

# 360-80 SNMP Network Node Manager (NNM) for T1 Setup Guide

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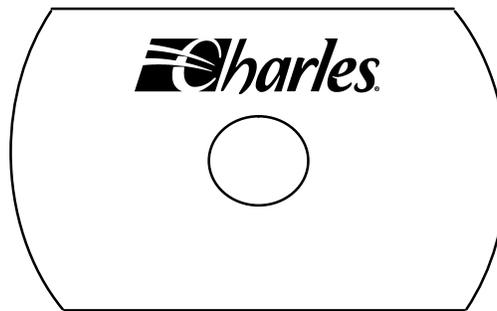


Figure 1. 360-80 CD ROM

## 1. GENERAL

### 1.1 Document Purpose

This document describes how to configure portions of the SNMP NNM (Network Node Manager) to communicate with the T1-S card used in the Charles Industries ICB. SNMP can be used with 3603-81 T1 cards.

### 1.2 Software Function

SNMP agent software is preloaded in the T1-S firmware and is used to manage ICB shelves from a common control center. This is done using SNMP manager software. The SNMP manager is used to monitor, provision and control multiple 360-80 ICBs and can communicate with local and remote shelves. A locally managed shelf is any ICB that is connected to the manager regardless of where the shelf is physically located. To communicate with remote shelves, the manager can use the SNMP agent in a locally managed shelf and communicate over the T1 connection. The T1 connection must be provisioned for remote control either using the EOC (embedded operations channel) if the T1 is ESF framing format, or using a dedicated timeslot for the remote communication. When the remote units are in a drop and reinsert configuration, the local agent can also communicate with the other remote units over T1. The local SNMP agent will support communication to a maximum of seven remote shelves.

### 1.3 Software Location/Mounting

The SNMP management software is the responsibility of the user and should be installed on an appropriately configured PC. The ICB configuration MIB is provided on the CD with the T1-S card.

### 1.4 SNMP Features

The SNMP management software provides the following features:

- Provides a standard user interface to configure, test, and monitor operation of the system.
- Provisions all cards in the system through a central management agent.
- Presents a real-time display of system status and alarms through traps.
- Provides continuous update of historical reports and performance through SNMP query.

### 1.5 Reference Documents

- 3603-81 T1 Controller with SNMP (LT360–381–201)
- 3608-80 Secondary T1 Unit (LT360–880–201)
- 360-80 ICB Craft Terminal User’s Guide (LT360–381–C01)

## 2. GETTING STARTED

### 2.1 System Requirements

- IBM-compatible PC or workstation running SNMP manager
- Connection to Ethernet network with valid IP addresses.

### 2.2 Installing the Software

Charles Industries does not provide the SNMP manager software.

### 2.3 360-80 ICB Specific MIB

CharlesIADmib-rv4.3.my or later version MIB under the private enterprise Charles. This MIB is included on the CD that comes packaged with the 3603-81 T1-S card. The MIB is located in the “SNMP MIB” directory on the CD ROM provided with the product.

## 2.4 Other Required MIBs

- Rfc1213.mib
- rfc1902-SNMPv2-SMI
- rfc1903-SNMPv2-TC

These MIBs may be loaded with the SNMP manager. The presence of these MIBs should be verified when the CI MIB is loaded. If needed, these MIBs are freely available for downloading from the World-Wide Web.

## 3. ICB COMMUNICATION CONFIGURATION

The proper IP address and network mask for the ICB must be configured through the craft interface on the locally managed ICB shelf. The gateway must also be configured if the manager is not on the local network.

*Note: Communication with the T1-S card through the SNMP NNM will require the IP address, the community name and the address ID switch setting of the individual T1-S card being controlled. These items should be recorded for each T1-S card installed.*

### 3.1 ICB IP Address Configuration

For locally managed ICB shelves, SNMP Management of the ICB is NOT possible over the Ethernet interface unless a unique IP address is assigned. The IP address, subnet and gateway of the ICB are assigned through the craft interface screen. For remote ICB shelves that are managed through a local ICB shelf, the IP address of the remote ICB is not used. See the ICB Craft Terminal User's Guide for more details.

A sample IP address configuration screen is shown in Figure 2 for reference.

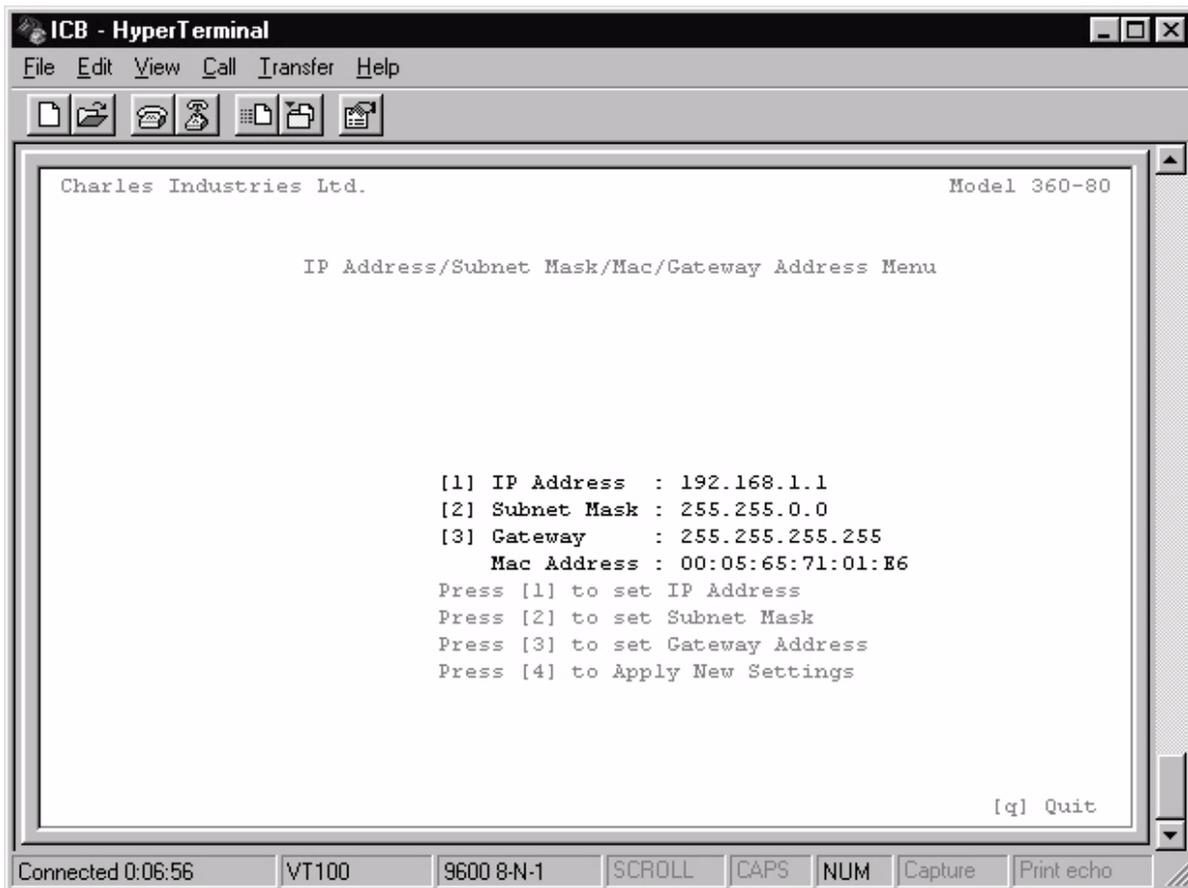


Figure 2. IP address/Subnet/Gateway

**WARNING**

The IP address, submask and gateway must be individually set. A change in any setting will cause a system restart and momentarily disrupt T1 service.

