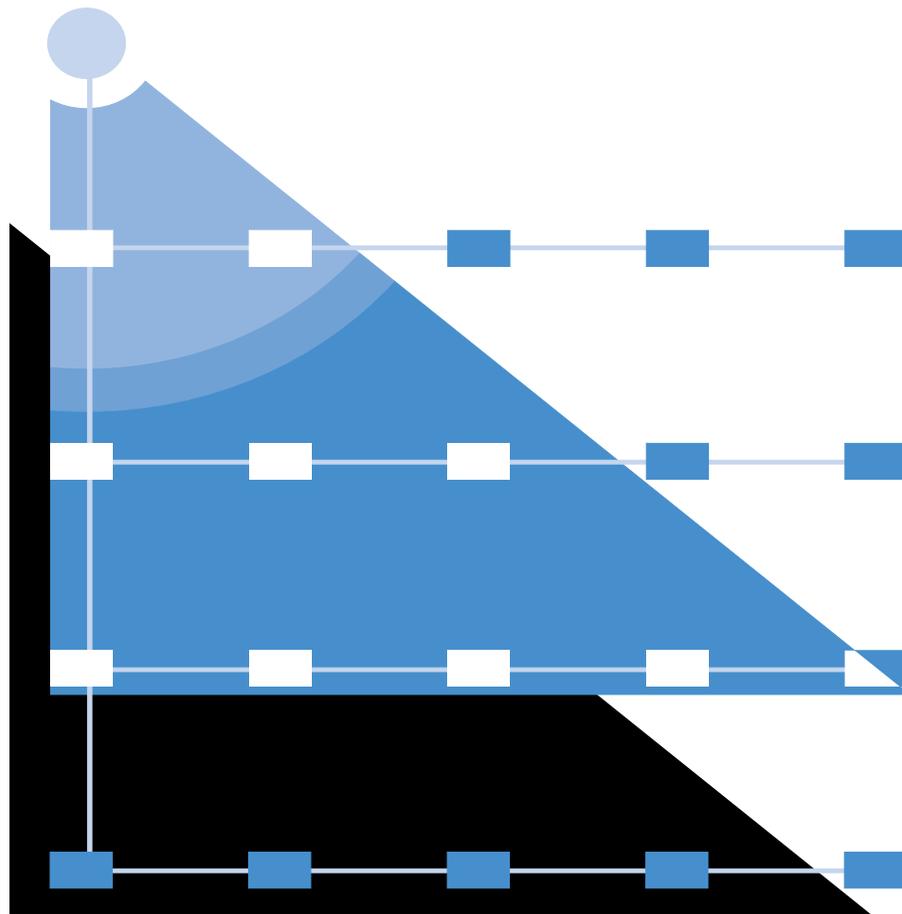**NTSE66FC**   **323-4001-058**

SONET Transmission Products

S/DMS Network Manager
Inventory Management

Standard   Rel 6   November 1996

N⊙RTEL
NORTHERN TELECOM

SONET Transmission Products

S/DMS Network Manager

Inventory Management

Document number: 323-4001-058
Document release: Rel 6 Standard
Date: November 1996

Publication history

November 1996

Standard for S/DMS Network Manager Release 6. Release 6 includes connection management enhancements (support for Virtual Tributary Bandwidth Manager (VTBM) and linear systems), revised network display for groups, and network element support for Tellab Titan 5500 Digital Cross-Connect System (DCS), DV45 Video Codec, and OC-192 network elements.

January 1996

Standard for S/DMS Network Manager Release 5. Release 5 adds STS connection management (provisioning) and service assurance functions to S/DMS Network Manager. Release 5 also introduces extensive changes to the user interface in the area of menu structure, node information, and display selection capabilities.

April 1995

Standard for S/DMS Network Manager Release 4. Release 4 includes updates for performance monitoring consolidation, remote inventory query and display, shelf-level graphics, provisionable span information, and support for additional users on certain S/DMS Network Manager hardware platforms.

September 1994

Standard for S/DMS Network Manager Release 3. Release 3 includes updates for centralized software management, enhanced alarm collection control, asynchronous alarm display, alarm filtering, alarm banner, TA-1230 ring configuration and traffic display, access to graphical OPC user interface, external device access, and enhancements to the S/DMS Network Manager software installation and upgrade process. This is also the first issue of the S/DMS Network Manager User Guide produced in full color.

January 1994

Standard for S/DMS Network Manager Release 2. Release 2 includes updates for user-defined network element groupings, transparent network element login access, detailed alarm information display, user-selectable link types, unrestricted network element node placement, and interwindow linking of network element nodes.

April 1993

Standard for S/DMS Network Manager Release 1. This user guide introduces the S/DMS Network Manager and describes the S/DMS Network Manager Release 1 network configuration and alarm monitoring capabilities.

Contents

About this document

This book describes network element inventory management for the S/DMS Network Manager Release 6 software.

Who should read this book

This book is intended for people who must take an inventory of remote network elements monitored by S/DMS Network Manager.

S/DMS Network Manager documentation packaging

The documentation for S/DMS Network Manager is composed of one volume. The volume contains nine individual books:

- *Introduction* (323-4001-102) introduces the features and user interface of S/DMS Network Manager.

- *Installation and Administration* (323-4001-202) provides installation and administration information for S/DMS Network Manager. Also, this book provides information on configuring and bootstraping an operations controller (OPC), setting up serial ports for external device access, and customizing the S/DMS Network Manager user environment.

- *Connectivity* (323-4001-053) provides information on logging in and out of S/DMS Network Manager, controllers (OPC and TL1 MOA), network element user interfaces, and external devices.

- *Configuration* (323-4001-054) describes the Graphical Network Editor (GNE) tool of S/DMS Network Manager. The GNE is used to configure a network.

- *Fault Management* (323-4001-055) describes the Graphical Network Browser (GNB) tool of S/DMS Network Manager. The GNB is used for network surveillance.

- *Performance Management* (323-4001-056) describes centralized performance monitoring for the network elements monitored by S/DMS Network Manager.

- *Connection Management* (323-4001-057) describes viewing, provisioning, and editing connections on ring and linear systems.

- *Inventory Management* (323-4001-058) describes taking an inventory of remote network elements monitored by S/DMS Network Manager.

•   *Software Management* (323-4001-059) describes controller and network element centralized software management.

Systems supported in this book

This book describes the operation of S/DMS Network Manager with S/DMS TransportNode, S/DMS AccessNode, Cornerstone Voice, SONET Radio 4/40, and TL1 MOA systems. The basic operation of S/DMS Network Manager is the same for each system. However, the availability of some features depends on the system S/DMS Network Manager is monitoring, and the software release installed on the system. For more information, see "Software release compatibility" in *S/DMS Network Manager Introduction*, 323-4001-102.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this book are shown as follows.

System prompts and responses

System prompts and responses are printed as follows:

```
system-prompts and RESPONSES looks like this
```

Command strings

Command strings typed at the keyboard are printed in bold type, followed by a Return or Enter symbol (↵), as follows:

this is what you type ↵

Type the command string exactly as shown, including spaces, and end by pressing the Return key.

Variable parameters are enclosed in angle brackets, as follows:

Install the software in directory <directory name>

An explanation of the variable follows the command string, as follows:

where

<directory name>   is the name of the directory used to...

On-screen buttons and menu commands

Buttons and menu command items are printed in bold type as follows:

select the **Controller Status** command

Hardkeys

Hardkey (keyboard keys) names are printed in plain type as follows:

press Return

Results of an action and comments

Results of an action and comments are printed in italic type, as follows:

The Controller Status dialog appears.

Screen illustrations

The screen illustrations in this book are black and white approximations of the images displayed by S/DMS Network Manager.

References in this book

S/DMS Network Manager can monitor various types of Northern Telecom SONET transmission systems, each of which has its own version of Northern Telecom Publication (NTP). Throughout this book, references to NTPs include an "nnnn" notation in place of the NTP version number. Substitute the appropriate NTP version number for the "nnnn" according to the type of system that S/DMS Network Manager is monitoring, as shown in the following table.

System type	NTP version number
OC-3/OC-12	1111
OC-48	1201
OC-192	1301
S/DMS AccessNode	3001

For example, if this book refers you to *User Interfaces Description*, 323-nnnn-301, and S/DMS Network Manager is monitoring a Northern Telecom OC-48 system, use NTP 323-1201-301 to obtain the appropriate information.

The following NTPs and other documentation are referred to, but not included as an integral part of the *S/DMS Network Manager User Guide*.

- *System Description*, 323-nnnn-100
- *Signal Flow and Protection Switching Descriptions*, 323-nnnn-103
- *Performance Monitoring Description*, 323-nnnn-105
- *User Interfaces Description*, 323-nnnn-301
- *System Administration Procedures*, 323-nnnn-302
- *Software Administration Procedures*, 323-nnnn-303
- *Protection Switching Procedures*, 323-nnnn-311
- *Performance Monitoring Procedures*, 323-nnnn-520
- *Alarm and Trouble Clearing*, 323-nnnn-543
- *S/DMS Network Manager, Release 6.00 Planning Guide*, PG 96-04

- *MOA, Release 2.00 Planning Guide, PG 95-11*

- *HP Visual User Environment User's Guide*, Hewlett Packard Part No B1171-90042

- *HP Remote Access User's Guide*, Hewlett Packard Part No B1862-90011

- *HP-UX Installing Peripherals*, Hewlett Packard Part No B1864-90011

- *HP-UX System Administration Tasks manual*

- *Bellcore SONET BLSR Equipment Criteria* TA-NWT-001230 (issue 2)

Technical support and information

Additional technical support and information can be obtained by contacting the nearest service center. The service centers for the United States and Canada are listed in the following sections.

United States regional service centers

In the United States, contact the nearest regional service center for technical support and information.

