

# Bull

## **SNMP Agent for HiSpeed Adapters Administrator & User Guide**

AIX

ORDER REFERENCE  
**86 A2 73AT 02**



# Bull

## **SNMP Agent for HiSpeed Adapters Administrator & User Guide**

AIX

---

**Software**

October 1997

**BULL ELECTRONICS EUROPE S.A.**  
Service CEDOC  
331 Avenue PATTON – BP 428  
49004 ANGERS CEDEX 01  
FRANCE

ORDER REFERENCE  
**86 A2 73AT 02**

The following copyright notice protects this book under the Copyright laws of the United States and other countries which prohibit such actions as, but not limited to, copying, distributing, modifying, and making derivative works.

Copyright © Bull S.A. 1992, 1997

Printed in France

Suggestions and criticisms concerning the form, content, and presentation of this book are invited. A form is provided at the end of this book for this purpose.

To order additional copies of this book or other Bull Technical Publications, you are invited to use the Ordering Form also provided at the end of this book.

### **Trademarks and Acknowledgements**

We acknowledge the right of proprietors of trademarks mentioned in this book.

AIX<sup>®</sup> is a registered trademark of International Business Machines Corporation, and is being used under licence.

UNIX is a registered trademark in the USA and other countries licensed exclusively through X/Open.

---

# About this Book

## Who Should Use this Book

This guide is intended for:

- systems administrators who install, configure and maintain SNMP Agent for HiSpeed Adapters,
- network administrators who monitor and configure the HiSpeed WAN Comm. adapters, directly from the system or from a remote manager workstation, such as ISM (Integrated System Manager),
- programmers who have to program a network manager application.

## Before you Begin

Working knowledge of AIX communications concepts is assumed, in particular working knowledge of SNMP (Simple Network Management Protocol).

The **SNMP Agent for HiSpeed Adapters** is based on **SNMP v1**.

The software package is in fact made up of two components:

1. a HiSpeed WAN Comm. subagent, specific extension of the AIX-standard SNMP agent,
2. a browser which is an SNMP manager for HiSpeed WAN Comm. adapters.

The SNMP Agent for HiSpeed Adapters manages one or more HiSpeed WAN Comm. adapters through SNMP, irrespective of the communications stack used for adapter access: TCP/IP, OSI Stack or any other stack.

### **Warning:**

As both SNMP Agent for HiSpeed Adapters and SNMP Agent for COPRO/2 manage the same attributes through RFC 1381/1382 MIB, only one of them can be installed and run on a system.

## Operating System and Hardware

This document is at Revision 02 level, which applies to AIX Version 4.1 running on DPX/20 and ESCALA.

## How to Use this Book

### Overview of Contents

**Chapter 1 Cookbook** describes briefly the SNMP Agent for HiSpeed Adapters functions and provides procedures specific to each type of user.

**Chapter 2 SMIT Interface** describes how to manage the SNMP Agent for HiSpeed Adapters and how to access the MIB through the browser.

**Chapter 3 Commands (x25ag)**

**Chapter 4 File Formats (trace file)**

**Appendix A MIB Support** describes the HiSpeed Adapters-specific MIB tables and lists the objects supported by the SNMP Agent for HiSpeed Adapters in the MIB tables for RFC 1381/1382.

**Glossary**

**Index**

## Related Publications

- *AIX System Management Guide: Communications and Networks*  
Reference: 86 A2 54AP  
Chapter **Network Management**
- *AIX Communications Programming Concepts*  
Reference: 86 A2 70AP  
Chapter **Network Management**
- *AIX General Programming Concepts : Writing and Debugging Programs*  
Reference: 86 A2 65AP  
Chapter **System Resource Controller**
- *HiSpeed WAN Comm. Installation and Service Guide*  
Reference: 86 A1 81WG

### Internet Standards

- RFC 1155**      Structure and Identification of Management Information for TCP/IP-based Internets  
K.McCloghrie, M.Rose, May 1990
- RFC 1157**      Simple Network Management Protocol (SNMP)  
J.Case, M.Fedor, M.Schoffstall, C.Davin, May 1990
- RFC 1213 MIB-II**  
Management Information Base for Network Management of TCP/IP-based Internets: MIB-II  
K.McCloghrie, M.Rose, March 1991
- RFC 1227**      SMUX protocol for extending base SNMP agents  
M.Rose, May 1991
- RFC 1381**      SNMP MIB Extensions for X.25 LAPB  
D.Throop, F.Bafer, November 1992
- RFC 1382**      SNMP MIB Extensions for the X.25 Packet layer  
D.Throop, F.Bafer, November 1992

## Revision 02 Modifications

Updates include:

- 'send of SNMP traps' new parameter (SMIT and x25ag command)

---

# Table of Contents

<b>Chapter 1. Cookbook</b> .....	<b>1-1</b>
Overview .....	1-2
Definitions .....	1-2
Environment and Architecture .....	1-3
Compliance and Additions .....	1-4
Objectives .....	1-4
User Profiles .....	1-5
MIB Overview .....	1-6
HiSpeed Adapters-specific MIB .....	1-6
RFC 1381/1382 MIB .....	1-7
RFC1381: Link Layer (LAPB) .....	1-7
RFC1382: Packet Layer (PLE) .....	1-7
System Administrator Tasks .....	1-8
How to Install the Agent .....	1-8
How to Start and Stop the Agent .....	1-9
Starting the Agent .....	1-9
Stopping the Agent .....	1-9
SNMP Agent for HiSpeed Adapters and AIX-Standard SNMP Agent Status ..	1-9
How to Get the Agent Status .....	1-9
Network Administrator Tasks .....	1-10
Access Policies and Communities .....	1-10
Availability of MIB Tables .....	1-10
How to Access the MIB .....	1-10
What to Do through SNMP Agent for HiSpeed Adapters-MIB .....	1-11
How to Configure HiSpeed WAN Comm. Adapters .....	1-12
How to Use Traces .....	1-12
Programmer Tasks .....	1-13
How to Match	
HiSpeed WAN Comm. Line Number and Instance Number .....	1-14
SNMP Instance Numbering .....	1-14
<b>Chapter 2. SMIT Interface</b> .....	<b>2-1</b>
Using the SMIT Interface .....	2-1
How to Control the SNMP Agent for HiSpeed Adapters .....	2-3
Start the Agent .....	2-4
Refresh the Agent .....	2-5
Stop the Agent .....	2-5
Show the Agent Status .....	2-5
How to Use the SNMP Agent for HiSpeed Adapters Browser .....	2-7
Access .....	2-7
Description .....	2-7
Change/Show the Target Agent .....	2-8
Change/Show Configuration Information Tables .....	2-9
HiSpeed WAN Comm. Specific Tables .....	2-9
RFC 1381/1382 Tables .....	2-9
Show Operational Information Tables .....	2-10
RFC 1381/1382 Tables .....	2-10
Show Statistics Information Tables .....	2-11
HiSpeed WAN Comm. Specific Tables .....	2-11
RFC 1381/1382 Tables .....	2-11

<b>Chapter 3. Commands</b> .....	<b>3-1</b>
x25ag Command .....	3-2
<b>Chapter 4. File Formats</b> .....	<b>4-1</b>
Trace File .....	4-2
<b>Appendix A. MIB Support</b> .....	<b>A-1</b>
HiSpeed Adapters-specific MIB Tables .....	A-2
HiSpeed Adapters-specific MIB Tree .....	A-2
List of HiSpeed Adapters-specific MIB Tables .....	A-3
Access to HiSpeed Adapters-specific MIB .....	A-4
— hswaBoardsTable: HiSpeed WAN Comm. Adapters Table .....	A-5
— hswaPhysicalAdmnTable: X.25 Physical Parameters Table .....	A-10
— hswaFrameAdmnTable: X.25 Frame Parameters Table .....	A-12
— hswaNetAdmnTable: X.25 Network Parameters Table .....	A-15
— hswaCallAdmnTable: X.25 Call Parameters Table .....	A-27
— hswaMACStatTable: MAC Statistics Table .....	A-30
— hswaLAPBStatTable: LAPB Statistics Table .....	A-34
— hswaX25StatTable: PLE Statistics Table .....	A-40
MIB Tables for RFC 1381 /1382 .....	A-47
RFC 1381 .....	A-47
lapbAdmnTable .....	A-47
lapbOperTable .....	A-47
lapbFlowTable .....	A-48
lapbXidTable .....	A-48
RFC 1382 .....	A-49
x25AdmnTable .....	A-49
x25OperTable .....	A-49
x25StatTable .....	A-50
x25ChannelTable .....	A-51
x25CircuitTable .....	A-51
x25ClearedCircuitEntriesRequested .....	A-52
x25ClearedCircuitEntriesGranted .....	A-52
x25ClearedCircuitTable .....	A-52
x25CallParmTable .....	A-52
<b>Glossary</b> .....	<b>G-1</b>
<b>Index</b> .....	<b>X-1</b>



---

# Chapter 1. Cookbook

- Overview: Concepts and Functionalities, on page 1-2,
- MIB Overview, on page 1-6,
- System Administrator Tasks, on page 1-8,
- Network Administrator Tasks, on page 1-10,
- Programmer Tasks, on page 1-13,
- How to Match HiSpeed WAN Comm. Line Number and Instance Number, on page 1-14.

---

# Overview

## Definitions

### SNMP

The Simple Network Management Protocol (**SNMP**) is an interworking protocol designed for use with TCP/IP-based networks.

### SNMP Network Management

Based on the client/server model, widely used in network applications.

Each host to be managed, runs a server application called an **agent**.

The host, designed to manage the network, runs a client application called a **manager**.

### MIB

The Management Information Base (**MIB**) is a database containing the information pertinent to network management.

The database is conceptually organized as a tree, the common part is known as MIB-II (defined in RFC 1213) and each branch or MIB module refers to a function to be managed.

### SNMP Agent

An SNMP Agent is a server application that maintains the Management Information Base (MIB) database for the host to be managed.

There exist:

- an AIX-standard SNMP agent which implements the MIB-II, MIBs specific to token-ring, Ethernet and FFDI devices, and the SMUX multiplexer.
- SNMP subagents, such as the HiSpeed WAN Comm. subagent, which implement MIB modules specific to functions to be managed and are activated by the SMUX multiplexer.

### SNMP Agent for HiSpeed Adapters

The SNMP Agent for HiSpeed Adapters package is made up of two components:

1. The HiSpeed WAN Comm. subagent, developed to manage hosts accessed using HiSpeed WAN Comm. adapters.  
It supports the HiSpeed Adapters-specific MIB modules and the RFC 1381/1382 MIB modules.
2. A browser which is an SNMP manager for HiSpeed WAN Comm. adapters.

### SNMP Manager

The SNMP Manager is the client application that generates towards the SNMP agent, requests for MIB information and processes responses. It can, as well, send requests to an SNMP agent to modify the corresponding MIB.

**ISM** (Integrated System Management) is an existing SNMP Manager, but other SNMP managers may be used.

### Community

Associated with an SNMP Agent, it defines the possible accesses to its MIB:

- type of access (not-accessible, read-only, write-only) on a part of the MIB (MIB view),
- by which hosts (SNMP manager).

More than one community may be associated to an SNMP Agent.

## Environment and Architecture

The SNMP Agent for HiSpeed Adapters is a subagent of the AIX-standard SNMP agent (*snmpd*). It runs as a separate daemon process (*x25agd*), that interacts with the *snmpd* daemon through the SMUX interface.

SMUX is a protocol defined by RFC 1227.

According to the MIB module specified in the management operations to be performed, SMUX routes these operations from the standard SNMP agent (*snmpd*) to the corresponding subagent which executes them.

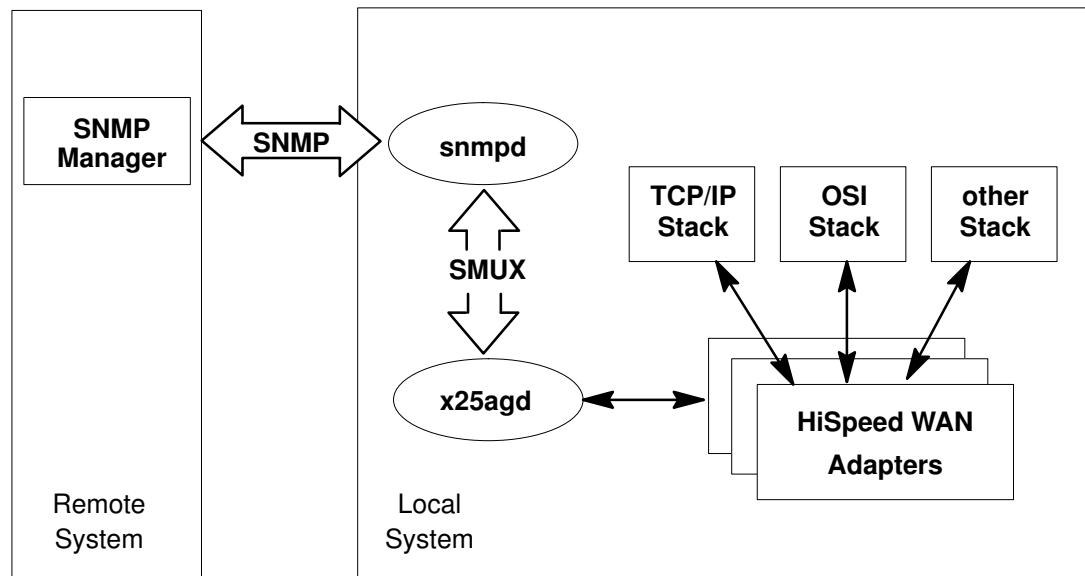


Figure 1. SNMP Agent for HiSpeed Adapters Architecture

*snmpd* receives requests from SNMP managers and dispatches them to the SNMP Agent for HiSpeed Adapters (*x25agd*) when the accessed MIB is HiSpeed Adapters-specific MIB or RFC 1381/1382 MIB.

The SNMP Agent for HiSpeed Adapters performs the request by accessing the HiSpeed WAN Comm. management information, then returns a response to *snmpd* through the SMUX interface. The response is then forwarded to the manager.

From the SNMP manager's point of view, there is a single SNMP Agent.

Refer to chapters **Network Management** in *AIX System Management Guide: Communications and Networks* and in *AIX Communications Programming Concepts* for more information about AIX MIB-II.

# Compliance and Additions

The SNMP Agent for HiSpeed Adapters supports:

1. Management Information Base (MIB) modules specific to HiSpeed WAN Comm. that enable remote management (configuration and monitoring) of HiSpeed WAN Comm. adapters. Refer to Appendix A., HiSpeed Adapters-specific MIB Tables for a complete description.
2. a subset of the Management Information Base (MIB) defined by the Internet Activity Board (IAB) standards, RFC 1381 and RFC 1382. MIB Tables for RFC 1381/1382 in Appendix A. lists which objects are supported by the SNMP Agent for HiSpeed Adapters.

These two MIBs, HiSpeed WAN Comm.-specific and RFC 1381/1382, contain redundant and always consistent information. Users can access either HiSpeed Adapters-specific MIB or RFC 1381/1382 MIB according to their needs:

- use of HiSpeed Adapters-specific MIB to take full advantage of the HiSpeed WAN Comm. adapters,
- use of RFC 1381/1382 MIB to use existing SNMP managers or develop a new SNMP manager application, if this manager is to access either HiSpeed WAN Comm. adapters or other X.25 adapters.

**Warning:** Some parameters and functions are not taken into account in RFC 1381/1382:

- management of physical layer parameters,
- loading and unloading of configuration parameters in HiSpeed WAN Comm. adapter,
- global information about a HiSpeed WAN Comm. adapter.

## Objectives

### Standard Functionalities

The SNMP Agent for HiSpeed Adapters provides an SNMP manager, running managements operations (GET and SET) on the MIB, with functionalities to perform:

- remote monitoring of the HiSpeed WAN Comm. lines at the Packet layer (PLE), Link layer (LAPB) and Physical layer (MAC),
- remote definition of configuration parameters for HiSpeed WAN Comm. lines and permanent virtual circuits (PVCs),
- remote loading of previously defined parameters into the HiSpeed WAN Comm. adapters.

This management can be performed:

- in a complete way, accessing the HiSpeed Adapters-specific MIB,
- or in a standard but not complete way, i.e. compliant with RFC 1381 and RFC 1382 accessing the RFC 1381/1382 MIB (in particular, physical layer parameters and configuration loading are not managed).

### An Enhanced Functionality: the Browser

The SNMP Agent for HiSpeed Adapters provides a browser which may be seen as an SNMP manager for HiSpeed WAN Comm. adapters.

Through the SMIT interface, the browser provides direct MIB-access to the user to:

- read the current object values in the statistics tables (monitoring),
- read/write the object values of the configuration tables (configuring).

The HiSpeed WAN Comm. browser can perform management operations either on the local system or on a remote system equipped with an SNMP Agent for HiSpeed Adapters.

The browser is an easy-to-use interface, which provides the network administrator with the same interface when configuring local or remote HiSpeed WAN Comm. adapters.

## User Profiles

The SNMP Agent for HiSpeed Adapters addresses the following users:

- system administrator, responsible for the system in which the HiSpeed WAN Comm. adapters are running. He installs and maintains SNMP Agent for HiSpeed Adapters,
- network administrator, responsible for networked systems. He configures and monitors systems from a manager workstation,
- application programmer. He develops manager applications based on the SNMP protocol.

---

## MIB Overview

This section lists the MIB tables supported by the SNMP Agent for HiSpeed Adapters, with a brief description for each table.

### Notes:

1. HiSpeed Adapters-specific MIB Tables in Appendix A. provides a complete description of these MIB tables.
2. MIB Tables for RFC 1381/1382 in Appendix A. lists all the objects defined in RFC 1381/1382 and their support by the SNMP Agent for HiSpeed Adapters: supported or not, accessibility.

## HiSpeed Adapters-specific MIB

### **hswaBoardsTable**

Global information about a HiSpeed WAN Comm. adapter. (read-only, except for the attribute set to activate loading of the adapter)

### **hswaPhysicalAdmnTable**

Physical layer configuration parameters to be taken into account at the next loading of the HiSpeed WAN Comm. interface (read-write).

### **hswaFrameAdmnTable**

Frame layer configuration parameters to be taken into account at the next loading of the HiSpeed WAN Comm. interface (read-write).

### **hswaNetworkAdmnTable**

Network layer configuration parameters to be taken into account at the next loading of the HiSpeed WAN Comm. interface (read-write).

### **hswaCallAdmnTable**

X.25 call parameters to be taken into account at the next loading of the HiSpeed WAN Comm. interface (read-write).

