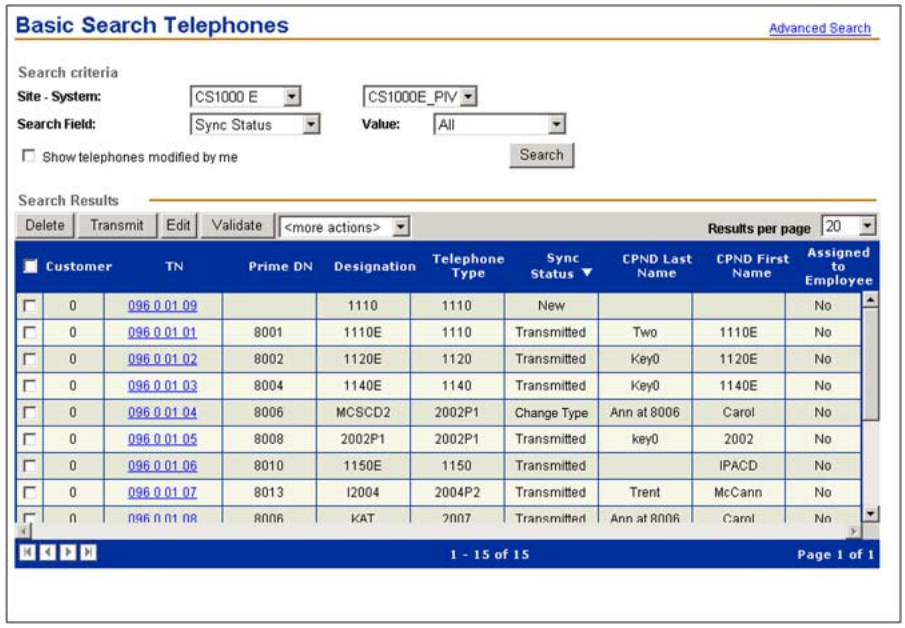
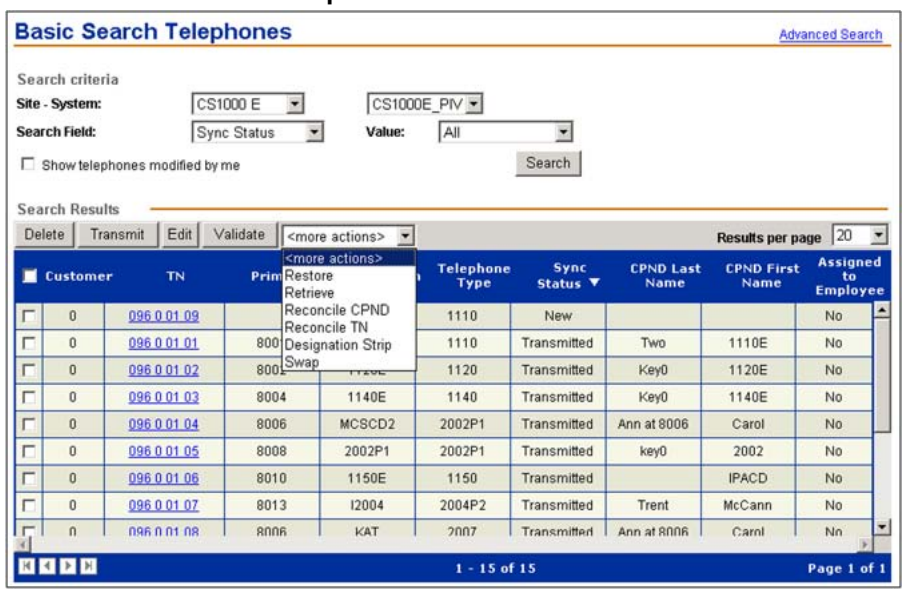
Figure 273
Change type displayed in search results



6 To restore the converted IP telephone to its old status, **select** the phone with the status of Change Type and click **Restore**, as shown in Figure 274 "Restore converted IP telephone" (page 558).

Figure 274
Restore converted IP telephone



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—End—

Telephony Manager does not require user confirmation of each transmitted phone type. Following transmission of the Change Type telephones, the retrieve operation updates the database by deleting invalid entries for keys/features.

In case of failure to retrieve after successful transmission, the phone is maintained with a new Sync Status RET (Retrieval Pending) and manual retrieval must be performed before any other operation is conducted on that phone. The operations Transmit, Restore, Delete and Edit are disabled for the Sync Status RET. This Sync Status is incorporated in search fields to permit users to search all phones with this pending status.

A report is generated by selecting the new status **Change Type** in Telephone Manager. You can import the telephone record by filtering this status.

Deleting telephones

The sync status of deleted telephones is Delete. Use Procedure 171 "Deleting telephones" (page 559) to delete one or more telephones.

Procedure 171
Deleting telephones

Step	Action
1	Use Procedure 166 "Selecting telephones" (page 549) to select the telephones to be deleted.
2	Click **Delete** in the **Search Results** section. The Delete Telephones Confirmation window appears, as shown in Figure 275 "Delete Telephones Confirmation window" (page 560).

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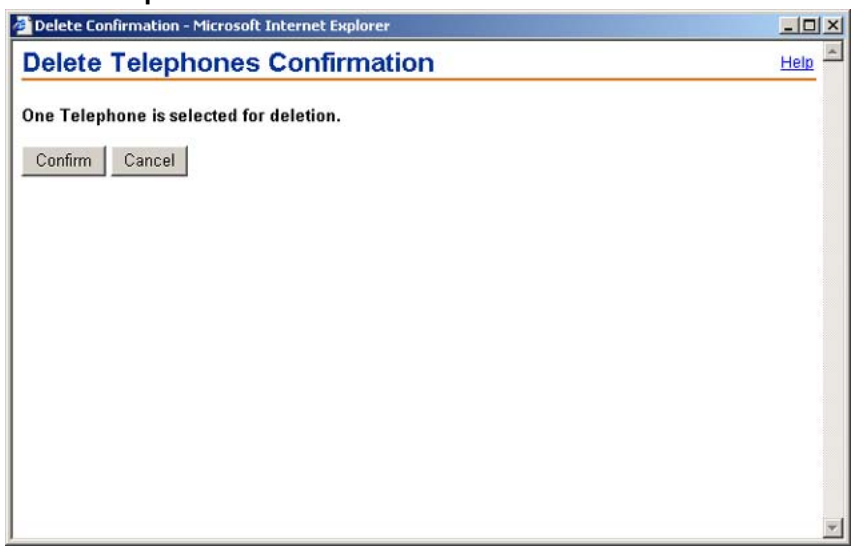
Figure 275
Delete Telephones Confirmation window

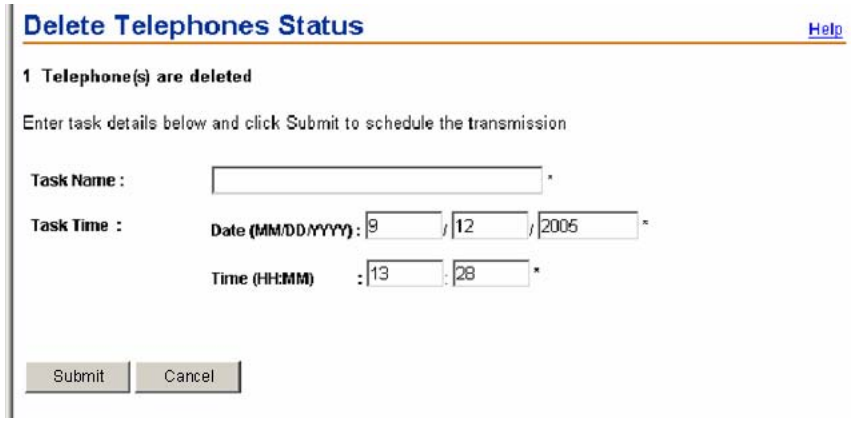


3 (Optional) Select **Delete Voice Mail Box (VMB)** if you want to delete the voice mailbox associated with the selected telephones.

4 Click **Confirm**.

The changes are submitted to the database. The status of the operation is displayed. You must correct all errors before any of the changes can be transmitted. If Telephony Manager is in maintenance mode, the status window includes the scheduler, as shown in Figure 275 "Delete Telephones Confirmation window" (page 560), prompting you to schedule the transmission of the changes.

Figure 276
Scheduling Transmission (after deleting telephones)



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5 If Telephony Manager is in maintenance mode, do one of the following:

- To schedule the transmission, enter a **Task Name** and the task **Date** and **Time**, and click **Schedule**.
- Click **Cancel** to quit without scheduling the transmission.

—End—

To cancel the changes, restore the telephones using Procedure 172 "Restoring telephones" (page 561). Note that this may also remove all untransmitted changes made to the telephones.

To have the changes take effect, transmit the telephones to the switch using Procedure 178 "Transmitting telephones" (page 570).

Restoring telephones

Restoring a telephone restores a telephone to its previous sync status. For example, restoring a telephone whose previous sync status was Transmitted would removes any changes that have not been transmitted to the switch.

However, there may be cases when a telephone may undergo more than one type of change between synchronizations. For example, assume a telephone with sync status Transmitted gets updated with new information. Its sync status changes to Change. Then the telephone is deleted, and its sync status changes to Delete. Restoring the telephone at this point will "un-do" only the deletion operation, keeping the telephone in the database with the changes first made, and with a sync status of Change.

There are several limitations to the restore process, as follows:

- Telephones with sync status New and Transmitted cannot be restored, and are ignored if selected for restoration.
- Telephones with DN-based features such as MARP, CPND, VMB, ANIE, and so on may not be fully restored.

Procedure 172
Restoring telephones

Step	Action
1	Select the telephones to be restored using Procedure 166 "Selecting telephones" (page 549).
2	Select **Restore** from the **<more actions>** list in the telephone **Search Results** section.

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The Restore Telephones Confirmation window appears, as shown in Figure 277 "Restore Telephones Confirmation window" (page 562).

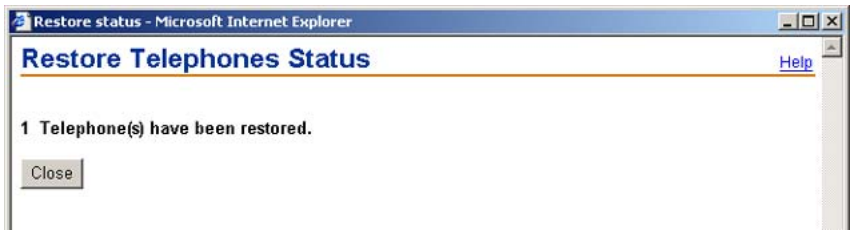
Figure 277
Restore Telephones Confirmation window

3 Click **Confirm**.

The Restore Telephones Status window appears, as shown in Figure 278 "Restore Telephones Status window" (page 562). This window shows any selected telephones that were not restored, and why.

Telephones with sync status of New and Transmitted cannot be restored, and are not reported on the Restore Telephones Status window.

Figure 278
Restore Telephones Status window



4 Click **Close**.

—End—

Validating telephones

Nortel recommends that you validate all telephones before you transmit the telephones to the switch.

Validation consists of checking the changes made to telephones for validity, without transmitting the telephones to the switch. Validation reduces the number of transmission errors. It also enables the user to correct each change near the time of entry, rather than having to repeat all the changes to the effected telephone after the transmission attempt.

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Only partial validation is performed when telephones are added, imported, bulk edited, or changed using Telephone Manager.

Procedure 173
Validating telephones

Step	Action
1	Select the telephones to be validated, using Procedure 166 "Selecting telephones" (page 549).
2	To validate a single telephone: a. Click on the TN of the telephone to be validated. The Telephone Details window appears. b. Click **Validate**. The Validate Telephones Status section appears. This section shows any selected telephones that were not validated, and why.
3	To validate multiple telephones simultaneously, click **Validate** in the action bar of the telephone **Search Results** section. The Validate Telephones Status section appears. This section shows any selected telephones that were not validated, and why.
4	Click **Close**.

—End—

Searching for TNs

Use Procedure 174 "Searching for TNs" (page 563) to search for used and unused TNs.

Procedure 174
Searching for TNs

Step	Action
1	In the **General Properties** section of the **Telephone Details** page (see Figure 255 "Telephone Details: General Properties" (page 526)), click on the magnifying glass icon next to the **Terminal Number** field. The Search TN window appears, as shown in Figure 279 "Search TN window" (page 564).

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Figure 279
Search TN window

2 Enter the **Search criteria** in the **From** and **To** fields as required.

- If the **From** and **To** fields are left blank, all TNs are displayed in the **Search Results** section.
- If the **To** field is left blank, all TNs from the **From** entry to the last TN are displayed.
- If the **From** field is left blank, all TNs from the first TN to the **To** entry are displayed.

You must enter TNs in the format `lll s cc uu`, but partial DNs are also valid.

3 Click **Search**.

TNs meeting the Search criteria are displayed in the Search Results section. The Type column indicates if the TN is Data or Voice. The Status column indicates if the TN is Used, Unused, or Reserved (for use only with specific telephone types). The Usage field indicates the card usage type (or for reserved TNs, the telephone type for which the TN is reserved).

A maximum of 1000 TNs can be displayed on a single page. If the number of TNs meeting the search criteria exceeds this limit, the first 1000 are displayed and a message displayed indicating that the number of results exceeds the maximum limit. Use the pagination controls to view subsequent pages of TNs.

4 (Optional) To display only those TNs with a specific status, select **Reserved**, **Used**, or **Unused**, as required, from the **Show** list.

5 Select a TN by selecting the radio button next to the TN.

6 Click **Assign**.

The Search TN window closes and the TN field on the Telephone Details page from which the search was launched is populated with the selected TN value.

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—End—

Searching for DNs

Use Procedure 175 "Searching for DNs" (page 565) to search for DNs used as parameters for selected telephone Features or Keys.

Procedure 175
Searching for DNs

Step	Action
1	In the **Feature** or **Key** section of the **Telephone Details** page (see Figure 259 "Telephone details - features" (page 530)or Figure 260 "Telephone Details: Keys" (page 531)), click on the magnifying glass icon next to the **DN** field. The Search DN window appears, as shown in Figure 280 "Search DN window" (page 565).
2	Enter the **Search criteria** in the **From** and **To** text boxes as required. • If the From and To text boxes are left blank, all DNs are displayed in the Search Results section. • If the To field is left blank, all DNs from the From entry to the last DN are displayed. • If the From field is left blank, all DNs from the first DN to the To entry are displayed.
3	Click **Search**. Selectable DNs meeting the Search criteria are displayed in the Search Results section. The Marp column indicates if the DN is associated with MARP. The Key column indicates if the DN is mapped to a key, and if so, the Key number. The TN field indicates the TN corresponding to the DN.

Figure 280
Search DN window

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A maximum of 1000 DNs can be displayed on a single page. If the number of DNs meeting the search criteria exceeds this limit, the first 1000 are displayed and a message displayed indicating that the number of results exceeds the maximum limit. Use the pagination controls to view subsequent pages of DNs.

4 (Optional) To display only used or unused DNs, select **Used** or **Unused**, as required, from the **Show** list.

5 Select a DN by selecting the radio button next to the DN.

6 Click **Assign**.

The Search DN window closes and the DN field on the Telephone Details page from which the search was launched is populated with the selected DN value.

—End—

Searching for speed call lists

Use Procedure 176 "Searching for speed call lists" (page 566) to search for speed call lists used as parameters for selected telephone Features or Keys.

Procedure 176
Searching for speed call lists

Step	Action
1	In the **Feature** or **Key** section of the **Telephone Details** page (see Figure 260 "Telephone Details: Keys" (page 531)or Figure 260 "Telephone Details: Keys" (page 531)), click on the magnifying glass icon next to the **Speed Call** field. The Speed Call Lists window appears, as shown in Figure 281 "Speed Call Lists window" (page 567). This window shows all speed call lists applicable to the feature or key from which the search was invoked.

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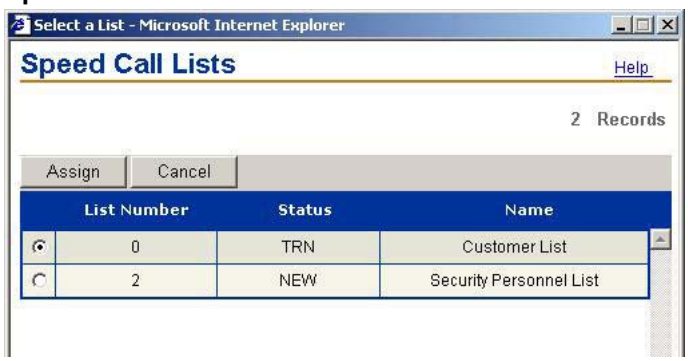
Figure 281
Speed Call Lists window



2 Select the radio button next to the desired speed call list.

3 Click **Assign**.

The Search DN window closes and the Call List field on the Telephone Details page from which the search was launched is populated with the selected List Number.

—End—

Generating Designation Strips

A telephone can have many features and services available by function buttons (keys) and indicators. A Designation Strip is a printout of labels that can be attached to the telephone to indicate the function of the various buttons and indicators on the set (and also the DN of the station using the set).

A Designation Strip typically contains the DN for a single line set. In addition, sets with key caps that designate a DN (for multiline sets) or reference other DNs also appear in the Strip.

Designating DNs

A station can have up to three listed directory numbers (LDN). The Numbering Plan defines whether ranges of directory numbers (DN) are set for direct inward dialed (DID). Typically, a station DN, as defined for the Designation Strip, is a regular 10-digit telephone number with an extension:

```
(aaa) xxx-aaaa Ext bbbb
```

where:

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aaa	Represents the area code
xxx	Represents the exchange
aaaa	Represents the number
bbbb	Represents the extension

The Designation Strip utility examines the System Configuration Customer data to determine the LDN used by the station. The utility determines whether the station DN is in a DID range defined in the system Numbering Plan. There are two possible results:

- Non-DID number—The Strip prints the LDN and uses the station DN for the extension.
- DID Number—The Strip gets the area code (aaa) from the LDN, the exchange (xxx) from the DID number, and the number (aaaa) from the station DN.

Viewing and printing Designation Strips

Use Procedure 177 "Creating Designation Strips" (page 568) to view and print designation strips.

Procedure 177
Creating Designation Strips

Step	Action
1	Select the telephones for which Designation Strips are be created. Use Procedure 166 "Selecting telephones" (page 549).
2	Select **Designation Strips** from the **<more actions>** list. The Designation Strip window appears, as shown in Figure 282 "Designation Strip page" (page 569).

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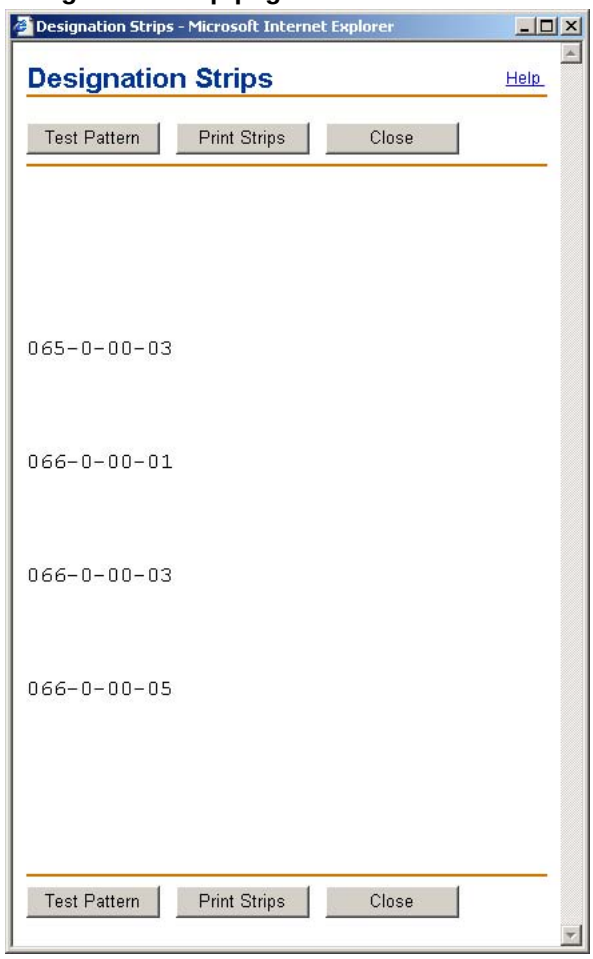
Figure 282
Designation Strip page



3 (Optional) Click **Test Pattern** to preview the Designation Strip.

4 Click **Print Strip** to send the Designation Strips for the selected telephones to the Viewer.

The **Print** window appears.

