NORTEL NETWORKS

Preside Multiservice Data Manager

Overview

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Preside Multiservice Data Manager

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Commercial availability except for MPE support which will be available in a future release.

Contents

Chapter 1
Introducing Preside Multiservice Data Manager

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.

Navigation

Main features

The following list highlights some main features that Preside Multiservice Data Manager (MDM) offers:

- MDM has the flexibility to allow you to maintain and monitor a complete network from a centralized or a decentralized network control center.
- MDM offers multiple deployment options. It can be run on a single workstation or be distributed over several workstations allowing you to manage your network according to geographical regions or organizational groups.
- MDM is multitasking software that allows 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.

- MDM tools are highly integrated to provide ease of use. When using MDM tools, you can transfer device names, status and service data from one tool to another by context commands.

Supported devices

Preside Multiservice Data Manager (MDM) provides tools for managing faults, configuration, accounting, performance, and security on the following devices:

- Passport 6000 series of switches
- Passport 7000 series of switches
- Passport 15000 switches
- Passport 20000 switches
- Nortel Networks Multiservice Provider Edge 9500 switches
- DPN-100 switches

MDM tools also provide you with the capability to manage faults for additional devices using SNMP through the use of integration cartridges. These include:

- Business Policy Switch 2000
- Juniper M5, M10, M20, M40 and M160
- Passport 4400/4460 series of access devices
- Passport 8600
- Shasta 5000 Broadband Service Nodes (BSNs)

System architecture

Preside Multiservice Data Manager (MDM) consists of two layers, the user layer and the server layer. The user layer consists of user environments that provide access to a number of tools and utilities. The server layer consists of servers and processes that provide session, mediation, and access management.

User layer

The Preside Multiservice Data Manager (MDM) user environment consists of the two user environments:

- Toolset
- Operator Client

From each environment, you can run various MDM tools. See "User environments" on page 19 for information about the capabilities, availability of tools, utilities, and functionality of the two environments.

Tools and utilities

The tools are available from graphical user interfaces, command line interfaces, utilities, applications programming interfaces (APIs), and an embedded programming interface (EPI). The tools are organized under the FCAPS menu. FCAPS stands for

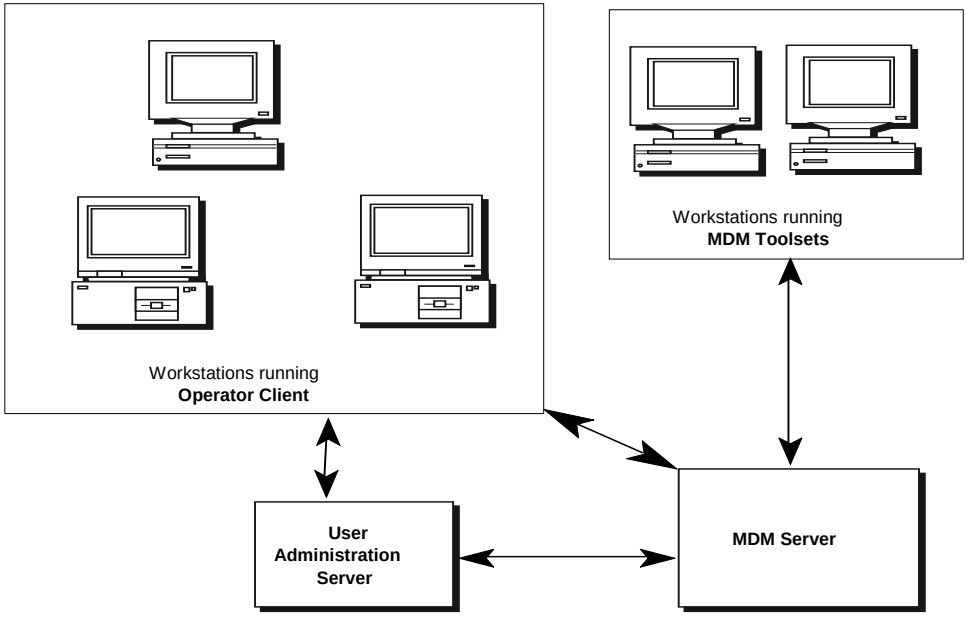
- F - “Fault management tools” (page 27)
- C - “Configuration management tools” (page 37)
- A - Accounting, see “Accounting and performance management tools” (page 55)
- P - “Accounting and performance management tools” (page 55)
- S - “System management tools and utilities” (page 61)

User administration services

The MDM User Administration server supports Operator Client operations such as client software distribution, session management, and security. In addition, the User Administration server acts as a central repository for user

definitions. By centralizing user definitions, this server provides a single access point for users, controlling how they access Operator Client and Sun UNIX operations, as well as Passport and other network devices.

The following illustration shows the relationship between the MDM User Administration server and workstations and PCs running Operator Client and MDM Toolsets.



Server layer

The following sections describe server layer functionality:

Session servers

The session servers 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.

The MDM User Administration Server, also a session server, contains the software that centralizes Java Web Start (JWS) enabling, client software download, and the Help Server for the Operator Clients. Operator Client users log into this server to download the desktop environment required to run MDM on the client PCs or Workstations. This server includes Apache Web-Server, Sun ONE Identity Server, Radius software and MDM session and security applications.

Mediation servers

The mediation servers 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 a model of all the devices, components, and links in the network, and their states.