For 24 hour emergency technical support
For assistance restoring service on equipment which has been carrying traffic and is out-of-service, call the following toll-free number:

<div align="center">

800-275-3827 (800-ASK-ETAS)

</div>

For technical support from 8 a.m. to 10 p.m.
Call the following toll-free number**:**

<div align="center">

800-275-8726 (800-ASK-TRAN)

</div>

Southern Region Northern Telecom Inc. 5555 Winward Parkway, Suite B, Alpharetta, Georgia 30201-3895 (404) 661-4000	**Northeast Region** Northern Telecom Inc. 200 Summit Lake Drive Valhalla, New York 10595 (914) 773-2559
Central Region Northern Telecom Inc. 475 Martingale Road Schaumburg, Illinois 60173 (708) 706-8000 or 8389	**Western Region** Northern Telecom Inc. 5575 DTC Parkway, Suite 150 Englewood, Colorado 80111 (303) 850-5600
Pacific Region (North) Northern Telecom Inc. 2305 Camino Ramon San Ramon, California 94583 (510) 867-2000	**Southwest Region** Northern Telecom Inc. 2221 Lakeside Blvd., FL 9 Richardson, Texas 75082-4399 (214) 684-4195 or 1000
Pacific Region (South) Northern Telecom Inc. 300 North Lake Avenue Pasadena, California 91101 (818) 584-2000	**Eastern Region** Northern Telecom Inc. 2010 Corporate Ridge McLean, Virginia 22102 (703) 712-8487

Canada technical assistance service centers

In Canada, contact the nearest technical assistance service center for technical support and information.

For 24-hour emergency technical support For assistance with problems that can lead to payload-affecting failures or issues that prevent payload protection switching, call the following numbers: **(800) 361-2465 or (514) 956-3500**
For 24-hour emergency recovery For assistance restoring service on equipment which has been carrying payload and is out of service, call ETAS at the following number: **613-226-5456**
For non emergency support from 8:00 a.m. to 4:00 p.m. Call the regional Field Service Engineering (FSE) group in your Technical Assistance Service Center.

FSE West **(Alberta)** Northern Telecom Canada Limited 10235, 101 Street Edmonton, Alberta T5J 3G1 (403) 441-3193	**FSE West** **(British Columbia, Yukon, and Northwest Territories)** Northern Telecom Canada Limited #410, 13251 Delf Place Richmond, British Columbia V6V 2A2 (604) 279-2258
FSE West **(Manitoba, North-Western Ontario)** Northern Telecom Canada Limited 180, 117 King Edward Street E. Winnipeg, Manitoba R3H 0Y3 (204) 788-7531	**FSE West** **(Saskatchewan)** Northern Telecom Canada Limited PO Box 770 Regina, Saskatchewan S4P 3A8 (1867 Hamilton Street, 8th floor) (306) 791-7100 or (306) 791-7110
Ontario Northern Telecom Canada Limited PO Box 3000 Brampton, Ontario L6V 2M6 (905) 452-2104	**Quebec** Northern Telecom Canada Limited PO Box 2110 St. Laurent, Quebec H4L 4Y7 (514) 744-8750
FSE East (Newfoundland) Northern Telecom Canada Limited 63 Thorburn Rd. St. John's, Newfoundland A1B 3M2 (709) 722-2500 or 1-800-661-4827	**FSE East (New Brunswick)** Northern Telecom Canada Limited 1 Brunswick Square, 4th Floor Saint John, New Brunswick E2L 4K2 (506) 632-8271 or (506) 632-8203
FSE East **(Nova Scotia, Prince Edward Island)** Northern Telecom Canada Limited 1701 Hollis St., Suite 900 Halifax, Nova Scotia B3J 3M8 (902) 421-2301	

Understanding remote inventory

This chapter describes S/DMS Network Manager remote inventory. The Graphical Network Browser (GNB) tool enables you to retrieve an inventory of the remotely located S/DMS TransportNode and S/DMS AccessNode network elements. The inventory information can help you verify hardware baseline compatibility before undertaking an upgrade of your system. The inventory information can also assist in planning and forecasting activities by providing an accurate view of equipment provisioned and/or present in the network.

Each network element maintains an inventory database of the equipment in the network element. The controller retrieves the inventory information from the network element, allowing S/DMS Network Manager to display the inventory information from the controllers on command.

S/DMS Network Manager provides two ways of retrieving and displaying remote inventory information: a text-based retrieval of specific inventory information, or a graphical display of the cards (circuit packs) in a network element common equipment shelf.

Text-based remote inventory allows you to retrieve an inventory of specific card types on selected network elements. You can display the information in a Remote Inventory Display dialog, or you can save it to a data file for further processing.

Graphical remote inventory allows you to display a graphical representation of an equipment shelf in a specific network element. The inventory is presented in a Shelf View window, which illustrates the layout of the shelf and the cards installed in each slot. The Shelf View window also provides details for each card.

Any discrepancies between the inventory information contained in the inventory database and the actual cards installed in a network element shelf are identified in the S/DMS Network Manager inventory dialogs.

If multiple inventory requests are made of a controller, the controller queues the requests and processes them serially. A controller processes only one inventory request at a time, and reports back to each GNB on a first-come-first-serve basis.

S/DMS Network Manager remote inventory uses several specialized dialogs to retrieve and display the inventory. This chapter describes each dialog, menu, and field used in these dialogs. Procedures that describe how to use S/DMS Network Manager to retrieve remote inventory from a remote network element are located in "Taking a remote inventory" on page 2-1.

Text-based remote inventory

Text-based remote inventory allows you to retrieve specific inventory information by entering search criteria in a Remote Inventory Query dialog. The search criteria allows you to specify the exact inventory you want S/DMS Network Manager to retrieve from the controllers.

If you choose to display the inventory information, a Remote Inventory Display dialog appears once the specified inventory is retrieved from the controller. The Remote Inventory Display dialog provides detailed information about the inventory that contains the search criteria specified in the query dialog.

Remote Inventory Query dialog

The Remote Inventory Query dialog enables you to define the search criteria used by S/DMS Network Manager to retrieve inventory information for the specified network elements. The query dialog enables you to request inventory for combinations of network elements, types of cards, cards with specific product engineering codes (PEC), cards with specific release numbers, or cards on which specific processor loads are installed.

The Remote Inventory Query dialog also enables you to specify whether the information is displayed on GNB or saved to a data file for further processing.

The Remote Inventory Query dialog is different for S/DMS Transport and S/DMS AccessNode network elements. If retrieving an inventory for an S/DMS AccessNode network element, the query is limited to a specific shelf. The Remote Inventory Query dialog displayed when you select an S/DMS AccessNode network element includes a Shelf Number field. The Shelf Number field appears below the network element selection buttons. A shelf number must be entered before the remote inventory is retrieved. If you specify an invalid shelf number, a notification dialog appears that lists the valid shelf numbers. Valid shelf numbers are 1 through 8. If you specify a number for a shelf that does not physically exist, a failure dialog appears. The failure dialog lists the network elements for which the inventory can not be retrieved.

The Remote Inventory Query dialog for an S/DMS TransportNode network element is shown in the following illustration.

```
┌─────────────────────────────────────────────────────────┐
│  Remote Inventory Query                                   │
│  ─────────────────────────────────────────────────────   │
│                                                           │
│  Search for cards matching:      Confine search to:       │
│        Card Type: [       ]      ☐  All NEs OPC012P        │
│                                  ┌────────────────────┐   │
│             PEC: [       ]       │ ☑ 70  1 Alpha      │   │
│                                  │ ☐ 71  5 Ott        │   │
│          Release: [       ]      │ ☐ 72 12 Echo       │   │
│                                  │                    │   │
│   Processor Load: [       ]      │                    │   │
│                                  │                    │   │
│     ☐  Case sensitive query      └────────────────────┘   │
│                                                           │
│     ◆  Display data on screen                             │
│     ⌄  Save data to file                                  │
│  ─────────────────────────────────────────────────────   │
│   OK      Alt+Return        Cancel    Ctrl+Escape         │
└─────────────────────────────────────────────────────────┘
```

The Remote Inventory Query dialog can also be used to specify whether you want to display the inventory information in the Remote Inventory Display dialog, or save the information in a data file for further processing.

Once you start the inventory retrieval, a Remote Inventory Retrieval dialog is displayed to indicate the request is pending. For more information on the Remote Inventory Retrieval dialog, see "Remote Inventory Retrieval dialog" on page 1-4.

Card Type field
The Card Type field is a data entry field that enables you to limit the inventory search to only card types whose name includes the string of characters you specify in this field.

PEC field
The PEC field is a data entry field that enables you to limit the inventory search to only cards with a Product Engineering Code (PEC) that includes the string of characters that you specify in this field.

Release field
The Release field is a data entry field that enables you to limit the inventory search to only cards with hardware release numbers that contain the number that you specify in this field.

This field is disabled if no data is entered in the PEC field.

Processor Load field

The Processor Load field is a data entry field that enables you to limit the inventory search to only cards that run a software load whose identifier contains the characters you specify in this field. Only processor software loads that appear in the Controller Reboot/Load Manager are acceptable.

Shelf Number field

The Shelf Number field is a data entry field that enables you to specify the equipment shelf number for the inventory data retrieval. Valid shelf numbers are 1 through 8.

> *Note:* The Shelf Number field appears only when an inventory is retrieved for an S/DMS AccessNode network element.

Shelf 1	Common equipment
Shelf 2	Copper Distribution Shelf 1
Shelf 3	Copper Distribution Shelf 2
Shelf 4	Copper Distribution Shelf 3
Shelf 5	Copper Distribution Shelf 4
Shelf 6	Copper Distribution Shelf 5
Shelf 7	Copper Distribution Shelf 6
Shelf 8	Copper Distribution Shelf 7

The default value for the Shelf Number field is shelf 1. This field is set to the shelf number of the last query for subsequent queries.

You must enter a shelf number before the remote inventory is retrieved. If you specify an invalid shelf number, a notification dialog appears that lists the valid shelf numbers. If you specify a shelf number that does not exist, a failure dialog appears. The failure dialog lists the network elements for which the inventory can not be retrieved.

Remote Inventory Retrieval dialog

The Remote Inventory Retrieval dialog is displayed while S/DMS Network Manager is in the process of retrieving the inventory of the network elements specified in the Remote Inventory Query dialog. (See the following illustration.)
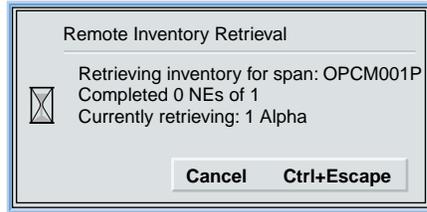
NM10408.1

```
┌─────────────────────────────────────┐
│  Remote Inventory Retrieval          │
│  ┌─────────────────────────────────┐ │
│  │   Retrieving inventory for span: OPCM001P │
│  ⊠   Completed 0 NEs of 1           │ │
│  │    Currently retrieving: 1 Alpha  │ │
│  │                                   │ │
│  │        **Cancel    Ctrl+Escape**  │ │
│  └─────────────────────────────────┘ │
└─────────────────────────────────────┘
```

If multiple inventory requests are made of a controller, the controller queues
the requests and processes them serially. A controller processes only one
inventory request at a time, and reports back to each GNB on a
first-come-first-serve basis. The Remote Inventory Retrieval dialog remains on
the display until the inventory request is processed by the controller, and the
inventory information is retrieved by S/DMS Network Manager.