5 Select and configure the appropriate printer, and click **Print**.

—End—

Designation Strips are printed on special forms. The following form layouts are used by Telephony Manager:

- Unity—for Unity 1 and Unity 2 telephones

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- Unity 3—for Unity 3 telephones
- Compact—for older SL-1 type telephones
- SL-1/500—for normal SL-1 and analog type telephones
- Digital/IP Phones—for digital telephones and IP Phones

Synchronizing telephones

Transmitting telephones

Changes to telephones do not take effect until the telephones are transmitted to, or synchronized with, the switch. Transmission can occur immediately upon request, or can be scheduled to occur at a later time.

Use Procedure 178 "Transmitting telephones" (page 570) to transmit selected telephones to the switch.

ATTENTION

Nortel recommends that you validate all telephones before transmitting them to the switch. Use the validate function described in "Validating telephones" (page 562).

ATTENTION

If the Task Time in the schedule window does not show the current time, perform the following steps to correct the problem:

- Go to Settings > Control Panel > Data and Time.
- Click on the Time Zone tab and change the setting to another time zone and click Apply.

  For example, if the current time zone is (GMT -5:00), change it to (GMT -8:00).
- Change the setting back to the correct Time Zone and click Apply.
- Restart the Telephony Manager Server PC.

Procedure 178
Transmitting telephones

Step	Action
1	Select the telephones to be transmitted, using Procedure 166 "Selecting telephones" (page 549).
2	Click **Transmit** in the action bar of the telephone **Search Results** section. The Schedule – Transmit Telephones window appears, as shown in Figure 283 "Schedule: Transmit Telephones window" (page 571).

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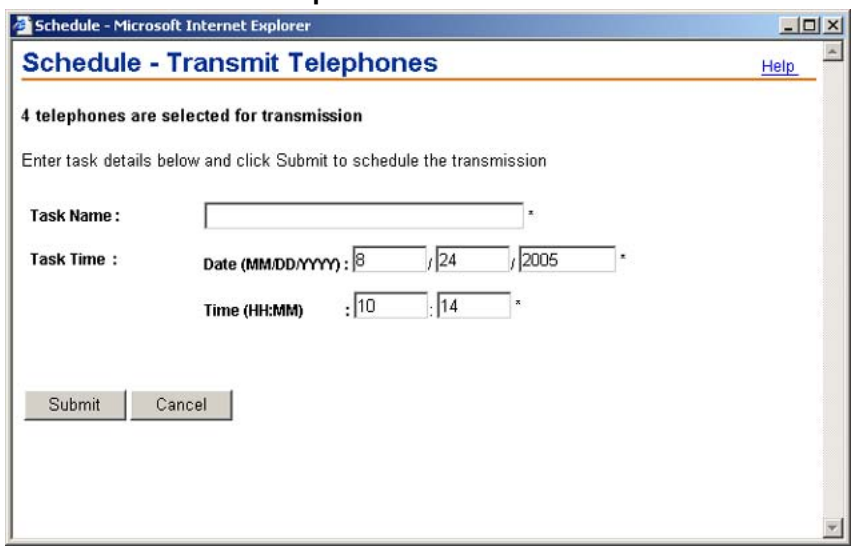
Figure 283
Schedule: Transmit Telephones window



3 Enter a name for the transmission in the **Task Name** text box.

The name is required, but does not have to be unique.

4 To schedule the transmission later, enter a date and time in the **Date (MM/DD/YYYY)** and **Time (HH:MM)** text boxes, respectively.

If you want to transmit the telephones immediately, do nothing. This effectively "schedules" the transmission to occur immediately, since the default value in the Date (MM/DD/YYYY) and Time (HH:MM) text boxes is the current date and time.

5 Click **Submit**.

A message is displayed to the user indicating success or failure in scheduling the task. Transmission errors are not generated on the screen: they are written to Sync Logs. You must check the Sync Logs for transmission errors.

—End—

Retrieving telephones

The Telephony Manager database can be updated with selected data from the system, by retrieving telephones. The user can retrieve only certain telephones (as selected from the telephone Search Results section), or telephones that meet criteria defined specifically for the retrieval operation. The telephones can be retrieved immediately upon request, or can be scheduled to occur at a later time.

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ATTENTION

On the Schedule-Retrieve Telephones page, if the user selects Retrieve Specify from the Retrieve Options list, the following telephone types are not available in the list. These types are recognized as a different set type on the PBX.

- Phone types 2500, 2500-Ph, and 500-Ph are recognized on the PBX as 500.
- Phone types M2216-1 and M2216-2 are recognized on the PBX as 2216.
- Phone types M3110 and M3310 are recognized on the PBX as 2616.
- PORT is recognized on the PBX as MPORTBL.

Procedure 179
Retrieving telephones

Step	Action
1	Search for one or more telephones, using Procedure 165 "Searching for one or more telephones" (page 545). You can choose to select the telephones to be retrieved, or use the selection options later in this procedure (see step 4 on page 666).
2	(Optional) Select the telephones to be retrieved in the **Search Results** section.
3	Select **Retrieve** from the **<more actions>** list in the action bar of the telephone **Search Results** section. The Schedule – Retrieve Telephones window appears, as shown in Figure 284 "Schedule: Retrieve Telephones window" (page 573).

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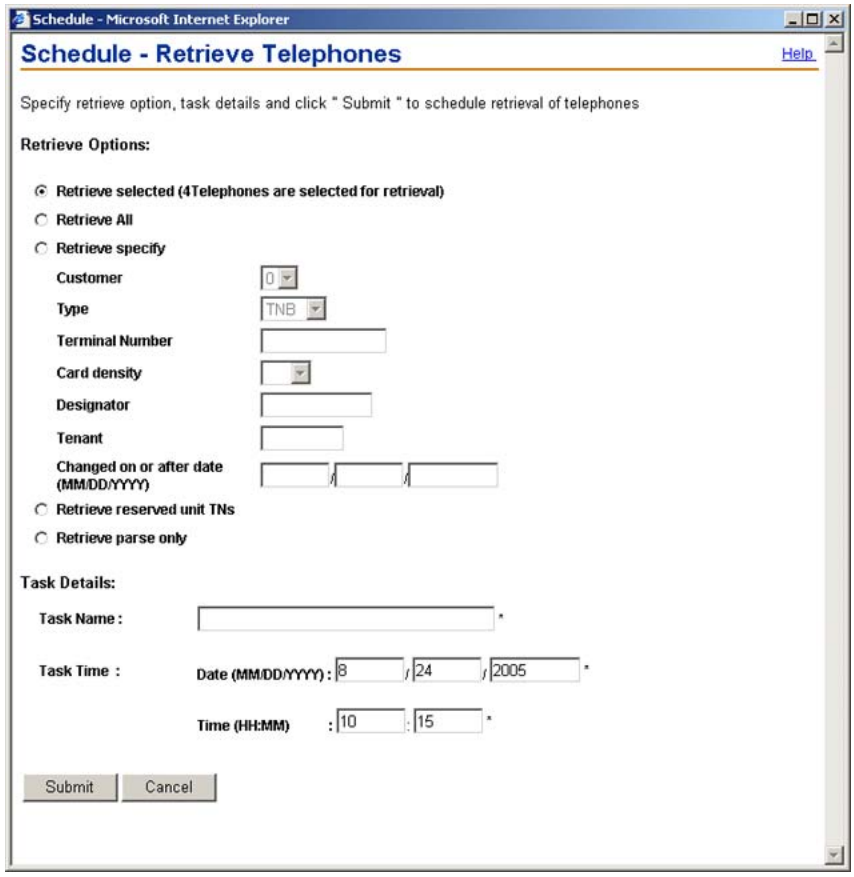
Figure 284
Schedule: Retrieve Telephones window



4 Select one of the **Retrieve Options**, as follows:

- Select **Retrieve selected** to retrieve the telephones selected in the telephone **Search Results** section.

  If no telephones are selected, this option is disabled.

- Select **Retrieve All** to retrieve all the telephones listed in the telephone **Search Results** section.

- Select **Retrieve specify** and enter any combination of the following search criteria as required to retrieve telephones meeting those criteria:

  — Select a customer from the **Customer** list.

  — Select a telephone type from the **Type** list.

  — Enter a TN or partial TN in the **Terminal Number** text box.

  — Select a card type value from the **Card density** list.

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— Enter a designator value in the **Designator** text box.

— Enter a Tenant in the **Tenant** text box.

— Enter a date in the **Changed on or after date (MM/DD/YYYY)** text boxes.

- Select **Retrieve reserved unit TNs** to retrieve only those telephones whose TNs are reserved.
- Select **Retrieve parse only** to retrieve only the telephone data. The data is downloaded to the file station.dld, which can then be processed as required.

5 Enter a name for the retrieval in the **Task Name** text box.

The name is required, but does not have to be unique.

6 To schedule the retrieval for later, enter a date and time in the **Date (MM/DD/YYYY)** and **Time (HH:MM)** text boxes, respectively.

If you want to retrieve the telephones immediately, do nothing. This effectively "schedules" the retrieval to occur immediately, since the default value in the Date (MM/DD/YYYY) and Time (HH:MM) text boxes is the current date and time.

7 Click **Submit**.

A message is displayed to the user indicating success or failure in scheduling the task. Retrieval errors are not generated on the screen: they are written to Sync Logs. you must check the Sync Logs for retrieval errors.

—End—

Reconcile TNs

TN numbers must be reconciled occasionally to update the TN list, as described in "Searching for TNs" (page 563). When reconcile TN is scheduled in TM, any outed TN on the PBX will get deleted from the TM. Reconciliation of TNs can occur immediately upon request, or can be scheduled to occur at a later time.

Procedure 180
Reconciling TNs

Step	Action
1	Select one or more telephones, using Procedure 166 "Selecting telephones" (page 549).

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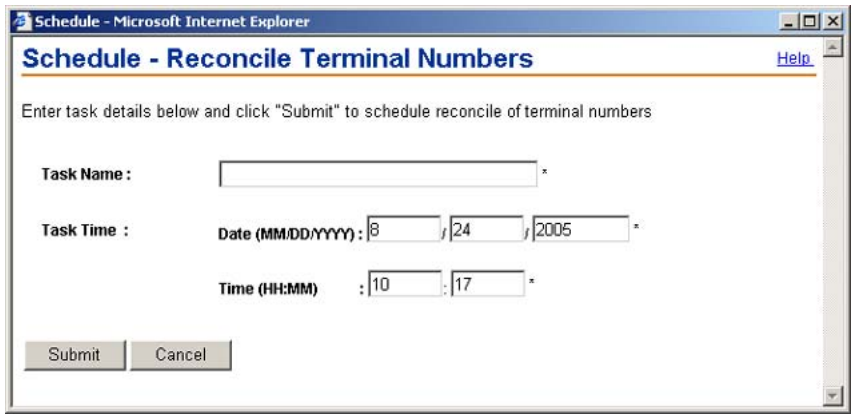
This procedure is not carried out on a telephone, but one telephone must be selected to activate the action bar of the **Search Results** section.

2 Select **Reconcile TN** from the **<more actions>** list in the action bar of the **Search Results** section.

The Schedule – Reconcile Terminal Numbers window appears, as shown in Figure 285 "Schedule: Reconcile Terminal Numbers window" (page 575).

Figure 285
Schedule: Reconcile Terminal Numbers window



3 Enter a name for the reconciliation in the **Task Name** text box.

The name is required, but does not have to be unique.

4 To schedule the reconciliation for later, enter a date and time in the **Date (MM/DD/YYYY)** and **Time (HH:MM)** text boxes, respectively.

If you want to reconcile the TNs immediately, do nothing. This effectively "schedules" the reconciliation to occur immediately, since the default value in the Date (MM/DD/YYYY) and Time (HH:MM) text boxes is the current date and time.

5 Click **Submit**.

A message is displayed to the user indicating success or failure in scheduling the task. Reconciliation errors are not generated on the screen: they are written to Sync Logs. You must check the Sync Logs for reconciliation errors.

—End—

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Reconcile CPND

CPND names may be added to, or removed from the PBX by several methods external to Telephony Manager. Reconcile CPND is a process that removes CPND names from Telephony Manager if those names are not present in the CPND data in the PBX. Reconcile does not update names, which are present in the PBX. To add or update CPND names from those existing in the PBX, use an appropriate selection from the Retrieve menu.

For example, record removal or record relocation can be done through overlays, but the changes not recognized by the Telephony Manager server. When reconcile CPND is scheduled in TM, any outed names will get deleted from TM. A user can assign that particular TN to a different user. Reconciliation of CPND can occur immediately upon request, or can be scheduled to occur at a later time. If a CPND name change has been done on a particular phone on the PBX, retrieve all would only fetch the name change for key 0 and not the entire phone. Name changes must be from TM to PBX. Reconcile CPND must be used, only to remove names that were outed on the PBX and not on the TM.

Procedure 181
Reconciling CPND

Step	Action
1	Select one or more telephones, using Procedure 166 "Selecting telephones" (page 549). This procedure is not carried out on a telephone, but one telephone must be selected to activate the action bar of the **Search Results** section.
2	Select **Reconcile CPND** from the **<more actions>** list in the action bar of the telephone **Search Results** section. The Schedule – Reconcile CPND window appears, as shown in Figure 286 "Schedule: Reconcile CPND window" (page 577).

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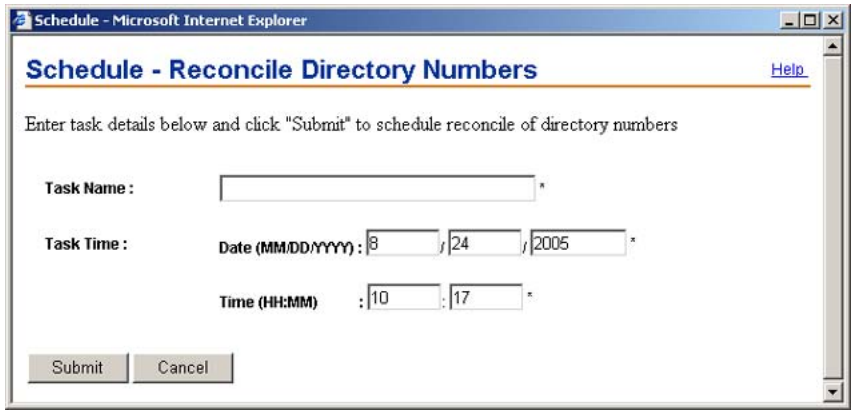
Figure 286
Schedule: Reconcile CPND window



3 Enter a name for the reconciliation in the **Task Name** text box.

The name is required, but does not have to be unique.

4 To schedule the reconciliation for later, enter a date and time in the **Date (MM/DD/YYYY)** and **Time (HH:MM)** text boxes, respectively.

If you want to reconcile the TNs immediately, do nothing. This effectively "schedules" the reconciliation to occur immediately, since the default value in the Date (MM/DD/YYYY) and Time (HH:MM) text boxes is the current date and time.

5 Click **Submit**.

A message is displayed to the user indicating success or failure in scheduling the task. Reconciliation errors are not generated on the screen: they are written to Sync Logs. You must check the Sync Logs for reconciliation errors.

—End—

Sync Tasks

The Sync Tasks utility allows you to manage all of the scheduled synchronized tasks. Use Procedure 182 "Using Sync Tasks" (page 578) to use the Sync Tasks utility.

Tasks scheduled from the Web are sent to the operating system's task scheduler, not the Telephony Manager scheduler.

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WARNING
You must not modify Web station tasks from **Windows > Control Panel > Scheduled Tasks**. You can modify Web station tasks by using the **Sync Tasks** link in Web Navigator.

Procedure 182
Using Sync Tasks

Step	Action
1	Select **Telephones > Sync Tasks** in the navigation tree. The Sync Tasks page appears, as shown in Figure 287 "Sync Tasks page" (page 578). This page displays a list of all scheduled Telephony Manager Tasks, the tasks currently running (that is, in the queue), and the resources being used by the running tasks.

Figure 287
Sync Tasks page

2	(Optional) At any time when using this page, do one of the following: • To change the refresh rate of the page: 1. Enter a refresh interval (in seconds) in the **Refresh Interval** text box. The default is 20 seconds.

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2. Click **Change**.

- To refresh the page at any time, click **RefreshNow**.

3 (Optional) To run a scheduled task immediately:

a. Click the check box next to the task name in the **TM Task Status** section.

To select all of the tasks, click the check box in the column header.

b. Click **Run**.

4 (Optional) To delete a scheduled task:

a. Click the check box next to the task name in the **TM Task Status** section.

To select all of the tasks, click the check box in the column header.

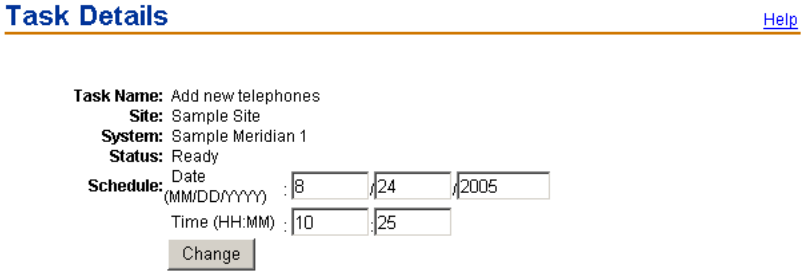
b. Click **Delete**.

5 (Optional) To view the details of a task, or edit the schedule of the task:

a. Click on the name of a task in any section of the page.

The Task Details page appears, as shown in Figure 288 "Task Details Web page" (page 579). This page shows the status of the task. If the task is not yet in the queue, this page also shows the schedule details.

Figure 288
Task Details Web page



b. To edit the schedule of the task:

1. Enter the new data and time in the Date and Time text boxes, respectively, as required.
2. Click **Change**.

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ATTENTION

Complete this step only if the task is not in the queue.

If the date of the task is changed to a past date, the task does not run because Telephony Manager uses the Windows Scheduler and the Next Run time column is set to “Never”.

—End—

Sync Logs

There are four types of synchronization logs (called Sync logs), one for each type of synchronization activity, as follows:

- Transmit
- Retrieve
- Reconcile CPND
- Reconcile TN

The logs are not self-clearing. That is, the results of one activity does not overwrite the results of the previous activity.

The Sync Log for a given activity can be viewed immediately after completing the activity, as described in previous sections. The Sync Logs utility allows you to view any Sync log for any given site and system at any time. You can also clear the log using the Sync Logs utility.

Use Procedure 183 "Using Sync Logs" (page 580) to view and clear Sync logs.

Procedure 183
Using Sync Logs

Step	Action
1	Select **Telephones > Sync Logs** in the navigation tree. The Sync Logs page appears, as shown in Figure 289 "Sync Logs Web page" (page 581).

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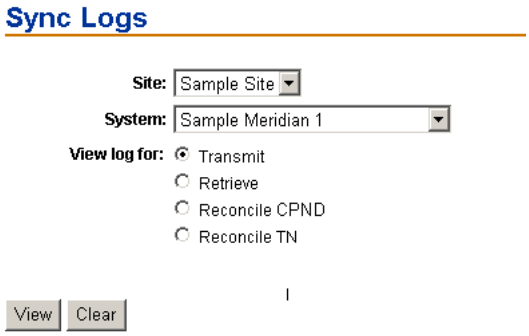
Figure 289
Sync Logs Web page



2 Select the site and system from the **Site** and **System** lists, respectively.

3 Select the type of activity for which you want to view a log.

4 Do one of the following:

- Click **View** to view the log.

  A window appears showing the contents of the log (see the example in Figure 290 "Example: Sync Log" (page 582)). You can save the file using File > Save As..., or print it using File > Print.

- Click **Clear** to clear the contents of the log.

