SNMP Agent Software for Intel® NetStructure™ Host Media Processing Software for Windows

Administration Guide

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About This Publication

The following topics provide information about this publication:

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Purpose

This publication provides guidelines for using the SNMP agent software, which provides remote (or local) monitoring and limited control of the Intel® NetStructure™ Host Media Processing (HMP) Software for Windows over an IP network.

Intended Audience

This publication is written for the following audience:

- System Integrators
- Independent Software Vendors (ISVs)
- Original Equipment Manufacturers (OEMs)
- Telephony Equipment Manufacturers (TEMs)
- Network Equipment Providers

How to Use This Publication

Refer to this publication for information about installing, configuring, and using the SNMP agent software.

This publication assumes that you are familiar with the Windows operating system and Simple Network Management Protocol (SNMP), a standard IP network mechanism for exchanging management information between an SNMP agent and a network management station.

The information in this guide is organized as follows:

- Chapter 1, “Administration Overview” provides an overview of SNMP, the preparation needed to use the SNMP Agent, and the administration tasks that can be performed using the SNMP agent software.

- Chapter 2, “Installing and Uninstalling the Software” provides information about installing and uninstalling the Host Media Processing Software for Windows.
- Chapter 3, “Stopping and Starting the System” provides information on using the dlgHiIdentServiceStatus OID in the *dlghwinf.mib* MIB to stop and start the Intel® Dialogic® system.
- Chapter 4, “Installing and Using the MIBs” provides information about installing the MIBs and using them to monitor system activity.
- The Glossary provides a definition of terms used in this guide.

Related Information

Refer to the following document for more information about Host Media Processing Software for Windows:

- The *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide*.
- The Release Notes for Host Media Processing Software for Windows.

Administration Overview 1

This chapter provides an overview of SNMP, the preparation needed to use the SNMP Agent, and the administration tasks that can be performed using the SNMP agent software with the Intel® NetStructure™ Host Media Processing (HMP) Software for Windows.

1.1 Understanding SNMP and the SNMP Agent

The following sections describe how the SNMP agent software works with SNMP:

- What is SNMP?
- The Role of the SNMP Agent
- The Role of the SNMP Manager
- What is a MIB?
- What is a Trap?

1.1.1 What is SNMP?

SNMP stands for Simple Network Management Protocol (SNMP), a standard IP network mechanism for exchanging management information between an SNMP agent and an SNMP manager. SNMP was designed to manage routers, switches and other headless network devices. SNMP provides an industry standard interface for fault and monitoring support.

1.1.2 The Role of the SNMP Agent

The SNMP Agent provides remote (or local) monitoring and limited control of boards or HMP software resources over an IP network. The SNMP agent resides on an IP stack and responds to SNMP “gets” and “sets” from an SNMP manager. The SNMP agent sends SNMP traps. The objects that an SNMP agent can manipulate are defined in **MIBs** (see What is a MIB?).

The node running the SNMP agent is called the **managed node**. The managed node is the system that contains the boards or HMP software resources you wish to administrate remotely; the SNMP agent makes administrative functions available remotely over an IP network.

The **network management station** is the system that has the **SNMP manager** installed. The network management station is the system that exchanges administrative information and tasks with the SNMP agent on the managed node. The network makes this exchange possible and provides a user interface for viewing administrative information and performing management tasks.

1.1.3 The Role of the SNMP Manager

The SNMP manager is the management application that monitors and/or administers a remote system. The SNMP manager does the following:

- Receives and displays traps
- Sends SNMP "gets" and "sets" to the SNMP agent
- Provides a user interface.

A single SNMP manager can support multiple SNMP agents. For a fully supported network management application, you must use a third-party product such as HP OpenView or any other SNMP-compliant network management application.

