SNMP Agent Software for Intel NetStructure® Host Media Processing Software for Linux Operating Systems

Administration Guide

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Intel Converged Communications, Inc.
1515 Route 10
Parsippany, NJ 07054

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Revision History

This revision history summarizes the changes made in each published version of this document.

Document No.	Publication Date	Description of Revisions
05-2355-003	September 2005	Global: Branding and editorial changes. Required NetSNMP Updates: Removed “Update 1” since Update 1 is not the only update supported. Refer to the Release Guide. Added NetSNMP 5.0.10. Monitoring for Errors and Lost Messages: Removed this chapter. DM3 Extended Platform MIB Module Reference: Indicated that the dlgDm3ExtProcTable is not relevant to HMP and revised Guidelines accordingly. R4 Resource MIB Module Reference: Rewrote as needed to indicate that HMP only supports Dxxx (voice, fax).
05-2355-002	June 2005	Global: Branding and minor editorial changes.
05-2355-001	September 2004	Initial version of document.Much of the information contained in this document was previously published in the *SNMP Agent Software for Linux Operating Systems Administration Guide*, document number 05-1835-001.

About This Publication

The following topics provide information about this publication:

- Purpose
- Intended Audience
- How to Use This Publication
- Related Information

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 Linux over an IP network.

Intended Audience

This publication is intended for:

- System Integrators
- Toolkit Developers
- Independent Software Vendors (ISVs)
- Original Equipment Manufacturers (OEMs)

How to Use This Publication

To use this publication, look up the task you want to perform in the Contents or Chapter 1, "Administration Overview" or below and click on the link to go to that chapter:

- Chapter 3, "Stopping and Restarting the System"
- Chapter 4, "Resolving an Application Failure"

If you want to know more about a particular MIB, refer to the reference chapter that describes it:

- Chapter 5, "Hardware Information MIB Module Reference"
- Chapter 6, "DM3 Extended Platform MIB Module Reference"
- Chapter 7, "R4 Resource MIB Module Reference"

System requirements are provided in Chapter 2, "System Requirements". This document also contains a preface (this chapter), a Glossary, and an Index.

Note: All parts of all MIBs will be listed in the MIB descriptions, but some are not relevant to HMP. A statement to this effect will appear in the description of the irrelevant item.

Related Information

The following documents and web sites provide more information:

- *Intel NetStructure Host Media Processing Software for Linux Installation Guide* - This document describes how to install the HMP Software.
- *Intel NetStructure Host Media Processing Software for Linux License Manager Administration Guide* - This publication describes how to perform the various tasks related to obtaining, activating, and otherwise working with HMP Software license files and also how to manually stop and start HMP services.
- *Intel NetStructure Host Media Processing Software for Linux Release Guide* - This document provides information about the release such as product features, system requirements, and user documentation.
- *Intel NetStructure Host Media Processing Software for Linux Release Update* - This document addresses release issues such as known problems and documentation updates.
- For technical support, go to *http://developer.intel.com/design/telecom/support/*.
- For information about Intel NetStructure Host Media Processing products, go to *http://www.intel.com/design/network/products/telecom/software/index.htm#hmp*
- For information about Intel® telecom products, go to *http://www.intel.com/design/network/products/telecom/index.htm*.

Administration Overview 1

This chapter lists the administration tasks that can be performed using the SNMP agent software with the Intel NetStructure® Host Media Processing (HMP) software for Linux, and lists the MIBs that can be used with this software.