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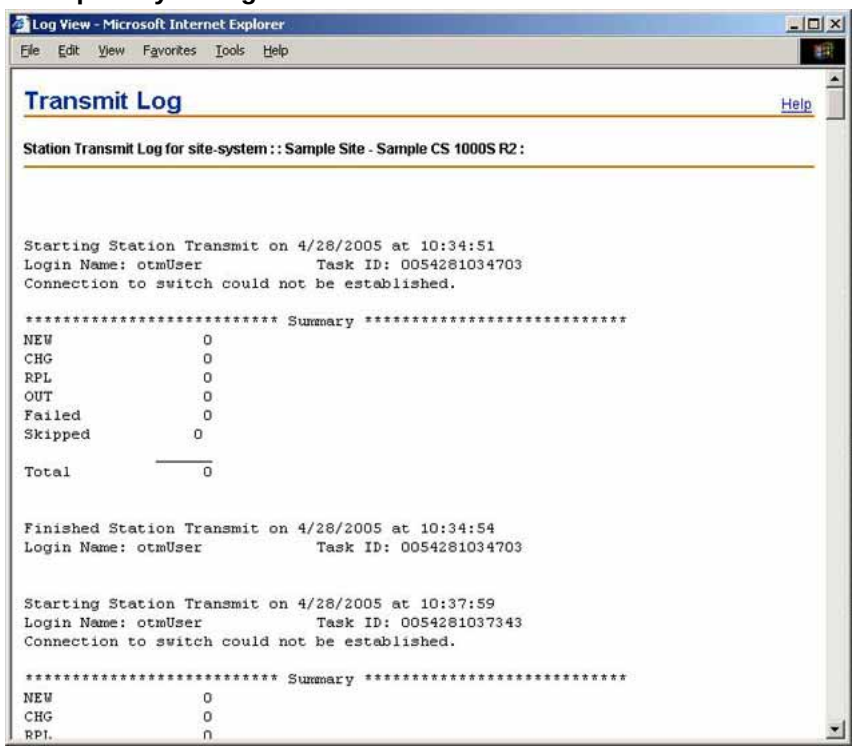
Figure 290
Example: Sync Log



—End—

Using telephone templates

A telephone template contains attributes common to a telephone type. Once a template is created, you can use it to apply these common attributes to a group of telephones, without having to repetitively define the same value for each telephone. In general, using a template is a more efficient method of adding large numbers of telephones than maintaining each telephone individually.

A template can define any or all of those attributes that you think are necessary. When applying the template, only those fields not defined by the template are displayed, making data entry more efficient. Then, if necessary, you can customize each telephone as necessary.

A set of standard templates is provided with Telephony Manager 3.1. You can also create your own templates based on your own requirements.

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For example, you may want to create a template for all telephones used by the marketing department. These users rely on personal contacts to do their work, so these telephones need to have the Call Waiting feature on their telephones. This feature is not required anywhere else, so the template for the Marketing department will configure the Call Waiting feature on each telephone. Then, when you use the template to add a telephone to the Marketing department, the Call Waiting feature is automatically configured.

Nortel recommends that you use a template when adding multiple telephones whose card types are not octal (the default type). Card type is not an attribute that is defined when adding multiple telephones. Therefore, creating and using a template which defines the card type is more efficient than selecting and updating each telephone individually.

Templates exist on a system-wide basis. Once you have created a template, any user can use that template to add a telephone, in any site and system. Therefore, when creating a template, all the telephone features and keys are available for configuration. However, when applying the template, only those telephone features and keys valid for the site, system, and telephone type being added are displayed.

Creating a template

You create a template in a Template Details page, very similar to the Telephone Details page (see Figure 255 "Telephone Details: General Properties" (page 526) through Figure 262 "Telephone Details: Administration" (page 533)). You define only those fields that are common to any telephone to which this template would be shown.

Use Procedure 184 "Creating a template" (page 583) to create a template.

Procedure 184
Creating a template

Step	Action
1	Select **Telephones > Templates** from the navigation tree. The Template View page appears, as shown in Figure 291 "Template View page" (page 584). This page lists all available templates by name, and to what type of telephone they apply.

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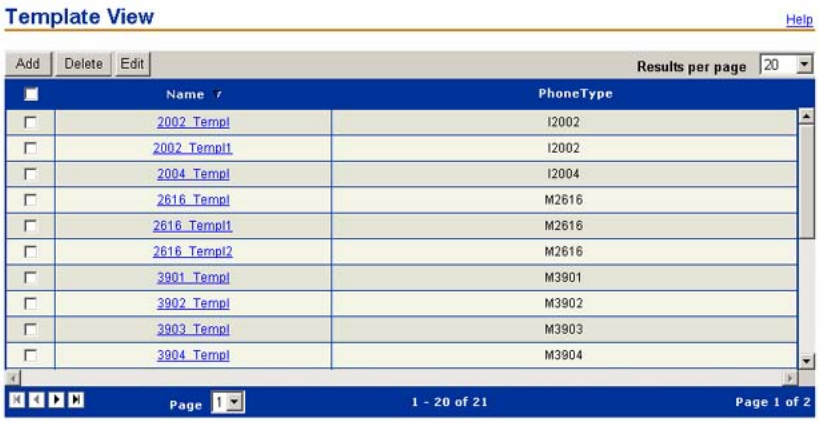
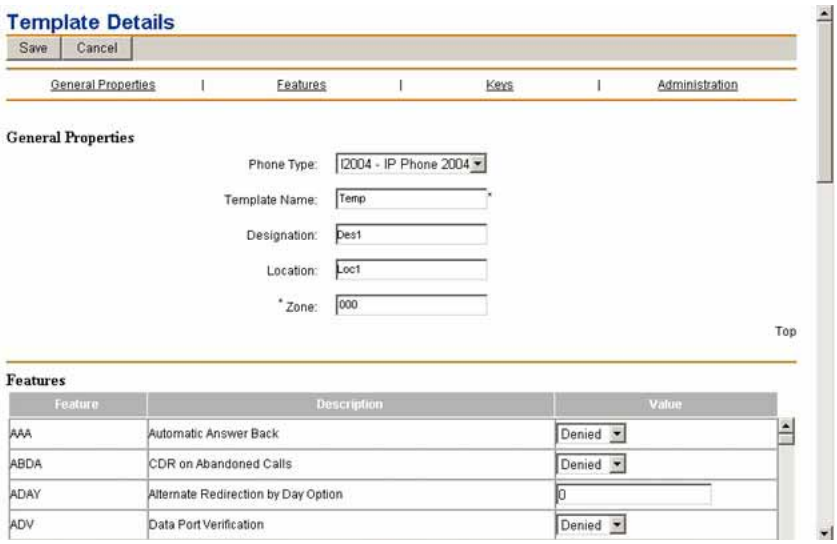
Figure 291
Template View page



2 Click **Add**.

The Template Details page appears, as shown in Figure 292 "Template Details page" (page 584). This page is very similar to the Telephone Details page described in "Telephone Details page" (page 524).

Figure 292
Template Details page



3 Enter a name for the template in the **Template Name** text box in the **General Properties** section.

The Template Name field is the only mandatory field in the template definition.

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4 Enter values in the appropriate fields as required. See "Telephone Details page" (page 524) for descriptions of the fields.

5 Click **Save** to save the template.

The Template View page appears with the new template added to the list.

—End—

Viewing templates

You can view a template before using it, for example, to determine if it is suitable. Use Procedure 185 "Viewing a template" (page 585) to view one or more template.

Procedure 185
Viewing a template

Step	Action
1	Select **Telephones > Templates** from the navigation tree. The Template View page appears, as shown in Figure 291 "Template View page" (page 584).
2	Click on a template name to view the template. The Template Details page appears (see Figure 292 "Template Details page" (page 584)) displaying the template fields.
3	Click **Cancel** when you are finished viewing the template.

—End—

Editing templates

Procedure 186
Editing a template

Step	Action
1	Select **Telephones > Templates** from the navigation tree. The Template View page appears, as shown in Figure 291 "Template View page" (page 584).
2	Do one of the following:

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- To edit only one template, click on the template **name** or select the check box to the left of the **Name** of the template you want to edit.
- To edit more than one template, select the check box to the left of the **Name** of each template you want to edit, or select the check box in the column header to edit all the templates listed on the page.

3 Click **Edit**.

The Edit page appears, similar to that shown in Figure 275 "Delete Telephones Confirmation window" (page 560).

4 Follow steps 3 to 8 of Procedure 168 "Updating multiple telephones simultaneously" (page 551) to edit the template as required.

5 To save the changes:

a. Select individual changes by selecting the check box for each change to be removed.

Select all the changes by selecting the check box in the From To column header.

b. Click **Save**.

—End—

Deleting templates

Procedure 187
Deleting a template

Step	Action
1	Select **Telephones > Templates** from the navigation tree. The Template View page appears, as shown in Figure 291 "Template View page" (page 584).
2	Select the check box to the left of the **Name** of each template you want to delete. To select all the templates, select the check box in the column header.
3	Click **Delete**. A Confirmation window appears.
4	Click **Confirm**.

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—End—

ATTENTION

The phone templates from OTM 2.2 cannot be imported into Telephony Manager 3.2 (or later releases) because of the architectural changes to the software. The station administration changed from an individual system-based database to a common database and also the database engine was changed between the two systems. The administrator must recreate the phone template after the system is upgraded to Telephony Manager 3.2 (or later releases).

Configuring line cards

You can view all the line cards associated with a system, based on the information determined during telephone retrieval (see "Retrieving telephones" (page 571)). You can also add and delete line cards, and update the configuration of existing cards.

Viewing all line cards

Use Procedure 188 "Viewing all line cards" (page 587) to view all the line cards associated with a system.

Procedure 188
Viewing all line cards

Step	Action
1	Select **Telephones > Hardware** from the navigation tree. The Hardware View page appears, as shown in Figure 293 "Hardware View page" (page 587).
2	Select the site and system from the **Site** and **System** lists.
3	Click **Search**. The line cards in the selected system are displayed in the Search Results section of the Hardware View page, as shown in Figure 294 "Hardware View: Search Results" (page 588).

Figure 293
Hardware View page

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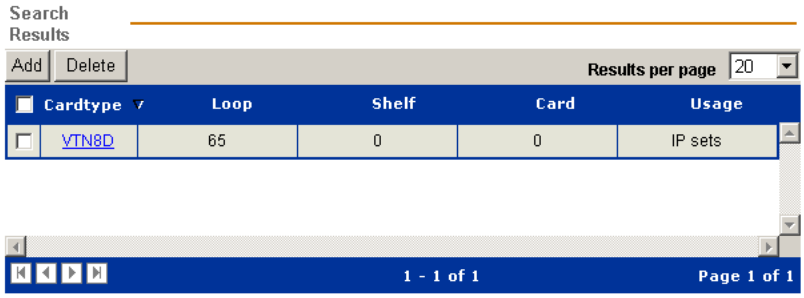
Figure 294
Hardware View: Search Results



—End—

Adding a line card

Use Procedure 189 "Adding a line card" (page 588) to add line cards to an existing hardware configuration.

Procedure 189
Adding a line card

Step	Action
1	Select a particular site and system to which to add the line card. Use Procedure 188 "Viewing all line cards" (page 587). The Hardware View page appears, as shown in Figure 293 "Hardware View page" (page 587).
2	Click **Add**. The Hardware Configuration page appears, as shown in Figure 295 "Hardware Configuration page" (page 589). The Reserved Units section displays the number of units available on the card.

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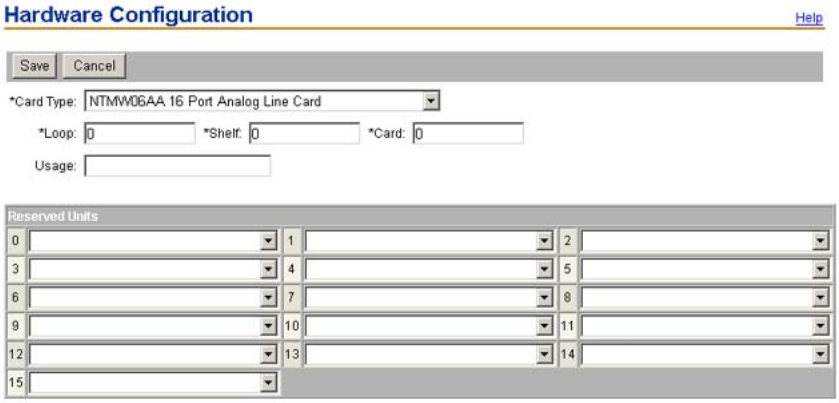
Figure 295
Hardware Configuration page



3 Select the type of line card in the **Card Type** list.

4 Enter the **Loop**, **Shelf**, and **Card** locations in the corresponding text boxes.

5 (Optional) Enter a description of the card usage in the **Usage** text box.

6 (Optional) Configure any reserved units on the card by selecting the reason for reservation from the list corresponding to the appropriate unit on the card.

7 Click **Save**.

—End—

ATTENTION

TM adds hardware based on a best guess of the hardware required to support the first device it finds on a card. That guess may or may not be correct and the hardware should be confirmed correct by the operator of TM and manually adjusted if required.

Viewing configuration of a line card

Procedure 190
Viewing configuration of a line card

Step	Action
1	Select the site and system containing the card to be viewed. Use Procedure 188 "Viewing all line cards" (page 587).

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The Hardware View page appears, as shown in Figure 293 "Hardware View page" (page 587).

2 Click on the card number in the **Cardtype** column.

The Hardware Configuration page appears (see Figure 295 "Hardware Configuration page" (page 589)), showing the configuration of the card.

—End—

Editing the configuration of a line card

Procedure 191
Editing configuration of a line card

Step	Action
1	View the configuration of the line card to be edited, using Procedure 190 "Viewing configuration of a line card" (page 589).
2	Make any required modifications.
3	Click **Save**.

—End—

Deleting line cards

Procedure 192
Deleting line cards

Step	Action
1	View all the line cards associated with the particular system and system. Use Procedure 188 "Viewing all line cards" (page 587).
2	Select the check box next for each line card to be deleted. To select all the line cards, select the check box in the column header.
3	Click **Delete**.

—End—

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Creating and generating reports

You can use the Reports utility in Telephony Manager to create and save report definitions, and generate reports based on those definitions. You can generate reports for single or multiple systems.

For example, you can generate a report of telephones to be exported, formatting the data as described in "Source file format" (page 601), and save the report in CSV format. This file then becomes the data file for a telephone import. See "Importing telephones and telephone data" (page 601).

A predefined report called "Sample report" is provided with Telephony Manager 3.1. This report lists all telephones with sync status of New, as shown in Figure 296 "Sample report: HTML format" (page 591). When you add new telephones, you can use this report to list all the new telephones.

Figure 296
Sample report: HTML format

Telephone Manager Report Customize Report View As CSV 4 Rows Fetched

Criteria: SYNCSTATUS = New

TN	INSTRUMENT	DES	CUSTOMER	KEY0
065 0 00 03	I2004E		0	
066 0 00 05	I2004E	443	0	
066 0 00 03	I2004E	458	0	
066 0 00 01	I2004E	456	0	

Report formats

Reports can be generated in the following formats:

- Comma Separated Values (CSV)
- Hyper text Markup Language (HTML)

HTML is the default format, and can only be viewed on a screen. A CSV format must be saved on your PC. To view the report in CSV format, click on View as CSV—the report displays using Microsoft Excel.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

If you are exporting telephones, you must create and save a CSV file with the telephone information. This file then becomes the import file to import the telephones. See "Importing telephones and telephone data" (page 601) for more information.

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Report definition

A report definition consists of the following elements:

- Report name and description—These are required only if the definition is going to be saved, otherwise they are optional.
- Report schema—This is the set of parameters defining the report format and its contents. The following parameters are defined in the schema:
  - — Report fields: Telephone properties required in the report.
  - — Set of report criteria: Conditions based on which telephone records are filtered.
  - — Sort fields: Telephone properties based on which the report is sorted.
  - — Report format: The format of the report and options for displaying the report.

Generating a report

Reports are generated based on report definitions. If an existing report definition is not suitable, then you must create a new definition. See "Creating a new report definition" (page 594).

Procedure 193
Generating a report

Step	Action
1	Select **Telephones > Report** from the navigation tree. The Report Generator page appears, as shown in Figure 297 "Report Generator Web page" (page 593).

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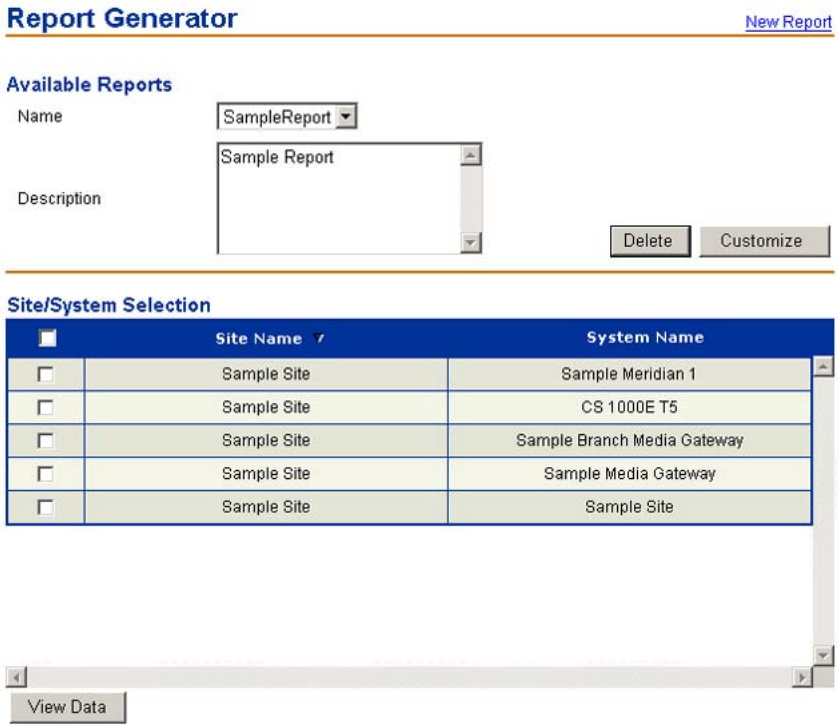
Figure 297
Report Generator Web page



2 Select the name of the report definition from the **Name** list.

The corresponding description appears in the Description box.

If there is no suitable definition listed, you must create a new report definition. See "Creating a new report definition" (page 594).

3 Select one or more **Site Name – System Name** combinations to be included in the report by clicking the corresponding check box.

To select all the Site Name – System Name combinations listed, click the check box in the column header.

4 Click **View Data**.

The report is displayed in HTML table format in a Web page.

5 (Optional) To view the report in CSV format, click on **View as CSV**.

The report is displayed in Microsoft Excel.

If you are saving the report in CSV format, it must be downloaded to your PC.

—End—

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Creating a new report definition

A new report definition can be created in one of the following ways:

- from the beginning
- modifying, or customizing, an existing definition

When you create a new report definition, you have the option to immediately generate the report. Alternatively, you can save the report definition and use it at any time to generate a report.

Creating a new report definition from the beginning

This method consists of manually defining each component of the new report definition.

Procedure 194

Creating a new report definition from the beginning

Step	Action
1	Select **Telephones > Report** from the navigation tree. The Report Generator page appears, as shown in Figure 297 "Report Generator Web page" (page 593).
2	Click on **New Report**. The Define a New Report page appears.

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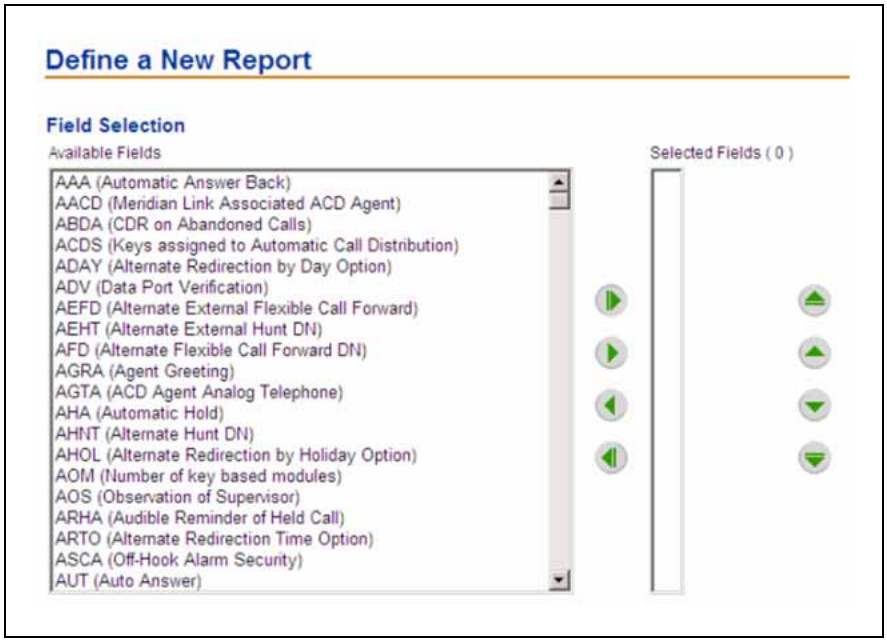
Figure 298
Define a New Report: Field Selection



3 In the **Field Selection** section, shown in Figure 298 "Define a New Report: Field Selection" (page 595), select the fields to be included in the report:

a. Holding down the CTRL key, click on each required field in the **Available Fields** list.

b. Click the Add arrow.

The selected fields appear in the Selected Fields list. To remove a field from the Selected Fields list, click on the field and click the Remove arrow.

c. Click the Top, Up one, Down one, or Bottom arrows as required to move the fields into the order in which you want them to appear in the report.