### **hswaMACStatTable**

Physical layer statistical values of the HiSpeed WAN Comm. interface (read-only counters).

### **hswaLAPBStatTable**

LAPB statistical values to provide monitoring information about the traffic flow through the LAPB HiSpeed WAN Comm. interface (read-only).

### **hswaX25StatTable**

Packet layer statistical values to provide monitoring information about the HiSpeed WAN Comm. interface (read-only counters of events that occurred at the interface).

# RFC 1381/1382 MIB

## RFC1381: Link Layer (LAPB)

### **lapbAdmnTable**

LAPB configuration parameters to be taken into account at the next loading of the X.25 interface (read-write).

### **lapbOperTable**

LAPB configuration parameters currently in use on the X.25 interface (read-only).

### **lapbFlowTable**

LAPB statistical values to provide monitoring information about the traffic flow through the LAPB interface (read-only).

## RFC1382: Packet Layer (PLE)

### **x25AdmnTable**

Packet layer (PLE) configuration parameters to be taken into account at the next loading of the X.25 interface (read-write).

### **x25OperTable**

Packet layer (PLE) configuration parameters currently in use on the X.25 interface (read-only).

### **x25ChannelTable**

Channel number configuration parameters to be taken into account at the next loading of the X.25 interface (read-write).

### **x25CircuitTable**

Information resulting from calls on existing circuits, PVCs only (read-only).

### **x25CallParmTable**

Default PLE parameters (X.25 calls and X.25 facilities). This table is unique in the system and is referenced by other tables to get default PLE parameters.

### **x25StatTable**

Packet layer statistical values to provide monitoring information about the X.25 interface (read-only counters of events that occurred at the interface).

---

# System Administrator Tasks

The system administrator is responsible for the system. He installs the SNMP Agent for HiSpeed Adapters, runs it and stops it.

## How to Install the Agent

- The software installation needs **root** authority.
- Check in the SRB (Software Release Bulletin) provided with the **bullx25.adm** LPP, that your system conforms to the hardware requirements (disk and memory space).
- The **Bullx25.adm** LPP is installed using the standard software installation procedure. Refer to the booklet provided with the Communications Software CD-ROM for more information about installation of the current release.

## Prerequisites

The **bullx25.board** and **bos.net.tcp** packages are prerequisites to the SNMP Agent for HiSpeed Adapters installation.

## Licensing

Version 2.3.5 and later of this product no longer uses license keys. The license is checked by the **Bullx25.board** LPP. This means that as soon as the license is obtained for the **Bullx25.board**, the **X25 SNMP Agent (Bullx25.adm LPP)** can be used with all its functionalities. Otherwise, only some attributes of the agent MIBs are visible.

## After the Installation

At the completion of the installation, the SNMP Agent for HiSpeed Adapters is ready to use, the following operations being automatically performed:

- addition of the following line to */etc/snmpd.peers*:  
    "x25ag"                  1.3.6.1.4.1.107.137          "x25ag-password"
- addition of the following line to */etc/snmpd.conf*:  
    smux                    1.3.6.1.4.1.107.137          x25ag\_password #x25ag
- creation of the file */etc/x25ag.defs*.  
    */etc/x25ag.defs* is the HiSpeed WAN Comm. extension of */etc/snmpd.defs*, it contains all the MIB-objects definitions supported by the SNMP Agent for HiSpeed Adapters
- addition of the following line to */etc/rc.tcpip*:  
    #start /usr/sbin/x25agd \$src\_running
- creation of the *x25ag* sub-system in the *System Resource Controller*  
    Refer to chapter **System Resource Controller** of *AIX General Programming Concepts : Writing and Debugging Programs* for more information.

**Note:** Further configuration (access policy) is not performed by the installation, but must be defined by the network administrator by means of community.

De-installation of the SNMP Agent for HiSpeed Adapters removes all these add-on. The de-installation standard procedure must be run after having stopped the SNMP Agent for HiSpeed Adapters.



## How to Start and Stop the Agent

### Starting the Agent

The SNMP Agent for HiSpeed Adapters starts automatically at system start-up, if the line

```
start /usr/sbin/x25agd $src_running
```

is active in the */etc/rc.tcpip* file.

If this line is a comment, the SNMP Agent for HiSpeed Adapters must be started using one of these possibilities:

- run the **x25ag start** command.
- use the SMIT interface:  
**smit x25ag**  
then select  
**Agent Daemon Control**  
**Start the Agent**  
If either **system restart** or **both**, is chosen in the SMIT menu, the SNMP Agent for HiSpeed Adapters will then starts automatically at system start-up.
- use the System Resource Controller; the SNMP Agent for HiSpeed Adapters is defined as **x25ag** sub-system. Refer to *AIX General Programming Concepts : Writing and Debugging Programs* chapter **System Resource Controller**.

### Stopping the Agent

Three possibilities:

- run the **x25ag stop** command.
- use the SMIT interface:  
**smit x25ag**  
then select  
**Agent Daemon Control**  
**Stop the Agent**
- use the System Resource Controller, the SNMP Agent for HiSpeed Adapters is defined as **x25ag** sub-system.

### SNMP Agent for HiSpeed Adapters and AIX-Standard SNMP Agent Status

- Starting the SNMP Agent for HiSpeed Adapters automatically starts the AIX-standard SNMP Agent (*snmpd*), if this one is not yet running.
- Stopping the SNMP Agent for HiSpeed Adapters has no effect on the AIX-standard SNMP Agent.
- Stopping the AIX-standard SNMP Agent implies the SNMP Agent for HiSpeed Adapters to be waiting until the AIX-standard SNMP Agent is running again.

### How to Get the Agent Status

To check whether the SNMP Agent for HiSpeed Adapters is currently running, two possibilities:

- run the **x25ag stat** command.  
If the verbose mode is used (*-v* option), the command displays a summary of the MIB.
- use the SMIT interface:  
**smit x25ag**  
then select  
**Agent Daemon Control**  
**Show the Agent Status**

---

## Network Administrator Tasks

The network administrator monitors and configures the HiSpeed WAN Comm. adapters from a manager workstation, local or remote, such as ISM.

So refer to the relevant documentation for access the manager workstation.

This section describes only the tasks to be performed locally on the SNMP Agent for HiSpeed Adapters.

## Access Policies and Communities

Installing the SNMP Agent for HiSpeed Adapters does not defines which SNMP manager can access its MIB variables (access policy); and it does not bring any restriction or constraint to the defined policies.

The access policy is performed by the *community* definitions in the file */etc/snmpd.conf*. Refer to *AIX System Management Guide: Communications and Networks*, Chapter **Network Management**, to get more information about **SNMP Access Policies**.

## Availability of MIB Tables

The MIB Tables are available, that is can be displayed (and modified according to the table type):

1. as soon as the SNMP Agent for HiSpeed Adapters is running, concerning the **Configuration Information Tables**,  
*hswaBoardsTable*, *hswaNetAdmnTable*, *hswaCallAdmnTable*, *hswaFrameAdmnTable* and *hswaPhysicalAdmnTable*  
*x25AdmnTable*, *x25ChannelTable*, *x25CircuitTable*, *x25CallParmTable* and *lapbAdmnTable*.
2. when the SNMP Agent for HiSpeed Adapters is running and the HiSpeed WAN Comm. adapter loaded,  
concerning the **Operational Information Tables**, *x25OperTable* and *lapbOperTable*,  
concerning the **Statistics Information Tables**,  
*hswaX25StatTable*, *hswaLAPBStatTable* and *hswaMACStatTable*.  
*x25StatTable* and *lapbFlowTable*

## How to Access the MIB

Before accessing the MIB tables, refer to

How to Match HiSpeed WAN Comm. Line Number and Instance Number, on page 1-14.

The MIB can be accessed using:

- the **snmpinfo** command, which is part of the standard SNMP Agent,  
If run with the options **-v -o /etc/x25ag.defs**, the **snmpinfo** command accepts and displays symbolic names instead of objects identifiers.

For instance to display the *hswaBoardsTable*, run the command:

```
snmpinfo -v -o /etc/x25ag.defs -m dump hswaBoardsTable
```

**Note:** When the Operating System package does not provide the **snmpinfo** command, the **bullx25.adm** package provides **hswax25aginfo** (same interface as snmpinfo).

such a message is then displayed:

```
hswaBoardName.1 = "fun0"  
hswaBoardStatus.1 = 4  
hswaBoardType.1 = 1  
hswaBoardLocation.1 = "00-03"  
hswaBoardBuffers.1 = 16920  
hswaBoardUsedBuffers.1 = 1024  
hswaBoardMaxUsedBuffers.1 = 1028  
hswaBoardQueueSize.1 = 150  
hswaBoardSendQueueMsg.1 = 1  
hswaBoardRcvQueueMsg.1 = 1  
hswaBoardTotalMsgSent.1 = 1549  
hswaBoardTotalMsgReceived.1 = 1482  
hswaBoardConfStatus.1 = 3
```

- the **browser**, through the SMIT interface:  
**smit x25ag**  
then select  
**Management Information Base (MIB) Browser**
  - Define first the the target agent, managing the MIB to be accessed,
  - Then choose the table to be read or modified.

The **browser** provides a more easy-to-use interface than the **snmpinfo** or **hswax25aginfo** command.

**Note:** If no *community* is defined, any write access is rejected.

## What to Do through SNMP Agent for HiSpeed Adapters-MIB

Using the **browser**:

- Choose **Change/Show Configuration Information Tables**  
to display and set the configuration parameters to be taken into account at the next loading of the X.25 interface:
  - either in a complete HiSpeed WAN Comm. way accessing the *hswaNetAdmnTable*, *hswaCallAdmnTable*, *hswaFrameAdmnTable* and *hswaPhysicalAdmnTable*.
  - or in a RFC 1381/1382 conformant way, accessing the *x25AdmnTable*, *x25ChannelTable*, *x25CircuitTable*, *x25CallParmTable* and *lapbAdmnTable*.
- Choose **Show Operational Information Tables**  
to get Packet layer (PLE) and LAPB configuration parameters currently in use on the X.25 interface, accessing the *x25OperTable* and *lapbOperTable*.
- Choose **Show Statistics Information Tables**  
to monitor the X.25 adapters:
  - either in a complete HiSpeed WAN Comm. way, retrieving the information from the *hswaX25StatTable*, *hswaLAPBStatTable* and *hswaMACStatTable*.
  - or in a RFC 1381/1382 conformant way, retrieving the information from the *x25StatTable* and *lapbFlowTable*,

## How to Configure HiSpeed WAN Comm. Adapters

Using the **browser**:

Choose **Change/Show Configuration Information Tables**

1. to set for each line to be configured, the configuration parameters accessing the *hswaNetAdmnTable*, *hswaCallAdmnTable*, *hswaFrameAdmnTable* and *hswaPhysicalAdmnTable*.
2. to load the HiSpeed WAN Comm. adapter accessing the *hswaBoardsTable*.

**Warning:** When loading a HiSpeed WAN Comm. adapter, all the lines supported by the adapter are loaded with the configuration parameters currently available in the Administration Tables, for instance the four lines are loaded if the adapter is a 4Port HiSpeed WAN Comm. adapter.

## How to Use Traces

The traces are set when starting or refreshing the SNMP Agent for HiSpeed Adapters, using either the **x25ag** command or the SMIT interface (**Agent Daemon Control**)

- running **x25ag start** or **x25ag refresh** command, with the options
  - **-t** *trace\_level* (more than one level, **trap**, **set**, **get**, **snmp** or **error** can be set),
  - **-f** *trace\_file* (to use a specific trace file, the file */var/tmp/x25ag.log* is used instead)
  - **-s** *trace\_size* (to define the trace file size in octets, the default value is 10000)
- using the SMIT Interface

```
smit x25ag
select
Agent Daemon Control
then
  Start the Agent
or
  Refresh the Agent
```

The *trace\_level*, *trace\_file* and *trace\_size* parameters can be set in the same manner as with the **x25ag** command.

The resulting trace file is described in **Trace File**, on page 4-2.

---

## Programmer Tasks

The application programmer develops manager applications based on the SNMP protocol, using the SNMP API supported by the manager workstation. So refer to the relevant documentation of the proper API.

The management application is developed using:

- either the HiSpeed Adapters-specific MIB  
Refer to HiSpeed Adapters-specific MIB Tables in Appendix A.
- or the RFC 1381/1382 MIBs  
Refer to MIB Tables for RFC 1381/1382 in Appendix A. to know which objects are supported by the SNMP Agent for HiSpeed Adapters

**Note:** The HiSpeed Adapters-specific MIB definition is available in  
`/usr/lpp/bullx25.adm/hswa_x25ag.mib`

The SNMP Agent for HiSpeed Adapters provides tools to help in testing this application:

- **traces**, which may be set or modified when starting or refreshing the SNMP Agent for HiSpeed Adapters.
- the **browser** to verify that the management operations requested by the application are correctly performed.  
The **snmpinfo** or **hswax25aginfo** command may be run as well, using the options **-v -o /etc/x25ag.defs**.

Before accessing the MIB tables, refer to

How to Match HiSpeed WAN Comm. Line Number and Instance Number, on page 1-14.

---

# How to Match HiSpeed WAN Comm. Line Number and Instance Number

## SNMP Instance Numbering

The instance numbering is directly derived from the numbering of managed resources, boards (adapters), ports (lines) and PVCs.

- In **hswaBoardsTable**, the instance number is the adapter number incremented by one. For example, the information related to **fun0** adapter is given by the instance number **1** of the **hswaBoardsTable**.
- In the tables **hswaPhysicalAdmnTable**, **hswaFrameAdmnTable**, **hswaNetworkAdmnTable**, **hswaMACStatTable**, **hswaLAPBStatTable** and **hswaX25StatTable**, **lapbAdmnTable**, **lapbOperTable**, **lapbFlowTable**, **x25AdmnTable**, **x25OperTable**, **x25StatTable**, **x25ChannelTable**, the instance number is composed of:
  - the adapter number incremented by one,
  - the number of the port incremented by one.For example, the statistics information related to **x25I3** port of the **fun1** adapter is given by the instance **2.4** of **x25StatTable**, **lapbStatTable**, **hswaMACStatTable**, **hswaLAPBStatTable** and **hswaX25StatTable**.
- In the tables **hswaCallAdmnTable**, **x25CircuitTable** and **x25CallParamTable**, the instance number is composed of:
  - a prefix,
  - the adapter number incremented by one,
  - the number of the port incremented by one,
  - the PVC number if the table line is related to a specific PVC.

The prefix depends on the information contained in the table line:

- 1** for the port itself.
- 2** for a specific PVC and the instance is suffixed with the PVC number.
- 3** for a specific SVC and the instance is suffixed with the SVC number (not used in this release).
- 4** for default values of PVC parameters.
- 5** for default values of SVC parameters.
- 6** for maximum values of SVC parameters.

---

## Chapter 2. SMIT Interface

### SMIT Interface Menu

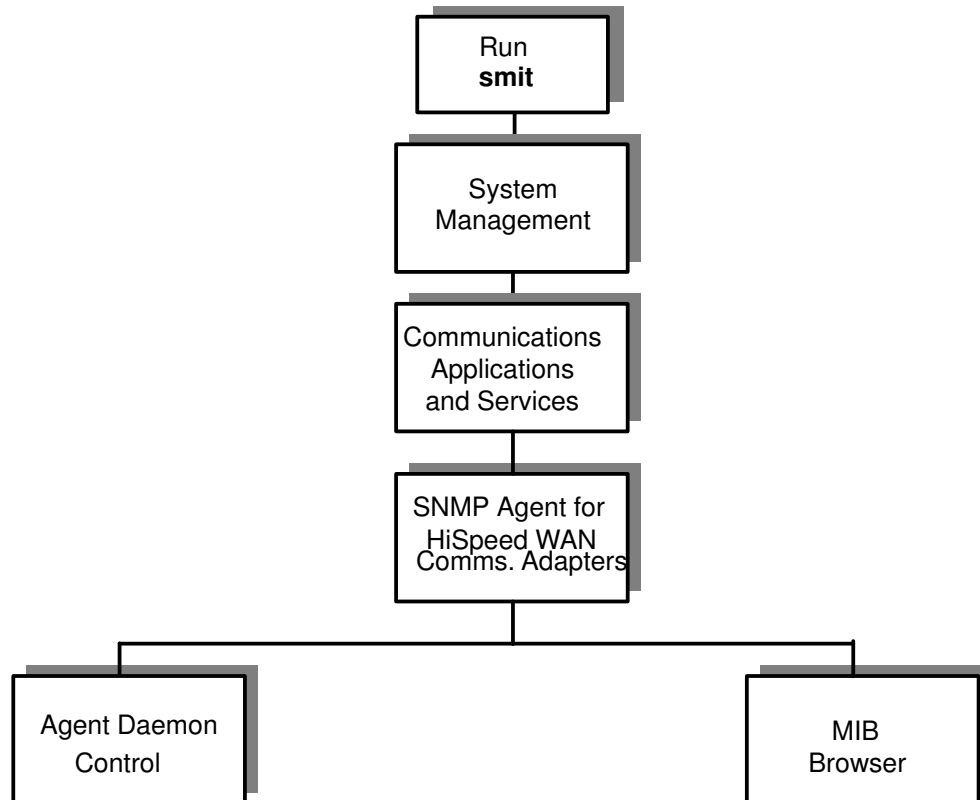


Figure 2. SMIT Interface Menu

The SMIT Interface sub-menus are described in:

- Agent Daemon Control, on page 2-3,
- MIB Browser, on page 2-7,

### Using the SMIT Interface

The SNMP Agent for HiSpeed Adapters SMIT interface is accessed using the **smit** command. It can be accessed directly, running the command **smit x25ag**.

In this interface description:

- default values, if any, are provided between square braces ("[ ]"),
- mandatory attributes are preceded by an \*,
- a sign + at the right-hand end of a line means that the value may be chosen from a list (or a **List** button when using an X-Motif interface),
- on-line **Help** is available for all dialog fields.

#### Access Rights

The Agent Daemon Control and MIB Browser can be accessed only by the administrator (**root** authority).

The status agent can be accessed by any user.

**Note:** If NLS (National Language Support) is not installed, the messages are displayed in US English language and are not able to be customized.  
If NLS is installed, the LANG environment variable must be set; no catalog is selected by default. The following catalog is provided with the SNMP Agent for HiSpeed Adapters.

US English language catalog (en\_US).



