555-4001-012

Meridian SL-100

# Enhanced MAP (EMAP) Workstation

## Product Guide

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NORTEL NETWORKS™

Meridian SL-100

# Enhanced MAP (EMAP) Workstation

## Product Guide

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# Publication history

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Revision 04.04. Standard release. Revised to reflect changes in color template.

**November 1996**

Revision 04.03. Standard release. Revised to reflect changes in hardware and software platform, add Helmsman technical specifications, update Helmsman functionality, and update and expand the MAP functionality.

**September 1996**

Revision 04.02. Preliminary release. Revised to reflect changes in hardware and software platform, add Helmsman technical specifications, update Helmsman functionality, and update and expand the MAP functionality.

**August 1994**

Revision 04.01. This version promides formatting and standards changes in accordance with software evolution

**November 1992**

Revision 03.01. Revised to update CD–ROM information. COMPASS specific information was removed.

**November 1992**

Revision 02.01. Revised to reduce the level of specificity within the configuration list.  Components are addressed generically rather than with specific brand names and models. Updated to include Helmsman information.

**November 1991**

Release 01.02. This version adds a requirement to the Communications Option as part of the workstation required settings.

**June 1991**

Initial release. This version documents the Enhanced MAP Workstation (EMAP) that combines the functionality of a MAP and a CD–ROM drive into one workstation. This document applies to offices with BCS28 or higher.

# Contents

# About this document

## When to use this document

This document provides information on the Enhanced MAP (EMAP) workstation. The EMAP workstation combines the functionality of the MAP workstation and a compact disc (CD) drive into one workstation. This document provides an overview of this product, installation procedures, MAP functions, CD–ROM electronic documentation functions, and a description of how MAP workstation and the CD–ROM functions can be performed simultaneously.

This document contains the following chapters:

- Chapter 1: Overview
- Chapter 2: Installation
- Chapter 3: MAP functions on the EMAP workstation
- Chapter 4: CD–ROM functions on the EMAP workstation
- Chapter 5: List of terms

## How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in Commercial Systems Master Index of Publications, 555–4031–001. The Defense Switched Network Master

Index of Publications, 555–4021–001 provides a list of documents related to the SL–100 Defense Switched Network (DSN) product.

## References in this document

The following list shows additional related publications. These publications are referred to in appropriate places in the text.

- 297–1001–129 Input/Output System Reference Manual
- 555–4021–851 DSN Customer Data Schema
- 555–4031–851 Commercial Systems Customer Data Schema
- 297–1001–520 Maintenance System Man–Machine Interface Description
- 297–1001–594 Line Maintenance Guide
- 297–1001–595 Trunks Maintenance Guide
- 297–1001–820 Non–menu Command Reference Manual
- 297–1001–821 Menu Commands Reference Manual
- 555–4001–011 Service Operation Support
- P6319 Helmsman Viewer Applications User's Guide for MS–DOS

***Note:*** More than one version of these documents may exist. To determine which version of a document applies to the MSL in your office, check the release information in the Commercial Systems Master Index of Publications, 555–4031–001 or the Defense Switched Network Master Index of Publications, 555–4021–001 as appropriate.

## What precautionary messages mean

The types of precautionary messages used in Northern Telecom (Nortel) documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

**ATTENTION**
If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

**DANGER**
**Risk of electrocution**
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING Possibility of equipment damage

**DANGER**
**Damage to the backplane connector pins**
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION Possibility of service interruption or degradation

**CAUTION**
**Possible loss of service**
Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

## How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

### Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

```
>BSY
```

### Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

### Variables

Variables are shown in lowercase letters:

```
>BSY CTRL ctrl_no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

### Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.

FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

**Procedure 1 Command syntax usage**

***At your location***

**1** Manually busy the CTRL on the inactive plane by typing