It takes less than one minute to retrieve the inventory information for each
network element specified in the Remote Inventory Query dialog.

The Remote Inventory Retrieval dialog identifies the name of the controller
from which S/DMS Network Manager is retrieving the inventory. The dialog
also identifies the network element currently being processed, and the number
of network elements, out of the network element total, for which the inventory
has been retrieved.

When inventory retrieval is complete for all network elements, the Remote
Inventory Retrieval dialog is removed from the display. The inventory
information appears in a Remote Inventory display dialog, or is saved to a data
file, depending on your selection in the Remote Inventory Query dialog.

If S/DMS Network Manager cannot retrieve inventory information from one
or more network elements, those network elements are identified in an error
dialog once the inventory retrieval for all other network elements is complete.

Remote Inventory Display dialog

The Remote Inventory display dialog provides detailed information for the
inventory that contains the search criteria provided in the Remote Inventory
Query dialog. (See the following illustration.)

NM-10542.1 (R6)

Remote Inventory Display

Retrieval for NEs in Span of Control:OPCM001
Retrieval completed at 15 Dec 96 09:29:21

Showing ...

Card Type		PEC	
All		All	
DS1IN		NT4K32	
DS1OUT		NT4K32AA	

NE	Shelf	Slot	Card Type	PEC/Release	Serial No	Cpk State
1 Alpha	1	5	OPC	NT7E24BC/009	A133E2B58	
1 Alpha	1	9	OC12	NT7E02KC/021	A14103770	
1 Alpha	1	10	OC12	NT7E02KC/021	A1F086478	
1 Alpha	1	11	OC3	NT7E01CC/004	A10185039	
1 Alpha	1	13	OC3	NT7E01CC/007	A1B276895	
1 Alpha	1	18	DS1VTMpr	NT7E04AA/005	A1D113132	
1 Alpha	1	19	DS1VTMpr	NT7E04AA/008	A13147641	
1 Alpha	1	20	MIC	NT4K53AB/005	17MW27215	
1 Alpha	1	21	Proc	NT4K52BB/004	17MW27789	
1 Alpha	1	51	DS1IN	NT4K32AA/002	B1C143440	
1 Alpha	1	53	DS1OUT	NT4K33AA/002	B10143110	
1 Alpha	1	54	PWRIO	NT4K58MA/004	B13224139	
1 Alpha	1	55	PWRIO	NT4K58MA/004	B19228955	
1 Alpha	1	5	OPC	NT7E24BC/002	A193E0F21	
1 Alpha	1	9	OC12	NT7E02KC/021	A1B083468	
1 Alpha	1	10	OC12	NT7E02LA/021	A16086510	
1 Alpha	1	18	DS1VTMpr	NT7E04AA/008	A12156055	
1 Alpha	1	19	DS1VTMpr	NT7E04AA/008	A18155629	
1 Alpha	1	20	MIC	NT4K53AB/005	17MW27284	
1 Alpha	1	21	Proc	NT4K52BB/004	17MW27762	

Sort options:

Details for selected card: ◆ Card   ◇ Shelf

◆ NE
◇ Card Type
◇ PEC/Release
◇ Cpk State
◇ Serial No

Done   Alt+Return   New Query   Save

The information in the Remote Inventory Display dialog is a snapshot of the inventory at the time the retrieval is initiated. The dialog is not updated automatically. You must select the New Query button to update the information.

The Remote Inventory Display dialog allows you to filter and sort the inventory information, and obtain detailed information about a particular inventory item.

You can save the inventory information to a data file by selecting the Save button.

Card Type list
The Card Type list enables you to filter inventory information by card type. Use this list to select the specific cards to appear in the Card Information list.

The Card Type list shows all card types that contain the search criteria supplied in the Remote Inventory Query dialog. If you want all card types to appear in the Card Information list, select the All entry from this list. If you want only one specific card type displayed in the card information list, select that type from the list.

The Card Type list works in conjunction with the PEC list. If you select a specific card from this list, but the Product Engineering Code (PEC) for that card is not selected in the PEC list, the card does not appear in the Card Information list.

PEC list
The PEC list enables you to filter inventory information by PEC. Use this list to select specific PEC codes to appear in the Card Information list.

The PEC list shows all PECs that contain the search criteria supplied in the Remote Inventory Query dialog. If you want all PECs to appear in the Card Information list, select the All entry from this list. If you want only one specific PEC displayed, select that PEC from the list.

This list works in conjunction with the Card Type list. If you select a PEC from this list, but the card selected in the Card Type list does not use that PEC, the card does not appear in the Card Information list.

Card Information list
The Card Information list provides details of the inventory that contains the search criteria entered in the Remote Inventory Query dialog.

The list provides the network element identifiers, the shelf and slot in which the cards are installed, the card types, and the PECs and releases that contain the search criteria. The list also identifies the serial number of the cards and the current state of the card.

You can obtain additional information for a specific inventory item by selecting the item from the list. The additional information appears in the details box at the bottom of the dialog.

You can filter the list by selecting specific card types and PEC codes from the selection lists above the Card Information list. You can also sort the list by selecting the desired sort option button.

The information in this list is a snapshot of the inventory at the time the inventory retrieval is initiated. The inventory is not updated automatically as changes are made to the equipment in the network. You must select the New Query button if you want to update the list.

The Card Information list contains the following columns of information to summarize the inventory for the specified controller.

NE	The identification number and name of the network element in which the card is located.
Shelf	Identifies the shelf number in which the card is installed.
Slot	The slot number in which the card is installed in the network element.
Card Type	Identifies each type of card (circuit pack) installed in the network element. Only the card types specified in the Remote Inventory Query dialog and in the Card Type selection list at the top of the dialog appear in this column.
PEC/Release	The PEC and hardware release number of the card. Only the PECs specified in the Remote Inventory Query dialog and in the PEC selection list at the top of the dialog appear in this column.
CpkState	The current state of provisioning of the card. If there is no state information for the card, the field is blank. Other possible values are: Ueq—unequipped Mism—mismatch Init—initializing Test—under test Load—loading Trbl—trouble PF—partial failure Diag—running diagnostics
Serial number	The unique serial number of the card.

Sort options
The sort options enable you to sort data in the card information list according to network element number, type, PEC/Release, or state. You can select only one sort option at a time.

The Card Information list is sorted from top to bottom, according to the selected sort option. For example, if you select the Type sort option button, the card information list is sorted alphabetically by card type.

When you first display the Remote Inventory Display dialog, the Card Information list is sorted by network element number.

You can sort the Card Information list by:

network element	Select the NE button to sort the Card Information list by network element number, in ascending order.
card type	Select the Type button to sort the Card Information list by card type, in alphabetical order.
PEC/Release	Select the PEC/Release button to sort the Card Information list by PEC and release numbers of the cards, in ascending order.
state	Select the State button to sort the Card Information list according to the state of the cards, in alphabetical order.
serial number	Select the Serial No button to sort the Card Information list according to card serial number, in ascending order.

Details for selected card button
The Details for selected card button enables you to display additional information about a card. The information appears in the details box at the bottom of the Remote Inventory Display dialog when you select a card from the Card Information list.

Details for selected shelf button
The Details for selected shelf button enables you to display additional information about the shelf in which a card resides. The additional information appears in the details box at the bottom of the Remote Inventory Display dialog when you select a card from the Card Information list.

Details box
Details box provides additional information for an item selected from the Card Information list. The information displayed in this box depends on whether you select the Card or Shelf button above the Details box.

If you select the Card button, the details box provides the common language equipment identifier (CLEI) assigned to the card and the provisioned PEC of the card. If the card contains a processor with a controller-managed software load, the type of processor is also identified in the Details box, along with the hardware vintage of the processor, the current load installed on the processor, and the processor instance.

If you select the Shelf button, the details box provides the shelf position, the shelf type, the equipment type, the shelf serial number, and a description of the function of the shelf.

New Query button
The information in the Remote Inventory Display dialog is a snapshot of the inventory at the time the inventory retrieval is initiated. The inventory information is not updated automatically as changes are made to the equipment.

The New Query button enables you to retrieve up-to-date inventory information. When you select the New Query button, the Remote Inventory Query dialog appears. The search criteria used for the last inventory query appears in the Remote Inventory Query dialog. You can change the search criteria or reuse the criteria.

A new inventory retrieval is initiated when you select the OK button in the Remote Inventory Query dialog. When the retrieval is complete, the Remote Inventory Display dialog is updated with the new inventory information. The completion time of the retrieval is shown at the top of the dialog.

The Card Type and PEC lists revert to All once the new inventory is displayed. You can reset the Card Type and PEC filters.

Save button
The Save button enables you to save the displayed remote inventory information to a data file for further processing. When you select this button, a Remote Inventory Save dialog appears.

For more information on the Remote Inventory Save dialog, see "Remote Inventory Save dialog" on page 1-10.

Done button
The Done button closes the Remote Inventory Display dialog. When you select this button, the Remote Inventory Display dialog is removed from the display and the current inventory information is discarded.

Remote Inventory Save dialog
The Remote Inventory Save dialog enables you to save the remote inventory information to a data file on the S/DMS Network Manager hard disk. (See the following illustration.)

```
Remote Inventory Save


Directory:   ▶  /tmp
Filename:    ▶  remote_inventory.15Dec96

  ◆ Export format (CSV)      ◇ Report format (Printable)

  OK      Alt+Return          Cancel   Ctrl+Escape
```
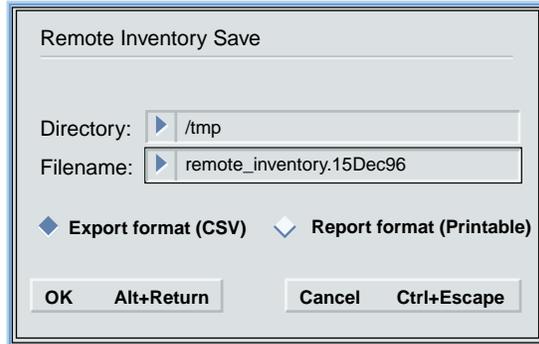
The Directory and Filename fields in the Remote Inventory Save dialog enable you to specify a directory location and unique file name for the data. You can also select a format for the data file. The available formats are export and report. Export format is suitable for transferring the inventory information to another application such as a spreadsheet. Report format enables you to print, view, or edit inventory information.