Access servers

Access servers maintain connectivity to devices in the network, perform protocol translation and device specific handling functions for a managed device. There is a different type of access server for each different managed device including Passport, MPE, SNMP, and DPN.

SNMP Surveillance Adapter and Fault Integration Cartridges

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

The SNMP Surveillance Adapter contains a toolkit to let you set up trap collection and translate the traps into alarms by setting up a Fault Integration Cartridge for that device. 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*.

MDM fault integration cartridges can be made available from Nortel Networks or can be developed by the customer. These let you collect traps from supported devices and convert them into MDM alarms. Some supported devices include:

- Business Policy Switch 2000
- Juniper M5, M10, M20, M40 and M160
- Legacy Data Modules
- Passport 8600
- Shasta 5000 Broadband Service Nodes (BSNs)

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

Administration Databases

The Administration Database is an optional component that is required when using the MDM Service-Level tools such as ATM and Frame Relay Service Provisioning, Circuit Viewer and VPN Monitor. It requires access to a customer-supplied Oracle RDBMS. It contains three types of information:

- network resource configuration information, populated from the network
- user-entered administration information (for example, customer)
- discovered information associating network-wide information (for example, circuits)

The MDM Database Administration tool assists customers in tasks such as entering off-switch mastered data, determining associations between elements such as customers and VPNs and performing basic queries. The management of the database itself, such as performing clean-ups and backups, is done using database tools supplied by the vendor and not through MDM.

MDM feature licensing

MDM functionality is controlled by a license, that is normally delivered as part of the software delivery process, based on what has been ordered. This license controls which features and functionality the MDM server provides. Groups of features or tools are provided as orderable packages, and these may

vary based on market or solution requirements. The following provides a general outline of the package groupings available. Additional information is available through the Nortel Network sales team.

- MDM Entry Package provides basic FCAPS management. This includes the framework for SNMP fault integration through the use of Device Integration Cartridges, and the API and EPI interfaces. Note that there may be separate Passport and MPE Entry packages.
- MDM Comprehensive Package provides additional, value added tools, and includes Entry level functions. Note that Passport Service-Level tools (Service Provisioning and Circuit Viewer) which require the Administration Database are included in this package.
- Operator Client/Security provides support for Operator client and value-added user administration functionality, and can be licensed for different numbers of simultaneous use clients.
- MDM Optional Packages consist of a variety of separately licensed functions, such as MDP and VPN Monitor.

Related documents

This document refers to the following publications:

Note: For a complete list of documents 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*
- 241-6001-100 *Preside MDM Installation*
- 241-6001-102 *Preside MDM Planning Guide*
- 241-6001-118 *Preside MDM SNMP Surveillance Adapter Guide*

- 241-6001-122 *Preside MDM Using MDM Toolset and Operator Client Interfaces*
- 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*
- 241-6001-211 *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 Alarms Reference Guide*
- 241-6001-804 *Preside MDM Workstation Utilities User Guide*
- 241-6001-807 *Preside MDM Network Backup and Restore*
- 241-6001-808 *Preside MDM Device Inventory Tools User Guide*
- NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview*
- NN10600-500 *Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference*

Chapter 2
User environments

There are two user environments from which many Preside Multiservice Data Manager (MDM) applications can run: MDM Toolset and Operator Client. Both environments provide a wide range of capabilities and graphical user interfaces, support key operational functions and can be deployed in a number of different scenarios. Both user environments depend on the underlying UNIX server layer.

MDM Toolset

- MDM Toolset environment must be installed and run on a UNIX workstation provided by Sun Microsystems Inc. or any platform certified as SPARC Compliant by Sun Microsystems Inc.
- MDM Toolset can run on both Solaris 8 and Solaris 9 operating systems.

Operator Client

- The Operator Client environment can be installed and run on either a UNIX workstation or a PC. Operator Client is installed using Java Web technology.
- If Operator Client is being run on a UNIX workstation, the workstation must be by Sun Microsystems Inc. or any platform certified as SPARC Compliant by Sun Microsystems Inc. supporting Solaris 8 and Solaris 9 operating systems.
- On a PC, Operator Client can run on both Windows 2000 and Windows XP operating systems.

Navigation

Basic capabilities

Both the MDM Toolset and Operator Client environments provide the following basic capabilities:

- an easy to use graphical user interface
- applications for managing faults, configuration, accounting, performance, and security in your network
- the ability to manage networks according to geographical regions or organizational groups
- a highly scalable software architecture that can be expanded quickly to manage a growing network
- the ability to customize the appearance the graphical user interface to suit customer needs
- a centralized system for managing preferences and configuration data
- the ability for an administrator or user to direct the client application to different servers
- online documentation and online help for applications

Supported functions

The MDM Toolset and Operator Client environments both provide tools for operators to actively manage the network. Administrative tools, only available through the MDM Toolset, allow administrators to define users, manage software, software downloads, perform backup and restore operations and administer SVM in addition to the capabilities of an operator.

The MDM Toolset environment also supports OSS integration through applications interfaces (APIs) and an embedded programming interfaces (EPI).

Deployment options

There are server options to consider when deploying the MDM Toolset and Operator Client environments. For detailed information about planning the deployment of both environments, see 241-6001-102 *Preside MDM Planning Guide*. For detailed instructions about the installation and initial configuration required for both environments, see 241-6001-100 *Preside MDM Installation*.