- Common Administration Tasks 11
- Administration Tools 12

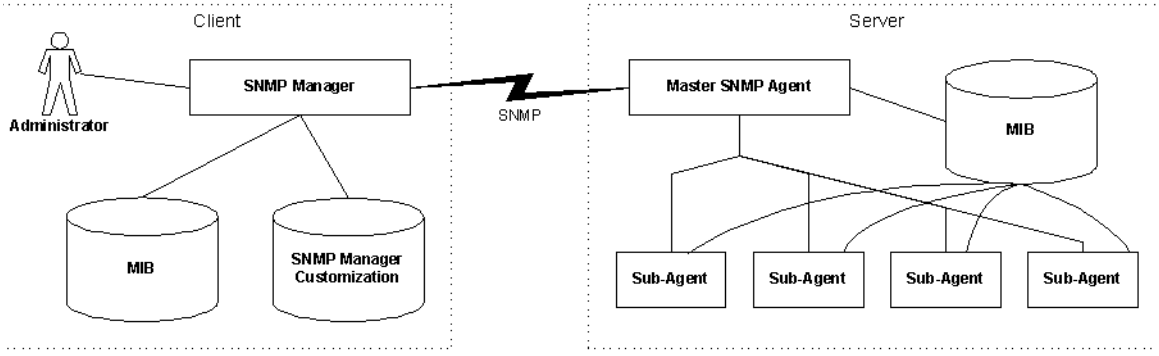
1.1 Common Administration Tasks

This section describes administration tasks you can perform using SNMP with the HMPsoftware.

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.

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. Refer to the Glossary and Figure 1 for more information about SNMP architecture and the components that comprise it.

Figure 1. General SNMP Architecture



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

Monitoring for Errors and Lost Messages

Errors and lost messages are important indicators of a telephony application's stability. This chapter describes how to monitor for errors and lost messages.
and Intel NetStructure boards using the Hardware Information MIB.

Resolving an Application Failure
: If a telephony application fails, the remote monitoring and control facilities provided by the SNMP agent can help you to resolve the problem. This chapter describes how to resolve an application failure.

Stopping and Restarting the System
: This chapter provides information on using the dlgHiIdentServiceStatus OID in the *dlghwinf.mib* MIB to stop and restart (reset) the system.

1.2 Administration Tools

This section defines MIBs and lists the MIBs supported for this HMP for Linux.

A MIB (Management Information Base) is a specification containing definitions of management information so that networked systems can be remotely monitored, configured and controlled.

A MIB 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 as well as how each value will be identified, encoded, and 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 OID, read-write OID, and traps.

MIBs can be either private (enterprise) MIBs or standard MIBs. SNMP agent software currently supports mostly private MIBs. The SNMP agent software supports the following MIB modules: Hardware Information MIB Module, DM3 Extended Platform MIB Module, R4 Resource MIB Module.

For a definition of terms related to MIBs and SNMP, refer to the Glossary. For an illustration of SNMP architecture, refer to Figure 1, “General SNMP Architecture”, on page 11.

This document provides a reference chapter describing each MIB that is relevant to HMP software for Linux.

Notes: ***1.*** Throughout the reference chapters, “HMP software resources” can be considered synonymous with “boards.”

2. All parts of all MIBs will be listed in the MIB descriptions, but some are not relevant to HMP. A statement to this effect will appear in the description of the irrelevant item.

The following MIBs are used with the HMP for Linux software Release:

DM3 Extended Platform MIB Module Reference
: The proprietary Dm3ExtPlatform MIB module is an 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.

Hardware Information MIB Module Reference
: The Hardware Information module provides a board inventory table and general parameters regarding the HMP system services. This module permits the monitoring of HMP software resource status changes and provides status change notification using SNMP traps.

R4 Resource MIB Module Reference

The proprietary R4 Device Information MIB provides configuration and status information for devices using the R4 API on DM3 architecture on a managed node.

System Requirements 2

This chapter lists the hardware and software requirements for using the SNMP agent with Intel NetStructure® Host Media Processing (HMP) Software for Linux.

- Required NetSNMP Updates 15
- Requirements for Managed Nodes 16
- Requirements for Management Stations 16

2.1 Required NetSNMP Updates

This section describes how to patch the NetSNMP 5.0.9 or 5.0.10 updates on Red Hat* Advanced Server 3.0.

Prerequisites

These instructions only work on Red Hat Advanced Server 3.0 with the following NetSNMP RPMs installed:

- net-snmp-devel-5.0.9-2.30E.1 or net-snmp-devel-5.0.10
- net-snmp-5.0.9-2.30E.1 or net-snmp-5.0.10
- net-snmp-utils-5.0.9-2.30E.1 or net-snmp-utils-5.0.10

Instructions

To install the required NetSNMP updates, follow this procedure:

1. Download the NetSNMP 5.0.10 source from *http://www.net-snmp.org*. (Download net-snmp-5.0.10.2.tar.gz.)
2. Extract the files from the compressed tar ball.
3. From the net-snmp-5.0.10 directory, run `./configure`. Answer all the questions with the default responses.
4. Edit the file: `net-snmp-5.0.10/include/net-snmp/net-snmp-config.h`
   a. Find the following code:
   ```
   /* Define if you have the dlopen function.  */
   /* #undef HAVE_DLOPEN */
   ```
   b. Change the above code to the following:
   ```
   /* Define if you have the dlopen function.  */
   #define HAVE_DLOPEN 1
   /* #undef HAVE_DLOPEN */
   ```

```
5.make
```

