Optivity Telephony Manager

Maintenance Windows

User Guide

Document Number: P0910103
Document Release: Standard 1.0
Date: July 2000

Printed in the United States of America

Revision history

Date	Document Version	Product Release
July 2000	Standard 1.0	1.0

Contents

List of figures

List of tables

Introduction

The Meridian 1 switch has over 600 overlay-based maintenance commands and over 200 types of circuit cards to support its powerful capabilities. To maintain a Meridian 1, you must remember (or look up) which overlay has the appropriate commands and the syntax of each command—an enormous task!

Welcome to OTM Maintenance Windows. The 37 Maintenance Overlays are grouped into eight hardware-related windows to allow you to perform all maintenance tasks without having to remember or look up any overlay-based commands. The new interface provides a comprehensive view of Meridian 1 hardware configuration with the following benefits:

- see quickly the equipped hardware
  The hardware list works like a spread sheet data view—you can scroll through the list, sort the list, and select items for changing.
- select an item from the list and apply a Maintenance command from the right-mouse button popup menu
- print the list or copy it to a spreadsheet
- select a TN or DN and print the TN/DN block
- see Enabled/Disabled status in *real time*

For example, to disable a network loop, you click on the loop number and choose the **Disable** command from the menu. Maintenance Windows loads the appropriate overlay, executes the command, and displays the result of the action in a window that you can scroll and save.

About this user guide

This user guide provides you with an introduction to the OTM Maintenance Windows application as well as an overview of its major functions.

This chapter of the *Maintenance Windows User Guide* describes functions that are common to all of the Maintenance window applications. Be sure to read this section thoroughly to help you use these applications efficiently.

Subsequent chapters focus on the eight hardware related windows. A chapter is included on the Inventory Reporting application which is based on Overlay 117. For information on the web interface to maintenance applications, see “Maintenance Pages” on page 81.

Conventions used in this user guide

This user guide uses the following terms:

- *Computer system* refers to the hardware and software of an IBM-PC™ or 100% compatible PC
- *Windows* refers to the Microsoft® family of graphical user interface (GUI)-based operating systems
- *Mouse* refers to any standard PC pointing device. Common mouse actions include *point*, *click*, *right-click* and *double-click*
- standard Windows terminology includes: *icon, window, dialog box* (or *dialog*) and *menu*
- Angle brackets denote a single keyboard key. For example, <Esc> denotes the Escape key, labeled Esc on PC keyboards. Angle brackets with multiple keys denote keyboard keys to use simultaneously. For example, <Ctrl-Alt-Del> denotes the key sequence for rebooting a PC
- **This font** is used to designate buttons, menu choices and information that you enter

Help

This user guide does not discuss each Maintenance Windows function and command in detail. It only discusses the major functions and how they are accessed. For detailed information on each Maintenance Windows function, use the on-line Help function. You can use the Help function to obtain help for topics either directly or through its index and word-search functions. While running Maintenance Windows, you can obtain context-sensitive help on any topic you require by simply clicking **Help** from a specific dialog box or window.

To obtain help for a topic, click **Help** from the currently selected dialog box or window. This will access the Windows Help function and display context sensitive help information on the current topic.

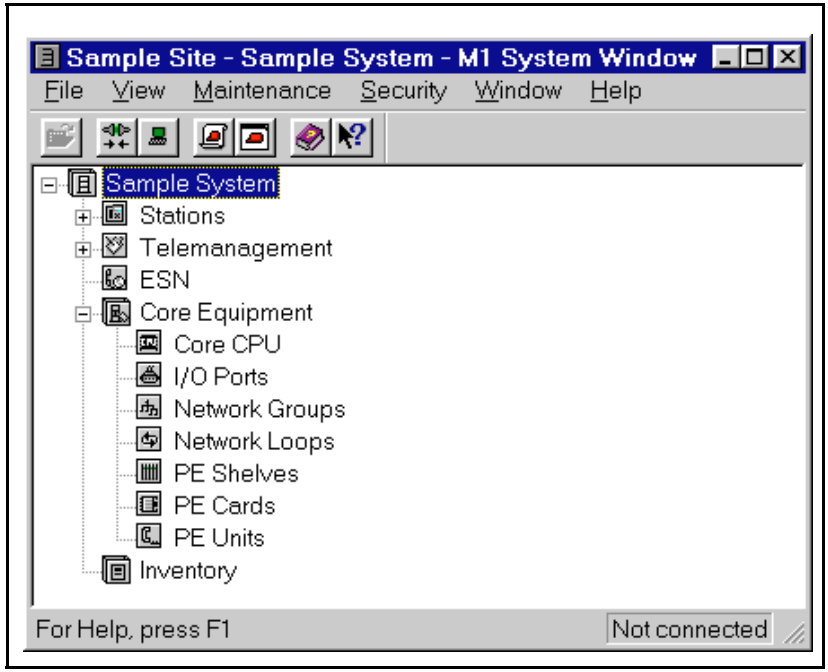
Once you access Help, scroll through the other Maintenance Windows help topics to search for a specific topic or print the help information.

To view a list of Help topics for Maintenance Windows, click **Contents** from the Help drop-down menu. Choose from one of the items in this list to load the Help file and display its information.

Launching a Maintenance Windows application

You launch Maintenance Windows applications from the OTM System window. Figure 1 shows the OTM System window.

Figure 1
OTM System window

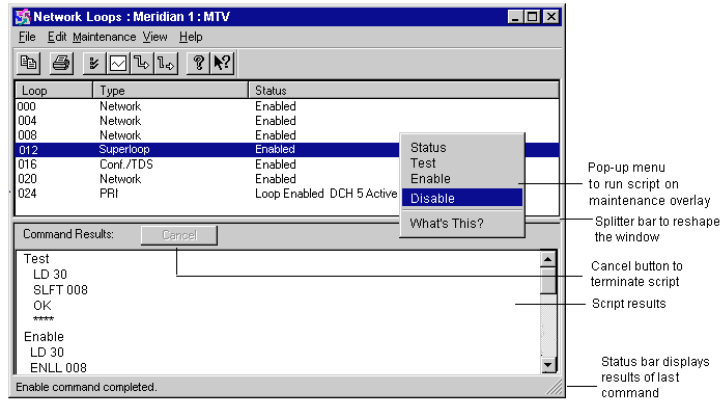


Under **Core Equipment**, double-click the icon for the desired Maintenance Windows application to launch that application. The appropriate window appears.

> ***Note:*** Each application is described in detail in a separate chapter in this document.

For example, double-click on the **Network Loops** icon to open the Network Loops window (see Figure 2). Each loop is listed, along with descriptive information. From this window, you can sort this information, select a loop and run maintenance commands, and get help on the selected loop.

Figure 2
Network Loops window



Maintenance Windows applications

OTM Maintenance Windows includes the following applications:

Core CPU

The CPU window displays the status of cards in both CPU shelves on the Meridian 1 at the selected site. You can perform actions and tasks on cards in the CPU shelf from the CPU window.

I/O Ports

The I/O (Input/Output) Ports window displays the status of all I/O ports on the Meridian 1, and allows you to execute actions and tasks on a selected port.

Network Groups

The Network Groups window displays the status of all Network Group Cards on the Meridian 1, and allows you to execute actions and tasks on a selected card.

Network Loops

The Network Loops window lists all the network loops on the Meridian 1 system. It allows you to execute actions and tasks on a selected loop by choosing commands from the Maintenance menu.

PE Shelves

The PE Shelves window displays the status of the Peripheral Controller Cards for each PE Shelf on the Meridian 1, and allows you to execute actions and tasks on a selected card.

PE Cards

The PE Cards window displays the status of all EPE and IPE Peripheral Equipment cards for each PE Shelf on the Meridian 1, and allows you to execute actions and tasks on a selected card.

PE Units

The PE Units window displays information for all PE units and Directory Numbers on the Meridian 1 system, and allows you to execute actions and tasks on a selected unit.

B- and D-channels

The PRI/PRI2 B and D-channels window displays the B and D-channels on the selected digital trunk (for example, PRI loop), and allows you to execute actions and tasks on a selected channel.

Option 11C Line Size Expansion

The Option 11C Line Size Expansion increases the Option 11C line capacity from the current three expansion cabinet configuration to a maximum of five expansion cabinets. Along with this expansion, the Option 11C supports an additional 20 IPE cards.

Option 11C Mini

The Option 11C Mini affords full Meridian 1 feature functionality to the 20 to 80 line PBX customer. The three mounting options, wall, rack, and table top, are fully OTM and X11 system software compatible. There is an option for an expansion cabinet that supports an additional four peripheral slots. OTM recognizes this system type as an Option 11C in the Navigator and System Properties windows.

Inventory Reporting

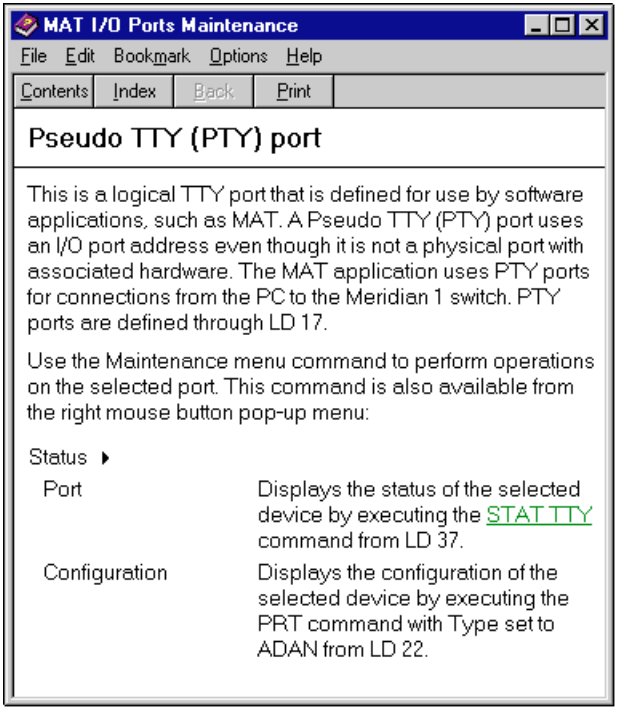
The Inventory Reporting window allows you to generate and download inventory files listing cards and sets installed in the Meridian 1.

Full documentation in on-line help

Each Maintenance Windows application is fully documented in the on-line help. Each menu command, button, and field is documented. Please be sure to consult the on-line help if you wish to get more detail about any of these items.

For help on an object in a list, select the item and use the right mouse button to select **What's This** help. Descriptive information on the item appears. For example, ask for help on a TTY object and the window shown in Figure 3 appears.

Figure 3
"What's This" help on PTY



Performing a maintenance task on an item

To perform a maintenance task on a card, loop, shelf, and so on, follow these steps:

1. Open the appropriate Maintenance Windows application.
2. Select the item from the list.
3. Choose a command from the **Maintenance** menu, the toolbar, or by using the right mouse button popup menu. A confirmation dialog box appears for potentially destructive commands.
4. The script appears in the command result section of the window, followed by the overlay output.

Meridian 1 connection

Maintenance window applications connect to the Meridian 1 by a Pseudo TTY (PTY). A PTY is a “software only” TTY that uses an I/O port address. PTYs appear in the I/O Ports window. One PTY is used for all Maintenance Windows users connected to the system (even from multiple PCs). One PTY is used for each System Terminal connection even if it is not logged into the overlays.

Queueing scripts

If the Meridian 1 is currently processing another user’s script, your command is placed in a queue. You must wait until your script is finished processing before you can choose another **Maintenance** menu command. However, while you are waiting, you can perform maintenance tasks on another type of system component using a different Maintenance Windows application.

Cancelling scripts

To remove a command from the queue or to cancel a command in progress, click **Cancel**. Pressing the **<Esc>** key also removes or cancels a command. If a command is in progress, **Cancel** aborts the current command and overlay by sending four stars (****).

Refreshing the hardware status in the list

The hardware status in the list is updated as follows:

- the list is updated every few seconds even if there is no activity on the OTM PC

  Note: You specify the interval on a per-window basis. See the **About Maintenance Windows** item in the **Help** menu.

- the selected object status updates at every OTM PC after every script (therefore if you disable a port from one PC, the status updates on all other PCs)
- the entire list updates after some scripts because multiple objects are affected (examples: Split CPU, Disable MSDL)
- you can manually refresh the hardware status display by pressing **<F5>**

Menu commands

Each menu command is fully documented in on-line help. The Status Bar provides useful information on the script to run (see “Using the Status Bar” on page 26).

You can also read **What’s This** help on any menu command. Press **<Shift><F1>** (or select **What’s This** from the **Help** menu) and select the command for full on-line documentation.

The **Maintenance** menu is unique for each hardware application, and is also fully documented in on-line help. In addition to the information provided in the Status Bar, you can read **What’s This** help on any menu command as described above.

Getting help on an error message

Sometimes, a maintenance command results in a Meridian 1 error message, such as NWS010.

To get help on the last error message (even if it has scrolled out of view):

- Choose **Error Message** from the **Help** menu.

To get help on a previously-displayed error message:

- Use the scroll bar to move to the error message. Double-click the error message.

  or

- Select the error and choose **Error Message** from the **Help** menu.

  or

- Press **<Ctrl>E** for information on the last error message.

Getting around in the maintenance window

You can use the maintenance window in the following ways:

Customizing the window and columns

- resize the window and columns using standard Windows 95 controls
- use the horizontal or vertical scroll bars to move around in the alarm display
- you can resize the column by dragging the column divider to make more room for text

  Note: An ellipsis (...) after column text indicates there is more information than will fit in the column.

- drag the splitter bar (that divides the window into two display areas) to change the sizes of the card list and command results display areas.

Sorting the list

By default, items are listed in an order optimized for that application. You can sort the list according to another column by clicking in that column heading. Click to sort in ascending order (an “up” arrow appears in the heading); click again for descending order (“down” arrow).

> ***Note:*** For help on the definition of any column in the list, click **What’s This** in the **Help** menu, and then click the column title.

Using shortcuts

The application provides convenient keyboard equivalents for many menu selections. You can perform the following common tasks by typing the accelerator keys:

- **<Ctrl>R (Status)**—displays detailed status information for the selected hardware device
- **<Ctrl>T (Test)**—performs predefined tests on the selected hardware device
- **<Ctrl>W (Enable)**—restores the selected hardware device to service
- **<Ctrl>D (Disable)**—removes the selected hardware device from service

Using the Toolbar

The Toolbar gives you quick access to selected commands. Each button is documented in the on-line help (see Figure 4).

Figure 4
CPU toolbar

Using the Status Bar

To display or hide the Status Bar located at the bottom of the window, use the **Status Bar** command in the **View** menu.

The Status Bar describes actions of the menu commands as you use the mouse to navigate through menus. When you select a **Maintenance** menu item, the status bar displays the following:

- the type of object selected
- the first overlay command in the script

When you run a **Maintenance** menu command, the Status Bar describes the progress of the command while it executes. For example, the Status Bar shows “Enable command in progress” when you choose an **Enable** command.

