



Preside Multiservice Data Manager

# Overview

241-6001-801



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# Chapter 1

## Introducing MDM

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This section introduces you to the Preside Multiservice Data Manager (MDM) and contains information about the following topics:

- “Main features of Preside MDM” (page 13)
- “Software architecture” (page 15)
- “Network model and views” (page 17)
- “MDM tools and utilities” (page 18)
- “MDMWeb” (page 18)
- “HP OpenView Desktop” (page 18)
- “Related documents” (page 18)

### Main features of Preside MDM

The Preside Multiservice Data Manager (MDM) is a workstation-based network management system that lets you maintain and monitor a complete network from a centralized or a decentralized network control center.

Preside MDM:

- provides a full set of applications for managing faults, configuration, accounting, performance, and security on the following devices in your network:
  - Passport 6000 series of switches
  - Passport 7000 series of switches
  - Passport 15000 switches

- DPN-100 switches
- can be used to collect data from these devices for performance analysis, calculating hardware usage, billing, network engineering and generating customer reports
- provides applications to manage faults for the following additional devices:
  - Business Policy Switch 2000
  - Edgeline Multiplexer
  - Juniper M5, M10, M20, M40 and M160
  - Legacy Data Modules
  - Passport 1200
  - Passport 4100 series of access devices
  - Passport 4400 series of access devices
  - Passport 8600
  - Shasta 5000 Broadband Service Nodes (BSNs)
- provides a graphical user interface that makes Preside MDM easy to use
- provides a suite of applications interfaces (APIs) and an embedded programming interface (EPI) that let you integrate Preside MDM with external operations support systems (OSSs)
- lets you run Preside MDM applications on a single workstation or distribute them over a number of workstations to manage your network according to geographical regions or according to organizational groups in your business
- has a highly scalable software architecture that can be expanded quickly to manage a growing network
- includes a full suite of administration tools to configure Preside MDM to suit the devices and organization of your network
- includes a means to customize the appearance of its graphical user interface to suit customer needs

- provides online documentation and extensive online help for its network management applications

Has the following optional interfaces:

- OpenView Desktop that provides a means to display fault information on Hewlett Packard's OpenView Network Node Manager desktop.
- MDM Web that provides a Web interface for fault management applications

## Software architecture

Preside MDM consists of four layers of software that contain tools and servers that can be

- run on one workstation in small networks
- distributed over a number of workstations in large networks or in networks in which you wish to use several workstation to manage your network according to geographic regions or business functions

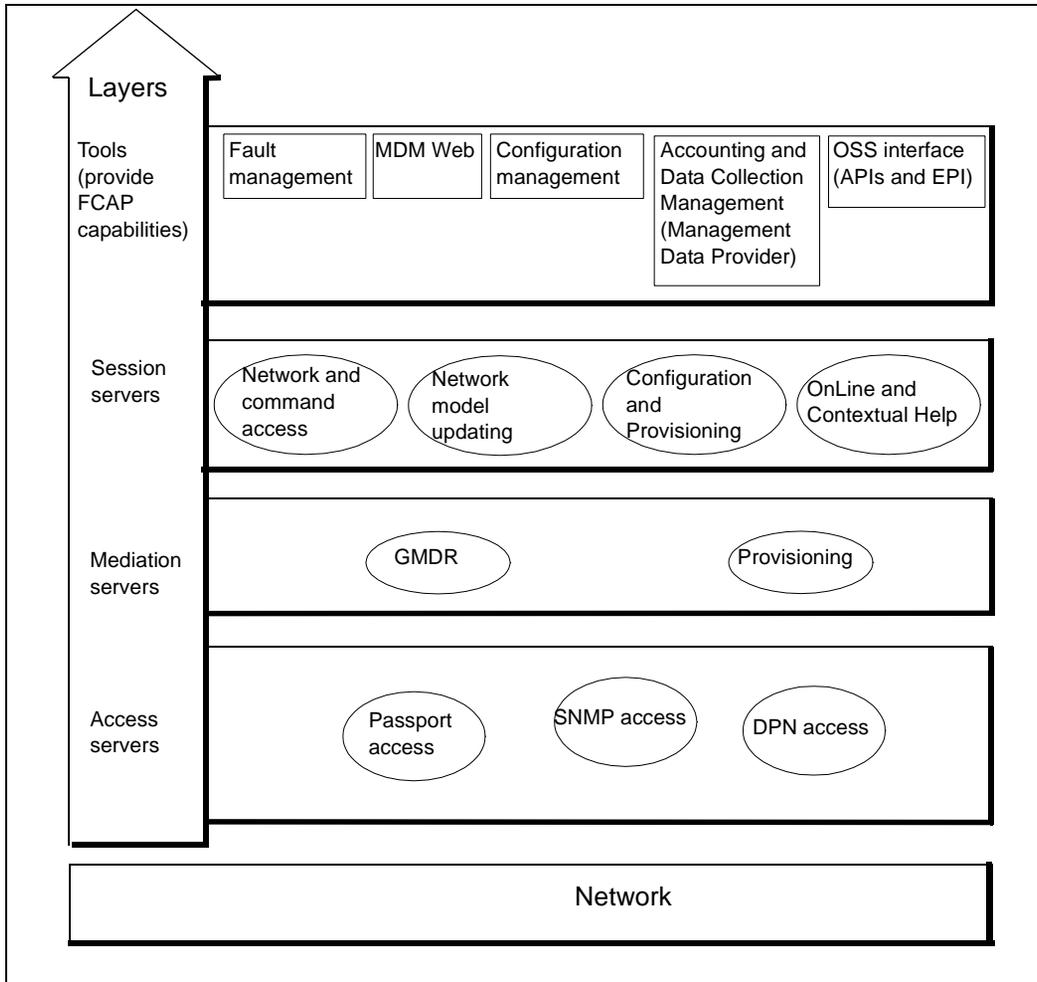
### Layer 1, tools

The tools layer consists of the graphical user interfaces, command line interfaces, utilities, applications programming interfaces (APIs), and an embedded programming interface EPI that provide you with FCAPS management of your network (See "Layers of Preside MDM software" (page 16). FCAPS stands for

- F - "Fault management" (page 25)
- C - "Configuration management" (page 35)
- A - Accounting, see "Data collection" (page 53)
- P - "Performance management" (page 85)
- S - "System management" (page 89)

The MDMWeb tools and the HP OpenView desktop are also part of this layer.

**Figure 1**  
**Layers of Preside MDM software**



### Layer 2, session servers

The session servers layer contains a number of user-session servers that manage connections and handle command line interface (CLI) transactions. For example, when configuration tools are running, the configuration and provisioning-related session servers that perform configuration operations are triggered from the GUI and utilities.

### **Layer 3, Mediation servers**

The servers in the mediation layer perform computation functions. For example, the general management data reporter (GMDR) server computes raw state information from devices in the network and forwards them to servers that take care of the Network Model. The Network Model is just what it sounds like, a model of all the devices, components, and links in the network, and their states.

### **Layer 4, Access servers**

Servers in the access layer maintain connectivity to devices in the network, perform protocol translation and device specific handling functions for a managed device.

## **Network model and views**

Preside Multiservice Data Manager (MDM) stores and maintains a model of the entire network in memory. This model includes the devices, components, ports, links in the network, and their states.

Preside MDM applications can share access to the information in the network model. This ability to share lets Preside MDM to present a unified and consistent of the network to all users.

MDM provides two ways of viewing information (views) of information in the network model:

- a component view
- an organization view

### **Component view**

A component view provides information about all devices in the network, their subcomponents, their attributes, and their states.

### **Organization view**

An organization view groups devices, subcomponents in a way that reflects the required view of your network. You can group them by area or by business function.

## MDMWeb

MDMWeb is an add-on software application to the Nortel Networks base Preside Multiservice Data Manager (MDM) software. MDMWeb consists of various applications that let you perform fault management using Sun's common desktop environment and a web browser. You can run MDMWeb as a stand-alone application or as an applet in a web browser. MDMWeb lets you perform network management from remote locations, for example, from a remote office or from home. MDMWeb supports any network element that is supported by MDM. It has a client/server architecture. The client runs multiple platforms that include Solaris, Windows, and HP-UX; the server runs the Solaris platform. For details about MDMWeb, see 241-6001-030 *Preside MDMWeb User Guide*.

## HP OpenView Desktop

HP OpenView Desktop is add-on software that lets you display fault management information from devices managed with Preside MDM on the desktop of HP OpenView Node Network Manager software that is installed on a UNIX workstation. You must order the HP OpenView Node Network Manager software separately from Hewlett Packard and install it with the instructions provided with the Node Network Manager software.

## MDM tools and utilities

You can use other tools and utilities with the Preside Multiservice Data Manager (MDM), including application programming interfaces (APIs), reporting tools, tools for administration tasks, and general purpose utilities. For information about these MDM tools and utilities, see the following sections:

- “OSS Interfaces” (page 99)
- “Network Reporting System” (page 49)
- “System management” (page 89)
- “Utilities” (page 93)

## Related documents

This document refers to the following publications:

**Note:** For a complete list of NTPs in the suite, see 241-6001-000 *Preside MDM Documentation Guide*. For information about what is new in this release, see 241-6001-001 *What's New in Preside MDM Documentation*.

- 241-1001-506 *DPN-100 Alarm Console Indications*
- 241-2001-340 *DPN-100 Envelope Definitions - Volume 5*
- 241-6001-011 *Preside MDM Fault Management User Guide*
- 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*
- 241-6001-015 *Preside MDM Network Model Administrator Guide*
- 241-6001-109 *Preside MDM Passport 4400 Integration Guide*
- 241-6001-118 *Preside MDM SNMP Surveillance Adapter Guide*
- 241-6001-200 *Preside MDM Application Programming Interface Primer*
- 241-6001-201 *Preside MDM Network Model API Reference Guide*
- 241-6001-203 *Preside MDM Alarm and Status API Reference Guide*
- 241-6001-204 *Preside MDM DPN Provisioning API Reference Guide*
- 241-6001-207 *Preside MDM Passport Provisioning API Reference Guide*
- 241-6001-209 *Preside MDM Provisioning Command Filter API Reference Guide*
- 241-6001-210 *Preside MDM DPN SNMP Agent User Guide*
- 241-6001-211 *Preside MDM Embedded Programming Interface Reference Guide*
- 241-6001-303 *Preside MDM Administrator Guide*
- 241-6001-309 *Preside MDM Management Data Provider User Guide*
- 241-6001-501 *Preside MDM Proxy Alarms Reference Guide*
- 241-6001-804 *Preside MDM Workstation Utilities User Guide*
- 241-6001-807 *Preside MDM Passport/SNMP Devices Backup and Restore User Guide*

- 241-6001-808 *Preside MDM Device Inventory Tools User Guide*
- 241-5701-030 *Passport 7400, 15000, 20000 Overview*
- 241-5701-500 *Passport 6400, 7400, 15000, 20000 Alarms*

## Chapter 2

# MDM user environment

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This section describes the Preside Multiservice Data Manager (MDM) user environment and contains the following topics:

- “MDM workstation” (page 21)
- “User interface” (page 21)

### MDM workstation

The Preside Multiservice Data Manager (MDM) requires a UNIX workstation provided by Sun Microsystems Inc. or any platform certified as SPARC Compliant by Sun Microsystems Inc. You can use multiple MDM workstations through the network with separate or overlapping functionality.

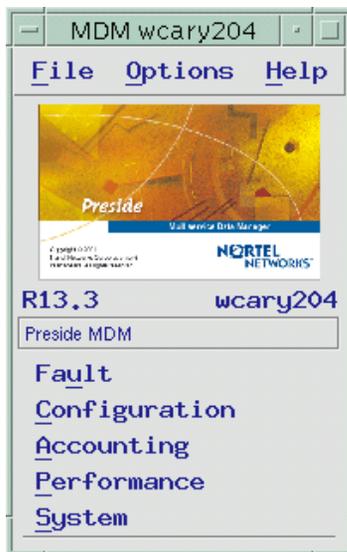
### User interface

The Preside Multiservice Data Manager (MDM) includes a graphical user interface for network operators with color graphics, menus, icons, help screens, online documentation, and multiple windows. Multiple windows allow operators to run several applications at the same time.

### Preside MDM Window

When you start Preside Multiservice Data Manager (MDM) software the Preside MDM window opens in the UNIX workspace.

**Figure 2**  
**Preside MDM window**



The Preside MDM window provides a set of cascading menus from which you can launch the MDM tools to perform network management tasks.

