

RADview-SC/TDMoIP

Network Management System

Service Center for TDMoIP Applications

IPmux-4

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Chapter 1

Introduction

1.1 Overview of RADview FCAPS Model

RADview provides a complete solution for monitoring and controlling IPmux-4. The RADview solutions conform to ITU-T Telecommunication Management Network (TMN) recommendations for SNMP management systems, known as the FCAPS model:

- **Fault management** – detects and correlates fault in network devices, isolates faults and initiates recovery actions.
- **Configuration management** – tracks configuration changes, configures, installs and distributes software and configuration files across the network.
- **Accounting management** – collects accounting data and generates network usage reports.
- **Performance management** – continuously monitors network performance (QoS, CoS) and resource allocation.
- **Security management** – controls and restricts access to network resources.

1.2 System Level Operations

The element manager allows you to configure the device parameters.

➤ **To configure an IPmux via the element manager:**

- Select the node in the Service Center map and from the **Configuration** menu, select **Element Manager...**

The Element Manager dialog box (*Figure 1-1*) appears allowing you to configure any of the elements listed.

Element Manager Window

The Element Manager window allows you to configure the IPmux-4 at different levels:

- System
- Port.

Focusing on the interface name (level) allows you to access the interface's menus.

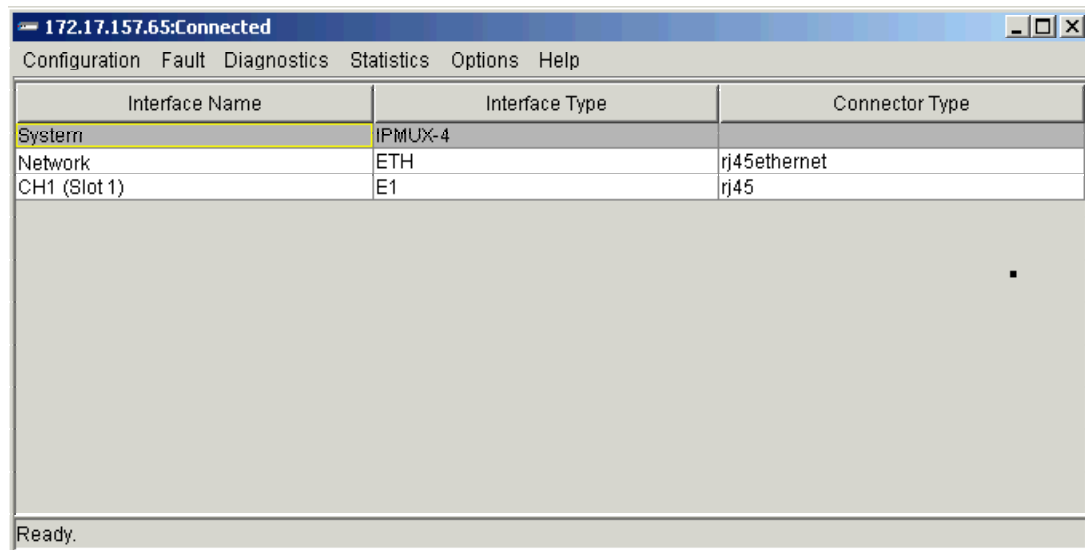


Figure 1-1. Element Manager - IPmux-4 E1

The IPmux element manager allows you to monitor and configure the following system level management options.

Table 1-1. System Management Options

Tasks – Configuration	Dialog Box and Parameter Location	Path
Configuring system information	System Information dialog box See Configuring System Information	Configuration ➤System Info...
Configuring system parameters	System Parameters dialog box See Configuring System Parameters	Configuration ➤System Parameters...
Viewing system inventory	System Inventory dialog box See Viewing System Inventory	Configuration ➤System Inventory...
Viewing and removing bundles	Bundle ConnectionTable See Configuring Bundles	Configuration ➤Bundle Connection Table...
Restoring default configuration	See Resetting to Default Configuration	Configuration ➤System Commands ➤Default Configuration
Resetting IPmux configuration	See Resetting Agent	Configuration ➤System Commands ➤Reset
Polling the agent	See Polling the Agent	Configuration ➤System Commands ➤Poll Agent
Tasks – Fault	Dialog Box and Parameter Location	Path
Viewing active alarms	Active Alarm List See Viewing Active Alarms	Fault ➤Alarms...
Viewing the history log	System Log Buffer See Viewing the History Log	Fault ➤History Log ➤List...
Clearing the history log	See Clearing the History Log	Fault ➤History Log ➤Clear...
Tasks – Diagnostics	Dialog Box and Parameter Location	Path
Viewing self test results	Self Test Results dialog box See Viewing Self Test Results	Diagnostics ➤Self Test Results...
Tasks – Statistics	Dialog Box and Parameter Location	Path
Setting polling interval	Polling Interval dialog box See Polling Interval	Statistics ➤Polling Interval...
Viewing bundle statistics	Bundle Connection Statistics See Displaying Bundle Statistics	Statistics ➤Bundle Connection Statistics...
Tasks – Options	Dialog Box and Parameter Location	Path
Establishing link between IPmux and manager	Manager List See Maintaining Manager List	Options ➤Manager List...
Masking traps	Masking Traps dialog box See Masking Traps	Options ➤Masking Traps...

1.3 Port Level Operations

RADview for IPmux allows you to monitor and configure the following port level management options.

Table 1-2. Port Level Management Options

Tasks – Configuration	Dialog Box and Parameter Location	Path
Ethernet Interface		
Viewing information	Interface Information See Viewing Interface Information	Configuration ➤Interface Info...
Configuring parameters	Parameters dialog box See Configuring Interface Parameters	Configuration ➤Parameters...
E1/T1 Interface		
Setting E1/T1 parameters	Parameters dialog box See Configuring Interface Parameters	Configuration ➤Parameters...
Configuring bundles	Bundle dialog box See Configuring Bundles	Configuration ➤Bundles...
Tasks – Diagnostics	Dialog Box and Parameter Location	Path
Initiate a loopback test (only E1/T1)	Loopback State dialog box See Performing a Loopback Test	Diagnostics ➤Loopback Test...
Tasks – Statistics	Dialog Box and Parameter Location	Path
Viewing Ethernet interface statistics	Interface Statistics dialog box See Viewing Ethernet Statistics	Statistics ➤Interface Statistics...
Viewing current statistics	Current Data See Viewing Current Statistics	Statistics ➤Current...
Viewing intervals statistics	Intervals Data See Viewing Intervals Statistics	Statistics ➤Intervals...

Chapter 2

Fault Configuration

This section describes Fault Configuration operation for system and port levels.

2.1 System Level

At system level you can:

- View active alarms
- View history log
- Clear history log
- View self-test results.

Viewing Active Alarms

The **Alarms** command enables you to view agent alarms from the time that the selected IPmux was turned on or from the last time the active alarm list was cleared.

➤ **To view the Active Alarm List:**

- **Fault > Alarms...**

The Active Alarm list appears.