---

# How to Control the SNMP Agent for HiSpeed Adapters

## Access

Three possibilities:

- from the SNMP Agent for HiSpeed Adapters SMIT menu, select **Agent Daemon Control**
- using the fastpath and running **smit x25ag\_oper**
- using the command **x25ag**, on page 3-2

## Description

This menu provides access to the control of the SNMP Agent for HiSpeed Adapters daemon. Select the line corresponding to the action to be performed.

Agent Daemon Control	
Start the Agent	see page 2-4
Refresh the Agent	see page 2-5
Stop the Agent	see page 2-5
Show the Agent Status	see page 2-5

## Start the Agent

Start the Agent		
Trace Level	[set]	+
Trace File	[/var/tmp/x25ag.log]	
Trace File Size	[10000]	
Send SNMP Traps	unset	+
Start now, system restart or both	[now]	+

**Note:** This menu may be accessed directly, using the fatspath and running **smit x25ag\_start\_agent** using the command **x25ag start**

When starting the SNMP Agent for HiSpeed Adapters, the following parameters may be defined:

- Trace Level** one or more trace levels can be set
- **none** no trace,
  - **trap** traces the SNMP traps sent by the agent,
  - **set** traces the SNMP SET requests received by the agent, as well as the result of the corresponding treatment,
  - **get** traces the SNMP GET and GET-NEXT request received by the agent, as well as the result of the corresponding treatment,
  - **snmp** traces the sent and received SNMP packets (equivalent to **trap**, **set** and **get**),
  - **error** traces all the errors detected by the agent. This **error** level is not included in any of the other levels (trap, set or get).
- Trace File** defines the file in which the traces are saved. This file is managed as a circular file and is reset when the agent is starting.
- Trace File Size** defines the maximum trace file size, in octets. Traces are overwritten when the file size is exceeded.
- Send SNMP Traps** defines whether traps are generated by the agent or not:
- **unset:** not SNMP traps are sent.
  - **set:** SNMP traps are sent when the packet level of an X25 line becomes connected or disconnected.
- The X25 SNMP Agent scans every 10 seconds each *x25l<i>* line on the machine:
- on the disconnection of the packet level, a SNMP trap (Enterprise Specific Trap) is sent with a trap\_id equal to 1 along with the following message: "x25l<i>: packet layer disconnected"
  - on the connection of the packet level, a SNMP trap (Enterprise Specific Trap) is sent with a trap\_id equal to 2 along with the following message: "x25l<i>: packet layer connected"
  - when a line stays in the disconnected state during 5 minutes, another trap is sent to indicate that the line is still disconnected.
- Start now, system restart or both**, specifies when the agent is effectively started
- **now**
  - **system restart** (automatically, each time the system is restarted)
  - **both** (now and system restart)

## Refresh the Agent

Refresh the Agent		
Trace Level	[set]	+
Trace File	[/var/tmp/x25ag.log]	
Trace File Size	[10000]	
Send SNMP Traps	unset	+

**Note:** This menu may be accessed directly, using the fatspath and running **smit x25ag\_refresh\_agent** using the command **x25ag refresh**

Refresh the agent is equivalent to:

1. stop the agent,
2. start the agent.

When restarting the SNMP Agent for HiSpeed Adapters the parameters **Trace Level**, **Trace File** and **Trace File Size** can be defined, and the trace file is reset. The **Send SNMP Traps** parameter can also be defined to allow or not SNMP trap sending on packet level connection and disconnection events.

These parameters have the same meaning as when starting the agent.

## Stop the Agent

After confirmation is entered, the following message is displayed:

- SNMP Agent for HiSpeed WAN Comm. Adapters version 1.0 stopped

**Note:** The agent can be stopped using the command **x25ag stop**.

## Show the Agent Status

The following messages are displayed according to the status of the Agent:

- SNMP Agent for HiSpeed WAN Comm. Adapters version 1.0 running
- SNMP Agent for HiSpeed WAN Comm. Adapters version 1.0 stopped

**Note:** The agent status can be displayed using the command **x25ag stat**.

If the agent is running, the MIB tables, available to display, are listed. For instance:

Table Name Instance	Board Name	Device Name	SNMP
lapbAdmnTable	fun0	x2510	1
lapbAdmnTable	fun0	x2511	2
lapbAdmnTable	fun0	x2512	3
lapbAdmnTable	fun0	x2513	4
lapbFlowTable	fun0	x2510	1
lapbFlowTable	fun0	x2511	2
lapbFlowTable	fun0	x2512	3
lapbFlowTable	fun0	x2513	4
lapbOperTable	fun0	x2510	1
lapbOperTable	fun0	x2511	2

x25AdmnTable	fun0	x2510	1
x25AdmnTable	fun0	x2511	2
x25AdmnTable	fun0	x2512	3
x25AdmnTable	fun0	x2513	4
x25CallParmTable (PLE)	fun0	x2510	1.1
x25CallParmTable (PLE)	fun0	x2511	1.2
x25CallParmTable (PLE)	fun0	x2512	1.3
x25CallParmTable (PLE)	fun0	x2513	1.4
x25CallParmTable (PVC)	fun0	x2510	2.1.1
x25CallParmTable (PVC)	fun0	x2510	2.1.2
x25CallParmTable (PVC)	fun0	x2510	2.1.3
x25CallParmTable (PVC)	fun0	x2510	2.1.4
x25CallParmTable (PVC)	fun0	x2510	2.1.5
x25CallParmTable (PVC)	fun0	x2510	2.1.6
x25CallParmTable (PVC)	fun0	x2510	2.1.7
x25CallParmTable (PVC)	fun0	x2510	2.1.8
x25ChannelTable	fun0	x2510	2.1
x25ChannelTable	fun0	x2510	2.1
x25ChannelTable	fun0	x2511	2.2
x25ChannelTable	fun0	x2512	2.3
x25ChannelTable	fun0	x2513	2.4
x25OperTable	fun0	x2510	1
x25OperTable	fun0	x2511	2
x25StatTable	fun0	x2510	1
x25StatTable	fun0	x2511	2
x25StatTable	fun0	x2512	3
x25StatTable	fun0	x2513	4
hswaLAPBStatTable	fun0	x2510	1
hswaLAPBStatTable	fun0	x2511	2
hswaLAPBStatTable	fun0	x2512	3
hswaLAPBStatTable	fun0	x2513	4
hswaMACStatTable	fun0	x2510	1
hswaMACStatTable	fun0	x2511	2
hswaMACStatTable	fun0	x2512	3
hswaMACStatTable	fun0	x2513	4
hswaX25StatTable	fun0	x2510	1
hswaX25StatTable	fun0	x2511	2
hswaX25StatTable	fun0	x2512	3
hswaX25StatTable	fun0	x2513	4
hswaBoardsTable	fun0	-	1

---

# How to Use the SNMP Agent for HiSpeed Adapters Browser

## Access

Three possibilities:

- from the SNMP Agent for HiSpeed Adapters SMIT menu, select **Management Information Base (MIB) Browser**
- using the fastpath and running `smit snmpview_menu`
- using the command `snmpinfo` (or `hswax25aginfo` when `snmpinfo` is not provided).

## Description

The browser provides an easy access to the MIB tables supported by the SNMP Agent for HiSpeed Adapters.

It is, in fact, a local SNMP manager which accesses the local SNMP Agent for HiSpeed Adapters or a remote SNMP Agent for HiSpeed Adapters.

Select in the menu, the line corresponding to the action to be performed.

Management Information Base (MIB) Browser

---

Change/Show the Target Agent	see page 2-8
Change/Show Configuration Information Tables	see page 2-9
Show Operational Information Tables	see page 2-10
Show Statistics Information Tables	see page 2-11

Before accessing the MIB tables, refer to [How to Match HiSpeed WAN Comm. Line Number and Instance Number](#), on page 1-14. to determine the instance associated with the HiSpeed WAN Comm. line you want to configure or monitor.

## Change/Show the Target Agent

Change/Show the Target Agent		
Target Agent Host	[galaxie]	+
Community	[public]	

**Note:** This menu may be accessed directly,  
using the fatspath and running **smit snmpview\_agent**

- **Target Agent Host:** hostname or IP address in dotted notation of a system, supporting an SNMP Agent for HiSpeed Adapters.  
By default the target agent host is the local system.
- **Community:** community name to be used to query the target agent.  
By default the addressed community is `public`.  
The community `private` allows to change objects in the MIB tables (SET operations).

## Change/Show Configuration Information Tables

Change/Show Configuration Information Tables
==== HiSpeed Adapters Tables ====
hswaCallAdmnTable
hswaBoardsTable
hswaNetAdmnTable
hswaFrameAdmnTable
hswaPhysicalAdmnTable
==== RFC 1381 and RFC 1382 Tables =====
x25AdmnTable
x25ChannelTable
x25CircuitTable
x25CallParmTable
lapbAdmnTable

**Note:** This menu may be accessed directly, using the fatspath and running **smit snmpview\_conf**

### HiSpeed WAN Comm. Specific Tables

<b>hswaCallAdmnTable</b>	objects, to be read and written, used to configure parameters associated with a Virtual Circuit HiSpeed WAN Comm., SVC or PVC. Described on page A-27.
<b>hswaBoardsTable</b>	objects, to be read, providing global information about a HiSpeed WAN Comm. adapter.  The object <b>hswaBoardConfStatus</b> must be written to load the dapter with a new configuration. Described on page A-5.
<b>hswaNetAdmnTable</b>	objects, to be read and written, used to configure network parameters on HiSpeed WAN Comm. line. described on page A-15.
<b>hswaFrameAdmnTable</b>	objects, to be read and written, used to configure frame parameters on HiSpeed WAN Comm. line. described on page A-12.
<b>hswaPhysicalAdmnTable</b>	objects, to be read and written, used to configure physical parameters on HiSpeed WAN Comm. line. described on page A-10.

### RFC 1381/1382 Tables

<b>x25AdmnTable</b>	objects, to be read and written, used to configure packet layer (PLE) parameters on HiSpeed WAN Comm. line or any other X.25 line.
<b>x25ChannelTable</b>	objects, to be read and written, used to configure channel number parameters on HiSpeed WAN Comm. line or any other X.25 line.
<b>x25CircuitTable</b>	objects, to be read, used to get information about calls on existing circuits, PVCs only.
<b>x25CallParmTable</b>	objects, to be read and written, used to define the default PLE parameters (X.25 calls and X.25 facilities).
<b>lapbAdmnTable</b>	objects, to be read and written, used to configure LAPB parameters on HiSpeed WAN Comm. line or any other X.25 line.

MIB Tables for RFC 1381/1382 in Appendix A. lists all the objects defined in RFC 1381/1382 and their support by the SNMP Agent for HiSpeed Adapters: supported or not, accessibility.

## Show Operational Information Tables

```
Show Operational Information Tables
===== RFC 1381 and RFC 1382 Tables =====
x25OperTable
lapbOperTable
```

**Note:** This menu may be accessed directly,  
using the fatspath and running **smit snmpview\_oper**

### RFC 1381/1382 Tables

**x25OperTable** objects, used to get packet layer (PLE) parameters currently in use on HiSpeed WAN Comm. line or any other X.25 line.

**lapbOperTable** objects, used to get LAPB parameters currently in use on HiSpeed WAN Comm. line or any other X.25 line.

MIB Tables for RFC 1381/1382 in Appendix A. lists all the objects defined in RFC 1381/1382 and their support by the SNMP Agent for HiSpeed Adapters: supported or not, accessibility.



## Show Statistics Information Tables

```
Show Statistics Information Tables
=====  HiSpeed Adapters Tables  =====
hswaX25StatTable
hswaLAPBStatTable
hswaMACStatTable
===== RFC 1381 and RFC 1382 Tables =====
x25StatTable
lapbFlowTable
```

**Note:** This menu may be accessed directly,  
using the fatspath and running **smit snmpview\_stat**

### HiSpeed WAN Comm. Specific Tables

<b>hswaX25StatTable</b>	objects, used to get packet layer statistics about a HiSpeed WAN Comm. line. described on page A-40.
<b>hswaLAPBStatTable</b>	objects, used to get frame layer statistics about a HiSpeed WAN Comm. line. described on page A-34.
<b>hswaMACStatTable</b>	objects, used to get physical layer statistics about a HiSpeed WAN Comm. line. described on page A-30.

### RFC 1381/1382 Tables

<b>x25StatTable</b>	objects, used to get packet layer statistical values about traffic flow through a HiSpeed WAN Comm. line or any other X.25 line.
<b>lapbFlowTable</b>	objects, used to get LAPB statistical values about traffic flow through a HiSpeed WAN Comm. line or any other X.25 line.

MIB Tables for RFC 1381/1382 in Appendix A. lists all the objects defined in RFC 1381/1382 and their support by the SNMP Agent for HiSpeed Adapters: supported or not, accessibility.



---

## Chapter 3. Commands

A single command is used:

- **x25ag**

---

# x25ag Command

## Purpose

Controls the SNMP Agent for HiSpeed Adapters daemon.

## Syntax

```
x25ag [-h] [-V]
```

## Start

```
x25ag start [-v] [-t trace_level]* [-f trace_file ] [-s trace_size] [-p trap_flag]
```

## Refresh

```
x25ag refresh [-v] [-t trace_level]* [-f trace_file ] [-s trace_size] [-p trap_flag]
```

## Stop

```
x25ag stop
```

## Get Status

```
x25ag stat [-v]
```

## Description

Four operations control the SNMP Agent for HiSpeed Adapters daemon:

1. **start**  
Initializes the SNMP Agent for HiSpeed Adapters which instantiates the HiSpeed Adapters-specific MIB and RFC 1381/1382 MIB tables, establishes the connection with the AIX-standard SNMP Agent and then waits for incoming requests from the manager application and for events from the X.25 adapters.  
If the standard SNMP Agent is not yet running, the **start** operations starts it automatically.
2. **refresh**  
Sequence of **stop** and **start** operations.  
In fact, sets new trace configuration.
3. **stop**  
Stops a running SNMP Agent for HiSpeed Adapters properly. Before exit, the SNMP Agent for HiSpeed Adapters flushes and closes the opened files, it performs all the required termination and cleaning operations.
4. **get status**  
Displays the status of the SNMP Agent for HiSpeed Adapters (running or stopped)

When no option is specified (start, refresh, stop or stat), the **x25ag** command provides general information about the SNMP Agent for HiSpeed Adapters and its usage.

Root authority is required to use the **x25ag** command, except to get the status of the agent and to get general information.

## Flags

- h** Provides help information to use the **x25ag** command.
- V** Provides the SNMP Agent for HiSpeed Adapters version.
- v** If this verbose option is specified, the objects instances of the HiSpeed Adapters-specific MIB and RFC1381/1382 MIB tables are displayed.
- t *trace\_level*** If this trace option is not specified, traces are disabled. If specified, it enables one or more of these trace levels:
  - trap**, traces the SNMP traps sent by the agent,
  - set**, traces the SNMP SET requests received by the agent, as well as the result of the corresponding treatment,
  - get**, traces the SNMP GET and GET-NEXT request received by the agent, as well as the result of the corresponding treatment,
  - snmp**, traces the sent and received SNMP packets (equivalent to **trap**, **set** and **get**),
  - error**, traces all the errors detected by the agent.
- f *trace\_file*** Defines the file in which the traces are saved. This file is managed as a circular file. If not specified, the default trace file is */var/tmp/x25.log*
- s *trace\_size*** Defines the maximum trace file size, in octets. Traces are overwritten when the file size is exceeded. If not specified, the default trace file size is 10000. The value 0 means no maximum size.
- p *trap\_flag*** Defines if traps are generated by the agent, or not:
  - unset**: not SNMP traps are sent.
  - set**: SNMP traps are sent on connection and disconnection of the packet level.

## Examples

1. To start the SNMP Agent for HiSpeed Adapters with traces (**snmp** and **error** levels) set and saved in the file **/tmp/x25ag.log**

```
x25ag start -t snmp -t error -f /tmp/x25ag.log -s 0
```

**Warning:** The file size increases indefinitely.

2. To get the status of the agent

```
x25ag stat -v
```

Such a message is displayed, if the agent is running

```
SNMP Agent for HiSpeed Adapters version 1.0 running
Table Name          | Board Name | Device Name | SNMP Instance
-----+-----+-----+-----
lapbAdmnTable       | fun0       | x2510       | 1.1
-----+-----+-----+-----
lapbFlowTable       | fun0       | x2510       | 1.1
-----+-----+-----+-----
lapbOperTable       | fun0       | x2510       | 1.1
-----+-----+-----+-----
x25AdmnTable        | fun0       | x2510       | 1.1
-----+-----+-----+-----
x25CallParmTable (PLE) | fun0       | x2510       | 1.1.1
-----+-----+-----+-----
x25CallParmTable (PVC) | fun0       | x2510       | 2.1.1.1
-----+-----+-----+-----
```

x25ChannelTable	fun0	x2510	2.1.1
x25CircuitTable (PVC)	fun0	x2510	2.1.1.1
x25OperTable	fun0	x2510	1.1
x25StatTable	fun0	x2510	1.1
hswaCallAdmnTable (PVC)	fun0	x2510	2.1.1.1
hswaCallAdmnTable (DEF PVC)	fun0	x2510	4.1.1
hswaCallAdmnTable (DEF SVC)	fun0	x2510	5.1.1
hswaCallAdmnTable (MAX SVC)	fun0	x2510	6.1.1
hswaFrameAdmnTable	fun0	x2510	1.1
hswaLAPBStatTable	fun0	x2510	1.1
hswaMACStatTable	fun0	x2510	1.1
hswaNetAdmnTable	fun0	x2510	1.1
hswaPhysicalAdmnTable	fun0	x2510	1.1
hswaX25StatTable	fun0	x2510	1.1
hswaBoardsTable	fun0	-	1

### 3. To disable the traces

```
x25ag refresh
```

## Return Code and Messages

Upon successful completion, the **x25ag** command returns 0, otherwise it returns 1.

## Successful Messages

Upon successful completion, the following message is displayed on *stderr* according to the operation:

### start

```
"SNMP Agent for HiSpeed Adapters <version> started"
```

### refresh

```
"SNMP Agent for HiSpeed Adapters <version> refreshed"
```

### stop

```
"SNMP Agent for HiSpeed Adapters <version> stopped"
```

### stat

Two different messages according to the Agent status

```
"x25ag:SNMP Agent for HiSpeed Adapters <version> running"
```

```
"x25ag:SNMP Agent for HiSpeed Adapters <version> stopped"
```

## Warning and Error Messages

Other messages are displayed on *stderr*:

- **warning message**, when the command succeeded (return code 0) but some unexpected event occurred.
- **error message**, when the command failed (return code 1).