**3.2 ICB SNMP Community Table Configuration**

For locally managed ICB shelves, the ICB community must also be configured. There are 4 fields for each community record and a maximum of 5 different communities are allowed. Remotely managed ICB units do not require SNMP community configuration. A “Reset to Factory Default Settings” will clear the table configuration.

Use the following steps to configure the ICB community. A sample SNMP Community table screen is shown in Figure 3 for reference:

Step	Action
1.	Under “Community”, enter the community name to be used to communicate with the ICB.
2.	Under “Privilege”, enter “Read only” for monitoring only and “Read Write” for monitoring and provisioning of the ICB.
3.	Under “IP Address”, enter the IP address of the PC or workstation that contains the SNMP manager. This is the only IP address that can monitor or control the ICB.
4.	Under “Subnet mask”, enter the appropriate submask for the subnet in use.
5.	After these changes are made, enter an “a” to apply the new settings and then answer yes to continue and insert the new data into the T1-S database.

**WARNING**

Activating these changes will cause the T1 card to perform a warm start and momentarily disrupt T1 service. See the ICB Craft Terminal User’s Guide for details.

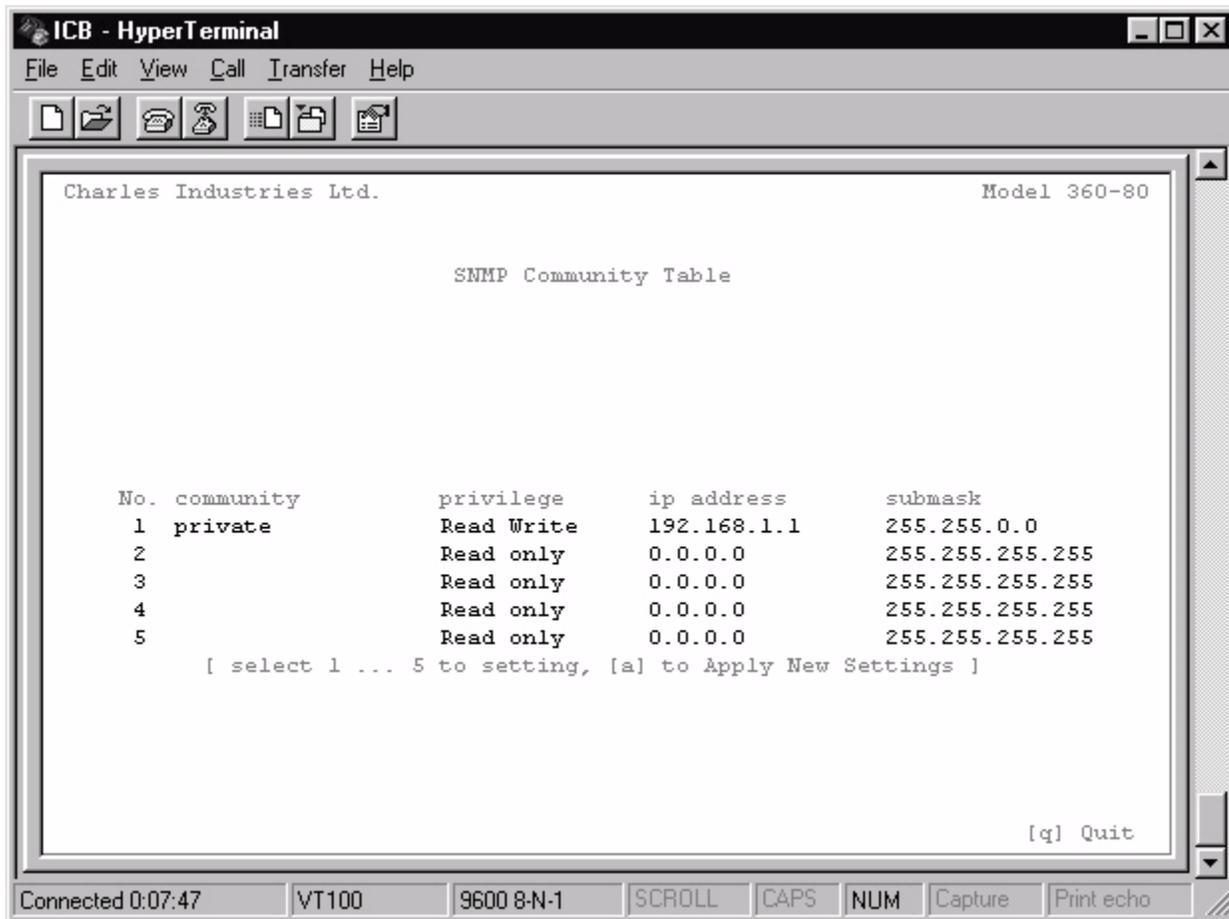
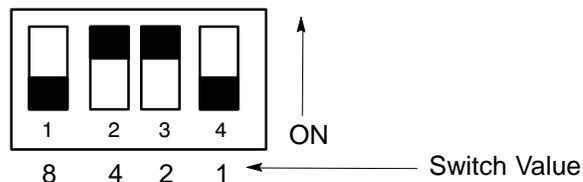


Figure 3. SNMP Community Table

### 3.3 NNM Community configuration

For the NNM, the community includes the community defined in the local ICB + the community key of the T1-S card being controlled. The local ICB and remote ICBs managed through the local ICB must each have unique switch settings.

The ADDRESS ID switch on the front panel of the T1-S card is used for identification of this ICB in a network of ICBs. The Address ID switch consists of 4 switches binary coded to set a unique address. The following figure shows the value of each switch:



An address ID is created by moving a switch (or switches) to the ON position. The figure shows a switch setting ID of 6 (4+2). The range of switch setting IDs is from 0 (when all switches are OFF), to 15 (when all switches are ON).

*Note:* The Community Key for a T1-S is 1+switch setting.

#### 3.3.1. Communication to the local T1-S card using Ethernet connected directly to the T1 card.

In this configuration the NNM is communicating directly with the local T1-S through the Ethernet. The NNM must use the community and key of the local agent's card.

The following example has the community on the local ICB set to “private”.

Local Address ID Switch Setting	Local ICB Community Key	NNM Community
0000	1	private@1
0001	2	private@2
0110	7	private@7

Communication verification can be performed by using a MIB browser to query the instance *iadCfgInterface* table under Charles360-80MIB. This table returns the overall high level configuration of the ICB.

### 3.3.2. Communication to the Remote ICB using an Ethernet connection to the Local T1-S card.

In this configuration the NNM is communicating through the local SNMP agent over the T1 Remote Control Channel between the local ICB and the remote ICB. The NNM is communicating directly to the Local ICB and therefore the community name must reflect the community name of the Local ICB. The address ID switch setting of the remote ICB will then determine the community key and which remote ICB will respond to the NNM command.

*Note:* All community keys for remote ICBs must be different from the local ICB and all other remote ICB keys being managed by a local ICB.

The following example has the community on the Local ICB set to “private”.