Note *The Active Alarm List is used by all the different IPmux products. Not all parameters are relevant to IPmux-4.*

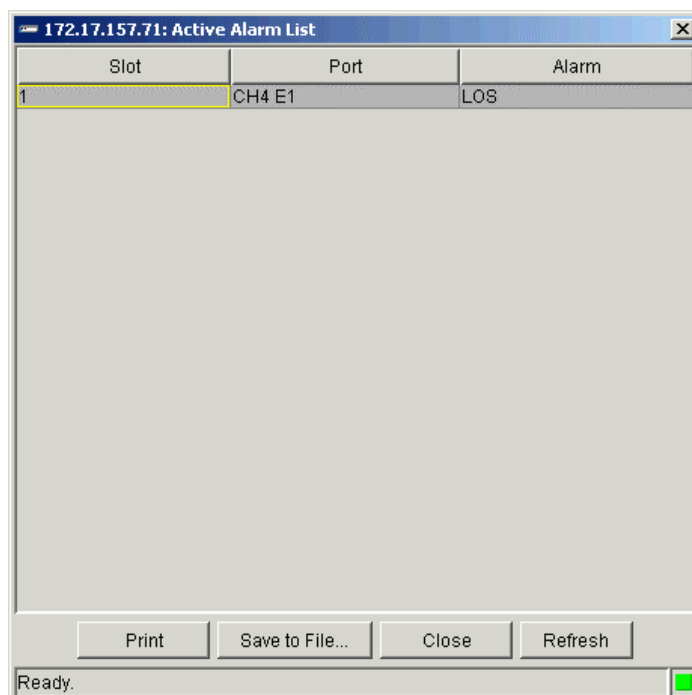


Figure 2-1. Active Alarm List

Table 2-1. Active Alarm Parameters

Parameter	Possible Values / Remarks
Slot	Not relevant for IPmux-4
Port	Type of port ETH, CH1, CH2, CH3, CH4
Alarm	Type of trap Port alarms: LOS, LOF, AIS, FEBE, RDI

Viewing the History Log

The **History Log** command enables you to display a history of alarms (up to 512 entries) that were sent from the selected IPmux to the network management station.

- **To view the History Log:**
 - **Fault > History Log > List...**

The System Log Buffer appears.

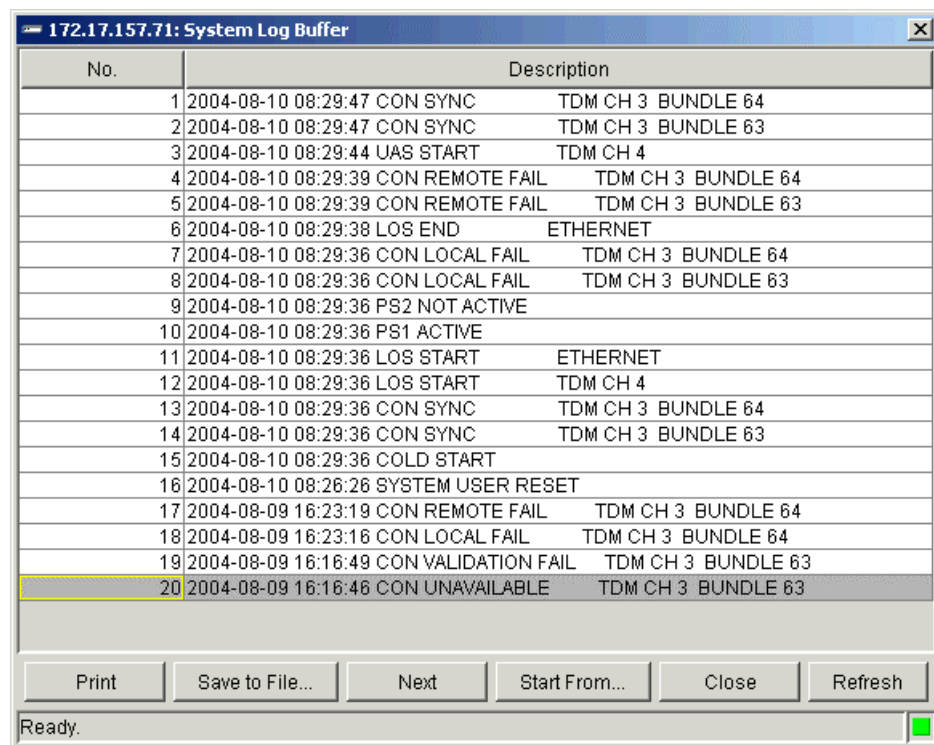


Figure 2-2. System Log Buffer

Table 2-2. System Log Buffer Parameters

Parameter	Possible Values / Remarks
No.	The number of the trap in the Log Buffer
Description	Brief description of the trap Up to 80 characters
[Next]	Displays next 20 entries in table
[Start From]	Displays entries in the log table starting from a specific number. Click <Start From> to open the Start From dialog box. Specify a number and click <Set> .
[Print]	Prints list

Clearing the History Log

- **To clear the History Log:**
 1. **Fault > History Log > Clear.**
A confirmation box appears.
 2. Click **<OK>** to confirm.

Viewing Self Test Results

- **To view self test results obtained when the selected IPmux was powered up:**
 - **Diagnostics > Self Test Results...**

The Self Test Results dialog box appears displaying descriptions of detected faults.

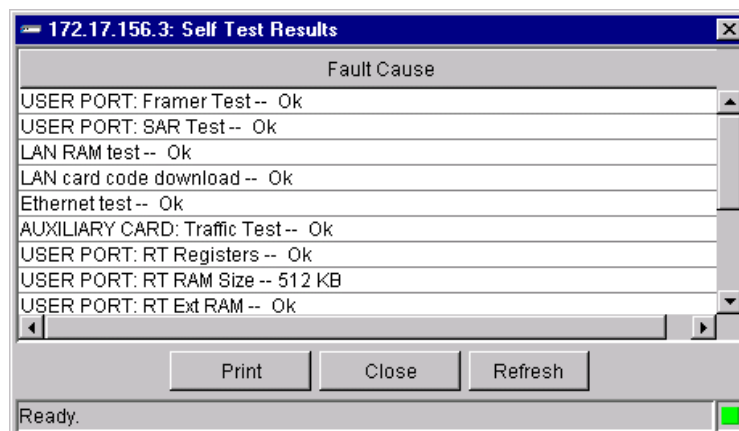


Figure 2-3. Self Test Results Table

2.2 Port Level

At port level you can perform diagnostic tests for E1/T1 ports.

E1/T1 Diagnostics

You can perform loopback tests for E1/T1 ports.

Performing a Loopback Test

➤ **To initiate a loopback test for an E1/T1 interface:**

1. Click an E1/T1 port.
2. **Diagnostics > Loopback...**
The Interface Loopback dialog box appears.
3. Set the desired loopback test and click **<Set>**.
The loopback test is performed.

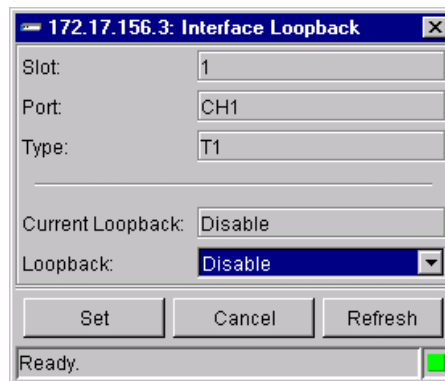


Figure 2-4. Interface Loopback State Dialog Box

Table 2-3. Interface Loopback Parameters

Parameter	Possible Values / Remarks
Slot	Slot number
Port	Port number of the interface.
Type	Type of interface
Current Loopback	Current loopback status: Internal, External, Disable
Loopback	Type of loopback test: Internal, External, Disable

Chapter 3

Configuration Management

This section describes the different configuration operations for system and port levels.