6. The new files required to patch the system are in
   `net-snmp-5.0.10/agent/.libs/`
7. Copy all the files in this directory except *snmpd* to
   `/usr/lib`
8. Copy *snmpd* to
   `/usr/sbin`

2.2 Requirements for Managed Nodes

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

- A version of the Linux operating system supported by the HMP software release. Refer to the Software Installation Guide for instructions.
- Net-SNMP Version 5.0.9 or 5.0.10 must be installed on the managed node(s).
- An HMP software release for Linux. Refer to Assumptions and Prerequisites in the Software Installation Guide for the HMP release and ensure that all prerequisites for installing the HMP software release have been met. When installing the HMP software, select SNMP Component Manager from the install menu. Refer to the Software Installation Guide for complete instructions.
- The hardware requirements for the SNMP agent software are the same as for the HMP software release for Linux operating systems. See the Release Guide.

2.3 Requirements for Management Stations

To use the SNMP agent software with management stations, the following software is required:

- third-party manager such as HP OpenView*
- MIBs.

Stopping and Restarting the System 3

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

Note: For information about starting the HMP system for the first time, refer to the *Intel NetStructure Host Media Processing Software for Linux Software Installation Guide*. For information about stopping and restarting the HMP system, refer to the *Intel NetStructure Host Media Processing Software for Linux License Manager Administration Guide.*

- Preparations and Requirements 17
- Stopping and Restarting the System 18

3.1 Preparations and Requirements

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

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

  For information about stopping and restarting the HMP services, refer to the *Intel NetStructure Host Media Processing Software for Linux License Manager Administration Guide*.
- Compile the MIBs (not always required): The MIBs are installed when you install the HMP Software. However, 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.

3.2 Stopping and Restarting the System

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

1. Re-route incoming call 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 HMP software resources using the dlgHiIdentServiceStatus OID in the *dlghwinf.mib* MIB.
4. Restart the telephony applications.
5. Re-route incoming call 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 disabling it.

Resolving an Application Failure 4

This chapter describes how to resolve an application failure.

If a telephony application fails, the remote monitoring and control facilities provided by the SNMP agent can help you to resolve the problem.

Before you can perform the task described in this chapter, you must do the following:

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

  For information about stopping and restarting the HMP services, refer to the *Intel NetStructure Host Media Processing Software for Linux License Manager Administration Guide*.
- Compile the MIBs (not always required): The MIBs are installed when you install the HMP Software. However, 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.

When an application fails, take the following diagnostic steps:

1. Verify that all the HMP resources are still running.

   The dlgHiIdentServiceStatus OID in the Hardware MIB Module (*dlghwinf.mib*) MIB indicates the current status of the HMP resources.

   If the HMP resources are running, proceed to the next step. If the HMP resources are not running, restart them using the dlgHiIdentServiceStatus OID.

2. Verify that the HMP resources used by the application are still running.

   The dlgHiIdentOperStatus OID in the Hardware Information MIB Module (*dlghwinf.mib*) MIB indicates the HMP resources' current status. The possible values for this OID are *OK*, *Failed*, *Degraded*, and *Other*.

   If the HMP resources are not running, reset the system; for instructions, see Chapter 3, "Stopping and Restarting the System".

Hardware Information MIB Module Reference 5

This section describes the Hardware Information (HWINF) MIB Module. The following information is provided:

- Description. 21
- Guidelines 21
- MIB Revision Group (dlgHiMibRev) 22
- OS Common Group (dlgHiOsCommon). 22
- Board Identification Group (dlgHiIdent). 22

Notes: ***1.*** Throughout this chapter, "HMP software resources" can be considered synonymous with "boards."

2. All parts of all MIBs will be listed in the MIB descriptions, but some are not relevant to HMP. A statement to this effect will appear in the description of the irrelevant item.

5.1 Description

The Hardware Information module provides a board inventory table and general parameters regarding the Intel NetStructure® Host Media Processing (HMP) Software for Linux system services. This module permits the monitoring of HMP resource status changes and provides 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)

5.2 Guidelines

You can use the Hardware Information MIB to monitor the status of HMP software resources.