```
>BSY CTRL ctrl_no
```

and pressing the Enter key.

*where*

ctrl_no is the number of the CTRL (0 or 1)

*Example of a MAP response*:

*FP 3 Busy CTRL 0: Command request has been submitted.*

*FP 3 Busy CTRL 0: Command passed.*



# Overview

The Enhanced MAP (EMAP) workstation combines the functionality of the MAP visual display unit (VDU) and a CD–ROM drive into one workstation. This workstation provides Meridian SL–100 technicians with the ability to perform tasks on the MAP window and access electronic documentation (over the CD–ROM drive) simultaneously. The workstation design provides for true multitasking to accomplish those tasks.

## Maintenance and Administration Position (MAP)

The MAP workstation provides an interface between telecommunications personnel and the Meridian SL–100 system.

The following tasks can be performed at the MAP workstation:

- general maintenance (error detection and diagnosis)
- administration (for example, network management, and customer data modification)
- trunk testing

Refer to Input/output System Reference Manual, 297–1001–129 for detailed information on MAP functions and procedures.

## CD–ROM drive

Electronic documentation accessed through the EMAP workstation provided on CD–ROM contains the latest Northern Telecom publications (NTP) available for the office configuration. Extensive search functions provided by the Helmsman software allow users to search virtually every word of every document. One CD–ROM stores approximately 200,000 pages of text and graphics. Document appearance does not change, regardless of whether the document is viewed or printed. Helmsman’s full–text searching is enhanced with options that further define the search requirements, such as Boolean (and/or/not) logic, wildcard, depluralization, special character, proximity, and zone searching. Other Helmsman capabilities include annotation and bookmark, copy and paste, thesaurus, dictionary, and

navigational options. Descriptions and functions of the features delivered with Helmsman are provided in Section 4. Refer to Helmsman Viewer Application Users guide for MS–DOS, P6319, for additional information on Helmsman.

## EMAP workstation advantages

By combining MAP and Helmsman capabilities, the user obtains several distinct advantages over stand–alone systems:

- More work space is available at the MAP workstation.
- Electronic documentation and the MAP documentation reside on the same platform, giving users easily accessed information on MAP procedures.
- Users can develop scripts using the communications software or purchase third–party network management software.
- The EMAP workstation also functions as a training station, providing the capability of guiding technicians through maintenance, administrative, or testing procedures with the help of supporting documentation.

## Hardware and software

Northern Telecom (Nortel) provides service and support for all hardware and Helmsman software that is sourced to the customer. If the customer uses hardware that is not specific to the sourced components of the configuration, Nortel will not support the configuration. Nortel also cannot guarantee that future issues of the Helmsman software will be compatible with customer–supplied hardware.

### Minimum requirements

The following are the minimum requirements for EMAP to operate.

#### 80386 microprocessor

The EMAP must use a 80386 microprocessor–based computer to perform its functions adequately. Helmsman also requires an 80386 microprocessor for operation at a speed that meets performance objectives.

The workstation must also contain at least one high–density floppy drive.

#### Memory

A minimum of 4 MB internal memory is required to allow flexibility in multitasking applications and to operate the CD–ROM drive, Microsoft Windows, and the communications program.

**Hard drive**
The EMAP requires a hard drive with a minimum of 40 MB of memory.

**Monitor**
A standard VGA monitor can be used. The EMAP can also operate with select high–resolution monitors and cards. The pixel resolution should be detailed enough so that the electronic documentation and SL–100 system output can be easily read.

**CD–ROM drive**
For optimal performance, the EMAP requires a CD–ROM drive that transfers data at a sustained rate of at least 150 KB/s and at a burst rate of at least 600 KB/s. The CD–ROM drive must also support High Sierra/ ISO 9660 format. A corresponding CD–ROM interface card is also required. The average access time for the computer to the drive should be no more than 0.5 second. Microsoft CD–ROM Extensions, which allows access to the CD–ROM drive, must be installed on the computer. CD–ROM Extensions should be provided with the CD–ROM drive.

**PostScript printer**
The Helmsman system requires a PostScript printer and appropriate drivers.

**Mouse**
The EMAP requires a mouse. The mouse enables some features of the EMAP to be used more easily. Pull–down menus and use of Microsoft Windows becomes much easier with a mouse.

A serial or bus mouse can be used. A serial mouse requires an open serial port on the back of the computer. A bus mouse requires installation of the bus board inside the computer. An open slot for the bus board must be available.

**Switch interface**
The EMAP platform should be used with either a 1200–baud modem or a current loop interface.

### Software

**CAUTION**
**Incompatible version**
Do not use DOS version 4.0. MicroSoft CD-ROM.

The DOS platform requires the following software packages to operate: DOS 3.3 version, or later, and Windows 3.1, or later.

Windows 3.1, or later, provides the capability of true multitasking for the DOS platform. (Multitasking represents the simultaneous operation of two applications.) This ability becomes very important for users trying to locate information from the CD–ROM while performing various tasks within the command interpreter.

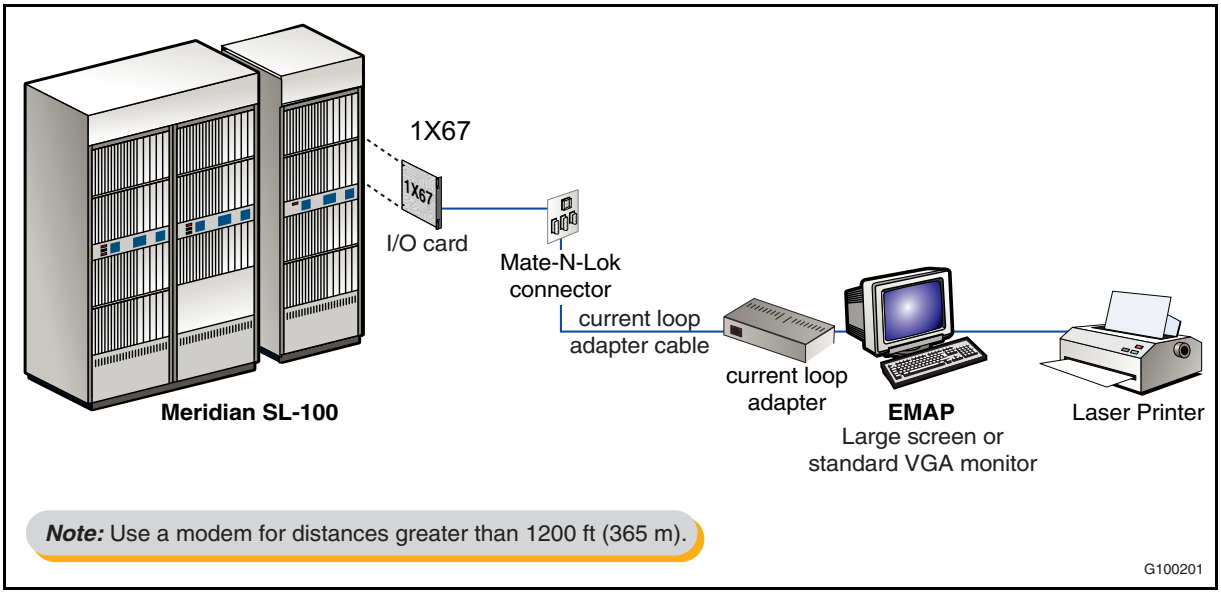
An additional software package, MicroPhone II, is required for communications. This package adds greater flexibility in interfacing with the SL–100 system.