### **x25ag: warning: cannot open the message catalogue [syserrinfo]**

**Diagnostic** The message catalog cannot be opened, default messages are used instead. *syserrinfo* is the operating system error message

**Solution** Check if NLS (National Language Support) is installed and check the LANG and NLSPATH environment variables. Refer to Chapter **National Language Support** in *AIX System Management Guide: Operating System and Devices*

### **x25ag: error: cannot connect to 'snmpd' daemon**

**Diagnostic** A problem occurred when trying to connect to the AIX-standard SNMP Agent.

**Solution** Check the status of *snmpd* daemon.

### **x25ag: error: unable to initialize Management Information Base**

**Diagnostic** A problem occurred when trying to initialize the supported MIB

**Solution** Check the SNMP Agent for HiSpeed Adapters installation, in particular check if the software prerequisites to SNMP Agent for HiSpeed Adapters are installed.

### **x25ag: error: no HiSpeed WAN Comm. adapter is available**

**Diagnostic** The SNMP Agent for HiSpeed Adapters does not detect any HiSpeed WAN Comm. adapter in the system.

**Solution** Check the installation of the HiSpeed WAN Comm. adapters. Refer to *HiSpeed WAN Comm. Installation and Service Guide*.

### **x25ag: warning: 'device-name' HiSpeed WAN Comm. adapter is not loaded**

**Diagnostic** The HiSpeed WAN Comm. adapter is not yet loaded. The operational and statistics MIB tables cannot be accessed. Only the configuration MIB tables can be read and written.

**Solution** Define the configuration of the HiSpeed WAN Comm. adapter and load it.

### **x25ag: System Error [status\_info]**

**Diagnostic** An error system occurred

**Solution** Ask the system administrator

Some messages provide directly the solution

### **x25ag: error: You must be the super user to start the agent**

### **x25ag: error: You must be the super user to refresh the agent**

**x25ag: error: You must be the super user to stop the agent**

**x25ag: error: SNMP Agent for HiSpeed Adapters is not running**

**x25ag: error: SNMP Agent for HiSpeed Adapters is already running**

**x25ag: error: check '<trace\_file>' trace file**

This message is displayed after another error message to recommend the analysis of the trace file.

## Implementation Specifics

This command is part of **hswa\_x25ag** software, SNMP Agent for HiSpeed Adapters.

## Files

**Trace File**, on page 4-2.

## Suggested Reading

### Prerequisite Information

SNMP Agent for HiSpeed Adapters Overview, on page 1-2.

### Related Information

**snmpd** Command

**snmpinfo** Command



---

## Chapter 4. File Formats

A single log file is available:

- Trace File

---

# Trace File

## Purpose

To log:

- successful keysteps performed by the SNMP Agent for HiSpeed Adapters,
- errors and abnormal conditions and events which occur during normal operation.

The default trace file is */var/tmp/x25.log*

## Description

Each line in the trace file represents an entry (step or error). It contains:

- the date and time of trace,
- the trace level that generated the trace (**get**, **set**, **snmp**, **error**, etc.),
- a brief message to explain what happened,
- additional information.

**Note:** The **snmp** level messages include information about **smux**

## Examples

```
16:35:01 SNMP      : smux_simple_open: 1.3.6.1.4.1.107.140 "x25ag"
16:35:01 SNMP      : smux_register: readWrite 1.3.6.1.4.1.107.140.1
16:35:01 SNMP      : Receive: RegisterResponse PDU
16:35:01 SNMP      : .    parm: 0
16:35:01 SNMP      : smux_register: readWrite 1.3.6.1.4.1.107.140.2
16:35:01 SNMP      : Receive: RegisterResponse PDU
16:35:01 SNMP      : .    parm: 0
16:35:01 SNMP      : smux_register: readWrite 1.3.6.1.4.1.107.140.3
16:35:01 SNMP      : Receive: RegisterResponse PDU
16:35:01 SNMP      : .    parm: 0
16:35:07 GET       : Receive: GetRequest PDU
16:35:07 GET       : .    request__id = 0x67a (1658)
16:35:07 GET       : .    variable__bindings
16:35:07 GET       : .      .    Object: hswaBoardName
16:35:07 GET       : .      .    Instance: 1
16:35:07 GET       : Send: GetResponse PDU
16:35:07 GET       : .    request__id = 0x67a (1658)
16:35:07 GET       : .    error__status: noError
16:35:07 GET       : .    variable__bindings
16:35:07 GET       : .      .    Object: hswaBoardName
16:35:07 GET       : .      .    Instance: 1
16:35:07 GET       : .      .    type: string
16:35:07 GET       : .      .    value = fun0 (4)
16:35:14 SET       : Receive: SetRequest PDU
16:35:14 SET       : .    request__id = 0x67b (1659)
16:35:14 SET       : .    variable__bindings
16:35:14 SET       : .      .    Object: x25CallParmOutThruPutClasSize
16:35:14 SET       : .      .    Instance: 1.1.2
16:35:14 SET       : .      .    type: number
16:35:14 SET       : .      .    value = 0xa (10)
16:35:16 SET       : Send: GetResponse PDU
16:35:16 SET       : .    request__id = 0x67b (1659)
16:35:16 SET       : .    error__status: noError
16:35:16 SET       : .    variable__bindings
16:35:16 SET       : .      .    Object: x25CallParmOutThruPutClasSize
16:35:16 SET       : .      .    Instance: 1.1.2
16:35:16 SET       : .      .    type: number
16:35:16 SET       : .      .    value = 0xa (10)
===== END OF TRACE =====
```

## Implementation Specifics

This file format is associated with **hswa\_x25ag** software, SNMP Agent for HiSpeed Adapters.

## Suggested Reading

### Related Information

**x25ag** Command, on page 3-2.



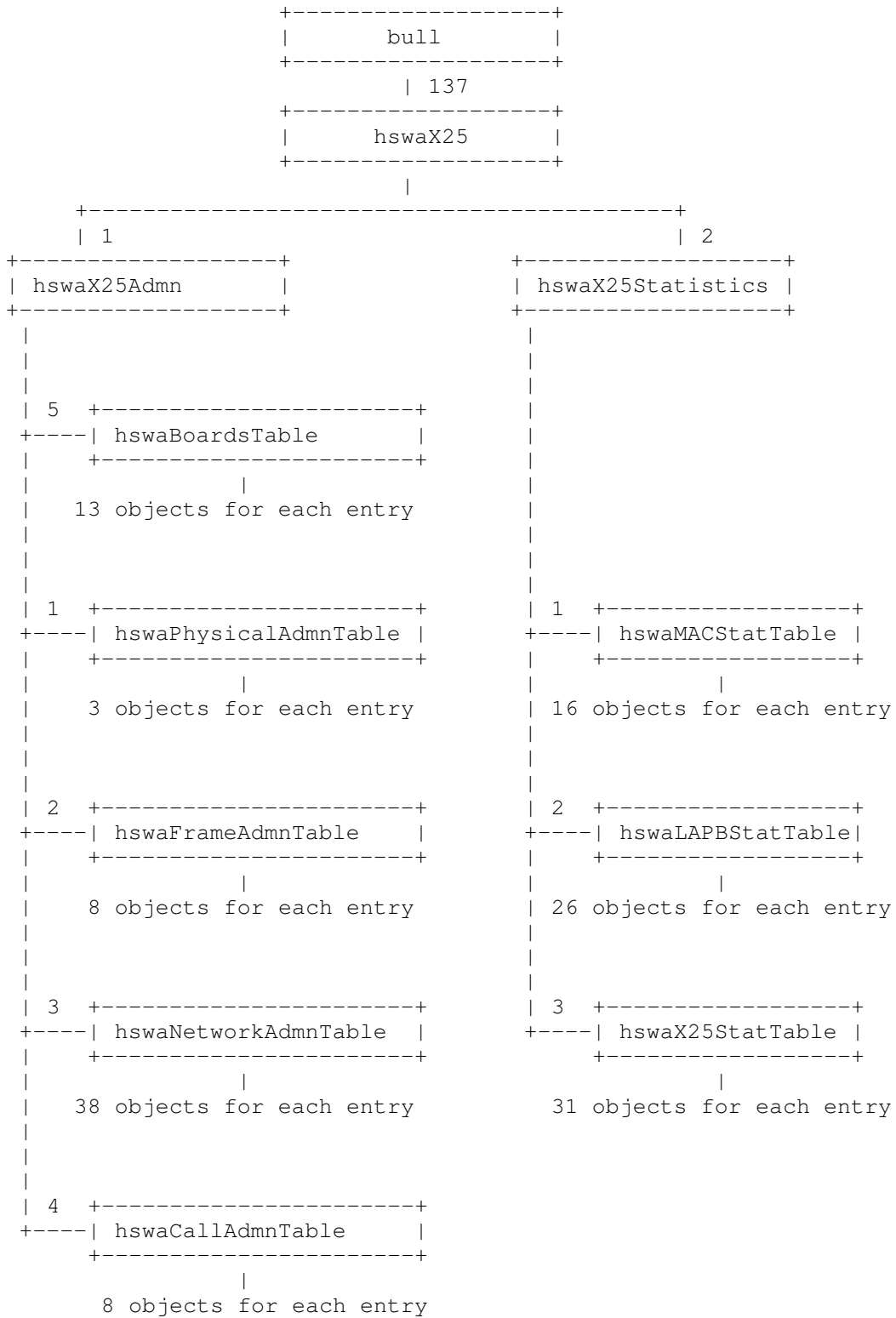
---

## Appendix A. MIB Support

- HiSpeed Adapters-specific MIB Tables, on page A-2, describes completely all the HiSpeed WAN Comm. objects supported by the SNMP Agent for HiSpeed Adapters.
- MIB Tables for RFC 1381 /1382, on page A-47, lists which objects are supported by the SNMP Agent for HiSpeed Adapters.

# HiSpeed Adapters-specific MIB Tables

## HiSpeed Adapters-specific MIB Tree



## List of HiSpeed Adapters-specific MIB Tables

<b>hswaBoardsTable</b>	Global information about a HiSpeed WAN Comm. adapter described on page A-5,
<b>hswaPhysicalAdmnTable</b>	X.25 Physical Parameters Table described on page A-10,
<b>hswaFrameAdmnTable</b>	X.25 Frame Parameters Table described on page A-12,
<b>hswaNetworkAdmnTable</b>	X.25 Network Parameters Table described on page A-15,
<b>hswaCallAdmnTable</b>	X.25 Call Parameters Table described on page A-27,
<b>hswaMACStatTable</b>	MAC Statistics Table described on page A-30,
<b>hswaLAPBStatTable</b>	LAPB Statistics Table described on page A-34,
<b>hswaX25StatTable</b>	PLE Statistics Table described on page A-40.

## Access to HiSpeed Adapters-specific MIB

BULL-X25-MIB-EXTENSIONS DEFINITIONS ::= BEGIN

IMPORTS

Counter, Gauge FROM RFC1155-SMI

OBJECT-TYPE FROM RFC-1212;

bull OBJECT IDENTIFIER ::= { enterprises 107 }

hswaX25 OBJECT IDENTIFIER ::= { bull 137 }

hswaX25Admn OBJECT IDENTIFIER ::= { hswaX25 1 }

hswaX25Statistics OBJECT IDENTIFIER ::= { hswaX25 2 }

PositiveInteger ::= INTEGER (0..2147483647)

HswaIndexType ::= OCTET STRING

—HswaIndexType is defined for instance numbering, specific to the table.

—There are three types of instance number:

—**Type1** (for **hswaBoardsTable**)

—The instance number is the adapter number incremented by one.

—**Type2** (for **hswaPhysicalAdmnTable**, **hswaFrameAdmnTable**

— **hswaNetworkAdmnTable**, **hswaMACStatTable**, **hswaLAPBStatTable**  
— and **hswaX25StatTable**)

—The instance number is composed of:

— the adapter number incremented by one,

— the number of the port incremented by one.

— **Type3** (for **hswaCallAdmnTable**)

—The instance number is composed of:

— a prefix,

— the adapter number incremented by one,

— the number of the port incremented by one.

— the PVC number if the table line is related to a specific PVC.

—The prefix depends on the information contained in the table line:

—**1** for the port itself.

—**2** for a specific PVC and the instance is suffixed with the PVC number.

—**3** for a specific SVC and the instance is suffixed with the SVC number.

— (not used in this release).

—**4** for default values of PVC parameters.

—**5** for default values of SVC parameters.

—**6** for maximum values of SVC parameters.



## — hswaBoardsTable: HiSpeed WAN Comm. Adapters Table

### hswaBoardsTable OBJECT-TYPE

**SYNTAX** SEQUENCE OF HswaBoardEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"This table contains global information about HiSpeed WAN Comm. adapters configuration."

::= { hswaX25Admn 5 }

### hswaBoardEntry OBJECT-TYPE

**SYNTAX** HswaBoardEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"Global information about the HiSpeed WAN Comm. adapter specified by **hswaBoardIndex**."

**INDEX** { hswaBoardIndex }

::= { hswaBoardsTable 1 }

HswaBoardEntry ::= SEQUENCE {

hswaBoardIndex

HswaIndexType,

hswaBoardStatus

INTEGER,

hswaBoardType

INTEGER,

hswaBoardLocation

DisplayString,

hswaBoardBuffers

INTEGER,

hswaBoardUsedBuffers

INTEGER,

hswaBoardMaxUsedBuffers

INTEGER,

hswaBoardQueueSize

INTEGER,

hswaBoardSendQueueMsg

INTEGER,

hswaBoardRcvQueueMsg

INTEGER,

hswaBoardTotalMsgSent

Counter,

hswaBoardTotalMsgReceived

Counter,

hswaBoardConfStatus

INTEGER

}

— hswaBoardIndex Object

hswaBoardIndex **OBJECT-TYPE**

**SYNTAX** HswaIndexType

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Instance Number Type1”

::= { HswaBoardEntry 1}

See “Instance Number Type1” on page A-4.

— hswaBoardStatus Object

hswaBoardStatus **OBJECT-TYPE**

**SYNTAX** INTEGER {

notPresent (1),

notInitialized (2),

configured (3),

loaded (4),

waitCMDMEMREG (5),

waitCMDPOSTREG (6),

waitEndAutoTest (7),

noLicence (8)

}

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The status of the adapter.”

::= { HswaBoardEntry 2}

— hswaBoardType Object

hswaBoardType **OBJECT-TYPE**

**SYNTAX** INTEGER {

mcfuthd4-4Port (1),

mcfut-1Port (2),

mcfutb-1Port (3),

other (4)

}

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The type of the HiSpeed WAN Comm. adapter.”

::= { HswaBoardEntry 3}

— hswaBoardLocation Object

hswaBoardLocation **OBJECT-TYPE**

**SYNTAX** DisplayString

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The location code of the adapter. It consists of two pairs of digits with the format 00-ss, where ss identifies the bus and slot numbers where the adapter is installed.

::= { HswaBoardEntry 4}

— hswaBoardBuffers Object

hswaBoardBuffers **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The total number of the adapter buffers.”

::= { HswaBoardEntry 5}

**Note:** Information for Technical Support only.

— hswaBoardUsedBuffers Object

hswaBoardUsedBuffers **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of currently used buffers.”

::= { HswaBoardEntry 6}

**Note:** Information for Technical Support only.

— hswaBoardMaxUsedBuffers Object

hswaBoardMaxUsedBuffers **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The maximum number of used buffers.”

::= { HswaBoardEntry 7}

**Note:** Information for Technical Support only.

— hswaBoardQueueSize Object

hswaBoardQueueSize **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Size of send and receive queues.”

::= { HswaBoardEntry 8}

**Note:** Information for Technical Support only.

— hswaBoardSendQueueMsg Object

hswaBoardSendQueueMsg **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Number of message currently in send queue.”

::= { HswaBoardEntry 9}

**Note:** Information for Technical Support only.

— hswaBoardRcvQueueMsg Object

hswaBoardRcvQueueMsg **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Number of message currently in receive queue.”

::= { HswaBoardEntry 10}

**Note:** Information for Technical Support only.

— hswaBoardTotalMsgSent Object

hswaBoardTotalMsgSent **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Total number of messages sent by the board.”

::= { HswaBoardEntry 11}

— hswaBoardTotalMsgReceived Object

hswaBoardTotalMsgReceived **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Total number of messages received by the board.”

::= { HswaBoardEntry 12}

— hswaBoardConfStatus Object

hswaBoardConfStatus OBJECT-TYPE

**SYNTAX** INTEGER {  
notLoaded (1),  
changed (2),  
loaded (3),  
loading (4),  
load (5),  
unknown (6)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

“When accessed by a consultative request (GET or GET-NEXT), this object gives the status of the configuration defined by the administrative tables.

The following values are available:

**notLoaded**(1): no configuration is loaded on the board.

**changed**(2): the loaded configuration is different from the one defined by configuration tables.

**loaded**(3): the loaded configuration is the one defined by the configuration tables.

**loading**(4): the configuration load is in progress.

**unknown**(6): the status is unknown.

When accessed by a SET request, it loads the configuration defined by the administrative tables into the board.

If a configuration is already loaded, the OSI and TCP/IP stacks are stopped and the loaded configuration is unloaded; the stopped services are started after loading of the new configuration.

The only possible value is:

**load**(5)

Note that if other services are using the board, the unloading fails and the operation is aborted.

::= { HswaBoardEntry 13}

## — hswaPhysicalAdmnTable: X.25 Physical Parameters Table

### hswaPhysicalAdmnTable OBJECT-TYPE

**SYNTAX** SEQUENCE OF HswaPhysicalAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"This table contains objects, to be read and written, used to manage the Physical Parameters of the X.25 Lines (HiSpeed WAN Comm.)."

::= { hswaX25Admn 1 }

### hswaPhysicalAdmnEntry OBJECT-TYPE

**SYNTAX** HswaPhysicalAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"Physical parameter values configured on the X.25 line (HiSpeed WAN Comm.) specified by the index **hswaPhysicalIndex**."

**INDEX** { hswaPhysicalIndex }

::= { hswaPhysicalAdmnTable 1 }

HswaPhysicalAdmnEntry ::= SEQUENCE {

hswaPhysicalIndex

HswaIndexType,

hswaPhysicalLineInterface

INTEGER,

hswaPhysicalClockSignal

INTEGER

}

## — hswaPhysicalIndex Object

### hswaPhysicalIndex OBJECT-TYPE

**SYNTAX** HswaIndexType

**ACCESS** read-only

**STATUS** mandatory

#### DESCRIPTION

"Instance Number Type2"

::= { hswaPhysicalAdmnEntry 1 }

See "Instance Number Type2" on page A-4.