1.1.4 What is a MIB?

A MIB is a Management Information Base that resides on a managed node. The MIB definition sets the limits on what can be managed. The MIB defines

- Which variables or parameters will be accessed
- How each value will be identified
- How each value will be encoded
- How each value will be interpreted

A MIB contains *objects* (units of management information) divided into *scalars* and *tables*, which are identified by object identifiers (OIDs). These objects are exchanged between the managed node and the SNMP manager. Each MIB defines three types of OIDs:

- Read-Only OIDs: This type defines the information that the network management station can read from the managed node.
- Read-Write OIDs: This type defines the system configuration settings on the managed node that can be modified by the network management station.
- Traps: This type defines the information that the managed node sends to the network management station under specified conditions.

MIBs can be either private (or enterprise) MIBs or standard MIBs. SNMP agent software currently supports mostly private MIBs. SNMP agent software supports the following MIB modules for the HMP software platform:

- Hardware Information MIB Module
- DM3 Extended Platform MIB Module
- R4 Resource MIB Module

1.1.5 What is a Trap?

A trap is an unsolicited event sent by the agent to a manager. Related objects and their values (variable bindings) may be sent with a trap. Trap delivery is not guaranteed. Individual MIBs have objects which turn traps on and off.

1.2 Preparing to Use the SNMP Agent Software

Before you use the SNMP agent software, you will need to install Net-SNMP and the Host Media Processing Software for Windows. Details are given in Chapter 2.

1.3 Using the SNMP Agent for Administrative Tasks

After you complete the preparations for using the SNMP agent software given in Chapter 2, you can perform the following administrative tasks:

- Reset the Intel® Dialogic™ System
- Monitor HMP software resources

Details are given in Chapters 3 and 4.

Installing and Uninstalling the Software 2

This chapter provides information about installing and uninstalling the system software and the SNMP agent software.

2.1 Assumptions and Prerequisites

Only users with administrative access privileges can install drivers and start the Intel® Dialogic® system. You must have this level of access in order to carry out the installation steps described in this section.

To use the SNMP agent software on managed nodes, the following hardware and software is required:

- Intel® NetStructure™ Host Media Processing (HMP) Software for Windows
- A version of Windows supported by Intel® NetStructure™ Host Media Processing (HMP) Software for Windows
- The hardware requirements for the SNMP agent software are the same as for Intel® NetStructure™ Host Media Processing (HMP) Software for Windows. See the Release Notes for Intel® NetStructure™ Host Media Processing (HMP) Software for Windows.

To use the SNMP agent software from a management station, the following hardware and software is required:

- third-party manager such as HP OpenView*.
- the MIBs listed in Section 4.3, “Installing and Compiling the MIBs”, on page 12.

2.2 Installing and Configuring Windows* SNMP Service

If Windows SNMP Service has already been installed, refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide* for information about installing the Host Media Processing Software for Windows.

If Windows SNMP Service has not already been installed, you must install and configure the Windows SNMP Service on both the managed node and the network management station before installing the SNMP agent software.

If you uninstall and reinstall the Windows SNMP Service on the managed node, you will also have to uninstall and reinstall SNMP agent software.

2.2.1 Installing SNMP for Windows

The following steps describe how to install the SNMP service:

1. Invoke the **Control Panel**.
2. Go to **Add/Remove Programs**.
3. Select **Add/Remove Windows Components**. The Windows Component Wizard is displayed.
4. Select Management and Monitoring Tools.
5. Click the **Details** button.
6. Check the Simple Network Management Protocol box and click **OK**. The Windows Component Wizard is redisplayed.
7. Click **Next** to proceed through the Windows Component Wizard until it has finished.

2.2.2 Configuring SNMP Service for Windows

Follow the steps below to configure SNMP Service:

1. Invoke the **Control Panel**.
2. Select **Administrative Tools**.
3. Select **Services**.
4. Select **SNMP Service**.
5. Choose the **Agent** tab.
6. Enter **Contact** and **Location**.
7. Choose the **Traps** tab.
8. Enter **Community Name:** `public`.

Note: In the interest of enhanced security, administrators may want to choose a less commonly used community string.

9. Click **Add to List**.
10. Under **Trap Destinations**, click **Add** and enter the **IP address** for each management node to receive trap notifications from this managed node.
11. Click **OK** when done.
12. Choose the **Security** tab.
13. Highlight **public** and click **Edit**. Change **Community Rights** to READ CREATE.
14. Click **OK**.
15. Stop **SNMP Service** (if started) and restart.
16. Double click **SNMP Trap Service**.
17. Set **Startup Type** to 'Automatic'.
18. Click **OK**.
19. Stop **SNMP Trap Service** (if started) and restart.