3.1 System Level

At system level you can:

- Configure system information
- Configure system parameters
- View system inventory parameters
- Configure bundles
- Configure system commands
- Poll agent
- Configure host interface IP list
- Configure managers
- Mask traps.

Configuring System Information

➤ **To set system information for the selected IPmux device:**

1. **Configuration > System Info...**

The System Information dialog box appears ([Figure 3-1](#)).

2. Enter the required settings. You can change the **Name**, **Contact**, **Location**, **Date** and **Time** fields.
3. Click **<Set>** to implement the changes.

172.17.157.71: System Information

Description: radIP-Mux HW:1.0 rev a,
 SW: Boot 2.11 8-14-2000 15:04,
 Application 2.11 11-14-2002 10:44.

Object ID: IpMux4

Name: IP-Mux

Contact: name of contact person

Location: the location of this device

System Up Time: 6 days 05:08:26

Date: 2004-08-16

Time: 13:38:02

Host IP: 172.17.157.71

Host IP Mask: 255.255.255.0

Number of Interfaces: 21

Set Cancel Refresh

Ready.

Figure 3-1. System Information Dialog Box

Table 3-1. System Information

Parameter	Possible Values / Remarks
Description	HW and SW information for the device
Object ID	Object ID
Name	User specified name
Contact	User specified name of contact person
Location	User specified location of IPmux
System Up Time	Period of time system has been on
Date	User specified date 1.1.1970 to 31.12.2099
Time	User specified time
Host IP	Host IP address
Host IP Mask	Host IP address mask
Number of Interfaces	Number of interfaces in IPmux

Configuring System Parameters

➤ To set system parameters for the selected IPmux device:

1. **Configuration > System Parameters...**

The System Parameters dialog box appears (*Figure 3-2*).

2. Enter the required settings.

3. Click **<Set>** to implement the changes.

Note NMS communication is cut off if the "tagging" option is selected.

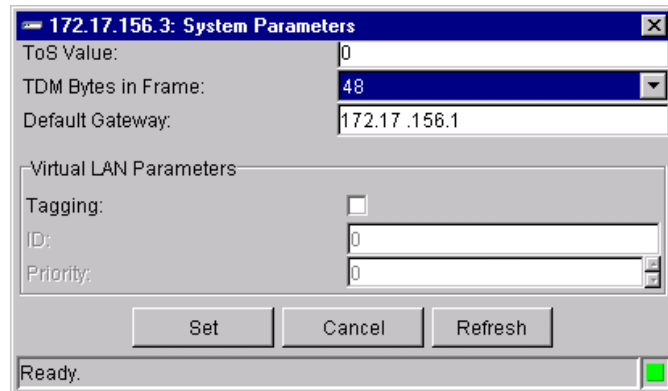


Figure 3-2. System Parameters Dialog Box

Table 3-2. System Parameters

Parameter	Possible Values / Remarks
ToS Value	IP ToS (Type of Service) assigned to this channel. Configures IP ToS field in the IP frames transmitted by the device. Configures the entire byte – not only the 3 ToS bits. ToS assignment applies to all TDM packets leaving IPmux 0 to 255
TDM Bytes in Frame	UDP payload (one-eighth) length enabling reduction of Ethernet throughput 48, 96, 144, 192, 240, 288, 336, 384
Default Gateway	Gateway to which management frames will be sent (when the managers is not in the host subnet)
Virtual Lan Parameters	
Tagging	Select this checkbox to enable VLAN tagging Note: Trying to activate the VLAN Tagging function in an unsuitbale environemnt causes the Network Management System to disconnect.
ID	VLAN ID: 1 to 4094 Note: Changing VLAN ID from the Network Management System might disconnect the Network Management System.
Priority	VLAN priority 0 to 7

Viewing System Inventory

- To display the System Inventory for the selected IPmux:
 - **Configuration > System Inventory...**

The System Inventory dialog box appears.

	Id	Version
System Id:	195493	HW:1.0
Board Id:	195493	1.0
Card Id:	132469	HW:1.0/4.0 SW:M.4
Number of PSUs:	1	

Close Refresh

Ready.

Figure 3-3. System Inventory Dialog Box

Table 3-3. System Inventory Parameters

Parameter	Possible Values / Remarks
System ID	System identification number
Board ID	Board identification number (identical to System ID)
Card ID	Card identification number
Number of PSUs	Number of power supply units

Configuring Bundles

- To view the bundle connection table:
 - **Configuration > Bundle Connection Table...**

The Bundle Connection Table appears.

Note The Bundle Connection Table is used by all the different IPmux products. Not all parameters are relevant to IPmux-4.

172.17.157.66: Bundle Connection Table																
Slot No.	Channel No.	Bundle No.	Bundle Name	Admin. Status	Oper. Status	Dest. Name	Next Hop	Dest. Bundle	Jitter Buffer (tens of usec)	TOS	TDM Bytes in Frame	VLAN Tagging	VLAN ID	VLAN Priority	OAM Connectivity	Bundle Throughput
1	CH1	1	Bundle1	Connected	Connected	172.17.157.44 0.0.0.0		1	300	0	48	☒	0	7	Disabled	0
1	CH1	2	Bundle2	Connected	Connected	172.17.157.44 0.0.0.0		2	300	0	48	☒	0	7	Disabled	0
1	CH1	3	Bundle3	Connected	Connected	172.17.157.44 0.0.0.0		3	300	0	48	☒	0	7	Disabled	0
1	CH1	4	Bundle4	Connected	Connected	172.17.157.44 0.0.0.0		4	300	0	48	☒	0	7	Disabled	0
1	CH1	5	Bundle5	Connected	Connected	172.17.157.44 0.0.0.0		5	300	0	48	☒	0	7	Disabled	0
1	CH1	6	Bundle6	Connected	Connected	172.17.157.44 0.0.0.0		6	300	0	48	☒	0	7	Disabled	0
1	CH1	7	Bundle7	Connected	Connected	172.17.157.44 0.0.0.0		7	300	0	48	☒	0	7	Disabled	0
1	CH1	8	Bundle8	Connected	Connected	172.17.157.44 0.0.0.0		8	300	0	48	☒	0	7	Disabled	0
1	CH1	9	Bundle9	Connected	Connected	172.17.157.44 0.0.0.0		9	300	0	48	☒	0	7	Disabled	0
1	CH1	10	Bundle10	Connected	Connected	172.17.157.44 0.0.0.0		10	300	0	48	☒	0	7	Disabled	0
1	CH1	11	Bundle11	Connected	Connected	172.17.157.44 0.0.0.0		11	300	0	48	☒	0	7	Disabled	0
1	CH1	12	Bundle12	Connected	Connected	172.17.157.44 0.0.0.0		12	300	0	48	☒	0	7	Disabled	0
1	CH1	13	Bundle13	Connected	Connected	172.17.157.44 0.0.0.0		13	300	0	48	☒	0	7	Disabled	0
1	CH1	14	Bundle14	Connected	Connected	172.17.157.44 0.0.0.0		14	300	0	48	☒	0	7	Disabled	0
1	CH1	15	Bundle15	Connected	Connected	172.17.157.44 0.0.0.0		15	300	0	48	☒	0	7	Disabled	0
1	CH1	16	Bundle16	Connected	Connected	172.17.157.44 0.0.0.0		16	300	0	48	☒	0	7	Disabled	0
1	CH1	17	Bundle17	Connected	Connected	172.17.157.44 0.0.0.0		17	300	0	48	☒	0	7	Disabled	0
1	CH1	18	Bundle18x	Connected	Connected	172.17.157.44 0.0.0.0		18	300	0	48	☒	0	7	Disabled	0

Remove
Close
Refresh

Ready.

