Meridian SL-100

Network Management for SPECTRUM

User Guide

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Meridian SL-100
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User Guide

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Version 01.04, MSL07, Standard. This version is the first standard release of this document.

Contents

About this document

Purpose and audience

This document provides information about setting up and using the Meridian SL-100 network management system for SPECTRUM. It is intended for personnel involved in maintaining the Meridian SL-100. Previous knowledge of the Meridian SL-100, the MicroFrame Sentinel 2000 system, and the Cabletron SPECTRUM system is assumed.

Structure

This document contains the following sections:

- **Introduction** – introduces the Meridian SL-100 network management system for the SPECTRUM Enterprise Manager.

- **Physical connections** – explains system requirements and physical hardware connections of the Sentinel 2000 and the SPECTRUM systems configuration.

- **Software configuration** – describes the software installation and configuration for the Sentinel 2000 and the SPECTRUM systems configuration, as these requirements relate to the Meridian SL-100.

- **Getting started** – provides procedures to help you get started with the Sentinel 2000 and the SPECTRUM systems.

- **List of terms** – contains acronyms and abbreviations of terms used in this document.

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 re-released in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

FOR MORE INFORMATION

To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in the *Meridian SL-100 Master Index of Publications*.

References in this document

This guide references the following documents:

- Some procedures in this book may also refer to the Alarm and Performance Monitoring Procedures. Meridian SL-100 customers should refer instead to the *Meridian SL-100 Alarm Clearing Procedures*.

- *Meridian SL-100 Systems Log Report Reference Manual*, 555-4031-8401

- *Meridian SL-100 Product Guide*, 555-4001-103

- *Meridian SL-100 Ethernet Interface Unit on LPP Services Guide*, 555-4001-024

- *Input/Output Devices Maintenance Guide*, 297-1001-590

- *Meridian SL-100 Customer Data Schema*, 555-4031-851

- *Meridian SL-100 Enhanced MAP (EMAP) Workstation Product Guide*, 555-4001-012

Cabletron Systems, Inc. documents:

- *Getting Started with SPECTRUM*

- *SPECTRUM Guide to Integrating Applications*

- *SPECTRUM Installation Guide*

- SPECTRUM on-line help

MicroFrame Systems, Inc. documents:

- *Getting Started for the Sentinel 2000, Installation Guide*

- *MicroFrame Installation Guide for the Sentinel 2000*

- *MicroFrame User Guide for the Sentinel 2000*

Introduction

Understanding the Sentinel 2000 and SPECTRUM systems

The Meridian SL-100 network management system for the SPECTRUM Enterprise Manager (hereinafter referred to as the SPECTRUM system) is a network management system for the Meridian SL-100. It is comprised of third-party software and hardware providing a fully integrated network management system in a graphical user interface (GUI) environment.

The Meridian SL-100 terminal/printer port is connected to a host port on the Sentinel 2000 system to transmit log reports. The Sentinel 2000 system maps these logs to Simple Network Management Protocol (SNMP) messages called traps. These SNMP traps are sent by the Sentinel 2000 SNMP proxy agent to the SPECTRUM system.

The SPECTRUM system provides fault isolation and alarm interpretation capability in a GUI environment. A telnet session to the on-switch Meridian SL-100 maintenance and administration position (MAP) is used to resolve alarms on the Meridian SL-100. Alarms and system status are indicated by changes in icon appearances in the SPECTRUM system GUI. The icon representing the Meridian SL-100 is labelled **MSL100** in the SPECTRUM GUI. The network manager selects the alarm-signaling icon and, by navigating through the GUI, determines the location and nature of the alarm. Once the alarm is analyzed, a telnet session to the MAP is launched from the icon to perform system management functions on the Meridian SL-100.

This chapter introduces the Sentinel 2000 system and the SPECTRUM network management system as it relates to the Meridian SL-100. Refer to the appropriate manufacturer's documentation for detailed information about each system.

Benefits

While the Meridian SL-100 has a MAP management system, there are several advantages to using the Sentinel 2000 system and the SPECTRUM system:

- GUI environment to aid in network monitoring and fault isolation as opposed to a text-based system.

- All alarms for every system level are easily accessible, minimizing the time spent looking for the alarms.

- Switch system management is integrated with other systems in one environment.

Hardware components

The Sentinel 2000 system and the SPECTRUM network management system for Meridian SL-100 consists of three major components:

- Meridian SL-100 switch

- Sentinel 2000 system (by MicroFrame, Inc.)

- One or two Windows NT computers running Cabletron Systems, Inc.'s SPECTRUM software:

  — SpectroSERVER

  — SpectroGRAPH

The Sentinel 2000 system configuration is factory-customized to accommodate an interface between a Meridian SL-100 and the SPECTRUM network management system. Figure 1 on page 13 shows the logical data flow between the Meridian SL-100, the Sentinel 2000 system, and the SPECTRUM network management systems.

Meridian SL-100 switch module

Meridian SL-100 logs are sent to the Sentinel 2000 system over a 9600 baud modem dial-up, or direct, connection to the terminal/printer port. Once the logs are processed and events are generated and displayed in the SpectroGRAPH GUI, system management functions using a MAP terminal can be performed. The MAP terminal is accessed from the SPECTRUM system GUI by means of a telnet session to the Meridian SL-100. Telnet access over ethernet to the Meridian SL-100 is provided using an ethernet interface unit (EIU) or a single shelf link peripheral processor (SSLPP).

For more information about the EIU and LPP, refer to the *Meridian SL-100 Ethernet Interface Unit on LPP Services Guide*. For MAP terminal information, refer to the *Meridian SL-100 Enhanced MAP (EMAP) Workstation Product Guide*.

Sentinel 2000 system module

The Sentinel 2000 system is operated and administered using a command line interface on a dumb terminal, or PC with terminal emulation capability, through an auxiliary port connected to a LAN.

The Sentinel 2000 system post processor receives logs, performs the log analysis, and generates traps to the SPECTRUM system by way of the SNMP proxy agent. The SNMP proxy agent provides the interface to the SpectroSERVER system.

Figure 1
The network management system logical data flow

*   The Meridian SL-100 post-processor receives logs, parses the logs, and generates traps by way of the SNMP proxy agent.

