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NEC

P ASOLINK

N ETWORK

M ANAGEMENT

T ERMINAL

PNMT (Java version) Operation Manual

(for PASOLINK+ STM-1)

NEC Corporation

Table of Contents

Document Warranty

1. The information contained in this document is subject to change without prior notice.
2. The PNMS/PNMT screenshots in this manual are only examples. Screens will vary according to equipment configurations, equipment operation modes, setting parameters, PNMS/PNMT application program version, etc. Screens contained in this manual are current at the time of publication; however, and may differ slightly from the actual screens displayed on your PNMS/PNMT.
3. To use this manual you need a sound understanding of the restrictions, limitations and precautions involved in operating the equipment properly. Refer to the equipment manual to ensure proper operation of the equipment.

1 Getting Started

1.1 Introduction

The PASOLINK Network Management Terminal (PNMT) was developed by NEC to manage of its PASOLINK fixed point-to-point wireless access system networks. The PNMT is a scaled down version of the PASOLINK Network Management System (PNMS) that is designed as a maintenance tool for field engineers to locally and remotely monitor alarms, control points, generate reports, and archive data, all within a familiar graphical user interface, and all in real time. The PNMT is a mobile laptop computer fitted with the NEC PNMT software package that interfaces and controls NEC's PASOLINK short haul wireless communications equipment.

This software package remotely monitors and controls the status and configuration of an entire PASOLINK network with associated equipment including the performance of the actual microwave links.

1.2 Conventions Used in this Manual

Font	What the Font Represents	Example
Italics	For manual titles or related document names.	Please refer to *PASOLINK Operation Manual* for details.
Hostname **Bold (or bold italics for phrases)**	Items (phrases) in the user interface. Items (phrases) in the computer display. File and directory names.	The **Overall** window … **XXXXXXXXXXXXX**
[Button]	Buttons on the user interface.	Click **[OK]** to continue … Click **[Execute]** to send command.
Menu Items	A menu name followed by a colon (:) means that you must select a menu and then a menu item. When the menu item is followed by an arrow (→), a cascading menu is displayed.	Select **System → Login/Logout**
<username>	A command variable for which the user must enter the appropriate value. This is also commonly used when asking for a password.	<password>
Keycap	Keyboard keys.	Press Enter key.

1.3 PNMT Communication Interfaces

1.3.1 Communications

Communications between the PNMT and the wireless communications network equipment can be:

- via the PNMT port of the PASOLINK$^+$ equipment,
- via the DSC to a remote node in the network.

1.3.1.1 PNMT Port Interface

The PNMT Port is located on the front of the PASOLINK$^+$ unit.