The sets of cascading menus, and references to explanations of the purposes of the tools available in the cascading menus are as follows:

- Fault, see “Fault management” (page 25)
- Configuration, see “System management” (page 89)
- Accounting, see “Data collection” (page 53)
- Performance, see “Performance management” (page 85)
- System, see “System management” (page 89)

There are three menus at the top of the window. For information, about these menus see:

- “File menu” (page 23)
- “Options menu” (page 23)

- “Help menu” (page 24)

## File menu

The File menu lets you exit the Preside MDM window by one of the following methods:

- from the File menu, select Exit
- type Ctrl+E

## Options menu

The Options menu lets you select options. For more information, see

- “Selecting fonts” (page 23)
- “Selecting colormaps” (page 24)
- “Selecting CDE session” (page 24)

### Selecting fonts

The Fonts command in the Options menu lets you select the font for all Preside Multiservice Data Manager (MDM) applications. After you select a font, all tools launched will start with the selected font. The font remains in effect until you select another font. If you do not select a font, there is no font requirement set on the applications.

You can see the Fonts menu item in the figure “Fonts menu” (page 23).

**Figure 3**  
**Fonts menu**



You can customize the fonts for all users of the MDM tool. For details about customizing fonts, see the 241-6001-301 *Preside MDM Customization Administrator Guide*.

### **Selecting colormaps**

The Applications use private colormaps menu item on the Options menu lets you select private or default colormaps for Preside Multiservice Data Manager (MDM). When you enable the Applications use private colormaps menu item, all other applications start with private colormaps. Because the default colormaps of some applications use many colors, this option gives you control over which applications receive color. (Some of the MDM applications use color to identify state.) If you do not enable this menu item, MDM uses system default colormaps.

### **Selecting CDE session**

The Allow CDE workspace management command on the Options menu lets you select Common Desktop Environment (CDE) as the session manager where all applications launch. When you use CDE, all applications that were running when you logged off launch when you log in. CDE also saves the positions, sizes, and argument lists of applications. If you do not enable this menu item, applications can use another session manager.

## **Help menu**

The Help menu lets you get online help about the Preside MDM window. Online help is also available for tools and objects within tool windows. The Help menu provides the following types of help information:

- On Context
- On Window

Help On Context displays online help information about any object in the window.

Help On Window provides a description of the window.

For more details about online help, see the 241-6001-804 *Preside MDM Workstation Utilities User Guide*.

## Chapter 3

# Fault management

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This section describes the fault management applications for Preside MDM window. This section also provides a brief description of the SNMP Surveillance Adapter, MDM Web, and list of devices that MDM supports by means of set of fault cartridges.

This section contains the following topics:

- “Fault management tools” (page 25)
- “MDMWeb” (page 31)
- “SNMP Surveillance Adapter” (page 32)
- “Management of devices with fault integration cartridges” (page 32)

## Fault management tools

Fault management is the detection, analysis, and correction of network faults or service degradation.

You can use an alarm-based or state-based methods to detect faults in your network. The fault management tools provide detailed information about faults to help you analyze the fault information, and take action to correct a fault. Fault management also provides an alarm acknowledgement utility.

Fault management tools are as follows:

- “Network Viewer” (page 26)
- “Passport Shelf View” (page 27)
- “VPN Monitor” (page 27)

- “Alarm Display: Active” (page 27)
- “Alarm Display: Logs” (page 28)
- “Alarm Help” (page 28)
- “Alarm Acknowledgment” (page 29)
- “Network Status Bar” (page 29)
- “Component Information Viewer” (page 29)
- “Query Historical Alarms” (page 30)
- “Component Status Display” (page 30)
- “IP Discovery” (page 30)
- “Circuit Viewer” (page 31)
- “HP OpenView NM” (page 31)

Preside MDM is multitasking software that lets you run several tools at the same time. This capability increases the speed and ability to correct faults. For example, with the Network Viewer and the Component Status Display, you can look at the state of multiple components at the same time. With the Component Information Viewer, you can look at a single component and its related components to find more detailed information.

The Preside Multiservice Data Manager (MDM) lets you transfer device names, status and service data from one tool to another by context commands. For more detailed information about fault management tools, see 241-6001-011 *Preside MDM Fault Management User Guide*.

## Network Viewer

The Network Viewer (NV) displays a map of the network that includes devices, ports, trunks, and links. The Network Viewer uses different shapes of icons to distinguish different types of devices and represents their states by means of different colors.

The NV displays views at different levels of detail. You can use a high-level view the basic structure of the network and to quickly identify areas that require attention. You can the displayed information with complete filtering capabilities. You can display module subcomponents down to the port level

to trace a high-level problem down to its source. The NV allows you to display different levels of the network at the same time (for example, regional, site, and module levels).

For details, see the Network Viewer section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Passport Shelf View

The Passport Shelf View tool supports a selection of nodal surveillance and provisioning activities from a single window. This window displays both physical and logical shelf views for Passport 6000, 7000, 15000, and 20000 multiservice switches. It also displays related component information and associated alarms. The Passport Shelf View tool communicates directly with the Passport device to assist in troubleshooting network problems in real time.

For details, see the the Passport Shelf View section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## VPN Monitor

The VPN Monitor tool provides fault management capabilities for Passport Internet Protocol (IP) Virtual Private Network (VPN) services. This tool monitors network components that make up the VPN services to detect and identify troubled elements within the service. VPN Monitor displays VPN topology along with state information so that you can easily identify and navigate troubled areas. From VPN Monitor, you can also start other MDM fault management tools to further investigate and correct faults.

For details, see the VPN Monitor section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Alarm Display: Active

The Alarm Display (AD): Active tool provides a list of active alarms. The AD: Active lets you view alarms received from both Passport and DPN in a single window. The display refreshes automatically after the list of active alarms changes. The AD: Active displays alarms in DPN or common (for Passport and DPN) alarm format. With filtering capabilities, you can limit the number and type of alarms received. You can use the AD: Active with other fault management tools to identify faults in your network.

For details, see the Alarm Display section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Alarm Display: Logs

The Alarm Display (AD): Logs tool provides a list of active alarm logs. The AD: Logs lets you view alarm logs received from both Passport and DPN in a single window. The display refreshes automatically when new alarm logs are generated. With filtering capabilities, you can limit the number and type of alarm logs received. You can use the AD: Logs with other fault management tools to identify faults in your network.

For details, see the Alarm Display section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Alarm Help

In Alarm Help, you can see alarm code descriptions for:

- DPN and Passport 6000, 7000, and 15000 alarms
- Preside Multiservice Data Manager (MDM) proxy alarms
- alarms from devices managed through the fault management integration cartridges. See also “Management of devices with fault integration cartridges” (page 32).

You can also search for a selected alarm code with wild card characters.

The documents that are available in Alarm Help are

- 241-1001-506 *DPN-100 Alarm Console Indications* contains DPN alarms
- 241-5701-500 *Passport 6400, 7400, 15000, 20000 Alarms* contains Passport alarms
- 241-6001-501 *Preside MDM Proxy Alarms Reference Guide* contains MDM proxy alarms
- 241-6001-502 *Preside MDM Device Alarms Reference Guide* contains alarms for SNMP devices supported by MDM

In addition, you can add and edit user-defined alarm code descriptions with Alarm Help.

## Alarm Acknowledgment

The Alarm Acknowledgment utility lets operators indicate that they are checking a problem related to an active alarm. The indication shows the operator responsible for the acknowledgment (or non-acknowledgment) and the reason for the acknowledgment (or non-acknowledgment).

Alarm Acknowledgment also provides a link between alarm-based network surveillance and state-based network surveillance.

For information, see the 241-6001-310 *Preside MDM Server Reference Guide*.

## Network Status Bar

The Network Status Bar (NSB) provides a high-level view of the network status. The NSB monitors a set of statistical indicators gathered from the General Management Data Router (GMDR) database. Some of these indicators determine the quantity of troubled elements in the network and include

- the number of active alarms
- the number of out-of-service components

For details, see the Network Status Bar section in 241-6001-011 *Preside MDM Fault Management User Guide*

## Component Information Viewer

The Component Information Viewer (CIV) provides you with detailed information about components and subcomponents of a network element. The CIV provides this information in text format.

The CIV gathers state-, alarm-, and problem-based monitoring into one tool. Use the CIV to perform the following tasks:

- identify the component with the fault and any of its related components
- determine the effect of these faults
- view the current state and problem state of these components
- view the alarms and status received from these components

- execute diagnostic commands

You can use the CIV with other fault management tools to identify faults in your network.

For details, see the Component Information Viewer section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Query Historical Alarms

The Query Historical Alarms tool lets you search and display short-term historical alarms. The tool supports filters so that you can refine your alarm searches. You can start the Query Historical Alarms tool from the Preside Multiservice Data Manager (MDM) tool set window, from within the Component Information Viewer tool, or through a command line interface.

For details, see the Query Historical Alarms section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## Component Status Display

The Component Status Display (CSD) shows a text version of the state information that the Network Viewer graphically displays. The CSD can show a greater level of detail about the network. Also, you can filter for state and component information, and display only those states and components you need to see.

For details, see the Component Status Display section in 241-6001-011 *Preside MDM Fault Management User Guide*

## IP Discovery

The IP Discovery application lets you discover Simple Network Management Protocol (SNMP) devices by hostname or IP address using direct discovery or route-based discovery. Direct discovery accepts a list of devices and attempts to discover each device as an SNMP-managed device. Route-based discovery accepts seed devices, filters parameters and discovers devices listed in its routing table.

For details, see the IP Discovery section in 241-6001-011 *Preside MDM Fault Management User Guide*

## Circuit Viewer

The Preside Multiservice Data Manager (MDM) Circuit Viewer tool is part of the MDM circuit management application. MDM circuit management provides a circuit database for storing and managing circuit information. The Circuit Viewer lets you view circuit information from the database or from the switch.

For details, see the Circuit Viewer section in 241-6001-011 *Preside MDM Fault Management User Guide*.

## HP OpenView NM

The HP OpenView node manager (NM) provides customers who are used to using the HP OpenView desktop for fault management with a means to display fault information gathered by the Preside MDM software on an HP OpenView desktop. This feature is optional and the HP OpenView NM menu item only appears if the feature is installed on Preside MDM.

## MDMWeb

MDMWeb is a set of applications that lets you perform fault management using a common desktop environment and a World Wide Web (Web) browser. The MDMWeb server software runs on Solaris. However, the MDMWeb client software runs on multiple platforms including Solaris, Windows 95, and Windows NT. You can install the MDMWeb client as a standalone application or as an applet inside a Web browser.

MDMWeb has the following applications:

- **Network Status**  
This application provides a high-level view of the network status.
- **Network Browser**  
This application displays network element states and provides a means of navigating the network hierarchy.
- **Alarm Display**  
This application displays alarms in the network, either in active alarm mode or in alarm log mode.
- **Component Information Viewer**  
This application provides state and alarm information for a specific component.

- **Command Console**  
This application establishes group connection and directly accesses the network device allowing command input.

For details on MDMWeb, see 241-6001-030 *Preside MDMWeb User Guide* and 241-6001-117 *Preside MDMWeb Installation Guide*.

## SNMP Surveillance Adapter

Simple network management protocol (SNMP) is a standard used by many communications equipment manufacturers. The SNMP Surveillance Adapter lets you collect traps from devices that use the SNMP protocol for communicating surveillance information and convert them into Preside MDM alarms.

The SNMP Surveillance Adapter contains a toolkit to let you set up trap collection and translate the traps into alarms. The toolkit consists of a trap reporter, trap server, a generic or device-specific data collection daemon, and an SNMP Management Data Router.

For the instructions to install, configure, and use the SNMP Surveillance Adapter, see 241-6001-118 *Preside MDM SNMP Surveillance Adapter Guide*.

## Management of devices with fault integration cartridges

In addition to providing you with full FCAPS (fault, configuration, accounting, performance, and system management) management of Passport and DPN switches, MDM also provides a set of fault integration cartridges that let you collect traps from the following devices and convert them into Preside MDM alarms:

- Business Policy Switch 2000
- Edgeline Multiplexer
- Juniper M5, M10, M20, M40 and M160
- Legacy Data Modules
- Passport 1512
- Passport 4100 series of access devices

- Passport 4400 series of access devices
- Passport 8600
- Shasta 5000 Broadband Service Nodes (BSNs)

For information about these cartridges, please see the following Web site:  
**<http://www130.nortelnetworks.com/bin/cgi-bin/eserv/cs/main.jsp>**



## Chapter 4

# Configuration management

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This section describes the network configuration management applications for Preside MDM.

Configuration management includes the following tasks:

- initial configuration of devices in the network and services provided on the devices
- updates and changes to the configuration after the devices are in service

The configuration management applications in MDM are grouped into sets of menus according to the type of device:

- Passport devices. These devices include Passport 6000, Passport 7000, and Passport 15000.
- Passport 4400 devices. These devices include Passport 4430, 4450/55, and 4460.
- DPN devices. These devices include DPN-100.