2.3 Installing the Host Media Processing Software for Windows

Refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide*.

2.4 Uninstalling the Host Media Processing Software for Windows

Refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide*.

Stopping and Starting the System 3

This chapter provides information on using the dlgHiIdentServiceStatus OID in the *dlghwinf.mib* MIB to stop and start (reset) the Intel® Dialogic® system.

Note: For information about starting the Intel Dialogic system for the first time, starting the Intel Dialogic system after initial startup, and stopping the system (without the use of SNMP), refer to the *Intel® NetStructure™ Host Media Processing Software for Windows Installation Guide.*

3.1 Assumptions and Prerequisites

Before you can stop and restart the Intel Dialogic system using the SNMP agent software, you must do the following:

- Install the Intel® NetStructure™ Host Media Processing Software for Windows. (Refer to the *Intel® NetStructure™ Host Media Processing Software for Windows Installation Guide*.)
- Obtain, install, and activate an HMP software license (refer to the *Intel® NetStructure™ Host Media Processing Software for Windows Installation Guide*).
- Start the Intel® Dialogic® system: To use the SNMP agent software with HMP software, you need to perform a one-time startup of the Intel Dialogic system on the managed node. Once you have started the Intel Dialogic system, the Intel Dialogic system can be stopped or started from the network management node.

  For information about starting and stopping the Intel Dialogic system, refer to the *Intel® NetStructure™ Host Media Processing Software for Windows Installation Guide*. This Installation Guide explains how the Intel Dialogic Configuration Manager (DCM) is used to start and stop the Intel Dialogic System.

  For additional information about DCM and the Intel Dialogic system, consult the DCM online help by pressing F1 when the DCM Main window is active.

3.2 Stopping and Starting the System

Some situations require resetting the Intel Dialogic system. Resetting the system is done “outside” of the SNMP agent software. To reset the system, follow these steps:

1. Re-route telephone activity away from the malfunctioning system to another system, or take each port, time slot, channel, or station line out of service as they become available.

2. Stop all telephony applications.

3. Stop and restart all boards or HMP software resources using the dlgHiIdentServiceStatus OID in the *dlghwinf.mib* MIB.

4. Restart the telephony applications.

5. Re-route telephone activity back to the system and monitor the status to verify the functioning of the line or port.

Note: Shutting down the telephony application will disconnect any calls in progress. Be sure to wait for inactivity on any line before taking it off hook.

Installing and Using the MIBs 4

This chapter provides information about installing the MIBs and using them to monitor system activity.

4.1 Assumptions and Prerequisites

Before you use the MIBs, you must meet the following prerequisites:

- Install the Intel® NetStructure™ Host Media Processing (HMP) Software for Windows. (Refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide*.)
- Obtain, install, and activate an HMP software license (refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide*).
- Start the Intel® Dialogic® system: To use the SNMP agent software with HMP software, you need to perform a one-time startup of the Intel Dialogic system on the managed node. Once you have started the Intel Dialogic system, the Intel Dialogic system can be stopped or started from the network management node.

  For information about starting and stopping the Intel Dialogic system, refer to the *Intel® NetStructure™ Host Media Processing (HMP) Software for Windows Installation Guide* and Chapter 3, “Stopping and Starting the System”.
- If you are not familiar with MIBs and SNMP, refer to Section 1.1, “Understanding SNMP and the SNMP Agent”, on page 1.

4.2 Order of Procedures

Once you have installed and compiled the MIBs (refer to Section 4.3, “Installing and Compiling the MIBs”, on page 12), you can use the other procedures in any order.

4.3 Installing and Compiling the MIBs

The MIBs are installed when you install the Intel® NetStructure™ Host Media Processing (HMP) Software for Windows.