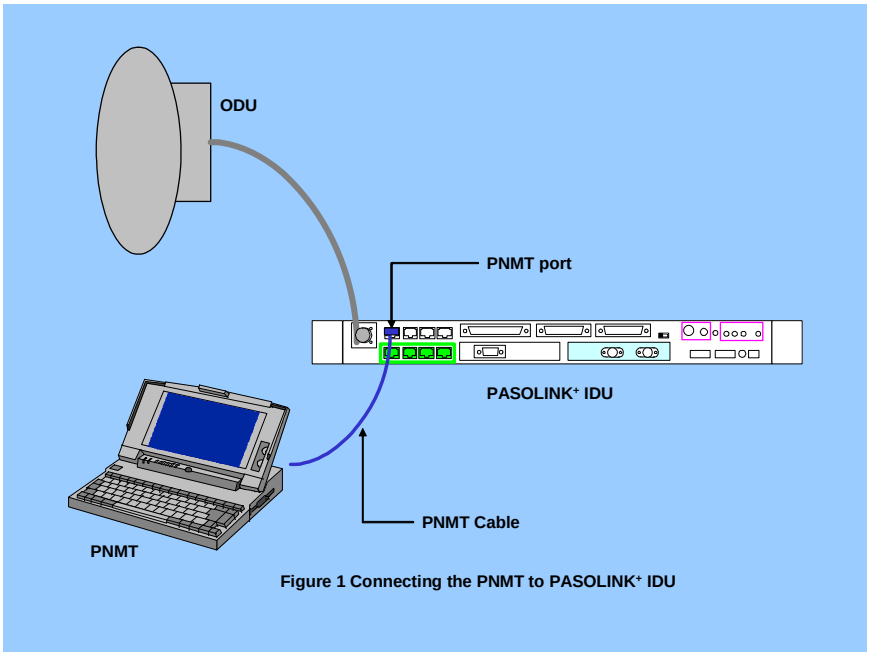


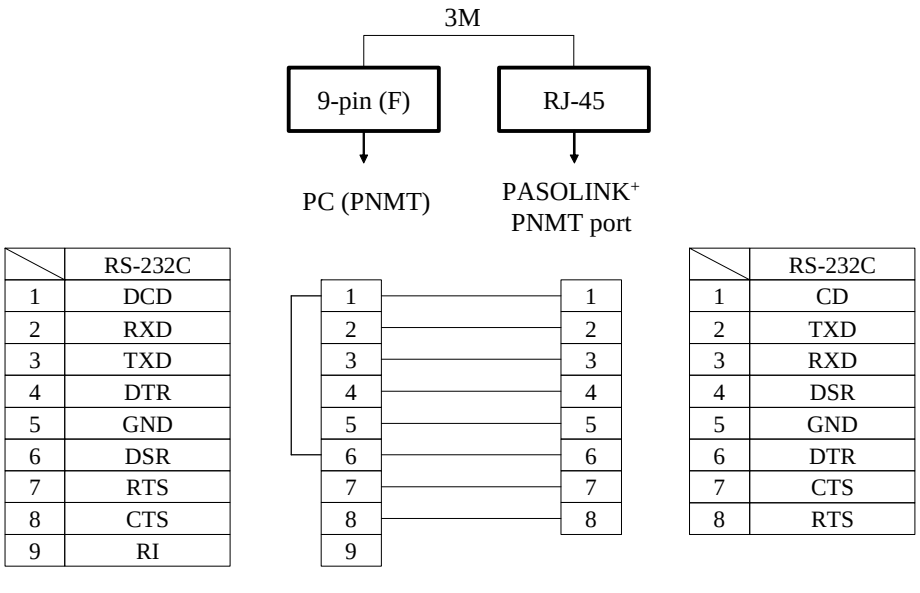
Figure 1 Connecting the PNMT to PASOLINK+ IDU

The PNMT port consists of an RJ-45 connector and connects to a Control (CTRL) Module installed in the IDU via a serial cable, which is connected to the relevant communications port of the PNMT Computer. The PNMT Port has the following properties:

- Port Configuration: RS-232
- Connector type: RJ-45 modular jack
- Bit per second rate: 1200/2400/4800/9600/19200 (default 19200)
- Stop bits: 1
- Data bit length: 8
- Parity: None

The following table is the pin assignment for the connection between the IDU PNMT port and the PNMT PC.

PNMT (PC) to PASOLINK+ (PNMT port)



	RS-232C
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9		

	RS-232C
1	CD
2	TXD
3	RXD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS

Cabling Diagram between PNMT PC and PNMT Port

2 System Operation & Maintenance

This chapter explains the menu structure and procedures for operation of the PNMT. The explanation uses typical PNMT screenshots to illustrate the menu hierarchy.

2.1 The PNMT Screen

The PNMT window is composed of the following main areas (Refer to Figure 1).

Title Bar

The title bar is used to indicate the title of the window.

Common Menu Bar

The common menu bar of the window presents the System and Help options, and indicates which commands can be executed from among the various options. The Help function can also display a pdf version of this operation manual.

NE-specific Menu Bar

This menu is a list of tasks that can be performed on a specific network element (NE) displayed in the PNMT. Configuration, Event Log, and Link Performance Monitor functions can be executed in the NE-specific Menu bar.

Block Diagram

The block diagram shows the equipment comprising the PASOLINK^{+} wireless communications system. Its main purpose in the window is to display a current summary of the alarm status of the equipment. You can click on a specific block to display the status of equipment in the data window.

Data Window

This window displays in detail the status and alarm items of a specific part of the NE. You can select the tab or the block of a specific part that you wish to monitor in the data window.

Tabs

To view the status and alarms in the specific part of the NE, click on the tab at the bottom of the Data window.