### Passport devices

Configuration management applications for Passport devices (which include Passport 6000, Passport 7000, Passport 15000 and Passport 20000) are as follows:

- “Nodal Provisioning” (page 36)
- “Embedded Nodal Provisioning” (page 36)
- “Component Provisioning” (page 36)

- “Service Provisioning” (page 37)
- “Administration” (page 40)
- “Network Reporting System” (page 41)
- “Inventory Reports” (page 42)
- “Passport Global Data Manager” (page 43)

## Nodal Provisioning

The Passport Nodal Provisioning application provides a graphical user interface that lets you:

- provision a subset of the components and services available on Passports by filling out a set of on-line forms
- provision services by dragging information from a set of templates onto a hierarchical representation of Passport components

For procedures to use the Nodal Provisioning tool, see 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

## Embedded Nodal Provisioning

Embedded Nodal Provisioning (ENP) is available from Shelf View and provides a lightweight provisioning interface for Passport nodes. It provides access to a subset of the functionality provided by Nodal Provisioning to make simple or limited provisioning changes to a node. Embedded Nodal Provisioning is useful for troubleshooting situations where an operator only needs to change a few components or attributes. Nodal Provisioning is the recommended tool for making large provisioning changes.

For procedures to use Embedded Nodal Provisioning, see 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

## Component Provisioning

The Passport Component Provisioning application provides a graphical interface that displays configuration data for Passports in the form of a hierarchy. The application lets you query, change, add, delete, update, validate, and download configuration data for any of the components in the hierarchy.

For procedures to use the component provisioning tool, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide*.

## Service Provisioning

The Passport Service Provisioning application provides the following set of tools for provisioning services on Passport switches:

- “ATM” (page 37)
- “CES SVC” (page 37)
- “Frame Relay” (page 38)
- “IP VPN Service Provisioning” (page 38)
- “IP VPN Provider Edge Provisioning” (page 39)
- “IP VPN Global Update” (page 39)

### ATM

The ATM service provisioning tool lets you provision asynchronous transfer mode (ATM) permanent virtual connections (PVCs), and soft permanent virtual connections (SPVCs). The tool also supports provisioning of frame relay to ATM (FrAtm) circuits for the following FRF.8 FrAtm scenarios:

- SIWF FR-ATM to FR-ATM access SPVC
- SIWF FR-ATM to ATM Access SPVC
- SIWF ATM to FR-ATM Access SPVC

The tool lets you do this in one provisioning session and from a single user interface.

For procedures to use the Service Provisioning tool for configuring ATM and FrATM circuits, see 241-6001-600 *Preside MDM Service Provisioning for ATM User Guide*.

### CES SVC

The CES SVC service provisioning tool

- lets you provision circuit emulation service (CES) over ATM switched virtual circuits (SVCs)

- supplies most of the data automatically for you so that you only have to enter a small amount of data to configure the service
- lets you provision the active and passive end points of the service just by configuring two connection points, one for each device that terminates the connection
- displays a hierarchical view of Passport components in which you can browse existing logical processor (LP) and CES (Aa1Ces) components

For procedures to use the service provisioning tool for configuring CES SVC services, see 241-6001-602 *Preside MDM Service Provisioning for CES SVC User Guide*.

### **Frame Relay**

The Frame Relay service provisioning tool lets you provision Frame Relay permanent virtual circuits (PVC) between two Passport switches. The tool lets you do this in one provisioning session and from a single user interface.

You can also launch the Real Time Log Display tool from the Frame Relay service provisioning tool. The Real Time Log Display tool lets you view log files in real time, filter and log messages to a file.

For procedures to use the service provisioning tool for configuring frame relay, see 241-6001-603 *Preside MDM Service Provisioning for Frame Relay User Guide*.

### **IP VPN Service Provisioning**

The IP VPN service provisioning (SP) tool provides a graphical user interface that enables you to provision RFC 2547 VPNs and RFC 2764 VPNs with auto-discovery enabled. The IP VPN SP tool reduces the amount of provisioning required to set up and manage your customers' VPNs. You can also launch ENP from the tool to provision Passport virtual router (VR) sub-components. You use the IP VPN SP tool to perform the following tasks:

- create a Customer entity in the MDM Administration database
- add VPNs to the Customer entities in the MDM Administration database
- provision the VR tunnels for the RFC 2764 VPNs with auto-discovery enabled

- define and provision the IP CoS profiles for the VRs in an RFC 2764 VPN with auto-discovery enabled
- create route targets for the RFC 2547 VPNs and assign the route targets to the Customer entity in the MDM Administration Database
- provision the route distinguisher and associated route targets on a VRF in an RFC 2547 VPN

For procedures to use the IP VPN SP tool, see 241-6001-616 *Preside MDM IP VPN Service Configuration User Guide*.

### **IP VPN Provider Edge Provisioning**

The IP VPN provider edge provisioning (PEP) tool provides a graphical user interface that enables you to provision the BGP peers in a provider edge network. You use the IP VPN PEP tool to perform the following tasks:

- create the provider edge network entity in the MDM Administration Database
- add or remove the peering relationships in a fully peered mesh network
- provision the Passport side of a peering relationship in a route reflector network

For procedures to use the IP VPN PEP tool, see 241-6001-616 *Preside MDM IP VPN Service Configuration User Guide*.

### **IP VPN Global Update**

The IP VPN global update tool provides command line and graphical user interfaces that let you set up and update the configuration of RFC 2764 static mode and direct-to-direct VR VPNs. The tool lets you perform the following subtasks:

- create a virtual router (VR) component
- include a VR into a VPN
- exclude a VR from a VPN
- set up a border gateway protocol between VRs in a VPN
- define IP class of service policy groups for the VRs in a VPN
- list various operational VPN information

For procedures to use the IP VPN global update tool, see 241-6001-601 *Preside MDM Service Provisioning for IP VPN Global Update User Guide*.

## Administration

MDM includes a number of tools for administering software loads on Passport switches. These are:

- “Data Synchronization Administration” (page 40)
- “Passport Backup and Restore” (page 40)
- “Software Download and Configuration” (page 41)
- “Network Activation” (page 41)
- ‘ATM Traffic Management Profile Editor’

### Data Synchronization Administration

The Data Synchronization Administration tool is used to administer data synchronization for Passport devices. It allows the operator to add off-switch data such as customer names, and allows their association to circuits and VPNs. It also allows the operator to discover circuits.

For procedures to use the Data Synchronization Administration tool, see 241-6001-400 *Preside MDM Administration Database User Guide*.

### Passport Backup and Restore

The Passport Backup and Restore tool is used to perform backup, restore and recover for Passport 6000, Passport 7000 and Passport 15000 devices only.

This tool is also used to populate the Administration database through the data synchronization process. Note that the use of this database with MDM is optional. For more information on data synchronization, refer to 241-6001-400 *Preside MDM Administration Database User Guide*.

For procedures to use the Passport Backup and Restore tool, see 241-6001-807 *Preside MDM Passport/SNMP Devices Backup and Restore User Guide*.

### **Software Download and Configuration**

The Software Download and Configuration tool lets you configure and download software from a software distribution site to a Passport switch. With the Software Download and Configuration tool you can:

- install and configure base and application software on a new switch
- upgrade base and application software on an existing switch

For procedures to use the software download and configuration tool for Passport, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide*.

### **Network Activation**

The Network Activation tool lets you activate and commit a view on one or Passport switches in the network or on a batch of Passport switches. With the tool, you can activate and commit a view in real time or at a future time.

For procedures to use the network activation tool for Passport, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide*.

### **ATM Traffic Management Profile Editor**

The ATM Traffic Management Profile Editor lets you manage the traffic management profiles for the Service Provisioning - Asynchronous Transfer Mode (ATM) tool. The Profile Editor lets you create, edit, and view traffic management profiles through a graphical user interface.

For procedures to use the ATM Traffic Management Profile, see 241-6001-600 *Preside MDM Service Provisioning for ATM User Guide*.

## **Network Reporting System**

The Network Reporting System (NRS) is a set of tools that let you extract service data from Passport switches, upload the data, store it in a central repository, use it for reporting and/or verification purposes, and access it from custom-developed applications.

The NRS is made up of the following elements:

- NRS Database - stores the service data for each Passport module

- Database population tools - are used in the population process to update the NRS database by uploading bundles from the Passport modules
- NRS Application Development - provides tools that facilitate report creation
- NRS Report Generation - reports on the contents of the NRS database, using report programs
- NRS Hierarchical Report Generation - a set of tools to provide simple report programs of service data that is organized in a hierarchy
- Record Definition Files (RDF) - describe the format of each service data component and provides a name for each service data parameter

Most NRS tools have a command line interface. However, three tools: NRS Reporter, NRS Differences Report, and the NRS Data Hierarchy Report also have graphical user interface equivalents which you can launch from items in Passport devices->Network Reporting System (NRS) submenu. The submenu items and their command line equivalents are:

- Service Integrity Audit (NRS Data Hierarchy Report)
- Configuration Reports (NRS Reporter)
- Configuration Difference (NRS differences)

With the NRS tools you can produce the following reports:

- Configuration Report produces simple configuration hierarchy reports. Its (xnrsdatah)
- Configuration Differences (xnrsdiff) report produces a report on the differences between two sets of configuration data.

For details on the Network Reporting System, see 241-6001-022 *Preside MDM Network Reporting System User Guide*.

## Inventory Reports

The Passport Inventory Reports tool lets you produce reports for the switches in a Passport group or for a specific switch. You can produce predefined reports that come with the tool, and you can design and produce custom reports.

For information about the Passport inventory reports tool, see 241-6001-808 *Preside MDM Device Inventory Tools User Guide*.

## Passport Global Data Manager

The Passport Global Data Manager (PGDM) application provides a command line interface that lets you

- propagate data components from a Passport node to other selected Passport nodes
- replace the attribute values for the components during propagation
- replace the attribute values for selected Passport nodes in the network

The PGDM tool lets you provision data and replace attribute values globally more quickly than the Component Provisioning tool. Because it can handle provisioning of more than one Passport at a time the PGDM reduces the risk of data entry errors.

For information about the Passport global data manager tool, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide*.

## Passport 4400

The Preside MDM menus provides access to the two following configuration tools for Passport 4400 series devices:

### Web configuration

The Preside Multiservice Data Manager (MDM) provides a launch point for a Web-based Passport 4400 configuration tool in the MDM toolset menus. The launch point is Passport 4400 devices->Web configuration. This Web-based configuration tool, called the Passport 4400 coordinator is provided with the Passport 4400 device. The tool lets you configure service on the Passport 4400 device.

### Administration

MDM includes a number of tools for administering software loads on Passport 4400 switches. These are:

- “Data Synchronization Administration” (page 44)

- “Passport/SNMP Service Data Backup/Restore” (page 44)

### **Data Synchronization Administration**

The Data Synchronization Administration tool is used to administer data synchronization for Passport devices. It allows the operator to add off-switch data such as customer names, and allows their association to circuits and VPNs. It also allows the operator to discover circuits.

For procedures to use the Data Synchronization Administration tool, see 241-6001-400 *Preside MDM Administration Database User Guide*.

### **Passport/SNMP Service Data Backup/Restore**

The Passport/SNMP Server Data Backup/Restore tool lets you perform the following operations on Passport 4400 and Passport 4460 devices:

- full backup or restore of service data for a single device or multiple devices
- incremental backup or restore of service data for a single device or multiple devices
- backup or restore of selected service data for a single device or multiple devices

For procedures to use the Passport/SNMP Service Data Backup/Restore tool, see 241-6001-807 *Preside MDM Passport/SNMP Devices Backup and Restore User Guide*.

## **DPN devices**

Configuration management applications for DPN devices (which include DPN-100 modules) are as follows:

- “Component Provisioning” (page 45)
- “Envelope Editor” (page 49)
- “MCF Directory Merge” (page 49)
- “Global Data Manager tool” (page 46)
- “Administration” (page 46)
- “Network Reporting System” (page 49)

- “Inventory Reports” (page 51)

DPN configuration management applications provide

- the ability to send configuration data and software from a remote location to DPN modules
- support for multiple versions of software releases for DPN modules
- support for multiple versions of network and end-user configuration data
- the ability to back up service data manually or automatically to a backup disk or a Preside Multiservice Data Manager (MDM) server

DPN configuration management handles multiple versions of software and provides you with

- immediate online recovery of previous service or software versions; a fallback position is always available
- module-by-module migration to new versions; low-risk migration, with the least possible effect on in-service DPN modules
- easy implementation of regular planning and network change cycles

## Component Provisioning

The Component Provisioning application provides a graphical user interface that lets you define, edit, and displays service data for DPN-100 switches.