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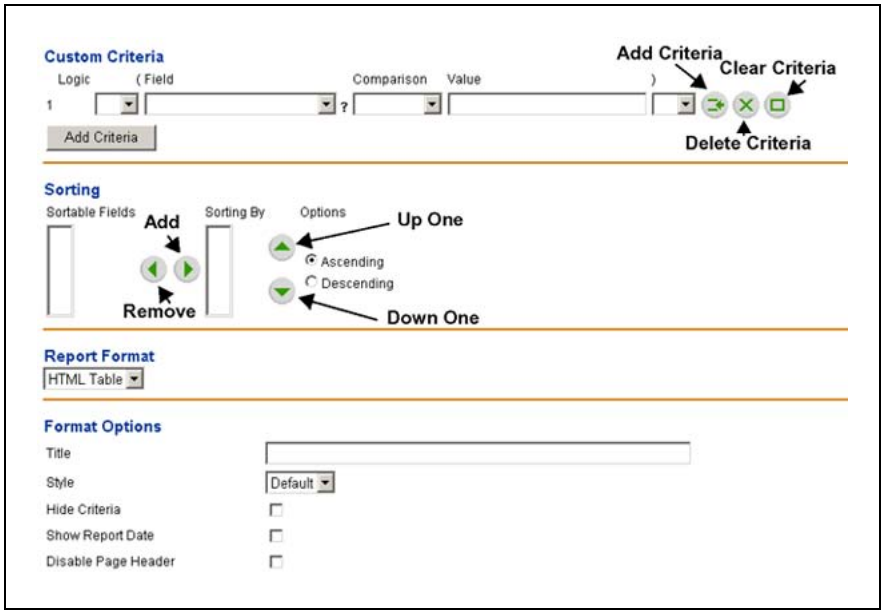
Figure 299
Define a New Report: Custom Criteria, Sorting, Report Format, and Format Options



4 In the **Custom Criteria** section, shown in Figure 299 "Define a New Report: Custom Criteria, Sorting, Report Format, and Format Options" (page 596), select the criteria with which to select the records to be included in the report:

a. Select a field from the **Field** list.

   The corresponding Value field changes to a text box or a list depending on what field is selected.

b. Select the appropriate comparison operator from the **Comparison** list, referring to Table 46 "Advanced searches: comparison operators" (page 544) if necessary.

c. Enter a value in the **Value** field by selecting a value from the **Value** list, or typing a single, list, or range of values in the **Value** text box.

   If you selected LIKE or NOT LIKE in the Operator field, see Table 45 "Wildcard symbols" (page 544) for wildcards to use in the pattern.

d. (Optional) To extend the expression to another row:

   - Click Add Criteria or **Add Criteria**.
   - Select AND or OR from the **Logic** list, referring to Table 46 "Advanced searches: comparison operators" (page 544) if necessary.

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- Repeat step b to enter the next expression.

e. (Optional) Click Delete Criteria to remove the corresponding row.

f. (Optional) Click Clear Criteria to clear the row and reenter the expression.

g. Select the appropriate number of parentheses from the opening and closing parentheses [( )] lists to set the precedence of evaluation of each expression in the search criteria.

5 If there are any fields listed in the **Sortable Fields** list box in the **Sorting** section, shown in Figure 299 "Define a New Report: Custom Criteria, Sorting, Report Format, and Format Options" (page 596), select the sort order of the records if required:

a. Select a field in the **Sortable Fields** list box by which the data is to be sorted.

Select the field which is the primary sort key. That is, the first field selected will always determine the order of the records. The next field selected will only determine the order of those records where the values in the first field are identical and cannot be sorted. This sort precedence continues through all fields selected.

b. Click Add to move the field to the **Sorting By** list box.

c. If required, click Up One and Down One to reorder the sort fields

d. Click **Ascending** or **Descending** to sort the records in ascending or descending order.

e. Repeat steps a through d for each field to be selected as a sort key.

Note that the sortable fields have only predefined Nortel values:

i. CORPDOR

ii. CUSTOMER

iii. DES

iv. EMPLOYEEREFERENCE (common name)

v. INSTRUMENT

vi. LASTDOWNLOADEDON

vii. LASTUPDATEDBY

viii. LASTUPDATEDON

ix. LASTUPLOADEDON

x. PRIMEDN

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xi. SYNCSTATUS

xii. TN

6 Select HTML Table or CSV as the report format from the **Report Format** list, shown in Figure 299 "Define a New Report: Custom Criteria, Sorting, Report Format, and Format Options" (page 596).

If the report is in HTML Table format, the report will be displayed in a Web page. If the report is in CSV format, the report will be generated as a CSV file and the user will be prompted to download the file to their local PC.

7 In the **Format Options** section, shown in Figure 299 "Define a New Report: Custom Criteria, Sorting, Report Format, and Format Options" (page 596), define additional format options as required:

a. Enter a title of the report in the **Title** text box.

b. Select the report style from the **Style** list.

The two options are Default and Print. The Default style formats the report for viewing in a Web page. The Print style formats the report for printing.

c. Select **Hide Criteria** to hide the criteria in the report.

d. Select **Show Report Date** to include the generation date in the generated report.

e. Select **Disable Page Header** to hide the report header.

f. Select **Disable Page Footer** to hide the report footer.

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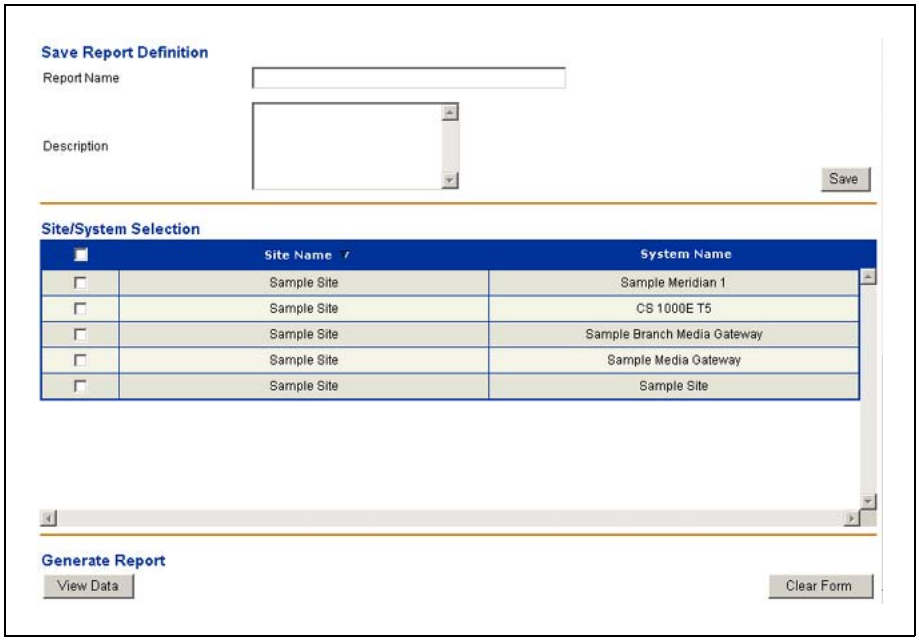
Figure 300
Define a New Report: Save, Generate



8 (Optional) In the **Save Report Definition** section, shown in Figure 300 "Define a New Report: Save, Generate" (page 599), save the report definition for subsequent use:

a. Enter a name for the report definition in the Report Name text box.

b. Enter a description for the report definition in the Description text box.

c. Click **Save**.

9 (Optional) In the **Generate Report** section, shown in Figure 300 "Define a New Report: Save, Generate" (page 599), generate the report:

a. Select one or more **Site Name – System Name** combinations to be included in the report by clicking the corresponding check box.

To select all the Site Name – System Name combinations listed, click the check box in the column header.

b. Click **View Data**.

—End—

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Creating a new report definition by modifying an existing definition

This method consists of modifying an existing report definition and saving it as a new definition.

Procedure 195

Creating a new report definition from an existing definition

Step	Action
1	Select **Telephones > Report** from the navigation tree. The Report Generator page appears, as shown in Figure 297 "Report Generator Web page" (page 593).
2	Select the name of the report definition from the **Name** list. The corresponding description appears in the Description box.
3	Click **Customize**. The **Define a New Report** Web page appears (see Figure 298 "Define a New Report: Field Selection" (page 595)), displaying the report definition of the selected report.
4	Make the necessary modifications to the report, following steps 3 to 7 of Procedure 194 "Creating a new report definition from the beginning" (page 594).
5	(Optional) In the **Save Report Definition** section, save the report definition for subsequent use: a. Enter a name for the definition in the **Report Name** text box. b. Enter a description for the definition in the **Description** text box. c. Click **Save**.
6	(Optional) In the **Generate Report** section, generate the report: a. Select one or more **Site Name – System Name** combinations to be included in the report by clicking the corresponding check box. To select all the Site Name – System Name combinations listed, click the check box in the column header. b. Click **View Data**.

—End—

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Deleting a report definition

Procedure 196
Deleting a report definition

Step	Action
1	Select **Telephones > Report** from the navigation tree. The Report Generator page appears, as shown in Figure 297 "Report Generator Web page" (page 593).
2	Select the name of the definition from the **Name** list.
3	Click **Delete**.

—End—

Importing telephones and telephone data

You can import telephone data into Telephony Manager from a data file.

ATTENTION
Extensive data validation is not performed during the importation of telephone data. It is your responsibility to ensure that proper values are present under all fields in the CSV file used for import. Entering improper values in certain fields may cause transmission failure.

Source file format

The first line, or record, of the file must contain the names of the fields being imported. The data file can be a comma-delimited ASCII text file, with a file extension of .CSV. For a complete listing of the field names to use in the header line of an import file, see "Valid field names" (page 659).

Each field in the record must be enclosed in double quotation marks. The first field in a data record is either TN or PRIMEDN, and is used as the key during the import operation. If PRIMEDN is the first field, the import process can only update existing telephones. If TN is the first field, the import process will update existing telephones and create new telephones in the database if the TN does not exist.

Table 48 "Mandatory fields in an telephone data import file" (page 602) lists the mandatory fields in a telephone data record.

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Table 48
Mandatory fields in an telephone data import file

Updating an existing telephone record	Adding a new telephone record
DN or **TN**—Directory number or terminal number	**DN** or **TN**—Directory number or terminal number
	INST—Telephone type
	DES—Designation

For example, Figure 301 "Sample digital telephone import file" (page 602) shows the format of an import file for a digital telephone that can be used to import the fields and data shown in Table 49 "Sample digital telephone import data" (page 602).

Figure 301
Sample digital telephone import file

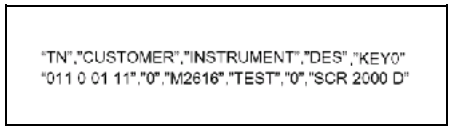

Table 49
Sample digital telephone import data

TN	CUSTOMER	INSTRUMENT	DES	KEY0
011 0 01 11	0	M2616	TEST	SCR 2000 D

ATTENTION

- Do not add more than 30 sets with the same **DN** using the Import operation, as the PBX only supports up to 30 sets with the same **DN**.
- Do not use non-alphanumeric values in certain fields as they are not supported in the PBX.
- Do not enter blank values in the mandatory fields such as **TN**, **INSTRUMENT**, or **DES**. Transmission to the PBX will fail if blank values are used in the mandatory fields.

Data requirements for importing Keys, CPND names, and VMB

The source file for importing keys, CPND names, and VMB must include the following for each key to be imported:

- In the list of fields to be imported—KEY<number>, where <number> is the key number.

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- In the data record—<mnemonic> [<parameters>] [MARP] [ANIE] [CPND_FIRST_NAME(<value>) CPND_LAST_NAME(value) CPND_LANG(value) CPND_DISPLAY_FORMAT(value)] [VMB_CLASSOF_SERVICE(value) VMB_SECOND_DN(value) VMB_THIRD_DN(value) VMB_KEEP_MESSAGES(value)]

  Square brackets ([]) indicate fields that are required based on the key mnemonic and import requirements.

  where:

  — <mnemonic>: feature mnemonic to be assigned to the key

  — <parameters>: list of parameters for the mnemonic; dependent on the feature to be assigned to the key

  — MARP: MARP should be assigned to the DN (specified in <parameters>) on the key.

  — ANIE(<value>): value for ANIE entry

  — CPND entries:

    – CPND_FIRST_NAME: CPND first name for DN specified in <parameters>

    – CPND_LAST_NAME: CPND last name for DN specified in <parameters>

    – CPND_LANG: CPND language for CPND name

    – CPND_DISPLAY_FORMAT: CPND display format for CPND name

    Square brackets ([]) indicate fields that are required based on the key mnemonic and import requirements.

    When importing new CPND names, specify a non-blank value for at least one of the two name fields (CPND_FIRST_NAME or CPND_LAST_NAME). When importing and updating existing CPND names, specify values for only those fields that need to be updated; it is not necessary to specify values for all fields.

  — VMB entries:

    – VMB_CLASS_OF_SERVICE: class of service for VMB

    – VMB_SECOND_DN: second DN for VMB

    – VMB_THIRD_DN: third DN for VMB

    – VMB_KEEP_MESSAGES: preference for keep messages field in VMB

  Specify values for only those fields that need to be updated; it is not necessary to specify values for all fields.

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Table 50 "Sample digital telephone import data: keys" (page 604) shows an example of import data for a single digital telephone with one key.

Table 50
Sample digital telephone import data: keys

TN	CUSTOMER	INSTRUMENT	DES	KEY0
011 0 01 11	0	M2616	TEST	SCR 6666 D MARP ANIE(5) CPND_FIRST_NAME(Joe) CPND_LAST_NAME(Smith) CPND_LANG(ROM) CPND_DISPLAY_FORMAT(FIRST) VMB_CLASS_OF_SERVICE(2) VMB_SECOND_DN(2002) VMB_THIRD_DN(2003) VMB_KEEP_MESSAGES(YES)

Data requirements for importing single-line features

The source file for importing single-line features must include the following for each feature to be imported:

- In the list of fields to be imported—FTR_<mnemonic>, where <mnemonic> is the feature mnemonic.
- In the data record—<mnemonic> <parameters>, where <mnemonic> is the feature mnemonic, and <parameters> is the list of parameters required for that feature.

Table 51 "Sample analog telephone import data: single-line features" (page 604) shows an example of import data for a single digital telephone with two features.

Table 51
Sample analog telephone import data: single-line features

TN	CUSTOMER	INSTRUMENT	DES	FTR_CFW	FTR_SCU
011 00 01 11	0	2500	TEST	CFW 4	SCU 1

Data requirements for importing DNs for analog (500/2500-type) telephones

The source file for importing DNs for analog (500/2500-type) telephones must include the following for each DN to be imported:

- In the list of fields to be imported—DN
- In the data record—DN<DN value> [MARP] [ANIE] [CPND_FIRST_NAME(<value>) CPND_LAST_NAME(value) CPND_LANG(value) CPND_DISPLAY_FORMAT(value)]

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[VMB_CLASSOF_SERVICE(value) VMB_SECOND_DN(value) VMB_THIRD_DN(value) VMB_KEEP_MESSAGES(value)]

Square brackets ([]) indicate fields that are required based on the key mnemonic and import requirements.

where:

— DN <DN value>: DN to be imported

— MARP: MARP should be assigned to the DN, prefixed by mnemonic “DN”.

— ANIE(<value>): value for ANIE entry

— CPND entries:

  – CPND_FIRST_NAME: CPND first name for DN

  – CPND_LAST_NAME: CPND last name for DN

  – CPND_LANG: CPND language for CPND name

  – CPND_DISPLAY_FORMAT: CPND display format for CPND name

— VMB entries:

  – VMB_CLASS_OF_SERVICE: class of service for VMB

  – VMB_SECOND_DN: second DN for VMB

  – VMB_THIRD_DN: third DN for VMB

  – VMB_KEEP_MESSAGES: preference for keep messages field in VMB

Table 52 "Sample analog (500/2500-type) telephone import data: keys" (page 605) shows an example of import data for a DN for an analog (500/2500-type) telephone

Table 52
Sample analog (500/2500-type) telephone import data: keys

TN	CUSTOMER	INSTRUMENT	DES	DN
011 0 01 11	0	2500	TEST	DN 2001 MARP ANIE(5) CPND_FIRST_NAME(Joe) CPND_LAST_NAME(Smith) CPND_LANG(ROM) CPND_DISPLAY_FORMAT(FIRST) VMB_CLASS_OF_SERVICE(2) VMB_SECOND_DN(2002) VMB_THIRD_DN(2003) VMB_KEEP_MESSAGES(YES)

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Importing telephones

Procedure 197
Importing telephone data from a text file

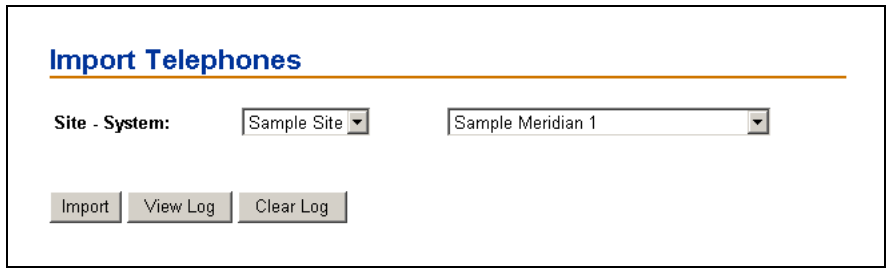
Step	Action

Before performing this procedure, you must ensure the source file is formatted as described in "Source file format" (page 601).

1 Select **Telephones > Import** from the navigation tree.

The Import Telephones page appears, as shown in Figure 302 "Import Telephones page" (page 606).

Figure 302
Import Telephones page

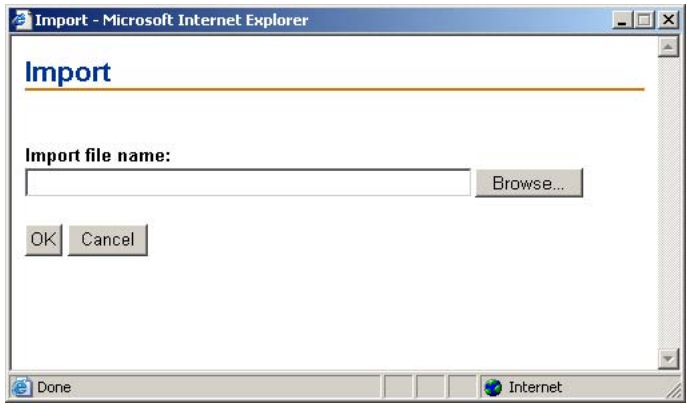


2 Select a site and system from the **Site** and **System** lists.

3 Click **Import**.

The Import window appears, as shown in Figure 303 "Import window" (page 606).

Figure 303
Import window



4 Specify the name of the source file by doing one of the following:

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- Type the path and file name of the source file in the **Import File Name** text box.
- Click **Browse**, and select the file using the file navigator.

5 Click **OK**.

When the import is completed, the Import Status page appears indicating the success or failure of the import operation. See Figure 304 "Import Status page" (page 607).

Figure 304
Import Status page

6 (Optional) Click **View Log** to view the import log.

—End—

Viewing import logs

Use Procedure 198 "Viewing import logs" (page 607) to view the logs of previously completed imported operations.

Procedure 198
Viewing import logs

Step	Action
1	Select **Telephones > Import** from the navigation tree. The Import Telephones page appears, as shown in Figure 302 "Import Telephones page" (page 606).
2	Select a site and system from the **Site** and **System** lists.
3	Click **View Log**.

—End—

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Clearing import logs

Procedure 199
Clearing import logs

Step	Action
1	Select **Telephones > Import** from the navigation tree. The Import Telephones page appears, as shown in Figure 302 "Import Telephones page" (page 606).
2	Select a site and system from the **Site** and **System** lists.
3	Click **Clear**.

—End—

Setting preferences

You can set the following preferences for each site–system combination:

- Validation of DNs and TNs
- Operational mode
- Branch office (this option is only available when the Branch Office activation patch is installed)
- User-defined field names

Use Procedure 200 "Setting site and system preferences" (page 608) to set and view these preferences.

Procedure 200
Setting site and system preferences

Step	Action
1	Select **Telephones > Preferences** from the navigation tree. The Preferences page appears, as shown in Figure 305 "Preferences page: Site and System preferences selection" (page 608).