Figure 3-4. Bundle Connection Table

Table 3-4. Bundle Connection Parameters

Parameter	Possible Values / Remarks
Slot No.	Slot number
Channel No.	Channel to be configured 1 to 4
Bundle No.	1 to 4E31
Bundle Name	Bundle name for selected channel. Table will display one bundle name per line.
Admin Status	Connected, Disconnected (frames will not be sent from this channel)
Oper. Status	Connected, Disabled, Remote Fail, Local Fail, Unavailable, Validation Fail
Dest. Name	Logical name or IP address of the destination IPmux
Next Hop	Indicates IP address to which the Ethernet frame will be sent when the Dest. Name IP is not in the device subnet
Dest. Bundle	Bundle number in the destination IPmux device 1..496
Jitter Buffer (tens of µsec)	Depth of the jitter buffer (elastic buffer per link whose size is configurable in units of 10 micro seconds (µs)) T1: 0..3..2400 (0 – 24 ms) E1: 0..3..3200 (0 – 32 ms)
TOS	IP ToS (Type of Service) assigned to this channel. Configures IP ToS field in the IP frames transmitted by the device. Configures the entire byte – not only the 3 ToS bits. ToS assignment applies to all TDM packets leaving IPmux 0 ..255
TDM Bytes in Frame	UDP payload (one-eight) length enabling reduction of Ethernet throughput. 48, 96, 144, 192, 240, 288, 336, 384

Table 3-4. Bundle Connection Parameters (Cont.)

Parameter	Possible Values / Remarks
Oper. Status	Connected, Disabled, Remote Fail, Local Fail, Unavailable, Validation Fail
VLAN Tagging	No, Yes
VLAN ID	VLAN ID 1 to 4094
VLAN Priority	VLAN priority 0 ..7
OAM Connectivity	Disable, Enable
Bundle Throughput	Not relevant for IPmux-4

➤ **To remove an entry from the Bundle Connection Table:**

- Select a row in the **Bundle Connection Table** and click <Remove...>.

Note You cannot remove a bundle that is part of a circuit.

System Commands

The **System Commands** option allows you to:

- Reset the IPmux to its default configuration
- Reset an agent
- Poll the agent.

Resetting to Default Configuration

➤ **To set the selected IPmux to the default configuration:**

1. **Configuration > System Commands > Default Configuration**

A confirmation message appears:

RESETTING AGENT CONFIGURATION. Current configuration will be lost.

2. Click <OK> to confirm reset of the default configuration.

The default configuration replaces the current configuration.

Note When you perform **default configuration** the relation between bundle and time slot is not erased.

Resetting Agent

➤ **To reset the selected IPmux:**

1. **Configuration > System Commands > Reset.**

A confirmation message appears (Figure 3-5).

2. Click <OK> to confirm.

The IPmux-4 is reset.

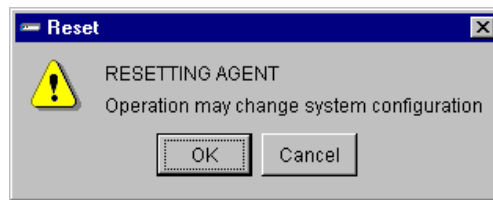


Figure 3-5. Reset Agent Confirmation Message

Note The reset operation implements any changes made to the IPmux-4 configuration.

Polling the Agent

- To poll the agent:
 - Configuration > System Commands > Poll...

The agent is polled.

Maintaining Manager List

The **Manager List** command enables you to establish the actual link between the selected IPmux device and the manager.

Note You can define up to ten managers for each host.

- To display the manager list:
 - Options > Manager List...

The Manager List appears.

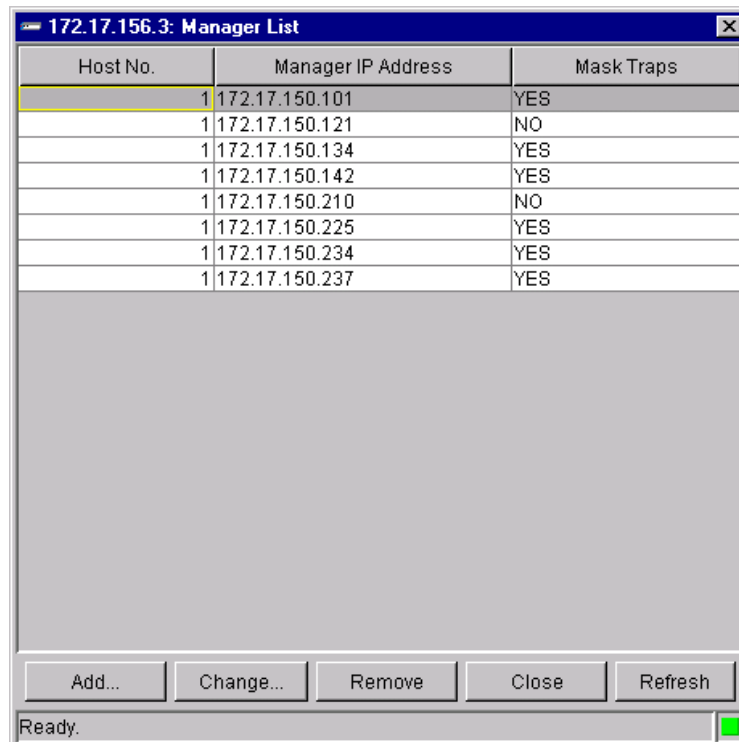


Figure 3-6. Manager List

Table 3-5. Manager List Parameters

Parameter	Possible Values / Remarks
Host No.	1
Manager IP Address	IP address of the Network Management System
Mask Traps	Indicates whether or not traps are masked by the system Yes, No

➤ **To add an entry in the manager list:**

Note

This option is not available if ten managers currently exist.

1. In the **Manager List**, click <Add...>
The Add Manager dialog box appears (Figure 3-7).
2. Enter the required settings.
3. Click <Set> to implement the changes.

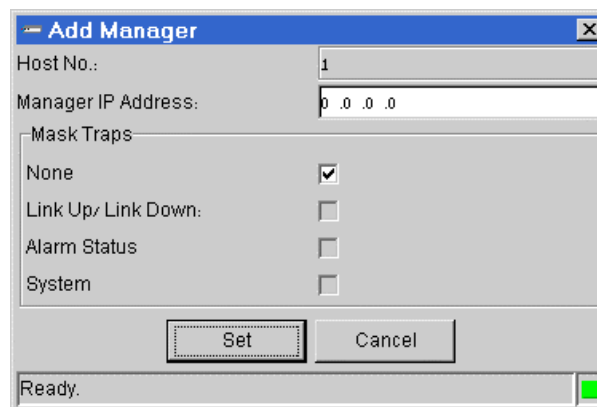


Figure 3-7. Add Manager Dialog Box

Table 3-6. Add Manager Parameters

Parameter	Possible Values / Remarks
Host No.	1
Manager IP Address	IP address of the selected entry
Mask Traps	
None	When selected, all other traps are disabled.
Alarm Status	When selected, the trap is enabled.
System	When selected, the trap is enabled.

➤ **To change an entry in the manager list:**

1. Select an entry in the **Manager List** and click **<Change...>**
The Change Manager dialog box appears.
2. Change the **Mask Traps** parameter.
3. Click **<Set>** to implement the changes.