With the Component Provisioning application you can

- access and move through the hierarchy of service data
- edit or view service data
- check the sanity of edited service data
- download the edited service data to the module or to the NMS disk directory on an MDM workstation
- manage several service data views, including the committed view and the activated view
- generate service data reports
- access template functions
- create propagation log files

For instructions to use the component provisioning tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

## **Global Data Manager tool**

The Global Data Manager (GDM) application provides a graphical user interface that lets you

- duplicate data components from one master configuration file (MCF) to one or more MCFs in the network. A master configuration file is a file that contains service data for a DPN switch. The service data inside an MCF is divided into service data envelopes, one for each service on the DPN-100 switch.
- provision a specific master MCF as a source of service data envelopes that are to be copied to one or more target MCFs
- distribute network data across the modules in your network

For instructions to use the global data manager tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

## **Administration**

The Administration tools for DPN are

- “Service Data Backup” (page 47)
- “Service Data Restore” (page 47)
- “Software Distribution” (page 47)
- “Software Substitution” (page 47)
- “Service Data Conversion” (page 48)
- “Envelope Editor” (page 49)
- “Network Activation” (page 48)

**Service Data Backup**

The Service Data Backup tool provides a graphical user interface that lets you transfer backup service data files from DPN-100 modules to a backup disk. Service Data Backup allows you to back up service data files for a selected set of master configuration files on a DPN-100 module disk.

The tool can automatically back up the new service data files it generates, or perform backups manually.

For instructions to use the service data backup tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

**Service Data Restore**

Use the Service Data Restore tool to view and select one or more complete master configuration files for restoration. The tool restores service data files from the Backup disk to the selected DPN-100 module.

For instructions to use the service data restore tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

**Software Distribution**

The Software Distribution tool instructs the DPN-100 module to copy images from a remote download site back to the DPN-100 module's disk. The tool also allows you to download DPN software images from the software distribution site to the DPN-100 modules. The tool is available through the graphical user interface or as a command line from a UNIX shell. If you use the command line, enter necessary information as command parameters, or keep parameters in a command file. You can save runtime messages in a file.

For instructions to use the software distribution tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

**Software Substitution**

Use the Software Substitution tool to upgrade images from an older release to a newer release on DPN-100 modules. You can run this tool from a graphical user interface or a UNIX command line.

For instructions to use the software substitution tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

### **Service Data Conversion**

The Service Data Conversion tool allows you to convert service data from one version to the latest service data version, one master configuration file at a time. Then you can use the converted service data with the new switch software. This tool allows a service data conversion for each new main release.

For instructions to use the service data conversion tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

### **Network Activation**

The Network Activation tool has a command line interface and a graphical user interface that lets you:

- download master configuration files (MCF) from the NMS disk directory on the MDM workstation to the DPN module
- distribute software images that an MCF uses from a software distribution site or from a remote download site
- activate or commit an MCF
- commit loaders

### **Network Activation File (NAF)**

The Network Activation File (NAF) is a file you can use as input for the command line and the graphical user interfaces of the Network Activation tool. The graphical user interface also provides the capability to create and modify the NAF.

For instructions to use the network activation tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

### **Template regeneration**

The Template regeneration tool (regentemplates) has a command line interface that lets you use the information in a template to automatically regenerate templates. By default, the tool uploads the master configuration

file described in a template file to regenerate that template. However, there are options to allow the regeneration of the template from the most recent service data. Start the template regeneration tool from a UNIX window.

For instructions to use the template regeneration tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

## Envelope Editor

The Envelope Editor application lets you patch service data by editing the hexadecimal or binary contents of the service envelopes. The tool permits changes to the service data resident on DPN-100 module disks. The edited service data is stored on the same DPN-100 module disk and can be activated and committed by the Network Activation Tool. The application is useful for customers now using NPM Macros to patch the service data in DPN-100 modules in an emergency.

For instructions to use the envelope editor, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

## MCF Directory Merge

The master configuration file (MCF) Directory Merge application provides a command line interface that lets you merge a selected number of MCF directory files into a new MCF directory file. After you execute the on-switch tidy command, MCF directory merge allows you to keep three or more bundles on a DPN-100 module. A bundle is an MCF directory and its related files.

For instructions to use the MCF directory merge tool for DPN, see 241-6001-012 *Preside MDM Configuration Management for DPN User Guide*.

## Network Reporting System

The Network Reporting System (NRS) tools let you extract service data from DPN-100 modules, upload the data, and store it in a central repository. The data can then be used for reporting and/or verification purposes and is also accessible to other custom-developed applications.

NRS is made up of the following elements:

- NRS Database - stores the service data for each DPN AM/RM modules
- Database population tools - are used in the population process to update the NRS database by uploading bundles from the DPN AM/RM modules
- NRS Application Development - provides tools that facilitate report creation
- NRS Report Generation - reports on the contents of the NRS database, using report programs
- NRS Hierarchical Report Generation - a set of tools to provide simple report programs of service data that is organized in a hierarchy
- Record Definition Files (RDF) - describe the format of each service data component and provides a name for each service data parameter

Most NRS tools have a command line interface. However, three tools: NRS Reporter, NRS Differences Report, and the NRS Data Hierarchy Report also have graphical user interface equivalents which you can launch from items in Passport devices->Network Reporting System (NRS) submenu. The submenu items and their command line equivalents are:

- Service Integrity Audit (NRS Data Hierarchy Report)
- Configuration Reports (NRS Reporter)
- Configuration Difference (NRS differences)

With the NRS Reports toolset you can produce the following reports:

- Configuration Report (xnrsdatah) produces simple configuration hierarchy reports.
- Configuration Differences (xnrsdiff) report produces a report on the differences between two sets of configuration data.

For details on the Network Reporting System, see 241-6001-022 *Preside MDM Network Reporting System User Guide*.

## Inventory Reports

With the DPN Inventory reports tool, you can produce reports for the modules under an operations agent or for a specific module. You can produce predefined reports that come with the tool or you can design and produce custom reports.

For details on the DPN Inventory tool, see 241-6001-808 *Preside MDM Device Inventory Tools User Guide*.



## Chapter 5

# Data collection

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The Management Data Provider (MDP) is an off-switch component of a data collection system that processes performance metrics generated by Nortel Networks switches. The MDP collects metric data from Passport and Vector switches using the file transfer protocol (FTP) to minimize the performance degradation that typically results from constant metric polling. DPN-100 switches automatically transfer metric data to the MDP. The raw switch data is reformatted as bulk data format (BDF) or published format (PF) and transferred to down-stream billing and performance analysis applications.

The benefits of the MDP include

- consolidated data collection
- high data integrity
- extensive data content
- scalable solution for all network sizes
- ease-of-fit into operational environments
- can be located on the same workstation as the Preside Multiservice Data Manager (MDM) or stand-alone
- a client/server architecture for configuration
- multi-threaded architecture enabling performance gains on multi-processor platforms

The following topics are discussed in this section:

- “Collecting data” (page 54)
- “Data conversion” (page 54)
- “Archiving” (page 59)
- “Transferring data to down-stream applications” (page 60)
- “Supporting MDP” (page 60)
- “Passport support” (page 62)
- “DPN-100 support” (page 72)
- “Vector support” (page 76)

## Collecting data

The Management Data Provider (MDP) collects performance metrics using different methods for each switch type. Only the collection of Passport performance metrics is controlled by the MDP. The transfer of DPN-100 performance metrics to the MDP is controlled by the DPN-100 switch. The transfer of Vector performance metrics to the MDP is controlled by the Vector switch.

## Data conversion

The Management Data Provider (MDP) converts performance metrics data to bulk data format (BDF) or published format (PF).

“Supported data conversion formats” (page 55) shows the data conversion format supported for each switch data type.

**Table 1**  
**Supported data conversion formats**

DataType	DPN	Passport	Vector	Gen
accounting	PF/BDF	PF/BDF	BDF	
statistics	BDF	BDF	BDF	
logs	BDF	BDF		
alarms	BDF	BDF		
state change notification		BDF		
outage	BDF	BDF		
availability				BDF/ASCII

The following topics are discussed in this section:

- “Converting switch data to bulk data format” (page 55)
- “Converting switch data to published format” (page 57)

## Converting switch data to bulk data format

Raw switch data can be converted to bulk data format (BDF) data in an ASCII format. All data-types from all switch-types can be converted to BDF.

The BDF conversion process uses schema files to interpret the binary switch data. A schema file is required for each data-type generated by each switch-type. Schema files cannot be modified.

The BDF conversion process uses record description files (RDF) to specify the record format of the converted metric data. RDFs are used to control which fields are converted and their field position in the converted record. The BDF Converter requires an RDF for each data-type generated by each switch-type.

**Note:** Nortel Networks recommends the customization of BDF records. Customizing BDF record content ensures that only those fields required by down-stream processing (billing and performance analysis

applications) are converted and transferred. Depending on your requirements, BDF record customization can provide substantial MDP performance gains.

After the MDP has been configured for BDF conversion, data conversion is automatic and continuous. The BDF Converter can also be manually started from the UNIX command line.

The BDF converter normally reads raw switch data from the spool directory `/opt/MagellanMDP/data/mdp/spool`. Vector raw data is read from the merge directory `/opt/MagellanMDP/data/mdp/merge`. Converted files are written to the appropriate sub-directory of the dump directory `/opt/MagellanMDP/data/mdp/dump`. If BDF archiving is configured, the BDF Converter also writes the BDF records to the appropriate archive directory `/opt/MagellanMDP/data/mdp/archive`.

For details about the bulk data format records, see 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

### **Viewing BDF data**

The Data Viewer verifies that converted data matches expected results and performs cursory to moderate switch performance analysis (troubleshooting).

The DataViewer displays bulk data format records using three views:

- the record view displays individual BDF records with the field name and the field value
- spreadsheet view displays the records in selected BDF files in spreadsheet tabular format
- the component view displays data values from selected attributes for selected components in tree format. You can also graph selected component data, and view summary and detailed statistics.

### **MDP audit reports**

The Management Data Provider (MDP generates audit reports which summarize the processing of bulk data format (BDF) records.

These audit reports indicate the following:

- originating switch and datatype for raw data

- possible missing raw data files (raw files out of sequence)
- raw data file size
- number of records successfully converted to BDF
- instances of corrupt data
- successful delivery of BDF files to down-stream application sites

MDP audit reports are generated every 24 hours at 0005 hours. The reports are generated in ASCII format and contain fields that are delimited by a colon, with the exception of field 10 that can contain a maximum of 3 hostnames or IP addresses separated by commas.

## Converting switch data to published format

Passport and DPN-100 raw accounting data can be converted to published format (PF).

*Note:* Published format data is used primarily by customers with down-stream billing applications on IBM or VAX mainframes. The Management Data Provider (MDP) provides a robust feature set for bulk data format (BDF) data but not for PF data.

PF data can be data encoded to either EBCDIC or ASCII. IBM customer hosts usually use EBCDIC and VAX customer hosts usually use ASCII.

PF data can be stored in one of two formats, big-endian or small-endian. IBM customer hosts usually use big-endian and VAX customer hosts usually use small-endian.

The conversion of Passport or DPN accounting data to published format can be performed using one of two methods:

- with the published format backward compatibility option enabled the PF converter reverts to a legacy method of processing PF data.
- with the published format backward compatibility option disabled, the PF converter optimizes performance gains from advances in hardware technology and accelerates delivery of PF converted data to down-stream billing applications. This method of PF conversion is the default.

Conversion of accounting records to published format, with the published format backward compatibility option disabled, consists of the following steps:

- 1 If the MDP is configured to convert Passport or DPN accounting data to PF and a raw accounting data file is detected in the spool directory /opt/MagellanMDP/data/mdp/spool, the appropriate published format converter (Passport or DPN) is started.
- 2 The MDP transfers the converted file, containing Passport or DPN published format accounting records, to the customer billing host.

Conversion of accounting records to published format, with the published format backward compatibility option enabled, consists of the following steps:

- 1 If the MDP is configured to convert Passport or DPN accounting data to PF and a raw accounting data file is detected in the spool directory /opt/MagellanMDP/data/mdp/spool, the appropriate published format converter (Passport or DPN) is started.
- 2 All Passport published format files processed within a single hour are concatenated into a single hourly file. All DPN published format files processed within a single hour are concatenated into a single hourly file.
- 3 At the end of each hour, the data from the Passport hourly file and the data from the DPN hourly file are concatenated into a single hourly file containing Passport and DPN published format accounting records.
- 4 The MDP transfers the hourly file containing Passport and DPN published format accounting records to the customer billing host.
- 5 At the end of each day, all of the hourly files, containing Passport and DPN published format accounting records, are concatenated into a single daily file.
- 6 The MDP File Mover archives the daily files.