In addition, some network management applications also require that you compile the MIBs. If compilation is required, you must compile the Hardware Information MIB (dlghwinf.mib) before compiling other MIBs:.

HMP software supports the following MIBs:

- Hardware Information MIB
- DM3 Extended MIB
- R4 Device Information MIB

These three MIBs must be installed on the SNMP manager for full SNMP support of HMP software.

4.4 Using the Proprietary Hardware Information (HWINF) MIB Module

This section describes the Hardware Information (HWINF) MIB Module and provides a sample procedure demonstrating how to use it to monitor the status of boards or HMP software resources:

- Understanding the Hardware Information (HWINF) MIB Module
- Monitoring the Status of Boards or Intel® NetStructure™ HMP Software Resources

Note: Throughout the description of the Hardware Information MIB, “HMP software resources” can be considered synonymous with “boards.”

4.4.1 Understanding the Hardware Information (HWINF) MIB Module

The Hardware Information module provides a board inventory table and general parameters regarding the Intel Dialogic system services. This module permits the monitoring of board status changes and provides board status change notification using SNMP traps.

The Hardware MIB module contains the following groups:

- MIB Revision Group (dlgHiMibRev)
- OS Common Group (dlgHiOsCommon)
- Board Identification Group (dlgHiIdent)

4.4.1.1 MIB Revision Group (dlgHiMibRev)

This group contains general revision and condition information and is comprised of:

- major revision number (dlgHiMibRevMajor): Indicates the major revision of the HWINF MIB module. This revision will always return '1'.
- minor revision number (dlgHiMibRevMinor): Indicates the minor revision of the HWINF MIB module. This revision will always return '2'.
- dlgHiMibCondition: Indicates the MIB status for this module. It will indicate *ok* if the MIB module can function properly or *failed* otherwise. When the agent starts up, this object initially indicates *failed* until the agent completes self-initialization.

4.4.1.2 OS Common Group (dlgHiOsCommon)

This group contains the following scalar objects and tables:

- Common Polling Frequency (dlgHiOsCommonPollFreq): This scalar object controls the global poll frequency. The current implementation of the SNMP agents does not support this variable, and setting its value to a new frequency has no effect on the run-time state of the agents.
- Common Module Table (dlgHiOsCommonModuleTable): This table contains a row entry for installed software modules used to control boards. It has read-only attribute columns that describe the module attributes (module name, module version, module date, and module purpose/description).
- Number of Modules (dlgHiOsCommonNumberofModules): Indicates the number of rows present in the Common Module Table.
- Log Enable (dlgHiOsLogEnable): This scalar object is not implemented. Network management stations (NMS) or other SNMP managers should handle logging any trap or status changes.
- Test Trap Enable (dlgHiOsTestTrapEnable): Setting this scalar object to '1' causes the SNMP agent to send a test trap to all configured trap destinations (for instructions on how to configure trap destinations, see the Configuration Guide for the Intel NetStructure products). Reading this object always returns '0' as result.

4.4.1.3 Board Identification Group (dlgHiIdent)

This group contains the following scalar objects and tables:

- Board Identification Table (dlgHiIdentTable)
- Board Identification Table Size (dlgHiIdentNumberOfDevices)
- Service Status Object
- Service Change Date
- Global Trap Mask

The following information describes each item:

Board Identification Table (dlgHiIdentTable)

The Board Identification Table contains a row entry for each board device installed on the managed node. It has read-only attribute columns that describe the board attributes (IRQ, firmware name, serial number, etc.) and the board operational status. It has mutable columns that describe the board administrative status.