Only the inventory information for the specified network elements is saved. If you initiate the save from the Remote Inventory Query dialog, the statistics are not sorted when they are saved. If you initiate the save from the Remote Inventory display dialog, the statistics are sorted in the same manner as they are on the display.

If a file with the same name already exists, you can overwrite the file, or append the new file to the existing file.

Export format

The Export format button allows you to save statistics in a format that is suitable for export to another application, such as a spread-sheet or database program.

When you select the Export format button, the data is saved on S/DMS Network Manager in an ASCII file format as comma-separated values (CSV). One record is written to the export file for each card.

Each subsequent record corresponds to a row displayed in the Card Information list with the details data included in each record. The records contain a fixed number of comma-separated data fields in the order specified by the first record. The data records are written in the sort order specified in the dialog that you used to initiate the save operation.

The following is an example of the remote inventory export format.

```
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,DS1VTMpr,NT7E04AA,008,,1,,
SNPQNA42AA,A10179135,,,,,,,,,,,,
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,DS1VTMpr,NT7E04AA,008,,2,,
SNPQNA42AA,A13185812,,,,,,,,,,,,
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,DS1VTMpr,NT7E04AA,008,,3,,
SNPQNA42AA,A1C219523,,,,,,,,,,,,
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,,NT7E01,,,5,,,,,,,,,,,,
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,,NT7E01,,,6,,,,,,,,,,,,
634,,,1,1,TBM,Term,A2E0800658,,28 Nov 94 16:04:35,DS1VTMpr,NT7E04AA,008,,10,,
SNPQNA42AA,A10195540,,,,,,,,,,,,
```

Report format
You can save statistics in a report format by selecting the Report format button. The report format is an ASCII file format suitable for viewing, editing, or printing using the HP VUE File Manager or standard UNIX commands.

The following is an example of the remote inventory report format.

```
Network element: 632                        Shelf Location:
 Shelf Position: 1                             Shelf Number: 1
     Shelf Type: TBM                         Equipment Type: Term
Shelf Serial No: A220813935
 Shelf Function:
 Retrieval Time: 28 Nov 94 15:57:22


Card Type    PEC         Release  State   Slot    EquipID      Serial No
DS3 Mpr      NT7E08AA    023              15      SNPQNA52AA   A16100205
Proc         NT4K52BB    004              20      SAPQAB2AAA   17MW23182
...
Slot         Processor  H/W Vintage     S/W Load
21           HMU        0               HMU10AB+
21           APU        0               TB515AG
```

Graphical remote inventory

Graphical remote inventory allows you to retrieve an inventory of a network element and display a graphical representation of the network element common equipment shelf.

The inventory is displayed in a Shelf View window on GNB. The Shelf View window illustrates the cards provisioned and/or present in each slot of the equipment shelf in the selected network element.

The Shelf View window is similar for S/DMS AccessNode and S/DMS TransportNode network elements. For more information, see "Shelf View window" on page 1-13.

Shelf Inventory Retrieval dialog

The Shelf Inventory Retrieval dialog is displayed while S/DMS Network Manager retrieves inventory information from a network element. (See the following illustration.)

```
Shelf Inventory Retrieval

  ☒  Retrieving inventory for 1 Alpha
      in span: OPCM001P

      Request is pending.

           Cancel    Ctrl+Escape
```

The Shelf Inventory Retrieval dialog identifies the name and number of the network element for which S/DMS Network Manager is retrieving the inventory. It also identifies the controller of the network element.

When inventory retrieval is complete, the Shelf Inventory Retrieval dialog is removed from the display. A graphical representation of the equipment layout of the network element is displayed in a separate Shelf View window.

Shelf View window

The Shelf View window provides a graphical view of the actual equipment layout and inventory of the selected network element. This window enables you to view the state of the equipment in the shelf, and to obtain detailed information about a shelf or any card in the shelf.

The inventory information heading identifies the network element for which the graphic is displayed, the controller of the network element, and the time and date the inventory was retrieved.

The Shelf View window is a snapshot of the inventory at the time the inventory retrieval was initiated. The window is not updated automatically as changes are made to the equipment in the network element. To update the information, select the Refresh button.

If discrepancies exist between the inventory database on the network element and the actual cards installed in the shelf, the cards in question are highlighted on the Shelf View window. For example, if a slot is provisioned for a particular type of card, and the slot actually contains another type of card, the mismatch is identified by an X at the bottom of the appropriate card.

The Shelf View window is divided into five main areas: a shelf graphic, a shelf details box, a card details box, an inventory information heading, and a menu bar. The menu includes the File, Fault, Login, and Options menus.

The Shelf View window is similar for S/DMS TransportNode and S/DMS AccessNode network elements. The only variation between the two windows is the layout of the circuit packs.

The Shelf View window for an S/DMS TransportNode network element is shown in the following illustration.

NM-10511.1
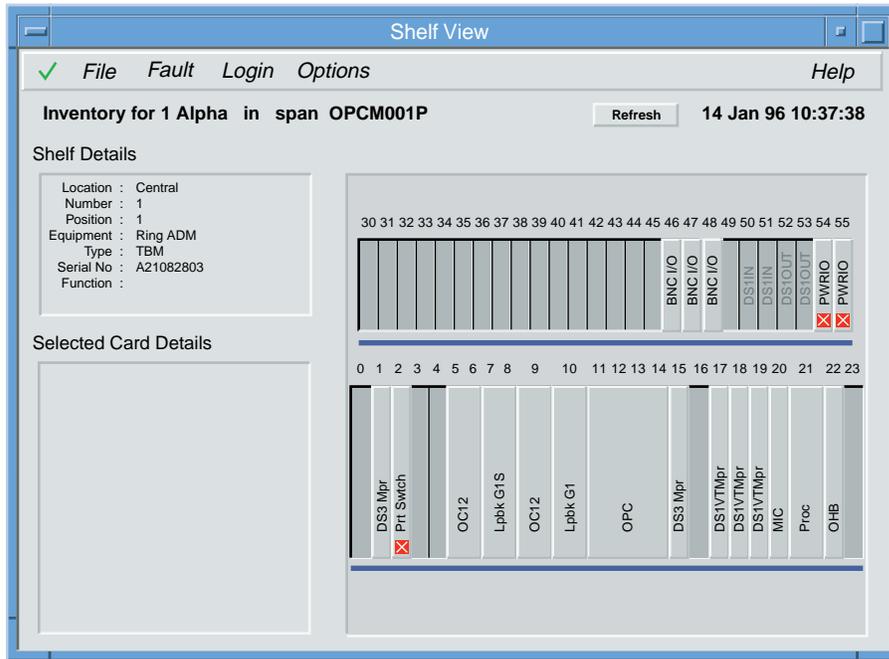
The Shelf View window for an S/DMS AccessNode Access Bandwidth
Manager (ABM) network element is shown in the following illustration.

NM-10603.1
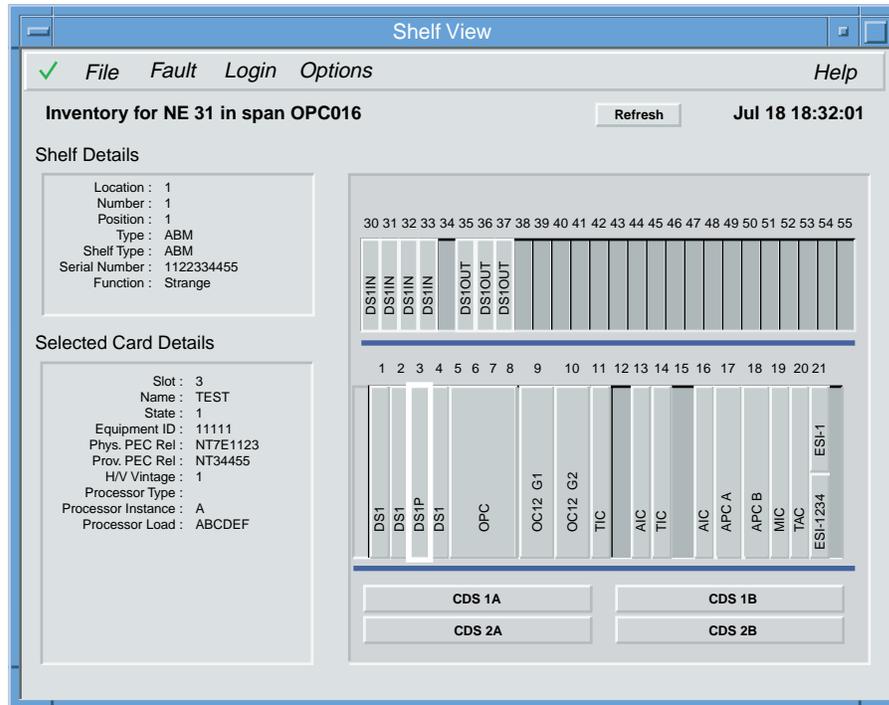
The Shelf View window for an S/DMS AccessNode ABM network element
includes the copper distribution shelf (CDS) for the selected network
elements. The CDS shows installed CDS drawers. A CDS Shelf View window
is displayed by selecting one of the drawer icons. The CDS Shelf View
window displays all line cards, circuit packs, and power converters. (See the
following illustration.)

Note: A maximum of two CDS drawers can be displayed in the CDS Shelf
View window. To view other drawers, select the desired CDS drawer from
the ABM Shelf View window.

NM-10604.1

Menu bar
The menu bar is located above the display area of the Shelf View window. The menu bar contains a status icon and a menu bar. The following menus are available: File, Fault, Login, and Options.

File menu
The File menu enables you to close the Shelf View window.

Fault menu
The Fault menu enables you to view the details of an alarm and to acknowledge the alarms for network elements, cards, the physical environment, common equipment, and facilities.

Login menu
The Login menu enables you to log in to a network element. Access to the network element is obtained through manual login dialogs, or through an automated process if the network element recognizes your S/DMS Network Manager userID. If you select the manual method to login to a network element, you can select the controller.

Options menu
The Options menu enables you to control the display of alarms for the Shelf View window.

Shelf graphic

The shelf graphic provides a graphical representation of the layout of the shelf. Each card (circuit pack) in the shelf is graphically represented, allowing you to determine the position, slot number, width, number of subslots, and purpose of the cards.