The Status Bar also displays the actions of the Toolbar buttons as you move the pointer over them.

Printing

You can print Maintenance Windows information by selecting the lines to print in the list or the command results area (or the entire section), and selecting **Print** from the **File** menu. Select **Print to File** in the Print dialog to export the data for use in a spreadsheet or other application.

Supported systems

Maintenance Windows is only supported in OTM Release 1 and higher, and on Meridian 1 systems with X11 Release 22 or later and the OTM Management Interface package (296).

The following Meridian 1 systems are supported:

- Option 11C
- Option 51C
- Option 61C
- Option 81
- Option 81C

It also supports the Option 11C Compact beginning with X27 Release 1.

Feature limitations

- Not all hardware maintenance commands are supported. See the tables in each Maintenance Window application chapter for the list of supported hardware and commands.
- Only one user can access a maintenance overlay at a time (this is an existing limitation of the overlays). Commands issued from a Maintenance window will be queued if:
  - — a TTY user has loaded a maintenance overlay
  - — another Maintenance window (same or different user) is running a script that uses the same maintenance overlay
  - — a previous command was issued from a Maintenance window (that is, you must wait until the first command is completed before issuing another)

One Pseudo TTY port is required for Maintenance Windows (regardless of the number of windows and logged-in users). Each instance of the System Terminal window (active or inactive) requires an additional Pseudo TTY port. This is in addition to the PPP/ethernet ports required for the basic OTM PC connection.

Maintenance window menus are not context sensitive to the maintenance state of the selected Meridian 1 object. For example, the enable command will not be grayed out if the object is already enabled. You will get the same response as entering the enable command in the overlay (usually an error message stating that the card is already enabled).

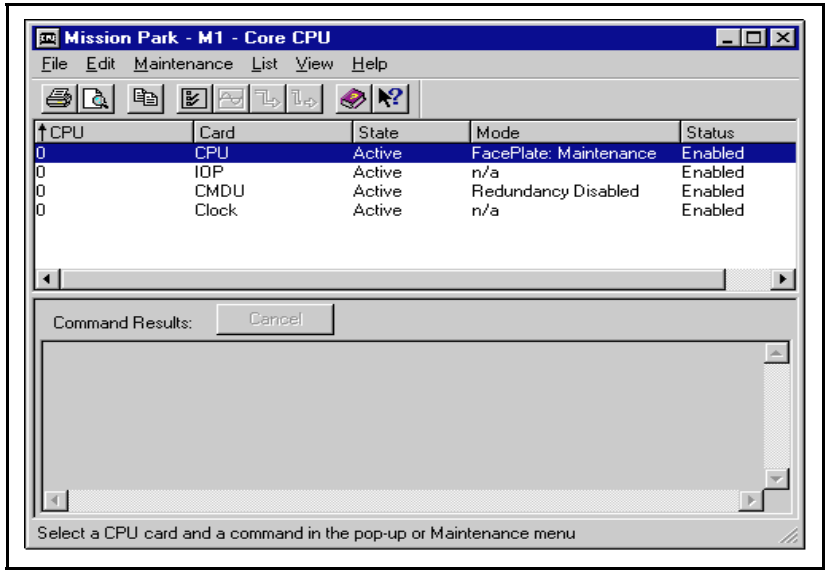
Core CPU window

The Core CPU window displays the status of cards in the CPU shelves on the selected Meridian 1 system.

Launching Core CPU

From the System window, under **Core Equipment**, double-click **Core CPU** icon. The Core CPU window appears as shown in Figure 5.

Figure 5
CPU window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

Core CPU column descriptions

The Core CPU window provides columns of information about each card installed in the shelf. The Core CPU list is initially sorted by CPU number (there may be one or two CPU shelves, depending on the hardware type). Table 1 describes each column.

Table 1
Core CPU window column descriptions

Column	Description
CPU	Shelf number associated with the card.
Card	CPU card type, the following types are listed: • Core Processing Unit (CPU) cards • Core Multi-Disk Unit (CMDU) cards • Input/Output Processor (IOP) cards • Clock Controller (Clock) cards • Fiber cards (Option 11C only)
State	A card can be in an active or standby state.
Mode	Mode applies only to CPU and CMDU cards: CPU cards may be in split or shadowed mode. The faceplate may be in Normal or Maintenance mode. CMDU cards may be in Redundancy enabled or Redundancy disabled mode.
Status	Current status of the card. For a more detailed status report, use the Status command in the Maintenance menu.

Supported Core CPU commands

Table 2 lists the hardware and Core CPU commands supported. Use System Terminal for hardware or commands not supported by the Core CPU window.

Table 2
Supported Core CPU Commands

Hardware	Supported	Commands supported
CP cards	yes	all, except split and shadow CPU commands
I/O Processor (IOP) cards	yes	all, except disable IOP and Ethernet commands ***Note:*** You will lose connection to M1.
Core Multi-Disk Units (CMDU)	yes	all
Clock Controller	yes	all
Fiber Link (Option 11C)	yes	all, including cabinet enable/disable commands
Fiber Link	yes	all
System Utility (SUTL)	yes	all

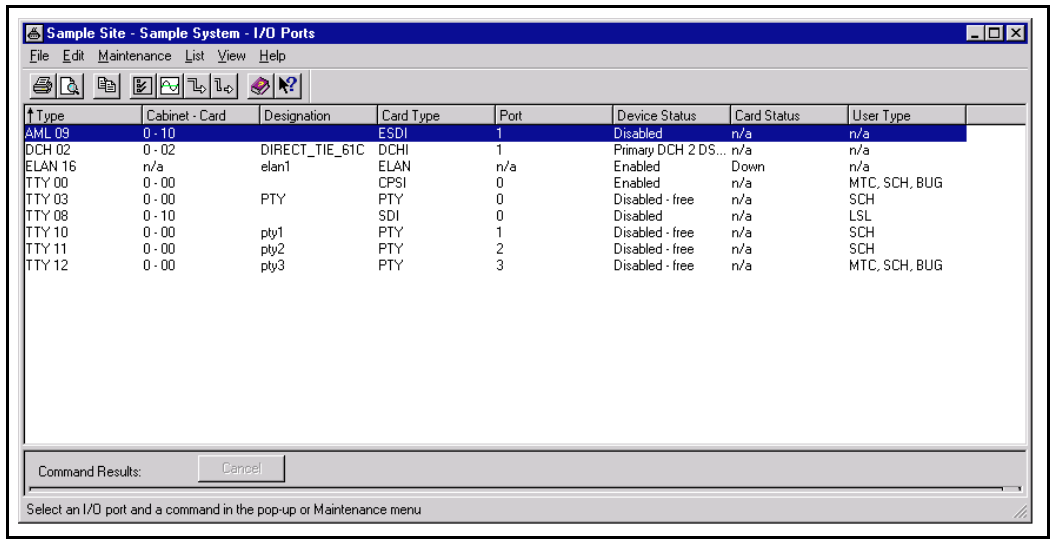
I/O Ports window

The I/O (Input/Output) Ports window displays the status of all I/O ports on the Meridian 1.

Launching I/O Ports

From the System window, under **Core Equipment**, double-click the **I/O Ports** icon. The I/O Ports window appears as shown in Figure 6

Figure 6
I/O Ports window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

I/O Ports column definitions

The I/O Ports window provides columns of information about each port in the system. The I/O Ports list is initially sorted by port type and number. Table 3 describes each column.

Table 3
Column descriptions (Part 1 of 3)

Column Name	Description
Type	Type and number of I/O port: • Teletype (TTY) • Printer (PRT) • Application Module Link (AML) • D-Channels • Intercept Computer Update Link (ICP) • Ethernet Local Area Network (ELAN) • Single Terminal Access (STA) • D-channel Digital Signaling Link (DDSL) • Low Speed Signaling Link (LSSL)
Device	Physical address of the card or port.

Table 3
Column descriptions (Part 2 of 3)

Column Name	Description
Designation	Port name.
Card Type	Card containing the I/O port: • Serial Data Interface Card (SDI) • Enhanced Serial Data Interface Card (ESDI) • D-channel Interface Card (DCHI) • Multi-purpose Serial Data Link Card (MSDL)
Port	Port number on the card.
Device Status	Current maintenance status of the port.
Card Status	Current maintenance status of the card. Applies only to MSDL Cards.

Table 3
Column descriptions (Part 3 of 3)

Column Name	Description
User Type	Indicates current port usage. • ACD: Automatic Call Distribution printer • APL: Auxiliary Processor Link • ICP: Intercept Computer Update Link • LSL: Low-speed AUX link • HSL: High-speed AUX link • XSM: System monitor • BGD: Background terminal • CTY: Call Detail Recording (CDR) TTY for CDR records • PMS: Property Management System Interface (PMS) • BUG: BUG messages included on port • CSC: Automatic Set Relocation and Attendant Administration messages (CSC) included on port • FIL: Output filtered messages included on port • MCT: Malicious Call Trace messages included on port • MTC: AUD, BUG, and ERR messages included on port • NOO: No overlay allowed on port • SCH: Service Change or any database change included on port • TRF: Traffic reports included on port

Supported I/O Ports commands

Table 4 lists the supported I/O Ports hardware and commands. Use System Terminal for hardware or commands not supported by the I/O Ports window.

Table 4
Supported I/O Ports commands (Part 1 of 2)

Hardware	Supported	Commands supported
TTY port on SDI/MSDL card	yes	all except test command
XSM (System Monitor) on SDI/MSDL card	yes	all
PRT - Printer port on SDI/MSDL card	yes	all except test command
PTY - Pseudo TTY port	yes	all
AML - (Application Module Link) on an ESDI/MSDL card	yes	all except message monitor commands
ACD High Speed Port on SDI/MSDL card	yes	all except message monitor commands

Table 4
Supported I/O Ports commands (Part 2 of 2)

Hardware	Supported	Commands supported
ACD Low Speed Port on SDI card	yes	all except message monitor commands
Auxiliary Processor Links on any SDI/MSDL card	yes	all except message monitor commands
Intercept Computer Update ports (ICP) on any SDI/MSDL card	yes	all except ICP application commands
D-channel on an MSDL/DCHI card	yes	all except message monitor commands
Single Terminal Access port	yes	all
MSDL card	yes	all except download version x of software
ACD Low Speed Link for Option 11C	yes	all
ICCM ELAN for ICCM	yes	all
DPNSS DDSL (D-channel)	yes	all
APNSS LSSL (D-channel)	yes	all

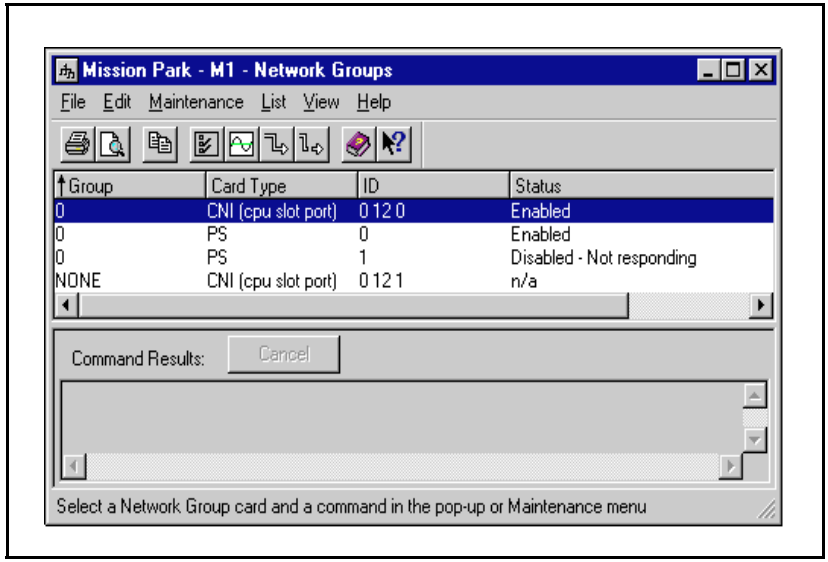
Network Groups window

The Network Groups window displays the status of all Network Group cards on the Meridian 1.

Launching Network Groups

From the System window, under **Core Equipment**, double-click the **Network Groups** icon. The Network Groups window appears as shown in Figure 7.

Figure 7
Network Groups window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

Network Groups column definitions

The Network Groups window provides columns of information about each port in the system. The Network Groups list is initially sorted by Group number. Table 5 describes each column.

Table 5
Column descriptions

Column Name	Description
Group	Network group identification number.
Card Type	Each network group can include the following cards: • Core to Network Interface cards (2 cards) • Peripheral Signaling cards (2 cards) • InterGroup Switch cards (4 cards)
ID	Card identification number. ID for CNI cards include the CPU number, slot number, and the port number.
Status	Current status of the card. For a more detailed status report, use the Status command on the Maintenance menu.

Supported Network Groups commands

Table 6 lists the supported hardware and Network Groups commands. Use System Terminal for hardware or commands not supported by the Network Groups application.

Table 6
Supported Network Groups commands

Hardware	Supported	Commands supported
Core to Network Interface (CNI) card	yes	all
Peripheral Signalling card	yes	all
InterGroup Switch card	yes	all
Fiber Junctor Interface (FIJI) card	yes	all

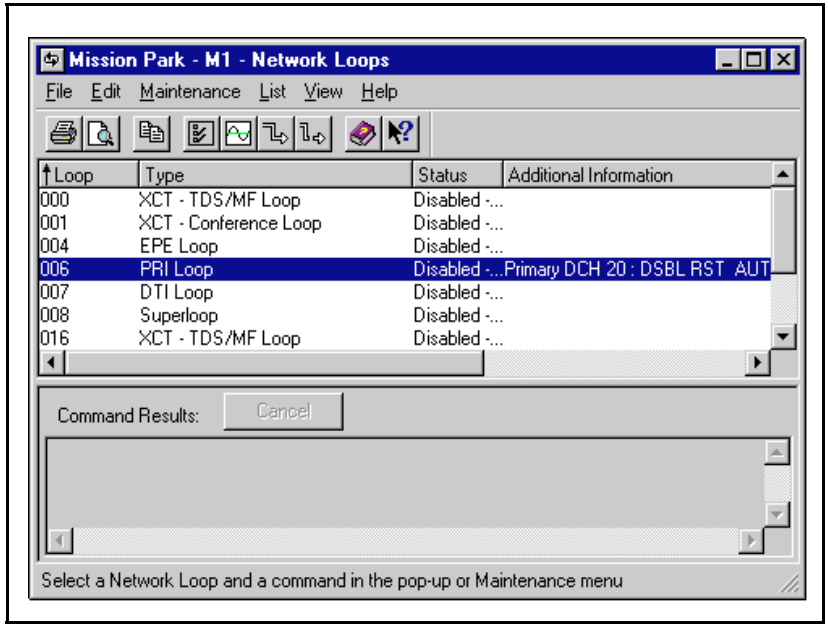
Network Loops window

The Network Loops window lists all the network loops on the Meridian 1 system.