## — hswaPhysicalLineInterface Object

### hswaPhysicalLineInterface OBJECT-TYPE

**SYNTAX** INTEGER {

v11 (1),

v24 (2),

v35 (3)

}

**ACCESS** read-only

**STATUS** mandatory

#### DESCRIPTION

"Physical interface according to the daughter-board installed on the line."

::= { hswaPhysicalAdmnEntry 2 }

hswaPhysicalClockSignal **OBJECT-TYPE**

**SYNTAX** INTEGER {  
external (0),  
local-75 (1),  
local-150 (2),  
local-300 (3),  
local-600 (4),  
local-1200 (5),  
local-2400 (6),  
local-4800 (7),  
local-9600 (8),  
local-19200 (9),  
local-48000 (10),  
local-56000 (11),  
local-64000 (12),  
local-128000 (13),  
local-256000 (14),  
local-512000 (15),  
local-1024000 (16),  
local-1536000 (17),  
local-2000000 (18)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Origin of the clock signal:

- external. It is provided by the network or the peer equipment (local modem or corresponding DCE).
- internal. It is provided by a baud rate generator on the adapter (meaningful if type of line is DCE).

**Note:** If a 1Port HiSpeed WAN Comm. or 1Port HiSpeed WAN Comm-B adapter is equipped with a V35 interface, the origin of the clock signal cannot be chosen and is fixed to external.

**Note:** For any type of HiSpeed WAN Comm. line, the range of possible values depends on the type of the physical interface."

::= { hswaPhysicalAdmnEntry 3}

## — hswaFrameAdmnTable: X.25 Frame Parameters Table

### hswaFrameAdmnTable OBJECT-TYPE

**SYNTAX** SEQUENCE OF HswaFrameAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"This table contains objects, to be read and written, used to manage the Frame Parameters of the X.25 Lines (HiSpeed WAN Comm.)."

::= { hswaX25Admn 2 }

### hswaFrameAdmnEntry OBJECT-TYPE

**SYNTAX** HswaFrameAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### DESCRIPTION

"Frame parameter values configured on the X.25 line (HiSpeed WAN Comm.) specified by the index **hswaFrameIndex**."

**INDEX** { hswaFrameIndex }

::= { hswaFrameAdmnTable 1 }

### HswaFrameAdmnEntry ::= SEQUENCE {

hswaFrameIndex  
HswaIndexType,  
hswaLineType  
INTEGER,  
hswaFrameWindowSize  
INTEGER,  
hswaFrameModulo  
INTEGER,  
hswaT1Timer  
PositiveInteger,  
hswaT4Timer  
PositiveInteger,  
hswaN2Counter  
PositiveInteger,  
hswaConnectionMode  
INTEGER  
}

## — hswaFrameIndex Object

### hswaFrameIndex OBJECT-TYPE

**SYNTAX** HswaIndexType

**ACCESS** read-only

**STATUS** mandatory

#### DESCRIPTION

"Instance Number Type2"

::= { hswaFrameAdmnEntry 1 }

See "Instance Number Type2" on page A-4.



— hswaLineType Object

hswaLineType **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    dte (1),  
    dce (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Identifies DCE/DTE mode in which the interface operates.”

::= { hswaFrameAdmnEntry 2}

— hswaFrameWindowSize Object

hswaFrameWindowSize **OBJECT-TYPE**

**SYNTAX** INTEGER (0..127)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Number of frames that can be outstanding without acknowledgment.

Two possible ranges of values

1 to 7 if frame modulo is 8

1 to 127 if frame modulo is 128”

::= { hswaFrameAdmnEntry 3}

— hswaFrameModulo Object

hswaFrameModulo **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    modulo8 (1),  
    modulo128 (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Numbering modulo used to order the frames within the frame window.

This parameter is noted in the subscription sheet.”

::= { hswaFrameAdmnEntry 4}

— hswaT1Timer Object

hswaT1Timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”T1 parameter is defined in the CCITT recommendation.

Time after which, if it has not been acknowledged, a frame is transmitted again.

The value must be in the range 1 to 32767 (multiple of 1/10 seconds)

and lower than T4 timer.”

::= { hswaFrameAdmnEntry 5}

### — hswaT4Timer Object

hswaT4Timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time after which, if there was no activity on the line, an RR frame (Receive Ready) is sent. Frame-layer recovery is started if no answer is received within T1. The value must be either 0 (meaning that T4 is disabled) or in the range 1 to 32767 (multiple of 1/10 seconds) and greater than T1 timer."

::= { hswaFrameAdmnEntry 6}

### — hswaN2Counter Object

hswaN2Counter **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"N2 parameter is defined in the CCITT recommendation. Maximum number of retries to send a frame. The value must be in the range 0 to 32767."

::= { hswaFrameAdmnEntry 7}

### — hswaConnectionMode Object

hswaConnectionMode **OBJECT-TYPE**

**SYNTAX** INTEGER {  
passive (1),  
active (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Two possible connection modes on the frame layer:  
– passive, X.25.2 layer of the line waits for an SABM frame from the network to determine whether the network is connected.  
– active, X.25.2 layer of the line sends an SABM frame to the network, waiting for the network to send an UA frame to acknowledge that it is connected.  
The connection mode is defined at subscription."

::= { hswaFrameAdmnEntry 8}

## — hswaNetAdmnTable: X.25 Network Parameters Table

hswaNetAdmnTable **OBJECT-TYPE**

**SYNTAX** SEQUENCE OF HswaNetAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

**DESCRIPTION**

"This table contains objects, to be read and written,  
used to manage the Network Parameters of the X.25 Lines (HiSpeed WAN Comm.)."

::= { hswaX25Admn 3 }

hswaNetAdmnEntry **OBJECT-TYPE**

**SYNTAX** HswaNetAdmnEntry

**ACCESS** not-accessible

**STATUS** mandatory

**DESCRIPTION**

"Network parameter values configured on the X.25 line (HiSpeed WAN Comm.)  
specified by the index **hswaNetIndex**."

**INDEX** { hswaNetIndex }

::= { hswaNetAdmnTable 1 }

HswaNetAdmnEntry ::= SEQUENCE {

hswaNetIndex

HswaIndexType,

hswaNetLocalNetworkUserAddress

OCTET STRING,

hswaNetLowInSVC

INTEGER,

hswaNetInSVCNb

INTEGER,

hswaNetLowInOutSVC

INTEGER,

hswaNetInOutSVCNb

INTEGER,

hswaNetLowOutSVC

INTEGER,

hswaNetOutSVCNb

INTEGER,

hswaNetLowPVC

INTEGER,

hswaNetPVCNb

INTEGER,

hswaNetConnectionMode

INTEGER,

hswaNetUseOptionalAddress

INTEGER,

hswaNetPacketModulo

INTEGER,

hswaT20timer

PositiveInteger,

hswaT21timer

PositiveInteger,

hswaT22timer

PositiveInteger,

hswaT23timer

PositiveInteger,

hswaT24timer

PositiveInteger,

```

hswaNetDefaultSVCAAttId
  OBJECT IDENTIFIER,
hswaNetMaxSVCAAttId
  OBJECT IDENTIFIER,
hswaNetDefaultPVCAttId
  OBJECT IDENTIFIER,
hswaNetFacOutgoingCallAcceptance
  INTEGER,
hswaNetFacIncomingCallAcceptance
  INTEGER,
hswaNetFacNetworkUserIdentification
  INTEGER,
hswaNetFacRedirectionNotification
  INTEGER,
hswaNetFacCallRedirection
  INTEGER,
hswaNetFacChargingInformation
  INTEGER,
hswaNetFacLocalCharging
  INTEGER,
hswaNetFacReverseCharging
  INTEGER,
hswaNetFacFastSelect
  INTEGER,
hswaNetFacThroughputClassNegotiation
  INTEGER,
hswaNetFacFlowControlNegotiation
  INTEGER,
hswaNetFacOutgoingCall
  INTEGER,
hswaNetFacIncomingCall
  INTEGER,
hswaNetFacPacketRetransmission
  INTEGER,
hswaNetIncomingCUG
  DisplayString,
hswaNetOutgoingCUG
  DisplayString,
hswaNetBilateralCUG
  DisplayString
}

```

— **hswaNetIndex Object**

```

hswaNetIndex OBJECT-TYPE
SYNTAX HswaIndexType
ACCESS read-only
STATUS mandatory
DESCRIPTION
  "Instance Number Type2"
  ::= { hswaNetAdmnEntry 1 }

```

See "Instance Number Type2" on page A-4.

— hswaNetLocalNetworkUserAddress Object

hswaNetLocalNetworkUserAddress **OBJECT-TYPE**

**SYNTAX** OCTET STRING (SIZE(0..17))

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"The X25 subscription number is given in the subscription sheet in the form of an 8 digit number preceded by a prefix.

The user must define the local address for private connections."

::= { hswaNetAdmnEntry 2 }

— hswaNetLowInSVC Object

hswaNetLowInSVC **OBJECT-TYPE**

**SYNTAX** INTEGER(0..4095)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Lowest logical channel number for an incoming SVC"

::= { hswaNetAdmnEntry 3 }

— hswaNetInSVCNb Object

hswaNetInSVCNb **OBJECT-TYPE**

**SYNTAX** INTEGER(0.. 1024)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Number of logical channels for incoming SVCs

Range of possible value

0 to 1024 on a 4Port HiSpeed WAN Comm. line

0 to 256 on a 1Port HiSpeed WAN Comm.

or a 1Port HiSpeed WAN Comm-B line"

::= { hswaNetAdmnEntry 4 }

— hswaNetLowInOutSVC Object

hswaNetLowInOutSVC **OBJECT-TYPE**

**SYNTAX** INTEGER(0..4095)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Lowest logical channel number for a two-ways SVC"

::= { hswaNetAdmnEntry 5 }

— hswaNetInOutSVCNb Object

hswaNetInOutSVCNb **OBJECT-TYPE**

**SYNTAX** INTEGER(0.. 1024)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Number of logical channels for two-ways SVCs

Range of possible value

0 to 1024 on a 4Port HiSpeed WAN Comm. line

0 to 256 on a 1Port HiSpeed WAN Comm.

or a 1Port HiSpeed WAN Comm-B line"

::= { hswaNetAdmnEntry 6 }

— hswaNetLowOutSVC Object

hswaNetLowOutSVC **OBJECT-TYPE**

**SYNTAX** INTEGER(0..4095)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Lowest logical channel number for an outgoing SVC"

::= { hswaNetAdmnEntry 7 }

— hswaNetOutSVCNb Object

hswaNetOutSVCNb **OBJECT-TYPE**

**SYNTAX** INTEGER(0.. 1024)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Number of logical channels for outgoing SVCs

Range of possible value

0 to 1024 on a 4Port HiSpeed WAN Comm. line

0 to 256 on a 1Port HiSpeed WAN Comm.

or a 1Port HiSpeed WAN Comm-B line"

::= { hswaNetAdmnEntry 8 }

— hswaNetLowPVC Object

hswaNetLowPVC **OBJECT-TYPE**

**SYNTAX** INTEGER(1..4095)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Lowest logical channel number for a PVC"

::= { hswaNetAdmnEntry 9 }

— hswaNetPVCNb Object

hswaNetPVCNb **OBJECT-TYPE**

**SYNTAX** INTEGER(0.. 1024)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Number of PVCs

Range of possible value

0 to 1024 on a 4Port HiSpeed WAN Comm. line

0 to 256 on a 1Port HiSpeed WAN Comm.

or a 1Port HiSpeed WAN Comm-B line"

::= { hswaNetAdmnEntry 10 }

### — hswaNetConnectionMode Object

hswaNetConnectionMode **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    dte (1),  
    dce (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Two possible connection modes on the network layer:

DTE X.25.3 layer of the line waits for a restart-indication packet from the network to determine whether the network is connected. The logical channel numbers are allocated starting from the highest possible values.

DCE X.25.3 layer of the line sends a restart-request packet to the network, waiting for the peer X.25.3 layer to send a restart-confirmation packet to acknowledge that it is connected. The logical channel numbers are allocated starting from the lowest possible values.

The connection mode is defined at subscription time.”

::= { hswaNetAdmnEntry 11 }

### — hswaNetUseOptionalAddress Object

hswaNetUseOptionalAddress **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    allow (1),  
    forbid (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Modification or not of the addresses in the call-accepted and call-request packets

Two possible values

allow Packets are transmitted without any change on addresses.

forbid Packets are transmitted with some modification on addresses.

In call-request packets, the Network User Address (NUA) is removed from the calling address field but the sub-address is kept.

In call-accepted and clear packets, both the called and calling addresses are removed.

This forbid option must be set to connect to the French TRANSPAC X.25 network.”

::= { hswaNetAdmnEntry 12 }

### — hswaNetPacketModulo Object

hswaNetPacketModulo **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    modulo8 (1),  
    modulo128 (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Numbering modulo used to order the packets.”

::= { hswaNetAdmnEntry 13 }

### — hswaT20timer Object

hswaT20timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time within which a restart-confirmation packet should be received after transmission of a restart-request packet

The value must be either 0 (meaning that T20 is disabled) or in the range 1 to 255 (in seconds)"

::= { hswaNetAdmnEntry 14 }

### — hswaT21timer Object

hswaT21timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time within which a call-connected, clear-indication or incoming-call packet should be received after transmission of a call-request packet.

The value must be either 0 (meaning that T21 is disabled) or in the range 1 to 255 (in seconds)"

::= { hswaNetAdmnEntry 15 }

### — hswaT22timer Object

hswaT22timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time within which a reset-confirmation packet should be received after transmission of a reset-request packet.

The value must be either 0 (meaning that T22 is disabled) or in the range 1 to 255 (in seconds)"

::= { hswaNetAdmnEntry 16 }

### — hswaT23timer Object

hswaT23timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time within which a clear-confirmation packet should be received after transmission of a clear-request packet.

The value must be either 0 (meaning that T23 is disabled) or in the range 1 to 255 (in seconds)"

::= { hswaNetAdmnEntry 17 }



### — hswaT24timer Object

hswaT24timer **OBJECT-TYPE**

**SYNTAX** PositiveInteger

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Time within which packet(s) should be exchanged (Inactivity timer). If no packet is exchanged within this time, the connection is closed.

The value must be either 0 (meaning that the inactivity timer is disabled) or in the range 1 to 255 (in seconds)"

::= { hswaNetAdmnEntry 18 }

### — hswaNetDefaultSVCAAttId Object

hswaNetDefaultSVCAAttId **OBJECT-TYPE**

**SYNTAX** OBJECT IDENTIFIER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"Identifies the instance of the hswaCallIndex for the entry in the hswaCallAdmnTable which contains the default attribute for SVCs."

::= { hswaNetAdmnEntry 19 }

### — hswaNet Object

hswaNetMaxSVCAAttId **OBJECT-TYPE**

**SYNTAX** OBJECT IDENTIFIER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"Identifies the instance of the hswaCallIndex for the entry in the hswaCallAdmnTable which contains the maximum negociable attribute for SVCs."

::= { hswaNetAdmnEntry 20 }

### — hswaNetDefaultPVCAAttId Object

hswaNetDefaultPVCAAttId **OBJECT-TYPE**

**SYNTAX** OBJECT IDENTIFIER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"Identifies the instance of the hswaCallIndex for the entry in the hswaCallAdmnTable which contains the default attribute for PVCs."

::= { hswaNetAdmnEntry 21 }

### Optional Facilities

Optional facilities are those which may or may not be offered by the network provider and to which customers choose whether or not to subscribe. The facilities implemented on HiSpeed WAN Comm. adapters refer to these main concerns :

- incoming and outgoing data accesses, in general or according to the membership of a Closed User Group,
- redirection and retransmission of data,
- charging of communications.

Some facilities are valid for all calls whereas other ones must be specifically requested for the duration of the call. In this case, a facility request is inserted in the call packets, either in call-request packet or in call-accepted packet.

The facilities and their coding are described in the X.25 CCITT recommendation.

— hswaNetFacOutgoingCallAcceptance Object

hswaNetFacOutgoingCallAcceptance **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Acceptance of outgoing calls from a user to users who do not belong to the same Closed User Group.

If disable, and if there is any such outgoing call, it is cleared immediately, returning a clear-indication packet to the user"

::= { hswaNetAdmnEntry 22 }

— hswaNetFacIncomingCallAcceptance Object

hswaNetFacIncomingCallAcceptance **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Acceptance by a user of incoming calls from users who do not belong to the same Closed User Group.

If disable, and if there is any such incoming call, it is cleared immediately"

::= { hswaNetAdmnEntry 23 }

— hswaNetFacNetworkUserIdentification Object

hswaNetFacNetworkUserIdentification **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Possibility for a user to give to the network, in a call or data packet, information about charging, security or network management."

::= { hswaNetAdmnEntry 24 }

— hswaNetFacRedirectionNotification Object

hswaNetFacRedirectionNotification **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Indication to a DTE receiving a call whether this one has been redirected."

::= { hswaNetAdmnEntry 25 }

— hswaNetFacCallRedirection Object

hswaNetFacCallRedirection **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Redirection of a call to another DTE when the first one is busy or out of order.”

::= { hswaNetAdmnEntry 26 }

— hswaNetFacChargingInformation Object

hswaNetFacChargingInformation **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Retrieval of information in order to compute the taxation.”

::= { hswaNetAdmnEntry 27 }

— hswaNetFacLocalCharging Object

hswaNetFacLocalCharging **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Prevention of outgoing calls to be paid for locally.

If enable, any outgoing calls must specify reverse charging  
and incoming calls which ask for reverse charging are rejected.”

::= { hswaNetAdmnEntry 28 }

— hswaNetFacReverseCharging Object

hswaNetFacReverseCharging **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

”Acceptance of incoming calls which ask for reverse charging.

If enable, the incoming calls may be paid for locally.”

::= { hswaNetAdmnEntry 29 }

— hswaNetFacFastSelect Object

hswaNetFacFastSelect **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Option of a virtual call facility which allows inclusion of data in call-setup and call-clearing packets."

::= { hswaNetAdmnEntry 30 }

— hswaNetFacThroughputClassNegotiation Object

hswaNetFacThroughputClassNegotiation **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Possibility for a DTE to negotiate the speed at which its packets travel through the network.

If disable, the default value is selected and the incoming throughput class value is checked for acceptability; if unacceptable, the call is cleared."

::= { hswaNetAdmnEntry 31 }

— hswaNetFacFlowControlNegotiation Object

hswaNetFacFlowControlNegotiation **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Possibility for a DTE to negotiate the flow control parameters (packet and window sizes).