If Service-Level tools are being deployed, access to a customer-supplied Oracle Database must be provided.

Tools and utilities

Table 1 provides a list of all Preside Multiservice Data Manager tools and utilities available in the MDM Toolset. Table 2 provides a list of all tools and utilities available in the Operator Client environments. By clicking on the name of the tool or utility in the table, you can link to an overview-level description.

> ***Note:*** The Service-Level tools requiring the use of the Oracle Administrative database are marked (SLT).

Table 1
Tools and utilities in the MDM Toolset environment

Tool/Utility
Fault
"Network Viewer" on page 29
"Alarm Display" on page 31
"Alarm Help" on page 32
"Real-Time Alarm Collection (RTAC)" on page 31
"Alarm Acknowledgment" on page 32
"Network Status Bar" on page 33
"Component Information Viewer" on page 33
"Query Historical Alarms" on page 31
(Sheet 1 of 4)

Table 1 (Continued)
Tools and utilities in the MDM Toolset environment

Tool/Utility
"Component Status Display" on page 34
"Passport Shelf View" on page 30
"MPE Shelf View" on page 30
"VPN Monitor" on page 34 (SLT)
"Circuit Viewer" on page 35 (SLT)
Configuration
"Nodal Provisioning" on page 39
"Embedded Nodal Provisioning" on page 40
"Nodal Provisioning Template Editor" on page 40
"Software Download and Configuration" on page 41
"Historic Frame Relay Log File Display" on page 41
"Network Activation" on page 41
"Network Reporting System" on page 42
"Inventory Reports" on page 43
"Backup and Restore" on page 40
"Passport/SNMP Service Data Backup/Restore (Passport 4400)" on page 42
"Passport Global Data Manager" on page 44
"Service Provisioning" on page 44 (SLT)
"ATM Traffic Management Profile Editor" on page 46 (SLT)
DPN only
"Component Provisioning" on page 47
"Global Data Manager tool" on page 48
"Service Data Backup" on page 48
"Service Data Restore" on page 49
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Table 1 (Continued)
Tools and utilities in the MDM Toolset environment

Tool/Utility
"Software Distribution" on page 49
"Software Substitution" on page 49
"Service Data Conversion" on page 50
"Envelope Editor" on page 51
"Network Activation" on page 50
"Template regeneration" on page 51
"MCF Directory Merge" on page 51
"Network Reporting System" on page 52
"Inventory Reports" on page 53
Performance and Accounting
"Management Data Provider (MDP)" on page 56
"Statistics Retrieval System" on page 57
"Data Viewer" on page 58
"DPN Performance Viewer" on page 59
"Performance Measurement Stream Processor" on page 59
System
Administration
"Server Administration" on page 63
"Service Selection" on page 63
"GMDR Administration" on page 64
"Host Group Administration" on page 65
"Database Administration" on page 65
"Data Synchronization Administration" on page 73
Security
"IP Security" on page 68
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Table 1 (Continued)
Tools and utilities in the MDM Toolset environment

Tool/Utility
"Server Administration" on page 63
"Secure File Transfer" on page 68
"Disruptive Command Safeguard" on page 67
"Change Password" on page 67
Utilities
"UNIX Access" on page 69
"Command Console" on page 70
"Online Documentation" on page 71
"Memory Utilization" on page 71
"Network Model Shared Memory Utilization" on page 71
"MIB Browser" on page 71
"Customer Data" on page 72
"Remote Telnet Access" on page 72
"Operational Commands GUI" on page 70
"EPIC" on page 69
External Interfaces
"HP OpenView Desktop" on page 76
"Application Programming Interfaces" on page 76
"Embedded Programming Interface" on page 79
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Table 2
Tools and utilities in the Operator Client environment

Tool/Utility
Fault
"Network Browser" on page 29
(Sheet 1 of 2)

Table 2 (Continued)
Tools and utilities in the Operator Client environment

Tool/Utility
"Alarm Display" on page 31
"Passport Shelf View" on page 30
"MPE Shelf View" on page 30
"Alarm Help" on page 32
"Network Status Bar" on page 33
"Component Information Viewer" on page 33
Configuration
"Nodal Provisioning" on page 39
"Embedded Nodal Provisioning" on page 40
"Nodal Provisioning Template Editor" on page 40
Performance and Accounting
"Data Viewer" on page 58
System
Administration
"Service Selection" on page 63
Security
"Change Password" on page 67
Utilities
"Command Console" on page 70
"Online Documentation" on page 71
"Remote Telnet Access" on page 72
"Operational Commands GUI" on page 70
(Sheet 2 of 2)

Chapter 3
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 method 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. An alarm acknowledgement utility is also provided as part of the fault tools.

For more detailed information about fault management tools, see 241-6001-011 *Preside MDM Fault Management User Guide*.

Navigation

Supported tools

Table 3 identifies the complete list of Preside Multiservice Data Manager (MDM) fault management tools supported for each product. For a list of tools supported on MDM Toolsets and Operator Client, see "Tools and utilities" on page 21.