Remote Address ID Switch Setting	Remote ICB Community Key	NNM Community
0010	3	private@3
0011	4	private@4
0100	5	private@5

Communication verification can be performed by using a MIB browser to query the instance table *iadCfgInterface* under *iadCfgMgt* under Charles360-80MIB. This table returns rather quickly the overall high level configuration of the ICB.

## 4. TRAPS

To activate and receive ongoing status changes from a local ICB, both of the ICBs must be enabled to send information traps and the SNMP manager must be configured to recognize the transmitted traps. Before trap configuration can be enabled, the following 3 actions must be completed and made operational.

1. The “Trap IP Table” at the ICB must be configured through the craft interface.
2. The “Trap Proxy” must be enabled and set through the MIB.
3. The SNMP manager must be configured to recognize and display the traps.

### 4.1 Configuring the Trap IP Table at the ICB

This table defines the IP address of the trap recipient and identifies the community that sent the trap. A “Reset to Factory Default Settings” will clear the table configuration.

Traps enabled in this table must also have the trap proxy enabled through the SNMP manager before traps will be sent.

Use the following steps to configure the Trap IP table at the ICP. A sample Trap IP Table screen is shown in Figure 4 for reference.

Step	Action
1.	Under “Community”, enter the name to be used to identify the location of the application traps from the ICB.
2.	Under “IP Address”, enter the IP Address of the machine where the traps will be sent.
3.	Under “Status”, enable the trap status to generate and transmit traps from the ICB.

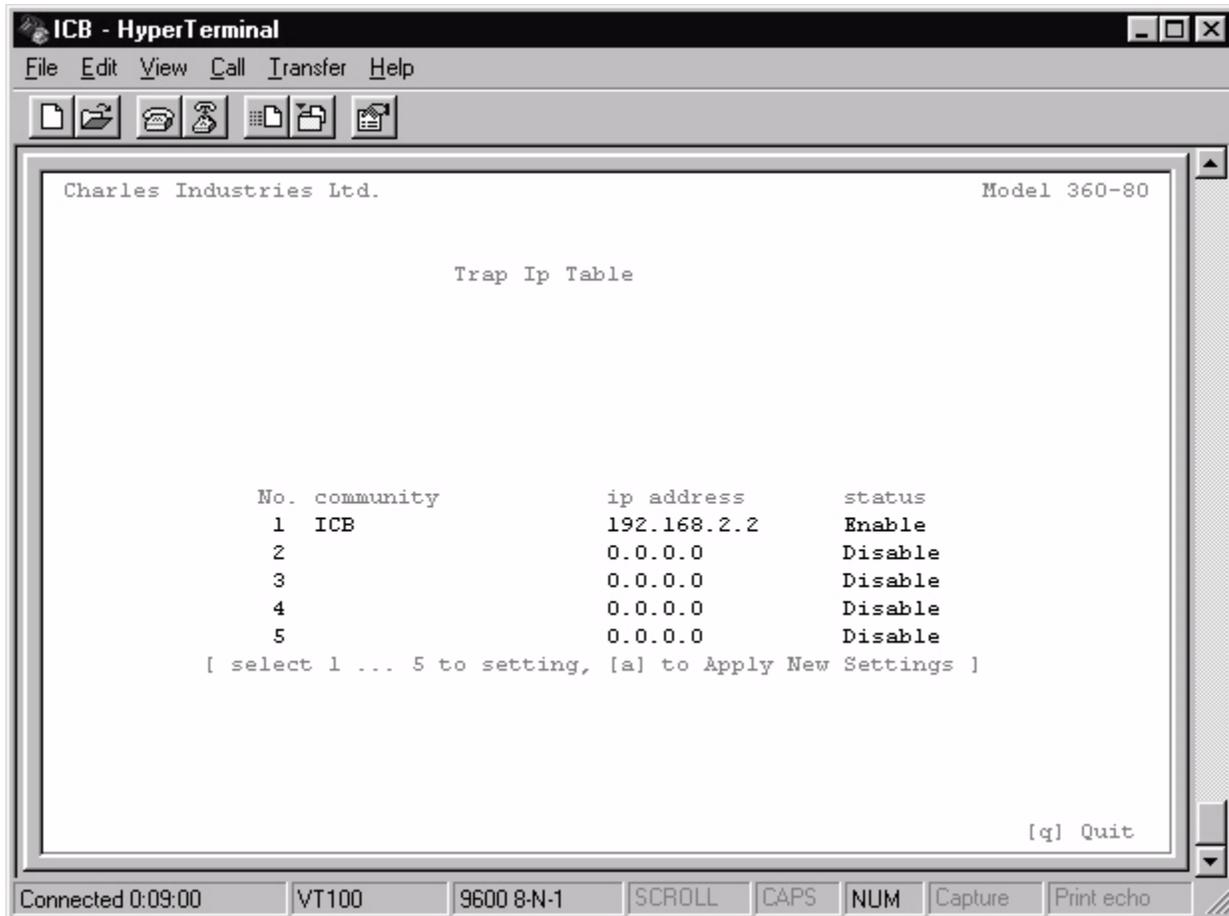


Figure 4. Trap IP Table

#### 4.2 Configuring the Trap Proxy through the MIB

Under *iadTrapMgt* select *iadTrapSetProxy* and set the instance value = 1 to enable traps.

This can be accomplished by Querying *iadTrapMgt* and obtaining the instance or by entering a 0 for the instance and setting a value of 1.

After setting the trap management proxy, it is suggested to do query *iadTrapMgt* to verify that the trap community, IP addresses and status are configured for all trap generators. If an error has occurred, no detail information will be returned.

#### 4.3 Configuring the Trap IP display at the NNM

Traps must be configured in the SNMP manager to be displayed.

Using HP OpenView, this is configured under Options > event configuration > ENTERPRISES SNMP Traps. The information is then configured to be displayed in the desired alarm notification category.

## 5. CONTROLLING AND CHANGING ICB CONFIGURATIONS

A description of each function is normally available with each set and query command function. If necessary, the actual MIB source can be viewed with a text editor for more detailed information. The query command provides the current instance configuration information while the set command provides the capability to change the instance configuration. For additional information on individual cards refer to the card documentation.

*Note: There are a number of configurations that are blocked by the Craft interface and GUI software programs. The SNMP software does not block some of these configurations and it is therefore important that the user is trained in operation of the 360-80 system before altering card and system configurations to prevent unintentional changes.*

SNMP uses the slot designations as shown (front view):

Slot 1	Slot 2
Slot 0	Slot 3

The MIB is divided into 6 main categories.

### 5.1 iadCfgMgt

*iadCfgMgt* is for setting configuration of each individual channels of the cards installed in the ICB.

### 5.2 iadSysMgt

*iadSysMgt* is for setting the system time and operating mode configuration.

### 5.3 iadMtnMgt

*iadMtnMgt* is for system maintenance which includes setting/clearing loopbacks and performing channel tests and setting test tones.

### 5.4 iadAlmMgt

*iadAlmMgt* is for viewing T1 alarm status. There are 7 alarms that can be queried.

Alarm	Definition
ACTLPBKL	T1 path is in local line loop back
ACTLPBKLF	T1 path is in far end line loop back
ACTLBKP	T1 path is in far end payload loop back
AIS	All 1s are being received on the T1 path. This is sometimes known as a Blue alarm
LOF	Red alarm indicating loss of frame on the T1 path
LOS	Red alarm indicating loss of signal on the T1 path
YELMN	Yellow alarm indicating the far end of the T1 path is in red alarm

### 5.5 iadPMMgt

*iadPMMgt* is for viewing/clearing T1 performance monitoring counters.