Launching Network Loops

From the System window, under **Core Equipment**, double-click the **Network Loops** icon. The Network Loops window appears as shown in Figure 8.

Figure 8
Network Loops window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

Network Loops column descriptions

The Network Loops window provides columns of information about each loop in the system. The Network Loops list is initially sorted by Loop number. Table 7 describes each column.

Table 7
Network Loops window column descriptions

Column	Description
Loop	Loop number.*
Type	Type of Loop.
Status	Current status of the card. For a more detailed status report, use the **Status** command in the **Maintenance** menu.
Additional Information	Applies only to PRI/PRI2 and International RPE loops: • For PRI/PRI2 loops, displays the application status, link status, and designation for the Primary and Backup D-channels (DCH). • For 2.0 mb/s RPE loops, displays the RPE group number.
Note: *Loop is replaced by slot for Option 11C.	

Supported Network Loop commands

Table 8 lists the supported hardware and Network Loop commands. Use System Terminal for hardware or commands not supported by the Network Loops window.

Table 8
Network Loops (Part 1 of 2)

Hardware	Supported	Commands supported
Enhanced PE (EPE) Network Loop card	yes	all except test timeslot and LD45 XCON commands
Superloop cards	yes	all except LD 45 XCON commands and enable/disable background continuity tests
Digital Trunk Interface (DTI/DTI2) cards	yes	all
Primary Rate Interface (PRI/PRI2) cards	yes	all

Table 8
Network Loops (Part 2 of 2)

Hardware	Supported	Commands supported
Remote Peripheral Equipment (1.5 and 2.0 Mb/s) cards	yes	all
Meridian ISDN Signaling Processor (MISP) cards	yes	all except application download commands and Meridian Packet Handler commands
DPNSS/DASS2 cards	yes	all
APNSS cards	yes	all
Conference cards	yes	all
Tone and Digit Switch cards	yes	all
Conf/TDS cards	yes	all
Fiber Remote (FNET) card	yes	all
Multifrequency Sender cards	yes	all
Phantom loops	yes	None. Phantom loops do appear in the list of loops but there are no overlay commands for these loops.

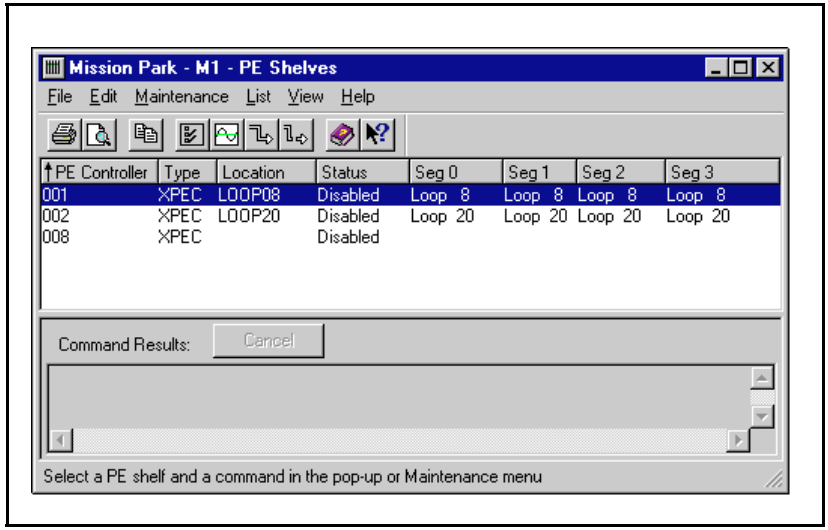
PE Shelves window

The PE Shelves window displays the status of the Peripheral Controller Cards for each PE Shelf on the Meridian 1.

Launching PE Shelves

From the System window, under **Core Equipment**, double-click the **PE Shelves** icon. The PE Shelves window appears as shown in Figure 9.

Figure 9
PE Shelves window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

PE Shelves column definitions

The PE Shelves window provides columns of information about each shelf in the system. The PE Shelves list is initially sorted by Controller card number. Table 9 describes each column.

Table 9
Column Descriptions

Column Name	Description
PE Controller	Identification number associated with the PE Controller Card.
Type	Type of controller card.
Location	Location of the PE shelf containing the PE Controller Card.
Status	Current status of the PE Controller Card.
Seg 0 to Seg 3	Identifies the loop supported by each of the four PE shelf segments.

Supported PE Shelves commands

Table 10 lists the supported hardware and PE Shelves commands. Use System Terminal for hardware or commands not supported by the PE Shelves window.

Table 10
Supported PE Shelves commands

Hardware	Supported	Commands supported
Peripheral Controller (XPEC) cards	yes	all
Fiber Remote (CARR)	yes	all
Fiber Remote (FPEC)	yes	all

PE Cards window

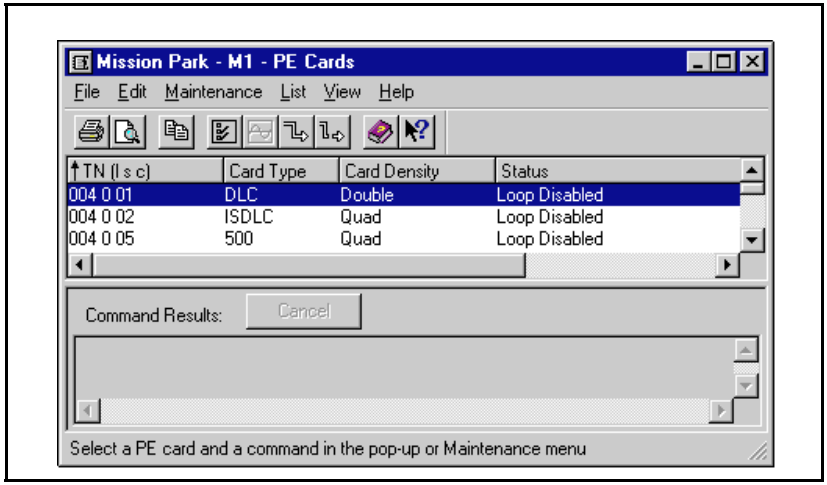
The PE Cards window displays the status of the all Peripheral Equipment Cards for each PE Shelf on the Meridian 1.

> ***Note:*** You cannot configure the MGate card through OTM. You must manually configure the MGate card in Overlay 11.

Launching PE Cards

From the System window, under **Core Equipment**, double-click the **PE Cards** icon. The PE Cards window appears as shown in Figure 10.

Figure 10
PE Cards window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

PE Cards column definitions

The PE Cards window provides columns of information about each card in the system. The PE Cards list is initially sorted by TN. Table 11 describes each column.

Table 11
Column descriptions

Column Name	Description
Terminal Number (loop shelf card)	Address of the card.
Note: TN is replaced with Slot for Option 11C. Tone Service in slot 0 is for DTR/XTD units 0-7, and DTR/XTD/MFC or MFR units 8-15. The individual units appear in the PE Units window.	
Card Type	The internal value and type of the various loops, as well as the name presented to the user. There are two types of line and trunks, one for EPE loops and one for Superloops. Superloops have a density of octal.
Card Density	Density of the card (this can differ from loop density). • Single • Double • Quad • Octal
Status	Current status of the PE Card. The status is a text string up to 10 characters. This is the same text as output by the overlays.

Supported PE Cards commands

Table 12 lists the supported hardware and PE Cards commands. Use System Terminal for hardware or commands not supported by the PE Cards window.

Table 12
Supported PE Cards commands

Hardware	Supported	Commands supported
IPE/EPE Line cards	yes	all
ISDLC cards	yes	all
IPE/EPE Trunk cards	yes	all
BRI Line cards	yes	all
BRI Signaling Processor (BRSC) cards	yes	all
Digitone Receivers (DTR)	yes	all
Multifrequency Receivers (DTR)	yes	all
Tone Detector cards	yes	all
Extended Tone Detector (XTD) cards	yes	all
Multifrequency Signaling (MFC/MFE/MFVE/MFK5/MFK6) cards	yes	all
Mobility:		
• EIMC	yes	none
• MXC	yes	none
Note: These cards appear in the list of cards. However, you must use the Mobility application to access all maintenance commands for these cards.		
ITG cards	yes	all

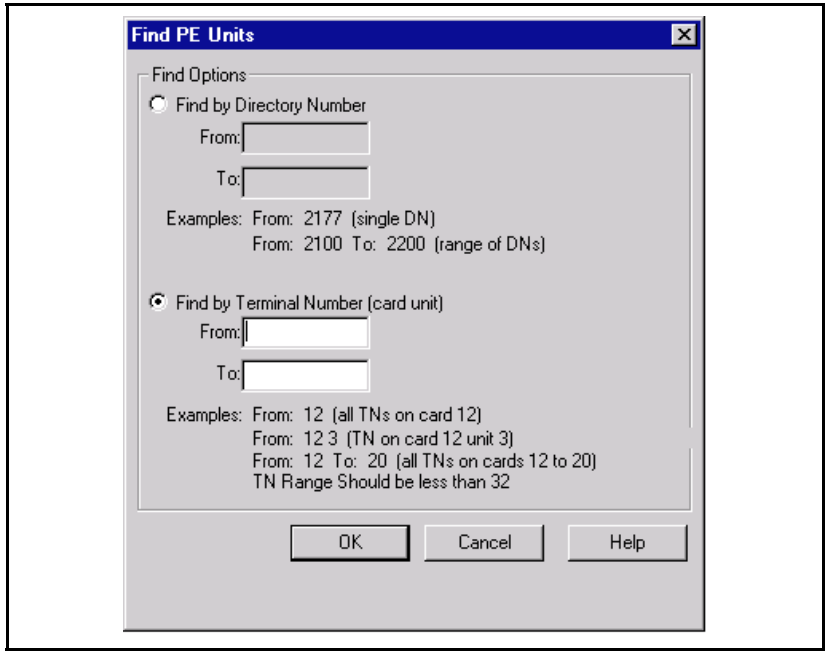
PE Units window

The PE Units window displays information for selected PE units and Directory Numbers on the Meridian 1 system.

Launching PE Units

1 From the System window, under **Core Equipment**, double-click the **PE Units** icon. The **Find PE Units** dialog box (Figure 11) appears to allow you to select a range of DNs or TNs. This helps you avoid uploading thousands of items.

Figure 11
Find PE Units dialog



You can view both TNs and DNs in the PE Units window.

- Viewing by TN is more useful than **print TNB**
- Viewing by DN is more useful than **print DNB**

2 Make a selection of DN or TN, select a range, and click **OK**. The PE Units window appears as shown in Figure 12 or Figure 13 (depending on whether you selected TN or DN) in the **Find** dialog box.

Figure 12
PE Units window (by TN)

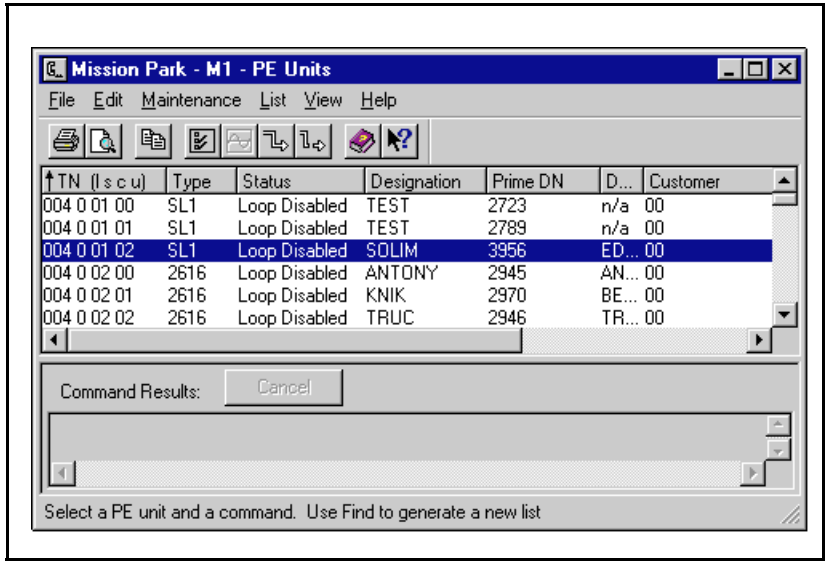
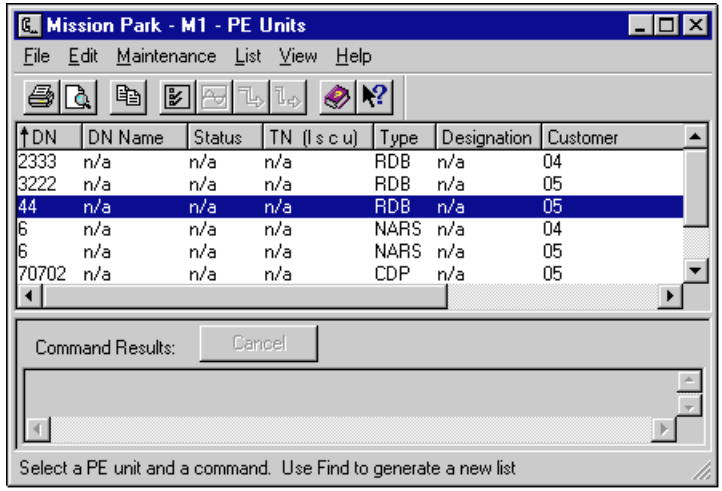


Figure 13
PE Units window (by DN)



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

PE Units column definitions

The PE Units window provides columns of information about each DN and TN in the system. The PE Units window is initially sorted by DN or TN number (depending on what you specified in the **Find PE Units** dialog box). Table 13 describes each column.

Table 13
Column definitions

Column Name	Description
TN	Terminal number address associated with the card. This address includes the loop, shelf, card, and unit number for all systems except Option 11. For Option 11 this address includes card and unit.
DN	Directory number.
Type	Type of PE unit.
Status	Current status of the PE unit. For a more detailed status report, use the Status command on the Maintenance menu.
Designation	Additional information about the unit, such as location or cabling details, specified by the person who installed the unit.
Prime DN	Directory number (DN) associated with key 0 on the telephone.
DN Name	Name associated with the directory number.
Customer	Customer number associated with the PE unit.
Date	Last date data was updated for this unit.
NCOS	Network Class of Service group associated with the unit.
Key	Telephone key number associated with the directory number (DN).
MARP	Indicates whether this telephone is the Multiple Appearance Redirection Prime (MARP).

Supported PE Units commands

Table 14 lists the supported hardware and PE Units commands. Use System Terminal for hardware or commands not supported by the PE Units window.