➤ **To remove an entry from the Manager List:**

- Select a row from the **Manager List** and click **<Remove...>**

A message appears warning about possible disconnection of the manager during work.

Masking Traps

The **Masking Traps** command enables you to select which traps should be masked.

➤ **To manually select traps for masking:**

1. **Options > Masking Traps.**
The Masking Traps dialog box appears (*Figure 3-8*).
2. Select which traps to mask, and then click **<Set>**.

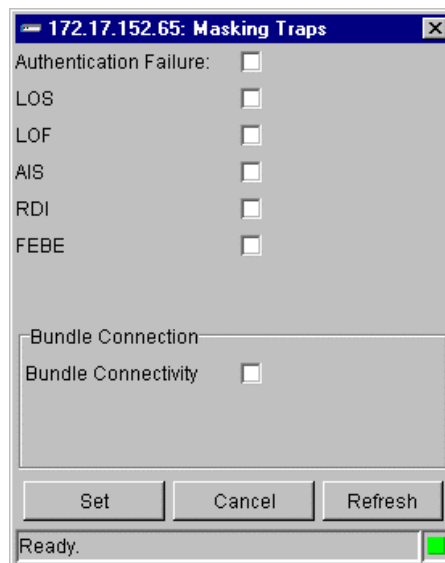


Figure 3-8. Masking Traps Dialog Box

Table 3-7. Masking Traps Parameters

Parameter	Possible Values / Remarks
Authentication Failure	Selecting this checkbox disables the Authentication Failure trap. Checked (disabled), Unchecked (enabled) LOS, LOF, AIS, RDI, FEBE Versions <2.10B1: Local Connectivity, Remote Connectivity Versions ≥2.10B1: Bundle Connectivity

3.2 Port Level

At port level, you can configure parameter for:

- Ethernet ports
- E1/T1 ports.

Ethernet Port

For Ethernet ports, you can:

- View interface information
- Configure interface parameters.

Viewing Interface Information

► **To view information about the Ethernet interface:**

1. Click the Ethernet port.
2. **Configuration > Interface Info...**

The Interface Information table appears.

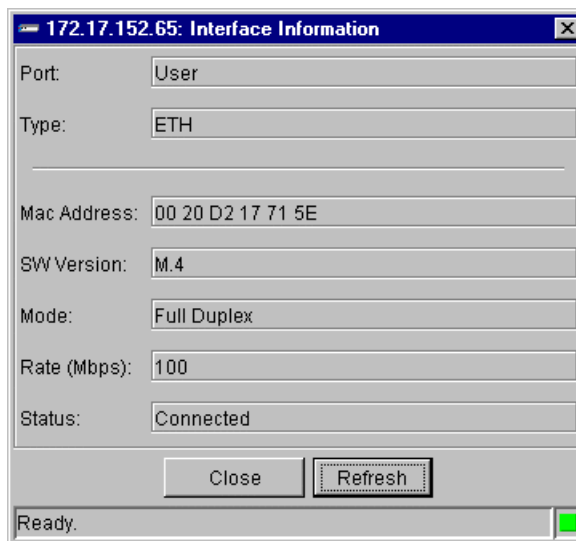


Figure 3-9. Interface Information

Table 3-8. Interface Information Table Parameters

Parameter	Possible Values / Remarks
Port	Selected Port
Type	ETH
MAC Address	MAC Address
SW Version	Software version of the module

Table 3-8. Interface Information Table Parameters (Cont.)

Parameter	Possible Values / Remarks
Mode	Transmission mode Full Duplex, Half Duplex
Rate (Mbps)	Transmission rate 10, 100
Status	Status of the link Connected, Not Connected

Configuring Interface Parameters

► To set configuration parameters for the Ethernet interface:

1. Click the Ethernet port.
2. **Configuration > Parameters...**

The Interface Parameters dialog box appears.

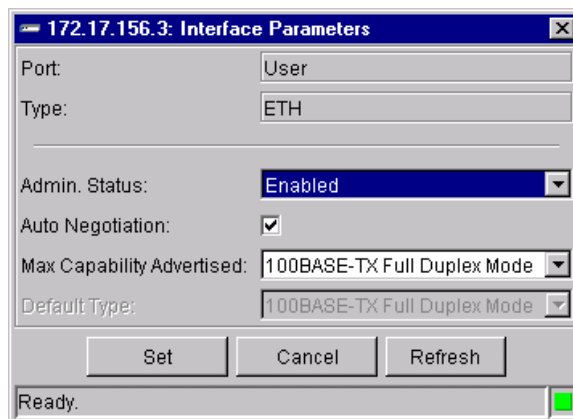


Figure 3-10. Ethernet Interface Parameters Dialog Box

Table 3-9. Ethernet Interface Parameters

Parameter	Possible Values / Remarks
Port	Selected Port
Type	ETH
Auto Negotiation	When checked, Auto Negotiation is enabled: Enable, Disable
Max Capability Advertised	Defines the maximum capabilities of the interface 10BASE-T half duplex mode, 10BASE-T full duplex mode, 100BASE-TX half duplex mode, 100BASE-TX full duplex mode Only applicable when Auto Negotiation is enabled
Default Type	10BASE-T half duplex mode, 10BASE-T full duplex mode, 100BASE-TX half duplex mode, 100BASE-TX full duplex mode Only applicable when Auto Negotiation is disabled

Note When **Auto Negotiation** is disabled and **Max Capability Advertised** is different from the capabilities of the LAN (i.e. Max Capability = 100Base-T full duplex, while LAN works in 10Base-T half duplex), NMS will disconnect.

E1/T1 Port

For E1/T1 ports, you can configure:

- Interface parameters
- Bundles.

Configuring Interface Parameters

► **To display or configure E1/T1 parameters:**

1. Click an E1/T1 port.
2. **Configuration > Parameters...**

The E1/T1 Parameters dialog box appears.

172.17.152.66: Interface Parameters

Slot: 1

Port: CH1

Type: T1

Admin. Status: Enabled

Transmit Clock Source: Adaptive

Rx. Sensitivity (dB): -10

Line Type: ESF

Line Code: B8ZS

Idle Code: 7E

Signaling Mode: CAS

Line Mode: DSU

Line Length (ft): 0-133

Tx Gain (dB): -7.5

Restore Time (sec): 1

Conditioning CAS (ABCD): 01

First 2.5 Sec. Signaling Conditioning: FF

Conditioning Data Pattern: 7F

AIS Transmit: Disable

Set Cancel Refresh

Ready.

Figure 3-11. T1 Parameters Dialog Box

The screenshot shows a dialog box titled "172.17.157.65: Interface Parameters". It contains the following fields and values:

- Slot: 1
- Port: CH1
- Type: E1
- Admin. Status: Enabled (dropdown)
- Transmit Clock Source: Adaptive (dropdown)
- Rx. Sensitivity (dB): -10 (dropdown)
- Line Type: E1 (dropdown)
- Idle Code: 7E
- Conditioning CAS (ABCD): 01
- Conditioning Data Pattern: FF
- AIS Transmit: Disable (dropdown)

At the bottom, there are three buttons: "Set", "Cancel", and "Refresh". Below the buttons is a status bar that says "Ready." with a green square icon.