If the flow control parameters are not present in the call packet, the default values are selected."

::= { hswaNetAdmnEntry 32 }

— hswaNetFacOutgoingCall Object

hswaNetFacOutgoingCall **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

If disable, a disconnect indication is returned to any application which processes a call-request packet"

::= { hswaNetAdmnEntry 33 }

— hswaNetFacIncomingCall Object

hswaNetFacIncomingCall **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

If disable, a clear-indication packet is sent on reception of a call-request packet"

::= { hswaNetAdmnEntry 34 }

— hswaNetFacPacketRetransmission Object

hswaNetFacPacketRetransmission **OBJECT-TYPE**

**SYNTAX** INTEGER {  
    enable (1),  
    disable (2)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Retransmission of data packets after reception of a reject packet. The retransmission begins with the sequence number given in the reject packet."

::= { hswaNetAdmnEntry 35 }

— hswaNetIncomingCUG Object

hswaNetIncomingCUG **OBJECT-TYPE**

**SYNTAX** DisplayString

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"List of the Closed User Group names which are allowed in incoming calls.  
(2n octets containing the characters 0 through 9).

The optional facilities, outgoing call acceptance and incoming call acceptance, may however modify these communications rules."

::= { hswaNetAdmnEntry 36 }

— hswaNetOutgoingCUG Object

hswaNetOutgoingCUG **OBJECT-TYPE**

**SYNTAX** DisplayString

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"List of the Closed User Group names which are allowed in outgoing calls.  
(2n octets containing the characters 0 through 9).

The optional facilities, outgoing call acceptance and incoming call acceptance, may however modify these communications rules."

::= { hswaNetAdmnEntry 37 }

— hswaNetBilateralCUG Object

hswaNetBilateralCUG **OBJECT-TYPE**

**SYNTAX** DisplayString

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"List of the Closed User Group names which are allowed in incoming and outgoing calls.  
(2n octets containing the characters 0 through 9).

The optional facilities, outgoing call acceptance and incoming call acceptance, may however modify these communications rules."

::= { hswaNetAdmnEntry 38 }

## — hswaCallAdmnTable: X.25 Call Parameters Table

**hswaCallAdmnTable OBJECT-TYPE**  
**SYNTAX** SEQUENCE OF HswaCallAdmnEntry  
**ACCESS** not-accessible  
**STATUS** mandatory  
**DESCRIPTION**  
"This table contains objects, to be read and written,  
used to manage the parameters associated with a Virtual Circuit (HiSpeed WAN Comm.),  
SVC or PVC."  
**::=** { hswaX25Admn 4 }

**hswaCallAdmnEntry OBJECT-TYPE**  
**SYNTAX** hswaCallAdmnEntry  
**ACCESS** not-accessible  
**STATUS** mandatory  
**DESCRIPTION**  
"Parameters configured on a Virtual Circuit (HiSpeed WAN Comm.), SVC or PVC,  
specified by the index **hswaCallIndex**."  
**INDEX** { hswaCallIndex }  
**::=** { hswaCallAdmnTable 1 }

```
HswaCallAdmnEntry ::= SEQUENCE {  
    hswaCallIndex  
        HswaIndexType,  
    hswaCallVCNumber  
        DisplayString,  
    hswaCallReceivePacketSize  
        INTEGER,  
    hswaCallTransmitPacketSize  
        INTEGER,  
    hswaCallReceivePacketWindow  
        INTEGER,  
    hswaCallTransmitPacketWindow  
        INTEGER,  
    hswaCallReceiveThroughputClass  
        INTEGER,  
    hswaCallTransmitThroughputClass  
        INTEGER  
}
```

## — hswaCallIndex Object

**hswaCallIndex OBJECT-TYPE**  
**SYNTAX** HswaIndexType  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"Instance Number Type3"  
**::=** { hswaCallAdmnEntry 1 }

See "Instance Number Type3" on page A-4.

— hswaCallIVCNumber Object

hswaCallIVCNumber **OBJECT-TYPE**

**SYNTAX** DisplayString

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"Four types:

DEF-PVC for PVC default parameters,

DEF-SVC for SVC default parameters,

MAX-SVC for SVC maximum negotiable parameters,

PVC number for the specified PVC parameters.

::= { hswaCallAdmnEntry 2 }

— hswaCallReceivePacketSize Object

hswaCallReceivePacketSize **OBJECT-TYPE**

**SYNTAX** INTEGER (0..4096)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Receive packet size.

List of possible values: 16 32 64 128 256 512 1024 2048 4096"

::= { hswaCallAdmnEntry 3 }

— hswaCallTransmitPacketSize Object

hswaCallTransmitPacketSize **OBJECT-TYPE**

**SYNTAX** INTEGER (0..4096)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Transmit packet size.

List of possible values :16 32 64 128 256 512 1024 2048 4096"

::= { hswaCallAdmnEntry 4 }

— hswaCallReceivePacketWindow Object

hswaCallReceivePacketWindow **OBJECT-TYPE**

**SYNTAX** INTEGER (0..127)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Receive packet window.

Two possible ranges of values

1 to 7 if packet modulo is 8

1 to 127 if packet modulo is 128"

::= { hswaCallAdmnEntry 5 }

— hswaCallTransmitPacketWindow Object

hswaCallTransmitPacketWindow **OBJECT-TYPE**

**SYNTAX** INTEGER (0..127)

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Transmit packet window.

Two possible ranges of values

1 to 7 if packet modulo is 8

1 to 127 if packet modulo is 128"

::= { hswaCallAdmnEntry 6 }



— hswaCallReceiveThroughputClass Object

hswaCallReceiveThroughputClass **OBJECT-TYPE**

**SYNTAX** INTEGER {  
tc75 (3),  
tc150 (4),  
tc300 (5),  
tc600 (6),  
tc1200 (7),  
tc2400 (8),  
tc4800 (9),  
tc9600 (10),  
tc19200 (11),  
tc48000 (12)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Receive throughput class"

::= { hswaCallAdmnEntry 7 }

— hswaCallTransmitThroughputClass Object

hswaCallTransmitThroughputClass **OBJECT-TYPE**

**SYNTAX** INTEGER {  
tc75 (3),  
tc150 (4),  
tc300 (5),  
tc600 (6),  
tc1200 (7),  
tc2400 (8),  
tc4800 (9),  
tc9600 (10),  
tc19200 (11),  
tc48000 (12)  
}

**ACCESS** read-write

**STATUS** mandatory

**DESCRIPTION**

"Transmit throughput class"

::= { hswaCallAdmnEntry 8 }

## — hswaMACStatTable: MAC Statistics Table

hswaMACStatTable **OBJECT-TYPE**

**SYNTAX** SEQUENCE OF HswaMACStatEntry

**ACCESS** not-accessible

**STATUS** mandatory

**DESCRIPTION**

"This table defines additional objects to provide more statistics about the MAC interface."

::= { hswaX25Statistics 1 }

hswaMACStatEntry **OBJECT-TYPE**

**SYNTAX** HswaMACStatEntry

**ACCESS** not-accessible

**STATUS** mandatory

**DESCRIPTION**

"Statistics about MAC interface (physical layer)."

**INDEX** { hswaMACStatIfIndex }

::= { hswaMACStatTable 1 }

HswaMACStatEntry ::= SEQUENCE {

hswaMACStatIfIndex

HswaIndexType,

hswaMACStatElecDown

Counter,

hswaMACStatRecvFrameTooLong

Counter,

hswaMACStatFlowCntrl

Counter,

hswaMACStatHuntXtion

Counter,

hswaMACStatBufferProblem

Counter,

hswaMACStatRecvFrameAborted

Counter,

hswaMACStatRecvFrameCRCErrors

Counter,

hswaMACStatRecvFrameParityErrors

Counter,

hswaMACStatRecvFrameHardErrors

Counter,

hswaMACStatRecvFrameOverrun

Counter,

hswaMACStatRecvFrameResBitError

Counter,

hswaMACStatRecvFrameTooShort

Counter,

hswaMACStatRecvFrameBreak

Counter,

hswaMACStatXmitFrameAborted

Counter,

hswaMACStatXmitFrameUnderrun

Counter

}

— hswaMACStatIfIndex Object

hswaMACStatIfIndex **OBJECT-TYPE**

**SYNTAX** HswaIndexType

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Instance Number Type2”

::= { hswaMACStatEntry 1 }

See “Instance Number Type2” on page A-4.

— hswaMACStatElecDown Object

hswaMACStatElecDown **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of times the electric interface was down.”

::= { hswaMACStatEntry 2 }

— hswaMACStatRecvFrameTooLong Object

hswaMACStatRecvFrameTooLong **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of times the interface has detected a too long frame.”

::= { hswaMACStatEntry 3 }

— hswaMACStatFlowCntrl Object

hswaMACStatFlowCntrl **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of times the interface has detected a flow control problem.”

::= { hswaMACStatEntry 4 }

— hswaMACStatHuntXtion Object

hswaMACStatHuntXtion **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of hunt transitions.”

::= { hswaMACStatEntry 5 }

— hswaMACStatBufferProblem Object

hswaMACStatBufferProblem **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of times the interface has detected buffer problems.”

::= { hswaMACStatEntry 6 }

— **hswaMACStatRecvFrameAborted Object**

**hswaMACStatRecvFrameAborted OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times the reception of a frame was aborted."

::= { hswaMACStatEntry 7 }

— **hswaMACStatRecvFrameCRCErrors Object**

**hswaMACStatRecvFrameCRCErrors OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times the interface has detected a frame with a bad CRC."

::= { hswaMACStatEntry 8 }

— **hswaMACStatRecvFrameParityErrors Object**

**hswaMACStatRecvFrameParityErrors OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times the interface has detected a frame with a parity error."

::= { hswaMACStatEntry 9 }

— **hswaMACStatRecvFrameHardErrors Object**

**hswaMACStatRecvFrameHardErrors OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times a hardware error was detected while receiving a frame."

::= { hswaMACStatEntry 10 }

— **hswaMACStatRecvFrameOverrun Object**

**hswaMACStatRecvFrameOverrun OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times the interface has detected an overrun condition while receiving a frame."

::= { hswaMACStatEntry 11 }

— **hswaMACStatRecvFrameResBitError Object**

**hswaMACStatRecvFrameResBitError OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of times the interface has detected a frame with a residual bit error."

::= { hswaMACStatEntry 12 }

— hswaMACStatRecvFrameTooShort Object

hswaMACStatRecvFrameTooShort **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of times the interface has detected a too short frame."  
 ::= { hswaMACStatEntry 13 }

— hswaMACStatRecvFrameBreak Object

hswaMACStatRecvFrameBreak **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of times the reception of a frame was broken."  
 ::= { hswaMACStatEntry 14 }

— hswaMACStatXmitFrameAborted Object

hswaMACStatXmitFrameAborted **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of times the transmission of a frame was aborted."  
 ::= { hswaMACStatEntry 15 }

— hswaMACStatXmitFrameUnderrun Object

hswaMACStatXmitFrameUnderrun **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of times the interface has detected an underrun condition while transmitting a frame."  
 ::= { hswaMACStatEntry 16 }

## — hswaLAPBStatTable: LAPB Statistics Table

### hswaLAPBStatTable **OBJECT-TYPE**

**SYNTAX** SEQUENCE OF HswaLAPBStatEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### **DESCRIPTION**

"This table defines additional objects to provide more statistics about the traffic flow through this LAPB interface."

::= { hswaX25Statistics 2 }

### hswaLAPBStatEntry **OBJECT-TYPE**

**SYNTAX** HswaLAPBStatEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### **DESCRIPTION**

"Statistics about LAPB interface (frame layer)."

**INDEX** { hswaLAPBStatIfIndex }

::= { hswaLAPBStatTable 1 }

### HswaLAPBStatEntry ::= SEQUENCE {

hswaLAPBStatIfIndex

HswaIndexType,

hswaLAPBStatOutInfo

Counter,

hswaLAPBStatOutRR

Counter,

hswaLAPBStatOutRNR

Counter,

hswaLAPBStatOutReject

Counter,

hswaLAPBStatOutSABM

Counter,

hswaLAPBStatOutDisconnect

Counter,

hswaLAPBStatOutUnAck

Counter,

hswaLAPBStatOutDM

Counter,

hswaLAPBStatOutFrameReject

Counter,

hswaLAPBStatOutXid

Counter,

hswaLAPBStatOutUnInfo

Counter,

hswaLAPBStatInInfo

Counter,

hswaLAPBStatInRR

Counter,

hswaLAPBStatInRNR

Counter,

hswaLAPBStatInReject

Counter,

hswaLAPBStatInSABM

Counter,

hswaLAPBStatInDisconnect

Counter,

```

hswaLAPBStatInUnAck
  Counter,
hswaLAPBStatInDM
  Counter,
hswaLAPBStatInFrameReject
  Counter,
hswaLAPBStatInXid
  Counter,
hswaLAPBStatInUnInfo
  Counter,
hswaLAPBStatInInvalid
  Counter,
hswaLAPBStatSABMErrors
  Counter,
hswaLAPBStatFrameError
  Counter
}

```

— **hswaLAPBStatIfIndex Object**

**hswaLAPBStatIfIndex OBJECT-TYPE**

**SYNTAX** HswaIndexType

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“Instance Number Type2”

::= { hswaLAPBStatEntry 1 }

See “Instance Number Type2” on page A-4.

— **hswaLAPBStatOutInfo Object**

**hswaLAPBStatOutInfo OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of information frames transmitted by this interface.”

::= { hswaLAPBStatEntry 2 }

— **hswaLAPBStatOutRR Object**

**hswaLAPBStatOutRR OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of Receive Ready frames transmitted by this interface.”

::= { hswaLAPBStatEntry 3 }

— **hswaLAPBStatOutRNR Object**

**hswaLAPBStatOutRNR OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

“The number of Receive Not Ready frames transmitted by this interface.”

::= { hswaLAPBStatEntry 4 }

— hswaLAPBStatOutReject Object

hswaLAPBStatOutReject **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Reject frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 5 }

— hswaLAPBStatOutSABM Object

hswaLAPBStatOutSABM **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Set Asynchronous Balanced Mode frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 6 }

— hswaLAPBStatOutDisconnect Object

hswaLAPBStatOutDisconnect **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Disconnect frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 7 }

— hswaLAPBStatOutUnAck Object

hswaLAPBStatOutUnAck **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Unnumbered Acknowledge frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 8 }

— hswaLAPBStatOutDM Object

hswaLAPBStatOutDM **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Disconnect Mode frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 9 }

— hswaLAPBStatOutFrameReject Object

hswaLAPBStatOutFrameReject **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Frame Reject frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 10 }



— hswaLAPBStatOutXid Object

hswaLAPBStatOutXid **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Exchange Id frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 11 }

— hswaLAPBStatOutUnInfo Object

hswaLAPBStatOutUnInfo **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Unnumbered Information frames transmitted by this interface."  
 ::= { hswaLAPBStatEntry 12 }

— hswaLAPBStatInInfo Object

hswaLAPBStatInInfo **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of information frames received by this interface."  
 ::= { hswaLAPBStatEntry 13 }

— hswaLAPBStatInRR Object

hswaLAPBStatInRR **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Receive Ready frames received by this interface."  
 ::= { hswaLAPBStatEntry 14 }

— hswaLAPBStatInRNR Object

hswaLAPBStatInRNR **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Receive Not Ready frames received by this interface."  
 ::= { hswaLAPBStatEntry 15 }

— hswaLAPBStatInReject Object

hswaLAPBStatInReject **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Reject frames received by this interface."  
 ::= { hswaLAPBStatEntry 16 }

— hswaLAPBStatInSABM Object

hswaLAPBStatInSABM **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Set Asynchronous Balanced Mode frames received by this interface."

::= { hswaLAPBStatEntry 17 }

— hswaLAPBStatInDisconnect Object

hswaLAPBStatInDisconnect **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Disconnect frames received by this interface."

::= { hswaLAPBStatEntry 18 }

— hswaLAPBStatInUnAck Object

hswaLAPBStatInUnAck **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Unnumbered Acknowledge frames received by this interface."

::= { hswaLAPBStatEntry 19 }

— hswaLAPBStatInDM Object

hswaLAPBStatInDM **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Disconnect Mode frames received by this interface."

::= { hswaLAPBStatEntry 20 }

— hswaLAPBStatInFrame Reject Object

hswaLAPBStatInFrameReject **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Frame Reject frames received by this interface."

::= { hswaLAPBStatEntry 21 }

— hswaLAPBStatInXid Object

hswaLAPBStatInXid **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Exchange Id frames received by this interface."

::= { hswaLAPBStatEntry 22 }

— hswaLAPBStatInUnInfo Object

hswaLAPBStatInUnInfo **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

”The number of Unnumbered Information frames received by this interface.”

::= { hswaLAPBStatEntry 23 }

— hswaLAPBStatInInvalid Object

hswaLAPBStatInInvalid **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

”The number of invalid frames received by this interface.”

::= { hswaLAPBStatEntry 24 }

— hswaLAPBStatSABMErrors Object

hswaLAPBStatSABMErrors **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

”The number of Set Asynchronous Balanced Mode errors.”

::= { hswaLAPBStatEntry 25 }

— hswaLAPBStatFrameError Object

hswaLAPBStatFrameError **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

”The number of Frame Reject Errors.”

::= { hswaLAPBStatEntry 26 }

## — hswaX25StatTable: PLE Statistics Table

### hswaX25StatTable **OBJECT-TYPE**

**SYNTAX** SEQUENCE OF HswaX25StatEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### **DESCRIPTION**

"This table defines additional objects to provide more statistics on this X.25 PLE."

::= { hswaX25Statistics 3 }

### hswaX25StatEntry **OBJECT-TYPE**

**SYNTAX** HswaX25StatEntry

**ACCESS** not-accessible

**STATUS** mandatory

#### **DESCRIPTION**

"Statistics about PLE interface (network layer)."