**   SpectroSERVER provides database, security, modeling capabilities, and device management functions

*** SpectroGRAPH provides GUI for network management

G100273
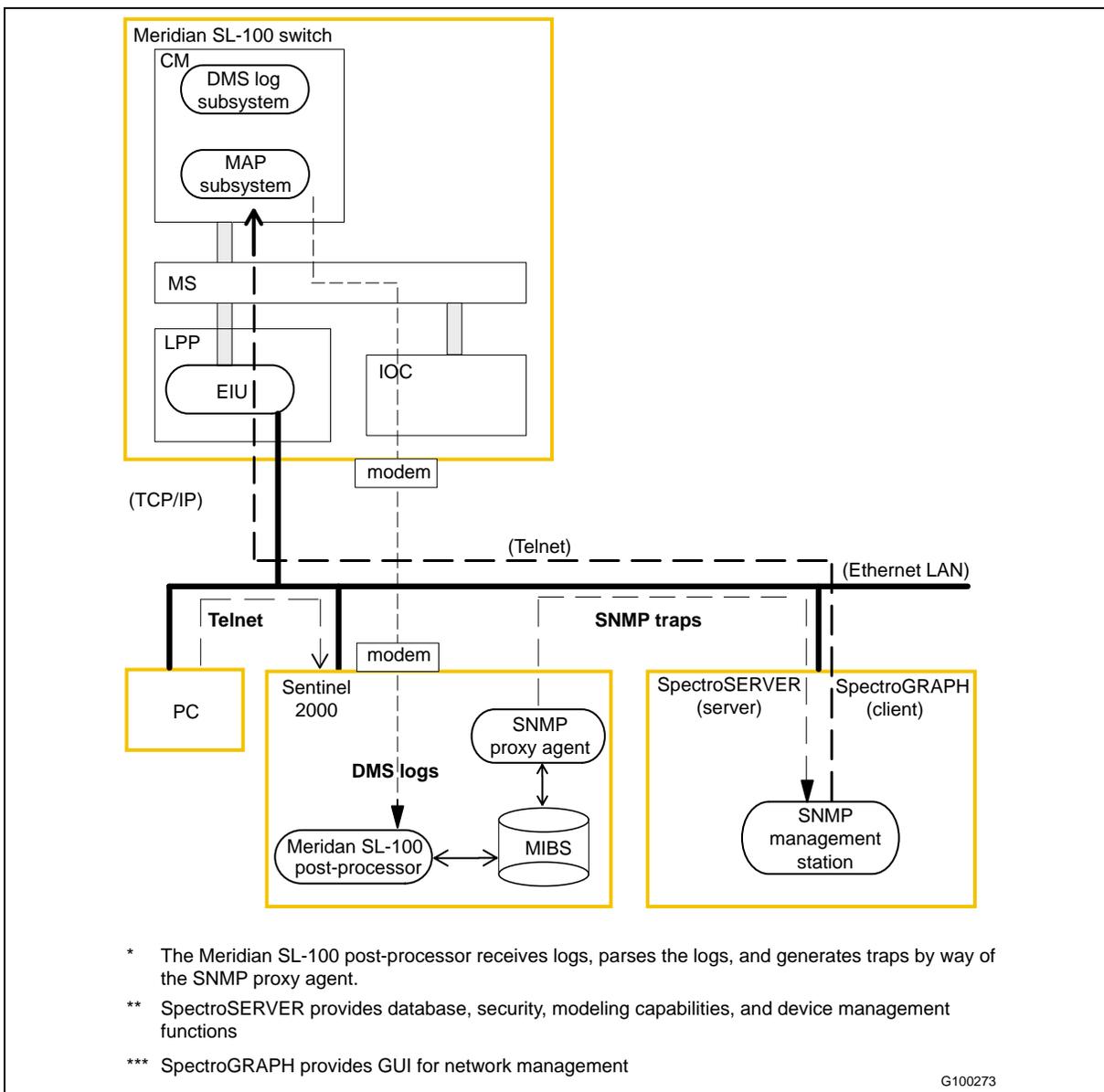
The system operator can use the Sentinel 2000 system to monitor logs processing and other system events including SNMP traps sent to the SPECTRUM system.

For detailed information on the Sentinel 2000 system operation, see the *User Guide for the Sentinel 2000*.

SPECTRUM system module

SPECTRUM system is based on client/server architecture. The client, called SpectroGRAPH, provides the GUI that displays icons, alarms, and alarm status for managing the network. The server, called SpectroSERVER, provides the database, security, device modeling capabilities, and device management functions.

Configuration and management of the Meridian SL-100 is accomplished in two ways:

- by launching a telnet session from the **MSL100** icon on the SPECTRUM system GUI to the Meridian SL-100 or

- by launching a telnet session from the **MSL100** icon on the SPECTRUM system GUI to a terminal server with a connection to an Meridian SL-100 terminal/printer port.

For detailed information about the SPECTRUM system, see *Getting Started with SPECTRUM* and other Cabletron Systems documentation.

General steps for system setup and operation

First, setup the hardware according to "Physical connections" on page 15. That chapter explains system requirements (minimum and recommended) for each module and it explains hardware connections.

Second, configure ports, install any software required, and begin initial logs distribution using "Software configuration" on page 19. That chapter explains the steps to install Meridian SL-100 model type files on the SPECTRUM system, datafill Meridian SL-100 tables, and configure software specifically for Meridian SL-100 working with the Sentinel 2000 system and the SPECTRUM system.

Finally, operate the systems to aid in Meridian SL-100 network management using "Getting started" on page 31. That chapter explains how to create a new Meridian SL-100 model, establish a connection to the MAP terminal, and manually clear alarms in the SPECTRUM system.

Physical connections

This chapter describes system requirements and physical hardware connections of the Sentinel 2000 and the SPECTRUM systems configuration. Nortel Networks provides minimum requirements for installation and operation (unless otherwise indicated). Figure 2 shows an example for connecting the Meridian SL-100 to the SPECTRUM system, Sentinel 2000 system, and the LAN.