### Modem or current loop options

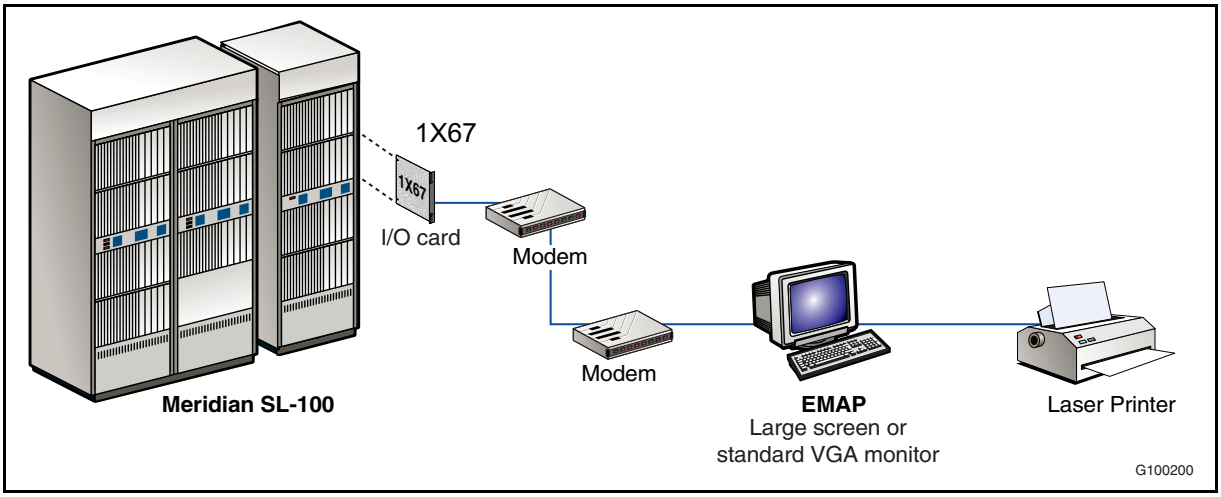
To complete the configuration, connectivity to the SL–100 system can be accomplished either through a modem or a current loop adapter.

See Figure: “Enhanced MAP configuration (with current loop adapter)” on page 17 for an example of the EMAP configuration with a current loop adapter. See Figure “Enhanced MAP configuration (with modem)” on page 17 for the EMAP configuration using a modem.

### Enhanced MAP configuration (with current loop adapter)




### Enhanced MAP configuration (with modem)




## Service operation support

Nortel Data Services provides a one–year, on–site warranty for the EMAP workstation. Nortel also provides the following service operation support:

- Repair/replacement: This service is implemented when circuit pack and vendor product repairs are necessary.
- Technical assistance services: This support consists of a centralized team of highly trained personnel that provides emergency technical assistance, routine technical assistance, and a technical information service.

- Network support policies: This policy covers services of all current and future installations of Meridian SL–100 equipment and software. The policy defines the current service relationship between Nortel and the prime service provider for Meridian SL–100 equipment.
- Documentation services: Nortel provides electronic documentation through the Helmsman System. The initial documentation set includes NTPs, General Specifications (GS), and marketing literature.
- Maintenance services: On–site maintenance offers a range of services from preventive maintenance to installation activities for total EMAP workstation maintenance.
- Training services: Nortel maintains extensive training programs that include job–based training, computer–based training, and training consultation services.
- Extended service plan: This package offers support services beyond the initial warranty period. Nortel offers two service types: standard and optional. Post–warranty EMAP support is optional within an Extended Service Plan.

For detailed information on services and telephone contacts in case service or technical assistance is needed, refer to Service Operation Support, 555–4001–011.



# Installation

## Installation requirements

The EMAP workstation comes to each site fully configured if ordered from Northern Telecom (Nortel). This includes configuration of all hardware and installation of all software. Once the EMAP workstation is placed at the customer site, the only installation requirements include setting up the hardware, datafilling the input/output (I/O) port, connecting the cables to the host switch, powering on the system, and establishing the settings on the workstation.

**CAUTION**
**Do not configure the EMAP workstation as MAP 0**
MAP functions on the EMAP must always be set up as a secondary provider of MAP functions.

## Setting up hardware

Refer to the appropriate manufacturer's existing documentation for instructions on setting up the hardware.

## Datafilling the I/O port

Table , "TERMDEV datafill," on page 20 shows the datafill requirements for the EMAP workstation in Table TERMDEV (terminal device). Refer to DSN Customer Data Schema, 555–4021–851 or Commercial Systems Customer Data Schema, 555–4031–851, as applicable, for detailed explanations of TERMDEV fields and any associated restrictions. Several values listed in the table correspond to the workstation settings described later in this chapter. Figure "Table TERMDEV datafill example" on page 21 shows an example of table TERMDEV datafill.

## Connecting cables

Protection from electrical surges involves connection of a current loop adapter provides grounding isolation between the EMAP workstation

and the NT1X67 controller card in the input/output controller (IOC). Figure “Connection between SL–100 and EMAP workstation (Option 1)” on page 22 and Figure “Connection between SL–100 and EMAP workstation (Option 2)” on page 23 show the connection between the IOC and the EMAP workstation.

Use only switch–side cables that are job engineered by Nortel

**TERMDEV datafill**

| Field name | Entry | Explanation |
|---|---|---|
| TERMDES | 1-8 alphanumeric characters | Terminal designation<br>Enter the terminal name defined by the operating company. |
| IOCNO | 0-9 | Input/output controller number<br>Enter the IOC to which the terminal is assigned. (Refer to data schema Table MTD for fixed IOC assignments.) |
| CKTNO | 0-35 | Input/output controller circuit number<br>Enter the IOC circuit number to which the terminal is assigned. |
| TERMTYPE | VT100 | Terminal type<br>Enter VT100 as the terminal type. |
| BAUDRT | B2400 | Baud rate<br>Enter a baud rate of either B1200 or B2400. |
| INTYP | CL or EIA | Interface type<br>Enter CL for current loop. Enter EIA (Electronic Industries Association Interface) if the terminal device is equipped with a modem. |
| EQPEC | 1X67AA, 1X67AB, 1X67AC, 1X67BC, 1X67BD, 1X67CA, or 1X67CB | Equipment product engineering code<br>Enter the PEC of the terminal controller circuit pack. |
| PRTY | NONE | Parity<br>Enter NONE for the terminal device parity. |

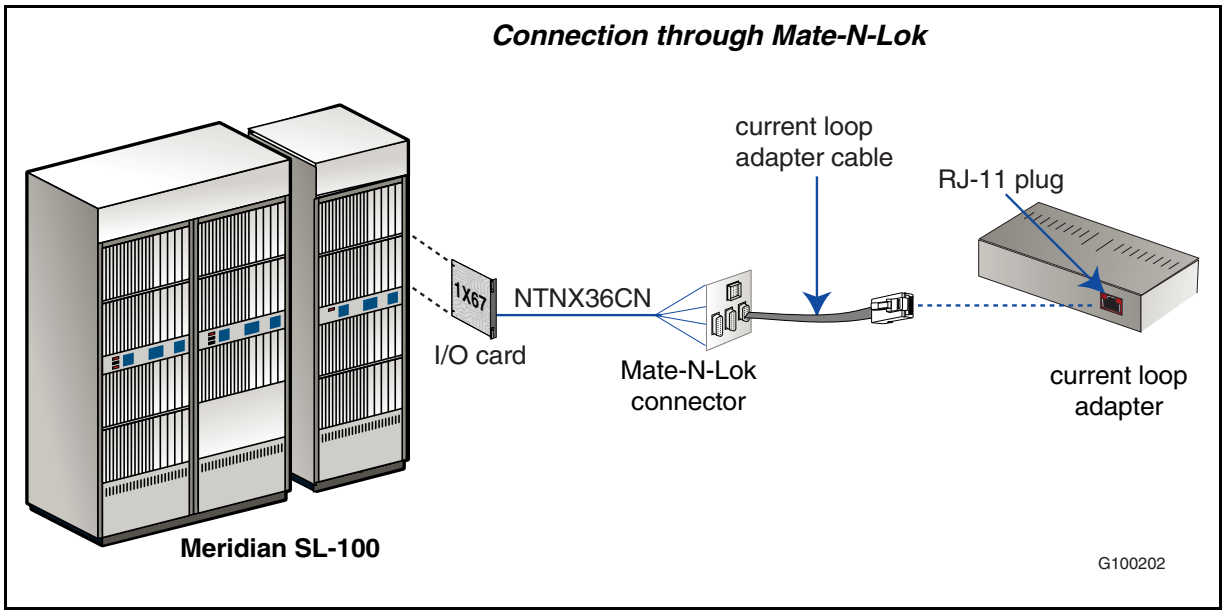
### TERMDEV datafill

| Field name | Entry | Explanation |
|---|---|---|
| GUAR | Y or N | Guaranteed device<br>Enter Y for a guaranteed device (continues to run despite call processing or maintenance load). Enter N for a non–guaranteed device. |
| MODEM | NONE | Modem type<br>Enter the type of modem (if any) connected to the corresponding port. |
| COMCLASS | ALL | Command class<br>Enter the command classes allowed for the terminal device. Enter NONE if no one is allowed any commands on the terminal. Enter ALL if there are no restrictions for any command for the terminal. |
| CKERDISC | Y or N | CkEr alarm or disconnected device<br>Enter Y if the device will cause a Cker alarm when it is in the disconnected state. Otherwise, enter N. |

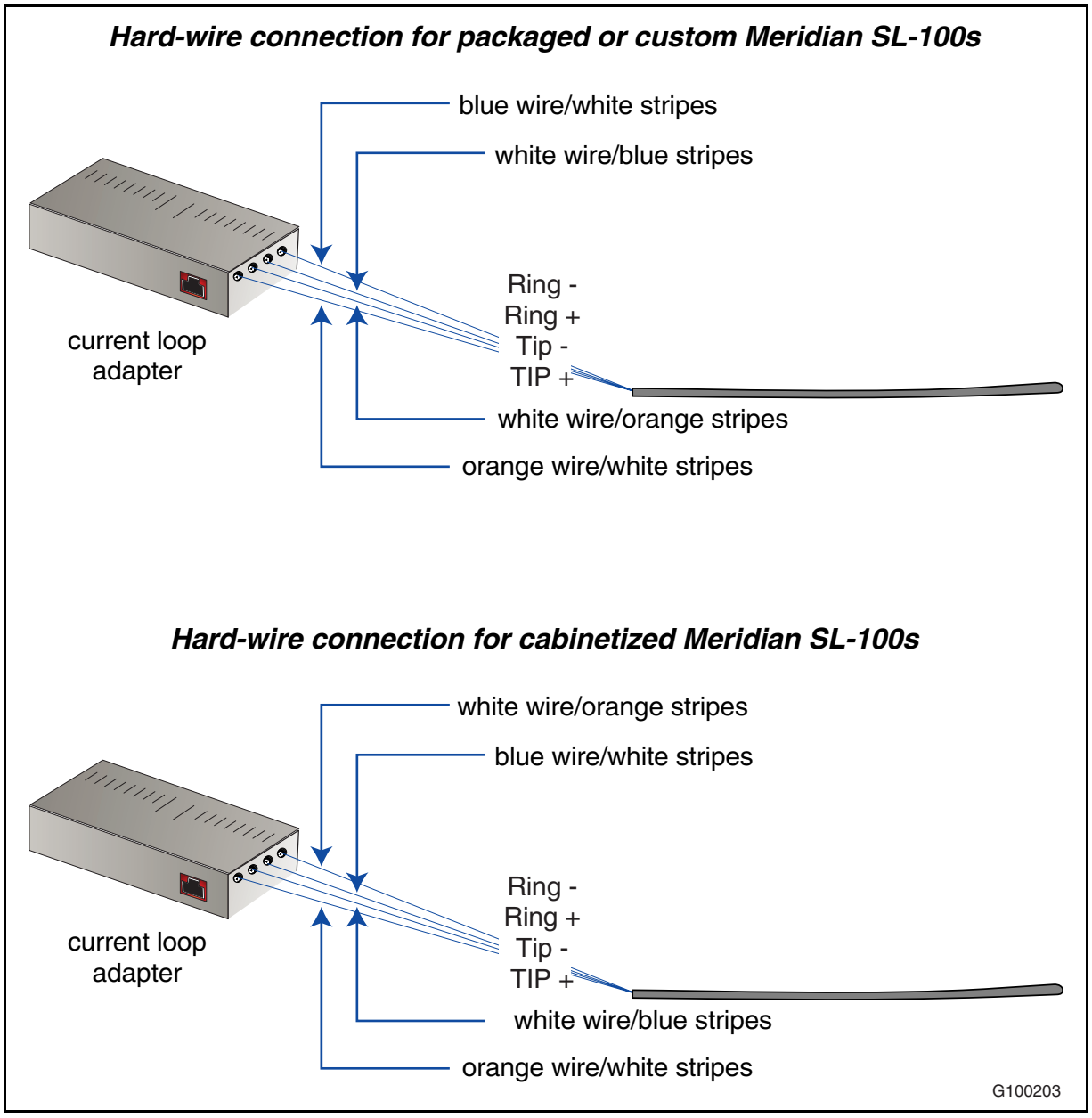
**Table TERMDEV datafill example**