The slots in a network element common equipment shelf can be populated in a number of different ways. The shelf graphic shows you the cards provisioned and cards present but not provisioned, in each slot.

Card graphics identify the slots in which cards are physically installed. The card graphics can show that a slot contains

- a card that occupies one slot, such as a DS3 STS Mapper card. A single-slot card graphic is displayed in the slot.

- a card that occupies more than one slot, such as a controller. A multiple-slot card graphic is displayed in the appropriate slots.

- multiple cards in a single slot, such as carrier cards. A multiple-card graphic, showing each of the subslots, is displayed in the slot.

Slots provisioned for a particular type of card, but with no card physically installed in the slot, do not contain a card graphic. This characteristic allows you to determine if the slot is

- provisioned for a particular type of card, but no physical card is yet installed. In this case, a grayed-out equipment identifier label shows the type of card for which the slot is provisioned.

- not provisioned for any particular card, and no card is physically installed in the slot. In this case, the slot is void of information.

Each card and provisioned slot has an equipment identifier label. The label shows the function of the card installed in or provisioned for the slot.

The shelf graphic identifies provisioning inconsistencies by highlighting the card in question. Provisioning inconsistencies are highlighted as follows:

?	A question mark (?) at the bottom of a card graphic indicates that an unknown card type is installed in the slot. The PEC of the card installed in the slot is not recognized by S/DMS Network Manager.
X	An X at the bottom of a card graphic indicates a mismatch. The X appears if the PEC of the card installed in the slot is different than the PEC provisioned for the slot. The label on the card graphic indicates the card type physically installed in the slot.

Details about the shelf appear in the Shelf Details box when the Shelf View window is first displayed. When you select a card from the shelf graphic, detailed information about the card is shown in the Selected Card Details box.

Alarms

An alarm balloon appears if new alarms have been raised on the card. The balloon contains a letter indicating the alarm of the highest severity. The color of the alarm balloon and card indicate the severity of the alarm. The alarm balloon for a card or sub card is displayed in the top, center part of the icon. For more information, see "Alarm balloons" in *S/DMS Network Manager Fault Management*, 323-4001-055.

In addition to card-related alarms, the Shelf View window displays alarms associated with the environment, common equipment, and facilities.

Alarms associated with the environment are identified with an Environment icon. To display the alarms, click on the alarm balloon associated with the Environment icon. Environment alarms monitor external customer input. Possible causes for this type of alarm are low shelf voltage, the internal shelf temperature is too high, power failure, or fire.

> *Note:* If environment alarms have a slot number, the alarm is applied to a card.

Common equipment alarms are identified with an Equipment icon. To display the alarms, click on the alarm balloon associated with the Equipment icon. Possible cause for a common equipment alarm are the wrong type of circuit pack is installed in a shelf slot or a circuit pack is missing from the shelf.

Facilities alarms are identified with a Facility icon. To display the alarms, click on the alarm balloon associated with the Facility icon. There are different categories of facility alarms: data communications, DS3, VT1.5, STS-1, ESI, OC-48 and OC-3/OC-12. Possible causes for a facility alarm are control network (CNet) communication problems, a problem with the source of the DS3 signal, or crossed fibers.

Shelf Details box

The Shelf Details box provides detailed information about the shelf, including

Location	The bay or aisle name that has been assigned to the frame in which the shelf is located.
Number	The identification number of the shelf.
Position	The position of the shelf in the network element.
Equipment	The function of the shelf.

Type	The type of equipment.
Serial number	A unique identification number assigned to each shelf.
Function	A 40-character description of the purpose of the network, as defined during provisioning of the network element.

Selected Card Details box

The Selected Card Details box provides detailed information about a card selected from the shelf graphic. The card details include

Slot	The slot number in which the card is installed in the network element.
Name	The name of the card.
CpkState	The current state of provisioning of the card. If there is no state information for the card, the field is blank. Other possible values are: Ueq (unequipped), Mism (mismatch), Init (initializing), Test (under test), Load (loading), Trbl (trouble), PF (partial failure), and Diag (running diagnostics).
Equipment Id	The common language equipment identifier (CLEI) assigned to the card.
Phys. PEC Rel	The physical product engineering code (PEC) and hardware release number of the card.
Prov. PEC Rel	The product engineering code (PEC) and hardware release number been provisioned for the card in this slot.
H/W Vintage	The hardware vintage of the processor located on the card.
Processor Type	The type of processor, located on this card, which runs a controller-managed software load.
Processor Inst	The instances of the processor located on the circuit pack.

Processor Load	The software load currently executing on the circuit pack processor.
Cpk Group ID	The group identification number of the card.
Prov. Service	The provisioned services on a line card. This column is only displayed for copper distribution shelves (CDS) associated with an S/DMS AccessNode ABM network element.

Taking a remote inventory

This chapter describes how to use S/DMS Network Manager to take an inventory of the equipment installed in the network elements monitored by S/DMS Network Manager.

The inventory can help you verify hardware baseline compatibility before undertaking an upgrade of your system. The inventory can also assist in planning and forecasting activities by providing an accurate view of equipment provisioned or present in the network.

Each network element in the network maintains an inventory database of equipment in the network element. The controller retrieves inventory information from the network element, allowing S/DMS Network Manager to display the inventory information from the controllers on command.

The inventory retrieved by S/DMS Network Manager is a snapshot of the inventory information stored on the network element at the time the retrieval is initiated.

You can display the inventory on-screen, or save it to a data file in a report or export format for further processing.

S/DMS Network Manager can provide inventory information in two ways: a text-based inventory or a graphical representation of an equipment shelf.

Text-based inventory allows you to take an inventory of a single network element or multiple network elements within a span of control. The inventory can be displayed in a Remote Inventory display dialog, or saved in a data file on the S/DMS Network Manager hard disk. You can specify the exact card types (circuit packs) and product engineering codes (PEC) for which you want an inventory.

Graphical inventory allows you to take an inventory of a network element common equipment shelf, and display a graphical representation of the shelf. The shelf view shows the layout of the shelf and the cards installed or provisioned in the shelf.

The inventory tasks described in this chapter can be performed only by GNB users, and only on controllers running a software release that supports the remote inventory feature. For more information, see "Software release compatibility" in *S/DMS Network Manager Introduction*, 323-4001-102.

Requirements

To perform the procedures in this chapter, you must do the following:

- read the conventions described in "About this document" on page vii
- read "Understanding remote inventory" on page 1-1
- ensure you have a user account with the admin access class
- log in to S/DMS Network Manager and open GNB. For more information, see "Logging in and opening an S/DMS Network Manager tool" in *S/DMS Network Manager Connectivity*, 323-4001-053.

Chapter task list

The following table lists the remote inventory task.

Task	Page
Retrieving a remote inventory	2-3
Filtering and sorting the inventory	2-8
Refreshing the inventory display	2-10
Viewing inventory details	2-15
Saving remote inventory to a file	2-16
Displaying a graphical shelf inventory	2-19

Procedure 2-1
Retrieving remote inventory

Use this procedure to retrieve an inventory of a specific network element or an entire span of network elements.

The Remote Inventory Query dialog enables you to select the network elements for which you want an inventory, and to identify the specific card types, PECs, software releases, or processor loads to include in the inventory.

The inventory can be displayed on screen in the Remote Inventory display dialog, or it can be saved to a data file in a report or export format for further processing.

> *Note:* To display a graphical representation of a network element common equipment shelf, see Procedure 2-6, "Displaying a graphical shelf inventory".

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	You can retrieve an inventory of a specific network element or a span of network elements.

If you want the inventory of	**Then**
a specific network element	step 2
a span of network elements	step 4

—continued—

Procedure 2-1 (continued)
Retrieving remote inventory

Step	**Action**
2	Select the network element for which you want an inventory and display the Configuration menu.
	The network element Configuration menu appears.
3	Select the **Query Equipment Inventory <ne>** command.
	The Remote Inventory Query dialog appears. The network element used to open the dialog is automatically selected.
	Note: The Remote Inventory query dialog is different for S/DMS TransportNode and S/DMS AccessNode network elements. The AccessNode version of the dialog contains a field for specifying the number of a specific shelf. For more information, see "Remote Inventory Query dialog" on page 1-2.
	Go to step 7.
4	Display the network window Controllers menu and select the **Show List of Controllers** command.
	The Controller List dialog appears.
5	Display the controller list menu.
	The Controller List dialog list menu appears.
6	Select the **Remote Inventory for <controller>** command.
	The Remote Inventory Query dialog appears. All network elements in the span are automatically selected.
7	The Remote Inventory Query dialog enables you to initiate inventory retrieval. This dialog also enables you to specify the network elements and the specific cards for which you want an inventory.

If you want an inventory of	**Then**
an entire span	step 8
specific network elements or card types with specific attributes	step 10

8	Select the **All NEs** button.
	Note: The controller name for the network elements in the span appears after the button title.
	The button beside each network element in the Confine search to list is selected, as indicated by the check mark.
	Note: If you use the Controller List dialog to open the Remote Inventory Query dialog, the All NEs button, and the individual network element check buttons are automatically selected when the Remote Inventory Query dialog appears.

—**continued**—

Procedure 2-1 (continued)
Retrieving remote inventory

Step	Action
9	Ensure that the Card Type, PEC, Release, and Processor Load fields are blank. Go to step 18.
10	Move to the Confine search to box and select the check buttons beside the specific network elements for which you want an inventory. *A check mark appears inside the check box when the button is selected. The check mark appears or disappears each time you select the button.*
11	For an inventory of specific cards with specific attributes, continue with step 12. Otherwise, go to step 18.
12	You can take an inventory of specific cards with specific attributes by supplying search criteria. The search criteria are free-form text strings that enable you to limit the inventory retrieval to specific card types, PECs, releases, and processor loads. S/DMS Network Manager retrieves only the inventory that matches the search criteria.

If you want	**Then**
an inventory of specific types of cards	step 13
an inventory of cards with specific PECs	step 14
an inventory of cards with a specific hardware release numbers	step 15
an inventory of cards with specific processor load	step 16
to begin the inventory retrieval	step 17

	Note: Partial text strings are acceptable as search criteria. S/DMS Network Manager retrieves whatever inventory matches the partial text string. For example, if you enter "ds" as search criteria for a card type, S/DMS Network Manager retrieves the inventory of all card types with "ds" in the card type identifier. The more text you supply as search criteria, the more precise the inventory retrieval.
13	Move to the Card Type field and type the name of the card for which you want an inventory. *S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all card types that contain the specified character string.* Go to step 12.