Table 3
Supported fault management tools

Tool/Utility	Pass-port	MPE	DPN
"Network Viewer" on page 29	X	X	X
“Network Browser” (page 29)	X	X	X
"Alarm Display" on page 31	X	X	X
“Alarm Help” (page 32)	X	X	X
“Real-Time Alarm Collection (RTAC)” (page 31)	X	X	X
“Alarm Acknowledgment” (page 32)	X	X	X
"Network Status Bar" on page 33	X	X	X
"Component Information Viewer" on page 33	X	X	X
"Query Historical Alarms" on page 31	X	X	X
"Component Status Display" on page 34	X	X	X
"Passport Shelf View" on page 30	X		
"MPE Shelf View" on page 30		X	
"VPN Monitor" on page 34	X		
"Circuit Viewer" on page 35	X		

Fault management basic tools

All Preside Multiservice Data Manager (MDM) installations support the basic fault management tools.

Network model and views

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

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

MDM provides two ways to view information in the network model using the following views:

- 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.

Network Viewer

The Network Viewer (NV) displays a topological display 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 can display views at different levels of detail. You can use a high-level view for the basic structure of the network and to quickly identify areas that require attention. You can tailor 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).

This tool is only available from MDM Toolset.

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

Network Browser

The Network Browser application on the Operator Client provides a hierarchical folder (tree view) representation of the network model down to the node and link level. You can navigate through the levels to view the states of modelled objects.

The Network Browser does not have a corresponding tool in the MDM Toolset However, the Network Browser has similarities to both the Network Viewer and the component status display. The browser detects state changes in the Network Model and updates the display with new state information on an on-going basis. The Network Browser views network model objects down to the node and link level. For objects below the node level, use the Component Information Viewer application.

This tool is only available from Operator Client.

For details, see the Network Browser 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 and supports provisioning access through the Embedded Nodal Provisioning application.

For details, see the Passport Shelf View section in 241-6001-011 *Preside MDM Fault Management User Guide*, and Embedded Nodal Provisioning in 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

MPE Shelf View

The MPE 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 MPE 9500. It also displays related component information and associated alarms. The MPE Shelf View tool communicates directly with the MPE device to assist in troubleshooting network problems in real time.

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

Alarm Display

The Alarm Display (AD) tool provides a list of active alarms. There are two modes, Active and Log mode.

The Active Alarm Display provides a view of all active alarms for all managed devices in a single window. The display refreshes automatically based on information from the network (for example, when alarms are cleared). The Alarm Display displays alarms in either DPN or common alarm format. With filtering capabilities, you can limit the number and type of alarms received. You can use the Alarm Display with other fault management tools to identify faults in your network.

The Alarm Display tool in log mode provides a list of all alarm event, including SET and CLEAR alarms, and message alarms. The log mode lets you view alarm logs received from all devices in a single window. The display refreshes automatically when new alarms and messages are received. With filtering capabilities, you can limit the number and type of alarm logs displayed.

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

Real-Time Alarm Collection (RTAC)

The Real-Time Alarm Collection tool collects and saves all received alarms. Each day, the real-time alarm collection (RTACCOL) server creates a file for the collection of alarms (using the format “alarms.<yyyy>-<mm>-<dd>” for the file name) and stores this file in the directory defined in the RTAC.cfg configuration file.

These stored alarms can also be browsed using the Query Historical Alarms when selected from the Fault menu on the MDM Toolset menu.

For details, see the RTACCOL server section in 241-6001-310 *Preside MDM Server Reference Guide*.

Query Historical Alarms

The Query Historical Alarms tool lets you search and display short-term historical alarms that have been collected to file using RTAC. 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*.

This tool is only available from the MDM Toolset.

Alarm Help

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

- switch-generated alarms
- Preside Multiservice Data Manager (MDM) proxy alarms
- alarms from devices managed through the fault management integration cartridges.

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
- NN10600-500 *Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference* contains Passport alarms
- 241-6001-501 *Preside MDM Alarms Reference Guide* contains MDM proxy alarms and 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*.

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*.

This tool is only available from the MDM Toolset.

Fault management Service-Level tools

Service-level fault tools are specialized applications, designed to provide a network view for a specific type of service. They rely on the Administration database and may be separately licensed.

Service-level tools are available for Passports switches.

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. VPNs can be associated with customers to provide value-added navigation.

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 Preside Multiservice Data Manager fault management tools to further investigate and correct faults.

This tool is only available from the MDM Toolset.

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

Circuit Viewer

The Circuit Viewer tool provides an end-to-end view of layered connections, for protocols such as ATM, Frame Relay and IP Access. The Circuit Viewer lets you query circuit customer information from the Administration database and get additional information form the network.

For details, see the Circuit Viewer section in 241-6001-011 *Preside MDM Fault Management User Guide* and 241-6001-400 *Preside MDM Administration Database User Guide*.

This tool is only available from the MDM Toolset.

Chapter 4
Configuration management tools

This section describes the network configuration management applications for Preside Multiservice Data Manager (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
- software download, activation, and Service Data backup and restore

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 7400, Passport 15000 and Passport 20000.
- Nortel Networks Multiservice Provider Edge 9500 devices. These devices include MPE 9500.
- DPN devices. These devices include DPN-100.
- Passport 4400 web configuration launch point

Navigation

- “Supported tools” (page 38)
- “Configuration management basic tools” (page 39)
- “Configuration management Service-Level tools” (page 44)

- “DPN configuration tools” (page 47)

Supported tools

Table 4 identifies the Preside Multiservice Data Manager (MDM) configuration management tools supported for each product. For a list of tools supported on MDM Toolsets and Operator Client, see “Tools and utilities” on page 21.