```
TERMDES IOCNO CKTNO TERMTYPE BAUDRT INTYPE PECCODE PRTY
GUAR  MODEM
               COMCLASS
             CKERDISC
-------------------------------------------------------------------------
EMAP      0     10     VT100    B2400    CL    1X67BD  NONE
N     NONE
                     ALL
                  N
```

## Connection between SL–100 and EMAP workstation (Option 1)



## Connection between SL–100 and EMAP workstation (Option 2)




If a modem is used to connect the EMAP workstation to the SL–100 system, the current loop adapter is not required. In this case, the modem acts as the isolation barrier for the system. (Modems are used if the EMAP workstation is located 1200 ft or farther from the SL–100 system.) Refer to Chapter 1 for additional information on the EMAP configuration with a modem.

As shown in Figure “Connection between SL–100 and EMAP workstation (Option 1)” on page 22 and Figure “Connection between SL–100 and EMAP workstation (Option 2)” on page 23, two methods can be used for connection between the IOC and the current loop adapter. The first option involves running the current loop cable from the IOC with the four–wire connection to a Mate–N–Lok connector. A jumper wire then connects the Mate–N–Lok to the RJ–11 plug on the current loop adapter. Nortel uses this method exclusively when installing the connection and the current loop adapter.

However, Figure “Connection between SL–100 and EMAP workstation (Option 2)” on page 23 shows the second option in case the customer prefers to hard wire the connection instead. Use the information in Table , “Screw terminal connection,” on page 24 to determine which wire connects to which screw terminal on the current loop adapter, depending on whether the SL–100 system is custom, packaged, or cabinetized. If a hard–wire connection is made, disregard Black Box manual connection instructions. Use the information provided in Figure “Connection between SL–100 and EMAP workstation (Option 2)” on page 23 and Table , “Screw terminal connection,” on page 24 to hard wire the connection.

**Screw terminal connection**

| Wire color code from current loop cable (packaged & custom) | Wire color code from current loop cable (cabinetized) | Corresponding screw terminal on current loop adapter |
|---|---|---|
| White wire/orange stripes (Pin #2) | White wire/blue stripes (Pin #2) | Tip - (Pin #2) |
| Blue wire/white stripes (Pin #3) | White wire/orange stripes (Pin #3) | Ring - (Pin #4) |
| orange wire/white stripes (Pin #5 | Orange wire/white stripes (Pin #5) | Tip + (Pin #1) |
| White wire/blue stripes (Pin #7) | Blue wire/white stripes (Pin #7) | Ring + (Pin #3) |

## Establishing settings on the workstation

Settings are established before installation of the EMAP workstation. If settings need to be changed, the following information shows required and optional settings. These settings are accessed in the MicroPhone window under the Settings menu. All optional settings can be left at the default values, or users can change them according to their own preference.

Once settings have been chosen, select the OK button with the mouse to save those settings for the current session. Select either the Save Settings option or Save Settings As... option from the File menu to save the settings for future use.

### Required settings

There are three required settings from the Settings menu:

- Settings menu -> communications option
- Settings menu -> terminal option
- Settings menu -> system preferences option

#### Settings menu -> Communications option

Select the following settings from the Communications option in the Settings menu:

- baud rate: either 1200 or 2400 baud, depending on the office
- bits per character: 8
- stop bits: 1
- parity: none
- flow control: Xon/Xoff
- communication port: COM1

**Settings menu -> terminal option**
Select the terminal type setting of VT100 from the terminal option in the Settings menu.

- character set: ASCII

**Settings menu -> system preferences option**
Select the following settings from the system preferences option in the Settings menu:

- size of save buffer: 20K

  ***Note 1:*** When the save buffer size is changed from the default 40K value to 20K, the system displays the message “Shrinking save buffer to 20K will clear all data. Is this OK?”

  ***Note 2:*** If full screen and 1024x768 screen display are used, set the save buffer size to 10K.

- Display buffer full: No

**Optional settings**
There are two optional settings from the Settings menu:

- Settings menu -> communications option
- Settings menu -> terminal option
- Settings menu -> system preferences option

**Settings menu -> terminal option**
This option allows selection of terminal emulation and the parameters required for that emulation. The following settings may be helpful to EMAP performance.

- columns: This setting determines whether column width is 80 or 132 characters. (If the 132–character option is chosen, use the bottom scroll bar if the screen is not large enough.)
- font size: This setting specifies whether 9–point or 12–point font size is used in the terminal window.
- cursor shape: This setting allows the user to choose between a block–shaped cursor or an underline cursor.
- local echo: If this setting is selected, the MicroPhone package displays characters in the terminal window as they are typed.
- new line: This setting specifies whether a carriage return or carriage return/line feed is transmitted when the Enter key is pressed. This option applies only to a terminal type of VT100. This option should

be selected if the system expects line feeds following carriage returns.

- auto wraparound: This setting specifies if text exceeding the width of the screen automatically wraps to the next line. If this setting is selected, text automatically wraps to the next line.

**Settings menu -> system preferences option**
This option allows users to select settings that affect general MicroPhone operations:

- default document name: MicroPhone automatically loads default settings from a file named MICPHONE.MDC. However, with this option, users can choose one of their own settings documents to be used at startup. Enter the name of the chosen settings document in this field.
- use internal X–on\X–off: This option allows the user to disable the Windows system X–on/X–off, which is a flow control method common to communications programs. If this option is selected (Yes), the MicroPhone package relieves the serial driver from using flow control, and control remains with the MicroPhone package.

## Changing screen resolution

It may be desired to change the screen resolution after using the EMAP workstation for a period of time. If so, refer to the appropriate Windows documentation on how to change the screen resolution.



# MAP functions on the EMAP workstation

## Overview of MAP capabilities

The MAP workstation provides the interface between telecommunications personnel and the Meridian SL–100. The tasks performed on the MAP workstation include the following functions: general maintenance (error detection and diagnosis), administration (for example, network management and customer data modification), and trunk testing.

A single MAP workstation operates as the interface between telecommunications personnel and the system for small–office applications. However, multiple MAP workstations can operate concurrently for larger systems. In this case, MAP functions on the EMAP workstation should not be the primary interface. The EMAP workstation should always be set up as a secondary provider of MAP functions.

The current MAP VDU and the MAP application on the EMAP function exactly the same. There is no difference between MAP commands or functions on the VDU or EMAP workstation.

Refer to Input/output System Reference Manual, 297–1001–129 for detailed information on MAP functions and procedures.

### General maintenance

To make fault isolation easier, the MAP function uses a telescoping process. This process follows a branching scheme to determine the smallest replaceable unit that can be changed to restore system status to normal.

The MAP terminal displays different status levels of the system, subsystem, or both in the system status and work areas of the MAP window. The system constantly updates the data for each of these

levels in real time. A command menu corresponds to each level, and the user performs these commands at that level of interrogation. Level 1 status represents the highest level of status reporting. The system displays this information on the first three lines of the MAP window (system status area in Figure “MAPCI window on EMAP workstation” on page 32). The first line consists of the following maintenance subsystem headers:

- CM (computing module)
- MS (message switch)
- IOD (input/output devices)
- Net (network modules)
- PM (peripheral modules)
- CCS (common channel signaling)
- Lns (lines)
- Trks (trunks)
- Ext (external alarms)
- Appl (applications)

The second line contains status information for the particular subsystem. The information displayed at any time for any subsystem represents the highest severity of off–normal conditions in that subsystem. A dot (.) in the subsystem status data field indicates normal status. The third line contains the alarm status information.