After the MDP Administration Server has been configured for PF conversion, data conversion is automatic and continuous. The PF Converters can also be started manually from the UNIX command line.

For details about the published format accounting records, see 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

**Viewing published format data**

The published format viewer translates published format (PF) binary records to ASCII format. The published format viewer does not support field selection or filtering.

The published format viewer is used to ensure that the PF files are consistent with the raw accounting data from Passport and DPN-100 switches.

## Archiving

The Management Data Provider (MDP) can automatically archive raw switch data, bulk data format (BDF) files, and MDP logs.

### Raw data

The MDP can be configured to archive raw switch data from Passport, DPN-100, and Vector switches. Use the appropriate switch data management window of the MDP Administration Client to configure archiving.

Raw switch data is archived in sub-directories of the directory `/opt/MagellanMDP/data/mdp/backup`. The sub-directory structure is organized by datatype (accounting, alarm, statistics, scn, log, srs, debug, and outage). This directory structure cannot be customized.

### Bulk data format files

The MDP can be configured to archive bulk data format (BDF) files for Passport and DPN-100 switches.

BDF files are stored in sub-directories of the archive directory `/opt/MagellanMDP/data/mdp/archive`. The sub-directory structure is customized using the MDP Administration Client/Server. Once the archive directory structure is configured, the directory structure is applied to both Passport and DPN bulk data format files.

### MDP logs

The MDP can be configured to archive log messages generated by the following MDP processes: the Passport File Manager, the DPN File Manager, and the Passport File Prober. Use the Log Archival window of the MDP Administration Client to configure MDP log archiving.

MDP log files are archived in sub-directories of the directory `/opt/MagellanMDP/data/mdp/admin/archive`. The sub-directory structure is customized using the MDP Administration Client/Server. Once a directory structure is configured, the same directory structure is applied to logs from any of the MDP processes identified above.

## Transferring data to down-stream applications

The Management Data Provider (MDP) continually checks for the arrival of converted data files in sub-directories of the MDP dump directory `/opt/MagellanMDP/data/mdp/dump`. If converted data files are found, the MDP transfers the files to the designated customer host.

Other types of information is transferred to customer hosts from the MDP. For example, Statistics Retrieval System data, outage calculation data, availability reports, and file processing audit reports.

## Supporting MDP

The following topics are discussed in this section

- “MDP workstations” (page 60)
- “MDP and MDM” (page 60)
- “Configuring MDP” (page 61)
- “MDP logs” (page 62)

### MDP workstations

The Management Data Provider (MDP) software is installed on workstations from Sun Microsystems and uses Solaris, Sun’s UNIX operating system.

Sun Microsystems provides intuitive applications for loading software. These applications, in combination with installation tools provided by Nortel Networks, simplify installation and upgrading of the MDP software.

### MDP and MDM

The Management Data Provider (MDP) can be installed

- on the same workstation as the Preside Multiservice Data Manager (MDM).

- on a stand-alone workstation with a Network File System (NFS) connection to the MDM.
- on a workstation completely independent of MDM.

The benefits of combining the Management Data Provider (MDP) and Preside Multiservice Data Manager (MDM) applications include:

- the MDP completes the FCAPS (fault, configuration, accounting, provisioning, security) model for the MDM
- sharing of network configuration data
- sharing of switch metric data
- the MDP applications, such as the administration client/server and the Log Viewer, are accessible from the MDM toolset
- traps from the MDP applications can be monitored by the MDM Alarm Viewer

## Configuring MDP

The Management Data Provider (MDP) is configured using the MDP Administration Client/Server. The administration server is started immediately after MDP installation. The administration client is a graphical user interface (GUI) that is launched from the command line of a UNIX window on the MDP or using the Preside Multiservice Data Manager (MDM) Accounting menu item. The MDP Administration Server is used to automatically start or restart MDP processes after configuration.

The MDP also provides a set of UNIX commands to start, stop, and display MDP processes using the command line interface (CLI).

The MDP installs a crontab entry to monitor all started MDP processes. This is referred to as the MDP keepalive process. If a system shutdown occurs, the MDP restarts all automated processes previously configured. These automated processes include: the Passport File Manager, the DPN-100 File Manager, the Vector File Manager, the File Mover (used to transfer converted data files to customer hosts), the Disk Manager (used to monitor and control disk space), the Passport Data Model Manager, the Passport File Prober Manager, and the MDP Administration Server.

## MDP logs

All Management Data Provider (MDP) processes generate log messages. These messages are written to log files associated with the MDP process.

MDP log files contain information such as:

- processing start time
- processing end time
- errors encountered
- warnings
- identification of files read
- number of records read
- identification of files created
- identification of files deleted

MDP logs can be selected and viewed using the MDP Log Viewer. This application generates log reports in a tabular format.

## Passport support

The Management Data Provider (MDP) provides applications to automatically collect, convert, archive, and transfer Passport data.

The following topics are discussed in this section:

- “Passport data flow” (page 63)
- “Datatypes” (page 65)
- “Data models” (page 66)
- “Data collection - MDP” (page 67)
- “Value-added applications” (page 72)

## Passport data flow

The basic flow of Passport data through the Management Data Provider (MDP) is as follows:

- 1 The Passport performance metrics are collected in a spool file on the switch in FMIP format. FMIP is Nortel Network's proprietary interface protocol on Passport switches. This binary data is referred to as raw switch data in the context of the MDP.

For a description of the types of spooled data collected from Passports, see “Datatypes” (page 65).

- 2 The MDP File Prober periodically logs into each Passport and initiates a file transfer protocol (FTP) connection from each Passport to the MDP. An FTP transfer is initiated for each Passport datatype.

The File Prober can be configured to close open spool files on the Passport before transferring them to the MDP.

The File Prober interrogates each node to determine the Passport data model.

- If the data model exists on the MDP, the File Prober affixes a data model identifier (DMid) to the Passport raw data file name during the data transfer.
- If the data model does not exist on the MDP, the File Prober downloads the Passport data model to the MDP.

New performance metrics introduced with the Passport data model are available for BDF records. The MDP administrator can easily customize the BDF record to include the new performance metrics.

The File Prober completes the transfer of the performance metrics, using the new data model identifier (DMid) in the raw data file name.

For a complete description of Passport data collection by the MDP, see “Data collection - MDP” (page 67).

- 3 The raw data file is transferred to the MDP spool directory `/opt/MagellanMDP/data/mdp/spool`.

- 4 The MDP Passport File Manager detects the raw data file in the spool directory.

If the MDP is configured to convert Passport accounting data to published format (PF) and the Passport File Manager detects Passport accounting files in the spool directory, the Passport PF Converter is launched. Converting Passport accounting files to PF is described in section “Converting switch data to published format” (page 57).

If the MDP is configured to convert Passport accounting data to bulk data format (BDF), the MDP BDF Converter is launched.

For all other Passport datatypes, the BDF converter is always launched.

If the BDF Converter is launched, the data model identifier in the raw data file name determines the appropriate schema and record description file (RDF) to use during data conversion. Converting raw data to BDF is described in section “Converting switch data to bulk data format” (page 55)

The converted data is written to the MDP dump directory  
`/opt/MagellanMDP/data/mdp/dump`.

- 5 The Passport File Manager copies the raw data file from the spool directory to the backup directory `/opt/MagellanMDP/data/mdp/backup`.
- 6 The MDP File Mover detects the converted data file in the dump directory and transfers the data file to a customer host.  
  
The File Mover can also send the converted data file to a local directory on the MDP host. This feature can be used to create backups of PF files.
- 7 If the converted data file is BDF, the Passport File Manager copies the file from the dump directory to the archive directory `/opt/MagellanMDP/data/mdp/archive`.
- 8 If outage calculation is configured, successfully converted alarm and SCN BDF files are placed in the directory `/opt/MagellanMDP/data/mdp/oc/pp/process` for post processing by the Outage Calculator.
- 9 The MDP Disk Manager

- can be configured to retain data files for any length of time.
- coordinates the removal of data files. Data files are automatically removed at 0000 hours on the day that they reach their configured threshold.
- continually monitors MDP disk space for data files. A minimum disk space threshold is set and when this threshold is exceeded, the MDP halts data collection and data conversion.

## Datatypes

The following Passport datatypes are processed by the Management Data Provider (MDP):

- accounting  
including (but not limited to) records for ATM, frame relay, FR-ATM, peak water mark (PWM), Time Change, Voice Networking, and IP-VPN.

By default, accounting data collection is turned on at the switch.

Passport accounting data (bulk data format (BDF) and published format (PF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

- statistics  
or performance data, including (but not limited to) trunk, LP, VoiceRoute, CAS, PCU, ATM port, GPRS, SGSN, UMTS, and SS7.

By default, statistics data collection is turned off at the switch.

Passport statistics data (bulk data format (BDF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

- alarm  
data is essential for the real-time surveillance of Passport nodes. Alarm data is also used for post-processing and analysis of down-time and other service-affecting problems.

By default, alarm data collection is turned on at the switch.

Refer to the Passport documentation for descriptions of Passport alarm data.

- log  
data is used to monitor the operator command activity on a node.

By default, log data collection is turned on at the switch.

Refer to the Passport documentation for descriptions of Passport log data.

- state change notifications (SCN)  
is used by Preside Multiservice Data Manager (MDM) to update the Network Model database. The Network Model is a common repository of network configuration information used by MDM applications (for example, the MDM Network Viewer).

By default, SCN data collection is turned on at the switch.

Passport SCN data (bulk data format (BDF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

## Data models

The Management Data Provider (MDP) maintains a data model for each unique Passport data model available in the network. When a new Passport data model is introduced into the network, a new MDP data model is automatically generated. Multiple data models can exist on the MDP. The data models are controlled by the Data Model Manager, located on the primary MDP.

As discussed in section “Converting switch data to bulk data format” (page 55), record description files (RDF) are required to convert raw switch data to bulk data format (BDF). When a new data model is created on the MDP, any new performance metrics for the spooled datatypes collected by the MDP are identified. The MDP administrator has the option of using the MDP Administration Client to add the new performance metrics to the converted data files by customizing the RDFs. By default, if a customized RDF is not committed for use during BDF conversion, the historical RDF is used.

The Data Model Manager uses an information file `/opt/MagellanMDP/cfg/mdp/pp/rdf/<datatype>/pp_<datatype>_rdf.info` to record information about each RDF. This information includes: the date the RDF was originally generated and all configuration changes.

In the past, new schemas and RDFs were delivered with each MDP software release. The MDP is now delivered with an historical data model using the schemas and RDFs from MDP release R13.3. This historical data model: provides a base level of Passport performance metrics, is used while migrating to the new data model concept, and enables BDF conversion for archived raw data files. The historical RDFs are located in the sub-directories of directory `/opt/MagellanMDP/lib/mdp/rdf/ppc/<datatype>`.

*Note:* Do not modify the historical RDFs.

The MDP is configured to maintain backwards compatibility with the historical data model. Backwards compatibility can be disabled. Backwards compatibility ensures that: the fields included in previous BDF records are always included in new BDF records and the fields in previous BDF records are always in the same order. New fields are appended to existing BDF records. This functionality exists for those customer whose down-stream applications require consistent field order.

The Data Model Manager uses an information file `/opt/MagellanMDP/cfg/mdp/pp/<DMId>/<DMId>.info` to record information about each generated data model. This information includes: the Passport node from which the data model was obtained, the date the data model was generated on the MDP, and any warnings or errors generated.

*Note:* If Passport switch software is rolled-back after the MDP has begun collecting data using a previous data model, the Data Model Manager may generate warning messages indicating that some components or attributes are not recognized and cannot be converted.

## Data collection - MDP

Passport spooled data is collected by the Management Data Provider (MDP) using the File Prober. The File Prober establishes a proxy FTP connection from a Passport switch to an MDP and transfers closed spool data files. An FTP session is initiated for each Passport datatype.

The File Probers are automatically launched at scheduled intervals.

The File Probers are controlled by the File Prober Manager. The File Prober Manager provides

- configuration using the MDP Administration Client GUI
- support for Passport data models by interfacing with the MDP Data Model Manager
- removal of the 60 Passports per Passport group limitation
- support for different userIDs and passwords on multiple MDPs
- optional injection of alarms into the Preside Multiservice Data Manager (MDM) Alarm Display
- improved error recovery
- confirmation of Passport and MDP host connectivity before attempting data collection
- confirmation of MDP disk space availability before attempting data collection
- compares the Passport spool file size on the switch to the raw data file size on the MDP after collection
- security protection using encrypted passwords

The File Prober Manager can reside on an MDP primary host, an MDP backup host, an MDP secondary host, an MDM host, or on a separate workstation.