Figure 305
Preferences page: Site and System preferences selection

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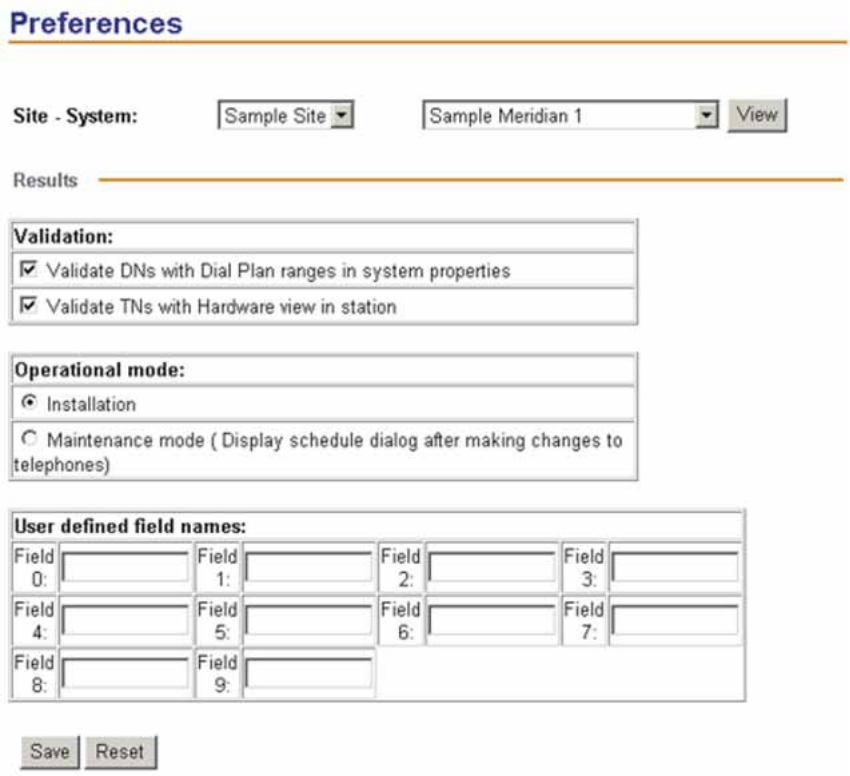
2 Select a site and system from the **Site** and **System** lists.

3 Click **View**.

The Preferences page for the selected Site and System appears, as shown in Figure 306 "Preferences page" (page 609).

Figure 306
Preferences page



4 (Optional) Set the **Validation** options by selecting one or both of the following:

- **Validate DNs with Dial Plan ranges in system properties**—to validate DNs against the numbering plan
- **Validate TNs with Hardware view in station**—to validate TNs against the hardware data

5 Select the **Operational mode** as one of the following:

- **Installation**—used while setting up or reconfiguring Web Navigator; this is the default selection.
- **Maintenance mode**—can be used while working with Telephone Manager to maintain telephone data. In this mode, you are

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prompted to synchronize telephone data with the switch when you add or modify telephone data.

6 (Optional) Set the **Branch Office Options** to one or both of the following:

- **Automatically remove call lists from linked Branch phones**
- **Display a warning when an MO operation will delete a BO phone**

Note that these options will be enabled only when the Site–System combination is a main office.

7 (Optional) Enter field names for one or more of the 10 user-defined fields displayed in **Administration** section of the **Telephone Details** page (see "Administration" (page 532)).

8 Do one of the following:

- Click **Save** to save the changes.
- Click **Reset** to restore the original changes.

—End—

Troubleshooting

If a user group is configured with the option "Show troubleshooting link", a link to a troubleshooting page appears in the header section of the Telephone Details page.

If the user has logged in as administrator, the link directs the user to the PE Units Maintenance (TN) page, as shown in Figure 247 "PE Unit Maintenance (TN) page" (page 510).

If the user is an End User, the link directs them to a Telephone Troubleshooting page. From this page, the End User gets basic troubleshooting tips, can reset the telephone, or consult online help.

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Web Navigator: Directory

Contents

This section contains information on the following topics:

"Overview" (page 611)
"Viewing CND Sync Reports" (page 611)
"Employee Details page" (page 612)
"Administering employees" (page 616)
"Adding employees" (page 616)
"Searching for and selecting employees" (page 618)
"Editing employees" (page 621)
"Deleting employees" (page 622)
"Resetting passwords" (page 623)

Overview

The Directory section of the Web Navigator provides the graphical user interface to the Common Network Directory (CND) database, which contains the employee information for Telephony Manager. The Web pages available in the Directory section allow the user to administer employee information in the CND database. The Web pages are automatically synchronized with the database when changes are made.

WARNING
Do not use the browser Back, Forward, or Refresh controls to navigate between pages in Web Navigator. Doing so can cause incorrect operation and results.

Viewing CND Sync Reports

CND synchronization reports can be viewed from the Web Navigator. Use Procedure 201 "Viewing CND Sync reports" (page 612) to view these CND Sync reports.

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Procedure 201
Viewing CND Sync reports

Step	Action
1	Select **Directory > Sync Reports** from the navigation tree. The Common Network Directory Synchronization page appears, listing CND synchronization logs.
2	Click on a log name to view that log file.
3	To delete one or more logs: a. Select the check box next to the logs to be deleted, or select the check box on the column header to delete all the logs. b. Click **Delete**.

—End—

For more information on CND, see *Common Network Directory 2.1 (NN43050-101)*.

The Directory Web pages are accessible from two places:

- Web Navigator navigation tree
- Telephone Details page—From this access location, you can only view or modify an employee, you cannot delete an employee; see "Directory Options" (page 529).

Before you can use the Directory Web pages, you must configure the CND server in the Windows Navigator. See *Common Network Directory 2.1 (NN43050-101)* for instructions.

Employee Details page

The Employee Details page shows all the attributes of a employee. Use this page to view the attributes of an existing employee, and if required, make changes to those attributes.

The Employee Details page has the following sections:

- A Save button to save changes.
- Five sections of attributes, as follows:
  - "Employee Name" (page 613)
  - "Details" (page 614)
  - "Address" (page 614)

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— "Attributes" (page 615)

— "Password" (page 616)

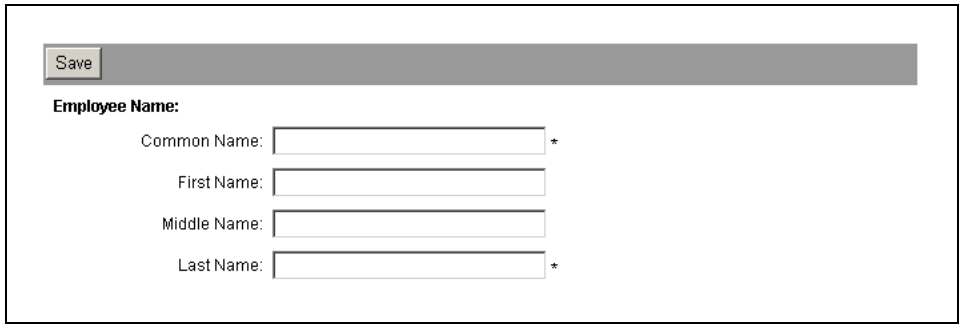
These sections are described in the following section.

All input fields are validated for input type (for example, character versus numeric) and range.

Employee Name

Figure 307 "Employee Details: Employee Name" (page 613) shows the Employee Name section of the Employee Details page.

Figure 307
Employee Details: Employee Name



The Employee Name section contains the following fields:

- Common Name (mandatory)—A common name used to index employees in the employee directory. If the name entered is not unique, or invalid characters are used in the name, an error message is displayed.

  The Common Name cannot be blank or contain a space, and cannot contain the following reserved characters: \ ". All other special characters are supported.

  Any record added with Colon (:) in common name field cannot be deleted. Below work around to be followed to delete the records with colon in common name field.

Work around

Step	Action
1	Open the record with colon in common name that needs to be deleted.
2	Modify the common name in order to remove colon and save the record.

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3 Then delete the record.

—End—

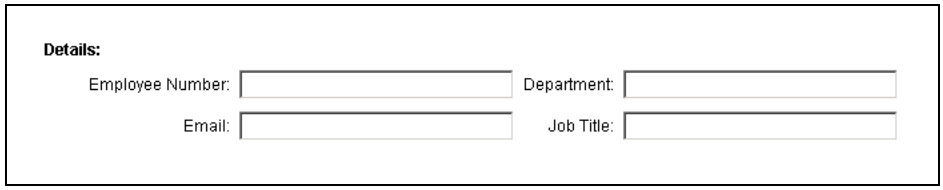
The Common Name must not contain more than 26 characters. Exceeding this limit will result in an exception.

- First Name
- Middle Name
- Last Name (mandatory)

Details

Figure 308 "Employee Details: Details" (page 614) shows the Details section of the Employee Details page.

Figure 308
Employee Details: Details



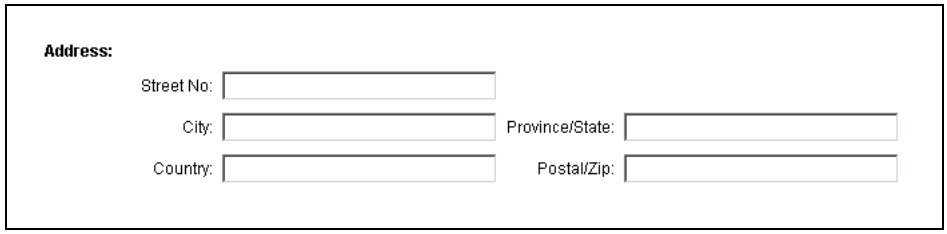
The Details section contains the following fields:

- Employee Number
- Department—Department to which the employee is assigned.
- Email
- Job Title

Address

Figure 309 "Employee Details: Address" (page 614) shows the Address section of the Employee Details page.

Figure 309
Employee Details: Address



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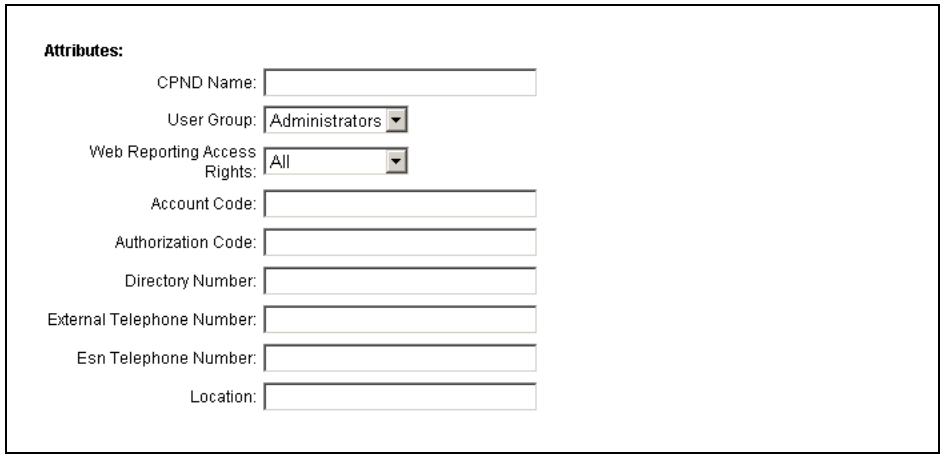
The Address section contains the following fields—

- Street No
- City
- Province/State
- Country
- Postal/Zip—Postal code or zip code of the employee

Attributes

Figure 310 "Telephone Details: Attributes" (page 615) shows the Attributes section of the Employee Details page.

Figure 310
Telephone Details: Attributes



The Attributes section contains the following fields:

- CPND Name—The name defined for Called Party Name Display (CPND).
- User Group—The user group of which the employee is a member.
- Web Reporting Access Rights—The rights the user has to access Web TBS.
- Account Code
- Authorization Code
- Directory Number
- External Telephone Number
- ESN Telephone Number
- Location—The location of the employee.

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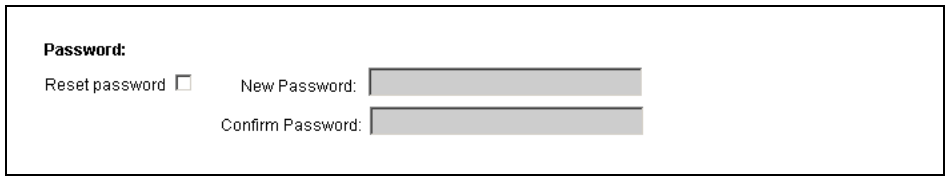
Password

Figure 311 "Employee Details: Password" (page 616) shows the Password section of the Employee Details page.

Figure 311
Employee Details: Password



The Password section contains the following fields:

- Reset Password—Check this box to set or reset an employee's password.
- New Password—Disabled if Reset Password not selected.
- Confirm Password—Disabled if Reset Password not selected.

Please note that if a password is not set for an employee, the system provides a default password. The default password consists of the default password prefix defined that you specified during the CND setup (see "CND Server setup" (page 225), concatenated with the Common Name of the employee (see "Employee Name" (page 613)).

Administering employees

Adding employees

Employees are added using the Employee Details page as a template. You can enter a value in all of the fields, except the following fields are probably going to be updated automatically during the CND synchronization operation:

- CPND Name
- Directory Number
- External Telephone Number
- ESN Telephone Number
- Location

Procedure 202
Adding an employee

Step	Action
1	Select **Directory > Add** from the navigation tree.

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The Add Employees Web page appears. This page is identical to the Employee Details page, as described in "Employee Details page" (page 612).

2 Enter information in the **Employee Name** section (see Figure 307 "Employee Details: Employee Name" (page 613)):

a. Enter a **Common Name** for the employee.

This name must be unique.

Please note that the user login name cannot be blank or contain a space, and cannot contain the following reserved characters: + / \ ; < > , * #.

b. (Optional) Enter the **First Name** and **Last Name** of the employee.

c. Enter the **Last Name** of the employee.

3 (Optional) Enter information in the **Details** section (see Figure 308 "Employee Details: Details" (page 614)):

a. Enter the **Employee Number**.

b. Enter the **Department** to which the employee is assigned.

c. Enter the **Email** address and **Job Title** of the employee.

4 (Optional) Enter information in the **Address** section (see Figure 309 "Employee Details: Address" (page 614)):

a. Enter the **Street No** and **City** of the employee.

b. Enter the Province or State of the employee in the **Province/State** input box.

c. Enter the **Country** of the employee.

d. Enter the postal code or zip code of the employee in the **Postal/Zip** input box.

5 (Optional) Enter information in the **Attributes** section (see Figure 310 "Telephone Details: Attributes" (page 615)):

a. Enter the **CPND Name** of the employee.

This value will probably be overwritten during CDN synchronization.

b. Select the **User Group** to which the employee belongs.

c. Select the **Web Reporting Access Rights** of the employee.

d. Enter the **Account Code** and **Authorization Code** of the employee.

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e. Enter the **Directory Number**, **External Telephone Number**, **ESN Telephone Number**, **and Location** of the employee.

These values will probably be overwritten during CDN synchronization.

6 (Optional) Set a password for the employee in the Password section (see Figure 311 "Employee Details: Password" (page 616)):

a. Click the **Reset Password** check box.

The New Password and Confirm Password fields are enabled.

b. Enter a **New Password**.

c. Reenter the password in the **Confirm Password** box edit box.

7 Click **Save** to save the new employee in the database.

If the CND database server is not running, the following message appears:

Could not connect to CND.
Restart the server and click Save again.

—End—

Searching for and selecting employees

Before performing any operation on an existing telephone (that is, for all operations except adding an employee), the user must first select the employee upon which the operation will be carried out. The employee is selected from the search results.

Searching for employees

To search for an employee, you must specify criteria consisting of a field, and a single value or range of values. You can choose from the following fields:

- Common Name
- CPND Name
- Department
- Email
- First Name
- Last name
- User Group
- Web Reporting Access Rights

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You can specify a single value, multiple values separated by commas (,) or a range of values. You can also use the asterisk (*) as a wildcard character. For example:

- "*" — all values
- "b*" — all values starting with b
- "*b" — all values that end with b
- "*b*" — all values that contain a b

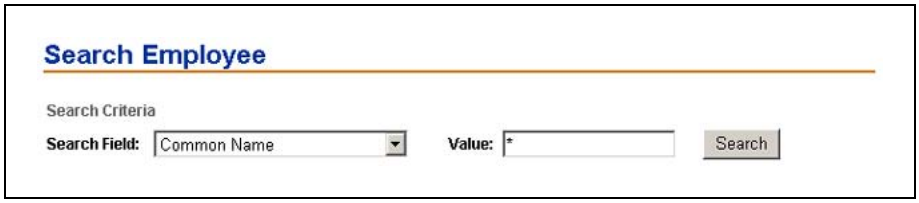
WARNING
Do not use the browser Refresh control to refresh the Search Results section in Web Navigator. Doing so can cause incorrect operation and results.

Use Procedure 203 "Searching for one or more telephones" (page 619) to search for one or more employees in the CND database.

Procedure 203
Searching for one or more telephones

Step	Action
1	Select **Directory > Search** from the Telephony Manager Web Navigator. The Search Employee Web page appears, as shown in Figure 312 "Search Employee window" (page 619).
2	Select the **Search Field** from the list. The Value field changes to an edit box or a list, depending on the type of Search Field selected.
3	Do one of the following: • Select a value from the **Value** list.

Figure 312
Search Employee window



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- Enter a single, list, or range of values in the **Value** edit box, using the asterisk (*) to represent one or more wildcard characters if necessary.
- To select all employees, enter an asterisk (*) in the **Value** edit box or select * in the **Value** list.

4 Click **Search**.

The search window expands to include the Search Results section, similar to that shown in Figure 214 "Search Results section for a Telephones search" (page 471).

If no connection to the CND database is made, the following message appears in the Search window: **Could not connect to CND.**

If the search returns no telephones matching the specified criteria, the following message appears in the telephone Search Results section: **No records to display.**

—End—

Search Results section

The Employee Search Results section is the same as that described in "Search Results section" (page 470). The following fields of information are displayed in the Search Results window:

- Common Name
- Last Name
- First Name
- Department—the department to which the employee is assigned
- User Group—the user group of which the employee belongs
- Email—e-mail address of the employee

The results are sorted by the search field by default. Click on a field name to sort the results differently. For example, if the search field is Common Name, but you want the results sorted by the department to which an employee is assigned, click on Department. An arrow next to a column name indicates that the telephones are sorted in ascending (up-arrow) or descending (down-arrow) order. Click on the column title to toggle between ascending and descending order.

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Selecting employees

You select employees in the Search Results section from the results of Procedure 203 "Searching for one or more telephones" (page 619). Then you perform various administrative and maintenance procedures on the selected employees. Use Procedure 204 "Selecting employees" (page 621) to select employees in the Employees Search Results section.

Procedure 204
Selecting employees

Step	Action
1	Use Procedure 203 "Searching for one or more telephones" (page 619) to search for and find each employee you want to select. To be selected, an employee must be listed in the Search Results window, similar to that shown in Figure 214 "Search Results section for a Telephones search" (page 471).
2	In the **Search Results** section, select each employee by doing one of the following: • To select all the employees on the page, click the box in the column header next to **Common Name**. • To select an individual employee, click the box for the particular employee.

—End—

Editing employees

Procedure 205
Editing an employee

Step	Action
1	Use Procedure 203 "Searching for one or more telephones" (page 619) to search for and find the employee to be edited. The employee must appear in the Search Results section.
2	In the **Search Results** section, click on the **Common Name** of the employee. The Employee Details page appears, as described in "Employee Details page" (page 612), displaying all the attributes of the selected employee.

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3 Edit the attributes of the employee as required, following the steps of Procedure 202 "Adding an employee" (page 616) as follows:

a. To edit **Employee Name** information, use step 2 on page 713.

b. To edit employee **Details**, use step 3 on page 713.

c. To edit **Address** information, use step 4 on page 714.

d. To edit employee **Attributes**, use step 5 on page 714.

4 Click **Save** to save the changes.

If the CND database server is not running, the following message appears: **Could not connect to CND**.

Restart the server and click Save again.

—End—

To edit multiple employees simultaneously, use the CND import utility. See *Common Network Directory 2.1 (NN43050-101)*.

Deleting employees

Use Procedure 206 "Deleting an employee" (page 622) to delete an employee from the CND database.

CAUTION
Be careful when deleting subscribers, especially in a mixed network where other applications (such as CallPilot and ESM) are also using the CND. Using Telephony Manager to delete a subscriber has the potential of disrupting other applications that require access to subscriber data. The network administrator is responsible for ensuring that the correct subscribers are deleted.

Procedure 206
Deleting an employee

Step	Action
1	Use Procedure 203 "Searching for one or more telephones" (page 619) to search for and find the employee to be deleted. The employee must appear in the Search Results section.
2	Click **Delete** in the **Search Results** section. If the employee is associated with any telephones, you must update the telephone database and remove the employee as owner of those telephones.