The following are the columns in the Board Identification Table:

- *board index (dlgHiIdentIndex)*: This column contains the indices for this table. All SNMP tables have one or more indices that uniquely identify the row in which they belong. Performing a **get** on this column should always return the same value as the row requested. For example,
  ```
  snmp get dlgHiIdentIndex.2
  ```
  returns 2.
- *model name (dlgHiIdentModel)*: This column contains the string name of the board model for each board in the table.
- *family type (dlgHiIdentType)*: This column indicates the CT family type for each board. For HMP software, DM3 is the only valid value.
- *functional description (dlgHiIdentFuncDesc)*: For each board, this column contains a short description of its purpose.
- *serial number (dlgHiIdentSerNum)*: Not applicable to HMP software.
- *firmware name (dlgHiIdentFWName)*: This column contains the firmware file name for each board in the table.
- *firmware version (dlgHiIdentFWVers)*: This column contains the firmware version for each board in the table.
- *base memory address (dlgHiIdentMemBaseAddr)*: Not applicable to HMP software.
- *base I/O address (dlgHiIdentIOBaseAddr)*: Not applicable to HMP software.
- *interrupt request number (dlgHiIdentIRQ)*: Not applicable to HMP software.
- *board ID (dlgHiIdentBoardID)*: Not applicable to HMP software.
- *PCI slot number (dlgHiIdentPCISlotID)*: Not applicable to HMP software.
- *operational status (dlgHiIdentOperStatus)*: This column contains the operational status of each board. The operational status can indicate a *failed* or *ok* status. If this column indicates *ok*, then the board is working normally and has responded to all requests as expected. If this column indicates *failed*, then the board is not operating normally and something has caused it to enter a potentially dangerous state. Two conditions exist to cause *operational status* to indicate a *failed* status: the board has stopped responding to routine ping messages or the board was instructed to start or stop using the administrative status column, and it has failed to do so. In general, a board that is indicating a *failed* status, should be replaced or restarted.
- *administrative status (dlgHiIdentAdminStatus)*: Administrative status uses two sets of values. The first set is used to indicate the present condition of the board. The possible

values are *started, stopped* and *diagnose*. (*Diagnose* is not applicable to HMP software.) The second set of values does not apply to HMP software.

Note: If a board is in the process of starting or stopping, it will always indicate its present state of stopped or started, until the start or stop operation is complete. The settable states of start-pending or stop-pending, which are used to change the board state, will *not* be displayed.

- *device change date (dlgHiIdentDeviceChangeDate)*: This column indicates the time and date (in 7-octet format) of when the administrative status of the board last changed.
- *specific group OID (dlgHiIdentSpecific)*: If another MIB is loaded that can provide more in-depth information for a provided board, then this OID points to the first object in that related MIB. In System Release 5.1.1, this OID is never used.

Board Identification Table Size (dlgHiIdentNumberOfDevices)

This scalar object is type INTEGER and returns the number boards installed and configured on the managed node. This number corresponds directly with the number of rows present in the Board Identification Table (dlgHiIdentTable). A value of zero indicates that no boards have been installed or configured. For HMP software, this value is always 1.

Service Status Object

This scalar object (dlgHiIdentServiceStatus) is used to control the entire Intel Dialogic system software run-time state. When it indicates *stopped*, the runtime has not been started. When it indicates *started*, the runtime is loaded and running.

An SNMP manager may set the value of this object to change the run-time state of the Intel Dialogic system software. When the manager sets the value to *started*, the Intel Dialogic system software will start and initialize. All configured boards will be downloaded. When the manager sets the value to *stopped*, the Intel Dialogic system software will be stopped and unloaded.

Service Change Date

This scalar object indicates the last time in which the Intel Dialogic system was started or stopped though the Service Status Object (dlgHiIdentServiceStatus). The result is in 7-octet format described in the MIB specification.

Global Trap Mask

The Global Trap Mask is a bit field value which allows a manager to categorically select the types of traps transmitted by the agent. Each bit in the trap mask is a boolean value in which 0 disables the given trap, while 1 enables trap transmission from the agent.

System Services Table

The System Service Table contains a row entry for each System Service. It has read-only attribute columns that describe the service attributes (service indices, service name, service SCM name, service status, and service change date).

4.4.2 Monitoring the Status of Boards or Intel® NetStructure™ HMP Software Resources

The core of the Hardware MIB module is the Board Identification Table (dlgHiIdentTable), which contains a row for every board installed and configured on the managed node. Using this table, the

user can determine and verify which boards are configured on the node, and whether or not a board is working from a high-level point of view.

Note: "HMP software resources" can be considered synonymous with "boards."