Figure 2
Sentinel 2000 cable connections (modem direct connection)
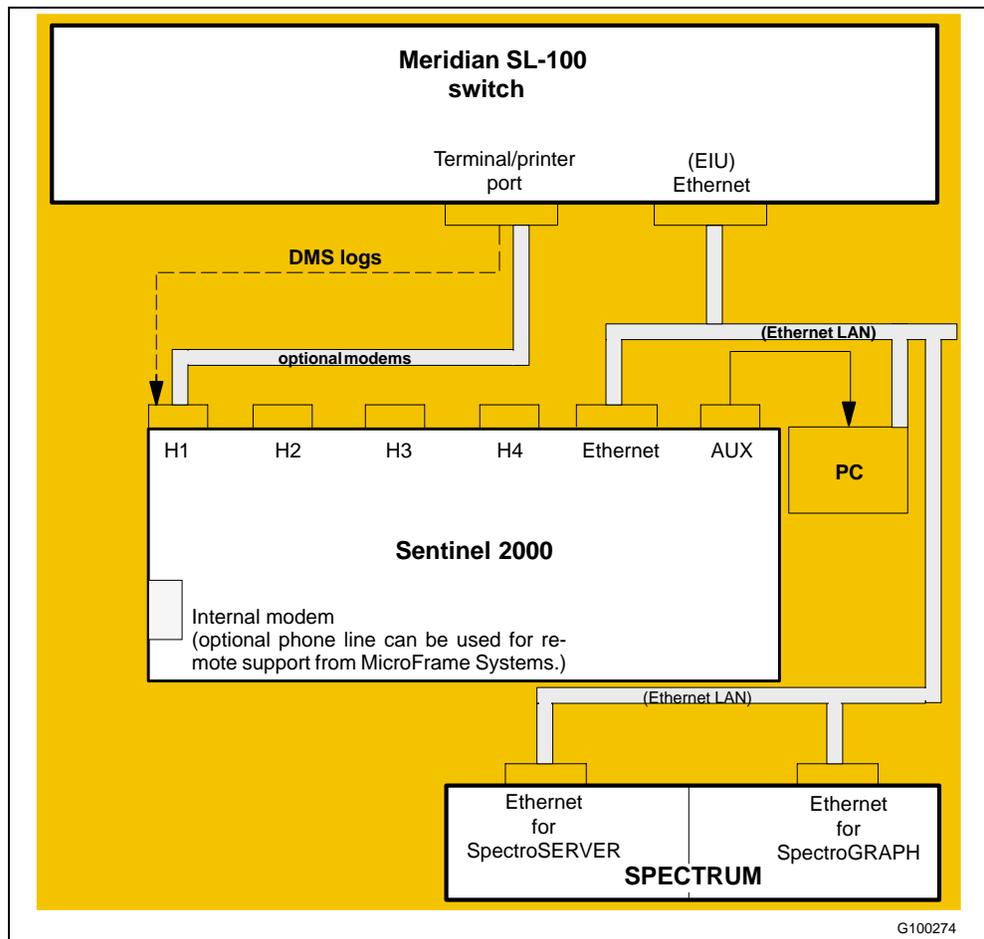
See the *SPECTRUM Installation Guide*, the *MicroFrame Installation Guide*, the *MicroFrame User Guide*, and other appropriate manufacturer's documentation for detailed instructions about setting up individual system hardware and software.

Meridian SL-100 system requirements

The Meridian SL-100 requires:

- MSL05 (or above) software

- Input/output controller (IOC) terminal/printer port with an optional 9600 baud modem

- EIU resident on the LPP (for telnet option); or

  Single shelf link peripheral processor (SSLPP) with an enterprise LAN connection and an assigned IP address

Sentinel 2000 system requirements

In the Sentinel 2000 and the SPECTRUM systems configuration, the Sentinel 2000 system requires:

- factory-installed Meridian SL-100 post-processing routine (log parser) with Meridian SL-100 alarms filter

- SNMP proxy agent with Nortel Networks trap format support

- 9600 bps baud modem to analog line (for dial-up to the Meridian SL-100 terminal/printer port)

- RS-232C cable (for modem connection)

- telephone cords with RJ11 connector

- network cable with an AUI or 10 Base-T connector (furnished with ethernet card in Sentinel 2000) with an enterprise LAN connection

- assigned ethernet address for network applications (furnished with ethernet card in Sentinel 2000 system)

- assigned IP address (for network applications)

- local terminal, or PC running a terminal emulation program, (used to initialize and administer the Sentinel 2000 system using the Aux port). The terminal must have a standard RS-232 (serial) interface for connection to data communications equipment. Use the following terminal settings:

  — asynchronous

  — 9600 bps

  — 8-bit character length, one stop bit, no parity

  — XON/OFF (software) flow control

SPECTRUM system requirements

Cabletron Systems, Inc. offers several system configurations for the SPECTRUM system. The SpectroSERVER and SpectroGRAPH system components can be installed on the same or separate platforms. In the Sentinel 2000 and the SPECTRUM systems configuration for the Meridian SL-100, the SPECTRUM system (SpectroGRAPH and SpectroSERVER) requires:

• LAN connection – Enterprise LAN connection for each platform running either SpectroSERVER or SpectroGRAPH workstations.

• SCSI drive – Cabletron Systems, Inc. recommends running the SPECTRUM system only on platforms with SCSI drives.

• 96 MB of RAM for SpectroSERVER workstations or 64 MB for SpectroGRAPH GUI workstations (minimum recommended).

• 1 GB of disk space for SpectroSERVER workstations or 500 MB for SpectroGRAPH GUI workstations (minimum recommended).

• CD-ROM drive (for loading the SPECTRUM system).

• 1024 x 768 PCI bus video card supporting 256 colors or 8-bit color with at least 2 MB of DRAM.

• 17-inch color monitor for workstations running SpectroGRAPH software.

Physical hardware connections

Physical cable connections depend upon the type of system configuration selected. The configurations described in this section are an ethernet LAN connection and a modem direct connection to the Meridian SL-100.

Note: Since it is not practical to describe all possible configurations or all possible connections for each, consult your Nortel Networks, MicroFrame, or Cabletron Systems support representative to determine the best configuration for your system.

Figure 2 on page 15 shows the ethernet LAN connection and the modem direct connection to the Meridian SL-100 from the Sentinel 2000 and the SPECTRUM systems.

Meridian SL-100 cable connections

Cable connections from the Meridian SL-100 are as follows:

- Connect the Meridian SL-100 IOC terminal/printer port to a host port on the Sentinel 2000 system using an RS-232 direct cable; or

  For a modem configuration, connect the host port on the Sentinel 2000 system to the Meridian SL-100 IOC port using 9600 baud modems and analog lines.This connection supports logs transfer to the Sentinel 2000 system.

- Connect the EIU LPP or the SSLPP to the enterprise LAN where the Sentinel 2000 and the SPECTRUM systems are connected.

See the *Meridian SL-100 Product Guide*, for detailed information about Meridian SL-100 cabling requirements and connections.

Sentinel 2000 system cable connections

Cable connections from the Sentinel 2000 system are as follows:

- Connect the PC or terminal to the Aux port – This connection is used to initialize the Sentinel 2000 system and can be disconnected after the Sentinel 2000 system is initialized.

- Connect the Meridian SL-100 IOC terminal/printer port to a host port on the Sentinel 2000 system (to direct logs to the Sentinel 2000 system) using an RS-232 direct cable; or

  For a direct modem configuration, connect the host port on the Sentinel 2000 system to the Meridian SL-100 IOC port using 9600 baud modems and analog lines.

- Connect the Sentinel 2000 system internal modem(s) to analog telephone line(s) for remote Sentinel 2000 system support.

- Connect the Sentinel 2000 system to the enterprise LAN either through the AIU or 10 Base-T connector.

See the *MicroFrame Installation Guide for Sentinel 2000* for detailed information about the Sentinel 2000 system cabling requirements and connections.