Table 14
Supported PE Units commands

Hardware	Supported	Commands supported
500 - 500/2500 telephone	yes	all
1250 - M1250 Console	yes	all
2003 - 2003 telephone	yes	all
2006 - M2006 telephone	yes	all
I2004 - i2004 Internet telephone (ITG)	yes	all
2008 - M2008 telephone	yes	all
2009 - M2009 telephone	yes	all
2016 - M2016 telephone	yes	all
2018 - M2018 telephone	yes	all
2112 - M2112 telephone	yes	all
2216 - M2216 telephone (ACD)	yes	all
2250 - M2250 Console	yes	all
2317 - M2317 telephone	yes	all
2616 - M2616 telephone	yes	all
3000 - M3000 Touchphone	yes	all
3901 - M3901 telephone	yes	all
3902 - M3902 telephone	yes	all

Note: The manual test command is not supported for any trunk type. Option 11C Model TNs are not supported.

Table 14
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
3903 - M3903 telephone	yes	all
3904 - M3904 telephone	yes	all
3905 - M3905 Call Center telephone	yes	all
3903H - M3903 Virtual Office Host Telephone	yes	all
3904H - M3904 Virtual Office Host Telephone	yes	all
ADM - Add-on Data Module	yes	all
AID - AIOD trunk	yes	all
ATT - QCW3/4 Console	yes	all
ATVN - Autovon trunk	yes	all
AWR - Automatic Wake-Up RAN/Music trunk	yes	all
CMOD - Class Modem	yes	all
BRI - Basic Rate Interface	yes	all
COT - Central Office Trunk	yes	all
CSA - CCSA trunk	yes	all
DIC - Dictation trunk	yes	all
DCE - Digital Cordless Set	yes	all
DID - DID trunk	yes	all
DTD - Dial Tone Detector	yes	all

Note: The manual test command is not supported for any trunk type. Option 11C Model TNs are not supported.

Table 14
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
DTR - Digitone Receiver	yes	all
FEX - Foreign Exchange trunk	yes	all
FGDT - Feature Group D Trunk	yes	all
IDA - Integrated Digital Access	yes	all
ISA - Integrated Services Access trunk (ISDN)	yes	all
ITG - Integrated IP Telephony Gateway	yes	all
MCU - Communications Unit	yes	all
MDECT - Meridian Digitally Enhanced Cordless Telecommunications (DECT)	yes	all
MDM - Modem/Data Module	yes	all
MFC - Multifrequency Signaling	yes	all
MFE - Multifrequency Signaling for Socotel sender/receiver	yes	all
MFK5/MFK6 - Spanish KD3 MF Signaling	yes	all
MFR - Multifrequency Receiver (FGD)	yes	all
MFVE - Multifrequency versatile units	yes	all
MUS - Music trunk	yes	all
OOSS - Out of Service Terminal	yes	all

Note: The manual test command is not supported for any trunk type. Option 11C Model TNs are not supported.

Table 14
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
PAG - Paging trunk	yes	all
PWR - Power	yes	all
R232 - Data Access unit	yes	all
R422 - Data Access unit	yes	all
RAC - Real Analog Channel	yes	all
RAN - Recorded Announcement trunk	yes	all
RCD - Recorder trunk	yes	all
RDC - Real Digital Channel	yes	all
RLM - Release Link Main trunk	yes	all
Mobility —MPORTBL ***Note:*** This card appears in the list of cards. However, you can only access the maintenance commands using the Mobility application.	yes	none

Note: The manual test command is not supported for any trunk type. Option 11C Model TNs are not supported.

Table 14
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
RLR - Release Link Remote trunk	yes	all
SL1 sets	yes	all
TCON - Tandem Connection for MPH	no	none
TDET - Tone Detector	yes	all
TIE - TIE trunk	yes	all
VAC - Virtual Analog Channel	yes	all
VDC - Virtual Digital Channel	yes	all
WAT - Wide Area Telephone Service trunk	yes	all
XTD - Extended Dial Tone Detector and Digitone Receiver	yes	all
DN types: ACDN, ADCP, CDN, CDP, CHDN, DISA, DSDN, FCC, LDN, MCDN, NARS, PARK, RDB, REFx, RLDN, RSA, SFP, SS25, T100, TSTx, VNS, IADN	yes	These are DNs that have no associated TN. Typically, the only command is print DN block.

Note: The manual test command is not supported for any trunk type. Option 11C Model TNs are not supported.

B- and D-channels window

The B and D-channels window displays the channels on the selected digital trunk. It allows you to execute overlay commands for a selected channel by choosing commands from the **Maintenance** menu. The results appear in the Command Results area of the window. The **Cancel** button allows you to terminate a command in progress.

The following types of channels appear in the B and D-channels window:

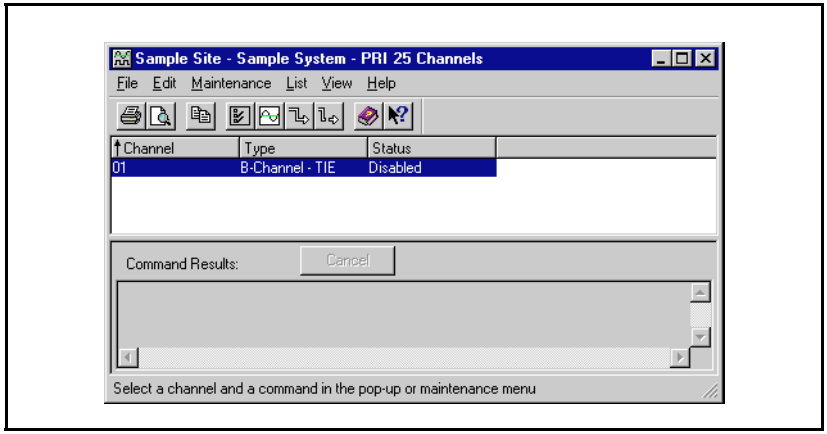
- B-channel on a PRI/PRI2/DTI/DTI2/DPNSS loop
- D-channel on DCHI Card
- D-channel on MSDL Card
- Real Analog Channel (RAC)
- Real Digital Channel (RDC)
- Virtual Analog Channel (VAC)
- Virtual Digital Channel (VDC)

Launching B- and D-channels

1 From the System window, under **Core Equipment**, double-click the **Network Loops** icon. Select a PRI/PRI2 loop.

2 From the **Maintenance** menu or the right mouse popup menu, select **Channels**. The B and D-channels window appears (see Figure 14).

Figure 14
Channels window



The command results area in the lower portion of the window displays the results of Maintenance menu commands.

B- and D-channels column definitions

The B and D-channels window provides columns of information about each loop in the system. The B and D-channels list is initially sorted by Channel number. Table 15 describes each column.

Table 15
Column definitions

Column Name	Description
Channel Number	Number associated with the channel. PRI loops may have 0-23 channels; PRI2 loops from 0-29 channels.
Type	Type of channel.
Status	Current status of the channel.

Supported B- and D-channel commands

Table 16 lists the supported hardware and commands. Use System Terminal for hardware or B- and D-channel commands not supported by the B and D-channels window.

Table 16
B and D-channels

Hardware	Supported	Commands supported
The window contains the list of channels for the selected loop. You can also access D-channels from the I/O ports window. DPNSS loops have both real and channels.	yes	all, except enable all channels on DTI cards and loopback test commands

Inventory Reporting

The OTM Inventory Reporting application allows you to generate system inventory files and download them to your PC. The inventory files list cards and sets installed in your system.

You must have Microsoft Excel 95 or later to use the Inventory Reporting application. You also need an Ethernet connection to your Meridian 1 switch.

Inventory Reporting is based on Overlay 117. For additional overlay information, see the *Meridian 1 X11 input/output guide*.

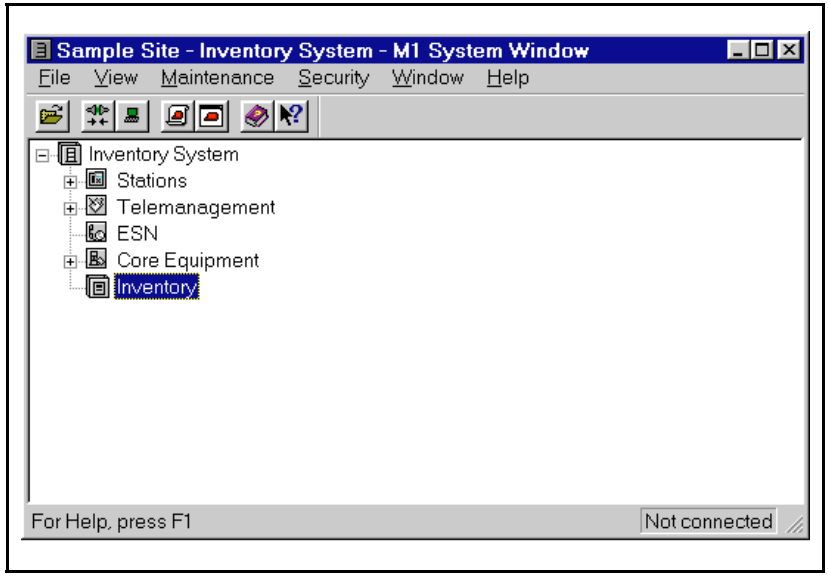
Launch Inventory Reporting

1 In your OTM Navigator window, open a System Window for the Meridian 1 system you wish to inventory. (See Figure 15.)

2 Connect to that system. (See the *Common Services User Guide* for procedures.)

Note: If you do not connect to a system before opening Inventory Reporting, some features are disabled.

Figure 15
Sample system window

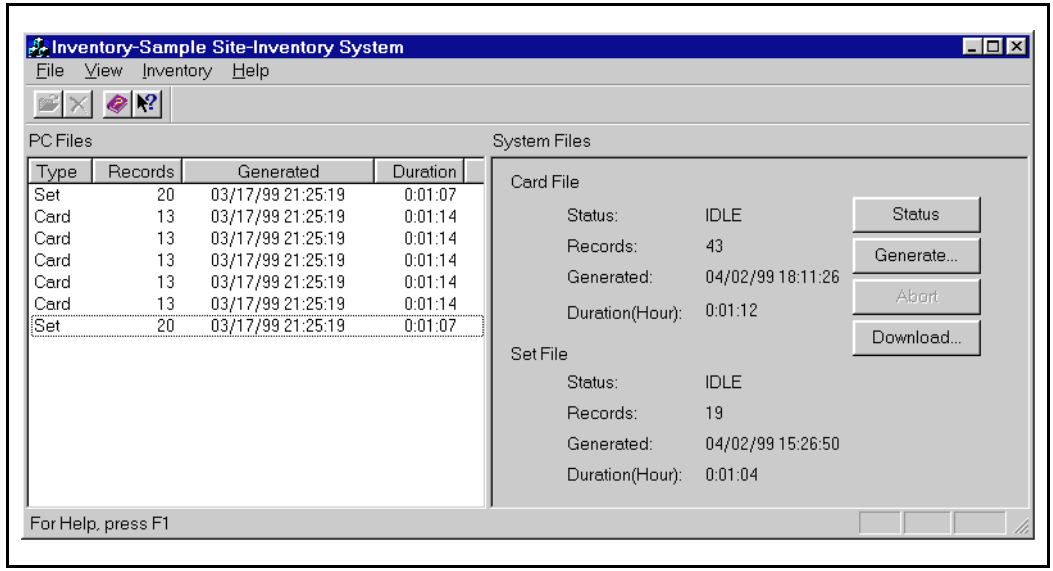


3 Once connected, double-click the System Window **Inventory** icon.

Note: If you have not connected to a system, a dialog box appears asking if you want to connect. Click **Yes** to connect to a system, or click **No** to proceed without connecting.

The Inventory window (Figure 16) appears.

Figure 16
Inventory window



The main Inventory window contains the PC Files frame and the System Files frame. The PC Files frame lists inventory files downloaded from the Meridian 1 system. The System Files frame provides status and statistics for the Meridian 1 system.

Main window menus

Inventory Reporting's main window menus include the following commands:

- **File**
  - **Open**: Open the file selected in the list view of the PC File frame.
  - **Delete**: Delete the file selected in the list view of the PC File frame.
  - **Exit**: Exit the Inventory window.
- **View**
  - **Toolbar**: Toggle the Inventory toolbar.
  - **Status Bar**: Toggle the status bar.
  - **Automatic Status**: If selected, Inventory Reporting updates the inventory file status displayed on the System File frame every 10 seconds.
- **Inventory**
  - **Abort...**: Abort any file generation now running on the system.
  - **Download...**: Download one or more inventory files from the system.
  - **Generate...**: Generate one or more inventory files.
  - **Status**: Query the inventory status of the system.
- **Help**
  - **Help Topic**: Provide a list of help topics.
  - **What's This?**: Change the cursor and display help information about the next item you select.
  - **About Inventory...**: Provide Inventory Reporting application release information.

Inventory files

The PC Files frame lists all inventory files downloaded from the Meridian 1 system. There are two types of inventory files available:

- **Card Inventory files**
- **Set Inventory files**

To open a file:

1 Select a file in the list.

2 Click **File - Open**.

Inventory Reporting creates a temporary report file (*.CSV) which opens in Microsoft Excel.

To delete a file from the list:

1 Select a file in the list.

2 Click **File - Delete**.

Card Inventory files

The Card Inventory file provides columns of information in Excel about each card configured in the system. Table 17 describes each column.

Figure 17
Sample Card Inventory file

MPK-M1-Option11 Inventory Report

Type: Card Records: 13 Generated: 03/17/99 21:25:19

TYPE	TN	ID PROM
500	012 0 09	<Unavailable>
500	012 0 14	<Unavailable>
BRI	012 0 04	<Unavailable>
BRI	012 0 05	NT6D70BA 05001F00000000000000000
DLC	012 0 08	NT8D02AB 033KV500000000000000000
DLC	012 0 10	NT8D02AA0818084035400000000000000
DLC	012 0 12	<Unavailable>
DTR	012 0 15	NT8D16AA0618073566800000000000000
MSDL	8	NT6D80AA 1500EE
Superloop	12	NT8D04BA 0204E0
Superloop	12	XPEC4 NNTM1830F6A3 NT8D01BC 03
XEM	012 0 03	<Unavailable>
XUT	012 0 02	<Unavailable>

Table 17
Card Inventory file column descriptions

Column name	Description
TYPE	Card type.
TN	Terminal number address associated with the card.
ID PROM	32 byte ASCII string whose characters (in order) represent: • Product Engineering Code (PEC) • Color (numeric representation) • Release • One blank character • Product Serialization ID • One blank character • Other (free field)

The following card types are included in the Card Inventory file:

- **all IPE and common equipment cards**
- **all Meridian 1 cards that have a Hardware ID (a.k.a. ID PROM)**

The following card types are not included in the Card Inventory file:

- **cards manufactured without an ID PROM**
- **TTY or PC cards**
- **Power Supply**
- **any non-Nortel Networks (third-party) cards, including those designed to simulate included cards.**

Set Inventory files

The Set Inventory file provides columns of information in Excel about each set configured in the system. Table 18 describes each column.