Table 4
Supported configuration management tools

Tool/Utility	Pass-port	MPE	DPN
"Nodal Provisioning" on page 39	X	X	
“Embedded Nodal Provisioning” (page 40)	X	X	
"Nodal Provisioning Template Editor" on page 40	X	X	
"Software Download and Configuration" on page 41	X		
"Historic Frame Relay Log File Display" on page 41	X		
"Network Activation" on page 41	X		
"Network Reporting System" on page 42	X	X	X
"Inventory Reports" on page 43	X		
"Backup and Restore" on page 40	X	X	
"Passport/SNMP Service Data Backup/ Restore (Passport 4400)" on page 42	X PP4400		
"Passport Global Data Manager" on page 44	X		
"Service Provisioning" on page 44	X		
“ATM Traffic Management Profile Editor” on page 46	X		
DPN only tools			
"Component Provisioning" on page 47			X

(Sheet 1 of 2)

Table 4 (Continued)
Supported configuration management tools

Tool/Utility	Pass-port	MPE	DPN
"Global Data Manager tool" on page 48			X
"Service Data Backup" on page 48			X
“Service Data Restore” (page 49)			X
"Software Distribution" on page 49			X
"Software Substitution" on page 49			X
"Service Data Conversion" on page 50			X
"Envelope Editor" on page 51			X
"Network Activation" on page 50			X
"Template regeneration" on page 51			X
"MCF Directory Merge" on page 51			X
"Network Reporting System" on page 52			X
"Inventory Reports" on page 53			X

(Sheet 2 of 2)

Configuration management basic tools

All Preside Multiservice Data Manager (MDM) installations support the basic configuration management tools. A description of basic configuration management applications for Passport and MPE devices follow.

Nodal Provisioning

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

- provision components and services available on nodes by filling out a set of on-line forms
- provision services by dragging and dropping templates onto a hierarchical representation of node 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 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*.

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 Preside Multiservice Data Manager.

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*.

Administration

Preside Multiservice Data Manager includes a number of tools for administering software loads on supported network elements.

Backup and Restore

The Backup and Restore tool is used to perform service data backup and restore for both Passport and MPE devices, and complete node recovery for Passport devices only.

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

This tool is only available from the MDM Toolset.

For procedures to use the Backup and Restore tool, see 241-6001-807 *Preside MDM Network Backup and Restore*, and NN10700-011 *Nortel Networks Multiservice Provider Edge 9500 Administration and Security*.

Software Download and Configuration

The Software Download and Configuration tool lets you configure and download software from a software distribution site to a node. 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

This tool is only available from the MDM Toolset.

For procedures to use the software download and configuration tool for Passport, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide* and NN10700-008 *Nortel Networks Multiservice Provider Edge 9500 Configuration*.

Historic Frame Relay Log File Display

Use the Historic Frame Relay 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 Frame Relay Log File Display tool in 241-6001-303 *Preside MDM Administrator Guide*.

This tool is only available from the MDM Toolset.

Network Activation

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

This tool is only available from the MDM Toolset.

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

Passport/SNMP Service Data Backup/Restore (Passport 4400)

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 Network Backup and Restore*.

Network Reporting System

The Network Reporting System (NRS) is a set of tools that let you extract service data from nodes, 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 module
- Database population tools - are used in the population process to update the NRS database by uploading bundles from the 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, for Passport only, 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 ->Network Reporting System (NRS) submenu. The sub menu 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.

This tool is only available from the MDM Toolset.

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

Inventory Reports

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

This tool is only available from the MDM Toolset.

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 node to other selected nodes
- replace the attribute values for the components during propagation
- replace the attribute values for selected nodes in the network

This tool lets you provision data and replace attribute values globally. Because it can handle provisioning of more than one node at a time, it reduces the risk of data entry errors.

This tool is only available from the MDM Toolset on Passport.

For information about the Passport Global Data Manager tool, see 241-6001-023 *Preside MDM Configuration Management for Passport User Guide*.

Configuration management Service-Level tools

There are several optional Service-Level configuration management tools available. These system management. tools may be licensed separately.

Service-level tools are available for Passport switches.

Service Provisioning

The following set of tools are available for provisioning services on Passport switches:

- “ATM” (page 45)
- “Frame Relay” (page 45)
- “IP VPN Service Provisioning” (page 45)
- “IP VPN Provider Edge Provisioning” (page 46)
- “ATM Traffic Management Profile Editor” (page 46)

These tools are only available from the MDM Toolset.

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*.

Frame Relay

The Frame Relay service provisioning tool lets you provision Frame Relay permanent virtual circuits (PVC) between two nodes. 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 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. From this tool, you can also provision local ATM access to 2547 VPNs (PVC point to point). You can also launch a dynamic provisioning GUI from the tool which allows for provisioning of all available attributes concerned with the VPN. You use the IP VPN SP tool to perform the following tasks:

- create a Customer entity in the Administration database
- add VPNs to the Customer entities in the 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 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 Administration Database
- add or remove the peering relationships in a fully peered mesh network
- provision the node 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*.

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.

This tool is only available from the MDM Toolset.

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

DPN configuration tools

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 Preside Multiservice Data Manager 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

A description of the configuration management applications for DPN follow:

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 a Preside Multiservice Data Manager 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

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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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 Preside Multiservice Data Manager 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

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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 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.

This tool is only available from the MDM Toolset.

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 ->Network Reporting System (NRS) submenu. The sub menu 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.