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3 Run the CND Synchronization Utility to synchronize the telephone database with the CND database. See *Common Network Directory 2.1 (NN43050-101)*.

If the employee is associated with any telephones, this step updates the telephone database and removes the employee as owner of those telephones.

—End—

Resetting passwords

Use Procedure 207 "Resetting a password" (page 623) to reset a password.

Procedure 207
Resetting a password

Step	Action
1	Use Procedure 203 "Searching for one or more telephones" (page 619) to search for and find the employee whose password is to be reset. The employee must appear in the Search Results section.
2	In the **Search Results** section, click on the **Common Name** of the employee. The Employee Details page appears, as described in "Employee Details page" (page 612), displaying all the attributes of the employee.
3	Reset the password in the Password section (see Figure 311 "Employee Details: Password" (page 616)): a. Click the **Reset Password** check box. The New Password and Confirm Password fields are enabled. b. Enter a **New Password**. c. Reenter the password in the **Confirm Password** box edit box.
4	Click **Save** to save the changes.

—End—

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Web Navigator: Telecom Billing Reports

Contents

This section contains information on the following topics:

"Overview" (page 625)

"Web TBS" (page 625)

"Sync Reports" (page 627)

Overview

The Telecom Billing Reports section provides access to the Telephony Manager Telecom Billing System (TBS), and to Billing Synchronization Logs.

The TBS reports available from the Web Navigator are only some of the TBS reports available in Telephony Manager. See *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)* for a list of all TBS reports available in Telephony Manager.

Web TBS

Select **Telecom Billing Reports > Web TBS** in the Web Navigator navigation tree to access the Telecom Billing System Web Reporting application.

A list of extensions associated with the selected site and system appears, as shown in Figure 313 "TBS reports: by extension" (page 626). Select the extension to enter the parameters for the detailed report.

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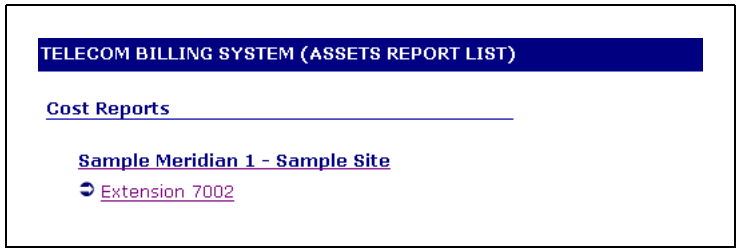
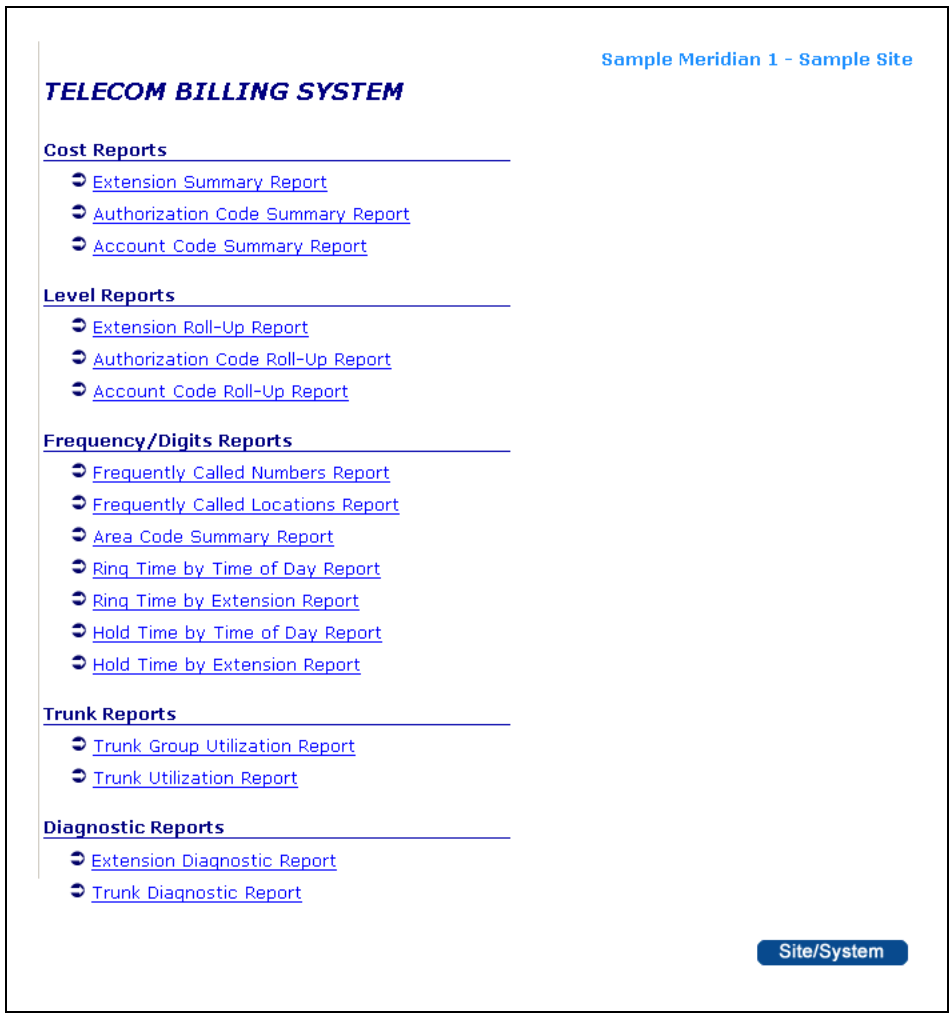
Figure 313
TBS reports: by extension



Click on the Site and System for a list of summary reports, as shown in Figure 314 "TBS reports: detailed" (page 626). Click on any report to enter the parameters for the report, or click Site/System to select another site and system.

Figure 314
TBS reports: detailed



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Once you have selected a report for viewing, you must enter the parameters for the report, then generate it.

See *Telephony Manager 3.1 Telemanagement Applications (NN43050-602)* for detailed information about TBS.

Sync Reports

Billing synchronization reports can be viewed and deleted from Web Navigator.

Procedure 208
Viewing billing synchronization logs

Step	Action
1	Select **Telecom Billing Reports > Sync Reports** from the navigation tree. The Billing Synchronization Logs page appears, listing billing log files.
2	Click on a log name to view that log file.
3	To delete one or more logs: a. Select the check box next to the logs to be deleted, or select the check box on the column header to delete all the logs. b. Click **Delete**.

—End—

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Web Navigator: Web Administration

Contents

This section contains information on the following topics:

"Overview" (page 629)
"Custom Help" (page 629)
"Customizing standard Help files" (page 630)
"Additional Help topics" (page 635)
"User authentication" (page 635)
"User groups" (page 637)
"Viewing user groups" (page 637)
"Setting Navigator access rights" (page 638)
"Setting telephone access rights" (page 640)
"Session Monitor" (page 645)
"Language Selection" (page 645)
"End Users logging in to Telephony Manager Web Navigator" (page 646)

Overview

The Web Administration section provides links to Help pages, the User Authentication page, the User Groups page, the Session Monitor page, and the Language Selection page.

Custom Help

The Custom Help page allows you to customize Help text for Telephony Manager Web-based applications. Typically, you only customize Help that is for end users.

All Web-based Help files can be customized. You can either:

- Replace them with customized help provided by you (the administrator)
- Annotate the help files

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The custom Help page provides a list of all Web-based Help files. You can use a custom Help file instead of the standard Help by copying, editing, or annotating, the standard Help.

Telephony Manager includes sample HTML files that you can use to create customized Help for the end user. Sample Help files are provided for the following Help topics:

- Dialing plans
- System speed call lists
- Flexible feature codes

Each individual Help page has Content and Index buttons to return you to the Help table of contents or index. Next and Previous buttons allow you to navigate to the next Help for topic. A Java applet shows the table of contents and index as navigation frames. Versions of the table of contents and index are also available without frames.

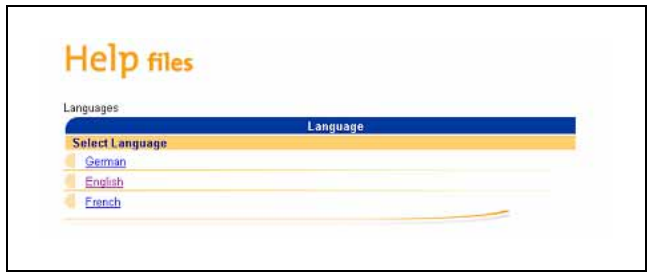
Customizing standard Help files

The following procedure shows how to create and annotate a custom Help file. All Help customizing pages appear in the Content frame of the Web Navigator.

Procedure 209
Creating and annotating a custom Help file

Step	Action
1	Select **Custom Help** under Desktop Services in the Web Navigator tree. The language selection page is displayed. Select the language to view the help files. Note that French and German only contain help for Station Features Group. The Help files Language page appears, as shown in Figure 315 "Help files Languages window" (page 630).
2	Click a Language. In this example, click **English**.

Figure 315
Help files Languages window



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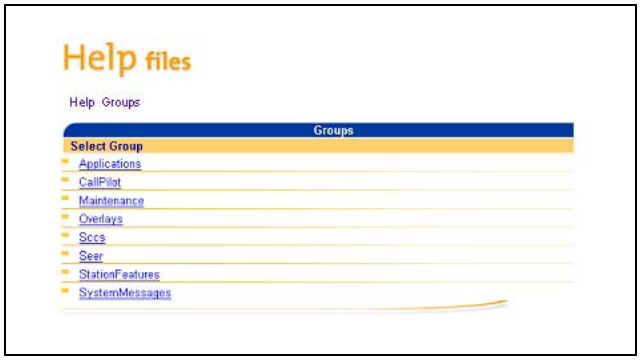
The Help group page for the English language appears, as shown in Figure 316 "Help files: Groups" (page 631).

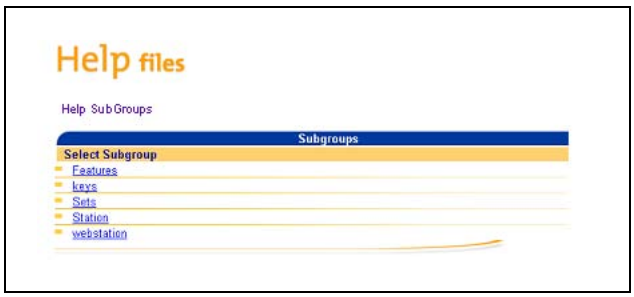
Figure 316
Help files: Groups



3 Click a Helpgroup. In this example, click **Station Features**.

A page that displays a list of the subgroup Help files for all Station Features appears, as shown in Figure 317 "Help files: Subgroups" (page 631).

Figure 317
Help files: Subgroups



4 Click a Subgroup. In this example, click **Keys**.

A page that displays a list of the Help files for all Station Features-keys appears, as shown in Figure 318 "Help files: keys" (page 632).

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Figure 318
Help files: keys

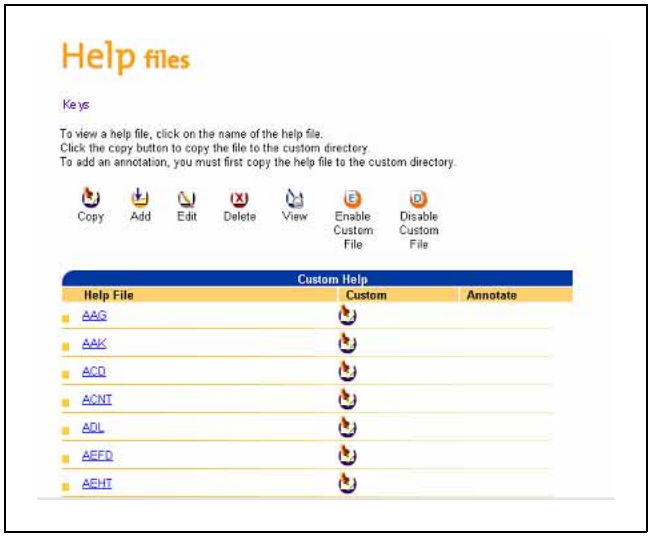

Table 53 "Custom Help buttons" (page 632) explains the function performed by each of the buttons in the Custom Help feature.

Table 53
Custom Help buttons

Button	Explanation
	Copy the standard Help file to the custom directory.
	Annotate the Help file in the custom directory.
	Edit the annotated Help file.
	Delete the annotation or delete the entire custom Help file.
	View the custom Help file.
	Enable end user viewing of the custom Help file.
	Disable viewing of the custom Help file and use standard Help.

5 Click **Copy** in the Custom column for ACD Answer Agent (AAG).

The buttons in the Custom and Annotate columns change, as shown in Figure 319 "Help files: copying" (page 633).

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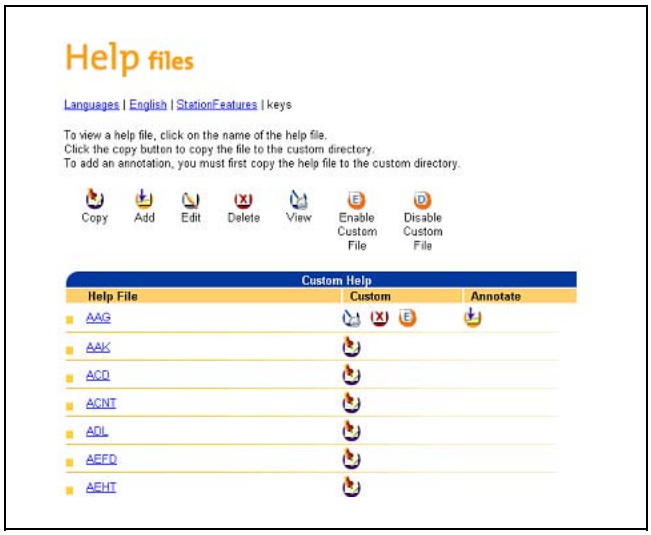
Figure 319
Help files: copying



6 Click **Add** in the Annotation column to add your annotation.

The annotation entry page appears, as shown in Figure 320 "Annotating custom Help files" (page 634).

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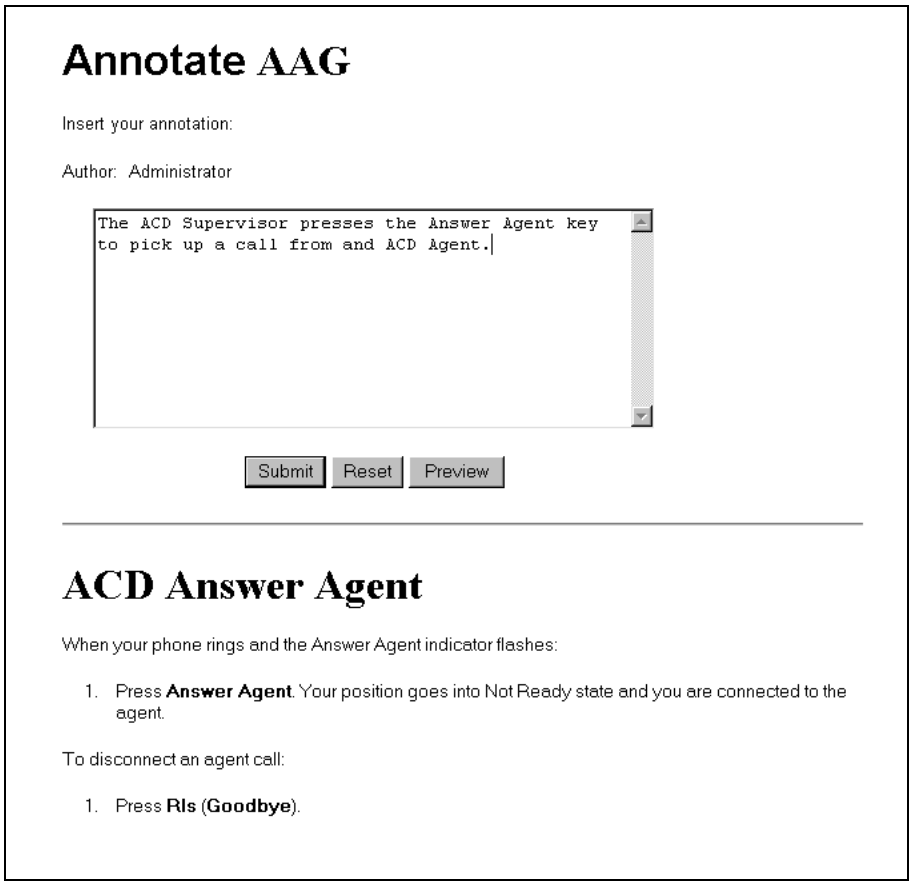
Figure 320
Annotating custom Help files



Only custom Help files can be annotated.

7 Add your annotation and press Submit.

8 Click **Enable** to enable viewing of your annotated file.

9 Click **View** to display your annotated file.

The custom Help file appears, as shown in Figure 321 "Annotated Help file" (page 635).

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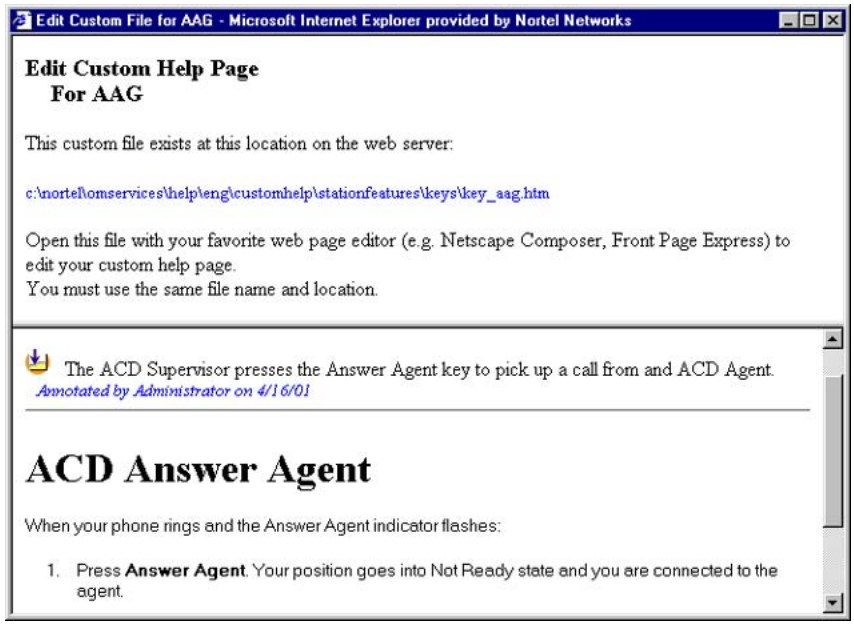
Figure 321
Annotated Help file



—End—

Additional Help topics

In addition to Help on features and keys, Web-based Help is available for a variety of maintenance and administrative tasks that can be performed using Telephony Manager.

User authentication

You can use one or both of the following methods to authenticate Telephony Manager users:

- Local Telephony Manager Server account
- Windows Domain account
- CND account

The Administrator account is always authenticated through the local server account because it is a default account on all supported Windows platforms.

The default authentication method is the Local Telephony Manager Server account and this method is always selected. This method provides the best login performance because there is no requirement to search the Telephony Manager directory for the user's assigned User Group.

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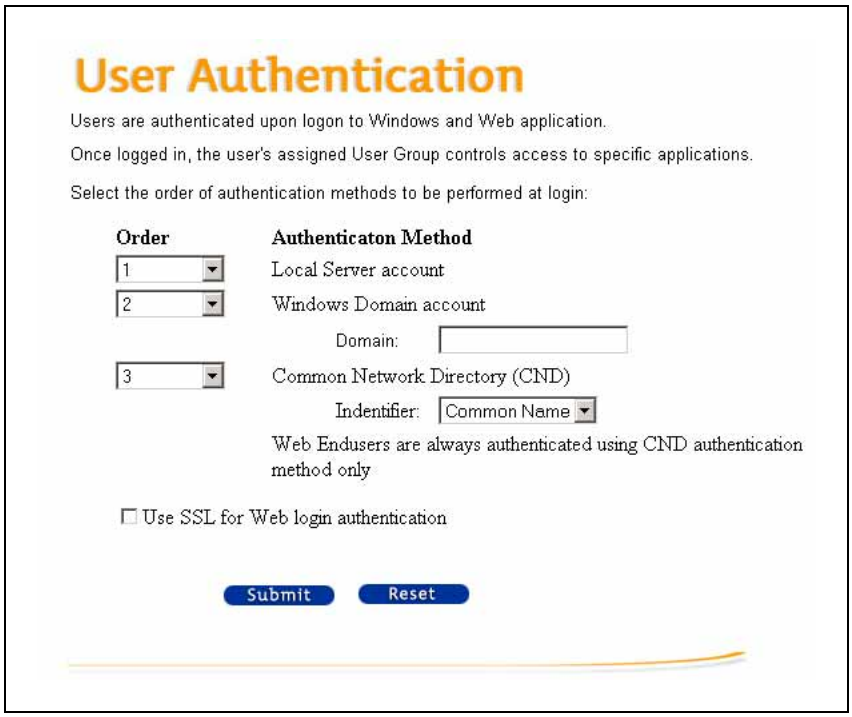
Procedure 210
Configuring authentication

Step	Action
1	Select **Web Administration > User Authentication** from the navigation tree. The User Authentication page appears, as shown in Figure 322 "User Authentication page" (page 636).