Figure 18
Sample Set Inventory file

MPK-M1-Option11 Inventory Report

Type: Set Records: 20 Generated: 03/17/99 21:25:19

TYPE	TN	ID PROM	DESIGNATOR	PRIMARY DN
2016	012 0 08 06	<Unavailable>	2016	2032
2016	012 0 08 22	<Unavailable>	MCA	2332
2216	012 0 08 03	<Unavailable>	AGNT1	2951
2216	012 0 08 08	<Unavailable>	NAGNT1	3951
2216	012 0 08 09	<Unavailable>	NACD	4950
2216	012 0 08 10	<Unavailable>	NAGNT1	4951
2616	012 0 08 00	<Unavailable>	2616	2020
2616	012 0 08 02	M2616 NT2K16WK 35 01 C31632	2616	20210
2616	012 0 08 04	M2616 NT2K16WM 35 01 C310C8	2616	2022
2616	012 0 08 11	M2616 NT2K16WN 35 01 33A45D	2616	3021
2616	012 0 08 12	<Unavailable>	2616	4021
2616	012 0 08 16	<Unavailable>	MCA	2320
2616	012 0 10 00	<Unavailable>	DJL	0
3901	012 0 08 15	<Unavailable>	TAUR	0
3905	012 0 08 14	<Unavailable>	TAUR2	0
AWR	012 0 02 06	<Unavailable>	AGNT1	0
R232	012 0 12 00	<Unavailable>	R232	2301
R232	012 0 12 01	<Unavailable>	R232	2302
R232	012 0 12 04	<Unavailable>	R232	2303
R232	012 0 12 05	<Unavailable>	R232	2304

Table 18
Set Inventory file column descriptions

Column name	Description
TYPE	Set type.
TN	Terminal number address associated with the set.
ID Prom	32 byte ASCII string whose characters (in order) represent: • Product Engineering Code (PEC) • Color (numeric representation) • Release • One blank character • Product Serialization ID • One blank character • Other (free field)
DESignator	6 character ASCII string used by Station Administration and Overlay 11.
Primary DN	Primary directory number.

The following sets are included in the Set Inventory file:

M2006
M2008
M2016
M2616
M2216
M390X
M3110
M3310
M3820

The following sets (and data units) are not included in the Set Inventory file:

- Data units on:
  - M2006
  - M2008
  - M2016
  - M2616
  - M2216
  - M390X
  - M3110
  - M3310
  - M3820

- **SL-1 sets and data units**
- **500/2500 sets and data units**
- **Any other digital sets or data units**
- **Any non-Nortel Networks (third-party) sets, including those designed to simulate included sets.**

Generate an inventory file

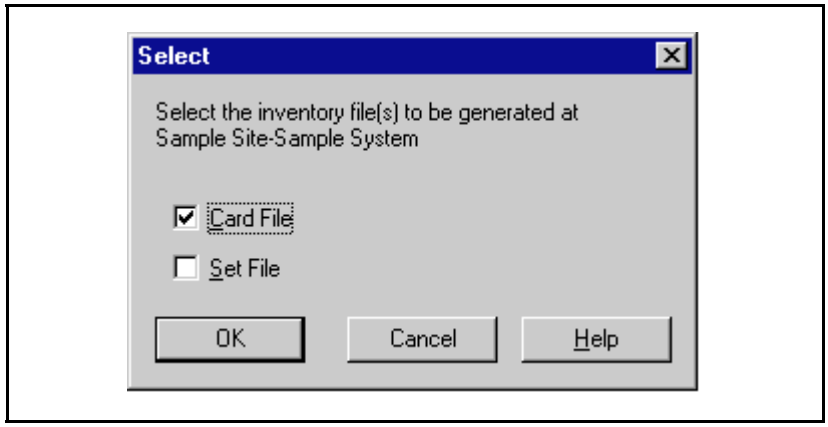
You will need System Administrator privileges to generate an inventory file.

To generate an inventory file:

1 In the Inventory window, select **Inventory - Generate...**

A dialog box appears.

Figure 19
Select file to generate



2 Check **Card File** to generate the Card Inventory file.

3 Check **Set File** to generate the Set Inventory file.

Note: If both boxes are checked, both files will be generated.

4 Click **OK** to begin generating the file(s).

Download an inventory file

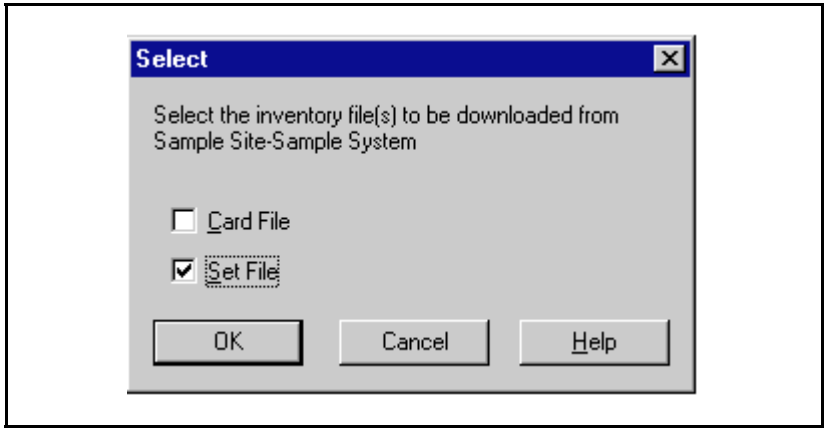
You will need System Administrator privileges to download an inventory file.

To download an inventory file:

1 In the Inventory window, select **Inventory - Download...**

A dialog box appears.

Figure 20
Select file to download



2 Check **Card File** to download the Card Inventory file.

3 Check **Set File** to download the Set Inventory file.

Note: If both boxes are checked, both files will be downloaded.

4 Click **OK** to begin downloading the file(s).

Check file generation status

To check file status:

1 In the Inventory window, select **Inventory - Status**.

The System Files frame information is updated. Set and Card Inventory status consists of a state value and a substate value. See Table 19 and Table 20 for their interpretations.

Table 19
Valid state values

State value	Meaning
IDLE	There is no activity on the switch involving the inventory files.
BUSY	An inventory file is in use.

Table 20
Valid substate values

Substate value	Meaning
NONE	There is no activity on the switch involving the inventory files.
GENERATING	An inventory file is being generated by the switch software.
DOWNLOADING	An inventory file is being downloaded from the switch to the PC.

Abort file generation

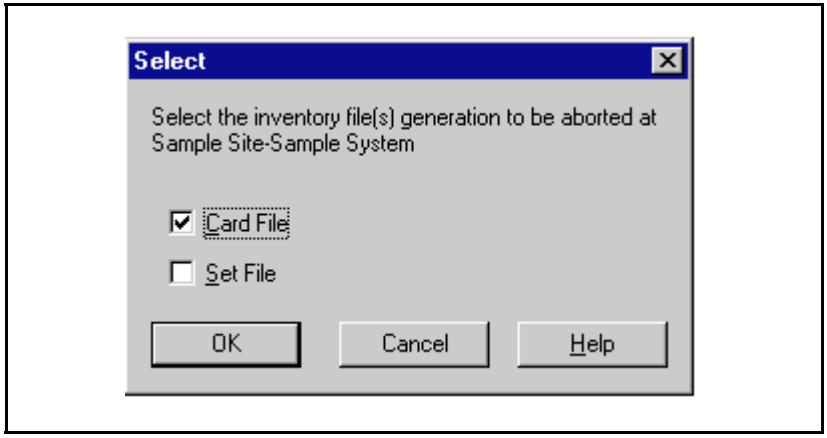
You will need System Administrator privileges to abort generation of an inventory file.

To abort inventory file generation:

1 In the Inventory window, select **Inventory - Abort**

A dialog box appears.

Figure 21
Select file to abort



2 Check **Card File** to abort generation of the Card Inventory file.

3 Check **Set File** to abort generation of the Set Inventory file.

Note: If both boxes are checked, both files will be aborted.

4 Click **OK** to abort generation of the file(s).

Maintenance Pages

Maintenance Pages are based on existing Maintenance Windows. You can use them to perform maintenance operations on Meridian 1 hardware. A subset of Maintenance Windows capability is provided in OTM Maintenance Pages.

Basic operation

Maintenance pages retrieve a list of hardware configured in the Meridian 1. They also retrieve the hardware status (enabled, disabled, etc.) and selected properties (Terminal Number, Directory Number, etc.).

Each type of hardware has a list of available maintenance commands (enable, disable, etc.) which are unique to each type of hardware. When you execute a command, OTM performs the following:

1 Logs on the Meridian 1.

Note: You must define the Meridian 1 UserID and password via the Administrator Template in the OTM Windows Navigator. See page 100. If this is not done, Maintenance Pages cannot connect to the Meridian 1. For Maintenance Windows, if the UserID and password are not entered in the Administrator Template, the user is prompted for the UserID and password when connecting to the Meridian 1.

2 Loads the appropriate maintenance overlay.

3 Issues the appropriate maintenance command including any parameters (such as the TN).

4 Collects the overlay response to the command and displays this to the Maintenance Pages user.

5 Updates the status of the hardware to the Maintenance Pages user.

6 Logs off the Meridian 1.

Note: In OTM 1.0, only the PE Cards, and PE Units pages allow you to perform all of the maintenance operations available in Maintenance Windows. The other pages (CPU, Loops, etc.) only provide status commands.

In Maintenance Pages, select the type of equipment to view. This displays a list of hardware with the maintenance state of each component. Each component has a link to a corresponding maintenance page.

Each type of hardware has its own list of components. Each list contains different columns of information including the maintenance status (enabled, disabled, etc.).

The PE Units list has an additional Find page which is used to generate the list. The Find can do a retrieval from the M1 via TNs or DNs. This additional Find page is useful because you do not typically want to retrieve all TN or DNs (potentially 1000's).

The list is not dynamic. You must refresh the page to get updated component status.

Access Maintenance Pages

User Login and Security

The user logs into the OTM Navigator via their Windows NT user ID and password. Login security for OTM Web Services ensures protection against unauthorized entry and enforces access privileges for logged on users.

There are three categories of users:

- OTM administrator
- OTM technicians
- Desktop Services users

OTM administrators and technicians have user accounts in a Windows NT domain. Desktop Services users may have accounts on Windows NT domains or on LDAP servers.

Web application access privileges are controlled by the Administrator on a per Windows NT user group basis. For example the administrator may limit the OTM users access to only some of the OTM Web based functionality. The Web Navigator controls access to applications by shielding Web links that the user does not have access to. The directories and files comprising those applications are similarly protected. For additional information on configuring users and assigning access privileges, see the *Optivity Telephony Manager Common Services User Guide*.

Figure 22 shows the OTM login page. If the login is successful, the OTM Web Navigator page appears. If login is denied, an error message appears.

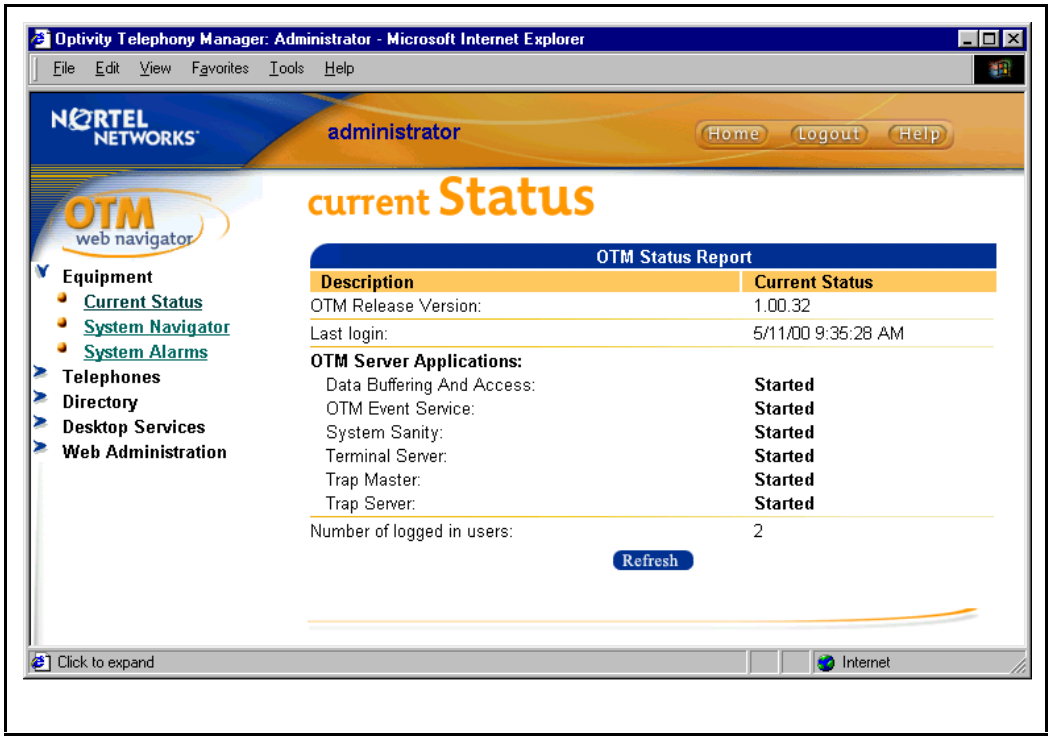
Figure 22
OTM Navigator Administrator login page

OTM Status page

As shown in Figure 23, when the administrator logs in, the OTM status page appears. You can access this page at any time by clicking on the “OTM graphic” on the top of the tree or the Home button. The OTM Status Report contains:

- Last Login date
- Alarm Notification and DBA status
- LDAP sync failures
- Number of logged in users

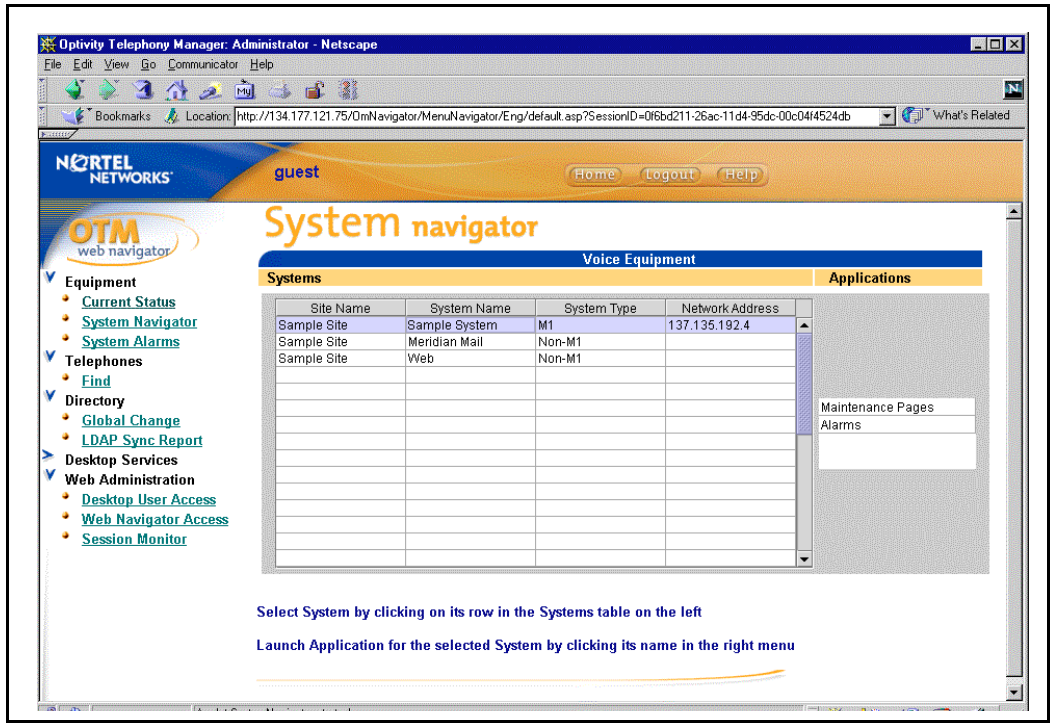
Figure 23
OTM Administrator Status page



OTM System Navigator page

Click System Navigator in the OTM web navigator tree to open the System Navigator page. The System Navigator page contains a list of the systems defined in the OTM Windows Navigator. See Figure 24.