### 5.6 iadTrapMgt

*iadTrapMgt* is for setting the trap proxy and viewing/configuring traps. There are 8 generated traps.

Alarm	Definition
ACTLPBKLF	T1 path is in far end line loop back
ACTLBKP	T1 path is in far end payload loop back
AIS	All 1s are being received on the T1 path
LOF	On the T1 path – Loss of Frame (red alarm)
LOS	On the T1 path – Loss of Signal (red alarm)

YELMN	Yellow alarm on the T1 path indicates the remote unit has a red alarm
Warm Start	System performed a warm start using its stored configuration
Authentication Trap	A non authorized manager has attempted a query of the local SNMP agent

## 6. TECHNICAL ASSISTANCE

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847-806-8500

847-806-8556 (FAX)

800-607-8500

techserv@charlesindustries.com (e-mail)

## APPENDIX A – MIB OBJECT IDENTIFIER

A summary of the command set of the MIB used for control and management of the 360-80 Intelligent Channel Bank is provided here.

Each command appears in the format used to indicate the actual identifier for a managed object. To determine the full object identifier from 'root':

Step	Action
1.	Start with the identifier string of 1.3.6.1.4.1.
2.	Concatenate the Charles portion of the string 11782.1.1.1.
3.	Concatenate the section number from this document.
4.	For example the object 'iadCfgInterfaceCardType' would have an object identifier of 1.3.6.1.4.1.11782.1.1.1.1.2.1.2

enterprises

11782. charles

11782.1 charlesIAD

11782.1.1 charles360–80

11782.1.1.1 charles360–80MIBv1

## IAD CONFIGURATION MANAGEMENT GROUP

### 1. iadCfgMgt

#### 1.1 iadCfgSetSecDS1ForceByPass

This command enables/disables force bypass operation of secondary DS1. If the force bypass operation is executed, the system will not be recoverable unless the card is powered down and then powered back up.

1: Execute force bypass operation of secondary DS1.

#### 1.2 iadCfgInterfaceTable

The interface configuration table.

##### 1.2.1. iadCfgInterfaceEntry

An entry in the interface configuration table.

##### 1.2.1.1 iadCfgInterfaceChassisLoc

This command indicates the slot number in the IAD.

### 1.2.1.2 **iadCfgInterfaceCardType**

This command indicates the card type install in the IAD.

- 0: unplugged
- 1: EM
- 5: FXO
- 6: FXS
- 7: DSU–DP
- 8: ISDN
- 9: OCU–DP
- 10: N\*64k
- 11: primary T1
- 13: secondary T1
- 14: router card

#### 1.2.1.2.1 . **iadCfgInterfaceVersionNo**

This command indicates the FPGA and firmware version number of the board on the IAD.

For T1, show with the format : OS version/FPGA Version

Other interfaces only show OS version.

## Channel Information Table

### 1.3 **iadCfgChannelTable**

The channel configuration table.

#### 1.3.1. **iadCfgChannelEntry**

An entry in the channel configuration table.

##### 1.3.1.1 **iadCfgChannelNo**

This command indicates the channel number in the IAD.

##### 1.3.1.2 **iadCfgChannelTimeSlotNo**

This command indicates the mapping timeslot location with Up primary or Down secondary type of channel. The first character with negative sign(–) indicates Down secondary type, and with positive sign(+) indicates Up primary type. The next two characters indicate the timeslot number.

01–24 for T1 (all timeslot can be map)

0 for timeslot delete

## DS1 Configuration Table

### 1.4 **iadCfgDS1Table**

The DS1 configuration table.

#### 1.4.1. **iadCfgDS1Entry**

An entry in the DS1 configuration table.

##### 1.4.1.1 **iadCfgDS1CardType**

This command indicates the DS1 card type.

- 0: Primary T1
- 1: Secondary T1(Drop/Insert T1)

#### **1.4.1.2 iadCfgDS1AutoDetectMode**

This command indicates the automatic detect mode is enable or disable of primary DS1 card.

- 0: Disable
- 1: Enable

*Note: If DS1CardType is secondary T1, ignore this command.*

#### **1.4.1.3 iadCfgDS1TimeSource**

This command indicates the timing supply source of primary DS1 card.

- 0: LPD (loop timing)
- 1: EXT (external timing source)
- 2: INT (internal timing source)

*Note: If DS1CardType is secondary T1, ignore this command.*

#### **1.4.1.4 iadCfgDS1LineCode**

This command indicates the line code of DS1 card.

- 0: AMI
- 1: B8ZS.

#### **1.4.1.5 iadCfgDS1RmtCtrlFrameFormat**

This command indicates the remote control method, frame format, and occupy timeslot of DS1 card.

The first character is the number of frame format.

- 0: SF(T1)
- 1: ESF(T1)

The next two character are the remote control method and the occupy slot number of DS1.

- 00: None
- 01–24: T1 timeslot number
- 99: Using facility data link.

#### **1.4.1.6 iadCfgDS1LBOEqualization**

This command indicates the LBO equalization of DS1 card.

T1 LBO:

- 0: 0–110ft
- 1: 111–220ft
- 2: 221–330ft
- 3: 331–440ft
- 4: 441–550ft
- 5: 551–660ft
- 6: 0db
- 7: 7.5db
- 8: 15db
- 9: 22.5db

#### **1.4.1.7 iadCfgDS1CGAProcessMode**

This command indicates the CGA process mode of primary DS1 card.

0: Normal

1: CM2

2: CM3

*Note: If DS1CardType is secondary T1, ignore this command.*

#### **1.4.1.8 iadCfgDS1ACO**

This command allows the ACO to be activated.

1: True–Activate ACO(turn off alarms)

2: False(Object will always return 2 when read)

#### **1.4.1.9 iadCfgDS1LEDStus**

DS1 LED status for the primary DS1 card is as follows:

Bit 7–5: Reserved

Bit 4: Power LED Bit(0:OFF,1:ON)

Bit 3: LOOP LED Bit(0:OFF,1:ON)

Bit 2: CGA LED Bit(0:OFF,1:ON)

Bit 1: YEL LED Bit(0:OFF,1:ON)

Bit 0: RED LED Bit(0:OFF,1:ON)

DS1 LED status for the secondary DS1 card is as follows:

Bit 7–6: Reserved

Bit 5: Power LED Bit(0:OFF,1:ON)

Bit 4: LOOP LED Bit(0:OFF,1:ON)

Bit 3: CGA LED Bit(0:OFF,1:ON)

Bit 2: YEL LED Bit(0:OFF,1:ON)

Bit 1: RED LED Bit(0:OFF,1:ON)

Bit 0: Add secondary DS1 bypass LED Bit(0:OFF,1:ON)

### **FXO Configuration Table**

#### **1.5 iadCfgFXOTable**

The FXO configuration table.

##### **1.5.1. iadCfgFXOEntry**

An entry in the FXO configuration table.

##### **1.5.1.1 iadCfgFXOCardType**

This command indicates the FXO card type. The values mean:

0: FXO/GS

1: FXO/LS

2: DPT/NORMAL

3: DPT/WINK

##### **1.5.1.2 iadCfgFXOForceBusy**

This command indicates the forced busy operation.

0: Disable (not Forced busy)

1: Enable (Forced busy)

**1.5.1.3 iadCfgFXOImpedance**

This command indicates the impedance 600/900 ohm type of the FXO card.