The File Prober Manager requires Passport network data to identify Passport groups and Passport nodes. The MDP can be configured to obtain network data from the Preside Multiservice Data Manager (MDM) or from an MDP network configuration file. For more information, see “MDM-independent” (page 68) or “MDM-dependent” (page 69).

### **MDM-independent**

If the File Prober Manager resides on a Management Data Provider (MDP) primary host, an MDP backup host, an MDP secondary host, or on a separate workstation with no NFS connection to a Preside Multiservice Data Manager (MDM), the MDP is considered MDM-independent.

Passport nodenames, IP addresses, userIDs, and passwords are stored in a network configuration file on the MDP. Passport nodeIDs are obtained directly from the Passport.

Passport nodes can be identified in MDP file names using a nodename or a nodeID. If data collection using the Passport nodeID is configured, the nodeID is used in file names during all subsequent MDP data processing. If data collection using the Passport nodename is configured, the nodename is used in file names during all subsequent MDP data processing.

Before the File Prober begins the transfer of performance metrics from a Passport to an MDP, the File Prober interrogates the Passport to determine the Passport data model. The File Prober then sends the Passport data model information to the MDP Data Model Manager.

- If the data model exists on the MDP, the File Prober affixes a data model identifier (DMid) to the Passport raw data file name during the data transfer.
- If the data model does not exist on the MDP, the File Prober downloads the Passport data model to the MDP.

The File Prober completes the transfer of the performance metrics, using the new data model identifier (DMid) in the raw data file name.

New performance metrics introduced with the Passport data model are available for BDF records. The MDP administrator can easily customize the BDF record to include the new performance metrics.

Passport data models are described in section “Data models” (page 66).

### **MDM-dependent**

If the File Prober Manager resides on an MDP primary host, an MDP backup host, an MDP secondary host, or on a separate workstation with an NFS connection to an MDM, the MDP can be configured to be MDM dependent.

Passport nodenames, IP addresses, userIDs, and passwords are stored in the Host Group Directory Server (HGDS) on the MDM. Passport nodeIDs are obtained directly from the Passport.

For more information about the HGDS, see 241-6001-310 *Preside MDM Server Reference Guide*.

**Note:** If the MDP uses the HGDS, Passport nodes are identified in MDP data file names using a nodeID.

Before the File Prober begins the transfer of performance metrics from a Passport to an MDP, the File Prober interrogates the Passport to determine the Passport data model. The File Prober then sends the Passport data model information to the MDP Data Model Manager.

- If the data model exists on the MDP, the File Prober affixes a data model identifier (DMid) to the Passport raw data file name during the data transfer.
- If the data model does not exist on the MDP, the File Prober downloads the Passport data model to the MDP.

The File Prober completes the transfer of the performance metrics, using the new data model identifier (DMid) in the raw data file name.

New performance metrics introduced with the Passport data model are available for BDF records. The MDP administrator can easily customize the BDF record to include the new performance metrics.

Passport data models are described in section “Data models” (page 66).

## Statistics Retrieval System

The Statistics Retrieval System (SRS) polls Passport switches for non-spoiled real-time statistical information. Statistic records are converted to bulk data format (BDF) and transferred to a performance or billing host for down-stream processing.

Valid statistics are limited to the operational attributes of a Passport component. Two types of statistics can be reported, raw attributes and delta values. Raw attributes are retrieved from the Passport and written to the BDF file. Delta values indicate the difference between the value of a raw attribute from the previous poll and the value of the raw attribute from the current poll.

A BDF file is created in the directory `/opt/MagellanMDP/data/mdp/dump/srs` for each Passport node. The BDF file is closed when the BDF file reaches a configurable maximum BDF record threshold or when a configurable time limitation is attained. The closed SRS BDF file can then be transferred to a customer host for downstream processing.

You select the Passport components and attributes to poll using the MDP Administration Client.

SRS can be used with Passport Enterprise software release 5.0, or higher, or any software release for Passport Carrier/Wireless.

### **MDM base**

SRS requires Preside Multiservice Data Manager (MDM) servers and processes. MDM base must be installed on the MDP workstation prior to starting SRS to provide the limited MDM functionality required by SRS. If MDP is currently configured in MDM-dependant mode (see “MDM-dependent” (page 69)), MDM base is already installed.

The following MDM servers and processes are required by SRS:

- **Host Group Directory Server (HGDS)**  
HGDS maps PassportGroupNames to Passport nodenames and Passport nodenames to IP addresses. This mapping information is relayed to the Passport Communications Manager (FDTM) server.
- **Passport Communications Manager (FDTM)**  
FDTM creates and manages Passport data translation (FDTR) processes. An FDTR process enables MDP to communicate with a Passport. FDTM authenticates userID and password information when you login to a Passport switch.
- **Generic Prober (GP)**  
The GP is launched by SRS to poll the Passports and retrieve the non-pooled statistics requested by SRS. GP creates one FDTR process for each Passport group.

For more information about HGDS, FDTM, FDTR, and the Generic Prober, see 241-6001-303 *Preside MDM Administrator Guide*.

## Value-added applications

In addition to the standard features provided by the Management Data Provider (MDP), Passport customers can obtain licenses to use the following applications:

- **Passport Outage Calculator**  
uses alarm and state change notification (SCN) data collected from Passport switches. The Passport outage calculator determines which components have experienced service interruptions, calculates the outages and generates a bulk data format (BDF) file with the resulting calculations.

A license, separate from the MDP license, is required to use the Passport Outage Calculator.

- **Availability Calculator**  
calculates network availability statistics for switch components. Outage records generated by the Passport Outage Calculator and the DPN Outage Calculator can be used as input.

A license, separate from the MDP license, is required to use the Passport Availability Calculator.

- **Availability Report Generator**  
converts a BDF Availability Report file into formatted ASCII text output. This process is used to report availability statistics for customers that do not use a performance analysis application down-stream from the MDP.

## DPN-100 support

The Management Data Provider (MDP) provides applications to automatically convert, archive, and transfer DPN-100 data.

The following topics are discussed in this section:

- “DPN-100 data flow” (page 73)
- “Datatypes” (page 74)
- “Data collection” (page 75)

- “Value-added applications” (page 76)

## DPN-100 data flow

The basic flow of DPN-100 data through the Management Data Provider (MDP) is as follows:

- 1 The DPN performance metrics are collected on-switch and written to either a local disk or to a remote disk, if remote spooling is configured. This data is referred to as raw switch data in the context of the MDP.
- 2 The DPN data files are automatically transferred to the MDP over an X.25 network connection according to the accounting mode (TODA, 12-hour, or frame relay).
- 3 The raw data file is transferred to the MDP spool directory `/opt/MagellanMDP/data/mdp/spool`.
- 4 The MDP DPN File Manager detects the raw data file in the spool directory.

If the MDP is configured to convert DPN-100 accounting data to published format (PF) and the DPN File Manager detects DPN accounting files in the spool directory, the DPN PF Converter is launched. For more information about converting DPN-100 accounting files to PF, see “Converting switch data to published format” (page 57).

If the MDP is configured to convert DPN-100 accounting data to bulk data format (BDF), the BDF Converter is launched.

For all other DPN datatypes, the BDF converter is launched. For more information about DPN datatypes, see “Datatypes” (page 74).

- 5 If the BDF Converter is launched, it obtains the appropriate schema and record description file (RDF) for the current raw data file and converts the data. For more information about converting raw data to BDF, see “Converting switch data to bulk data format” (page 55).

The converted data is written to the MDP dump directory `/opt/MagellanMDP/data/mdp/dump`.

- 6 The DPN File Manager copies the raw data file from the spool directory to the MDP backup directory `/opt/MagellanMDP/data/mdp/backup`.

- 7 The MDP File Mover detects the converted data file in the dump directory and transfers the data file to a customer host.

The File Mover can also send the converted data file to a local directory on the MDP host. This feature can be used to create backups of PF files.

- 8 If the converted data file is BDF, the DPN File Manager copies the file from the dump directory to the MDP archive directory `/opt/MagellanMDP/data/mdp/archive`.

- 9 The MDP Disk Manager

- can be configured to retain data files for any length of time.
- coordinates the removal of data files. Data files are automatically removed at 0000 hours on the day that they reach their configured threshold.
- continually monitors MDP disk space for data files. A minimum disk space threshold is set and when this threshold is exceeded, the MDP halts data collection and data conversion.

## Datatypes

The following DPN-100 datatypes are processed by the Management Data Provider (MDP):

- accounting  
including (but not limited to) records for frame relay and peak water mark (PWM), NUI option, inter-network option

DPN accounting data (bulk data format (BDF) and published format (PF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

- statistics  
or performance data, including (but not limited to) RM servers, AM/RM servers, API service, asynchronous service

DPN statistics data (bulk data format (BDF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

- alarm  
data is essential for the real-time surveillance of DPN nodes. Alarm data is also used for post-processing and analysis of down-time and other service-affecting problems.

Refer to the DPN-100 documentation for descriptions of DPN alarm data.

- log  
data is used to monitor the operator command activity on a node.

Refer to the DPN-100 documentation for descriptions of DPN log data.

## Data collection

The Management Data Provider (MDP) File Collector process collects DPN-100 accounting and performance data; it runs on the MDP host as a UNIX daemon waiting for an X.25 call with specific call user data (CUD) or a protocol ID to arrive. When the call request is received, the File Collector process transfers the DPN-100 files to the MDP spool directory `/opt/MagellanMDP/data/mdp/spool`. Successfully transferred files are automatically removed from the DPN-100 switch.

The File Collector is the front-end process to the DPN-100 network and provides the X.25 interface to the network for data transfer to the MDP host. DPN-100 switches place calls with a specific protocol ID (configurable, but unique) to the MDP File Collector process. The SunNet X.25 software listens for incoming X.25 calls based on a specific priority criteria.

Users who decide to control the transfer of files from a DPN-100 switch using the password option need to create the password file `/opt/MagellanMDP/cfg/mdp/MDPCol.passwd` on the MDP host; valid passwords must be on separate lines within the file.

DPN-100 records specify the year as two-digits in the date field. This format requires that the MDP apply an algorithm in each of its data conversion processes to determine the appropriate century (19xx or 20xx). This algorithm is as follows:

```
year = YY
YY >= 50 (indicates 20th century)
YY < 50 (indicates 21st century)
```

## Value-added applications

In addition to the standard features provided by the Management Data Provider (MDP), DPN-100 customers can obtain licenses to use the following applications:

- **DPN Outage Calculator**  
uses alarm data collected from DPNs and converted to bulk data format (BDF) by the MDP. The DPN outage calculator determines which components have experienced service interruptions, calculates the outages, and generates a bulk data format (BDF) file with the resulting calculations.

A license, separate from the MDP license, is required to use the DPN Outage Calculator.

- **Availability Calculator**  
calculates network availability statistics for switch components. Outage records generated by the DPN Outage Calculator and Passport Outage Calculator can be used as input.

A license, separate from the MDP license, is required to use the Availability Calculator.

- **Availability Report Generator**  
converts a BDF Availability Report file into formatted ASCII text output. This process is used to report availability statistics for customers that do not use a performance analysis application down-stream from the MDP.

## Vector support

The Management Data Provider (MDP) provides applications to automatically collect, convert, archive, and transfer Vector data.

The following topics are discussed in this section:

- “Vector data flow” (page 77)
- “Datatypes” (page 79)
- “Vector data conversion” (page 79)

## Vector data flow

The basic flow of Vector data through the Management Data Provider (MDP) is as follows:

- 1 The Vector data is collected on the switch and transferred to the MDP every 5 minutes using the file transfer protocol (FTP). This data is referred to as raw switch data in the context of the MDP.  
  
Vector accounting data is transferred separately from Vector statistics.
- 2 The MDP collects Vector records for a one hour period in the MDP spool directory `/opt/MagellanMDP/data/mdp/spool`.
- 3 The Vector File Manager detects the closed raw data file in the spool directory and moves the file to the MDP merge directory `/opt/MagellanMDP/data/mdp/merge`.

For accounting records, the Vector File Manager determines the billing record filetype (legacy billing records or Egress billing records). This is determined by the file name.

**Note:** The Vector call accounting records must be either legacy or Egress billing records. The Vector File Manager will not accept a combination of both record types from one switch.

For legacy billing records, the Vector File Manager launches an aggregator process to produce aggregated files that contain data associated with individual fabrics within a Vector switch.

After producing the aggregated billing files, the Vector File Manager launches a correlator process to combine the aggregated files associated with individual fabrics on the same Vector switch, which in turn is used to produce a correlated file that contains hourly data for each Vector switch.