5.3 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.
- minor revision number (dlgHiMibRevMinor): Indicates the minor revision of the HWINF MIB module.
- 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.

5.4 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. Reading this object always returns '0' as result.

5.5 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:

5.5.1 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.
- *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.

5.5.2 Board Identification Table Size (dlgHiIdentNumberOfDevices)

This scalar object is type INTEGER and returns the number of 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.

5.5.3 Service Status Object

This scalar object (dlgHiIdentServiceStatus) is used to control the entire HMP system software runtime 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 runtime state of the HMP system software. When the manager sets the value to *started*, the HMP system software will start and initialize. All configured boards will be downloaded. When the manager sets the value to *stopped*, the HMP system software will be stopped and unloaded.

5.5.4 Service Change Date

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

5.5.5 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.

5.5.6 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).

DM3 Extended Platform MIB Module Reference 6

This chapter provides the following information about the DM3 Extended Platform MIB Module:

- Description. 27
- Guidelines 27

Notes: ***1.*** Throughout this chapter, “HMP software resources” can be considered synonymous with “boards.”

2. All parts of all MIBs will be listed in the MIB descriptions, but some are not relevant to HMP. A statement to this effect will appear in the description of the irrelevant item.

6.1 Description

The proprietary Dm3ExtPlatform MIB module is an 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 these 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 - Not relevant to HMP.
- dlgDm3ExtProcTable - Not relevant to HMP.

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

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

6.2 Guidelines

This section provides some guidelines for using the DM3 Extended Platform MIB.

The DM3 Extended Platform MIB is used to collect configuration information from a managed node regarding Intel NetStructure boards on the DM3 architecture.

R4 Resource MIB Module Reference 7

This chapter provides the following information about the R4 Resource MIB Module.

- Description. 29
- Table Descriptions 30

Notes: ***1.*** Throughout this chapter, “HMP software resources” can be considered synonymous with “devices” or “boards.”

2. All parts of all MIBs will be listed in the MIB descriptions, but some are not relevant to HMP. A statement to this effect will appear in the description of the irrelevant item.

7.1 Description

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 the current release, the devices using the R4 API on DM3 architecture that are included in this table are the voice resource channel devices (dxxxBaCb).

Note: The following devices do not apply to HMP: 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 (in the case of HMP, dxxx only)
- 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 (for HMP, this would be a Soft CT-Bus)
- receive timeslot- the CT bus slot the device is configured to read information from (for HMP, this would be a Soft CT-bus)

Additional tables extend information provided in the Device Table for each specific device type (dxxx, dti, PRI ISDN, and MSI). Since only dxxx is relevant to HMP, the only relevant additional table is the one called dlgR4VoiceTable.

7.2 Table Descriptions

This section provides information about the following tables:

- R4 Voice Device Table
- SRL Application Table

7.2.1 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
- voice line status
- number of digits
- EEPROM features

7.2.2 R4 DTI Device Table

Not relevant to HMP.

7.2.3 R4 ISDN Device Table

Not relevant to HMP.

7.2.4 R4 MSI Device Table

Not relevant to HMP.

7.2.5 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. 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.

Management Node: See Management Station.

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.

A MIB 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 as well as how each value will be identified, encoded, and 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 OID, read-write OID, and traps.

MIBs can be either private (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

Network Management Station (NMS): The system that has the SNMP manager installed. It is 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.The NMS 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.

NMS: Network Management Station.

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. See also MIB, trap, read-only OID, and read-write OID.

Read-only OID: This type defines the information that the network management station can read from the managed node. See also OID and MIB.

Read-write OID: This type defines the system configuration settings on the managed node that can be modified by the network management station.

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 NetStructure® Host Media Processing (HMP) applications or components within a system. The subagents interact with the Master Agent using SNMP.

SNMP Manager: The SNMP manager is the management application that monitors and/or administers a remote system. The SNMP manager receives and displays traps, sends SNMP "gets" and "sets" to the SNMP agent, and 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.

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: A type of OID. This OID type defines the information that the managed node sends to the network management station under specified conditions. A trap is an unsolicited event that is sent asynchronously by the agent to a manager. However, the manager does have control over whether traps are sent or not. 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. See also OID and MIB.

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