- 0: 600 ohm
- 1: 900 ohm

**1.5.1.4 iadCfgFXOCGAMode**

This command indicates the CGA mode of the FXO card.

- 0: Immediate mode – idle, Delay mode – idle
- 1: Immediate mode – idle, Delay mode – busy
- 2: Immediate mode – busy, Delay mode – idle
- 3: Immediate mode – busy, Delay mode – busy

**1.5.1.5 iadCfgFXOTransmitLevel**

This command indicates the TTLP transmit level value of the FXO card.

If you want to set as 1.5dBm, input 15.

If you want –12.8dBm, input –128.

Maximum value is 6.0dBm and minimum value is –10.0dBm.

**1.5.1.6 iadCfgFXOReceiveLevel**

This command indicates the RTLP receive level value of the FXO card.

If you want to set as 1.5dBm, input 15.

If you want –12.8dBm, input –128.

Maximum value is 6.0dBm and minimum value is –10.0dBm.

**1.5.1.7 iadCfgFXOLEDStus**

This command indicates the LED status of the FXO card.

- 0: OFF
- 1: ON(Busy)

**FXS Configuration Table****1.6 iadCfgFXSTable**

The FXS configuration table.

**1.6.1 iadCfgFXSEntry**

An entry in the FXS configuration table.

**1.6.1.1 iadCfgFXSCardType**

This command indicates the FXS card type.

- 0: FXS/GS
- 1: FXS/LS
- 2: PLARD/D3
- 3: PLARD/D4
- 4: MEGACOM/GS/immediate
- 5: MEGACOM/GS/wink
- 6: MEGACOM/LS
- 7: DPO

### **1.6.1.2 iadCfgFXSForceBusy**

This command allows the forced busy operation to be enable or disable for the FXS card.

- 0: Disable(not Forced busy)
- 1: Enable(Forced busy)

### **1.6.1.3 iadCfgFXSImpedance**

This command indicates the impedance 600/900 ohm type for the FXS card.

- 0: 600 ohm
- 1: 900 ohm

### **1.6.1.4 iadCfgFXSCGAMode**

This command indicates the CGA mode for the FXS card.

- 0: Immediate mode – idle, Delay mode – idle
- 1: Immediate mode – idle, Delay mode – busy
- 2: Immediate mode – busy, Delay mode – idle
- 3: Immediate mode – busy, Delay mode – busy

### **1.6.1.5 iadCfgFXSTransmitLevel**

This command indicates the TTLP transmit level value of FXS card.

If you want to set as 1.5dBm, input 15.

If you want –12.8dBm, input –128.

*Note: Maximum value is 6.0dBm and minimum value is –10.0dBm.*

### **1.6.1.6 iadCfgFXSReceiveLevel**

This command indicates the RTLP receive level of FXS card.

If you want to set as 1.5dBm, input 15.

If you want –12.8dBm, input –128.

*Note: Maximum value is 1.0dBm and minimum value is –15.0dBm.*

### **1.6.1.7 iadCfgFXSRingMode**

This command indicates the ring mode of the FXS card.

- 0: Interrupted
- 1: Burst
- 2: Continuous

### **1.6.1.8 iadCfgFXSLEDStus**

This command indicates the LED status of the FXS card.

- 0: OFF
- 1: ON(Busy)

## **E&M Configuration Table**

### **1.7 iadCfgEMTable**

The E&M configuration table.

**1.7.1. iadCfgEMEntry**

An entry in the E&M configuration table.

**1.7.1.1 iadCfgEMCardType**

This command indicates the E&M card type.

- 1: type I
- 2: type II
- 3: type III
- 4: type IV
- 5: type V
- 6: E&M transmission only

**1.7.1.2 iadCfgEMForceBusy**

This command allows the forced busy operation to be enable or disable for the E&M card.

- 0: Disable(not Forced busy)
- 1: Enable(Forced busy)

**1.7.1.3 iadCfgEMChannelType**

This command indicated the channel type for the E&M card.

- 1: EM 2W, 600 OHM
- 2: EM 2W, 900 OHM
- 3: EM 4W, 600 OHM
- 4: EM 4W, 900 OHM

**1.7.1.4 iadCfgEMCGAMode**

This command indicated the CGA mode for the E&M card.

- 0: Immediate mode – idle, Delay mode – idle
- 1: Immediate mode – idle, Delay mode – busy
- 2: Immediate mode – busy, Delay mode – idle
- 3: Immediate mode – busy, Delay mode – busy

**1.7.1.5 iadCfgEMTransmitLevel**

This command indicates the TTLP transmit level value of the E&M card.

If you want to set as 1.5dBm, input 15.

If you want –12.8dBm, input –128.

For E&M 4W, the maximum value is 13.0.

For E&M 2W, the maximum value is 7.0.

*Note: The minimum value of both are –19.0.*

**1.7.1.6 iadCfgEMReceiveLevel**

This command indicates the RTLTP receive level value of the E&M card.

If you want to set as 1.5dBm ,input 15.

If you want –12.8dBm, input –128.

For E&M 4W, the maximum value is 13.0.

For E&M 2W, the maximum value is 7.0.

*Note: The minimum value of both are –19.0.*

### 1.7.1.7 iadCfgEMLEDStus

This command indicates the LED status of the E&M card.

0: OFF

1: ON(Busy)

## DSU-DP Configuration Table

### 1.8 iadCfgDSUDPTable

The DSU-DP configuration table.

#### 1.8.1. iadCfgDSUDPEntry

An entry in the DSU-DP configuration table.

INDEX { iadCfgChannelNo }

##### 1.8.1.1 iadCfgDSUDPLatchLpBk

This command allows the operation of latch loopback to be enabled or disabled for the DSU-DP card.

0: Disable

1: Enable

##### 1.8.1.2 iadCfgDSUDPRTSforce

This command allows the RTS force operation to be enabled or disabled for the OCU-DP card.

0: Disable

1: Enable

##### 1.8.1.3 iadCfgDSUDPBCHErrCorrect

This command allows the BCH error correction operation to be enabled or disabled for the DSU-DP card.

0: Disable

1: Enable

##### 1.8.1.4 iadCfgDSUDPSyncMode

This command allows the sync mode to be set for the OCU-DP card.

0: Asynchronous

1: Synchronous

##### 1.8.1.5 iadCfgDSUDPBitMode

This command allows the bit mode selection to be set for the OCU-DP card.

0: 7 bits mode

1: 8 bits mode

##### 1.8.1.6 iadCfgDSUDPZCS

This command allows the Zero Code Suppression operation to be enabled or disabled for the DSU-DP card.

0: Disable

1: Enable

##### 1.8.1.7 iadCfgDSUDPDataRate

This command indicates the data rate to be set for the DSU-DP card.

0: 2.4 kbps

- 1: 4.8 kbps
- 2: 9.6 kbps
- 3: 19.2 kbps
- 4: 56 kbps

#### **1.8.1.8 iadCfgDSUDPStopBitShorten**

This command allows the stop bit shorten to be set for the DSU-DP card.

- 0: 12.5%
- 1: 25%

#### **1.8.1.9 iadCfgDSUDPStopBit**

This command allows the stop bit selection to be set for the DSU-DP card.

- 0: 1 stop bit
- 1: 2 stop bits

#### **1.8.1.10 iadCfgDSUDPParityBit**

This command allows the parity bit selection to be set for the DSU-DP card.