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

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

Chapter 5
Accounting and performance management tools

This section describes network accounting and performance management tools on Preside Multiservice Data Manager (MDM). Accounting management is the process of collecting, monitoring, and sending accounting information to down-stream billing systems. Performance management is the process of planning, collecting, monitoring, and adjusting the performance of network devices.

You can use the MDM accounting and performance management tools to do the following:

- collect statistical data for billing purposes and historical reporting purposes
- real time collection of statistics (polled) for analysis and troubleshooting
- monitor network performance
- save and replay spooled data in bdf format
- view statistical information in graph form

Navigation

The performance management tools are as follows:

— "Statistics Retrieval System" on page 57

— “Data Viewer” (page 58)

— “DPN Performance Viewer” (page 59)

— Succession “Performance Measurement Stream Processor” (page 59)

Supported tools

Table 5 identifies the Preside Multiservice Data Manager (MDM) performance and accounting management tools supported for each product.

Table 5
Supported performance and accounting management tools in the MDM Toolset environment

Tool/Utility	Pass-port	MPE	DPN
"Management Data Provider (MDP)" on page 56	**X**	**X**	**X**
"Statistics Retrieval System" on page 57	**X**		
“Data Viewer” (page 58)	**X**	**X**	
"DPN Performance Viewer" on page 59			**X**
"Performance Measurement Stream Processor" on page 59	Succession Solution only		

Performance and Accounting basic tools

All Preside Multiservice Data Manager (MDM) installations support the basic performance and accounting tools. Performance and accounting information is collected from the supported switches and viewed using the following basic tools.

Management Data Provider (MDP)

The Management Data Provider (MDP) is an MDM application for collecting, processing and forwarding spooled data generated by Nortel Networks devices.

The MDP collects metric data from network elements using the file transfer protocol (FTP) or secure file transfer protocol (SFTP) to minimize the performance degradation that typically results from constant metric polling. DPN-100 switches automatically transfer metric data to the MDP.

For Passport, raw switch data is reformatted as bulk data format (BDF) and transferred to down-stream billing and performance analysis applications.

For MPE 9500, XML raw switch data is collected and transferred to down-stream billing and performance analysis applications. Only Level 2 Frame Relay statistics and accounting data is reformatted as bulk data format (BDF).

The benefits of the MDP include the following:

- 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 or installed on another workstation for distributed processing

Management Data Provider (MDP) configuration tool

The MDP is a Preside Multiservice Data Manager configuration tool that lets you configure the following:

- the collection of data from nodes
- the conversion of data to BDF format
- the transfer of data to down-stream devices

Statistics Retrieval System

The Statistics Retrieval System (SRS) is a function within MDP that collects non-spooled Passport data through polling. This method of statistics collection is also configured from the MDP configuration tool.

SRS formats the polled data values as bulk data format (BDF) and transfers the closed files to a performance or billing host for down-stream processing.Valid statistics are limited to the operational attributes of a node component.

Two types of statistics can be reported, raw attributes and delta values. Raw attributes are retrieved from the node 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.

Data Viewer

The Data Viewer is a diagnostic tool that lets you collect, display, analyze and save performance information in real-time mode and view it subsequently in replay mode. Data from Passport and Simple Network Management Protocol (SNMP) devices is collected in real-time mode. Data View also allows you to store polled data to a CSV file.

In replay mode, you can view data collected from Performance Measurement Stream Processor (PMSP), Management Data Provider (MDP), Statistical Retrieval System (SRS) and Data Viewer.

There are four different views are supported in Data Viewer: spreadsheet view, component view, record view, and lasted poll view for real-time mode only.

Data Viewer also has a graphing function that can be activated to display metric field values for a particular component in graphical format. Three graph types are available: thumbnails, trends, and multigraphs.

Default metrics definition files are provide for Passport and MPE. Only Passport metrics may be changed. Users can define their own SNMP metric files.

Data Viewer also includes an SNMP MIB browser that lets you browse SNMP 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 71).

DPN Performance Viewer

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

The DPN Performance Viewer collects component status information and displays it as graphics and text. You can write the information you collect to an ASCII log file for later analysis or processing.

This tool is only available from the MDM Toolset.

Performance Measurement Stream Processor

The Performance Measurement (PM) Stream Processor is a tool used in the Succession solution to collect and convert Performance Measurement (PM) real-time streamed statistics from Passport processors and ATM interfaces. Performance measurement information is used for network planning and engineering.

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

When collected, PM statistics can be stream transferred to customer hosts in CSV format on registered network connections using TCP sockets or written to CSV files on the MDM.

For more information about the PM Stream Processor, see the 241-6001-303 *Preside MDM Administrator Guide* and NN10158-711 *Passport 15000 and Preside MDM in Succession Networks Performance (PT-AAL1/UA-AAL1)*.

Chapter 6
System management tools and utilities

Preside Multiservice Data Manager system management tools and utilities allow you to perform tasks related to server, node and process administration management tasks.

Navigation

Supported tools

Table 6 identifies the Preside Multiservice Data Manager (MDM) system management tools supported for each product.