The Level 1 menu consists of items corresponding to each of the maintenance subsystem headers and a Quit command. Each command corresponds to a menu numbered from 0 through 18 (excluding 1). The user enters one of these numbers to access the Level 2 status of the chosen subsystem. The Level 2 menu displays after the status information.

The Level 2 status (or subsystem status) indications consist of specific data on the subsystem components. This information consists of numerical data (showing quantitative values indicating non functioning elements) or single alphabetic characters (showing qualitative status or alarm conditions).

Some subsystems must be considered at lower levels to determine faulty components. This determination is made through accessing third and fourth level status information and the corresponding menus. When the lowest level is reached for a particular subsystem, the system

displays the identity of the faulty component in the command interpreter output area.

### Administration

The MAP workstation allows the use of specific commands to enter information into the system such as for network management or customer data modification. Refer to the User–Machine Interface (UMI) series of NTPs for a list of all possible commands, responses, and detailed descriptions. For example, Maintenance System User–Machine Interface Description, 297–1001–520, describes UMI for the maintenance system.

### Trunk testing

Up to 64 MAP workstations can be used as trunk or line test positions (TTPs or LTPs). The number of MAP workstations assigned as TTP or LTP depends on system provisioning. Refer to Trunks Maintenance Guide, 297–1001–595, and Lines Maintenance Guide, 297–1001–594, for detailed information on TTP/LTP and the associated UMI.

## Using Microsoft Windows

The Microsoft Windows operating environment works with MS–DOS and allows users to work with several applications simultaneously. The EMAP workstation is designed to use Microsoft Windows (3.1 or later) to make access to both MAP and Helmsman functions easy. Switching between applications only requires a few keystrokes or a click of the mouse.

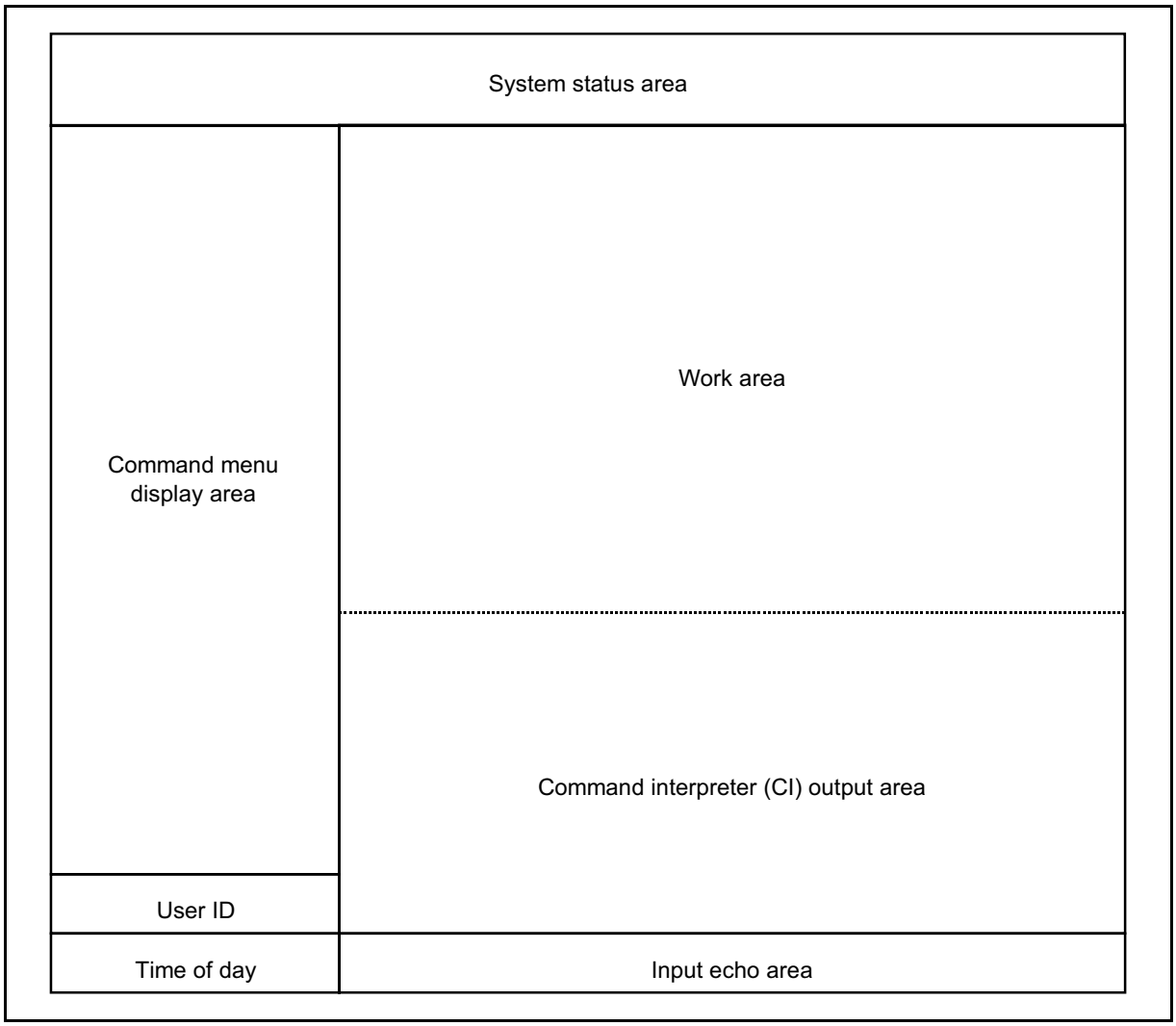
The Windows environment contains several areas that simplify use of the workstation. Figure “MAPCI window on EMAP workstation” on page 32 shows the main areas of the MAPCI (command interpreter) window within Microsoft Windows communication program. The following information describes the areas shown in the figure:

- System status area: This 3–line by 80–character area indicates alarms and the operational status of the system. The SL–100 automatically updates this information as changes occur.
- Work area: This area consists of a variable number of lines up to 68 characters wide. The work area provides descending levels of subsystem status and displays working data (such as voltage and frequency levels applied to and measured on posted trunks).
- Command menu display area: This 20–line by 12–character area defines the functions that can be performed on the MAP workstation at any given time.
- Command interpreter output area: This area consists of a variable number of lines up to 68 characters wide. This area provides the following information: system report output (including errors, action

taken, and diagnostic messages) and system responses to commands entered by the user.

- Input echo area: This 1–line by 68–character area provides an echo of the most recent operator input command string. User identification: This area consists of one line up to 12 characters wide.
- User identification: This area consists of one line up to 12 characters wide.
- Time of day: This area consists of one line up to 12 characters wide.

**MAPCI window on EMAP workstation**



## Accessing MAP functions on the EMAP workstation

The following procedure shows the steps necessary to access MAP functions on the EMAP workstation.

**Access MAP functions on the EMAP workstation**

***At your EMAP workstation:***

**1** Click twice with the mouse on the MicroPhone II application icon.

Response: The MicroPhone II logo screen appears for a few seconds, then a MAP window opens.

**2** Enter Alt

Response: Sends a break to the SL–100 to login.

**3** Enter necessary command to access various MAP functions (for example, SERVORD or MAPCI).

Response: None

### Changing the window size

The size of the window itself can be changed using the mouse. Move the cursor to any window corner. The cursor becomes a double arrow when placed in the correct spot. Press the mouse button, and drag the window across the screen to the desired size. Once the window is at the right size, release the mouse button. This option becomes very useful when working in more than one window at a time (such as separate Helmsman and MAP sessions).

### Moving window from back to front

If more than one window is open, a simple technique moves a window from back to front. Use the mouse to click in the upper bar of the window in the back. That window is then moved to the front for easy access.

### Opening a Helmsman session

A Helmsman session can be opened while the original session is still in progress. The window displays two boxes in the upper, right–hand corner. Each box shows a solid arrow (one pointing up and one pointing down). Select the left box (with the arrow pointing down) using the mouse. This action reduces the current session to an icon. The session is still running, however, it appears as an icon at the bottom of the screen.

Click twice on the Helmsman icon. That session begins, but the original session is still represented by an icon. If necessary, move the second session window to access the first session icon. Click on the icon using

the mouse to re–open the original session. Either window can be resized at any time to make access easier.

## Exiting a MAP session

The following procedure shows the steps for exiting from a MAP session to the C> prompt. If the Windows session is to stay running, stop after Step 2.

**Exit a MAP session**

***At your EMAP workstation:***

**1** Select Exit in the File menu.

Response: The Program Manager icon appears.

**2** Click once on the Program Manager icon with the mouse.

Response: Program Manager options appear.

**3** Select Close.

Response: The system displays a box with the message This will end your Windows session.

**4** Select OK.

Response: The system ends the session and returns to the C> prompt.

## Rebooting the system

The EMAP workstation reacts just as other computers do when rebooted. If the system locks, press the CTRL/ALT/DEL keys at the same time. This action reboots the EMAP workstation and brings the system up to the Program Manager level. MAP or Helmsman sessions can then be accessed again.

## Menu and non–menu commands

The commands used at a MAP are divided into two categories, menu and nonmenu:

- Menu commands are associated with a MAP display containing a numbered list or menu of commands and parameters when the level or sublevel from which the commands are entered is accessed. Commands that can be executed from an accessed menu, but are

not displayed, are called hidden commands. The level from which a menu command is entered is referred to as its menu or menu level.

***Note 1:*** Menus may not always appear when a menu level or sublevel is accessed, such as when displays have been suppressed with the command mapci nodisp.

***Note 2:*** Hidden commands may be seen when the menu level has been accessed by entering the listst (listst_) command and printing the top directory (print dir_<name>).

- Non–menu commands are not associated with a MAP display even when the level or sublevel from which they may be entered is accessed. The level from which a non–menu command is entered is referred to as its directory or directory level.

  ***Note:*** Non–menu commands are seen when the directory level is accessed by entering the print command with the name of the directory (print dir_<name>).

## Methods for entering commands and their parameters

The following groups of functions are performed in the Input/Output system

- security and access control
- command screening
- report routing
- search and display (browse) of log reports

### Security and access control

Security and access control consists of two commands: LOGINCONTROL and PASSWORD. LOGINCONTROL controls LOGIN access, defines which IOD can be used for LOGIN, and sets the conditions under which the device cannot be used for LOGIN. PASSWORD changes a user's own password. Only the ADMIN user can change another user's password.

### Command screening

Command screening ensures that terminals are only used for their assigned tasks. For example, a terminal assigned to service orders does not need access to the commands used by a network management terminal.)

### Report routing

Reports route from the log system buffers to an input/output device (IOD), where they are printed, displayed, or stored. The routing of these reports is performed by the routing and reporting subsystem. This subsystem is controlled by three data tables, which provide basic permanent routing, and LOGUTIL commands, which can temporarily change the basic routing.

Basic routing is established by entries in data tables LOGCLASS, LOGDEV, and TERMDEV. Basic routing can be changed in table editor only.