SPECTRUM system cable connections

The SPECTRUM systems (SpectroGRAPH and SpectroSERVER) are connected to the Ethernet LAN. See the *SPECTRUM User Guide* for detailed information about the SPECTRUM system cable connections.

Software configuration

This chapter explains the software installation and configuration for the Sentinel 2000 and the SPECTRUM systems configuration as these requirements relate to the Meridian SL-100. These procedures assume the SPECTRUM system is installed and fully operational.

See the *SPECTRUM Installation Guide*, the *MicroFrame User Guide*, the *MicroFrame Installation Guide*, and other appropriate manufacturer's documentation for instructions about installing hardware and software for these systems.

The Sentinel 2000 and the SPECTRUM systems software configuration for the Meridian SL-100 includes:

- installing the Meridian SL-100 management module on the SPECTRUM server system (SpectroSERVER)
- installing the Meridian SL-100 model type on the SPECTRUM client system (SpectroGRAPH)
- configuring the Meridian SL-100 terminal/printer port (datafilling table TERMDEV)
- configuring the Meridian SL-100 permanent log distribution (datafilling table LOGDEV) (optional)
- configuring software on the Sentinel 2000 system

Installing the Meridian SL-100 management module on the SpectroSERVER system

The Meridian SL-100 management module must be installed on the SPECTRUM SpectroSERVER and SpectroGRAPH systems. The Meridian SL-100 management module defines the Meridian SL-100 model type.

The Meridian SL-100 model type (defined by the Meridian SL-100 management module) includes definitions of common switch attributes, the **MSL-100** icon, and available menu options. The Meridian SL-100 model type is used to create models in SpectroGRAPH of Meridian SL-100s in the network.

These Meridian SL-100 models are represented by icons in the SpectroGRAPH GUI. Operators monitor and manipulate these icons to accomplish network administration.

Use Procedure 1 to install the Meridian SL-100 management module on the SpectroSERVER. This procedure describes installation using a Windows NT computer CD.

> *Note:* This procedure assumes SpectroSERVER and SpectroGRAPH have been installed and are functioning. If these components have not been installed, see Cabletron Systems documentation to install the SPECTRUM system before continuing.

Procedure 1
Install the Meridian SL-100 management module on the SPECTRUM system

1   Place the MSL-100 MM CD in the CD ROM drive.

2   Start SPECTRUM from the **Start/Programs** menu.

This starts the SpectroSHELL software.

3   At the SpectroSHELL prompt, Start the installation program by entering:

drive:/MMinstall

where

drive is the CD ROM drive on the computer.

Example: d:/MMinstall

4   At the extraction key confirmation request prompt, click **OK**.

> *Note:* If the installation program prompts a request for the extraction key, enter the SPECTRUM extraction key.

5   When the SPECTRUM Host Evaluation window displays, verify the physical memory and swap space requirements and click **OK**.

6   When the Installation Configuration window and the Component Configuration subwindow displays, click the **Select all SpectroSERVER** components check box to install management modules for SpectroSERVER only.

7   Click the **Select all SpectroGRAPH components** check box to install the SpectroGRAPH management module on this same computer.

8   At the Installation successful prompt, click **OK**.

9   Click **Exit** to exit the installation.

This procedure is now complete

Meridian SL-100 configuration

This section describes the logs distribution to the Sentinel 2000 and the Meridian SL-100 datafill and maintenance operations for the Meridian SL-100 terminal/printer port connection.

This procedure requires access to the Meridian SL-100 maintenance and administration position MAP CI, TABLE EDITOR, and LOGUTIL utilities. Only table datafills specific for the Sentinel 2000 and the SPECTRUM systems configuration are explained here. For more information about datafilling tables, see the *Meridian SL-100 Customer Data Schema*.

Datafilling table TERMDEV

Use the TERMDEV table to setup the input/output controller (IOC) port for the Sentinel 2000 system connection. Table 1 describes datafilling table TERMDEV in the Sentinel 2000 and the SPECTRUM systems configuration.

Table 1
Table TERMDEV

Field	Entry	Sample data	Explanation and action
TERMDES	1 to 8 alphanumeric characters	S2k	Terminal designation. Enter the name for each terminal device.
IOCNO	0 to 19	2	Input/output controller number. Enter the number of the IOC to which the terminal device is assigned. Valid entries are from 0 to 19.
CKTNO	0 to 35	15	Input/output controller circuit number. Enter the IOC circuit number to which the terminal device is assigned. Valid entries are from 0 to 35.
TERMTYPE	alphanumeric	VT100	Terminal type. Enter the terminal type. Valid entries are HAZ, LSG, VUC4, KSR, PRT, HP, VT100, VT102,TEC, CYB, SPRT, FPRT, DPH, and SMDI.
BAUDRT	alphanumeric	B9600	Baud rate. Enter the baud rate of the terminal device. Valid entries are: B110, B134PT5, B150, B300, B600, B1200, B1800, B2000, B2400, B3600, B4800, B7200, B9600, and B19200.
INTYP	alpha	EIA	Interface type. If the terminal device is equipped with a data set or modem, enter EIA (Electronic Industries Association interface). Otherwise, enter CL (current loop).

Table 1
Table TERMDEV (Continued)

Field	Entry	Sample data	Explanation and action
EQPEC	alphanumeric	1X89BB	Equipment product engineering code (PEC). Enter the PEC of the terminal controller circuit card. Valid entries are: 1X67AA, 1X67AB, 1X67AC, 1X67BC, 1X67BD, 1X67CA, 1X67CB, 1X67FA, and 1X89BB.
PRTY	See subfield.	NONE	Parity. Enter the parity of the terminal device. Valid entries are ODD, EVEN, and NONE.
GUAR	Y or N	N	Guaranteed device. Enter Y if the device is guaranteed to run despite the call processing or maintenance load. Enter N if the device is not guaranteed. The default is N.
MODEM	NONE, DBANS, CTS, RIXON, and UDS	NONE	Modem type. Enter the type of modem that corresponds to its connecting port. Valid entries are NONE, DBANS, CTS, RIXON, and UDS.
COMCLASS		ALL	Command class. Enter the command class allowed for the terminal device. Valid entries are from 0 to 30, NONE, and ALL. ***Note:*** A user logged in at the terminal is permitted to execute only those commands that are allowed on the terminal and for the user's login ID.
CKERDISC	Y or N	Y	CkEr alarm on DISconnected device. Enter Y if the device will cause a CkEr alarm whenever it is in a DISconnected state. Otherwise enter N.

Figure 3 shows an example MAP display depicting the datafill for table TERMDEV.