- 0: no parity
- 1: parity

#### **1.8.1.11 iadCfgDSUDPIFMode**

This command allows the interface mode selection to be set for the DSU-DP card.

- 2: RS530
- 3: v.36/RS449
- 4: V.35
- 6: RS232

#### **1.8.1.12 iadCfgDSUDPCTSCtrl**

This command allows the CTS control to be set for the DSU-DP card.

- 0: disable
- 1: enable, CTS value = 0
- 2: enable, CTS value = 1

#### **1.8.1.13 iadCfgDSUDPDSRCtrl**

This command allows the DSR control to be set for the DSU-DP card.

- 0: disable
- 1: enable, CTS value = 0
- 2: enable, CTS value = 1

#### **1.8.1.14 iadCfgDSUDPDCDCtrl**

This command allows the DCD control to be set for the DSU-DP card.

- 0: disable
- 1: enable, CTS value = 0
- 2: enable, CTS value = 1

## OCU-DP Configuration Table

### 1.9 iadCfgOCUDPTable

The OCU-DP configuration table.

#### 1.9.1 iadCfgOCUDPEntry

An entry in the OCU-DP configuration table.

##### 1.9.1.1 iadCfgOCUDPSelection

This command indicates the selection of CSU or DSU for the OCU-DP card.

0: CSU

1: DSU

##### 1.9.1.2 iadCfgOCUDPCMICode

This command allows the alternating CMI code operation to be enabled or disabled for the OCU-DP card.

0: Disable

1: Enable

##### 1.9.1.3 iadCfgOCUDPBCHErrCorrect

This command allows the BCH error correction operation to be enabled or disabled for the OCU-DP card.

0: Disable

1: Enable

##### 1.9.1.4 iadCfgOCUDPZCS

This command allows the Zero Code Suppression operation to be enabled or disabled for the OCU-DP card.

0: Disable

1: Enable

##### 1.9.1.5 iadCfgOCUDPSubrate

This command allows the speed of the subrate channel to be set for the OCU-DP card.

0: 2.4 kbps

1: 4.8 kbps

2: 9.6 kbps

3: 19.2 kbps

4: 56 kbps

5: 64 kbps

6: SW 56 kbps

##### 1.9.1.6 iadCfgOCUDPLatchLpBk

This command allows the operation of latch loopback to be enabled or disabled for the OCU-DP card.

0: Disable

1: Enable

##### 1.9.1.7 iadCfgOCUDPLEDStus

This command indicates the LED status of the OCU-DP card.

0: OFF

1: ON (Busy)

## ISDN Configuration Table

### 1.10 iadCfgISDNTable

The ISDN configuration table.

#### 1.10.1. iadCfgISDNEntry

An entry in the ISDN configuration table.

##### 1.10.1.1 iadCfgISDNServiceMode

This command indicates the service mode for the ISDN card.

0: D

1: 1B+D

2: 2B+D

##### 1.10.1.2 iadCfgISDNSealingCurrent

This command allows the sealing current to be enabled or disabled for the ISDN card.

0: Disable

1: Enable

##### 1.10.1.3 iadCfgISDNLTNTMode

This command indicates whether the ISDN card is in LULT or LUNT mode.

0: LULT

1: LUNT

##### 1.10.1.4 iadCfgISDNLEDStus

This command indicates the LED status of the ISDN card.

Byte 2: Loss Of Sync status with Red(0:OFF,1:ON)

Byte 1: Alarm Status with Yellow(0:OFF,1:ON)

Byte 0: Loopback Status with Green(0:OFF,1:ON)

## Nx64k Configuration Table

### 1.11 iadCfgNx64kTable

The Nx64k configuration table.

#### 1.11.1. iadCfgNx64kEntry

An entry in the Nx64k configuration table.

##### 1.11.1.1 iadCfgNx64kChannelType

This command allows the interface mode selection to be set for the Nx64k card.

2: RS–530

4: v.35

5: v.36

6: RS–232

##### 1.11.1.2 iadCfgNx64kMultiChMode

This command indicates the multi–channel mode of the Nx64k card.

1: N=1, 1\*64k

2: N=2, 2\*64k

24: N=24, 24\*64k(maximum for T1)

**1.11.1.3 iadCfgNx64kExtClock**

This command allows the external clock to be enabled or disabled for the Nx64k card.

0: Disable

1: Enable

**1.11.1.4 iadCfgNx64kRate**

This command indicates the rate of Nx64k card.

0: 56k

1: 64k

**1.11.1.5 iadCfgNx64kDTELL**

This command indicates the operation of DTE LL to be enabled or disabled for the Nx64k card.

0: Disable

1: Enable

**1.11.1.6 iadCfgNx64kV54LPBK**

This command allows the operation of the v.54 Loopback to be enabled or disabled for the Nx64k card.

0: Disable

1: Enable

**1.11.1.7 iadCfgNx64kPRTS**

This command allows the operation of PRTS to be enabled or disabled for the Nx64k card.

0: Disable

1: Enable

**1.11.1.8 iadCfgNx64kCTSCtrl**

This command allows the CTS control to be set for the Nx64k card.

0: Disable

1: Enable, CTS value = 0

2: Enable, CTS value = 1

**1.11.1.9 iadCfgNx64kDSRCtrl**

This command allows the DSR control to be set for the Nx64k card.

0: Disable

1: Enable, CTS value = 0

2: Enable, CTS value = 1

**1.11.1.10 iadCfgNx64kDCDCtrl**

This command allows the DCD control to be set for the Nx64k card.

0: Disable

1: Enable, CTS value = 0

2: Enable, CTS value = 1

**1.11.1.11 iadCfgNx64kZCS**

This command allows the Zero Code Suppression operation to be enabled or disabled for the Nx64k card.

0: Disable

1: Enable

#### **1.11.1.12 iadCfgNx64kIdleMode**

This command allows the idle mode to be set for the Nx64k card.

0: With idle mode 11111110

1: With idle mode 11111111

### **1.12 iadCfgDS1TimeslotModeTable**

The DS1 timeslot mode configuration table.

#### **1.12.1. iadCfgDS1TimeslotModeEntry**

An entry in the DS1 timeslot mode configuration table.

##### **1.12.1.1 iadCfgDS1TimeslotNo OBJECT–TYPE**

This command indicates the timeslot number.

1–24 for T1 (all timeslot can be map)

##### **1.12.1.2 iadCfgDS1TimeslotMode**

This command indicates the timeslot mode of the DS1 card.

0: Broadcast Mode

1: Idle Mode

### **1.13 iadCfgISDNClkSrcTable OBJECT–TYPE**

The ISDN clock source configuration table.

#### **1.13.1. iadCfgISDNClkSrcEntry**

An entry in the ISDN clock source configuration table.

##### **1.13.1.1 iadCfgISDNCardSlot**

This command indicates the slot where the ISDN is plugged in.

0: channel 1–12

1: channel 13–24

2: channel 25–30

##### **1.13.1.2 iadCfgISDNClkSrc**

This command allows the clock source setting to be set for the ISDN card.

0: None

1: Channel 1/13/25

2: Channel 2/14/26

3: Channel 3/15

4: Channel 4/16

## **New Router Table**

### **1.14 iadCfgRouterTableOBJECT–TYPE**

The router card configuration table.

### 1.14.1. *iadCfgRouterEntry*

An entry in the router configuration table.

#### 1.14.1.1 *iadCfgRouterMultiTsMode*

This command allows multi-timeslot mode setting of router to be set for the router card.