**INDEX** { hswaX25StatIfIndex }

::= { hswaX25StatTable 1 }

HswaX25StatEntry ::= SEQUENCE {

hswaX25StatIfIndex

HswaIndexType,

hswaX25StatOutDataOctets

Counter,

hswaX25StatOutDataPackets

Counter,

hswaX25StatOutQDataOctets

Counter,

hswaX25StatOutQBitDataPackets

Counter,

hswaX25StatOutRR

Counter,

hswaX25StatOutRNR

Counter,

hswaX25StatOutResets

Counter,

hswaX25StatOutRestarts

Counter,

hswaX25StatOutCalls

Counter,

hswaX25StatOutClears

Counter,

hswaX25StatOutInterrupts

Counter,

hswaX25StatOutDiags

Counter,

hswaX25StatInDataOctets

Counter,

hswaX25StatInDataPackets

Counter,

hswaX25StatInQDataOctets

Counter,

hswaX25StatInQBitDataPackets

Counter,

hswaX25StatInRR

Counter,

hswaX25StatInRNR

Counter,

```

hswaX25StatInResets
    Counter,
hswaX25StatInRestarts
    Counter,
hswaX25StatInCalls
    Counter,
hswaX25StatInClears
    Counter,
hswaX25StatInInterrupts
    Counter,
hswaX25StatInDiags
    Counter,
hswaX25StatInvalidPackets
    Counter,
hswaX25StatConnects
    Counter,
hswaX25StatDisconnects
    Counter,
hswaX25StatLastCause
    INTEGER,
hswaX25StatLastDiag
    INTEGER,
hswaX25StatMeanOpenChannels
    Gauge
}

```

— **hswaX25StatIfIndex Object**

```

hswaX25StatIfIndex OBJECT-TYPE
SYNTAX HswaIndexType
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "Instance Number Type2"
 ::= { hswaX25StatEntry 1 }

```

See "Instance Number Type2" on page A-4.

— **hswaX25StatOutDataOctets Object**

```

hswaX25StatOutDataOctets OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The number of data octets transmitted by this interface."
 ::= { hswaX25StatEntry 2 }

```

— **hswaX25StatOutDataPackets Object**

```

hswaX25StatOutDataPackets OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
    "The number of non q-bit data packets transmitted by this interface."
 ::= { hswaX25StatEntry 3 }

```

— hswaX25StatOutQDataOctets Object

hswaX25StatOutQDataOctets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of q-data octets transmitted by this interface."  
 ::= { hswaX25StatEntry 4 }

— hswaX25StatOutQDataPackets Object

hswaX25StatOutQBitDataPackets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of q-bit data packets transmitted by this interface."  
 ::= { hswaX25StatEntry 5 }

— hswaX25StatOutRR Object

hswaX25StatOutRR **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Receive Ready packets transmitted by this interface."  
 ::= { hswaX25StatEntry 6 }

— hswaX25StatOutRNR Object

hswaX25StatOutRNR **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Receive Not Ready packets transmitted by this interface."  
 ::= { hswaX25StatEntry 7 }

— hswaX25StatOutResets Object

hswaX25StatOutResets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Reset packets transmitted by this interface."  
 ::= { hswaX25StatEntry 8 }

— hswaX25StatOutRestarts Object

hswaX25StatOutRestarts **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Restart Packets transmitted by this interface."  
 ::= { hswaX25StatEntry 9 }

— hswaX25StatOutCalls Object

hswaX25StatOutCalls **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Call packets transmitted by this interface."  
 ::= { hswaX25StatEntry 10 }

— hswaX25StatOutClears Object

hswaX25StatOutClears **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Clear packets transmitted by this interface."  
 ::= { hswaX25StatEntry 11 }

— hswaX25StatOutInterrupts Object

hswaX25StatOutInterrupts **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Interrupt packets transmitted by this interface."  
 ::= { hswaX25StatEntry 12 }

— hswaX25StatOutDiags Object

hswaX25StatOutDiags **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Diagnostic packets transmitted by this interface."  
 ::= { hswaX25StatEntry 13 }

— hswaX25StatInDataOctets Object

hswaX25StatInDataOctets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of data octets received by this interface."  
 ::= { hswaX25StatEntry 14 }

— hswaX25StatInDataPackets Object

hswaX25StatInDataPackets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of non q-bit data packets received by this interface."  
 ::= { hswaX25StatEntry 15 }

— hswaX25StatInQDataOctets Object

hswaX25StatInQDataOctets **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of q data octets received by this interface."

::= { hswaX25StatEntry 16 }

— hswaX25StatInQBitDataPackets Object

hswaX25StatInQBitDataPackets **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of q-bit data packets received by this interface."

::= { hswaX25StatEntry 17 }

— hswaX25StatInRR Object

hswaX25StatInRR **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Receive Ready packets received by this interface."

::= { hswaX25StatEntry 18 }

— hswaX25StatInRNR Object

hswaX25StatInRNR **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Receive Not Ready packets received by this interface."

::= { hswaX25StatEntry 19 }

— hswaX25StatInResets Object

hswaX25StatInResets **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Reset packets received by this interface."

::= { hswaX25StatEntry 20 }

— hswaX25StatInRestarts Object

hswaX25StatInRestarts **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of Restart packets received by this interface."

::= { hswaX25StatEntry 21 }



— hswaX25StatInCalls Object

hswaX25StatInCalls **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Call packets received by this interface."  
 ::= { hswaX25StatEntry 22 }

— hswaX25StatInClears Object

hswaX25StatInClears **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Clear packets received by this interface."  
 ::= { hswaX25StatEntry 23 }

— hswaX25StatInInterrupts Object

hswaX25StatInInterrupts **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Interrupt packets received by this interface."  
 ::= { hswaX25StatEntry 24 }

— hswaX25StatInDiags Object

hswaX25StatInDiags **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of Diagnostic packets received by this interface."  
 ::= { hswaX25StatEntry 25 }

— hswaX25StatInvalidPackets Object

hswaX25StatInvalidPackets **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of invalid packets received by this interface."  
 ::= { hswaX25StatEntry 26 }

— hswaX25StatConnects Object

hswaX25StatConnects **OBJECT-TYPE**  
**SYNTAX** Counter  
**ACCESS** read-only  
**STATUS** mandatory  
**DESCRIPTION**  
"The number of connects."  
 ::= { hswaX25StatEntry 27 }

— hswaX25StatDisconnects Object

hswaX25StatDisconnects **OBJECT-TYPE**

**SYNTAX** Counter

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The number of disconnects."

::= { hswaX25StatEntry 28 }

— hswaX25StatLastCause Object

hswaX25StatLastCause **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The last Cause code."

::= { hswaX25StatEntry 29 }

— hswaX25StatLastDiag Object

hswaX25StatLastDiag **OBJECT-TYPE**

**SYNTAX** INTEGER

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The diagnostic code."

::= { hswaX25StatEntry 30 }

— hswaX25StatMeanOpenChannels Object

hswaX25StatMeanOpenChannels **OBJECT-TYPE**

**SYNTAX** Gauge

**ACCESS** read-only

**STATUS** mandatory

**DESCRIPTION**

"The average number of open logical channels."

::= { hswaX25StatEntry 31 }

## MIB Tables for RFC 1381 /1382

### RFC 1381

#### lapbAdmnTable

Object	RFC Access	Support
lapbAdmnIndex	read-only	yes
lapbAdmnStationType	read-write	yes
lapbAdmnControlField	read-write	yes
lapbAdmnTransmitN1FrameSize	read-write	read-only
lapbAdmnReceiveN1FrameSize	read-write	read-only
lapbAdmnTransmitKWindowSize	read-write	yes
lapbAdmnReceiveKWindowSize	read-write	yes
lapbAdmnN2RxmitCount	read-write	yes
lapbAdmnT1AckTimer	read-write	yes
lapbAdmnT2AckDelayTimer	read-write	read-only
lapbAdmnT3DisconnectTimer	read-write	read-only
lapbAdmnT4IdleTimer	read-write	yes
lapbAdmnActionInitiate	read-write	yes
lapbAdmnActionRecvDM	read-write	read-only

#### lapbOperTable

Object	RFC Access	Support
lapbOperIndex	read-only	yes
lapbOperStationType	read-only	yes
lapbOperControlField	read-only	yes
lapbOperTransmitN1FrameSize	read-only	yes
lapbOperReceiveN1FrameSize	read-only	yes
lapbOperTransmitKWindowSize	read-only	yes
lapbOperReceiveKWindowSize	read-only	yes
lapbOperN2RxmitCount	read-only	yes
lapbOperT1AckTimer	read-only	yes
lapbOperT2AckDelayTimer	read-only	yes
lapbOperT3DisconnectTimer	read-only	yes
lapbOperT4IdleTimer	read-write	read-only
lapbOperPortId	read-only	yes
lapbOperProtocolVersionId	read-only	yes

## lapbFlowTable

Object	RFC Access	Support
lapbFlowIfIndex	read-only	yes
lapbFlowStateChanges	read-only	no
lapbFlowChangeReason	read-only	no
lapbFlowCurrentMode	read-only	yes
lapbFlowBusyDefers	read-only	yes
lapbFlowRejOutPkts	read-only	yes
lapbFlowRejInPkts	read-only	yes
lapbFlowT1Timeouts	read-only	no
lapbFlowFrmrSent	read-only	no
lapbFlowFrmrReceived	read-only	no
lapbFlowXidReceived	read-only	no

## lapbXidTable

Not Supported

Object	RFC Access	Support
lapbXidIndex	read-only	no
lapbXidAdRIdentifier	read-write	no
lapbXidAdRAddress	read-write	no
lapbXidParameterUniqueIdentifier	read-write	no
lapbXidGroupAddress	read-write	no
lapbXidPortNumber	read-write	no
lapbXidUserDataSubfield	read-write	no

## RFC 1382

### x25AdmnTable

Object	RFC Access	Support
x25AdmnIndex	read-only	yes
x25AdmnInterfaceMode	read-write	yes
x25AdmnMaxActiveCircuits	read-write	read-only
x25AdmnPacketSequencing	read-write	yes
x25AdmnRestartTimer	read-write	yes
x25AdmnCallTimer	read-write	yes
x25AdmnResetTimer	read-write	yes
x25AdmnClearTimer	read-write	yes
x25AdmnWindowTimer	read-write	yes
x25AdmnDataRxmtTimer	read-write	read-only
x25AdmnInterruptTimer	read-write	read-only
x25AdmnRejectTimer	read-write	read-only
x25AdmnRegistrationRequestTimer	read-write	read-only
x25AdmnMinimumRecallTimer	read-write	no
x25AdmnRestartCount	read-write	no
x25AdmnResetCount	read-write	no
x25AdmnClearCount	read-write	no
x25AdmnDataRxmtCount	read-write	no
x25AdmnRejectCount	read-write	no
x25AdmnRegistrationRequestCount	read-write	no
x25AdmnNumberPVCs	read-write	yes
x25AdmnDefCallParamId	read-write	read-only
x25AdmnLocalAddress	read-write	yes
x25AdmnProtocolVersionSupported	read-write	read-only

### x25OperTable

Object	RFC Access	Support
x25OperIndex	read-only	yes
x25OperInterfaceMode	read-only	yes
x25OperMaxActiveCircuits	read-only	yes
x25OperPacketSequencing	read-only	yes
x25OperRestartTimer	read-only	yes
x25OperCallTimer	read-only	yes
x25OperResetTimer	read-only	yes
x25OperClearTimer	read-only	yes
x25OperWindowTimer	read-only	yes

x25OperDataRxmtTimer	read-only	yes
x25OperInterruptTimer	read-only	yes
x25OperRejectTimer	read-only	yes
x25OperRegistrationRequestTimer	read-only	yes
x25OperMinimumRecallTimer	read-only	no
x25OperRestartCount	read-only	no
x25OperResetCount	read-only	no
x25OperClearCount	read-only	no
x25OperDataRxmtCount	read-only	yes
x25OperRejectCount	read-only	yes
x25OperRegistrationRequestCount	read-only	yes
x25OperNumberPVCs	read-only	yes
x25OperDefCallParamId	read-only	yes
x25OperLocalAddress	read-only	yes
x25OperDataLinkId	read-only	yes
x25OperProtocolVersionSupported	read-only	yes

## x25StatTable

Object	RFC Access	Support
x25StatIndex	read-only	yes
x25StatInCalls	read-only	yes
x25StatInCallRefusals	read-only	no
x25StatInProviderInitiatedClears	read-only	no
x25StatInRemotelyInitiatedResets	read-only	no
x25StatInProviderInitiatedResets	read-only	no
x25StatInRestarts	read-only	no
x25StatInDataPackets	read-only	yes
x25StatInAccusedOfProtocolErrors	read-only	no
x25StatInInterrupts	read-only	yes
x25StatOutCallAttempts	read-only	yes
x25StatOutCallFailures	read-only	no
x25StatOutInterrupts	read-only	yes
x25StatOutDataPackets	read-only	yes
x25StatOutgoingCircuits	read-only	no
x25StatIncomingCircuits	read-only	no
x25StatTwowayCircuits	read-only	no
x25StatRestartTimeouts	read-only	no
x25StatCallTimeouts	read-only	no
x25StatResetTimeouts	read-only	no
x25StatClearTimeouts	read-only	no
x25StatDataRxmtTimeouts	read-only	no

x25StatInterruptTimeouts	read-only	no
x25StatRetryCountExceeded	read-only	no
x25StatClearCountExceeded	read-only	no

## x25ChannelTable

Object	RFC Access	Support
x25ChannelIndex	read-only	yes
x25ChannelLIC	read-write	yes
x25ChannelHIC	read-write	yes
x25ChannelLTC	read-write	yes
x25ChannelHTC	read-write	yes
x25ChannelLOC	read-write	yes
x25ChannelHOC	read-write	yes

## x25CircuitTable

Supports Information for PVCs only.

Object	RFC Access	Support
x25CircuitIndex	read-only	yes
x25CircuitChannel	read-only	yes
x25CircuitStatus	read-write	read-only
x25CircuitEstablishTime	read-only	no
x25CircuitDirection	read-write	read-only
x25CircuitInOctets	read-only	no
x25CircuitInPdus	read-only	no
x25CircuitInRemotelyInitiatedResets	read-only	no
x25CircuitInProviderInitiatedResets	read-only	no
x25CircuitInInterrupts	read-only	no
x25CircuitOutOctets	read-only	no
x25CircuitOutPdus	read-only	no
x25CircuitOutInterrupts	read-only	no
x25CircuitDataRetransmissionTimeouts	read-only	no
x25CircuitResetTimeouts	read-only	no
x25CircuitInterruptTimeouts	read-only	no
x25CircuitCallParamId	read-write	read-only
x25CircuitCalledDteAddress	read-write	read-only
x25CircuitCallingDteAddress	read-write	read-only
x25CircuitOriginallyCalledAddress	read-write	read-only
x25CircuitDescr	read-write	read-only

## x25ClearedCircuitEntriesRequested

Not Supported.

Object	RFC Access	Support
x25ClearedCircuitEntriesRequested	read-write	no

## x25ClearedCircuitEntriesGranted

Not Supported.

Object	RFC Access	Support
x25ClearedCircuitEntriesGranted	read-only	no

## x25ClearedCircuitTable

Not supported.

Object	RFC Access	Support
x25ClearedCircuitIndex	read-only	no
x25ClearedCircuitPIIndex	read-only	no
x25ClearedCircuitTimeEstablished	read-only	no
x25ClearedCircuitTimeCleared	read-only	no
x25ClearedCircuitChannel	read-only	no
x25ClearedCircuitClearingCause	read-only	no
x25ClearedCircuitDiagnosticCode	read-only	no
x25ClearedCircuitInPdus	read-only	no
x25ClearedCircuitOutPdus	read-only	no
x25ClearedCircuitCalledAddress	read-only	no
x25ClearedCircuitCallingAddress	read-only	no
x25ClearedCircuitClearFacilities	read-only	no

## x25CallParmTable

Object	RFC Access	Support
x25CallParmIndex	read-only	yes
x25CallParmStatus	read-write	read-only
x25CallParmRefCount	read-write	read-only
x25CallParmInPacketSize	read-write	yes
x25CallParmOutPacketSize	read-write	yes
x25CallParmInWindowSize	read-write	yes
x25CallParmOutWindowSize	read-write	yes
x25CallParmAcceptReverseCharging	read-write	yes
x25CallParmProposeReverseCharging	read-write	yes (PLE)
x25CallParmFastSelect	read-write	yes (PLE)



x25CallParmInThruPutClasSize	read-write	yes
x25CallParmOutThruPutClasSize	read-write	yes
x25CallParmCug	read-only	read-only
x25CallParmCugoa	read-write	read-only
x25CallParmBcug	read-write	read-only
x25CallParmNui	read-write	read-only
x25CallParmChargingInfo	read-write	yes (PLE)
x25CallParmRpoa	read-write	read-only
x25CallParmTrnstDly	read-write	read-only
x25CallParmCallingExt	read-write	read-only
x25CallParmCalledExt	read-write	read-only
x25CallParmInMinThuPutCls	read-write	read-only
x25CallParmOutMinThuPutCls	read-write	read-only
x25CallParmEndTrnsDly	read-write	read-only
x25CallParmPriority	read-write	read-only
x25CallParmProtection	read-write	read-only
x25CallParmExptData	read-write	read-only
x25CallParmUserData	read-write	read-only
x25CallParmCallingNetworkFacilities	read-write	read-only
x25CallParmCalledNetworkFacilities	read-write	read-only



---

# Glossary

**ISM**

Integrated System Management  
An existing SNMP Manager

**MIB**

Management Information Database  
Database containing the information pertinent to network management.

The database is conceptually organized as a tree, the common part is known as MIB-II and each branch or MIB module refers to a communications function to be managed.

**SNMP**

Simple Network Management Protocol  
It is an internetworking protocol designed for use with TCP/IP-based networks.

**SRC**

System Resource Controller

**Community**

Associated with an SNMP Agent, it defines the possible accesses to its MIB:

- type of access (none, read-only, write-only) on a part of the MIB (MIB view),
- by which hosts (SNMP manager).

More than one community may be associated to an SNMP Agent.

**Internet**

The Internet (spelled with initial capitalization) is the Internet System.

**Internet Address**

The numbering system used in TCP/IP Internetwork communications to specify a particular network or a particular host on that network with which to communicate.

It consists of a four octet (32 bit) source or destination address, made up of a Network portion and a Host portion. Internet addresses are commonly denoted in dotted decimal form.

**Internet Protocol (IP)**

The network level protocol used by UNIX internetworking.

The protocol that provides the interface from the higher level host-to-host protocols to the local network protocols. Addressing at this level is usually from host to host.

**SNMP Agent**

A server application that maintains the Management Information Base (MIB) database for the host to be managed.

**SNMP Manager**

A client application that generates towards the SNMP agent, requests for MIB information and processes responses. It can, as well, send requests to an SNMP agent to modify the corresponding MIB.

**SNMP Network Management**

Based on the client/server model, widely used in network applications. Each host to be managed, runs a server application called an **agent**. The host, designed to manage the network, runs a client application called a **manager**.

**SNMP Subagent**

It implements MIB modules specific to communications functions to be managed and is activated by the SMUX multiplexer.