Figure 3
MAP display example for table TERMDEV

```
TERMDES IOCNO CKTNO TERMTYPE BAUDRT INTYP EQPEC PRTY GUAR MODEM COMCLASS
                                                                  CKERDISC

S2Kdial   2    15    VT100   B9600    EIA 1X89BB NONE   N   NONE     ALL

                                                                      Y
```

Meridian SL-100 terminal/printer port maintenance
shows how to maintain the terminal/printer port using the MAP terminal.

Procedure 2
Maintain the terminal/printer port using MAP

At the MAP terminal command interpreter prompt

1   Access the IOD level of the MAP display by entering:

>MAPCI;MTC;IOD

and pressing the **Enter** key.

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  .
```

2   Post the IOC associated with the card and card number by entering:

>IOC ioc_no

and pressing the **Enter** key.

where

ioc_no   is the IOC identification number (0 to 19).

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  .

DIRP: AMA  B XFER:    .     SLM : SLMbsy NOP :    .     NX25:    .
MLP :   .     DPPP:    .     DPPU:    .     SCAI:    .

IOC    CARD    0     1     2     3     4     5     6     7     8
 0     PORT  0123  0123  0123  0123  0123  0123  0123  0123  0123
       STAT  .---  .---  ....  .---  ....  ----  ..--  .---  ----
       TYPE  MTD   DDU   CONS  MPC   CONS        CONS  MPC
```

3   Post the card by entering:

>CARD card_no

and pressing the **Enter** key.

where

card_no   is the card identification number (0 to 8).

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  .

DIRP: AMA  B XFER:    .     SLM : SLMbsy NOP :   .      NX25:   .
MLP :   .     DPPP:   .     DPPU:   .     SCAI:   .

IOC   CARD    0     1     2     3     4     5     6     7     8
 0    PORT  0123  0123  0123  0123  0123  0123  0123  0123  0123
      STAT  .---  .---  ....  .---  ....  ----  ..--  .---  ----
      TYPE  MTD   DDU   CONS  MPC   CONS        CONS  MPC
Card  6   Ckt    0           1           2           3
Status           .           .           -           -
Cons Id          RD040       RD041       TEAM4       s2kdial
ConType          VT100       VT100       VT100       VT100
```

4   Manually busy the port on the card by entering:

>ManB port_no

and pressing the **Enter** key.

where

port_no   is the port identification number (0 to 3).

5   Return the port to service by entering:

>RTS port_no

and pressing the **Enter** key.

where

port_no   is the port identification number (0 to 3).

On the Meridian SL-100 MAP terminal window, the port state displays Disc until the Sentinel 2000 system connects. When Sentinel 2000 is system connected, the port state is . (period).

This procedure is now complete

Datafilling table LOGDEV (permanent logs distribution configuration)

Table LOGDEV lists the log (output message) classes that can be printed or displayed at each of the terminal or data devices. Table LOGDEV also defines the alternate terminal or data device to which messages are sent if the main terminal device is not operational.

Datafilling table LOGDEV establishes a permanent configuration for routing logs from the Meridian SL-100 to the Sentinel 2000 system. While manually starting log routing is required at the initial system start and operation, a permanent configuration allows you to operate the system without manually starting the log routing after a system restart.

Note: Datafill table TERMDEV, before table LOGDEV.

Table 2
Table LOGDEV

Field	Entry	Sample data	Explanation and action
DEV	alphanumeric (up to 12 characters)	s2kdial	Device. Enter the name assigned in table TERMDEV to the terminal device. *Note:* This field can only be set to SCC2 if the office parameter SCC2_LOGS in table OFCOPT is Y (yes) and field PRIORITY is Y, or if field FORMAT is STD and field PRIORITY is N (no).
ALT	alphanumeric (up to 12 characters) or NIL	NIL	Alternate. Enter the name assigned in table TERMDEV to the terminal device to which logs are to be sent if the main terminal device is not operational. If no alternate device is required, enter NIL.
CLASSES	vector of numeric values (0 to 31) with delimiter characters (,), -, and +	(0-31)	Classes. Enter the class numbers that are assigned to the terminal device. Enter ((open bracket) if the entry is the first record for the terminal device. If entry is a block of consecutive classes, enter the first and last class in the block separated by a - (dash). For example, if classes are 1, 2, 3, 4, and 5, enter 1-5. Separate each log or block of log classes with a blank space. Enter + if additional information for this field is contained in the next record. Otherwise, enter) (close bracket) to indicate the end of the tuple. If adding an individual entry using the table editor of the switch, a single quotation mark must precede the open bracket and a single quotation mark must follow the close bracket, for example '(22 24)'.
FORMAT	SCC2 or STD	STD	Format. Enter SCC2 for the AT&T #2 Switching Control Center format. Enter STD for the standard format. *Note:* This field can only be set to SCC2 if office parameter SCC2_LOGS in table OFCOPT is set to Y.
PRIORITY	Y or N	N	Critical message prioritization. Enter Y (yes) if the alarm level sets the prioritization of the reports. The report with the highest alarm level at any given time is generated. Enter N (no) if prioritization is not required and the reports are generated in chronological order. *Note:* This field can only be set to Y if office parameter LOG_PRIORITIZATION in table OFCENG is set to Y.
GUAR	Y or N	N	Guaranteed device. Enter Y if the device is guaranteed (for example, the device continues to run despite the call processing or maintenance load). Otherwise, enter N. The default value for this field is N.

Manually starting and stopping logs routing

After setting up the Meridian SL-100 terminal/printer port, (and datafilling table LOGDEV for a permanent logs distribution configuration), you must start logs routing to the terminal/printer port manually. Where table LOGDEV has been datafilled for permanent logs distribution configuration, this procedure is required at the initial system startup or if a connection between systems has been lost. Where table LOGDEV has been datafilled for a temporary or manual logs distribution configuration, this procedure is required after each time the system is restarted to resume logs distribution to the port.

Procedure 3 describes how to start (and stop, if needed) logs routing to the Meridian SL-100 terminal/printer port manually.

> *Note:* The STOPDEV and STARTDEV commands in LOGUTIL can be used to turn off and on the flow of logs to the specified port.

After the Sentinel 2000 system communication with the Meridian SL-100 is established, use the MAP terminal to start (and stop, if needed) routing logs using the log utility.

**Procedure 3
Manually start and stop log routing to the Meridian SL-100 terminal/printer**

At the MAP terminal command interpreter prompt (>)

1   Start the log utility by entering:

    >LOGUTIL

    and pressing the **Enter** key.

    The log utility displays.

In the LOGUTIL utility

2   Start the logs distribution to the IOC terminal/printer port by entering:

    >STARTDEV terminal_des.

    and pressing the **Enter** key.

    where

    terminal_des.   is the IOC port dialup designation in the TERMDEV table.

3   Log routing can be stopped at any time by entering:

    >STOPDEV terminal_des.

    and pressing the **Enter** key.

    where

    terminal_des.   is the IOC port dialup designation in the TERMDEV table.

This procedure is now complete

Configuring the Sentinel 2000 system

When the Sentinel 2000 system is ordered from MicroFrame Systems, Inc. for use with the Meridian SL-100 and SPECTRUM systems, it comes configured with customized software, a Meridian SL-100 alarm filter, and Nortel Networks trap format. Additional procedures are necessary to configure the host port connection, alarm-to-trap mapping and network managers. You must know the Sentinel 2000 IP address.

See the *MicroFrame User Guide for the Sentinel 2000* for detailed information about Sentinel 2000 system software configuration, administration, and operations.

Configuring the host port

Verify or setup host port parameters used for the Meridian SL-100 connection. Use the **dh** command to display the parameters and the **sh** command to set the parameters. Figure 4 shows an example of the Sentinel 2000 system modem port settings.

Figure 4
Example of Sentinel 2000 system modem port settings