Temporary routing changes are made by way of routing commands, which supersede the permanent entries in tables LOGCLASS and TERMDEV, which govern routing. Permanent routing can be restored manually by the RESETROUTE command. or automatically at system restart.

### Search and display (browse)

After the log system has been accessed, the search and display (browse) capability is operable using the LOGUTIL command.

## Translations tools

Table editor is a translations tool that is inherent to the SL–100 Family equipment. Table editor allows for the manipulation of tables. Tools available are:

- table editor
- pending order subsystem
- translations verification (TRAVER)
- service order system (SERVORD)
- utility commands
- store file
- DUMPTAB and DMOPRO

### Table editor

The data for a given office is located in the software structure known as tables and subtables. Each table has a unique table structure and contains information relative to its function. For example, table TERMDEV (terminal device) stores information about video display units (VDU), printers, and modems associated with a given switch. The information contained in tables defines the configuration of a switch.

There are several hundred tables at work in the average switch.

Table editor consists of a set of commands that enable the user to create or modify office data table entries. The tables and table editor are part of the database software.

Table editor commands are entered by typing in commands using the keyboard of a teleprinter (TPR) or the keyboard of a MAP workstation. The results of the commands are displayed on the MAP screen or printer TPR.

**Table editor functions**

Table editor commands allow the user to perform the following functions

- add, delete, or change tuples or fields in a table or subtable
- list one or more tuples of a table or subtable
- move the cursor to display any tuple in a table or subtable
- display specified valid field values
- search for tuples containing specified field values
- verify table alterations before activating them
- modify subtables of a table
- created pending files from within the table editor
- display the number of used and allocated tuples of a table
- alter data when the central processing unit (CPU) of the SL–100 switch is out of synchronization.

**Pending order subsystem**

The pending order (PO) subsystem provides a means for storing and manipulating orders, such as service orders (SO) and data modification orders (DMO) previously created by the user. These orders are classified as PO, each with its own unique PO file identifier (POFID). The PO subsystem enables the user to

- manually activate POs singly or collectively by POF type, POFID, or due date
- display the contents of POs singly by POFID, collectively, or by due date
- delete the POs from the PO subsystem singly or collectively by POF type, POFID, or due date
- place any previously produced DMO file into the PO subsystem.

The command DMOPRO works with the PO subsystem. For instance, after creating a POF, the user can activate it with the DMOPRO command.

Two types of POs are handled presently in the PO subsystem. They are pending service order files (PSOF) and data order files (DOF).

**Pending service order files**

Order files generated by the Service Order system (SERVORD), including bulk SOs, are placed in a PSOF. In order to process pending SOs, the user must be in the SERVORD environment before accessing the PO subsystem.

**Data order files**

Data order files are DMOs generated in the POF mode of table editor. They can also be externally created files or bulk DMOs, such as those created by the command DUMPTAB or in the system store file editor. Data order files normally are processed into the system using the CI command DMOPRO. If the DOFs are for future processing, the user must convert the DMO file into a POF using the CREATE command while in the pending order environment.

**Translations verification (TRAVER)**

Translations verification (TRAVER) is a tool that allows the user to examine the translations and routing of a particular call. A TRAVER report can display the possible results of a call, the translation of a call, or both. TRAVER helps the user quickly identify translations errors, oversights, or misdirections while debugging and testing software. This allows the user to correct datafill problems more efficiently. TRAVER is best used at the CI (command interpreter) level of the MAP display. With TRAVER, the user can specify the type of call originator, the number being processed or the trunk taken, and the kind of report desired.

**TRAVER command structure**

Composing a TRAVER command involves several different pieces of information. These are the code for the call origination, the identification of the originator, the directory number being processed or the outgoing trunk, and the type of report desired. The originator ID and the directory numbers being processed depend on the particular configuration of the switch involved. The originator type and report code are part of the TRAVER program.

**Service order system**

The Service Order system (SERVORD) consists of commands that enable the user to modify existing lines in an SL–100. SERVORD is

part of the database software. SERVORD provides site maintenance personnel with a rapid and transparent means to perform many operations, such as adding and deleting options from a line, adding or removing lines, and changing aspects of a line, such as directory number (DN) or line equipment number (LEN).

**Basic commands**

There are four basic SERVORD commands: ADO, DEO, OUT, and NEW. With these commands, the user can add and delete options, remove a line from service, and put a line into service as follows:

- ADO (add option) command allows the user to add options to an existing line
- DEO (delete option) command allows the user to delete options from an existing line.
- OUT command allows the user to remove a line from service. Once a line is removed from service, DN or LEN associated with that line become available for assignment.
- NEW command allows the user to remove a line from service. Once a DN or LEN are assigned, they cannot be assigned to other lines.

**Utility commands**

A utility or query command helps the user extract information from the switch. The utility commands and their descriptions are as follows:

- QDN (query DN) command displays information about a subscriber line. The subscriber line is identified in the command by its DN. It is not necessary to be at the CI level when executing this command.
- QLEN (query line equipment number) command displays the same type of information as QDN. However, in the QLEN command, the line is identified by its LEN. QLEN is useful when the user is querying a line that does not have a unique DN, such as a member of a hunt group. It is not necessary to be at the CI level when executing this command.
- QDNWRK (query DN working) command queries a range of working lines. These lines are identified by their DNs. This command saves the user from executing QDN several times.
- QLENWRK (query LEN working) command displays the same type of information as QDNWRK. However, with the QLENWRK command, the working lines are identified by their LENs.
- QHASU (query hardware assigned software unassigned) command determines what hardware might be available for assignment. This command is useful when translations need testing.

### Store file

The store file is treated as a device and is referred to as SFDEV (store file device). Information can be sent to SFDEV by utilizing such commands as SEND and COPY.

Programs can be copied to and from SFDEV and external devices, such as disk and magnetic tape. When a non–resident program is desired, it can be copied from an external storage device to SFDEV. Once in SFDEV, the store file system provides commands to execute the program, which can then be erased if desired.

### DUMPTAB and DMOPRO

DUMPTAB (dump table) and DMOPRO (data modification order processor) are system commands that enable the translator to modify translation tables more quickly. The DUMPTAB command can put an entire table into an SFDEV file for manipulation by the user. The DMOPRO command reverses the process by apply the changed table existing in the SFDEV file to switch translations.



# CD–ROM functions on the EMAP workstation

## Overview of Helmsman capabilities

Helmsman is an electronic library delivery system that is predicated on Northern Telecom's (Nortel) open architecture, standards based philosophy. This approach ensures maximum flexibility to manage information in a fast changing world and to avoid the hazards of being locked into proprietary solutions.

Helmsman provides technicians with the ability to easily and quickly search through all (Northern Telecom Publications) NTP pertaining to their office. The NTPs are contained in an electronic library that is specially prepared for Helmsman and stored on a CD–ROM (Compact Disk – Read Only Memory). Using the CD–ROM and Helmsman software, the user can search over 200,000 pages at once. Word or phrase searching can be performed within a document or across a library of documents. This full–text searching is enhanced with options that further define the search requirements, such as Boolean (and/or/not) logic, wildcard, depluralization, special character, word proximity, and zone searching. Other capabilities include configurable default options, and navigation functions.