**Standard SNMP Agent**

AIX-standard SNMP Agent.

It implements the MIB-II, MIBs specific to token-ring, Ethernet and FFDI devices, and the SMUX multiplexer.

**System Resource Controller**

A set of commands and subroutines used to create and control subsystems. The SRC provides a common method to start, stop, and collect status information on processes.



---

# Index

## A

- Access, MIB, 1-10
- Access Policies, 1-10
- Architecture (Figure), 1-3

## B

- Browser, 1-4
  - Using, 1-11

## C

- Commands, 3-1
  - x25ag, 3-2
- Community, definition, 1-2
- Compliance & Additions, 1-4
- Configuration Information Tables, 2-9
- Configuring, HiSpeed WAN Comm. Adapters, 1-12
- Control, 2-3
- Cookbook, 1-1
  - Compliance & Additions, 1-4
  - Definitions. *See* Definitions
  - Environment & Architecture, 1-3
  - Matching Line Number & Instance Number, 1-14
  - MIB Overview, 1-6
  - Network Administrator Tasks, 1-10
  - Overview, 1-2
  - Programmer Tasks, 1-13
  - System Administrator Tasks, 1-8

## D

- Definitions
  - Community, 1-2
  - MIB, 1-2
  - SNMP, 1-2
  - SNMP Agent, 1-2
  - SNMP Agent for HiSpeed Adapters, 1-2
  - SNMP Manager, 1-2
  - SNMP Network Management, 1-2

## E

- Environment & Architecture, 1-3
- Error messages, 3-5
- Examples
  - Trace File, 4-2
  - x25ag Command, 3-3

## F

- File formats, 4-1
  - Trace, 4-2
- Functionalities
  - Enhanced. *See* Browser
  - Standard, 1-4

## G

- Getting Agent Status, 1-9

## H

- HiSpeed Adapters MIB Tables, Index, A-3
- HiSpeed Adapters–specific MIB
  - See also* Tables
  - Access, A-4
- HiSpeed WAN Comm. Adapter, Configuring, 1-12
- How to
  - Change/Show Configuration Information Tables, 2-9
  - Change/Show Target Agent, 2-8
  - Control SNMP Agent, 2-3
  - Refresh the Agent, 2-5
  - Show Agent Status, 2-5
  - Show Statistics Information Tables, 2-11
  - Start the Agent, 2-4
  - Stop the Agent, 2-5
  - Use the Browser, 2-7
- hswaBoardsTable, A-5
- hswaCallAdmnTable, A-27
- hswaFrameAdmnTable, A-12
- hswaLAPBStatTable, A-34
- hswaMACStatTable, A-30
- hswaNetAdmnTable, A-15
- hswaPhysicalAdmnTable, A-10
- hswaX25StatTable, A-40

## I

- Installation, 1-8
- Instance Number, 1-14
- Interface, SMIT, 2-1

## L

- lapbAdmnTable, A-47
- lapbFlowTable, A-48
- lapbOperTable, A-47
- lapbXidTable, A-48
- Licensing, 1-8
- Line Number, 1-14
- Link Layer (LAPB), RFC 1381, 1-7

## M

- Management, Tables, 1-11
- Messages
  - Error, 3-5
  - Warning, 3-5
- MIB, 1-6
  - HiSpeed Adapters–specific Tables, A-2
  - Support, A-1
  - Table for RFC 1381/1382, A-47
- MIB Access, 1-10
- MIB Support, A-1
- MIB Tables Availability, 1-10
- MIB, definition, 1-2

## N

Network Administrator Tasks, 1-10

## O

Object–Type. See Objects

Objectives, 1-4

Objects

- hswaBoardBuffers, A-7
- hswaBoardConfStatus, A-9
- hswaBoardEntry, A-5
- hswaBoardLocation, A-6
- hswaBoardMaxUsedBuffers, A-7
- hswaBoardName, A-6
- hswaBoardQueueMsg, A-7
- hswaBoardQueueSize, A-7
- hswaBoardRcvQueueMsg, A-8
- hswaBoardsTable, A-5
  
- hswaBoardStatus, A-6
- hswaBoardTotalMsgReceived, A-8
- hswaBoardTotalMsgSent, A-8
- hswaBoardType, A-6
- hswaBoardUsedBuffers, A-7
- hswaCallAdmnEntry, A-27
- hswaCallAdmnTable, A-27
- hswaCallIndex, A-27
- hswaCallReceivePacketSize, A-28
- hswaCallReceivePacketWindow, A-28
  
- hswaCallReceiveThroughputClass, A-29
- hswaCallTransmitPacketSize, A-28
- hswaCallTransmitPacketWindow, A-28
- hswaCallTransmitThroughputClass, A-29
- hswaCallVCNumber, A-28
- hswaConnectionMode, A-14
- hswaFrameAdmnEntry, A-12
- hswaFrameAdmnTable, A-12
- hswaFrameIndex, A-12
- hswaFrameModulo, A-13
  
- hswaFrameWindowSize, A-13
- hswaLAPBStatEntry, A-34
- hswaLAPBStatFrameError, A-39
- hswaLAPBStatIfIndex, A-35
- hswaLAPBStatInDisconnect, A-38
- hswaLAPBStatInDM, A-38
- hswaLAPBStatInFrameReject, A-38
- hswaLAPBStatInInfo, A-37
- hswaLAPBStatInInvalid, A-39
- hswaLAPBStatInReject, A-37
  
- hswaLAPBStatInRNR, A-37
- hswaLAPBStatInRR, A-37
- hswaLAPBStatInSABM, A-38
- hswaLAPBStatInUnAck, A-38
- hswaLAPBStatInUnInfo, A-39
- hswaLAPBStatInXid, A-38
- hswaLAPBStatOutDisconnect, A-36
- hswaLAPBStatOutDM, A-36
- hswaLAPBStatOutFrameReject, A-36
- hswaLAPBStatOutInfo, A-35

- hswaLAPBStatOutReject, A-36
- hswaLAPBStatOutRNR, A-35
- hswaLAPBStatOutRR, A-35
- hswaLAPBStatOutSABM, A-36
- hswaLAPBStatOutUnAck, A-36
- hswaLAPBStatOutUnInfo, A-37
- hswaLAPBStatOutXid, A-37
- hswaLAPBStatSABMErrors, A-39
- hswaLAPBStatTable, A-34
- hswaLineType, A-13

- hswaMACStatBufferProblem, A-31
- hswaMACStatElecDown, A-31
- hswaMACStatEntry, A-30
- hswaMACStatFlowCntrl, A-31
- hswaMACStatHunXtion, A-31
- hswaMACStatIfIndex, A-31
- hswaMACStatRecFrameTooLong, A-31
- hswaMACStatRecvFrameAborted, A-32, A-33
- hswaMACStatRecvFrameBreak, A-33
- hswaMACStatRecvFrameCRErrors, A-32

- hswaMACStatRecvFrameHardErrors, A-32
- hswaMACStatRecvFrameOverrun, A-32
- hswaMACStatRecvFrameParityErrors, A-32
- hswaMACStatRecvFrameResBitError, A-32
- hswaMACStatRecvFrameTooShort, A-33
- hswaMACStatRecvFrameUnderrun, A-33
- hswaMACStatTable, A-30
- hswaN2Counter, A-14
- hswaNet, A-21
- hswaNetAdmnEntry, A-15

- hswaNetAdmnTable, A-15
- hswaNetBilateralCUG, A-26
- hswaNetConnectionMode, A-19
- hswaNetDefaultPVCAttld, A-21
- hswaNetDefaultSVCAttld, A-21
- hswaNetFacCallRedirection, A-23
- hswaNetFacChargingInformation, A-23
- hswaNetFacFastSelect, A-24
- hswaNetFacFlowControlNegotiation, A-24
- hswaNetFacIncomingCall, A-25

- hswaNetFacIncomingCallAcceptance, A-22
- hswaNetFacLocalCharging, A-23
- hswaNetFacNetworkUserIdentification, A-22
- hswaNetFacOutgoingCall, A-24
- hswaNetFacOutgoingCallAcceptance, A-22
- hswaNetFacPacketRetransmission, A-25
- hswaNetFacRedirectionNotification, A-22
- hswaNetFacReverseCharging, A-23
- hswaNetFacThroughputClassNegotiation, A-24
- hswaNetIncomingCUG, A-25

- hswaNetIndex, A-16
- hswaNetInOutSVCNb, A-17
- hswaNetInSVCNb, A-17
- hswaNetLocalNetworkUserAddress, A-17
- hswaNetLowInOutSVC, A-17
- hswaNetLowInSVC, A-17
- hswaNetLowOutSVC, A-18
- hswaNetLowPVC, A-18

- hswaNetOutgoingCUG, A-25
- hswaNetOutSVCNb, A-18
- hswaNetPacketModulo, A-19
- hswaNetPVCNb, A-18
- hswaNetUseOptionalAddress, A-19
- hswaPhysicalAdmnEntry, A-10
- hswaPhysicalAdmnTable, A-10
- hswaPhysicalClockSignal, A-11
- hswaPhysicalIndex, A-10
- hswaPhysicalLineInterface, A-10

- hswaT1Timer, A-13
- hswaT20timer, A-20
- hswaT21timer, A-20
- hswaT22timer, A-20
- hswaT23timer, A-20
- hswaT24timer, A-21
- hswaT4Timer, A-14
- hswaX25StatConnects, A-45
- hswaX25StatDisconnects, A-46
- hswaX25StatEntry, A-40

- hswaX25StatIfIndex, A-41
- hswaX25StatInCalls, A-45
- hswaX25StatInClears, A-45
- hswaX25StatInDataOctets, A-43
- hswaX25StatInDataPackets, A-43
- hswaX25StatInDiags, A-45
- hswaX25StatInInterrupts, A-45
- hswaX25StatInQBitDataPackets, A-44
- hswaX25StatInQDataOctets, A-44
- hswaX25StatInResets, A-44

- hswaX25StatInRestarts, A-44
- hswaX25StatInRNR, A-44
- hswaX25StatInRR, A-44
- hswaX25StatInvalidPackets, A-45
- hswaX25StatLastCause, A-46
- hswaX25StatLastDiag, A-46
- hswaX25StatMeanOpenChannels, A-46
- hswaX25StatOutCalls, A-43
- hswaX25StatOutClears, A-43
- hswaX25StatOutDataOctets, A-41
- hswaX25StatOutDataPackets, A-41

- hswaX25StatOutDiags, A-43
- hswaX25StatOutInterrupts, A-43
- hswaX25StatOutQDataOctets, A-42
- hswaX25StatOutQDataPackets, A-42
- hswaX25StatOutResets, A-42
- hswaX25StatOutRestarts, A-42
- hswaX25StatOutRNR, A-42
- hswaX25StatOutRR, A-42
- hswaX25StatTable, A-40
- Optional Facilities, A-21

Overview, Cookbook, 1-2

## P

- Packet Layer (PLE), RFC 1382, 1-7
- Profiles, User, 1-5
- Programmer Tasks, 1-13

## R

- Refresh the Agent, 2-5
- Return Code & Messages, x25ag Command, 3-4
- RFC 1381, 1-7, A-47
- RFC 1381/1382 MIB. *See* Tables
- RFC 1382, 1-7, A-49

## S

- Show Agent Status, 2-5
- SMIT, Interface, 2-1
- SMIT Interface, Menu, 2-1
- SMIT Interface (Figure), 2-1
- SNMP Agent for HiSpeed Adapters, definition, 1-2
- SNMP Agent, definition, 1-2
- SNMP Manager, definition, 1-2
- SNMP Network Management, definition, 1-2
- SNMP, definition, 1-2
- Standard Functionalities, 1-4
- Start the Agent, 2-4
- Starting the Agent, 1-9
- Statistics Information Tables, 2-11
- Status, 1-9
- Stop the Agent, 2-5
- Stopping the Agent, 1-9
- System Administrator Tasks, 1-8

## T

### Tables

- HiSpeed Adapters Specific, 2-9, 2-11
- hswaBoardsTable, 1-6
- hswaCallAdmnTable, 1-6
- hswaFrameAdmnTable, 1-6
- hswaLAPBStatTable, 1-6
- hswaMACStatTable, 1-6
- hswaNetworkAdmnTable, 1-6
- hswaPhysicalAdmnTable, 1-6
- hswaX25StatTable, 1-6
- lapbAdmnTable, 1-7, A-47
- lapbFlowTable, 1-7, A-48
- lapbOperTable, 1-7, A-47
- lapbXidTable, A-48
- RFC 1381/1382, 2-9, 2-10, 2-11
- Show Operational Information, 2-10
- x25AdmnTable, A-49
- x25AdmTable, 1-7
- x25CallParmTable, 1-7, A-52
- x25ChannelTable, 1-7, A-51
- x25CircuitTable, 1-7, A-51
- x25ClearedCircuitEntriesGranted, A-52
- x25ClearedCircuitEntriesRequested, A-52
- x25ClearedCircuitTable, A-52
- x25OperTable, 1-7, A-49
- x25StatTable, 1-7, A-50

Target Agent, 2-8

### Tasks

- Network Administrator, 1-10
  - Access Policies, 1-10
  - Configuring HiSpeedWAN Comm. Adapter, 1-12
  - MIB Access, 1-10
  - MIB Tables Availability, 1-10
  - Tables Management, 1-11
  - Using Traces, 1-12

- Programmer, 1-13
- System Administrator, 1-8
  - Getting Agent Status, 1-9
  - Installing the Agent, 1-8
  - Starting the Agent, 1-9
  - Stopping the Agent, 1-9

Trace File, 4-2

Traces, Using, 1-12

## U

User Profiles, 1-5

Using, SMIT Interface, 2-1

Using the Browser, 2-7

## W

Warning messages, 3-5

## X

x25AdmnTable, A-49

x25ag Command, 3-2

x25CallParmTable, A-52

x25ChannelTable, A-51

x25CircuitTable, A-51

x25ClearedCircuitEntriesGranted, A-52

x25ClearedCircuitEntriesRequested, A-52

x25ClearedCircuitTable, A-52

x25OperTable, A-49

x25StatTable, A-50



## Vos remarques sur ce document / Technical publication remark form

**Titre / Title :** Bull SNMP Agent for HiSpeed Adapters Administrator & User Guide

**N° Référence / Reference N° :** 86 A2 73AT 02

**Daté / Dated :** October 1997

### ERREURS DETECTEES / ERRORS IN PUBLICATION

### AMELIORATIONS SUGGEREES / SUGGESTIONS FOR IMPROVEMENT TO PUBLICATION

Vos remarques et suggestions seront examinées attentivement.

Si vous désirez une réponse écrite, veuillez indiquer ci-après votre adresse postale complète.

Your comments will be promptly investigated by qualified technical personnel and action will be taken as required.

If you require a written reply, please furnish your complete mailing address below.

NOM / NAME : \_\_\_\_\_ Date : \_\_\_\_\_

SOCIETE / COMPANY : \_\_\_\_\_

ADRESSE / ADDRESS : \_\_\_\_\_

Remettez cet imprimé à un responsable BULL ou envoyez-le directement à :

Please give this technical publication remark form to your BULL representative or mail to:

**BULL ELECTRONICS EUROPE S.A.**

**Service CEDOC**

**331 Avenue PATTON – BP 428**

**49004 ANGERS CEDEX 01**

**FRANCE**

# Technical Publications Ordering Form

## Bon de Commande de Documents Techniques

To order additional publications, please fill up a copy of this form and send it via mail to:

Pour commander des documents techniques, remplissez une copie de ce formulaire et envoyez-la à :

**BULL ELECTRONICS EUROPE S.A.**  
**Service CEDOC**  
**ATTN / MME DUMOULIN**  
**331 Avenue PATTON – BP 428**  
**49004 ANGERS CEDEX 01**  
**FRANCE**

**Managers / Gestionnaires :**  
**Mrs. / Mme :** **C. DUMOULIN** +33 (0) 2 41 73 76 65  
**Mr. / M :** **L. CHERUBIN** +33 (0) 2 41 73 63 96  
**FAX :** +33 (0) 2 41 73 60 19  
**E-Mail / Courrier Electronique :** [srv.Cedoc@franp.bull.fr](mailto:srv.Cedoc@franp.bull.fr)

CEDOC Reference # N° Référence CEDOC	Qty Qté	CEDOC Reference # N° Référence CEDOC	Qty Qté	CEDOC Reference # N° Référence CEDOC	Qty Qté
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
____ _ [__]		____ _ [__]		____ _ [__]	
[__]: <b>no revision number means latest revision</b> / pas de numéro de révision signifie révision la plus récente					

NOM / NAME : \_\_\_\_\_ Date : \_\_\_\_\_

SOCIETE / COMPANY : \_\_\_\_\_

ADRESSE / ADDRESS : \_\_\_\_\_

PHONE / TELEPHONE : \_\_\_\_\_ FAX : \_\_\_\_\_

E-MAIL : \_\_\_\_\_

**For Bull Subsidiaries / Pour les Filiales Bull :**

Identification: \_\_\_\_\_

**For Bull Affiliated Companies / Pour les Affiliés :**

**Customer Code / Code Client :** \_\_\_\_\_

**For Bull Internal Customers / Pour les Clients Internes Bull :**

**Budgetary Section / Section Budgétaire :** \_\_\_\_\_

**For Bull External Customers in France / Pour les Clients Externes Bull en France :**

**This ordering form should be accompanied by a check for the total amount of the order (Prices according to BTS or paper catalog).**

Joindre un chèque du montant total de la commande (pour les prix, se référer au catalogue BTS ou au catalogue papier).

**For Bull External Customers abroad / Pour les Clients Externes Bull à l'étranger :**

**Your order must be placed via the Bull Affiliated Company or Subsidiary in your country.**

Obligation est faite de passer par la filiale du pays concerné.



**BULL ELECTRONICS EUROPE S.A.**  
Service CEDOC  
331 Avenue PATTON – BP 428  
49004 ANGERS CEDEX 01  
FRANCE

ORDER REFERENCE  
**86 A2 73AT 02**

PLACE BAR CODE IN LOWER  
LEFT CORNER





Utiliser les marques de découpe pour obtenir les étiquettes.  
Use the cut marks to get the labels.





**SNMP Agent  
for HiSpeed  
Adapters**

AIX  
Administrator &  
User Guide  
86 A2 73AT 02



**SNMP Agent  
for HiSpeed  
Adapters**

AIX  
Administrator &  
User Guide  
86 A2 73AT 02



**SNMP Agent  
for HiSpeed  
Adapters**

AIX  
Administrator &  
User Guide  
86 A2 73AT 02