```
>sh1
--- Set Host Port Params ---
Restore Factory Defaults?   no
--Host 1:
   Host Name:  MSL100A
   Baud Rate Setting   9600
   Character Length/Parity   8/None
   Alarm Filter   SL100 Alarms
Force CD/DSR High   Yes
Flow Control   XON/XOFF

--Automatic Buffering--
Enable Automatic Buffering?   Yes
Compress closed buffer files?   No
Auto Switch:  (Enter 0 to disable)
   When CURRENT file exceedsn KB   50
   Everyn Hours   24
   - Synchronize at what hour (0-23)   0
```

Configuring the SNMP manager parameters

After configuring the host port, use the **snp** command to set the SNMP manager parameters. shows an example of the Sentinel 2000 system manager parameter settings.

Figure 5
Example of the Sentinel 2000 system SNMP manager parameter settings

```
>snp
--- Set Network Params ---
1=Network Initialization Params
2=SNMP Manager Params

Select Group ->2
Restore Factory Defaults?   no
-- SNMP Manager Parameters --
PPP link needed for trap?   No
Trap format   Nortel
SNMP Community Name   public
-- IP Addresses for SNMP Managers (NNN.NNN.NNN.NNN) --
Manager 1        xxx.xxx.xxx.xxx (Note: Enter SpectroSERVER IP address)
Manager 2
Manager 3
Manager 4
Manager 5
```

Configuring action items for SNMP traps

After setting the SNMP manager parameters, add alarm level action items to generate SNMP traps to be sent to the SPECTRUM platform. These actions can be configured to send traps for all alarm levels.

Action items must be defined for each alarm level for which SNMP traps are generated. Use the **aa** command to add action items for each alarm level. Specify SNMPTRAP with the integer parameter corresponding to the alarm level: CRI = 3, MAJ = 2, and MIN = 1. Include meaningful comments for action items, because they appear in SpectroGRAPH alarm details.

shows an example of defined actions for the three Meridian SL-100 log report alarm levels.

Note: In this example, an SNMP trap is sent for each alarm level with a parameter indicating the alarm level.

Figure 6
Example of the Sentinel 2000 system SNMP manager parameter settings

```
>la

--- List Action Items ---
    Alarm          Routine:     Parameters:      Comments:

1) CRI          SNMPTRAP3                     Critical
2) MAJ          SNMPTRAP2                     Major
3) MIN          SNMPTRAP1                     Minor
4) NON          NOACT                         (not an alarm)

-- End of List --
```

Obtaining the Sentinel 2000 IP address

After adding alarm level action items to generate SNMP traps, use the **dnp** command to display the Sentinel 2000 IP address and other network parameters. Use this IP address in the model IP address field when creating the **MSL-100** icon in the SpectroGRAPH GUI.

Figure 7 shows an example of the network parameters display.

Figure 7
Example of the Sentinel 2000 system network parameter display