4.5 Using the Proprietary DM3 Extended Platform MIB

This section provides the following information:

- Understanding the DM3 Extended Platform MIB
- Collecting Information About Intel® NetStructure™ Boards with a DM3 Architecture

Note: Throughout the description of the DM3 Extended Platform MIB, "HMP software resources" can be considered synonymous with "boards."

4.5.1 Understanding the DM3 Extended Platform MIB

The proprietary Dm3ExtPlatform MIB module is a hardware-specific extension of the Board Identification Table (dlgHiIdentTable). This MIB contains detailed information about the configuration of hardware on Intel NetStructure boards with a DM3 architecture. This information is organized into three tables:

- dlgDm3ExtBrdLevelTable - Each row in the dlgDm3ExtBrdLevelTable table corresponds to a row in the Board Identification Table, so the indices of rows in the former table match indices of corresponding rows in the latter table.
- dlgDm3ExtSubAssemblyTable - The dlgDm3ExtSubAssemblyTable table contains entries that represent board subassemblies, and each row can be mapped back to its parent board in the dlgDm3ExtBrdLevelTable table.
- dlgDm3ExtProcTable - The dlgDm3ExtProcTable table contains rows that represent each processor on each subassembly of each board. Each entry in the dlgDm3ExtProcTable table can be mapped back to a parent subassembly in the dlgDm3ExtSubAssemblyTable table. Each processor maps to a board by way of the subassembly table.

The dlgDm3ExtBrdLevelTable table contains only configuration information that includes the following:

- shelf ID
- FCD configuration file name
- PCD configuration name
- PCD configuration version

The dlgDm3ExtSubAssemblyTable table contains only configuration information that includes the following:

- subassembly type
- serial number
- index of parent board in the dlgDm3ExtBrdLevelTable table

The dlgDm3ExtProcTable table contains configuration and status information for each processor, and columns exist that provide the following information:

- processor type
- run-time kernel version
- boot kernel version
- operation status

In addition to the its three table, the dlgDm3ExtPlatform MIB module also defines a trap, dlgDm3epOperStatusChange, which is generated whenever the processor operation status value changes for a processor in the dlgDm3ExtProcTable table.

4.5.2 Collecting Information About Intel® NetStructure™ Boards with a DM3 Architecture

The DM3 Extended Platform MIB is used to collect configuration information from a managed node regarding Intel NetStructure boards on the DM3 architecture and their subassemblies and processors. The dlgDm3epOperStatus column and the dlgDm3epOperStatusChange trap allow a management station to monitor boards for processor health information providing a gathering of finer-grained fault information from Intel NetStructure boards on the DM3 architecture than what the Board Identification Table provides through its operational status column.

4.6 Using the Proprietary R4 Device Information MIB

This section provides the following information:

- Overview
- Table Descriptions

Note: Throughout the description of the R4 Device Information MIB, “HMP software resources” can be considered synonymous with “boards.”

4.6.1 Overview

The proprietary R4 Device Information MIB provides configuration and status information for devices using the R4 API on DM3 architecture on a managed node. It is arranged in a two-tiered device table hierarchy in addition to a separate table, which provides statistics information about active applications that use the R4 SRL API.

A top-level Device Table contains a row for each device using the R4 API on DM3 architecture on a managed node. In System Release 6.0, the devices using the R4 API on DM3 architecture that are included in this table are voice resource channel devices (dxxxBaCb), digital trunk interface timeslot devices (dtiBaTb) configured with or without PRI ISDN signaling, and MSI station interface channel devices (msiBaCb). For each device, the Device Table contains the following information:

- device name - the R4 name of the device

- device type- the type of R4 device (dxxx, dti, PRI isdn, or msi)
- board index- the index in the Board Identification Table which contains the R4 device
- open count- how many times this device has been opened (not supported for DM3)
- transmit timeslot- the CT bus slot the device is configured to transmit on
- receive timeslot- the CT bus slot the device is configured to read information from

Four additional tables extend information provided in the Device Table for each specific device type (dxxx, dti, PRI ISDN, and MSI). These tables are called dlgR4VoiceTable, dlgR4DTITable, dlgR4ISDNTable, and dlgR4MSITable.