Figure 3-12. E1 Parameters Dialog Box

Table 3-10. E1/T1 Parameters

Parameter	Possible Values / Remarks
Slot	Slot Number
Port	Link number of the selected physical port (1–4)
Type	E1, T1
Admin. Status	Enabled, Disabled
Transmit Clock Source	Source of the transmit clock Internal: Local clock source is used External: Recovered from the other interface network and used for data transmission on this interface Loopback: Transmit clock recovered from received data Adaptive: Adaptive clock regeneration
Rx Sensitivity	Determines the maximum attenuation of the receive signal that can be compensated for by the interface receive path Long Haul, Short Haul (only applicable for E1 ports)

Table 3-10. E1/T1 Parameters (Cont.)

Parameter	Possible Values / Remarks
Line Type	Line type affects the number of bits per second that the link can reasonably carry. It also affects the interpretation of the port performance statistics. For E1 ports: Framed (G.704), Framed-CRC, Framed-MF, Framed-CRC-MF Unframed (G.703): Use when the data being transmitted is unframed For T1 ports: ESF: Extended SuperFrame D4: AT&T D4 format Unframed: Use when the data being transmitted is unframed
Line Code (only applicable for T1 ports)	Type of Zero Code Suppression used on the link B7ZS, B8ZS, AMI
Idle Code (not applicable when the Line Type is Unframed)	Byte pattern of the data transmitted in the E1/T1 Framer idle timeslots 0 to FF Not applicable when the Line Type is Unframed
Signaling Mode (only applicable for T1 ports)	Type of signaling used on the link None, Robbed Bit
Line Mode (only applicable to T1 ports)	T1 device operation mode DSU, CSU
Line Length (feet) (Only applicable for T1 ports with the Line Mode DSU)	0-133, 134-266, 267-339, 400-533, 534-655
Tx Gain (dB) (Only applicable for T1 ports with the Line Mode CSU)	Transmit line gain 0, -7.5, -15 and -22.5
Restore Time (sec) (Only applicable to T1 ports. Not applicable when the Line Type is Unframed.)	1, 10 Used to change the sync. Algorithms to reduce the time required for the port to return to normal operation after a RED (LOF – loss of frame synchronization) alarm.

Table 3-10. E1/T1 Parameters (Cont.)

Parameter	Possible Values / Remarks
Conditioning CAS (AB/ABCD)	Trunk conditioning signaling value after alarm detection 0x1 to 0xF : E1 0x0 to 0xF : T1 ESF 0x0 to 0x3 : T1 D4 Alarms that can cause trunk conditioning: LOS, LOF, AIS at the far end E1/T1 port or receive buffer underrun/overflow at the local ATM level For E1 ports, this parameter is not applicable when the Line Type is Unframed, E1, or E1 CRC. For T1 ports, this parameter is not applicable when the Signaling Mode is None.
First 2.5 Sec. Signaling Conditioning (Only applicable for T1 ports, except when the Signaling Mode is None)	Trunk conditioning signaling; the value to be sent as a signaling during the first 2.5 seconds after alarm detection 0x0 to 0xF, FF : T1 ESF 0x0 to 0x3, FF : T1 D4 Alarms that can cause trunk conditioning: LOS, LOF, AIS at the far end E1/T1 port or receive buffer underrun/overflow at the local ATM level.
Conditioning Data Pattern	Trunk conditioning data pattern to be sent upon a DS0 fail 0x0 to 0xFF Alarms that can cause trunk conditioning: LOS, LOF, AIS at the far end E1/T1 port or receive buffer underrun/overflow at the local ATM level. Not applicable when the Line Type is Unframed . In unframed mode, Conditioning will be a result of LOS (Loss of Signal) at the far end E1/T1 port or receive buffer underrun/overflow at the local ATM level and will cause AIS transmission towards the PBX.
AIS Transmit	Enable, Disable

Configuring Bundles

➤ To view bundles for an E1/T1 port:

1. Click an E1/T1 port.
2. **Configuration > Bundles...**
The Bundle Table appears.

Slot: 1
Port: CH3
Type: E1

Bundle No.	Bundle Name	Empty Bundle	Bundle Status
63 Bundle63		☐	Connected
64 Bundle64		☐	Connected
65 Bundle65		☐	Connected
66 Bundle66		☐	Connected
67 Bundle67		☐	Connected
68 Bundle68		☒	
69 Bundle69		☒	
70 Bundle70		☒	
71 Bundle71		☒	
72 Bundle72		☒	
73 Bundle73		☒	
74 Bundle74		☒	
75 Bundle75		☒	
76 Bundle76		☒	
77 Bundle77		☒	
78 Bundle78		☒	
79 Bundle79		☒	
80 Bundle80		☒	
81 Bundle81		☒	
82 Bundle82		☒	
83 Bundle83		☒	
84 Bundle84		☒	
85 Bundle85		☒	
86 Bundle86		☒	
87 Bundle87		☒	
88 Bundle88		☒	
89 Bundle89		☒	
90 Bundle90		☒	

TS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Prim. Bundle: 63 64 65 66 67

Sond. Bundle:

Edit Select All Clear All Apply Close Refresh

Ready.

Figure 3-13. Bundle Configuration Table – Port Level

Bundles are groups of timeslots. The Bundle Table displays the details of each bundle in the upper section of the table, and a representation of each time slot with the bundle assigned to it in the lower section of the table. Each bundle can be assigned to multiple timeslots, but each time slot can only have one bundle assigned to it.

Note Bundles that are colored yellow are only configurable when they are not part of a circuit.

If the device is limited to work with only one bundle, the others will be colored dark blue.

Table 3-11. Bundle Configuration Table Parameters – Port Level

Parameter	Possible Values / Remarks
Bundle No.	Bundle number
Bundle Name	Name of the selected bundle
Empty Bundle	When checked, indicates the bundle has not been assigned to any TSs (time slots)
Bundle Status	--, Up, Down, Remote Fail, Local Fail, Unavailable, Validation Fail
Time Slots	The timeslots and the bundles assigned to them. Timeslots with bundles assigned to them are marked with a dark blue box, while unassigned timeslots are marked with a gray box. A T1 port has 24 timeslots that can be assigned to a bundle; an E1 port has 31 (without MF) or 30 (with MF).
[Edit]	Used to change the number of timeslots connected to the bundle

Timeslots already selected as part of another bundle are colored dark blue.
Available timeslots are colored gray.

➤ **To select an available timeslot:**

1. Select a bundle from the **Bundle Configuration Table** and click **Edit...**
2. Click the square beneath the TS number.
Selected timeslots appear yellow.
3. Click <**Apply**>.

➤ **To select all available timeslots for the selected bundle:**

- Click <**Select All**>.

➤ **To remove all selected timeslots from the selected bundle:**

- Click <**Clear All**>.

Note

You cannot edit a bundle that has already been used to define a connection in the Bundle Connection Table (Figure 3-4). To edit such a bundle, first delete the bundle from the Bundle Connection Table (*Configuring Bundles*), and then return to the Bundle Table to select new parameters.

Chapter 4

Performance Monitoring

4.1 System Level

At system level you can

- Set polling interval
- View bundle statistics.

Setting Polling Interval

- To set the Polling Interval:
 - **Statistics > Polling Interval.**

The Polling Interval dialog box appears.