—**continued**—

Procedure 2-1 (continued)
Retrieving remote inventory

Step	Action
14	Move to the PEC field and type the product engineering code (PEC) of the cards for which you want an inventory.
	S/DMS Network Manager queries the network element inventory database and retrieve an inventory of all cards with a PEC that includes the specified character string.
	Go to step 12.
15	Move to the Release field and type the hardware release number for which you want an inventory.
	Note: You must specify a PEC before entering a hardware release number.
	S/DMS Network Manager queries the network element inventory database and retrieve an inventory of all cards with a hardware release number that includes the specified character string.
	Go to step 12.
16	Move to the Processor Load field and type the software load number of the processor for which you want an inventory.
	S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all cards with a processor load that includes the specified character string.
	Note: The processor loads must appear in the OPC Reboot/Load Manager. If you enter a processor load that does not appear in the OPC Reboot/Load Manager, no inventory is retrieved.
	Go to step 12.
17	If you want to apply case sensitivity to the search criteria, select the **Case sensitive query** check button.
	A check mark appears inside the check box when the button is selected. The check mark appears or disappears each time you select the button.
	Note: If you apply case sensitivity to the search criteria, S/DMS Network Manager retrieves only the inventory that matches the case of the search criteria. Text entered in search criteria fields must be an exact uppercase and lowercase match with the data in the network element inventory database.
18	You can display the inventory on-screen in the Remote Inventory display dialog, or save the inventory to a data file for further processing.

If you want	**Then**
display the inventory on-screen	step 19
save the inventory to a data file	Procedure 2-5, "Saving remote inventory to a file"

—**continued**—

Procedure 2-1 (continued)
Retrieving remote inventory

Step	Action
19	Select the **Display data on screen** button.
20	Select the **OK** button to initiate the retrieval of inventory for the specified network elements.

A Remote Inventory Retrieval dialog appears. S/DMS Network Manager starts retrieving the inventory from the controller.

Once the inventory is retrieved, the Remote Inventory dialog appears.

The Remote Inventory dialog shows the inventory matching the search criteria entered in the Remote Inventory Query dialog.

21   The Remote Inventory dialog enables you to filter and sort the inventory, obtain details about the cards and equipment shelves, and to save the inventory for further processing. You can also refresh the data.

If you want to	**Then**
filter or sort the inventory	Procedure 2-2, "Filtering and sorting the inventory"
refresh the inventory	Procedure 2-3, "Refreshing the inventory display"
view inventory details	Procedure 2-4, "Viewing inventory details"
save the inventory information	Procedure 2-5, "Saving remote inventory to a file"
close the Remote Inventory dialog	step 22

22   Select the Remote Inventory dialog **Done** button.

The Remote Inventory dialog is removed from the display and the inventory information is discarded.

—**end**—

Procedure 2-2
Filtering and sorting the inventory

Use this procedure to filter and sort the inventory once it is retrieved from the controller, and displayed in the Remote Inventory dialog.

The Remote Inventory dialog enables you to filter the remote inventory by selecting the specific types of cards and equipment product engineering codes (PEC) you want to display in the remote inventory list.

The Remote Inventory dialog also enables you to sort inventory by network element number, card types, PECs, and card states.

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	Retrieve the desired inventory.
	For more information, see Procedure 2-1, "Retrieving remote inventory".
	Once the inventory is retrieved the Remote Inventory dialog appears.
2	You can filter the inventory so that only specific types of cards, and cards with specific PECs appear in the list. You can sort the data by network element number, card type, PEC, card state, or card serial number.

If you want to	**Then**
filter the inventory data by card type and PEC	step 3
sort the inventory data	step 7
refresh the inventory data	Procedure 2-3, "Refreshing the inventory display"
view inventory details	Procedure 2-4, "Viewing inventory details"
save the inventory information	Procedure 2-5, "Saving remote inventory to a file"
close the Remote Inventory dialog	step 22

Step	Action
3	Move to the Card Type selection list.
	The Card Type list identifies all card types in the selected network element.

—**continued**—

Procedure 2-2 (continued)
Filtering and sorting the inventory

Step	Action
4	Select the card type you want to display in the list.

a. If you want all available card types to appear in the inventory list, select **All** from the Card Type list.

b. If you want only one specific type of card displayed in the list, locate the entry for that card in the Card Type list and select it.

Note 1: The Card Type list is a scrolling list. Use the scroll bar to move through the list and locate the desired card type.

Note 2: The Card Type selection list works in conjunction with the PEC selection list. If you select a Card Type from this list, but the PEC for the card is not selected in the PEC list, the card does not appear in the list.

The inventory list is updated to show only the specific type of card selected from the Card Type selection list.

5	Move to the PEC selection list.

The PEC list shows the individual product engineering codes used by the cards in the selected network element.

6	Select the PECs you want to display in the list.

a. If you want all available PECs displayed in the inventory list, select **All** from the PEC list.

b. If you want only the cards with a specific PEC to appear in the list, locate the desired PEC in the PEC list and select it.

Note 1: The PEC list is a scrolling list. Use the scroll bar to move through the list and locate the desired PEC.

Note 2: The PEC list works in conjunction with the Card Type selection list. If you select a PEC from this list, but the selected card type does not have a PEC matching your selection, the card does not appear in the list.

The inventory list is updated to show only the cards that have the selected PEC.

Go to step 2.

7	Move to the Sort Options box and select the option corresponding to the way you want to sort the inventory.

The inventory list is sorted from top to bottom according to your selection.

You can sort the inventory list by network element number, card type, PEC/release number, operational state, or serial number of the cards. By default, the inventory list is sorted in ascending order by network element number.

Go to step 2.

8	Select the **Done** button in the Remote Inventory dialog.

The Remote Inventory dialog is removed from the display. The inventory information is discarded.

—**end**—

Procedure 2-3
Refreshing the inventory display

Use this procedure to perform a new inventory query and refresh the information displayed in the Remote Inventory dialog.

The Remote Inventory dialog provides a snap-shot of the inventory at the time the inventory retrieval was initiated. The Remote Inventory dialog is not updated automatically as changes are made to the equipment. You must perform a new inventory query manually if you want to view the latest inventory information. The time and date when the current inventory was retrieved is displayed at the top of the dialog.

When performing a new inventory query, you can change the search criteria if you want to retrieve a different inventory.

> *Note:* To refresh the information displayed in a Shelf View window, see Procedure 2-6, "Displaying a graphical shelf inventory".

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	Open the Remote Inventory display dialog.
	For more information, see Procedure 2-1, "Retrieving remote inventory".
	The Remote Inventory dialog appears.
2	Select the **New Query** button.
	The Remote Inventory Query dialog appears.
	Note: criteria used for the last inventory retrieval.
3	You can reuse the search criteria, or redefine the search criteria if you want to retrieve a different inventory.

If you want to	**Then**
reuse the search criteria	step 4
redefine the search criteria	step 9

—**continued**—

Procedure 2-3 (continued)
Refreshing the inventory display

Step	Action
4	You can retrieve an inventory of an entire span of network elements, or limit the inventory retrieval to specific network elements or cards with specific attributes.

If you want an inventory of	**Then**
an entire span	step 5
specific network elements, or card types with specific attributes	step 7

Step	Action
5	Select the **All NEs** button. ***Note:*** The controller name for the network elements in the span appears after the button title. *The button beside each network element in the Confine search to list is selected, as indicated by the check mark.*
6	Ensure the Card Type, PEC, Release, and Processor Load fields are blank. Go to step 15.
7	Move to the Confine search to box and select the check buttons beside the specific network elements for which you want an inventory. *A check mark appears inside the check box when the button is selected. The check mark appears or disappears each time you select the button.*
8	For an inventory of specific cards with specific attributes, continue with step 9. Otherwise, go to step 15.
9	You can take an inventory of specific cards with specific attributes by supplying search criteria. The search criteria are free-form text strings that enable you to limit the inventory retrieval to specific card types, PECs, Releases, and processor loads. When S/DMS Network Manager queries the controller for inventory, only the inventory that matches the search criteria is retrieved.

If you want	**Then**
an inventory of specific types of cards	step 10
an inventory of cards with specific PECs	step 11
an inventory of cards with a specific hardware release	step 12
an inventory of cards with a specific processor load	step 13
to begin the inventory retrieval	step 14

—continued—

Procedure 2-3 (continued)
Refreshing the inventory display

Step	Action
	Note: Partial text strings are acceptable as search criteria. S/DMS Network Manager retrieves whatever inventory matches the partial text string. For example, if you enter "ds" as search criteria for a card type, S/DMS Network Manager retrieves the inventory of all card types with "ds" in the card type identifier. The more text you supply as search criteria, the more precise the inventory retrieval.
10	Move to the Card Type field and type the name of the card for which you want an inventory.
	S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all card types that contain the specified character string.
	Go to step 9.
11	Move to the PEC field and type the PEC of the cards for which you want an inventory.
	S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all cards with a PEC that includes the specified character string.
	Go to step 9.
12	Move to the Release field and type the hardware release number for which you want an inventory.
	Note: You must specify a PEC before entering a hardware release number.
	S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all cards with a hardware release number that includes the specified character string.
	Go to step 9.
13	Move to the Processor Load field and type the software load number of the processor for which you want an inventory.
	S/DMS Network Manager queries the network element inventory database and retrieves an inventory of all cards with a processor load that includes the specified character string.
	Note: The processor loads must appear in the OPC Reboot/Load Manager. If you enter a processor load that does not appear in the OPC Reboot/Load Manager, no inventory is retrieved.
	Go to step 9.

—**continued**—

Procedure 2-3 (continued)
Refreshing the inventory display

Step	Action
14	If you want case sensitivity applied to the search criteria, select the **Case sensitive query** check button.

A check mark appears inside the check box when the button is selected. The check mark appears or disappears each time you select the button.

Note: *If you apply case sensitivity to the search criteria, S/DMS Network Manager retrieves only the inventory that matches the case of the search criteria. Text entered in search criteria fields must be an exact uppercase and lowercase match with the data in the network element inventory database.*

15	You can display the inventory on-screen in the Remote Inventory display dialog, or save the inventory to a data file for further processing.

If you want to	**Then**
display the inventory on-screen	step 16
save the inventory to a data file	Procedure 2-5, "Saving remote inventory to a file"

16	Select the **Display data on screen** button.
17	Select the **OK** button to initiate the retrieval of inventory for the specified network elements.