1: N=1, 1\*64k

2: N=2, 2\*64k

12: N=12, 12\*64k

#### 1.14.1.2 *iadCfgRouterDataRate*

This command indicates the rate of router card.

0: 56k

1: 64k

## IAD SYSTEM MANAGEMENT GROUP

### 2. *iadSysMgt*

#### 2.1 *iadSysCurrentTime*

This command allows the system time to be set for the IAD.

Format: YYYYMMDDhhmmss

YYYY: Year

MM: Month

DD: Day

hh: hour

mm: minute

ss: second

#### 2.2 *iadSysWorkMode*

This command is used for selecting working mode of the IAD.

0: Normal T1 Mode.

1: Dual T1 Mode.

2: Protection T1 Mode.

#### 2.3 *iadSysWorkStatus*

This command is used for getting the current working path when working mode is on the Protection Mode.

0: Primary T1.

1: Secondary T1.

#### 2.4 *iadSysProtectThreshold*

This command is used to define the threshold value in order to trigger the protection switching

## IAD MAINTENANCE MANAGEMENT GROUP

### 3. **iadMtnMgt**

#### 3.1 **iadMtnDS1LpBkTable**

The DS1 loopback maintenance table.

##### 3.1.1. **iadMtnDS1LpBkEntry**

An entry in the DS1 loopback maintenance table.

##### 3.1.1.1 **iadMtnDS1LpBk**

This command indicates the loopback operations and loopback status for the DS1.

The values for setting operations are as follows.

0: DS1 LPBK test Near, Line

1: DS1 LPBK test Far, Line

3: DS1 LPBK test Far, Payload

4: Release Primary DS1 LPBK

T1 support all the loopback options above.

The Value for status/read operations are as follows:

5: Normal status.

6: Execute loopback.

#### 3.2 **iadMtnFXOLpBkTable**

The FXO loopback maintenance table.

##### 3.2.1. **iadMtnFXOLpBkEntry**

An entry in the FXO loopback maintenance table.

##### 3.2.1.1 **iadMtnFXOLpBk**

This command indicates loopback operations and loopback status for the FXO card.

0: Release

1: Loopback

##### 3.2.1.2 **iadMtnFXO1kTestTone**

This command indicates the operations of the tone test for the FXO card.

There are 3 types 1k tone test status for the FXO card:

0: Release 1k test tone.

1: 1k test tone with XMT direction

2: 1k test tone with RCV direction

##### 3.2.1.3 **iadMtnFXOToneTest**

This command allows the operation of tone test and tone test status for the FXO card.

The values for setting operations are as follows:

1: Operate tone test

The values for status/read operations are as follows:

2: Success

3: Fail

4: Without doing tone test.

### **3.3 iadMtnFXSLpBkTable**

The FXS loopback maintenance table.

#### **3.3.1. iadMtnFXSLpBkEntry**

An entry in the FXS loopback maintenance table.

##### **3.3.1.1 iadMtnFXSLpBk**

This command indicates loopback operations and loopback status for the FXS card.

0: Release

1: Loopback

##### **3.3.1.2 iadMtnFXS1kTestTone**

This command indicates the operations of tone test for the FXS card.

There are 3 types 1k tone test status of FXS card:

0: Release 1k test tone.

1: 1k test tone with XMT direction

2: 1k test tone with RCV direction

##### **3.3.1.3 iadMtnFXSToneTest**

This command allows the operation of tone test and tone test status for the FXS card.

The values for setting operations are as follows:

1: Operate tone test

The values for status/read operations are as follows:

2: Success

3: Fail

4: Without doing tone test.

## **E&M Loopback Maintenance Table**

### **3.4 iadMtnEMLpBkTable**

The E&M loopback maintenance table.

#### **3.4.1. iadMtnEMLpBkEntry**

An entry in the E&M loopback maintenance table.

##### **3.4.1.1 iadMtnEMLpBk**

This command indicates loopback operations and loopback status for the E&M card.

0: Release

1: Loopback

##### **3.4.1.2 iadMtnEM1kTestTone**

This command indicates the operations of the tone test for the E&M card.

There are 3 types 1k tone test status for the E&M card:

0: Release 1k test tone.

1: 1k test tone with XMT direction

2: 1k test tone with RCV direction

**3.4.1.3 iadMtnEMToneTest**

This command allows the operation of tone test and tone test status for the E&M card.

The values for setting operations are as follows:

1: Operate tone test.

The values for status/read operations are as follows:

2: Success

3: Fail

4: Without doing tone test

**DSU-DP Loopback Maintenance Table****3.5 iadMtnDSUDPLpBkTable**

The DSU-DP loopback maintenance table.

**3.5.1. iadMtnDSUDPLpBkEntry**

An entry in the DSU-DP loopback maintenance table.

**3.5.1.1 iadMtnDSUDPLpBk**

This command indicates local and pattern loopback operations and loopback status for the DSU-DP card.

The values for setting operations are as follows:

0: DSU Release Local Loopback

1: DSU Execute Local Loopback

2: DSU Release Pattern Loopback

3: OCUDP Near End, NonLatch Loopback

4: OCUDP Far End, NonLatch Loopback

5: CSU Near End, NonLatch Loopback

6: CSU Far End, NonLatch Loopback

7: DSU Near End, NonLatch Loopback

8: DSU Far End, NonLatch Loopback

9: OCUDP Near End, Disable 2047, Latch Loopback

10: OCUDP Near End, Enable 2047, Latch Loopback

11: OCUDP Far End, Disable 2047, Latch Loopback

12: OCUDP Far End, Enable 2047, Latch Loopback

13: CSU Near End, Disable 2047, Latch Loopback

14: CSU Near End, Enable 2047, Latch Loopback

15: CSU Far End, Disable 2047, Latch Loopback

16: CSU Far End, Enable 2047, Latch Loopback

17: DSU Near End, Disable 2047, Latch Loopback

18: DSU Near End, Enable 2047, Latch Loopback

19: DSU Far End, Disable 2047, Latch Loopback

20: DSU Far End, Enable 2047, Latch Loopback

The values for status/read operations are as follows:

27: Normal

28: Local Loopback

29: CSU Nonlatch Loopback

30: CSU Latch Loopback

- 31: OCU Nonlatch Loopback
- 32: OCU Latch Loopback
- 33: DSU Nonlatch Loopback
- 34: DSU Latch Loopback
- 35: OOS

## OCU-DP Pattern Loopback Maintenance Table

### 3.6 iadMtnOCUDPLpBkTable

The OCU–DP loopback maintenance table.

#### 3.6.1 iadMtnOCUDPLpBkEntry

An entry in the OCU–DP loopback maintenance table.

##### 3.6.1.1 iadMtnOCUDPLpBk

This command indicates local and pattern loopback operations and loopback status for the OCU–DP card.

The values for setting operations are as follows.