```
>dnp

--- Display Network Params ---
--- Network Initialization Parameters ---
Start Network On Power-up?  Yes
Ethernet Address (hhhhhhhhhhhh):    09 23 02 12 00 EE
IP Address (nnn.nnn.nnn.nnn):  48.77.204.154
PPP Address (nnn.nnn.nnn.nnn): 121.91.203.4
Subnet Mask (nnn.nnn.nnn.nnn): 25.255.240.0
Default Gateway (nnn.nnn.nnn.nnn):  48.77.204.100
Network-Loss Alarm Delay Time:  60
```

The Sentinel 2000 system is now configured and ready for startup. Figure 8 on page 30 depicts the logical logs flow according to the system you have configured.

Figure 8
Logical DMS logs flow
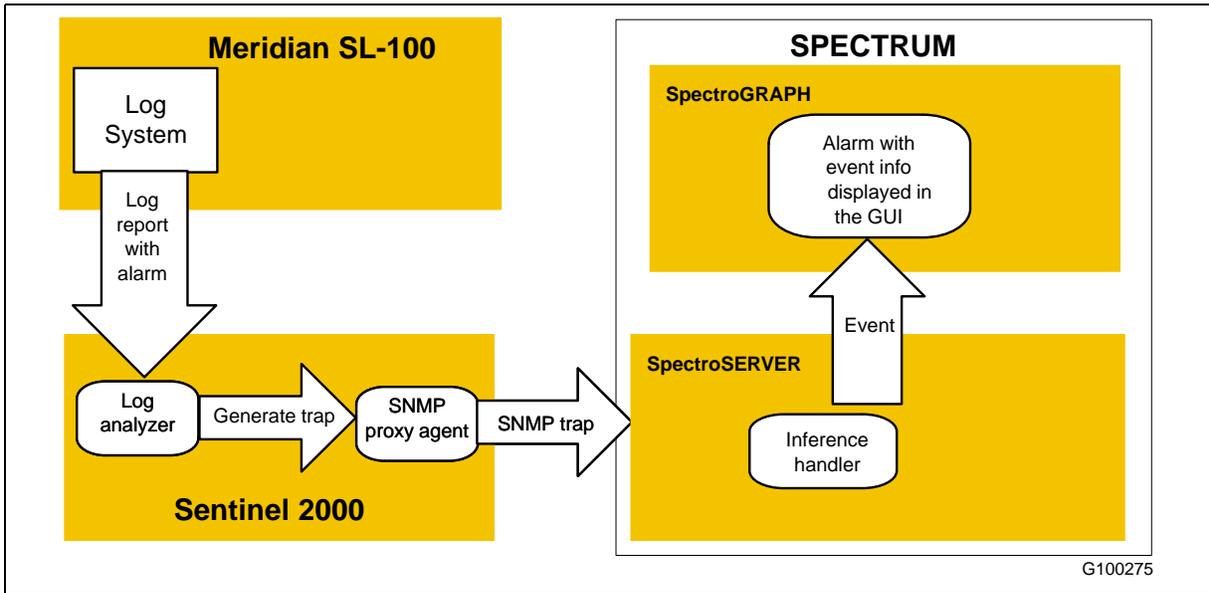
The Meridian SL-100 logs and alarms are directed to the Sentinel 2000 system where these original logs and alarms are mapped to SNMP traps. The SNMP traps from the Sentinel 2000 are routed to the SpectroSERVER where the traps have been configured in association with action items. These action items produce alarms with event information and are displayed in the SpectroGRAPH GUI.

You are ready to begin operating the system. Operating procedures are described in the "Getting started" on page 31.

Getting started

This chapter provides information about getting started using the Sentinel 2000 and the SPECTRUM systems. Familiarity with Meridian SL-100, the MAP terminal, the Sentinel 2000 system, and SPECTRUM systems is required. See the manufacturer's documentation for instructions about operating individual system hardware and software. See the *Meridian SL-100 Log Report Reference Manual* for information about Meridian SL-100 alarms. See *Getting Started with SPECTRUM* and the SPECTRUM system on-line help for information about using the SPECTRUM system. See the *MicroFrame User Guide* for the Sentinel 2000 for information about using the Sentinel 2000 system.

Once hardware and software configuration is complete, you are ready to start the event monitoring and alarm resolution activities. Use the following steps when operating the system:

1. Create a new Meridian SL-100 model in SpectroGRAPH.

2. Login to the Sentinel 2000 system.

3. Connect to the Meridian SL-100 from the Sentinel 2000 system.

4. Start Meridian SL-100 log routing to the Sentinel 2000 system.

5. Monitor the **MSL-100** icon for alarm notification.

6. Analyze events and alarms when notification is indicated.

7. Resolve alarms using a telnet session from the SPECTRUM system to the MAP terminal.

8. Manually clear the alarms in the SPECTRUM system.

SpectroGRAPH presents network device information from several perspectives within three hierarchical views: topology, location, and organizational.

See the *SPECTRUM System User Guide* for detailed information about setting up the hierarchical views in SpectroGRAPH.

Using the SPECTRUM system views

Use SpectroGRAPH system views to create Meridian SL-100 models, monitor the **MSL-100** icon for alarm interpretation, and perform alarm clearing procedures.

Creating a new model of the Meridian SL-100 in a SpectroGRAPH system view

After starting SpectroSERVER and SpectroGRAPH, use Procedure 4 to add a new Meridian SL-100 model to a SpectroGRAPH view.

Procedure 4
Create a new model of the Meridian SL-100 in a SPECTRUM system view

At the SpectroGRAPH view window:

1   Click the **File** menu item and select **Edit**.

     A grid appears in the view background.

2   Click the **Edit** menu item and select **New Model**.

     *The **Select Model Type** window showing a list of model types displays.*

3   Select **MSL-100** from the model type list and click **OK**.

     *The **Creating MSL-100** window displays.*

4   Fill in the fields in the **Creating MSL-100** window as shown in Table 3.

Table 3
Creating MSL-100 fields

Field	Description
Model name:	Enter a model name of your choice. The icon representing the switch will have the name that you enter in this field.
Network address:	Enter the Sentinel 2000 system IP address.
RMAP Address:	Enter the Meridian SL-100 ethernet interface unit (EIU) address. If no EIU is present, enter an IP address of a network node to which you may want to connect from the SPECTRUM system.
Community name:	Leave supplied entry unchanged.
Location:	Optional. Enter information for your own purposes.
Contact:	Optional. Enter information for your own purposes.
Serial number:	Optional. Enter information for your own purposes.
Security string:	Unused. Leave as is.

Table 3
Creating MSL-100 fields (Continued)

Field	Description
Polling interval:	Supplied. Denotes the frequency of the polling interval.
Log ration:	Supplied.
Device type:	Defaults to switch. Leave supplied entry unchanged.

5   Click **OK**.

*An icon representing the new model appears in the SpectroGRAPH universe view.*

6   Click the **File** menu and select **Save & Close**.

The grid disappears and the model type icon indicates the system status.

This procedure is now complete

If the SPECTRUM system has made contact with the device since the model was created, the contact status label device condition color is initially green. If no contact has been made, the contact status label device condition color is blue. Figure 9 illustrates a contact status label example as it appears in the SPECTRUM system GUI.

Figure 9
Contact status label display example
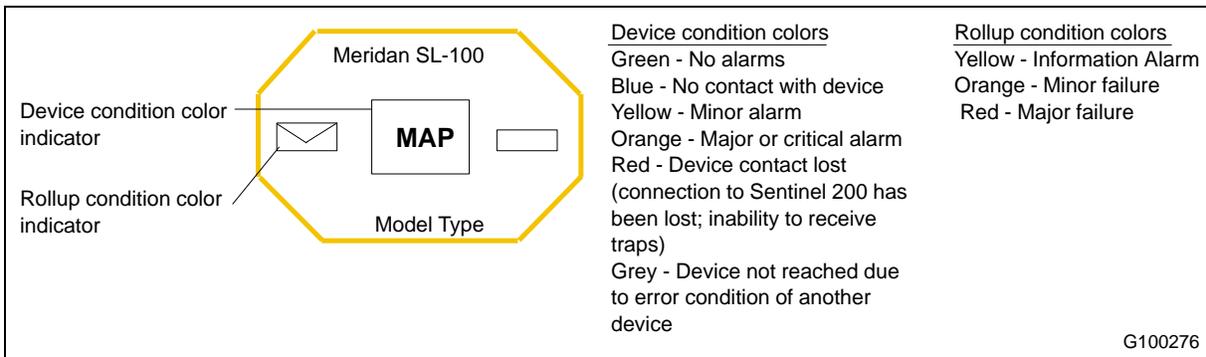
Connecting to the Meridian SL-100 from the Sentinel 2000 system

The next step after creating an Meridian SL-100 switch model in SpectroGRAPH is to establish a host connection from the Sentinel 2000 system to the switch. Use to connect to the Meridian SL-100 from Sentinel 2000 system.

Procedure 5
Connect to the Meridian SL-100 from the Sentinel 2000 system

At the Sentinel 2000 system login window:

1   Login to the Sentinel 2000 system (either by direct terminal connection or by telnet).

2   Initiate dial out to the host port connected to the Meridian SL-100 IOC port by entering:

`>js port_no`

and pressing **Enter**.

where

port_no   is the port identification number (1 to 4).

> ***Note:*** At this point, you can send AT commands to the Meridian SL-100 modem.

3   Test the modem response by entering:

`>AT`

and pressing the **Enter** key.

OK displays.

4   At the prompt, enter the appropriate modem commands to dial the Meridian SL-100 IOC port.

On the Meridian SL-100 MAP terminal window, the port state displays Disc until the Sentinel 2000 system connects. When the Sentinel 2000 system is connected, the port state is . (period).

On the Sentinel 2000 system host session display, Connect 9600 is displayed indicating the connection is established.

This procedure is now complete

Starting Meridian SL-100 log routing to the Sentinel 2000 system

The purpose of Procedure 3 on page 26 is to direct logs to the Sentinel 2000 system. If you configured your system by datafilling table LOGDEV (the permanent configuration), and you have not stopped the log routing process, you can see generated logs on the Sentinel 2000 in the host session. If you can see generated logs, skip Procedure 3 on page 26 and go on to "Monitoring the MSL-100 icon for alarm indications" on page 35.