S/DMS Network Manager starts retrieving the specified inventory from the controller. A Remote Inventory Retrieval dialog appears.

Once the inventory is retrieved, the Remote Inventory dialog appears. The Remote Inventory dialog provides a snapshot of the inventory at the time the new query is performed. The new retrieval completion time and date is shown at the top of the dialog.

The Remote Inventory dialog shows the inventory that matches the search criteria entered in the Remote Inventory Query dialog.

Note: *Any filtering or sorting options applied to the list prior to refreshing the inventory are discarded. The inventory list displays all card types and PECs matching the search criteria. You must reset the list filtering and sorting options.*

—**continued**—

Procedure 2-3 (continued)
Refreshing the inventory display

Step	Action
18	The Remote Inventory dialog enables you to filter and sort the inventory, obtain details about the cards and equipment shelves, and to save the inventory for further processing.

If you want to	**Then**
filter or sort the inventory list	Procedure 2-2, "Filtering and sorting the inventory"
view inventory details	Procedure 2-4, "Viewing inventory details"
save the inventory information	Procedure 2-5, "Saving remote inventory to a file"
close the Remote Inventory dialog	step 19

Step	Action
19	Select the **Done** button in the Remote Inventory dialog.
	The Remote Inventory dialog is removed from the display and the inventory information is discarded.

—**end**—

Procedure 2-4
Viewing inventory details

Use this procedure to view detailed information about a shelf or card shown in the Remote Inventory display dialog.

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	Display the Remote Inventory dialog.
	For more information, see Procedure 2-1, "Retrieving remote inventory".
	The Remote Inventory dialog appears.
2	You can obtain details of any card shown in the inventory list, or details of the shelf in which a card is installed.

If you want to	**Then**
view details of a card	step 3
view details of a shelf in which a card is installed	step 5
close the Remote Inventory dialog	step 7

Step	Action
3	Move to the item in the inventory list for which you want details and select the item.
	The list item is highlighted.
4	Select the **Card** button.
	The details for the card appear in the details box at the bottom of the dialog.
	Go to step 2.
5	Move to the item in the inventory list for which you want details and select the item.
	The list item is highlighted.
6	Select the **Shelf** button.
	The details for the shelf in which the selected item is installed appear in the details box at the bottom of the dialog.
	Go to step 2.
7	Select the **Done** button in the Remote Inventory dialog.
	The Remote Inventory dialog is removed from the display and the inventory information is discarded.

<div align="center">

—end—

</div>

Procedure 2-5
Saving remote inventory to a file

Use this procedure to save the remote inventory to a data file. The inventory information is are saved on the S/DMS Network Manager hard disk in a format suitable for export to another application such as a spreadsheet, or for report generation.

There are two places from which you can save the inventory: the Remote Inventory Query dialog and the Remote Inventory display dialog.

If you use the Remote Inventory Query dialog to save the inventory:
- the inventory is saved without being displayed, and
- no sorting is performed on the inventory when it is saved.

If you use the Remote Inventory display dialog to save the inventory:
- all inventory information that can be viewed in the dialog is saved, and
- the inventory is sorted in the same manner as displayed.

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	You can save the inventory from either of two dialogs: the Remote Inventory Query dialog, or the Remote Inventory Display dialog.

If you want the inventory	**Then**
unsorted when saved	step 2
sorted when saved	step 6

Step	Action
2	Open the Remote Inventory Query dialog.
	For more information, see Procedure 2-1, "Retrieving remote inventory".
3	Select the inventory you want to save.
	For more information, see Procedure 2-2, "Filtering and sorting the inventory".
4	Select the **Save data to file** button.
5	Select the **OK** button.
	The Remote Inventory Query dialog remains on the display.
	Go to step 8.

—**continued**—

Procedure 2-5 (continued)
Saving remote inventory to a file

Step	Action
6	Open the Remote Inventory Display dialog.
	For more information, see Procedure 2-1 "Retrieving remote inventory".
7	Select the **Save** button.
8	The Remote Inventory Save dialog appears.
	The inventory is saved in the directory, file name, and format specified in the Remote Inventory Save dialog.
9	Move to the Directory field and type the name of the directory in which you want to save the inventory.
	Note 1: The first time this dialog is displayed, the Directory field defaults to the directory set up on the workstation to temporarily store data (for example, a directory called /tmp). You can edit the directory name.
	Note 2: If you specify a directory that does not exist, S/DMS Network Manager displays a warning dialog when you select the OK button in the Save dialog.
10	Move to the File field and type the name of the file in which you want to save the statistics.
	Note 1: A default file name appears in the File field. The default is the name of the file used for the previous save operation. You can edit the file name.
	Note 2: If there is a file in the specified directory with the same name, a confirmation dialog appears when you select the OK button.
11	There are two file formats in which you can save inventory information: export format or report format.

If you want to	**Then**
save the inventory in export format	step 12
save the inventory in report format	step 13
cancel the save operation	step 14

Step	Action
12	Select the **Export format** radio button.
	The inventory is saved in a format suitable for export to another application for further processing (for example, a spreadsheet program). One record is written to the export file for each inventory item.
	Go to step 15.
13	Select the **Report format** radio button.
	The inventory is saved in a format suitable for viewing, editing, or printing using the HP VUE File Manager or standard UNIX commands.

—continued—

Procedure 2-5 (continued)
Saving remote inventory to a file

Step	Action
14	To proceed with the save operation, continue with step 15. To cancel the save operation, select the **Cancel** button in the Remote Inventory Save dialog.
	The Remote Inventory Save dialog is removed from the display.
	Go to step 1.
15	Select the **OK** button.
	A progress dialog appears while S/DMS Network Manager saves the inventory information in the specified directory. When the save is complete, the Remote Inventory Save dialog is removed from the display.
	Note: If there is another file in the specified directory with the same name, a confirmation dialog appears. Use the confirmation dialog to overwrite the existing file, or to append the file you are saving to the existing file.

<div align="center">**—end—**</div>

Procedure 2-6
Displaying a graphical shelf inventory

Use this procedure to retrieve and display a graphical representation of a network element equipment shelf.

The Shelf View window shows the inventory and equipment layout of an equipment shelf in graphical form. The shelf graphic also identifies the cards provisioned or present in the equipment shelf. The graphic enables you to identify provisioning inconsistencies, and obtain detailed information about the shelf or any card installed in the shelf.

The information displayed in the Shelf View window is different for S/DMS AccessNode and S/DMS TransportNode.

Before starting this procedure, read "Requirements" on page 2-2.

Action

Step	Action
1	Select the network element for which you want to view the shelf graphic.
2	Display the network element object menu and select the **Open Shelf View** command.
	Note: You can also select the Open Shelf View command from the Configuration menu.
	A Shelf Inventory Retrieval dialog appears.
	The Shelf Inventory Retrieval dialog identifies the network element for which the inventory is retrieved, and the state of the retrieval.

Procedure 2-6 (continued)
Displaying a graphical shelf inventory

Step	Action
3	The Shelf View window is different for S/DMS TransportNode and S/DMS AccessNode network elements.

If you want to	**Then**
view the Shelf View window for an S/DMS TransportNode network element	step 4
view the Shelf View window for an S/DMS AccessNode network element	step 5

Step	Action
4	The Shelf View window for an S/DMS TransportNode network element appears in the following format.

NM-10511.1 (R6)
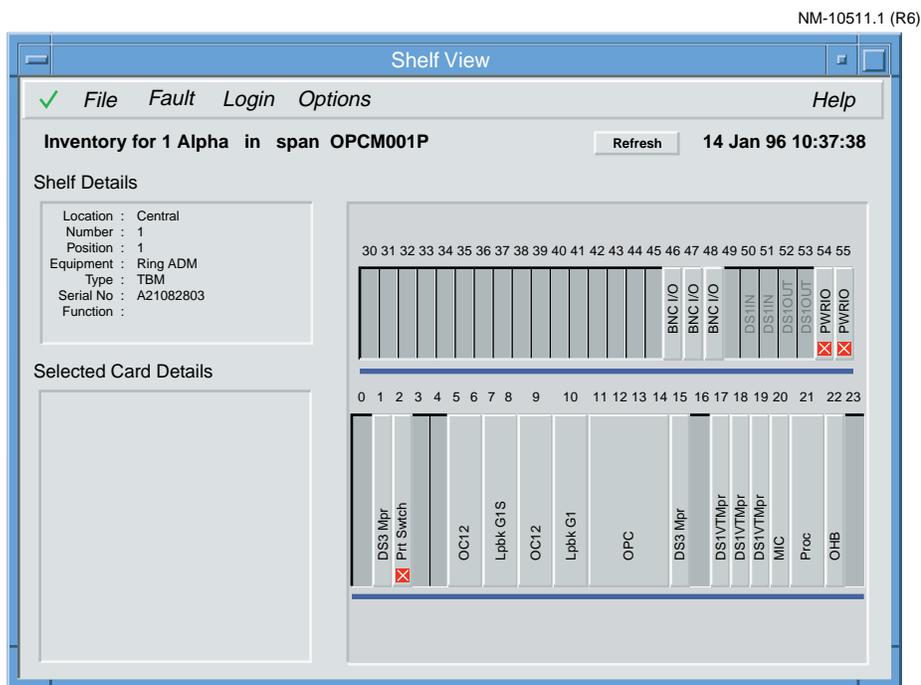
Go to step 6.

—**continued**—

Procedure 2-6 (continued)
Displaying a graphical shelf inventory

Step	Action
5	The Shelf View window for an S/DMS AccessNode Access Bandwidth Manager (ABM) network element appears in the following format.