For Egress billing records, the Vector File Manager launches a process which combines the aggregation and correlation processes, described above, for Egress billing records.

For performance records, the Vector File Manager launches an aggregator process to produce aggregated files that contain data associated with individual fabrics within a Vector switch. The Vector File Manager then launches another process to combine the aggregated files associated with individual fabrics on the same Vector switch, which in turn is used to produce a correlated file that contains hourly data for each Vector switch.

- 4 The BDF Converter is launched. It obtains the appropriate schema and record description file (RDF) for the current raw data file and converts the data. For more information about converting raw data to BDF, see “Converting switch data to bulk data format” (page 55).

The converted data is written to the MDP dump directory  
`/opt/MagellanMDP/data/mdp/dump`.

For information about the Vector datatypes, see “Datatypes” (page 79).

- 5 The Vector File Manager copies the raw data file from the spool directory to the MDP backup directory `/opt/MagellanMDP/data/mdp/backup`.
- 6 The MDP File Mover detects the converted data file in the dump directory and transfers the data file to a customer host.

The File Mover can also send the converted data file to a local directory on the MDP host. This feature can be used to create backups of converted data files.

- 7 The MDP Disk Manager
  - can be configured to retain data files for any length of time.
  - coordinates the removal of data files. Data files are automatically removed at 0000 hours on the day that they reach their configured threshold.

- continually monitors MDP disk space for data files. A minimum disk space threshold is set and when this threshold is exceeded, the MDP halts data collection and data conversion.

## Datatypes

The following Vector datatypes are processed by the Management Data Provider (MDP):

- accounting  
only one record type is generated

Vector accounting data (bulk data format (BDF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

- statistics  
or performance data, including (but not limited to) board, netmod, PSM, DS1, E1, OC3, OC12

Vector statistics data (bulk data format (BDF)) is described in detail in 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*.

## Vector data conversion

The Management Data Provider (MDP) converts Vector accounting and performance data using a process different than that used by Passport or DPN.

### Vector File Manager

The Vector File Manager handles data differently than either the DPN-100 or Passport File Managers. This process aggregates and correlates data differently for different Vector billing types: legacy and egress.

This process moves Vector data files to the merge directory when there is 60 minutes worth of data.

For billing data files, the Vector File Manager performs a check on each fabric to ensure the billing type is consistent across all fabrics. If the billing type is consistent across all fabrics, the File Manager determines the billing type; legacy or Egress. If the billing type is not consistent across all fabrics (that is, a mixed billing configuration exists on the Vector switch) the File Manager

will invoke the combined Aggregator/Correlator used for Egress billing records, raise an alarm to indicate that a mixed billing configuration was encountered, and all legacy billing files are moved to error status.

If the billing type is determined to be legacy, or the data files contain performance data, the File Manager starts an Aggregator process. These processes produce aggregated files containing data associated with individual fabrics within a Vector switch. The File Manager process then starts a Correlator process to produce files combining the aggregated files associated with individual fabrics on the same Vector switch, and to produce a correlated file containing the hourly billing data for each Vector switch.

If the billing type is determined to be Egress, or in the case of inconsistent billing types, the File Manager starts a combined Aggregator/Correlator process to: aggregate files containing data associated with individual fabrics within a Vector switch; combine the aggregated files associated with individual fabrics on the same Vector switch; and produce a correlated file containing the hourly billing data for each Vector switch.

### **Vector File Manager and missing Vector data**

The Vector File Manager is responsible for retrieving data files from a secondary MDP host. The File Manager, on the primary MDP host, retrieves any data files found in the restore directory on the secondary MDP host. The retrieval of data files by the File Manager has the following constraints:

- It only processes files from switches that are configured as part of the data collection system.
- If the initial retrieval of files from the secondary MDP host fails, the error is logged and a second attempt is made to retrieve the files.
- If files are not found on the primary or secondary MDP host, the File Manager logs the error and proceeds with the files that are present. Aggregation and correlation only takes place on the files that are present.
- Data files that are retrieved from the secondary MDP host are placed in the spool directory of the primary MDP host for normal MDP processing.

### **Aggregating Vector call records (legacy billing)**

For Vector switches which employ the legacy billing method, you can execute the call record aggregator without executing the call record correlator.

Aggregation combines records associated with individual Vector switch fabrics (identified by their call connection identifier). An aggregated file contains only data associated with one Vector switch fabric. By default, raw data files are retrieved from the merge directory and aggregated files are stored in the merge directory. Successfully processed input files are automatically deleted from the merge directory.

Under normal operation, the call record aggregator is invoked by the Vector File Manager. The aggregator can also be run manually to process files outside the normal operating process. If the aggregator is run manually, it is recommended that you provide a different directory location for the files using the `-r` option to avoid interference with any other aggregator processes using the default merge directory.

### **Aggregating Vector performance data**

Aggregation combines records associated with individual Vector switch fabrics (identified by the equipment type). An aggregated file contains only data associated with one Vector switch fabric. By default, raw data files are retrieved from the merge directory and aggregated files are stored in the merge directory. Successfully processed raw input files are automatically deleted from the merge directory.

Under normal operation, the performance record aggregator is started by the Vector File Manager. The aggregator can also be run manually to process files outside the normal operating process. If the aggregator is run manually, it is recommended that you provide a different directory location for the files using the `-r` option to avoid interference with any other aggregator processes using the default merge directory.

### **Correlating Vector call records (legacy billing)**

For Vector switches that employ the legacy billing method, You can execute the call record correlator without executing the call record aggregator. You must have previously executed the call record aggregator.

Correlation combines the aggregated files associated with individual fabrics on the same Vector switch into one correlated file for each Vector switch. By default, aggregated files are retrieved from the merge directory and the correlated files are stored in the merge directory. Successfully processed input files are automatically deleted from the merge directory.

Under normal operation, the call record correlator is started by the Vector File Manager. The correlator can also be run manually to process files outside the normal operating process. If the call record correlator is run manually, you need to provide a different directory location for the files using the `-r` option to avoid interfering with any other correlator processes using the default merge directory.

### **Correlating Vector call records (Egress billing)**

For Vector switches that use the Egress billing method, there is no separation of the aggregator and correlator processes.

Aggregation combines records associated with individual Vector switch fabrics (identified by their call connection identifier). An aggregated file contains only data associated with one Vector switch fabric. By default, raw data files are retrieved from the merge directory and aggregated files are stored in the merge directory. Successfully processed input files are automatically deleted from the merge directory.

Correlation combines the aggregated files associated with individual fabrics on the same Vector switch into one correlated file for each Vector switch. By default, aggregated files are retrieved from the merge directory and the correlated files are stored in the merge directory. Successfully processed input files are automatically deleted from the merge directory.

Under normal operation, the Egress call record correlator is started by the Vector File Manager. The correlator can also be run manually to process files outside the normal operating process. If the call record correlator is run manually, you need to provide a different directory location for the files using the `-dir` option to avoid interfering with any other correlator processes using the default merge directory.

### **Correlating Vector performance data**

Correlation combines the aggregated files associated with individual fabrics on the same Vector switch into one correlated file for each Vector switch. By default, aggregated files are retrieved from the merge directory and the correlated files are stored in the merge directory. Successfully processed input files are automatically deleted from the merge directory.

Under normal operation, the performance record correlator is started by the Vector File Manager. The correlator can also be run manually to process files outside the normal operating process. If the correlator is run manually, you need to provide a different directory location for the files using the `-r` option in order to avoid interference with any other correlator processes using the default merge directory.



## Chapter 6

# Performance management

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This section describes network planning and performance management tools on Preside MDM.

Planning and performance management is the process of planning, monitoring, and adjusting the performance of network devices. You can use the Preside MDM performance management tools to do the following:

- improve network routing strategies
- monitor network performance
- plan for future service levels and data traffic growth

The performance management tools for Preside MDM are as follows:

- “Data Viewer” (page 85)
- “DPN Performance Viewer” (page 86)
- “Performance Measurement Stream Processor” (page 86)

## Data Viewer

The Data Viewer is a Preside Multiservice Data Manager (MDM) diagnostic tool that lets you collect, display and analyze performance information in real-time mode and replay mode. Data from Passport and Simple Network Management Protocol (SNMP) devices is collected in real-time mode. In replay mode, you can view data from Performance Measurement Stream Processor (PMSP), Management Data Provider (MDP), Statistical Retrieval System (SRS) and Data Viewer.

Data Viewer is based on the AdventNet Management Builder toolkit. The MIB Browser, part of that toolkit, has been integrated into Preside Multiservice Data Manager (MDM). This browser is a complete SNMP MIB browser that lets you browse MIBs and perform other related functions.

You can load and view multiple MIB modules, traverse the MIB tree to look at the definitions, and view and operate on data available through an SNMP agent on a managed device.

For details, see the 241-6001-031 *Preside MDM Performance Management User Guide*

For more information on the MIB Browser, see “MIB Browser” (page 97).

## **DPN Performance Viewer**

You can use the DPN Performance Viewer to collect and display performance information about network components. The DPN Performance Viewer provides real-time performance graphs of important statistical information to help determine the behavior of element components. The DPN Performance Viewer provides the following capabilities:

- helps trace faults in the network
- collects information about network load
- generates statistics for reports and analysis

The DPN Performance Viewer collects component status information and displays it as graphics and text. You can display as statistic or metric. The DPN Performance Viewer receives component information in real-time over short periods. Both single and multiple component displays are available. You can write the information you collect to an ASCII log file for later analysis or processing.

## **Performance Measurement Stream Processor**

The Performance Measurement (PM) Stream Processor collects and converts PM statistics from Passport processors and ATM interfaces. Performance measurement information is required for network planning and engineering.

**Note:** To use this application, Passports require Passport software version PCR4.1, or later.

The process of collecting, transferring and converting PM statistics includes

- 1 PM statistics, data generated by the Passport data collection system (DCS) *with* data type *rtStats*, are collected at 5-minute intervals by the Passport *AtmCore*, *AtmNetworking*, and *PCS* applications on both the Passport processor cards and the ATM interfaces.
- 2 Each Passport switch sends the PM statistics to the resident Passport DCS where records of the *rtStats* data type are created for each application.
- 3 Passports of a specified Passport group forward collected PM statistics to MDM as a stream of fast management information protocol (FMIP) encoded binary data. The PM statistics are transferred to MDM at 5-minute intervals.

PM statistics can be collected from a maximum of 10 Passport shelves with a total of 21 ATM function processor pairs. A Passport shelf can have up to 7 pairs of ATM function processors.

5-minute intervals are synchronized to five minutes after the hour and beginning with the nearest 5-minute time increment (time of day must be synchronized).

**Note:** PM statistics data cannot be spooled.

- 4 MDM converts the PM statistics to ASCII comma separated values (CSV) data format.
- 5 5-minute interval data can be stream transferred to customer hosts in CSV format on registered network connections using TCP sockets. 5-minute interval data can be written to CSV files on the MDM platform.
- 6 On the hour and half-hour, the data for all 5-minute intervals during the past 30-minute interval are aggregated.
- 7 30-minute interval data can be stream transferred to customer hosts in CSV format on registered network connections using TCP sockets. 30-minute interval data can be written to CSV files on the MDM platform.

For more information about the PM Stream Processor, see the 241-6001-303 *Preside MDM Administrator Guide*.

# Chapter 7

## System management

---

This section describes administration tools and utilities that are available on Preside MDM.

This section contains the following topics:

- “Administration” (page 89)
- “Security” (page 92)
- “Utilities” (page 93)
- “Custom” (page 97)
- “EPIC” (page 95)

### Administration

This section explains the purposes of administration tools that you can use to perform administration tasks on Preside MDM. With these tools, you can

- look at the status of different MDM processes and servers
- display, define, filter, and print MDM log messages
- manage your MDM LAN
- manage your Passport connections

This section contains the following topics:

- “Server Administration” (page 90)
- “Service Selection” (page 90)

- “GMDR Administration” (page 91)
- “Nodal provisioning Template Editor” (page 91)
- “MDM Database administration” (page 92)
- “System Log Display” (page 92)
- “Historic Log File Display” (page 92)
- “Host Group Administration” (page 92)

## Server Administration

Use the Server Administration tool to monitor and control Preside Multiservice Data Manager (MDM) servers. This tool shows a list of available servers and allows you to add, delete, edit, start, and stop servers. For more details, see the 241-6001-303 *Preside MDM Administrator Guide*.

## Service Selection

The management of large networks often requires the use of a number of workstations that connect through a local area network.

Preside Multiservice Data Manager (MDM) servers provide the information and services needed by the MDM tools. The Service Selection tool allows you to set up some of the workstations to run the MDM servers. These workstations are called server set workstations. At least one server set workstation must have a connection to the switches in the network. This server set workstation is called the network access host.