Refer to Helmsman Viewer Application User's Guide for MS–DOS, P6319, for detailed information on Helmsman functions and procedures.

## Full text search and retrieval

Helmsman offers extensive search and retrieval capabilities built upon the SFQL standard for full–text retrieval systems. Full–text search enables a user to search for a word or phrase (up to 60 characters) across an entire document library, or within a specific document. Other

features which are part of Helmsman's full–text search and retrieval are:

- graphics searching: Searches text contained within vector graphics.
- special character searching: Recognizes special characters, such as dash (—), ampersand (&), slash (/), and others, as well as numbers
- boolean search logic: Can use terms and, or and not.
- wildcard searching: Can use asterisk (*) to denote wildcard set off characters in search term.
- case insensitive searching: Locates search terms without exact match of upper or lower case letters.
- depluralization searching: Locates both singular and plural forms of search term.
- word proximity searching: Limits Boolean searches to a defined proximity.
- document title searching: Searches within document titles.
- zone searching: Limits searches to specific document sections.
- thesaurus acronym/synonym support: Accepts single word terms and expands them into a set of words and/or phrases which have similar meaning. For example, a search for ISDN will also locate Integrated Services Digital Network, and a search for automobile may also locate car and a make of car.

### 11–inch by 17–inch file support

Helmsman provides the capability to view and print 11 by 17 inch files, which mostly consist of hardware drawings.

### Annotations and bookmarks

The annotation feature provides the ability to create an annotation or note attached to a specific point within the documentation. The bookmark feature simply marks a spot within the documentation to which the user may wish to return. Annotations and bookmarks also enable the user to immediately locate and go to those notes or marks when desired.

### Color icons

Helmsman allows you to assign specific colors to annotations and bookmarks. This feature may be especially useful if more than one person shares the same workstation and CD. Each person's annotations and bookmarks could be identified by different colors.

**Copy and paste**

This feature allows the user to select and copy portions of text or graphics in a document and then paste that information into other applications.

**Dictionary function**

The on–line dictionary represents a complete listing of all words and acronyms indexed within a specific library. As a user enters characters, a complete listing of words that match an entered string displays. The user can then select a word or phrase to search.

**Foreign language support**

Helmsman presently offers a bilingual user interface. With the click of a button, Helmsman changes from English to French. Spanish, German and other Romance languages are to be supported in later releases.

**Hyper links**

Helmsman implements user–defined hyper links to maximize search utility. This function provides information linking capabilities within documents and across documents.

**Page rotation**

This Windows feature allows you to rotate displayed pages either to the left or right in 90–degree increments.

**Print on demand**

The print–on–demand function gives the user the ability to print all or selected pages of a document, using standard MS Windows print interface.

**Quick keys**

This feature reinstates quick or hot keys for the Windows version of Helmsman. These quick keys provide shortcuts for most of the pull–down menu items.

**Structural tagging**

Helmsman allows movement to a specific chapter or section within a document on your CD. Using the GO to section, Helmsman provides a pop–ups window that lists sections and chapters that resemble the document table of contents. This feature gives you the capability of moving to a specific part of a document without having to determine the absolute page number.

***Note:*** This feature works with documents that have been tagged appropriately. This document tagging first occurred in MSL04, so this feature can be used effectively with MSL04 and higher CDs.

### Zoom

The zoom function allows the user to increase or decrease the viewing magnification by factors of 1/4x, 1/2x, 1x, 2x, or 4x. For instance, the Viewer may wish to zoom in to view intricately detailed graphics. This feature gives the user the ability to zoom in or zoom out while viewing documentation, to the magnification factor best suited for the user's purpose.

### Other capabilities

The Viewer offers a wide range of features and functions which enhance the user's interaction with the application. Many of these have been developed based on input from the existing base of installed customers. Additional features have been developed to meet evolving market opportunities.

### Default options

This feature allows the user to set defaults according to preferences. User–defined options and defaults include specifying to what zone documents automatically open, such as the table of contents. Document window size default can be set to small or maximum. Viewing mode can be set to default to absolute pages or zone and relative pages, and the thesaurus default can be set on or off.

### Page navigation

The navigation feature gives the user the ability to go to a specific page within a document, using absolute page numbers, or to go to a zone within a document—such as the table of contents, chapter, and appendices.

Providing even more cost effectiveness, the Helmsman system may be applied to local area networks (LANs) in our customer environments.

## Handling CD–ROMs

The CD–ROM drive has a special holder (caddy) to protect the CD. Scratches on a CD can cause errors in reading the contents. Always handle a CD from the edges to prevent a possible loss of data. Store CDs, when not in the CD–ROM drive, in the jewel case. (This case is the original box in which the CD came.) Be very careful not to put finger prints or scratches on the CD. The side of the CD without printing is the side on which the documentation is stored.

## Accessing CD–ROM functions on the EMAP workstation

The following procedure shows the steps necessary to access CD–ROM functions on the EMAP workstation:

### How to access CD-ROM functions

***At your EMAP workstation:***

1. Click twice with the mouse on the Helmsman icon.
2. Response: The Helmsman logo screen appears.
3. Click once within the Helmsman logo screen.
4. Response: The Helmsman logo screen appears.
5. Select Open in the File menu.
6. Response: The Helmsman session starts.

### Changing the window size

The size of the window itself can be changed using the mouse. Move the cursor to any window edge or corner. The cursor becomes a double arrow when placed in the correct spot. Press the mouse button, and drag the window across the screen to the desired size. Once the window is at the right size, release the mouse button. This option becomes very useful when working in more than one window at a time (such as a MAP session).

### Changing the text size

The Zoom function in the Page menu allows the user to change the size of the text within the CD–ROM window. The Zoom In option makes the text larger without changing the size of the window. The zoom out option provides the opposite effect. A zoom in or zoom out operation can be reversed by clicking on Normal View with the mouse. This action returns the window to its default display.

### Moving windows from back to front

If more than one window is open, a simple technique moves a window from back to front. Use the mouse to click in the upper bar of the window in the back. That window is then moved to the front for easy access.

### Opening a MAP session

A MAP session can be opened while the original CD–ROM session is still in progress. The window displays two boxes in the upper, right–hand corner. Each box shows a solid arrow (one pointing up and one pointing down). Select the left box (with the arrow pointing down) using the mouse. This action reduces the current session to an icon. The session is still running, however, it appears as an icon at the bottom of the screen.

Click twice on the icon that represents the MAP session. That session begins, but the original session is still represented by an icon. If

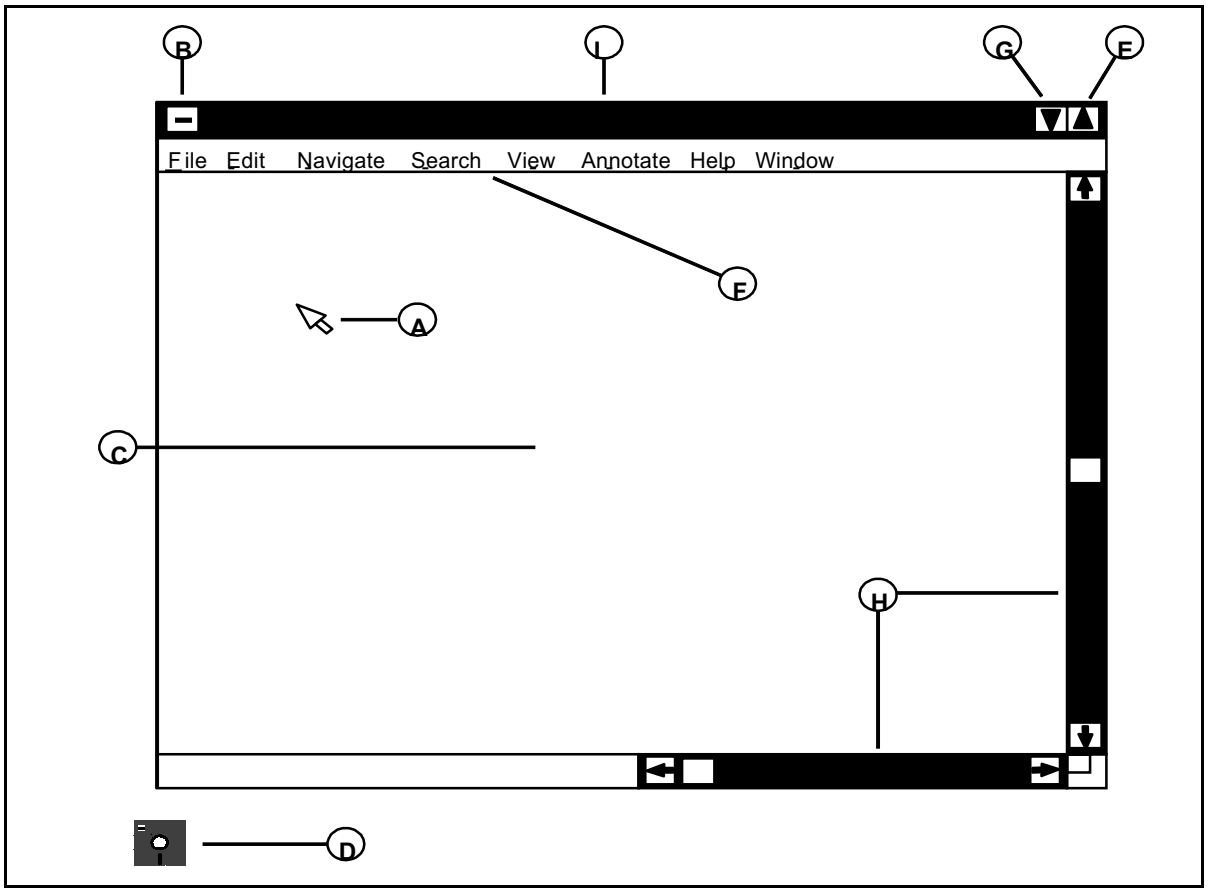
necessary, move or resize the second session window to access the first session icon. Click on the icon using the mouse to re–open the original session. Either window can be resized at any time to make access easier.

## Using Microsoft Windows

The Microsoft Windows operating environment works with MS–DOS and allows users to work with several applications simultaneously. The Enhanced MAP workstation is designed to use Microsoft Windows to make access to both MAP and Helmsman functions easy. Switching between applications only requires a few keystrokes or a click of the mouse.

The Windows environment contains several areas that make use of the workstation simple. Figure “MAP session window” on page 46 shows the main areas of the Helmsman window.