NM-10603.1
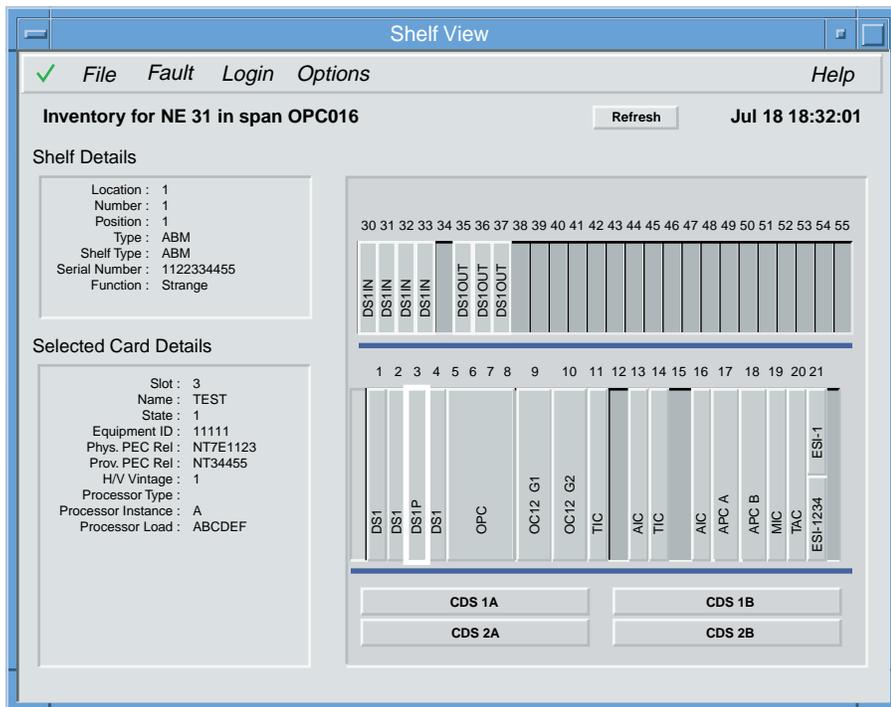
The Shelf View window for an S/DMS AccessNode ABM network element includes the copper distribution shelf (CDS) for the selected network elements. The CDS shows installed CDS drawers. A CDS Shelf View window is displayed by selecting one of the drawer icons. The CDS Shelf View window displays all line cards, circuit packs, and power converters. (See the following illustration.)

—continued—

Procedure 2-6 (continued)
Displaying a graphical shelf inventory

Step	Action

NM-10604.1
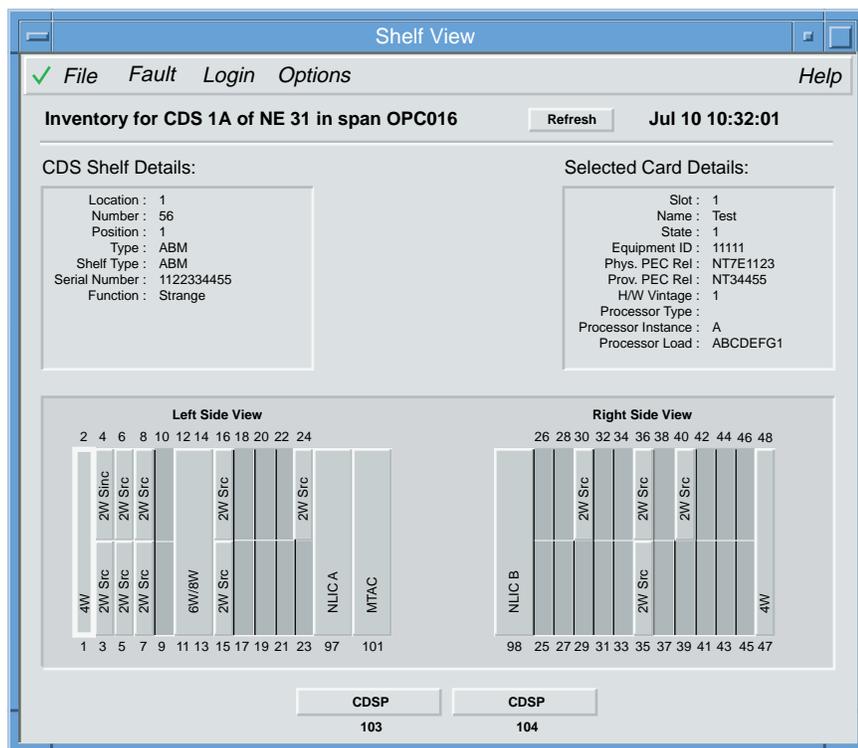
Note: A maximum of two CDS drawers can be displayed in the CDS Shelf
View window. To view other drawers, select the desired CDS drawer from the
ABM Shelf View window.

—continued—

Procedure 2-6 (continued)
Displaying a graphical shelf inventory

Step	Action
6	Review the shelf graphic for the equipment inventory.

The graphical representation of the shelf provides a snapshot of the equipment provisioned or present in the network element common equipment shelf, at the time you requested the shelf view.

Card graphics identify the contents of each slot. A slot can contain:

- *a card that occupies one slot, such as a DS3 STS Mapper card. A single-slot card graphic is displayed in the slot.*

- *a card that occupies more than one slot, such as a controller. A multiple-slot card graphic is displayed in the appropriate slots.*

- *multiple cards in a single slot, such as carrier cards. A multiple-card graphic, showing each of the subslots, is displayed in the slot.*

Each card is labelled according to its function.

7   Check the shelf graphic to verify the equipment provisioning information.

Slots that are provisioned for a particular type of card, but no card is physically installed in the slot, do not contain a card graphic. This feature allows you to determine if the slot is:

- *provisioned for a particular type of card, but no physical card is yet installed. In this case, a grayed-out equipment identifier label shows the type of card for which the slot is provisioned.*

- *not provisioned for any particular card, and no card is physically installed in the slot. In this case, the slot is void of information.*

8   Check the cards in the shelf graphic for provisioning mismatches or inconsistencies.

For a provisioning mismatch or inconsistency, the suspect card is highlighted as follows:

- *A question mark (?) at the bottom of a card graphic indicates that an unknown card type is installed in the slot. The PEC of the card installed in the slot is not recognized by S/DMS Network Manager.*

- *An X at the bottom of a card graphic indicates a mismatch. The X appears if the PEC of the card that is installed in the slot is different than the PEC that is provisioned for the slot. The label on the card graphic indicates the card type physically installed in the slot.*

<div align="center">

—continued—

</div>

Procedure 2-6 (continued)
Displaying a graphical shelf inventory

Step	Action
9	Review the shelf graphic for alarms.

An alarm balloon appears if new alarms are raised on the card. The balloon contains the alarm count for the card, a letter indicating the alarm of the highest severity. The color of the alarm balloon and card affected reflect the severity of the alarm. The alarm balloon for a card or sub card is displayed in the top, center part of the icon.

In addition to card-related alarms, the Shelf View window displays alarms that are associated with the environment, common equipment, and facilities.

| **10** | You can obtain the details of a card or refresh the shelf graphic. |

If you want to	**Then**
obtain the details of a card	step 11
refresh the inventory information	step 12
close the Shelf View window	step 13

| **11** | Move to the card for which you want to display the details and select the card. |

The details of the selected card appear in the Selected Card Details box.

Go to step 10.

| **12** | Select the **Refresh** button. |

A Shelf Inventory Retrieval dialog appears.

The Shelf Inventory Retrieval dialog identifies the network element for which the inventory information is retrieved, and the state of the retrieval.

When the retrieval is complete, the Shelf View window updates with the new inventory information. The Last Refreshed at time shows the time and date on which the inventory was last updated.

Go to step 10.

| **13** | Display the Shelf View window File menu and select the **Close** command. |

The Shelf View window is removed from the display.

—**end**—

List of terms

ABM

Access Bandwidth Manager

ADM

add-drop multiplexer

alarm

a condition, such as a fault, that sends a signal to an indicator

AN

S/DMS AccessNode

ASCII

American Standard Code for Information Interchange

balloon

a balloon-shaped object that appears on a node to indicate alarm counts

BLSR

bidirectional line switched ring

CCITT

Consultative Committee on International Telegraphy and Telephony

CLFI

Common Language Facility Identifier

CMT

character-mode terminal

CNet

control network

CPC

corporate product code

CPG

circuit pack group

CSM

centralized software management

DARPA

Defense Advanced Research Projects Agency

DDS

digital data storage (tape)

DMS

Digital Multiplex System

DMS MAP

Digital Multiplex System Maintenance Access Position

DV45

Digital Video Codec

EDA

external device access

ftp

file transfer protocol

GNB

Graphical Network Browser

GNE

Graphical Network Editor

group

a logical collection of network elements

GUI

Graphical User Interface

highlighting

the graphical application of color to a node to indicate a certain alarm severity

HP

Hewlett-Packard

HP VUE

Hewlett-Packard Visual User Environment

indicator

an audible or visible alert to an alarm or status condition

ISO

International Standards Organization

LAN

local area network

log in

the action of opening a user interface element

log out

the action of closing a user interface element

LTE

line terminating equipment

MAPCI

Maintenance and Administration Position Command Interpreter

menu

a list of action options

menu bar

the portion of the graphical user interface that contains the status indicator, and the window menus

MOA

Managed Object Agent

network element (NE)

a collection of equipment at one location that functions and is administered as a single entity

node

graphic object representing groups or single network elements

NTP

Northern Telecom Publication

NUM

Network Upgrade Manager, an OPC tool

OAM&P

operations, administration, maintenance, and provisioning

OC-3

optical signal carrier level 3 (at 155.520 Mb/s)

OC-12

optical signal carrier level 12 (at 622.080 Mb/s)

OC-48

optical signal carrier 48 (at 2488 Mb/s)

OC-192

optical signal carrier 192 (at 9953.280 Mb/s)

OPC

operations controller

OSI

Open Systems Interconnect

PEC

product engineering code

PM

performance monitoring

SAM

System Administration Manager

S/DMS

Synchronous/Digital Multiplexing System

SOC

span of control

SONET

Synchronous Optical Network is a standard for optical transport that defines optical carrier levels and their electrical equivalent for synchronous transport signals. The SONET standard allows for a multivendor environment, positioning the network to transport new services, synchronous networking, and enhanced operations, administration, maintenance and provisioning (OAM&P).

span

all network elements under the control of a single operations controller (OPC)

STS-1

Synchronous Transport Signal (at 51.84 Mb/s)

subnetwork

a graphical collection of objects organized into groups to represent the network elements monitored by S/DMS Network Manager.

system

network elements associated with the same payload

TA-1230 ring

Bellcore standard for SONET BLSR Equipment Criteria, TA-NWT-001230 (issue 2)

TCP/IP

Transmission Control Protocol/Internet Protocol

UDLC

Universal Digital Loop Carrier

UI

user interface

USM

User Session Manager

VTBM

Virtual Tributary Bandwidth Management

window

a rectangular area of a display screen used to contain a particular application

WAN

wide area network

X.25

CCITT protocol used for wide-area packet switching. OSI Data communication standard

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SONET Transmission Products

S/DMS Network Manager
Inventory Management

NØRTEL
NORTHERN TELECOM