Figure 24
System Navigator page



To launch the Maintenance Pages application:

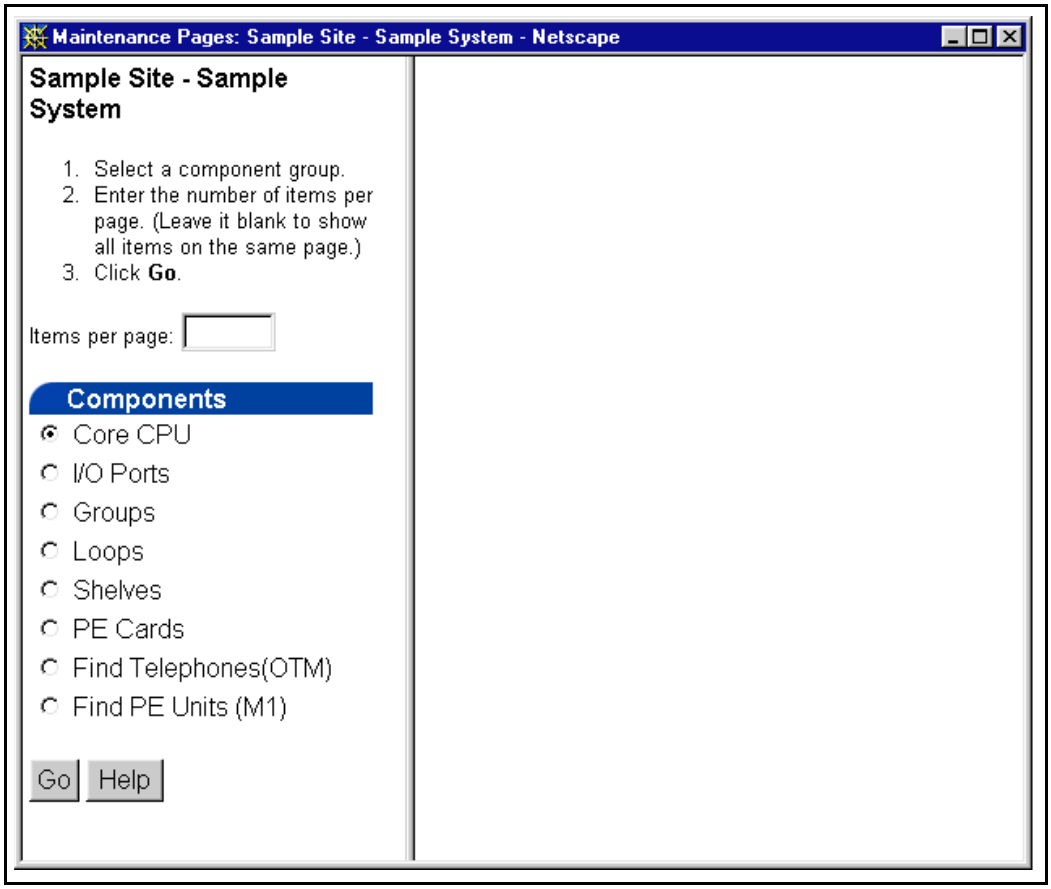
1 Click on a Meridian 1 system on the System Navigator page.

Note: Maintenance Pages supports Meridian 1 systems equipped with X11 Release 22 and later software.

2 Click on **Maintenance pages** in the Applications list.

The OTM Maintenance Pages application opens in a new browser window as shown in Figure 25.

Figure 25
Open Maintenance Pages



Maintenance Page screens

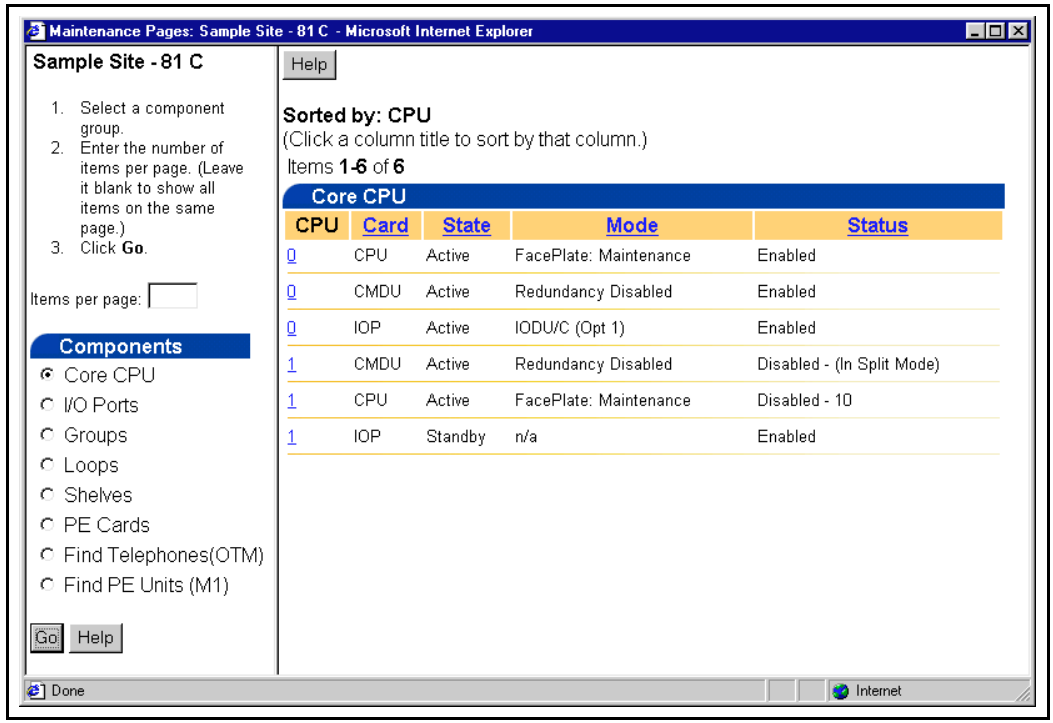
3 From the list in Maintenance Pages, click the type of equipment you want and click **Go**.

This action displays a list of hardware components with the maintenance state of each component. A link is provided to a maintenance page which contains additional details about the component.

As shown in Figures 26-33, each hardware component has its own list of equipment. The list provides columns of information, including the maintenance status of each item. This list is not dynamic, and you must refresh the page to get updated component status information

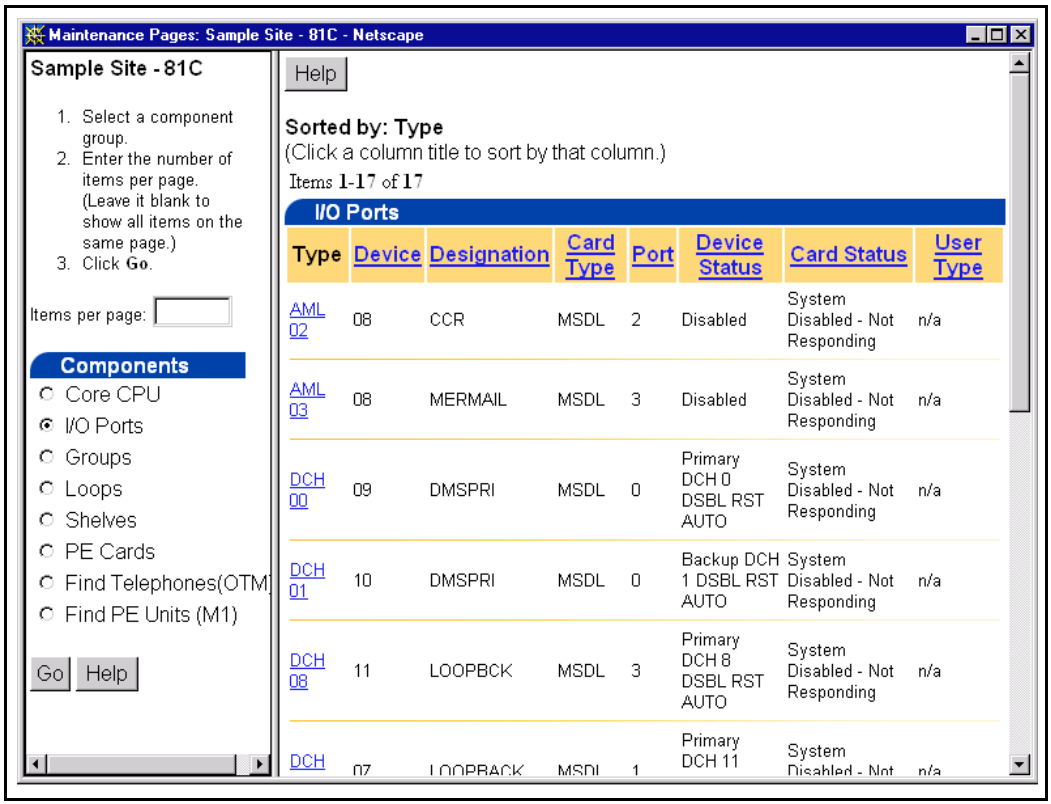
a Select the **Core CPU** button and click **GO**. The Maintenance Pages CPU screen appears as shown in Figure 26.

Figure 26
Maintenance Pages CPU screen



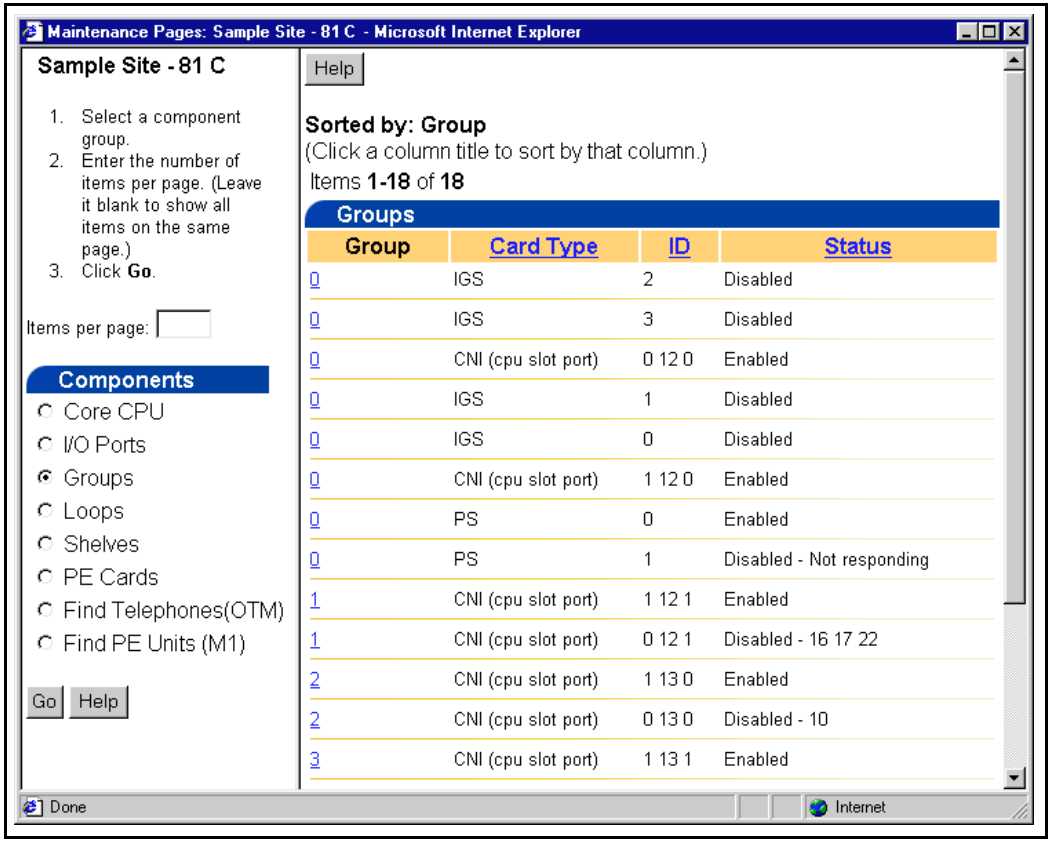
b Select the **I/O Ports** button and click **GO**. The Maintenance Pages I/O Ports screen appears as shown in Figure 27.

Figure 27
Maintenance Pages I/O Ports screen



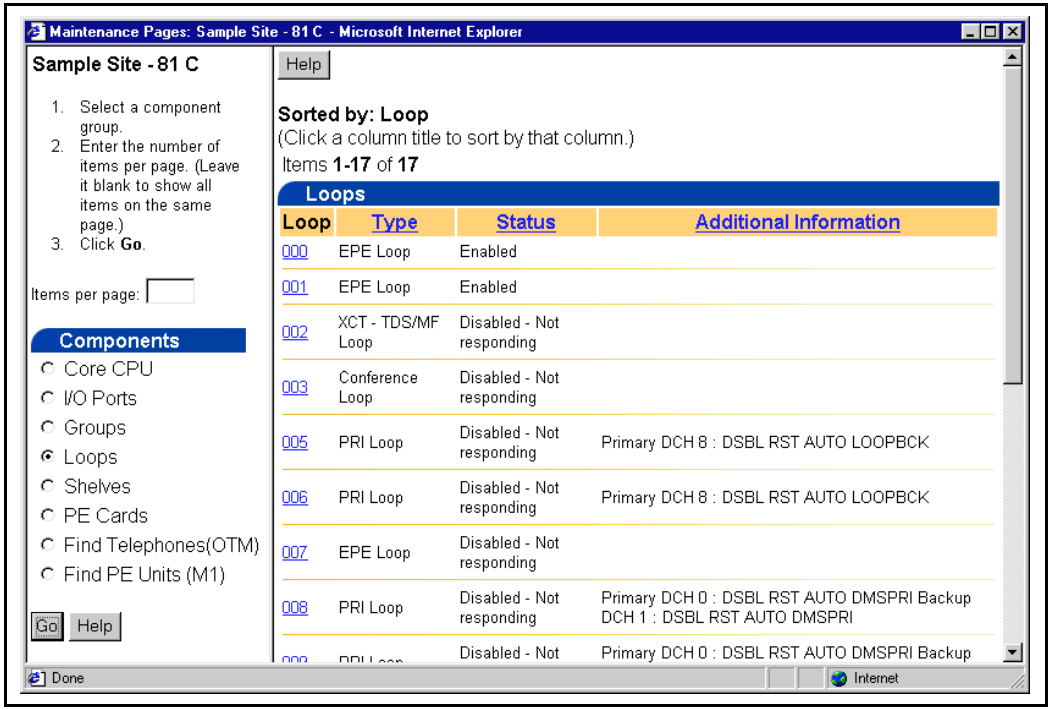
c Select the **Groups** button and click **GO**. The Maintenance Pages Network Groups screen appears as shown in Figure 28.