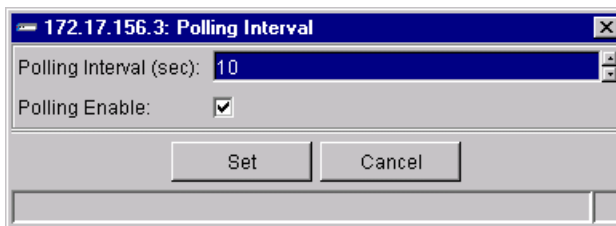


Figure 4-1. Polling Interval

Table 4-1. Polling Interval Parameters

Parameter	Possible Values / Notes
Polling Interval (sec)	5, <u>10</u> , 15..60
Polling Enable	Checked (Enabled), Unchecked (Disabled)

Viewing Bundle Statistics

- To display statistics for a bundle:
 1. **Statistics > Bundle Statistics...**

The Bundle Statistics Table appears.

Slot	CH	Bundle No.	Bundle Name	Admin. Status	Oper. Status	Dest. Name	Sequence Errors	Buffer Underflow	Buffer Overflow
1	CH3	63	Bundle63	Connected	Connected	172.17.157.55	0	1	0
1	CH3	64	Bundle64	Connected	Connected	172.17.157.14	0	1	0

Figure 4-2. Bundle Statistics

Table 4-2. Bundle Statistics Parameters

Parameter	Remarks
Slot	Slot number
Channel No.	Channel to be configured 1 to 4
Bundle No.	1..124
Bundle Name	Bundle name for selected channel.
Admin Status	
Oper. Status	Connected, Disabled, Remote Fail, Local Fail, Unavailable, Validation Fail
Dest. Name	Logical name or IP address of the destination IPmux
Counters	
Sequence Errors	Number of times frames were dropped because frames were received from the network with SN fields not equal to the last SN + 1 (or 2).
Buffer Underflow	Number of times frames were dropped because the receive buffer was in an underrun state. The buffer enters underflow state when: - Sequence errors occur. - Flow underrun takes place due to PDV expiration. - An overflow condition occurs.
Buffer Overflow	Number of times that frames were dropped because the receive buffer exceeded the maximum allowed depth.

4.2 Port Level

At port level you can:

- View Ethernet statistics
- View E1/T1 statistics.

Viewing Ethernet Statistics

➤ **To view interface statistics for the Ethernet interface:**

1. Click the Ethernet interface.
2. **Statistics > Interface Statistics ...**

The Interface Statistics dialog box appears.

172.17.157.71: Interface Statistics: 2004/08/16 13:17:56	
Port:	Network
Type:	ETH
Received From Ethernet:	
Frames:	0
Octets:	114270031
Alignment Error Frames:	0
FCS Error Frames:	0
Transmitted To Ethernet:	
Frames:	0
Octets:	40077861
Single Collision Frames:	0
Multiple Collision Frames:	0
Differed Transmission Frames:	0
Late Collision Frames:	0
Carrier Sense Error Frames:	4
Close Refresh	
Ready.	

Figure 4-3. Interface Statistics – Ethernet

Table 4-3. Interface Statistics Parameters – Ethernet

Parameter	Remarks
Port	Selected port
Type	ETH
Received from Ethernet	
Frames	Number of correct frames received
Octets	Number of octets received
Alignment Error Frames	Number of frames received with alignment errors
FCS Error Frames	Number of frames received with CRC errors
Transmitted to Ethernet	
Frames	Total number of frames successfully transmitted
Octets	Total number of octets successfully transmitted
Single Collision Frames	Counter of successfully transmitted frames for which transmission is inhibited by exactly one collision. Valid only in half duplex mode.
Multiple Collision Frames	Counter of successfully transmitted frames for which transmission is inhibited by more than one collision. Valid only in half duplex mode.
Differed Transmission Frames	Counter of frames for which the first transmission attempt is delayed because the medium is busy. Valid only in half duplex mode.
Late Collision Frames	Number of times that a collision is detected on a particular interface later than 512 bit-times into the transmission of a packet. Valid only in half duplex mode.
Carrier Sense Error Frames	Number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame.

Viewing E1/T1 Statistics

You can view a selected 15-minute interval or cumulative totals of the data from the previous 24 hours. Current statistics for a specific E1/T1 port can be viewed in list or graph form.

Viewing Current Statistics

► To display the Current Table:

- **Statistics > Current ...**

The Port Current Statistics dialog box appears.