Figure 322
User Authentication page



2	Use the check boxes to select one or more of the available authentication methods. If you select Windows NT Domain account, enter one or more domains in the Domain text box.

ATTENTION
You must separate the domain names with a comma. Do not use any spaces.

If you select Common Network Directory (CND), use the Identifier list to choose either Common Name, EmployeeID, or Email.

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3 Use the lists to assign the order in which the authentication methods are performed.

If you choose multiple authentication methods, Telephony Manager respects the order configured; however, it should be noted that the best performance is achieved by using the Local Telephony Manager Server account method.

4 To use the secure socket layer (SSL) during the authentication process, select **Use SSL for Web login authentication** check box.

If the Telephony Manager Server has the required certificate installed, selecting the check box causes Telephony Manager to use SSL encrypted transport during authentication. In this case, Web login is performed using https:// rather than http://, and the traffic is encrypted. The Telephony Manager Server automatically switches to non-SSL transport once the user is successfully authenticated.

The selected method(s) are used to authenticate users on all Telephony Manager platforms: Telephony Manager Server, Telephony Manager Client, and Telephony Manager Web Client.

—End—

Authentication methods can also be configured using the Windows navigator. See "User authentication" in *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.

User groups

Navigator access is controlled by user group. A user's User Group assignment determines which features are available on the Telephone features page. You also use the User Groups page to indicate which users are permitted to make changes to the General and Keys pages.

Viewing user groups

User groups must be added and deleted in the Telephony Manager Windows Navigator. See "Creating a user group" in *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.

Select **Web Administration > User Groups** from the navigation tree to view user groups. The User Groups page appears, as shown in Figure 323 "User Groups page" (page 638), listing all User Groups currently defined.

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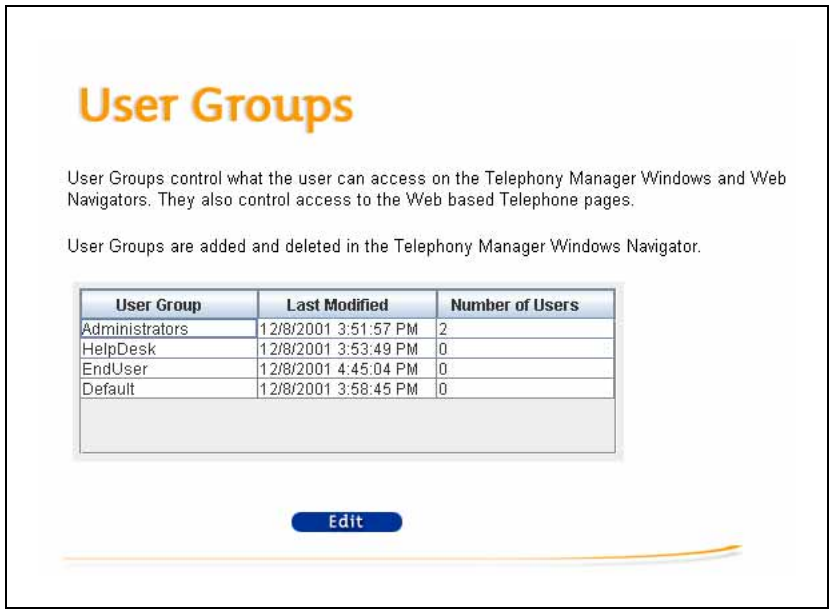
Figure 323
User Groups page



Setting Navigator access rights

The Navigator tab in the User Group Properties page is used to control access to the sites, systems, and applications available in the both the Windows and Web Navigators.

Enabling the administrator check box when defining a user group (see *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*) will overwrite all access rights of the individual components and grant Read/Write access to all. In this case, users of this group can also successfully launch LDAP synchronization for these systems.

Use Procedure 211 "Setting Navigator access rights of a user group" (page 638) to set Navigator access rights.

Procedure 211
Setting Navigator access rights of a user group

Step	Action
1	Select **Web Administration > User Groups** from the navigation tree. The User Groups page appears, as shown in Figure 323 "User Groups page" (page 638).
2	Select a User Group by doing one of the following: • Click on a User Group and click **Edit**.

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- Double-click on a User Group.

The User Group Properties window for the selected user group appears.

3 Select the **Navigator** tab, if not already selected.

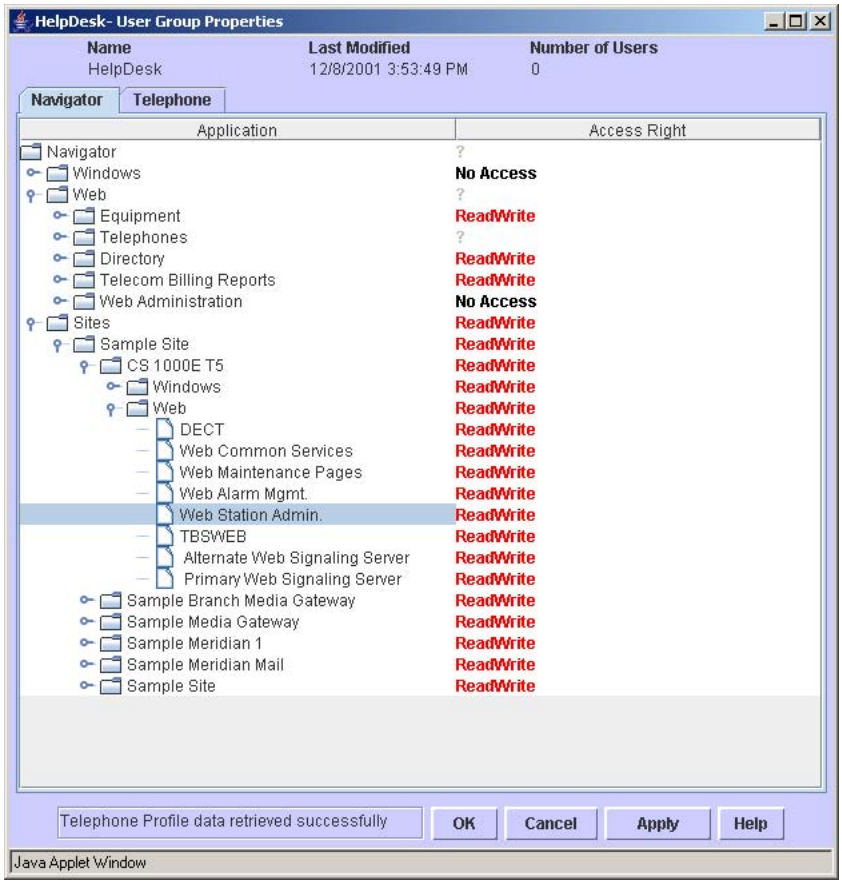
The User Group Properties window for the selected user group is displayed as shown in Figure 324 "User Group Properties page: Navigator tab" (page 639).

The Access Rights column lists the level of access allowed for each site, system, and application. The question mark indicates that the sub-items belonging to the item displaying the question mark have mixed access settings.

4 Use the list in the **Access Rights** column to select **No Access**, **ReadOnly**, or **ReadWrite** for each item in the tree.

5 Click **Apply**.

Figure 324
User Group Properties page: Navigator tab



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—End—

Setting telephone access rights

The Telephone tab in the User Group Properties window is used to control access to the telephone pages on the Web for each user group. Figure 325 "Telephone access properties page: Keys Tab" (page 642) shows the Telephone tab with the Keys tab active.

The options that are configured in the upper section of this page are applicable to all members of the user group. The set of five lists determine the level of access (No Access, Read Only, or Read-Write) to the five sections of the Telephone Details page, as described in "Telephone Details page" (page 524). The three check boxes respectively:

- Determine whether the troubleshooting link appears at the top of the telephone page for members of this group.
- Allow or deny this group the ability to restore changes that have been made to a telephone but not yet synchronized with the switch.
- Allow or deny this group the ability to synchronize changes with the switch. If synchronization is denied, you must manually synchronize the changes with the system using Telephone Manager.

Access to keys

Under the Keys tab, you set whether members of the user group can modify the keys configured on their telephones. Changes to settings in this tab are not applicable if Read-Write is not selected in the Keys list in the upper section of the window.

Access to features

Under the Features tab, you set whether members of the user group can view and modify the features provisioned on their telephones. Each feature is assigned a restriction of Hidden, ReadOnly, or ReadWrite.

The access level of individual features may be overwritten by the access level set for the Features list in the upper section of the window. For example, if the Features access level is set to ReadOnly, and some individual features are set to Hidden, all individual features will be displayed in the end user Feature List with ReadOnly access privileges.

Changes to settings in this tab are not applicable if Read-Write is not selected in the Features list in the upper section of the window. ReadWrite capability requires the Telephony Manager Premium package.

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Procedure 212
Configuring telephone access options

Step	Action
1	Select **Web Administration > User Groups** from the navigation tree. The User Groups page appears, as shown in Figure 323 "User Groups page" (page 638).
2	Select a User Group by doing one of the following: • Click on a User Group and click **Edit**. • Double-click on a User Group. The User Group Properties window for the selected user group appears, as shown in Figure 324 "User Group Properties page: Navigator tab" (page 639).
3	Select the **Telephone** tab. The User Group Properties window changes to display the Telephone tab for the selected user group appears, as shown in Figure 325 "Telephone access properties page: Keys Tab" (page 642), with the Keys tab displayed.

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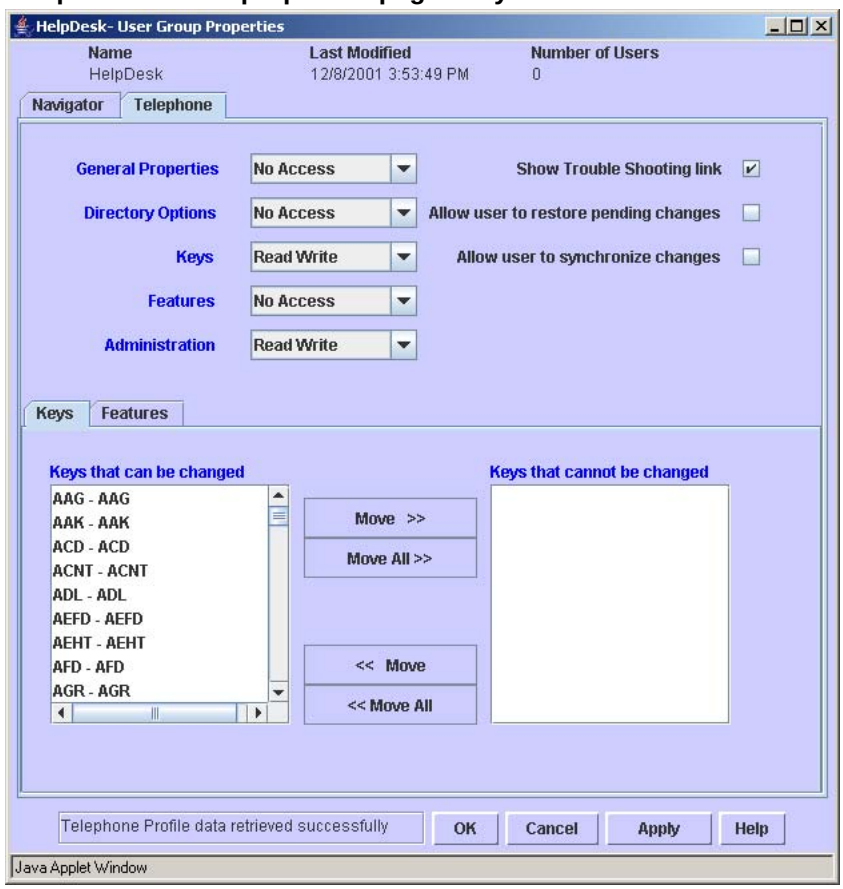
Figure 325
Telephone access properties page: Keys Tab



4 Select **No Access**, **Read Only**, or **Read-Write** to define whether members of the user group can view sections of the Telephone Details page, and if so, if the members can modify those details, as follows:

a. To set access to the General Properties section, select the access level from the **General Properties** list.

b. To set access to the Directory Options section, select the access level from the **Directory Options** list.

c. To set access to the Keys section, select the access level from the **Keys** list.

d. To set access to the Features section, select the access level from the **Features** list.

e. To set access to the General Details section, select the access level from the **General Details** list.

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f. To set access to the Administration section, select the access level from the **Administration** list.

5 Select **Show Trouble Shooting link** to show a link to troubleshooting assistance.

For End Users, clicking the link displays the Telephone Troubleshooting Help page, which includes a reset button.

For Web Navigator users, clicking the link displays the maintenance page for the telephone with all of the available commands. See "PE Units maintenance" (page 508).

6 Select the **Allow users to restore pending changes** check box to permit the users in this group to restore the changes made to a telephone.

If you allow users to restore pending changes, they will be able to undo any changes that have been scheduled by the Administrator or HelpDesk but have not yet occurred. For more information on restoring pending changes, see "Restoring telephones" (page 561).

7 Select **Allow user to synchronize changes** to enable users to synchronize any changes they make to their telephones.

8 Click **Apply** to save the changes.

9 Set access rights for the keys configured on the users' telephones:

Any changes to these settings will only be effective if ReadWrite was selected in the Keys list in step 4 step 4c.

a. Click **Move** and **Move All** to sort key-based features into the **Keys that can be changed** and **Keys that cannot be changed** lists.

Keys in the Keys that can be changed list are those key types that members of the user group can interchange. Users can also change the key parameters.

If, while viewing the Keys section of the Telephone Details page, the user selects a key that is not in the Keys that can be changed list, the Change button does not appear in the Telephone Details page.

b. Click **Apply** to save the changes.

10 Set access rights for the features provisioned on the users' telephones:

Any changes to these settings will only be effective if ReadWrite was selected in the **Features** list in step 4d.

a. Select the **Features** tab, if not already selected.

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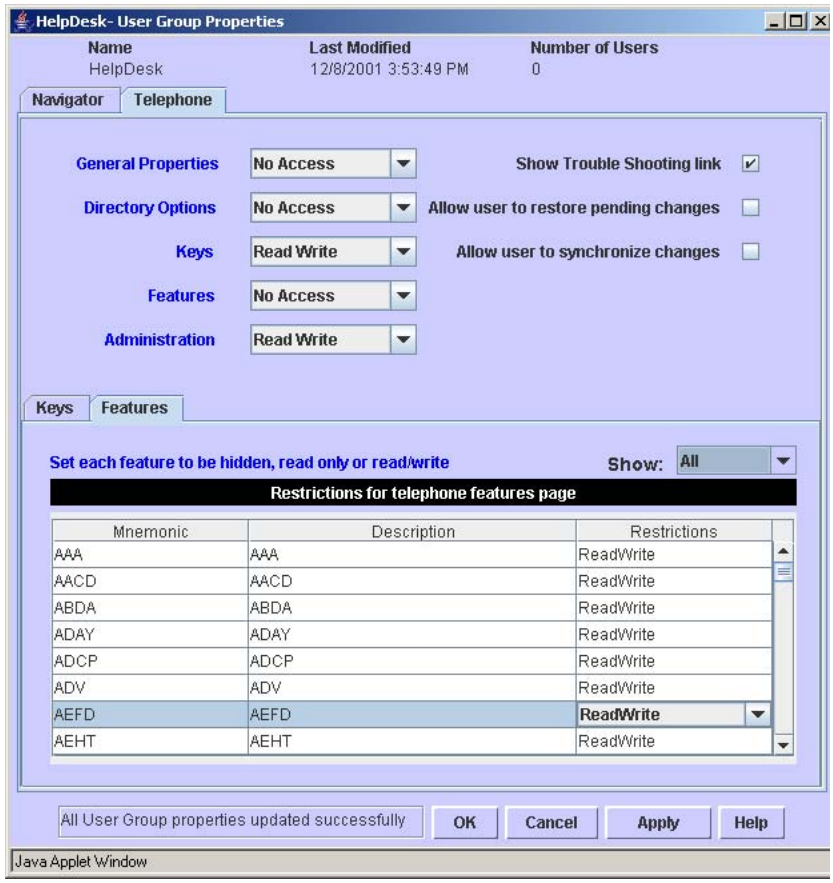
The User Group Properties pages changes to display a list of Features in the lower half of the page, as shown in Figure 326 "Telephone access properties page: Features tab" (page 644).

b. Use the **Restrictions** list to configure each feature as **ReadWrite**, **ReadOnly**, or **Hidden**.

c. As required, use the **Show** list to define the Features list to show **All**, **Hidden**, **ReadOnly**, and **ReadWrite**.

d. Click **Apply** to save the changes.

Figure 326
Telephone access properties page: Features tab



—End—

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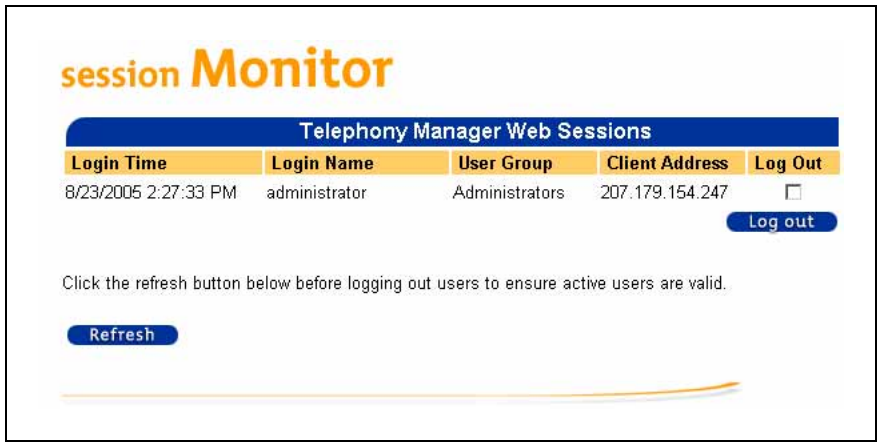
Session Monitor

Login security prevents the Web pages from being accessed without first successfully providing a valid login name and password combination. The Session Monitor page, shown in Figure 327 "Administrator Session Monitor screen" (page 645), shows a list of logged in users with their log in time and IP address.

The administrator may log out users by selecting the corresponding Log Out check boxes and then clicking Log out.

Figure 327
Administrator Session Monitor screen



Language Selection

When Telephony Manager is first installed the default settings for Language Selection is English. Use Procedure 213 "Selecting available Languages" (page 645) to change the language used by Telephony Manager.

Procedure 213
Selecting available Languages

Step	Action
1	Select **Web Administration > Language Selection** from the navigation tree. The Language Selection page appears, as shown in Figure 328 "Language Selection" (page 646).

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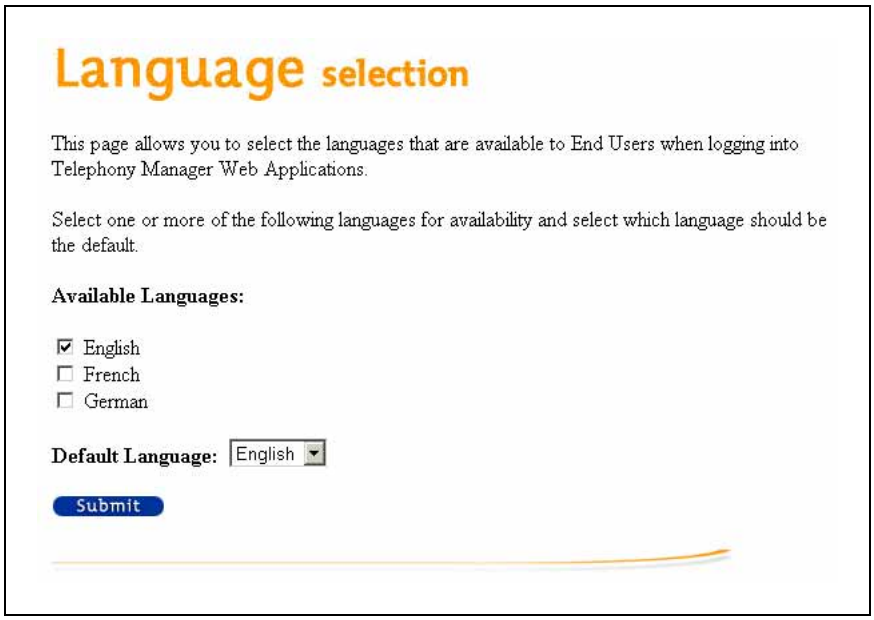
Figure 328
Language Selection



2 Select one or more of the **Available Languages** to be available to End Users.

3 Select one of the selected languages from the list to be the **Default Language**.

4 Click **Submit** to apply the changes.

—End—

If at least one language is not selected, or if the selected Default Language does not match one of the selected languages then the "Language Selection error message" window is displayed.