Figure 28
Maintenance Pages Network Groups screen



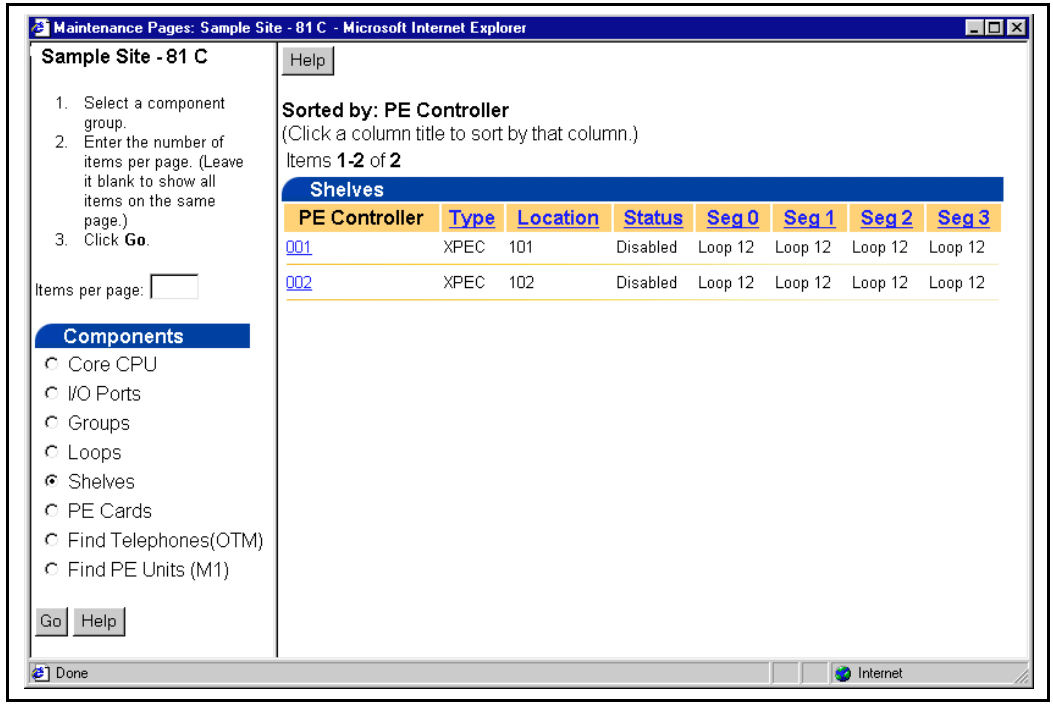
d Select the **Loops** button and click **GO**. The Maintenance Pages Network Loops screen appears as shown in Figure 29.

Figure 29
Maintenance Pages Network Loops screen



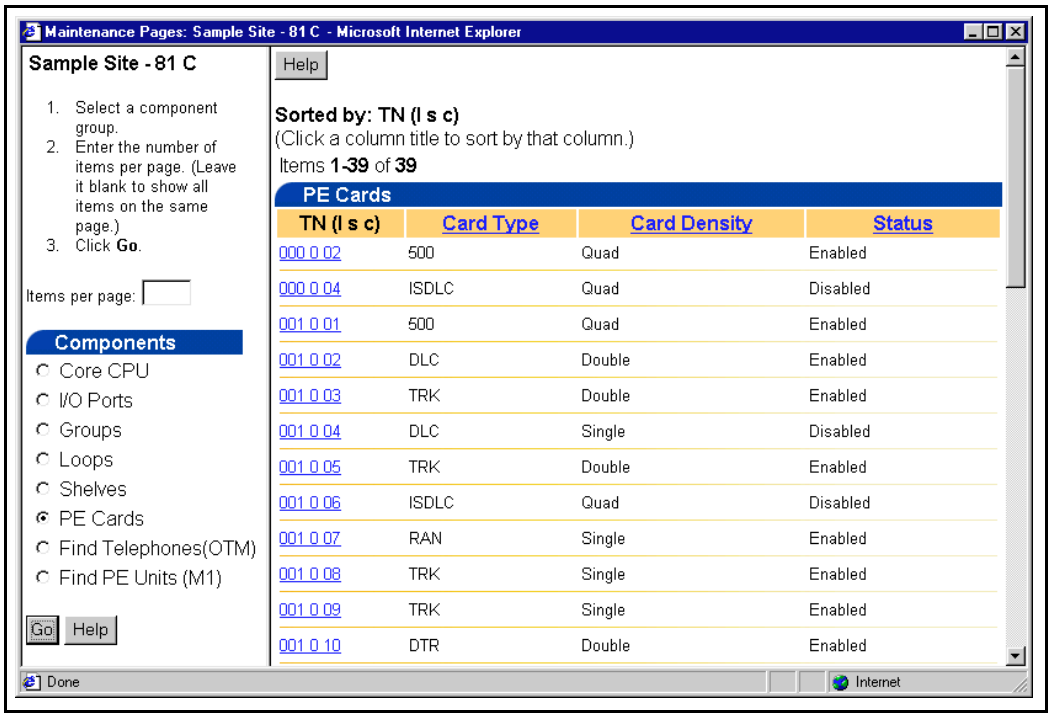
e Select the **Shelves** button and click **GO**. The Maintenance Pages PE Shelves screen appears as shown in Figure 30.

Figure 30
Maintenance Pages PE Shelves screen



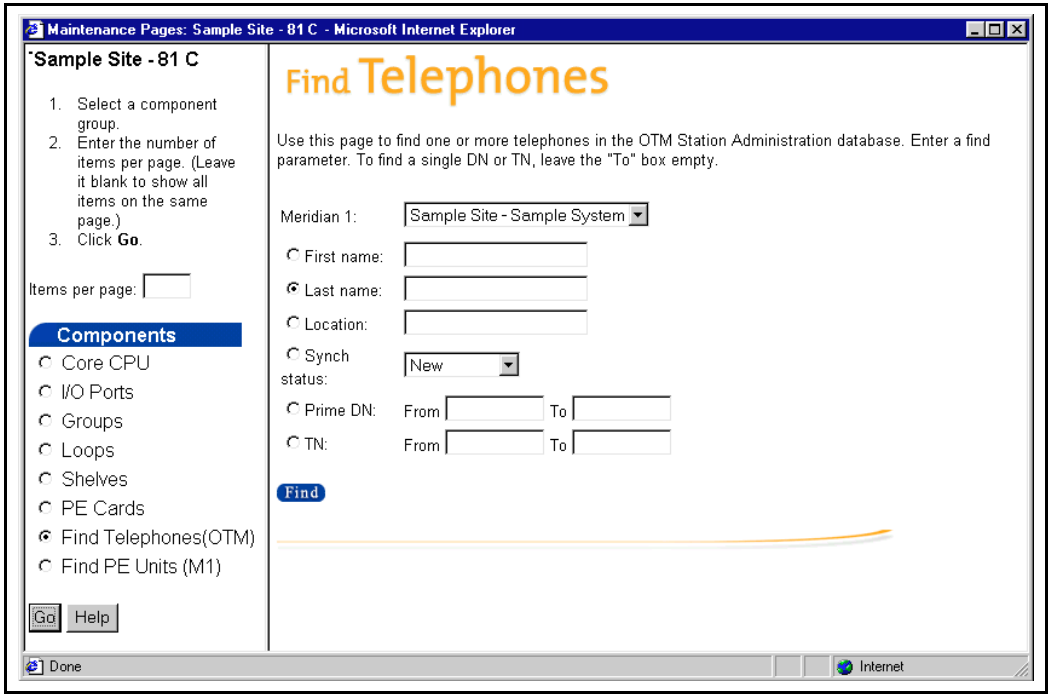
f Select the **PE Cards** button and click **GO**. The Maintenance Pages PE Cards screen appears as shown in Figure 31.

Figure 31
Maintenance Pages PE Cards screen



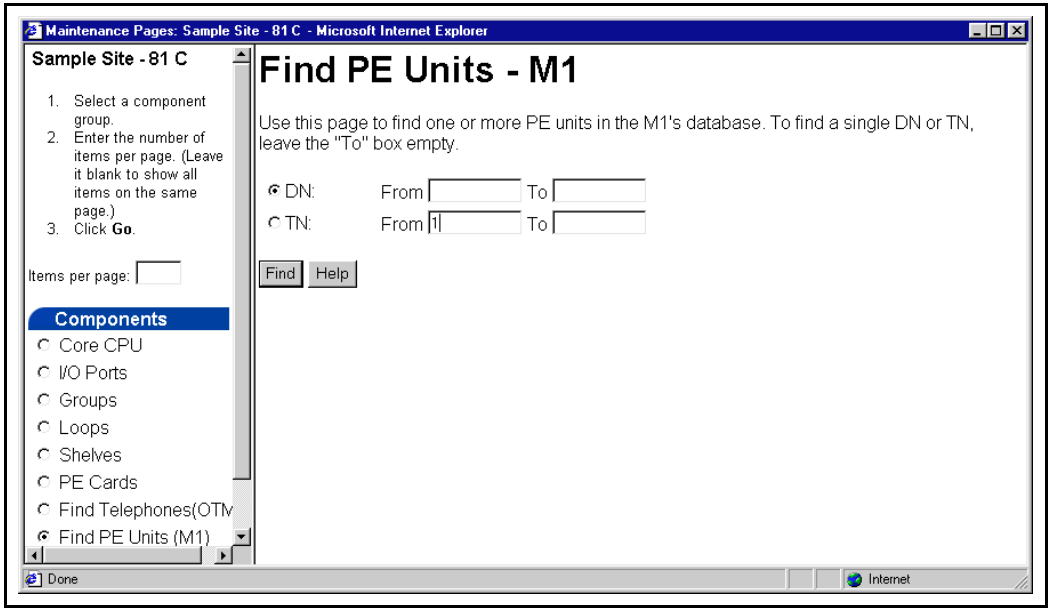
g Select the **Find Telephones (OTM)** button and click **GO**. The Find Telephones screen appears as shown in Figure 32.

Figure 32
Maintenance Pages Find Telephones (OTM) screen



h Select the **Find PE Units (M1)** button and click **GO**. The Find PE Units - M1 screen appears as shown in Figure 33.

Figure 33
Maintenance Pages Find PE Units (M1) screen



Maintenance operations

Maintenance operations can be performed on the following hardware components:

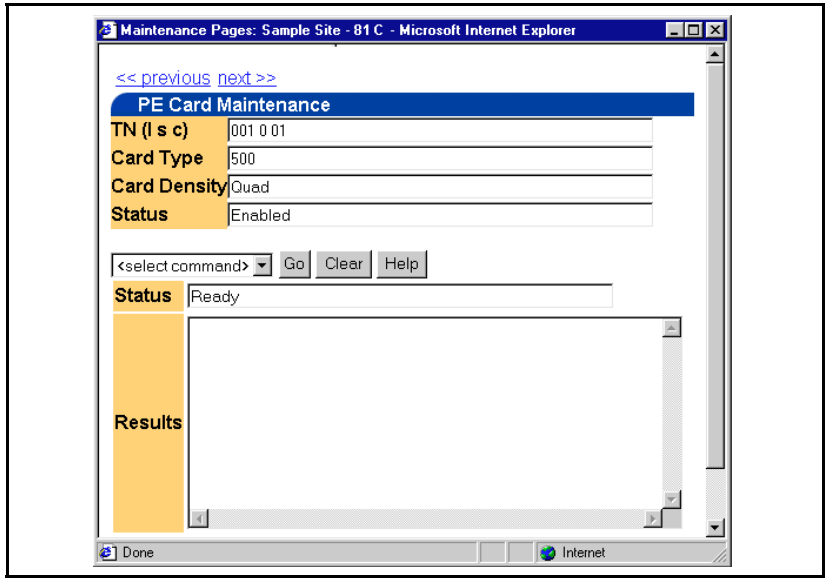
- PE Cards
- PE Units

For other equipment in the hardware components list, the maintenance status may be viewed; however, maintenance operations are not supported.

PE Cards

From the Maintenance Pages PE Cards screen (Figure 31), click on an item in the list to view details about the item and to perform maintenance operations. Figure 34 shows the maintenance page for PE card 001 0 1. Select a command from the drop down list and click **GO**. The results of the command are placed in the Results box. Once the command has been executed, the component state is updated.

Figure 34
PE Card Maintenance page



PE Units

The PE Units list is used to manage Directory Numbers (DNs), and Terminal Numbers (TNs). Before the list is displayed, a find option is provided since it is unlikely that you would want to view the entire list. The PE Units list can be retrieved from the Station database on the OTM server as shown in Figure 32. The PE Units list can also be retrieved directly from the Meridian 1 as shown in Figure 33. In either the Find Telephones screen or the Find PE Units- M1 screen:

1 Enter a single DN or TN, or enter a range of DNs or TNs.

2 Click **Find**.

After you click the Find button the results are displayed as shown in Figure 35 if you entered DN(s), or as shown in Figure 36 if you entered TN(s).