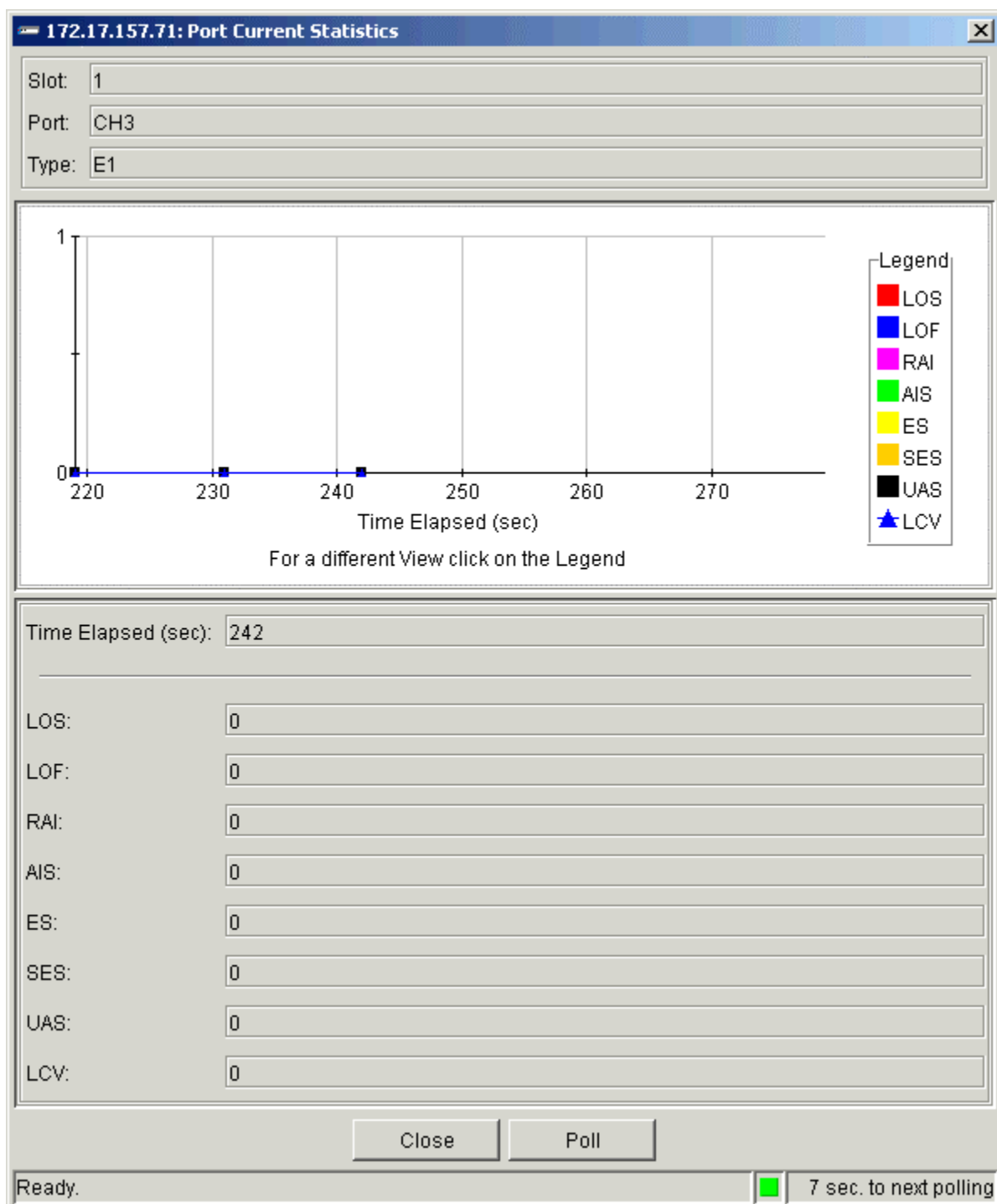


Figure 4-4. Port Current Statistics

Table 4-4. Port Current Statistics Parameters – E1/T1

Parameter	Remarks
Port	CH 1
Type	E1, T1
Current Data	Each parameter displays the number of seconds of that particular type of error encountered by the E1/T1 interface during the current 15-minute interval
Time Elapsed (sec)	Amount of time that has passed since the beginning of the current 15-minute interval 0 to 899
LOS	Loss of Signal failure Sync. LED turns off during LOS For T1: Upon observing 192 contiguous pulse positions with no pulse of either positive or negative polarity. (Signal is more than 30dB below nominal amplitude). For E1: Upon observing 255 contiguous pulse positions with no pulse of either positive or negative polarity.
LOF (RED alarm)	Loss of Frame, Local alarm Sync. LED turns off during LOF Declared when an OOF defect persists for 2.5 seconds and no AIS detect is present OOF defect is the occurrence of a framing bits error
RAI	Remote Alarm indication (also called – YELLOW ALARM) An RAI pattern is received from the far end (user) when the far end framer enters a RED condition (Loss Of Frame). In this condition, the sync. LED turns off
AIS	Alarm Indication Signal – received from user Sync. LED blinks during AIS For T1: Detected when an unframed "all 1" signal is received for 3 msec. For E1: Detected when a string of 512 bits contains fewer than three zero bits.
ES	Errored Seconds A second containing one or more of the following events: CRC error event, SEF (OOF) event, or AIS OOF defect is the occurrence of framing bits error If SES is also effective at the same time, ES will run for 10 seconds and stop
SES	Severely Errored Seconds 320 or more CRC error events, one or more SEF (OOF), or AIS. OOF defect is the occurrence of framing bits error
UAS	Unavailable Seconds Number of seconds that the interface is unavailable. The system is unavailable after 10 continuous SES.

Table 4-4. Port Current Statistics Parameters – E1/T1 (Cont.)

Parameter	Remarks
LCV	Line Code Violation For T1: The sum of BPV and EXZ defects that occurred in a second. BPV is the occurrence of a zero string greater than 15 (for AML) or 7 (for B8ZS). EXZ is the occurrence of a pulse of the same polarity as the previous pulse. For E1: Count the number of code violations. (Two consecutive bipolar violations of the same polarity).
AR%	Availability Ratio (900-UAS)/900
ESR	Errored Seconds Ratio
SESR	Severely Errored Seconds Ratio

Viewing Intervals Statistics

If more than one measurement interval has passed since the IPmux startup or reset, you can view a selected 15-minute interval or cumulative totals of the data from the previous 24 hours in a graph or a table.

Statistics from previous intervals for a specific E1/T1 port can be viewed in list or graph form.

➤ **To view a list of statistics from previous intervals:**

1. Click an E1/T1 port.
2. **Statistics > Intervals ...**

The Port Intervals Statistics dialog box appears.

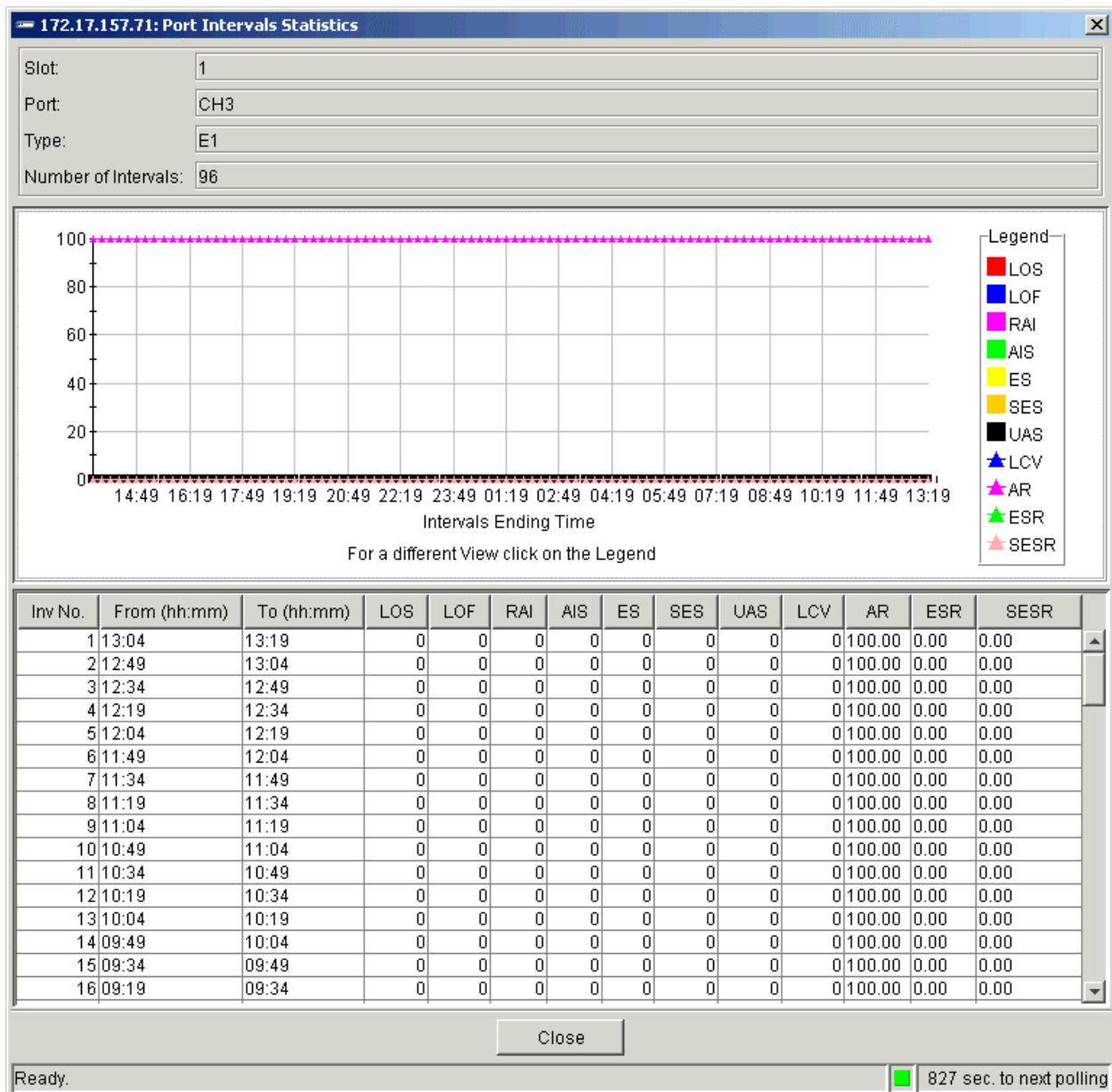


Figure 4-5. Port Intervals Statistics – E1/T1

The Intervals Data parameters are the same as the Current Data Parameters (see [Table 4-4](#)) with the addition of information regarding the Interval No. and its duration.