Table 6
Supported system management tools

Tool/Utility	Pass-port	MPE	DPN
Administration			
"Server Administration" on page 63	X	X	X
"Service Selection" on page 63	X	X	X
"GMDR Administration" on page 64	X	X	X
"Host Group Administration" on page 65	X	X	X
"Database Administration" on page 65 (SLT)	X		
"Data Synchronization Administration" on page 73 (SLT)	X	X	
Security	X	X	X
"Host Group Administration" on page 65	X	X	X
"IP Security" on page 68	X	X	
"System Log Display" on page 68	X	X	X
“User Administration system” (page 67)			
"Secure File Transfer" on page 68	X	X	
“System Log Display” (page 68)			
"Disruptive Command Safeguard" on page 67			X
Utilities			
"Change Password" on page 67	X	X	X
"UNIX Access" on page 69	X	X	X
"Command Console" on page 70	X		X
"Online Documentation" on page 71	X	X	X
"Memory Utilization" on page 71	X	X	X
"Network Model Shared Memory Utilization" on page 71	X	X	X
"MIB Browser" on page 71	-	-	-

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Table 6 (Continued)
Supported system management tools

Tool/Utility	Pass-port	MPE	DPN
"Customer Data" on page 72	X	X	X
"Remote Telnet Access" on page 72	X	X	X
"Operational Commands GUI" on page 70	X	X	
"EPIC" on page 69	X		

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System management basic tools

All Preside Multiservice Data Manager (MDM) installations support the basic system management tools. A description of basic system management applications for Passport and MPE 9500 devices follow.

Administration

The Preside Multiservice Data Manager (MDM) administration tools provide you with the capability to do the following:

- look at the status of different MDM processes and servers
- display, define, filter, and print MDM log messages
- manage your MDM client and server associations
- manage your node connections

Server Administration

Use the Server Administration tool to monitor and control Preside Multiservice Data Manager 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*.

This tool is only available from the MDM Toolset.

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 differentMDM 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 client 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.

In the Operator Client environment, system wide changes in the Operator Client environment can only be performed through the MDM Toolset. The Toolset must be launched by a root user at the administration server workstation. The changes affect the MDM software default service selection settings for all the Operator Client desktop sessions using this workstation as their administration server.

User specific changes in the Operator Client environment affect the Operator Client desktop user session. The changes override the MDM software default service selection settings and the system wide changes to these defaults.

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 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*.

This tool is only available from the MDM Toolset.

Database Administration

The Database Administration tool facilitates the management of the data stored in the Administration database. The database provides information used by the MDM Service-Level tools: ATM, Frame Relay, IP VPN Service Provisioning, Circuit viewer, and VPN Monitor. For example, the tool allows operators to manage customer contact information, create customer-service associations, and perform network discovery functions.

The Administration database schema is published allowing for customer SQL queries for reporting of the Administration Database.

This tool is only available from the MDM Toolset.

For information about the Administration database tool, see 241-6001-400 *Preside MDM Administration Database User Guide*. For a description of the database schema, table structures, and how to use them for reporting, see 241-6001-405 *Preside MDM Administration Database Schema*.

Host Group Administration

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

This tool is only available from the MDM Toolset.

Log Browser

The Log Browser is a tool used for viewing logs that are generated in the Nortel Networks standard log file format. Several servers generate this type of log and have the file extension of .nlog or .alog. The .nlog files contain information about security events while the .alog files contain application-specific logs. Application logs are used primarily for diagnostic and debugging purposes.

Log files that contain important events about the Preside Multiservice Data Manager system are contained in /opt/MagellanNMS/data/log/oamc. Security log files are located in /opt/MagellanNMS/data/security and can be browsed by administrators.

For more information on the Log Browser, see the online documentation available from the Help menu of the Log Browser.

This tool is available from both the MDM Toolset and Operator Client.

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 User ID 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 User ID, passwords, and operator capabilities. In addition, MDM provides a User Administration system which centralizes user ID and password security for MDM users who access using the Operator Client.

The following security-related tools are available:

- “User Administration system” on page 67
- “Change Password” on page 67
- “Disruptive Command Safeguard” on page 67
- “On-switch security” on page 67
- “System Log Display” on page 68
- “IP Security” on page 68
- “Secure File Transfer” on page 68

User Administration system

The User Administration system consists of four GUI-based applications that are used to create and centrally manage authentication and authorization of users. Users may be authenticated to devices via a RADIUS server using IPSec protocols. User authorization is defined on a central LDAP directory using a set of policy rules and roles.

This tool is only available from the MDM Toolset.

For details, see NN10600-605 *Passport - MDM Network Security: Operations*.

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 MDM window or from the UNIX command line.

This tool is only available from the MDM Toolset.

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

Change Password

The Change Password menu option, in Operator Client, allows you to change a centrally defined password required to log in to Operator Client. Users who do not access Operator Client, change their centrally defined password via the Sun ONE IS web interface.

For details, see NN10600-605 *Passport - MDM Network Security: Operations*.

On-switch security

For the most part, 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 Preside Multiservice Data Manager operation center. This control requires the network elements to provide good distribution filtering to multiple client terminals.

IP Security

Use IP Security to secure internet communication between the following devices:

- MDM and Passport or MPE 9500
- MDM workstations
- MDM running Solaris 9 and a PC workstation

For more information on IP security, see NN10600-605 *Passport - MDM Network Security: Operations*, NN10600-606 *Passport - MDM Network Security: User Access Configuration*, NN10600-607 *Passport - MDM Network Security: Secure Communications Configuration*.

System Log Display

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

This tool is only available from the MDM Toolset.

Secure File Transfer

Secure File Transfer Protocol (SFTP) when configured secures FTPs sessions between a node and an MDM workstation, for the purposes of downloading software and MDP spooled data transfers.