Figure 35
PE Units Find Results (by DN)

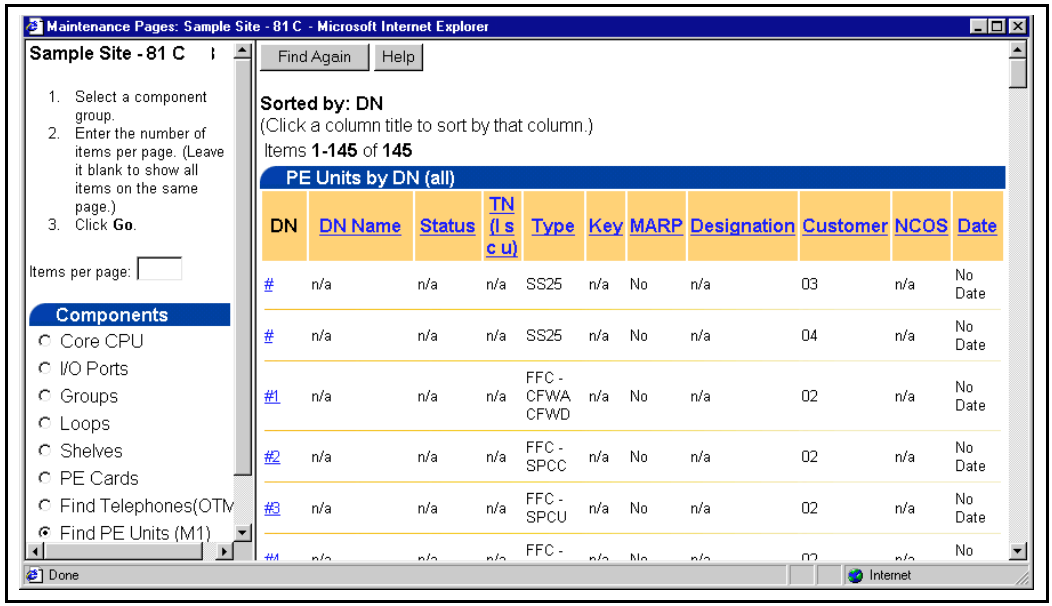
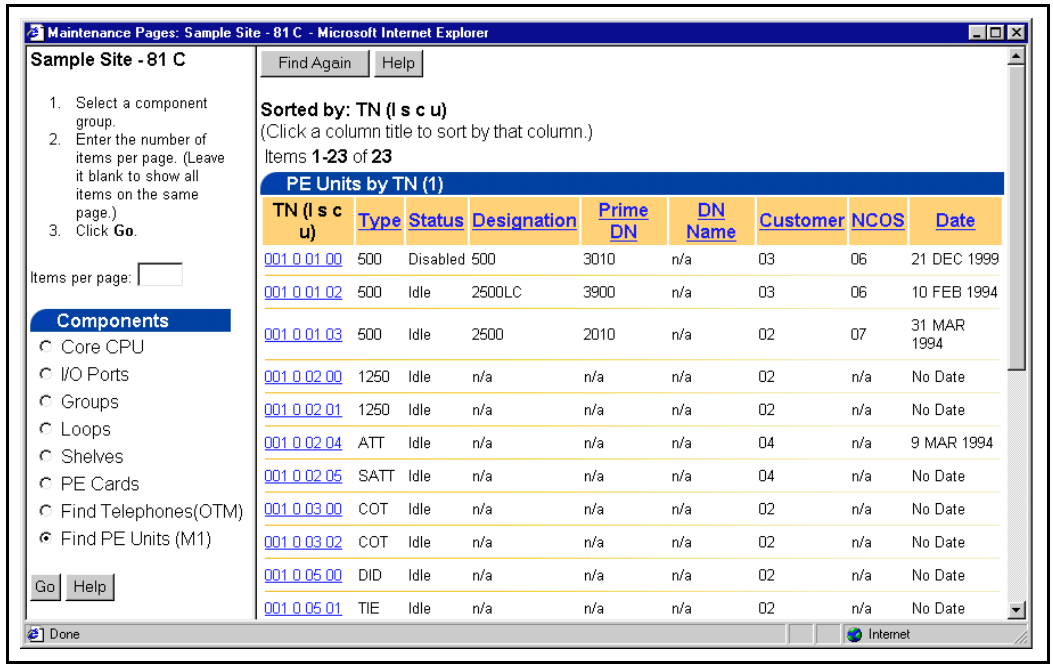


Figure 36
PE Units Find Results (by TN)



Once all units are displayed:

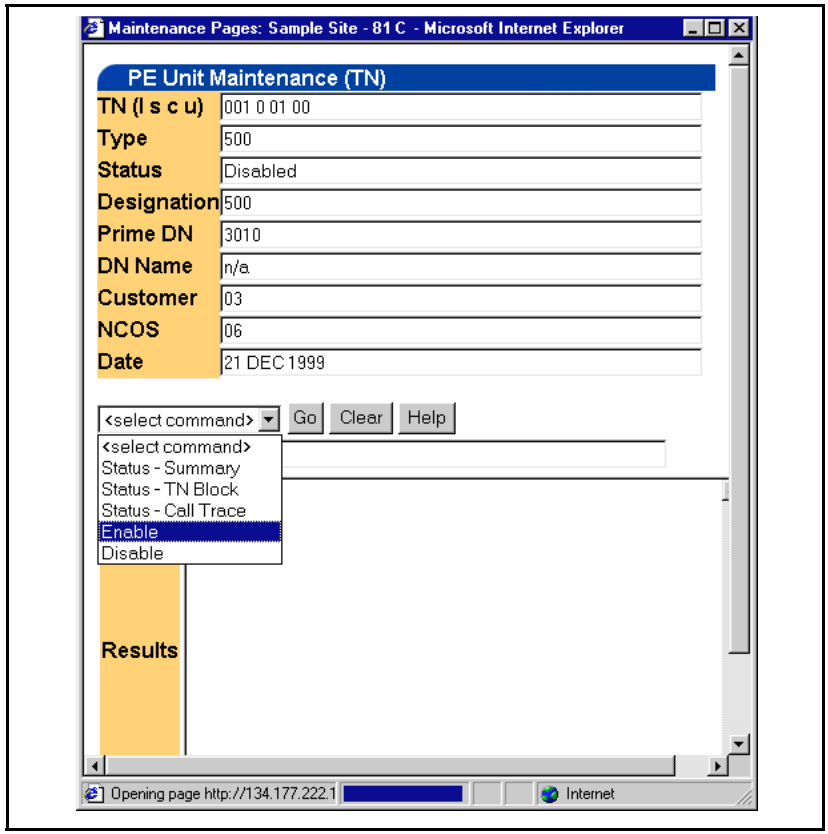
3 Click on a PE unit. A new browser window appears as shown in Figure 37. This example shows the maintenance page for PE Unit 001 0 0 00.

4 Select a command from the drop down list and click **Go**.

The command status goes through the following sequence:

- Ready
- Logging In ...
- Retrieving Results ...
- Updating Status ...
- Logging Out ...
- Ready

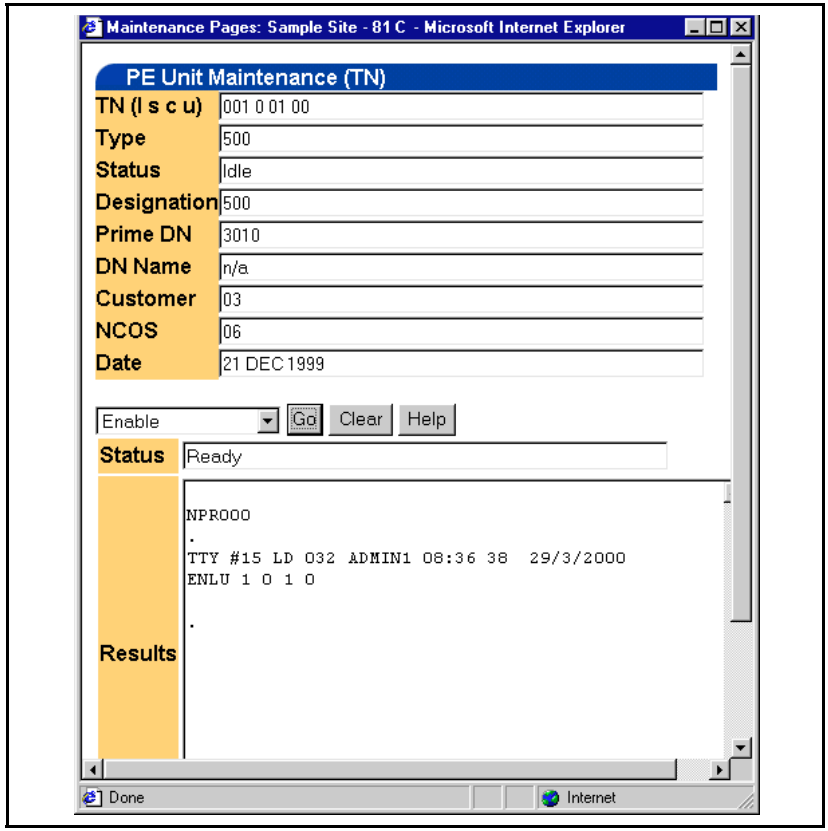
Figure 37
Viewing PE Unit data



In this example, we have selected the **Enable** command. Figure 38 shows that the status of this unit has been updated from disabled in Figure 37 to idle in Figure 38.

5 Select another command, or close the browser window.

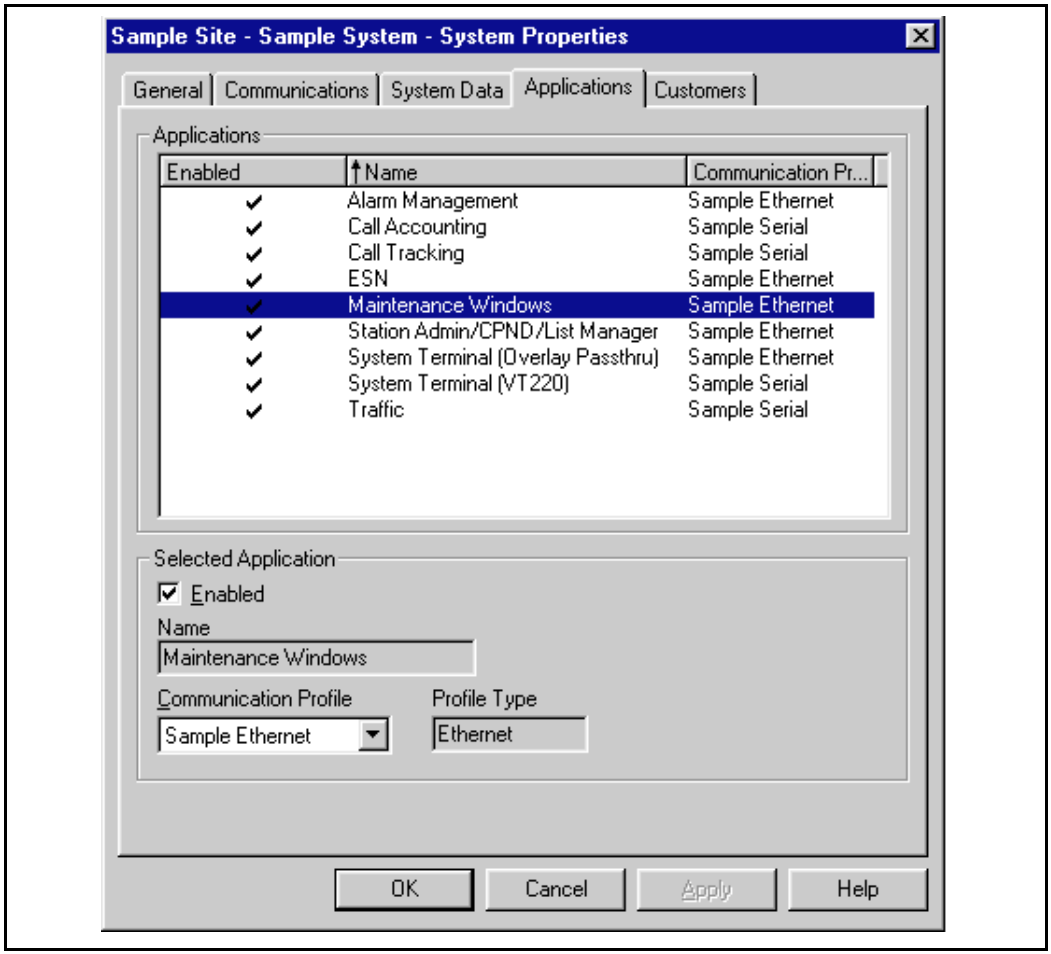
Figure 38
PE unit data after applying enable command



Setting up Maintenance Pages

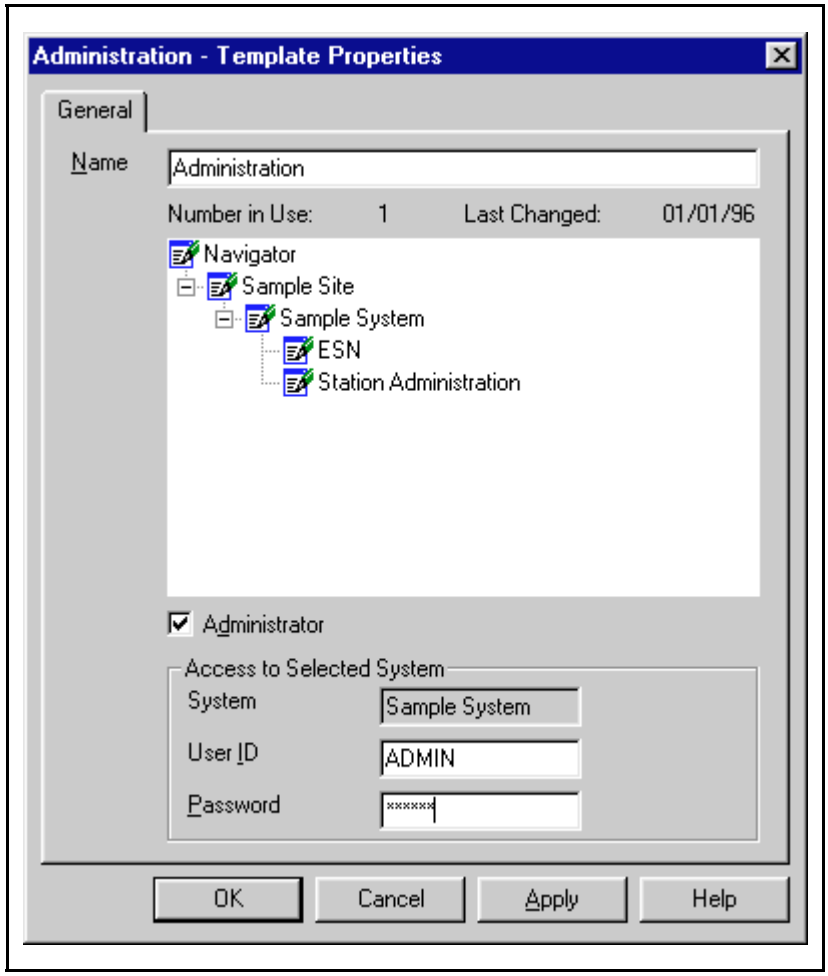
Maintenance Pages requires X11 Release 22, or higher, software and the MAT Package. The Maintenance Windows Communications Profile must be configured using the OTM Windows interface as shown in Figure 39.

Figure 39
Maintenance Windows/Pages Communications Profile



In addition, you must define the Meridian 1 overlay User ID and Password in the OTM administrator template. User templates are accessed from the Windows Navigator Security menu. See Figure 40.

Figure 40
OTM Administrator Template



Optivity Telephony Manager

Maintenance Windows

User Guide

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 Industry Canada. 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 their own expense.

Publication number: P0910103
Document release: Standard 1.0
Date: July 2000
Printed in the United States of America

NORTEL NETWORKS™