4.6.2 Table Descriptions

This section provides the following information:

- R4 Voice Device Table
- R4 DTI Device Table
- R4 ISDN Device Table
- R4 MSI Device Table
- SRL Application Table

4.6.2.1 R4 Voice Device Table

The R4 Voice Device Table contains only indices and rows from the Device Table that describe R4 voice channel resource devices. Each device is presented with the following information:

- voice channel status (not supported for DM3)
- voice line status (not supported for DM3)
- number of digits (not supported for DM3)
- EEPROM features (not supported for DM3)

4.6.2.2 R4 DTI Device Table

The R4 DTI Device Table contains only indices and rows from the Device Table that describe R4 digital trunk line timeslot devices. Each timeslot device is presented with the following information:

- protocol
- timeslot status (not supported for DM3)
- receive signaling bits (not supported for DM3)
- transmit signaling bits (not supported for DM3)

Note: DS-1 timeslot devices configured for PRI ISDN are not included in the R4 DTI Device Table.

4.6.2.3 R4 ISDN Device Table

The R4 ISDN Device Table contains only indices and rows from the Device Table that describe R4 digital trunk line timeslot devices configured for a PRI ISDN protocol. These devices correspond to the B-channel devices on each PRI ISDN trunk line. Each B-channel device is presented with the following information:

- ISDN protocol
- B-channel status (not supported for DM3)

4.6.2.4 R4 MSI Device Table

The R4 MSI Device Table contains only indices and rows from the Device Table that describe MSI station channel devices. Each channel device is presented with station line status information.

4.6.2.5 SRL Application Table

The SRL Application Table is an independent table. Each row in this table corresponds to an active application, which use the R4 API. The SRL Application Table contains the following information for each application:

- application name
- number of open handles
- number of closed handles
- SRL event queue size
- number of SRL events currently queued
- maximum number of SRL events ever on the queue
- total number of SRL events since the agent started monitoring each application
- number of SRL callback handlers registered by each application

Glossary

API: Application Programming Interface. A set of ready-to-use functions that provide the basis for a method of programming a user application.

Board: ABoard is a physical board installed in the system (typically the managed node). A board may be made up of one or more devices, but each one of those devices shall have the same Board ID.

Community: An entity that contains one agent and one or more managers, and is named by the string of octets.

Device: A device is whatever the MIB Module creators choose it to be. It can be a board, or it can be a channel. That is up to the MIB Module. The Dialogic Agent is not concerned with what a device is.

Enterprise: Area for delegation of subtrees to other organizations.

Managed Node: The system that is being remotely monitored and has SNMP agents installed.

Management Station: (also called management node): The system that has the manager (management application) installed.

Manager: The management application which monitors and/or administers a remote system, such as HP OpenView Network Node Manager or MG-SOFT MIB Browser.

Master Agent: The primary interface between the network manager and the subagents. The master agent acts as a request scheduler and dispatcher for all subscribed subagents. The subagents send traps to the master agent, which are then forwarded to the manager.

MIB: Management Information Base. Specification containing definitions of management information so that networked systems can be remotely monitored, configured and controlled.

NMS: Network Management Station. A dedicated workstation that gathers and stores network performance data. The NMS gets the data from network nodes (computers) running network agent software that enables them to collect the data.

OID: Object Identifier. SNMP uses an identification scheme found in ASN.1 to uniquely identify items used throughout SNMP. A identifier in this scheme is called an object identifier.

SNMP: Simple Network Management Protocol. A simple protocol which uses either UDP, TCP/IP, or IPX (depending on the operating system) to transmit messages between a manager and an agent to perform network management.

SNMP Agent: This SNMP subagent supports the Management Information Base (MIB) module and provides manageability to various Intel Dialogic applications or components within a system. The subagents interact with the Master Agent using SNMP.

SNMP Master Agent: Acts as a relay/multiplexor in its communication with subagents, and also as an agent in servicing requests from SNMP managers.

Trap: An event that is sent by the agent asynchronously. However, the manager does have control over whether traps are sent or not.

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