When SFTP authentication is enabled, this ensures that secure communications with the node.

This functionality is only available from the MDM Toolset.

For more information on MDM security, see NN10600-605 *Passport - MDM Network Security: Operations*, NN10600-606 *Passport - MDM Network Security: User Access Configuration*, NN10600-607 *Passport - MDM Network Security: Secure Communications Configuration*.

Utilities

Preside Multiservice Data Manager utilities are general-purpose applications that allow you to perform a variety of tasks.

For more details on utilities, see 241-6001-804 *Preside MDM Workstation Utilities User Guide* and the following summaries:

UNIX Access

UNIX Access creates a window that runs a UNIX shell.

This tool is only available from the MDM Toolset.

EPIC

EPIC is an interactive command line interface utility that extends Passport component administrative system (CAS). EPIC simplifies node surveillance and provisioning by providing the following functionality:

- simultaneous connection to multiple nodes
- extension of the node'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 node components

This tool is only available from the MDM Toolset for Passport.

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 a user interface for authenticating communication between the Preside Multiservice Data Manager workstation and network elements. You can use a single instance of this tool to issue commands to multiple components for configuration or fault management purposes.

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

The Command Console establishes communications with network components 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.

Operational Commands GUI

The Operational Commands GUI provides a set of automated command macros that allow users to execute commands, typically done with the Command Console tool, through an easy-to-use GUI.

Users select components and command macros then view the results of the command execution from a single panel. The tool also allows users to re-execute a command macro from the command history.

Online Documentation

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

This tool is only available from the MDM Toolset.

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.

This tool is only available from the MDM Toolset.

MIB Browser

The MIB Browser is provided as a general utility for browsing SNMP MIBs and is supported through AdventNet.

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

This tool is only available from the MDM Toolset.

Customer Data

Customer Data provides access to the customer database. This flat file 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
- use with Fault tools

This tool is only available from the MDM Toolset.

Remote Telnet Access

The Remote Telnet Access command lets you access a remote host that supports the VT100 user interface through a Telnet session. The Remote Telnet Access command launches the local Telnet application. You must have a valid user ID and password on the machine that you are trying to access through Telnet

For more information, see NN10600-606 *Passport - MDM Network Security: User Access Configuration*.

System management service-level tools

There are several optional system management tools available to support the use of the Service-Level tools and the Administration database.

Service-level tools are available for Passports switches.

Data Synchronization Administration

The Data Synchronization Administration tool is used to provide visibility of the processes used to synchronize the Administration Database with the actual provisioned components on Passport nodes through the view files collected by the Backup tool.

This tool is only available from the MDM Toolset.

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

Custom

The Custom option under System displays tools which you have added to Preside Multiservice Data Manager.

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

Chapter 7
OSS Interfaces

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

Navigation

Supported tools

The table "OSS interfaces in the MDM Toolset environment" (page 76) identifies the Preside Multiservice Data Manager (MDM) OSS interfaces supported for each product.

Table 7
OSS interfaces in the MDM Toolset environment

Tool/Utility	Pass-port	MPE	DPN
"HP OpenView Desktop" on page 76	X		X
"Application Programming Interfaces" on page 76	X	X	X
"Embedded Programming Interface" on page 79	X	X	X
"SNMP Proxy Agent" on page 79		X	

OSS interfaces basic tools

All Preside Multiservice Data Manager (MDM) installations support the basic OSS interfaces. A description of basic OSS interfaces applications for Passport and MPE 9500 devices follow.

HP OpenView Desktop

The HP OpenView Desktop 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 Multiservice Data Manager (MDM) software on an HP OpenView desktop. This feature is optional and the HP OpenView NM menu item only appears if the feature is enabled on MDM.

This tool is only available from the Toolset.

For more information, see 241-6001-011 *Preside MDM Fault Management User Guide*.

Application Programming Interfaces

Application Programming Interfaces (APIs) are open, public interfaces. APIs allow other network management systems and custom programs to access Preside Multiservice Data Manager (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 available through theMDM API:

- "Network Model API" (page 77)
- "Alarm and Status API" (page 78)
- "DPN Provisioning API" (page 78)
- "Passport Provisioning API" (page 78)

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 all switch types
- current raw state of all supported network elements
- 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 devices. The API works with the service data that you can access with Preside Multiservice Data Manager 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 lets you to create, view, and modify service data for Passport devices. 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*.

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 and Perl scripting languages. There is a C/C++ version of the EPI interfaces for your coded applications. EPIs are also supported through a CORBA IDL interface for remotability and language independence.

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*.

SNMP Proxy Agent

The SNMP Proxy Agent (SPA) is available on the Nortel Networks Multiservice Provider Edge 9500 (MPE 9500) device. SPA provides a single point of SNMP access to several MPE 9500 devices through an MDM server.SPA receives SNMP requests from SNMP management processes and then performs the following functions:

- forwards SNMP requests received from SNMP management processes to the appropriate MPE 9500 devices
- forwards SNMP replies received from MPE 9500 devices to the requesting SNMP Manager
- forwards SNMP traps received from MPE 9500 devices to registered SNMP Managers
- supports versions V1 and V2C of the SNMP protocol
- supports multiple community strings on a per MPE 9500 device basis

This tool is only available from the Toolset on an MPE.

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

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Preside Multiservice Data Manager
Overview

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