- 0: OCUDP Release Local Loopback
- 1: OCUDP Execute Local Loopback
- 2: OCUDP Release Pattern Loopback
- 3: OCUDP Near End, NonLatch Loopback
- 4: OCUDP Far End, NonLatch Loopback
- 5: CSU Near End, NonLatch Loopback
- 6: CSU Far End, NonLatch Loopback
- 7: DSU Near End, NonLatch Loopback
- 8: DSU Far End, NonLatch Loopback
- 9: OCUDP Near End, Disable 2047, Latch Loopback
- 10: OCUDP Near End, Enable 2047, Latch Loopback
- 11: OCUDP Far End, Disable 2047, Latch Loopback
- 12: OCUDP Far End, Enable 2047, Latch Loopback
- 13: CSU Near End, Disable 2047, Latch Loopback
- 14: CSU Near End, Enable 2047, Latch Loopback
- 15: CSU Far End, Disable 2047, Latch Loopback
- 16: CSU Far End, Enable 2047, Latch Loopback
- 17: DSU Near End, Disable 2047, Latch Loopback
- 18: DSU Near End, Enable 2047, Latch Loopback
- 19: DSU Far End, Disable 2047, Latch Loopback
- 20: DSU Far End, Enable 2047, Latch Loopback

The values for status/read operations are as follows:

- 27: Normal
- 28: Local Loopback
- 29: CSU Nonlatch Loopback
- 30: CSU Latch Loopback
- 31: OCU Nonlatch Loopback
- 32: OCU Latch Loopback
- 33: DSU Nonlatch Loopback
- 34: DSU Latch Loopback

## ISDN Loopback Test Maintenance Table

### 3.7 iadMtnISDNLpBkTable

The ISDN loopback maintenance table.

#### 3.7.1 iadMtnISDNLpBkEntry

An entry in the ISDN loopback maintenance table.

##### 3.7.1.1 iadMtnISDNLpBk

This command indicates loopback operations and loopback status for the ISDN card.

The values for setting operations are as follows:

- 0: Release Loopback
- 1: Local Loopback
- 2: LULT Loopback
- 3: NNT1 Loopback

The values for status/read operations are as follows:

- 4: Normal
- 5: Loopback

## Nx64k Loopback Test Maintenance Table

### 3.8 1.1iadMtnNx64kLpBkTable

The Nx64k loopback maintenance table.

#### 3.8.1 iadMtnNx64kLpBkEntry

An entry in the Nx64k loopback maintenance table.

##### 3.8.1.1 iadMtnNx64kLpBk

This command indicates operations and report status for the Nx64k card.

The values for setting operations are as follows:

- 0: Local Loopback
- 1: network Loopback
- 2: Remote Loopback
- 3: Release Loopback
- 4: Normal
- 5: Local Loopback
- 6: Local Loopback by DTE
- 7: Remote Loopback
- 8: Network Loopback
- 9: Network Loopback by Remote.

## Pattern Loopback Result Maintenance Table

### 3.9 iadMtnPtnLpBkResultTable

The pattern loopback maintenance table.

### **3.9.1. *iadMtnPtnLpBkResultEntry***

An entry in the pattern loopback maintenance table.

#### **3.9.1.1 *iadMtnPtnLpBkResult***

This command indicates the result of pattern loopback operation. If the pattern loopback is not operated with the specific channel number, agent will return 0 value. Otherwise, show with the format : Loopback Status/Mapping Code/Bit Error Count.

Loopback status

0: no loopback

1: loopback operation

Mapping code

0: MAP0

1: MAP1

2: MAP FAIL

Bit error rate : with value 0–65535

## **IAD ALARM MANAGEMENT GROUP**

### **4. *iadAlmMgt***

#### **4.1 *iadAlmTable***

The alarm table.

##### **4.1.1. *iadAlmEntry***

An entry in the alarm table.

###### **4.1.1.1 *iadAlmType***

The alarm types for T1 card.

0: ACTLPBKL alarm

1: ACTLPBKLF alarm

2: ACTLBKP alarm

3: AIS alarm

4: LOF alarm

5: LOS alarm

6: YEL alarm

Router card alarm only provide on the Router SNMP agent

7: CGA T1 alarm

8: Loss of ethernet data link

###### **4.1.1.2 *iadAlmStus***

This command allows the alarm status to be read.

0: Alarm has not occurred

1: Alarm has occurred

## IAD PERFORMANCE MONITOR MANAGEMENT GROUP

### 5. iadPMMgt

#### 5.1 iadPMResetTable

The Performance Monitoring reset table.

##### 5.1.1 iadPMResetEntry

An entry in the Performance Monitoring reset table.

##### 5.1.1.1 iadPMResetType

This command allows the Performance Monitoring (PM) to be reset for the specified card.

0: Reset 15-minute PM values

1: Reset 1-day PM values

Reading this command will always return 2.

#### 5.2 iadPMPriDS115PMTTable

The Performance Monitoring table for the 15-minute PM of the primary DS1 card.

##### 5.2.1 iadPMPriDS115PMEEntry

An entry in the Performance Monitoring table for the 15-minute PM of the primary DS1 card.

##### 5.2.1.1 iadPMType

The PM types:

0: Error Second

1: Severely Error Second

2: Failed second

##### 5.2.1.2 iadPM15IntervalNo

A number between 0 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1. 0 for current 15 minute interval.

##### 5.2.1.3 iadPMPriDS115PMValue

The 15-minute PM value of primary DS1 card.

#### 5.3 iadPMPriDS124PMTTable

The Performance Monitoring table for the 1-day PM of the primary DS1 card.

##### 5.3.1 iadPMPriDS124PMEEntry

An entry in the Performance Monitoring table for the 1-day PM of the primary DS1 card.

##### 5.3.1.1 iadPM24IntervalNo

A number between 0 and 30, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 24 hours interval, and the interval identified by N is the interval immediately preceding the one identified by N-1. 0 for today.

##### 5.3.1.2 iadPMPriDS124PMValue

The 1-day PM value of primary DS1 card.

#### **5.4 iadPMSecDS115PMTable**

The Performance Monitoring table for the 15-minute PM of the secondary DS1 card.

##### **5.4.1. iadPMSecDS115PMEntry**

An entry in the Performance Monitoring table for the 15-minute PM of the secondary DS1 card.

##### **5.4.1.1 iadPMSecDS115PMValue**

The 15-minute PM value of secondary DS1 card

#### **5.5 iadPMSecDS124PMTable**

The Performance Monitoring table for the 1-day PM of secondary DS1 card.

##### **5.5.1. iadPMSecDS124PMEntry**

An entry in the Performance Monitoring table for the 1-day PM of the secondary DS1 card.

##### **5.5.1.1 iadPMSecDS124PMValue**

The 1-day PM value of secondary DS1 card

### **IAD TRAP MANAGEMENT GROUP**

## **6. iadTrapMgt**

### **6.1 iadTrapSetProxy**

This command indicates the trap proxy operation

0: Disable

1: Enable

### **6.2 iadTrapNEid**

This command describes the system id that generates the trap.

### **6.3 iadTrapStus**

This command describes the trap status:

0: Not present

1: Present

### **6.4 iadTrapReqIP**

This command indicates the offending IP address that cause the authority failure.

Manager Host table for receiving trap alarm information

### **6.5 iadTrapConfigTable**

The trap configuration information table.

#### **6.5.1. iadTrapConfigEntry**

An entry in the trap configuration information table.

##### **6.5.1.1 iadTrapConfigNo**

This command indicates the index of the trap configuration information table.

##### **6.5.1.2 iadTrapConfigCommunity**

This command indicates the community of the trap configuration information table.

#### **6.5.1.3 iadTrapConfigIP**

This command indicates the destination IP address of the trap configuration information table.

#### **6.5.1.4 iadTrapConfigRowStatus**

The status column used for creating, modifying, and deleting instances of the columnar objects in the trap configuration information table.

### **Trap Definition**

#### **6.6 iadTrapObject**

Trap object.