The changes made on this page are only applicable to End Users that go to the login page after the changes have been applied. Users that are already logged in, or that are currently viewing the End User login page will not be affected by any changes made on the Language Selection page.

End Users logging in to Telephony Manager Web Navigator

All logons take place in English, and all Web Applications are displayed in English.

A choice of language is displayed at login time. The login screen contains an extra link for each available language.

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From the default login page, the End User has the option to select a different language from those that were made available by the Administrator.

Once the user has logged into Telephony Manager from a particular login page, the language cannot be changed again for that session. The language can be changed if the user logs out and selects a new language before logging in again.

It is possible for an End User to bookmark a login page in their preferred language. For example, if the default page is English but French is also available, the user can link to the French login page and bookmark this page. Clicking the bookmark will always bring the user to the French login page. If the Administrator later removes the language that an End User has bookmarked from the available languages, the user will be forwarded to the Default Login Page instead. This also prevents End Users from modifying the HTML query string to access a language that the Administrator has not allowed them to access.

ATTENTION

To ensure the contents of the Web Station help Index pages in German or French are displayed properly, you must enable Java on the browser. To do this, follow the steps in Procedure 214 "Enabling Java on the browser" (page 647).

Procedure 214
Enabling Java on the browser

Step	Action
1	Go to **Start > Control Panel**.
2	Double-click on **Java**.
3	Select **Advanced** tab.
4	Select **Internet Explorer** check box under <APPLET> tag support.

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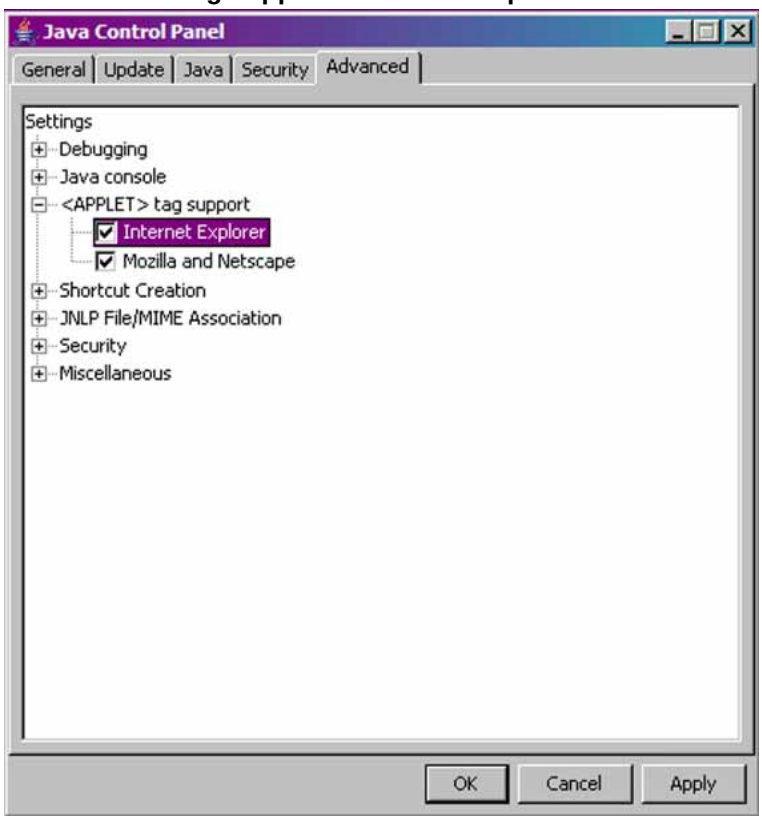
Figure 329
Java APPLET tag support in Internet Explorer



5 Click **OK**.

6 Go to **Internet Explorer > Tools > Options > Advanced**.

7 Ensure **use JRE ... for <applet> (requires restart)** is selected.

—End—

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Web Desktop Services

Contents

This section contains information on the following topics:

"Introduction" (page 649)

"Installing and configuring Desktop Services" (page 649)

"Logging in to Web Desktop Services" (page 650)

Introduction

Web Desktop Services enables users to view their employee profile, and to view and modify the configuration of their telephones using a Web browser.

The Web display includes a graphical view of the telephone, and shows the configured features. Help text is available for the features configured on the telephone. See "User groups" (page 637) for information on your ability to restrict the display of certain features to specific user groups. For example, most Class of Service "features" are irrelevant for end users; therefore, you should specify that they not appear.

The *Telephony Manager 3.1 Desktop User Guide* provides reference information for Web Desktop Services end users. Distribute copies of this manual to the end users once you have installed and configured Desktop Services.

Installing and configuring Desktop Services

Use Procedure 215 "Installing and configuring Desktop Services" (page 650) to install and configure Desktop Services.

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Procedure 215
Installing and configuring Desktop Services

Step	Action
1	Install Telephony Manager. See *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*.
2	Create Windows accounts for EndUser and HelpDesk users as required.
3	Log on to the Web Navigator as Administrator and go to the User Authentication page. To navigate to the Administrator Login page, place /admin after the Telephony Manager URL in your Web browser.
4	Configure authentication methods using the User Authentication page. See "User authentication" (page 635). Desktop Services users must be authenticated using the CND authentication method.
5	Go to the User Groups page and configure the Navigator and Telephone access properties for the HelpDesk, EndUser, and Default user groups. See "User groups" (page 637). To allow HelpDesk users to make changes to other user's telephone configuration data, make sure that they have access to Telephone Manager. To enable an End User to log in to Desktop Services, the user must have an account in CND, and that CND account must have a password.

—End—

Logging in to Web Desktop Services

Login security ensures protection against unauthorized entry and enforces access permissions for logged on users.

When a user points a Web browser to the Telephony Manager end user URL, a login page appears. If login is successful, the user's personal Desktop Service main page appears.

The end user URL is composed of the following:

- http://<ip address>/ or
- http://<server hostname>/

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Appendix A
Script file summary

Contents

This appendix contains information on the following topics:

"Introduction" (page 651)

"Buffers and scripts" (page 651)

"Common Services scripts" (page 652)

"CDR collection scripts" (page 652)

"CDR data collection from PollCat III and PollNet Netlink" (page 652)

"CDR data collection from SEB II" (page 653)

Introduction

This appendix contains a list of all of the script files used for the Telephony Manager applications. A script is a program that contains a set of commands and functions required to perform specific activities. Some scripts are defined for specific PC and Meridian 1 or CS 1000 configurations and are therefore, selected based on each user's configuration. Most Telephony Manager scripts, however, are defined for the general operation of the Telephony Manager applications and are therefore, automatically selected to perform specific functions within Telephony Manager.

Buffers and scripts

Table 54 "Buffer and Scripts" (page 651) is a general list of buffers and scripts.

Table 54
Buffer and Scripts

Buffer	Format	Script
WTI PollCat III	SL-1 New	PollSl1New.col
WTI PollCat III	SL-1 Old	PollSl1Old.col

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Buffer	Format	Script
Teltronics SEB-II	SL-1 New	SEBSL1New.col
Teltronics SEB-II	SL-1 Old	SEBSL1Old.col
MDR 2000 (with SL-1 chip)	SL-1 New or Old	mdr2000.col
MDR 2000 (w/o SL-1 chip)	SL-1 New	M2KIMG-SL1New.col
WTI PollCat NetLink	SL-1 New	PollNet-SL1New.col
WTI PollCat NetLink	SL-1 Old	PollNet-SL1Old.col
<Direct or from file>	SL -1 New	sl1new.col
<Direct or from file>	SL -1 Old	sl1old.col
WTI PollCat NetLink <FTP>	SL -1 New	PollNet_FTP_SL1New.col
WTI PollCat NetLink <FTP>	SL -1 Old	PollNet_FTP_SL1Old.col

Common Services scripts

The following script files are used by the Telephony Manager Common Services applications. They are automatically selected whenever you run Telephony Manager and apply to all of the Telephony Manager applications as a whole. You do not need to select these script files to perform a required function:

HAYESMDM.SCR	Functional script used by Common Services applications for connection with Hayes compatible modems.
CUSTMDM.SCR	Functional script used by Common Services applications for connection with customized modems.
M1MODEM.SCR	Functional support script used to access far-end equipment (for example, dispatcher modems).
ERROR.SCR	Functional script required for error handling.

CDR collection scripts

CDR data collection from PollCat III and PollNet Netlink

For the PollNet Netlink using FTP collection scripts, POLLNET_FTP_SL1NEW.COL and POLLNET_FTP_SL1OLD.COL, you must access the Data Collection Configuration function, set the Collection Type to Ethernet, and then enter the following information:

- the IP Address of the buffer unit.
- the name of the file from which collection occurs after the IP address value (for example, 10.12.0.23:PNLAST).

  If a file name is not specified, then PNLAST is used as the default file name.
- the required Login Name and Password.

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The following script files are used for data collection from the PollCat III and PollNet Netlink buffer units

POLLSL1NEW.COL	Data collection script, which collects New format CDR from the PollCat III to produce normalized CDR.
POLLSL1OLD.COL	Data collection script, which collects Old format CDR from the PollCat III to produce normalized CDR.
POLLNET-SL1NEW.COL	Data collection script, which collects New format CDR from the PollNet Netlink to produce normalized CDR.
POLLNET-SL1OLD.COL	Data collection script, which collects Old format CDR from the PollNet Netlink to produce normalized CDR.
POLLNET_FTP_SL1NEW.COL	Data collection script, which collects New format CDR from the PollNet Netlink using FTP to produce normalized CDR.
POLLNET_FTP_SL1OLD.COL	Data collection script, which collects Old format CDR from the PollNet Netlink using FTP to produce normalized CDR.

CDR data collection from SEB II

The following script files are used for data collection from the SEB II buffer unit:

SEB.SCR	CDR data collection script for SEB II buffer unit.
PARSESL1.SCR	Functional script used by SEB.SCR script file.
SEBNEWX.SCR	New format CDR data collection script for SEB II buffer unit; supports X11 Release 23.
NEWCDRX.SCR	Functional script used by SEBNEWX.SCR script file.

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Appendix B Comparison of Windows and Web interfaces

Contents

This appendix contains information on the following topics:

"Overview" (page 655)

"Telephony Manager Windows Navigator" (page 655)

"Telephony Manager Web Navigator" (page 656)

"Direct comparison" (page 656)

Overview

You can access Telephony Manager using either Telephony Manager Windows Navigator or Telephony Manager Web Navigator. You can perform many basic configuration and management tasks through either interface. This section describes the similarities and differences between the Telephony Manager Windows Navigator and the Telephony Manager Web Navigator.

Telephony Manager Windows Navigator

Telephony Manager Windows Navigator gives you access to Telephony Manager-managed systems. Through menus and folders, you can do the following:

- View, configure and administer sites, systems and users.
- Configure and administer Telephony Manager services.
- Launch utility applications.
- Display licensing and release information for all installed Telephony Manager applications.

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The Telephony Manager Windows Navigator displays sites and systems in a tree structure. When you choose a system on the tree, you can launch a System window to configure the system and launch management applications. The Telephony Manager System Navigator window displays all configured systems. When you select a system, the list of available applications appears in the window. The Telephony Manager Windows Navigator system access depends on the privileges assigned to your Telephony Manager User Group.

Telephony Manager Web Navigator

The Telephony Manager Web Navigator provides a number of the same functions available in the Telephony Manager Windows Navigator. The Telephony Manager Web Navigator allows you to view sites, systems, and users. The Web Navigator also allows you to configure and administer Telephony Manager users. Telephony Manager Web security meets the same criteria as provided by the Windows Operating Systems (OS).

One of the advantages of the Telephony Manager Web interface is the ability for users to configure their telephones through their Web browser. As an administrator, using Web Desktop Services, you can also block end user access to configuration windows. A particularly useful Desktop Services feature is the ability to customize the Help files to suit specific customer needs.

Direct comparison

Table 55 "Comparing Windows and Web Navigators" (page 656) compares the functions and applications available in the Telephony Manager Windows Navigator with those available in the Telephony Manager Web Navigator.

Table 55
Comparing Windows and Web Navigators

Telephony Manager Windows Navigator	Telephony Manager Web Navigator
Common Services	
Scheduler	System Sanity
Backup & Restore (Telephony Manager Data)	Terminal Server
Import/Export	Online Help
PC Event Log	
Compact and Repair	
License management	

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Telephony Manager Windows Navigator	Telephony Manager Web Navigator
Data Buffering and Access Online Help	
Fault Management	
PC Event Log and Viewer Event Monitor for Meridian 1 and CS 1000S Alarm Banner Alarm notification by: • pager • e-mail • file • SNMP trap forwarder	Alarm Browser (consolidated systems) • view alarms from core Meridian 1, CS 1000, ITG, Symposium Call Center Server, and CallPilot.
Configuration Management	
CND Synchronization • CND Synchronization Report Billing Synchronization • Billing Synchronization Report Corporate Directory ESN ITG Configuration DBA Backup DBA Restore	Telephone Manager • Telephone management • CND Employee Management • Scheduling Maintenance Pages • real time status of PBX hardware • sorting by type or status • enable, disable, test, and so on Customizable Web Help CND Synchronization Report Billing Synchronization Report

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Telephony Manager Windows Navigator	Telephony Manager Web Navigator
List Manager Inventory	Desktop User Access • finding telephones • viewing set configuration • changing keys and features
Accounting Management	
Telecom Billing System (TBS) • analyzes CDR from multiple switches • predefined reports • customizing of reports General Cost Allocation System (GCAS) Consolidated Reporting System (CRS) Consolidated Call Cost Reports (CCCR) Call Tracking	Telecom Billing Services (TBS) Web Reporting
Performance Management	
Traffic Analysis Call Tracking	
Security Management	
User Group Management User Management Authentication	User Group Management • Telephone Access Rights Management Authentication Web Session Monitor
System Access	
System Terminal	Virtual System Terminal

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Appendix C
Source file format

Contents

This appendix contains information on the following topics:

"Importing telephone data" (page 659)

"Valid field names" (page 659)

Importing telephone data

You can import telephone data into Telephony Manager from a data file. The data file must be a standard comma-delimited ASCII text file, with a file extension of .CSV. The first line, or record, of the file must contain the names of the fields being imported.

WARNING
Opening CSV files Microsoft Excel may reformat certain data, such as phone numbers, resulting in the loss of data that cannot be recovered if the file is saved. Nortel recommends you back up your data before opening files with Microsoft Excel.

Valid field names

The following table contains a list of all the fields in the header (for a single line set) that can be used for the import of telephone data.

Table 56
Valid field names

TN	AAA	AACD	ABDA	ACDS
ADAY	ADV	AEFD	AEHT	AFD
AGRA	AGTA	AHA	AHNT	AHOL
AOM	AOS	ARHA	ARTO	ASCA
AUT	AUTB	AUTH 1	AUTH 2	AUTH 3

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AUTH 4	AUTH 5	AUTH 6	AUTHCODE	AUTU
BAUD	BFEA	BIMP	BNRA	BOBUID
BOSYSTEM	BOTN	BUID	C6A	CAC_CIS
CAC_MFC	CCBA	CCSA	CDCA	CDEN
CDM	CDMA	CFHA	CFTA	CFWS
CFXA	CLBA	CLID_ENTRY	CLK	CLS
CLTA	CMSA	CNAA	CNIA	CNTA
CNUA	COMMENT	CORPDIR	COSTID	CPFA
CPTA	CRA	CRCS	CRPA	CSDN
CUSTOMER	CWA	CWNA	DAPA	DBA
DCD	DCFW	DCLP	DDGA	DDS
DELA	DEM	DEPARTMENT	DES	DGRP
DIG	DIGS	DIP	DIVISION	DLNG
DMC	DN	DNAA	DNDA	DNDN
DNDR	DNO1	DPUA	DRDA	DRG1
DSPL	DSPT	DTA	DTAO	DTMK
DTR	DUP	EFD	EFDK	EHT
EHTA	EHTK	ELA	EMPLOYEE FIRSTNAME	EMPLOYEE LASTNAME
EMPLOYEE REFERENCE	EQUIPMENT	EQUIPMENTCOST	ESN	EXR1
FAXA	FAXS	FBA	FCAR	FDN
FDNK	FDSA	FICA	FITA	FLXA
FNA	FRN	FSVC	FTR_ACD	FTR_ADL
FTR_AEFD	FTR_AEHT	FTR_AFD	FTR_AHNT	FTR_CFW
FTR_DCFW	FTR_EFD	FTR_EHT	FTR_FAXS	FTR_FDN
FTR_HOT_D	FTR_HOT_L	FTR_ICF	FTR_ISP	FTR_OSP
FTR_PHD	FTR_RDL	FTR_SCC	FTR_SCU	FTTC
FXSP	GPUA	GRLA	HBTA	HDID
HDLC	HFA	HMDN	HOT	HOTS
HPR	HSPA	HTA	HUNT	IAMA
IAPG	ICDA	ICT	IMA	INDX
INSTRUMENT	INT	IPNA	IRA	IRGA
ITNA	KBA	KBD	KEM	KEY0
KEY1	KEY10	KEY11	KEY12	KEY13

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KEY14	KEY15	KEY16	KEY17	KEY18
KEY19	KEY2	KEY20	KEY21	KEY22
KEY23	KEY24	KEY25	KEY26	KEY27
KEY28	KEY29	KEY3	KEY30	KEY31
KEY32	KEY33	KEY34	KEY35	KEY36
KEY37	KEY38	KEY39	KEY4	KEY40
KEY41	KEY42	KEY43	KEY44	KEY45
KEY46	KEY47	KEY48	KEY49	KEY5
KEY50	KEY51	KEY52	KEY53	KEY54
KEY55	KEY56	KEY57	KEY58	KEY59
KEY6	KEY60	KEY61	KEY62	KEY63
KEY64	KEY65	KEY66	KEY67	KEY68
KEY69	KEY7	KEY70	KEY71	KEY72
KEY73	KEY74	KEY75	KEY76	KEY77
KEY78	KEY79	KEY8	KEY9	LASTDOWN LOADEDON
LASTUP DATEDBY	LASTUP DATEDON	LASTUP LOADEDON	LDN	LDTA
LHK	LLCN	LMPN	LNA	LNRS
LOCATION	LOL	LPA	LPK	LTN
LVXA	MBXA	MCRA	MCTA	MIN
MINA	MLNG	MLWU_LANG	MMA	MOAA
MOD	MODL	MOTN	MPHI	MRA
MSIA	MTA	MWA	MWUN	NAIA
NAMA	NCOS	NHTN	NIA	NOVA
NRCA	NROA	NRWA	NUID	OBPA
OCBA	OHID	OLA	ONDA	OPS
OUSA	OVDA	PAR	PBDO	PCWA
PGNA	PHD	PHTA	PLEV	POA
PRI	PRIMEDN	PRM	PRMA	PRSA
PSDS	PSEL	PUA	PUTYP	PVLN
RBDA	RBHA	RCBA	RCC	RCO
RDI	RDL	RDLA	RLFA	RMMA
"RNG B/I, BUZZ"	RNPG	RTDA	RTS	SCI
SCPW	SFA	SFDN	SFLT	SGRP

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SITE	SLKA	SMSA	SMWA	SPID
SPKA	SPV	SSU	STSA	SWA
SYNCSTATUS	SYSTEM	T87A	TEN	TENA
TGAR	THFA	TIMP	TOV	TRAN
TSA	TVA	ULAA	USER0	USER1
USER2	USER3	USER4	USER5	USER6
USER7	USER8	USER9	USERID	USMA
USRA	V25	VISI	VLL	VMA
VOLA	VOUA	VSIT	WIRE	WRLS
WTA	WTYP	XFA	XHA	XLST
XRA	ZONE			

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Nortel Communication Server 1000

Telephony Manager 3.1 System Administration

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