You can use other workstations to run just the MDM tools. These workstations are referred to as client set workstations.

The Service Selection tool allows an operator at a client set workstation to

- select the server set workstation that runs the servers needed to provide a workstation with network access
- support the tools the operator is using

The Service Selection tool also allows a system administrator to select the default server set workstations to which an operator has access.

For more information, see the 241-6001-303 *Preside MDM Administrator Guide*.

## **GMDR Administration**

Use the General Management Data Router (GMDR) Administration tool to

- monitor the state of the GMDR server
- perform administration and other tasks on that server

The GMDR server collects and stores DPN-100 and Passport network surveillance data, and routes this data to the fault management network surveillance tools. For more information, see the 241-6001-303 *Preside MDM Administrator Guide*.

## **Nodal Provisioning Administration**

The Nodal Provisioning Administration tool provides a graphical user interface that lets you configure the Passport Configuration Server (PCSERVER) and the Configuration Management (CONFIGMAN) server for the Passport Nodal Provisioning tools. The PCSERVER creates and manages configuration access to Passport devices and the CONFIGMAN server obtains a list of the managed Passport devices in a Passport group. You can use this tool to specify the name of the host on which the server runs and the number of the port to be used for communicating with the server.

## **Nodal provisioning Template Editor**

The Nodal Provisioning Template Editor provides a graphical interface through which you can create and modify the service templates that are used by the nodal provisioning application. The template editor is data driven and uses the XML formatted service template files as input. Service template files are installed with MDM.

The template editor provides “drag and drop” creation and editing for service templates. The template editor supports the creation and modification of templates that are based on existing model files. If a service has a service model, users can create and modify the templates for that service. For more information, see 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

## MDM Database administration

The MDM Database Administration let you manage Frame Relay, Frame Relay to ATM (FRATM) circuits, and permanent virtual circuit (PVC) or switched virtual circuit (SPVC) asynchronous transfer mode (ATM) circuits. The MDM Database Administration tool treats the circuit as a unified network management object, rather than a collection of unrelated components. This unified approach to managing circuits spans all functions of the Preside Multiservice Data Manager (MDM) network management—surveillance, provisioning, performance, and reporting.

The MDM database stores and manages circuit information. As well, a circuit viewer application lets you view circuit information from the database or from the switch.

For information about the MDM database administration tool, see 241-6001-400 *Preside MDM Administration Database User Guide*.

## System Log Display

Use the System Log Display tool to display, copy, and print Preside Multiservice Data Manager (MDM) log messages. For details, see the section on the System Log Display in 241-6001-303 *Preside MDM Administrator Guide*.

## Historic Log File Display

Use the Historic Log File Display tool to view the content of historic log files based upon the filtering criteria that you specify. For details, see the section on the Historic Log File Display tool in 241-6001-303 *Preside MDM Administrator Guide*.

## Host Group Administration

Use the Host Group Administration tool to configure access to Passports or DPN-100 Operation Agents (OA). This tool is also used to group Passports or OAs for administration purposes. For details, see 241-6001-303 *Preside MDM Administrator Guide*.

## Security

Security management is the process of establishing, maintaining, and controlling network management permission levels and requirements for network access.

Preside Multiservice Data Manager (MDM) provides normal UNIX UserID and password security for all MDM users. UNIX security allows the system administrator to control the capabilities of separate users, and control access to selected functions and components. The system administrator controls UserID, passwords, and operator capabilities.

For more details on UserID and password control, see the Solaris documentation.

## **Disruptive Command Safeguard**

The Disruptive Command Safeguard is a command input management facility that intercepts potentially disruptive DPN commands entered from a Preside Multiservice Data Manager (MDM) workstation and presents a confirm or cancel message to the operator. You can enable, disable, or query the status of the Disruptive Command Safeguard from the Preside MDM window or from the UNIX command line.

For details, see the 241-6001-303 *Preside MDM Administrator Guide*.

## **DPN-100 and Passport on-switch security**

For the most part, the DPN-100 and Passport network elements or the special mediation environment layer functions are responsible for security. On-switch security is required because workstation use is often without enough security in offices. On-switch security also allows mixed mode operation, with other modes of access from local network element user interfaces or other systems.

Internal (and normally unverifiable) applications security is not reliable. To maintain the security of workstation-based applications, you need to control the data provided to the Preside Multiservice Data Manager (MDM) operation center. This control requires the DPN-100 and Passport network elements to provide good distribution filtering to multiple client terminals.

## **Utilities**

This section discusses general-purpose applications that are available with the Preside Multiservice Data Manager (MDM). This section also explains how to use the general-purpose applications to perform different tasks.

This section contains the following topics:

- “UNIX Access” (page 94)
- “Remote Access” (page 94)
- “Command Console” (page 95)
- “Online documentation” (page 96)
- “Memory Utilization” (page 96)
- “Network model shared memory utilization” (page 97)
- “MIB Browser” (page 97)
- “Customer Data” (page 97)

For more details on utilities, see 241-6001-804 *Preside MDM Workstation Utilities User Guide*.

## UNIX Access

UNIX Access creates a window that runs a UNIX shell.

## Remote Access

Remote Access lets you access a remote host that supports the VT100 user interface either through an X.29 PAD or Telnet session. You can establish up to ten concurrent Remote Access sessions from one workstation. Do not set up more than one session with the same host. Each Remote Access session is an 80-character by 25-line VT100-like window. Each Remote Access session has an entry that matches in the Session list of the Remote Access tool.

To open the Remote Access tool, from the Preside Multiservice Data Manager (MDM) window select Utilities and then Remote Access. The Remote Access main window contains a Session list that displays all active remote sessions. Access a host with the Get context menu selection or type the remote host name or address. To start a Telnet session, type one of the following entries:

- an IP address
- a host name known as an IP host by the workstation
- an SNMP element

- a host name known as a Passport module by the host group directory server (HGDS)

To start an X.29 PAD session, type a domain name address (DNA) or a host name configured on the workstation as an X.25 host.

## EPIC

EPIC is an interactive command line interface utility that extends Passport's component administrative system (CAS). EPIC is optional. Unless the optional software that supports the feature is installed, the launch point for EPIC will not present in the MDM tools menus. EPIC simplifies Passport surveillance and provisioning by providing the following functionality:

- simultaneous connection to multiple Passport switches
- extension of Passport's CAS syntax to include ranges and wildcards
- automation of common provisioning tasks
- enhanced display commands with results formatted in tables
- near real time monitoring of Passport components

For information about the EPIC editor and how to use it, see 241-6001-809 *Preside MDM EPIC Reference Guide*.

## Command Console

The Command Console is the user interface for authenticating communication between the Preside Multiservice Data Manager (MDM), Passport, and DPN components. You can use a single instance of this tool to issue commands to multiple components for configuration or fault management purposes. The connections can be to DPN components, Passport components, or both.

The Command Console provides the same functionality provided by a local or remote text interface device.

The Command Console establishes communications with DPN and Passport systems through the Connection Manager dialog. The connection process is transparent. When you request a network connection you see the Connection Manager dialog. The dialog prompts you for the following information:

- a destination
- your capability ID
- your password

A set of Command Console utilities allows you to write switch command macros.

## Online documentation

The complete set of Preside Multiservice Data Manager (MDM) Nortel Networks technical publications (NTPs) is available online while you work in MDM, so you don't have to leave the MDM environment to access online information.

For more information, see the 241-6001-804 *Preside MDM Workstation Utilities User Guide*.

## Memory Utilization

Memory Utilization displays information about the amount of virtual memory available on the workstation. This information is important because Preside Multiservice Data Manager (MDM) tools only function correctly if there is enough memory available. If you find problems that have to do with insufficient memory, use this tool to

- monitor memory use
- help with procedures for tool use that reduce the use of memory

Note that a repeated low amount of available memory can indicate that you require additional workstation virtual memory.

## Network model shared memory utilization

Network Model Shared Memory Utilization shows information about the amount of shared memory available on the workstation for the Network Model. Use this tool to monitor the shared memory when you load a new network model.

## MIB Browser

The MIB Browser is provided as a general utility and is supported through AdventNet.

For more information, see the 241-6001-804 *Preside MDM Workstation Utilities User Guide*.

## Customer Data

Customer Data provides access to the customer database. This database contains records with information for a selected component. The record can contain any information, but normally contains only the following:

- telephone numbers
- contact information
- circuit numbers for a selected piece of hardware or DNA

For example, the customer data for a port can contain the name and address of the current end user of that port.

The Customer Data tool allows you to add, change, query, delete, and search customer information. For example, you can perform the following tasks:

- quickly access customer information in the event of a problem
- identify all customers on a selected piece of hardware

## Custom

The Customer option under System displays tools which you have added to the Preside Multiservice Data Manger (MDM).

For information on adding tools, see 241-6001-301 *Preside MDM Customization Administrator Guide*.



## Chapter 8

# OSS Interfaces

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This section describes Operations Support Systems (OSS) interfaces for Preside MDM. This section contains the following interfaces:

- “MDM Application Programming Interfaces” (page 99)
- “Embedded Programming Interface” (page 102)

### MDM Application Programming Interfaces

Preside Multiservice Data Manager (MDM) Application Programming Interfaces (APIs) are open, public interfaces. APIs allow other network management systems and custom programs to access MDM data. Other Nortel Networks software uses APIs (for example, MDM workstation software).

With APIs, external applications can

- collect data as required
- set selected data, such as provisioning data
- filter the data before reception
- receive notification when selected events occur

The following ASCII interfaces are MDM API:

- “Network Model API” (page 100)
- “Alarm and Status API” (page 100)
- “DPN Provisioning API” (page 101)

- “Passport Provisioning API” (page 101)
- “Provisioning Command Filter API” (page 101)

For an introduction to APIs, see 241-6001-200 *Preside MDM Application Programming Interface Primer*.

## Network Model API

The Network Model API is an ASCII interface that provides access to the following information:

- state of each network component
- topology of the network model
- attribute value information for each network component
- possible types of network components
- possible attribute types for each network component
- possible values for each attribute of the network component types
- hierarchical structure of the network component types
- notification of network and raw state changes for each network component
- notification of network-wide changes, such as network component addition and deletion

For additional information about the Network Model API, see 241-6001-201 *Preside MDM Network Model API Reference Guide*.

## Alarm and Status API

The Alarm and Status API is an ASCII interface that provides access to the following information:

- recent alarm information in a format that is common to both DPN and Passport
- current raw state of the DPN and Passport components
- recent DPN status records
- notification of alarm, status, and raw state change events

When received through the API, state and alarm information is available for control and display by the API user. For additional information about this API, see 241-6001-203 *Preside MDM Alarm and Status API Reference Guide*.

## **DPN Provisioning API**

The DPN Provisioning API is an ASCII interface that allows you to create, view, and modify service data for DPN switches. The API works with the service data that you can access with the MDM Fault Management Component Provisioning tool. The Provisioning API reads service requests from standard input (stdin) and writes responses to standard output (stdout).

For additional information about this API, see 241-6001-204 *Preside MDM DPN Provisioning API Reference Guide*.

## **Passport Provisioning API**

The Passport Provisioning API is an ASCII interface that allows you to create, view, and modify service data for Passport switches. The API works with the service data that you can access with the MDM Fault Management Component Provisioning tool. The Provisioning API reads service requests from standard input (stdin) and writes responses to standard output (stdout).

For additional information about this API, see 241-6001-207 *Preside MDM Passport Provisioning API Reference Guide*.

## **Provisioning Command Filter API**

The Provisioning Command Filter API is an ASCII interface that controls provisioning commands (both allowed and not allowed). The blocking of commands is based on a combination of events:

- the executed command
- the specific service data component
- field values

For additional information about this API, see 241-6001-209 *Preside MDM Provisioning Command Filter API Reference Guide*.

## Embedded Programming Interface

The Embedded Programming Interface (EPI) makes it easier to use the API interfaces and utilities. The EPI provides access to API interfaces and utilities through the DeskTop Korn Shell and Tool Command Language.

The Preside Multiservice Data Manager (MDM) EPIs provide efficient access to the MDM API and Command Access programming interfaces for network operations automation. The EPIs allow you to write applications to collect data from and work with multiple MDM interfaces at the same time. For example, you can compare multiple alarm data streams, and send commands to the network elements that are triggered by Network Model state changes or other notifications. These EPIs also make difficult API query sequences easier, where the type of later queries can depend on the results of previous queries. For example, a query with a recursive path down parts of the Network Model is made easier.

For additional information, see 241-6001-211 *Preside MDM Embedded Programming Interface Reference Guide*.

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