After the Sentinel 2000 system communication with the Meridian SL-100 is established, use the MAP terminal to start (and stop, if needed) routing logs using the log utility.

Monitoring the MSL-100 icon for alarm indications

You are ready to monitor the **MSL-100** icon displayed in the SpectroGRAPH view for alarms and events. See Figure 9 on page 33 for basic information about icon indicators.

Use Procedure 6 to monitor events and alarm notifications for an Meridian SL-100 model in SpectroGRAPH.

Note: If the icon is any color other than green, or if the icon is blinking, diagnose and resolve any alarms, faults, or errors in modeling. Refer to the SPECTRUM system on-line help for detailed rollup condition and device condition color interpretation.

Procedure 6
Monitoring events and alarms in SpectroGRAPH

At the SPECTRUM view window:

1   Use the right mouse button to click the icon representing the Meridian SL-100 switch to access the Alarms view.

  *The **Alarms manager** window displays showing information about the alarms. Use this information to determine the actions needed to resolve the alarm in the Meridian SL-100 MAP terminal.*

2   Examine the events information tab for a selected alarm in the alarm manager.

  Note: The tab labelled "Events" contains detailed alarm information including the original Meridian SL-100 log report text.

3   Close the **Alarms manager** by clicking the window close bar or clicking the **File** menu item and selecting **Exit**.

This procedure is now complete

Actual Meridian SL-100 maintenance functions must be accomplished using a MAP terminal. After you have analyzed the alarm using the SPECTRUM system, use the next procedure to resolve the alarm by accessing MAP terminal using a telnet session from the SPECTRUM system.

Resolving alarms using a telnet session from the SPECTRUM system to the MAP terminal

Use Procedure 7 on page 36 to establish a telnet (or communication) session from the SPECTRUM system to the Meridian SL-100 MAP terminal.

Procedure 7
Resolve alarms using a telnet session from the SPECTRUM system to the MAP terminal

At a SpectroGRAPH view:

1   Double click the center of the **MSL-100** icon or use the right mouse pull-down menu to select the **MSL100 CsSTel Script** menu item.

A telnet window displays the MAP terminal login.

> **Note 1:** If you entered the Meridian SL-100 EIU address in the **Model Creation** window RMAP Address field, the MAP terminal login displays.

> **Note 2:** If you entered some other IP address in the RMAP Address field, the telnet window is populated with the appropriate system connection or login information.

2   Diagnose and resolve all Meridian SL-100 alarms reported in the SPECTRUM alarm events information using standard maintenance procedures for the Meridian SL-100.

3   Logout of the MAP terminal and disconnect the telnet session.

This procedure is now complete

Manually clearing alarms in the SpectroGRAPH alarms manager

Use Procedure 8 to clear alarms after resolving alarms using the MAP terminal.

Note: Clearing several alarms at the same time requires a relatively long time period. For this reason, avoid clearing many alarms at once.

Procedure 8
Manually clear alarms in the SpectroGRAPH alarm manager

At the SpectroGRAPH view:

1   Use the right mouse button to click the center of the **MSL-100** icon.

*The **Alarm Manager** window displays.*

2   Select the alarm(s) to be cleared.

3   Click the **Actions** menu item and select **Clear** or **Clear All**.

Attention	**ATTENTION**
	If alarms are not received, verify:
	• Sentinel 2000 system is connected to the host port
	• Sentinel 2000 system is configured to send traps
	• Logs are being routed to the Sentinel 2000 system

This procedure is now complete

List of terms

CI

Command interpreter. A component in the support operating system (SOS) that functions as the main interface between machine and user.

CM

Computing module. The process and memory of a dual-plane combined core (DPCC) used by DMS SuperNode.

EIU

Ethernet Interface Unit. The EIU is used to provide access to the MAP terminal from third party computing equipment (workstations, terminals, and printers) connected to the Meridian SL-100 by way of an external Ethernet LAN.

ETAS

Emergency technical assistance service.

GUI

Graphical user interface.

IOC

Input/output controller. A level in the maintenance and administration position (MAP) terminal. An equipment shelf that provides an interface between up to 36 input/output (I/O) devices and the central message controller (CMC).

LAN

Local area network. A network that permits the interconnection and intercommunication between multiple computers.

LIU7

Common channel signaling 7 (CCS7) link interface unit (LIU7). A peripheral module that processes messages entering and leaving a link peripheral processor through an individual signaling data link.

LPP

Link peripheral processor. The DMS SuperNode equipment frame or cabinet that contains two types of peripheral modules: a link interface module (LIM) and one or more application-specific units (ASUs).

MAP

Maintenance and administration position. A group of components that provides a user interface between operating company personnel and DMS-100 Family switches. The interface consists of a video display unit (VDU) and keyboard, a voice communications module, test facilities, and special hardware.

MIBS

Management information base structure. Structure used to define data management by Simple Network Management Protocol (SNMP). MIBS tools consist of a collection of applications that allow access and the management of any SNMP-compliant device through its MIBS.

MS

Message switch. A high-capacity communications facility that functions as the messaging hub of the dual-plane combined core (DPCC) of a DMS SuperNode processor.

NIU

Network interface unit. A peripheral module that provides the interface between an LIU7 in an LPP or enhanced multipurpose cabinet and the DMS-bus.

OM

Operational measurement. The hardware and software resources of the DMS-100 family switches that control the collection and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfers to displays and records. The OM data is used for maintenance, traffic, accounting, and provisioning decisions.

SNMP

Simple Network Management Protocol. A standard network management protocol developed by the Internet Engineering Task Force (IETF).

TCP/IP

Transmission control protocol/internet protocol. A collection of network protocols referred to as Internet Protocol Suite. A protocol that allows multi-vendor computer networks to share and communicate data across a network.

TTP

Trunk test positions. A maintenance and administration position (MAP) terminal specially equipped to perform trunk testing.

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