**MAP session window**



The following information describes the items shown in the window:

- Arrow pointer (A). The pointer shows the current location of the mouse on–screen. This appears only if a mouse is installed.
- Control menu box (B). This box, when selected with the left mouse button, displays the Control Menu available from every Windows application: Restore, Move Size, Minimize, Maximize, Close, and Switch To.
- Document view area (C). This area displays either the search boxes or the document text.
- Icons (D). Icons represent active applications that are shrunk to allow room for other Windows applications. Several Helmsman sessions can be run at the same time.
- Maximize box (E). This box, when selected using the mouse, enlarges the window to fill the entire screen. Access this option through the Control Menu if a mouse is not installed.
- Menu bar (F). This bar displays available menus.
- Minimize box (G). This box, when selected using the mouse, reduces the window to an icon. Access this option through the Control menu if a mouse is not installed.
- Scroll bars (H). These bars allow Helmsman users to shift document text in the view area either left and right or up and down.
- Title bar (I). This bar displays the document title after a document is selected.

## Exiting a CD–ROM session

The following procedure shows the steps for exiting from a CD–ROM session to the C> prompt.

**Exiting a CD-ROM session**

***At your EMAP workstation:***

**1** Select Quit in the File menu.

**2** The Program Manager icon appears.

**3** Click once on the Program Manager icon with the mouse.

**4** Program Manager options appear.

**5** Select Close.

**6** Response: The system displays a box with the message This will end your Windows session.

**7** Select OK.

8 Response: The system ends the session and returns to the C> prompt.

## Rebooting the system

The EMAP workstation reacts just as other computers do when rebooted. If the system locks, press the CTRL/ALT/DEL keys at the same time. This action reboots the EMAP workstation and brings the system up to the Program Manager level. MAP or CD–ROM sessions can then be reaccessed.

### Personal computers: Helmsman Viewer for Windows

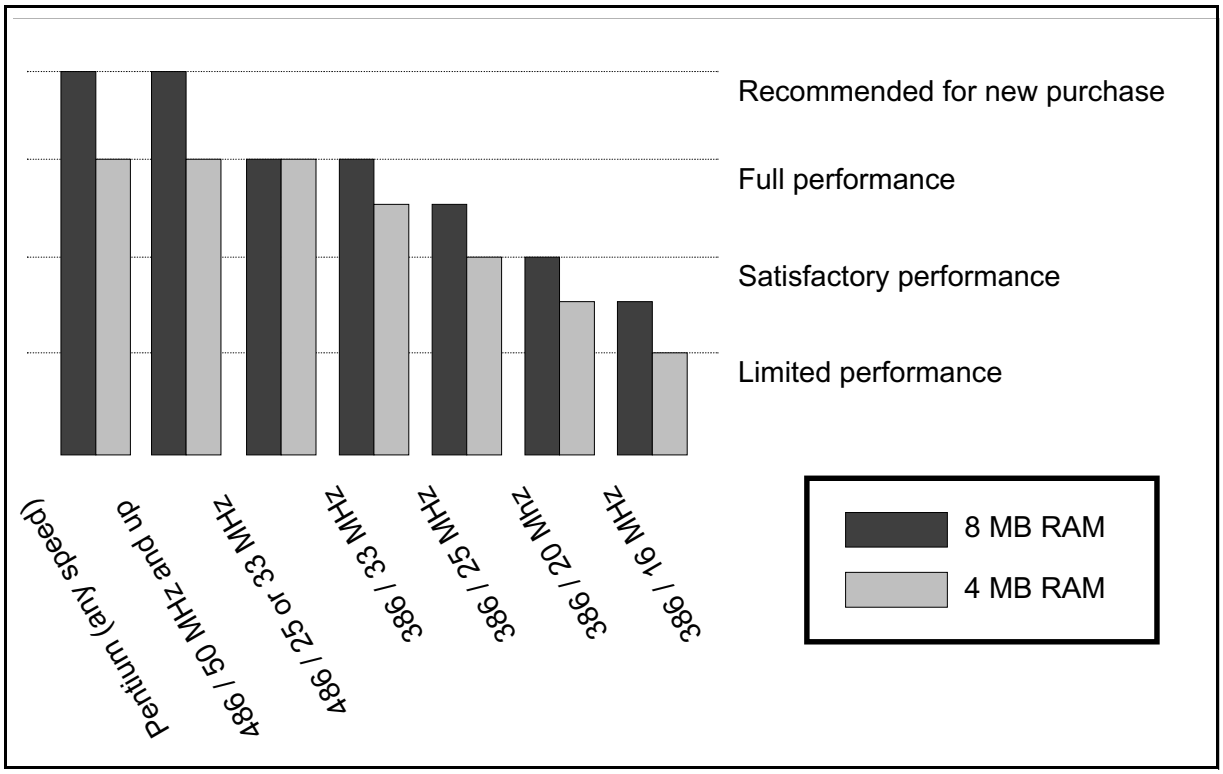
Nortel tests and supports the Helmsman Viewer for Windows only:

- under Windows 3.1 as released by Microsoft
- under MS–DOS as released by Microsoft
- executing on an Intel 386, 486, or Pentium processor.

Users of Windows 3.1 compatibility features in other operating systems for Intel processors (for example, Windows NT and OS/2) or in non–Intel environments (for example, SoftWindows for Macintosh) are cautioned.

Predicting Helmsman performance under Windows is complex. The figure shows projected performance as a function of CPU type, CPU clock rate, and available RAM. RAM figures assume that no other application executes simultaneously with Helmsman. If users plan to execute another application simultaneously, they will probably need more RAM than the figures indicate. In all cases, RAM figures pertain to physical memory and exclude virtual and graphics card memory.

## Projected performance




In predicting the performance of Helmsman Viewer when documents are being retrieved from a CD–ROM, two additional factors are important. The first is the speed of the CD–ROM drive: is the drive you are using an older single–speed (1X) drive or a newer double– or triple–speed (2X or 3X) drive. The second additional factor is the use of MS–DOS 6.2. This version of MS–DOS can provide disc–caching capability to your CD–ROM drive with the SMARTDRV utility. The benefit of either using a double–speed CD–ROM drive, compared to a single–speed drive, or using SMARTDRV caching is equivalent to a one–step increase in CPU clock rate (for example, going from a 386/16 to a 386/20). Using both a double–speed CD–ROM drive and SMARTDRV caching is equivalent to a two–step increase in CPU clock rate (for example, going from a 386/16 to a 386/25).

1X drives are generally incapable of multimedia applications.

There are often differences in access times (sometimes called seek times) between different drives at a particular speed. Two 1X drives manufactured by two different companies often have differing access times. Generally, the faster the access time (lower is better), the better Helmsman performs.

## Three levels of configuration

Nortel provides information on the following three levels of configuration for both Windows 95 and Windows 3.1:

- recommended for new purchase
- standard
- permissible substitutions

### Configuration recommended for new purchase

Recommended for New Purchase configuration indicates Nortel recommendations for new purchases of Helmsman Viewer platforms. This configuration includes only components generally available on the market today. Nortel supports electronically delivered customer information on these platforms for 5 years. The following provides information about the complete configuration for customers who use either Windows 95 or Windows 3.1.

For customers who use Windows 95

- Windows 95
- Pentium processor (any clock rate) or 486 processor (50 MHz clock rate, minimum)
- SVGA color monitor and graphics card
- 16 MB RAM minimum
- 500 MB hard disk minimum
- mouse (Windows compatible)
- graphics–capable printer (PostScript or non–PostScript) supported by Windows

For customers who use Windows 3.1

- MS–DOS 6.2 with SMARTDRV caching
- Windows 3.1 with TrueType installed and enabled
- Pentium processor (any clock rate) or 486 processor (50 MHz clock rate, minimum)
- SVGA color monitor and graphics card
- 8 MB RAM minimum
- 250 MB hard disk minimum
- mouse (Windows compatible)
- graphics–capable printer (PostScript or non–PostScript) supported by Windows

### Standard configuration

Standard Configuration indicates a basic platform on which Nortel believes today's Helmsman will execute with full or satisfactory performance. These platforms may have less than 5 years of life remaining, and some components may have already been withdrawn from the market. The following provides information about the complete configuration for customers who use either Windows 95 or Windows 3.1.

For customers who use Windows 95

- mouse (Windows compatible)
- VGA or SVGA color monitor and graphics card
- 8 MB RAM
- 5 MB hard disk free
- Pentium or 486 processor
- graphics–capable printer (PostScript or non–PostScript) supported by Windows

For customers who use Windows 3.1

- MS–DOS 6.2 with SMARTDRV caching
- Windows 3.1 with TrueType installed and enabled
- Pentium processor, 486, 386/33, 386/25, or 386/20 processor
- VGA or SVGA color monitor and graphics card
- 8 MB RAM for 386/20, 4 MB RAM for other processors
- 5 MB hard disk free
- mouse (Windows compatible)
- graphics–capable printer (PostScript or non–PostScript) supported by Windows

## Permissible substitutions

Permissible Substitutions indicate specific components that may be substituted for those in the Standard Configuration at the risk of performance or usability degradation. The following provides information about the complete configuration for customers who use either Windows 95 or Windows 3.1.

***Note:*** An asterisk indicates substantial degradation.

For customers who use Windows 95

- Windows 95
- *386 processor with 8 MB RAM
- *any processor with less than 8 MB RAM
- gray–scale monitor
- monochrome monitor
- text–only printer supported by Windows

For customers who use Windows 3.1

- ² MS–DOS 3.3 or higher
- ² *Windows 3.1 with TrueType disabled or not installed
- ² 386/20 processor with 4 MB RAM
- ² 386/16 processor with 8 MB RAM
- ² *386/16 processor with 4 MB RAM
- ² gray–scale monitor
- ² monochrome monitor
- ² *no mouse
- text–only printer supported by Windows

# List of terms

**ACD**
Automatic Call Distribution

**BCS**
Batch Change Supplement

**CC**
central control

**CD**
compact disc

**CD–ROM**
compact disc-read-only memory

**CI**
command interpreter

**CMC**
central message controller

**CPC**
corporate product code

**EMAP**
Enhanced MAP workstation

**EMI**
electromagnetic interference

**GS**
general specification

**I/O**
input/output

**IOC**
input/output controller

**IOD**
input/output device

**KB**
Kilobyte

**LTP**
line test position

**MAP**
Maintenance and Administration Position

**MB**
Megabyte

**MCEX**
Meridian Cabinet extension module

**MCGM**
Meridian cabinet general module

**MHz**
Megahertz

**ms**
millisecond

**NTP**
Northern Telecom publication

**PEC**
product equipment code

**PM**
peripheral module

**RAM**
random-access memory

**ROM**
read–only memory

**SVGA**
super video graphics array

**TTP**
trunk test position

**UMI**
User–Machine Interface

**VDU**

visual display unit

**VGA**

video graphics array

Meridian SuperNode

# Meridian SL-100



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Information is subject to change without notice. Nortel Networks reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules, and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense. Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a viloation of Part 68 of the FCC Rules, Docket No. 89-114, 55FR46066.



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