Command Button

The command button is used to execute (on the computer) the operation specified in the popup window.

Login User

This indicates the user who is currently logged in to the PNMT.

One Touch Expandable Button / Divider

Initially the PNMT screen is split evenly to display the data from the two NE's within a hop by using a divider. Click this button to move the divider to the edge of the window.

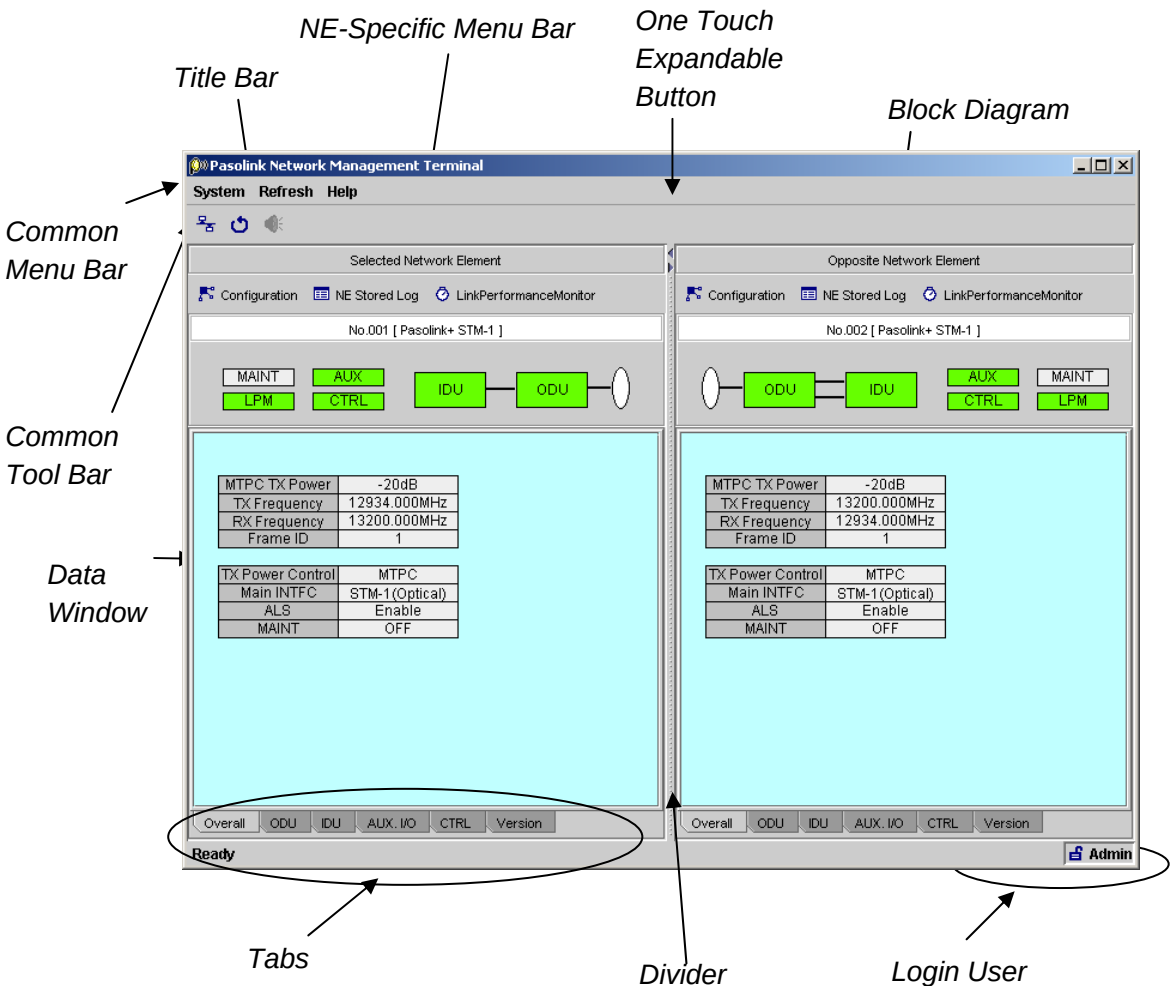


Figure 1 Common Parts of PNMT window

2.2 Launching the PNMT Application

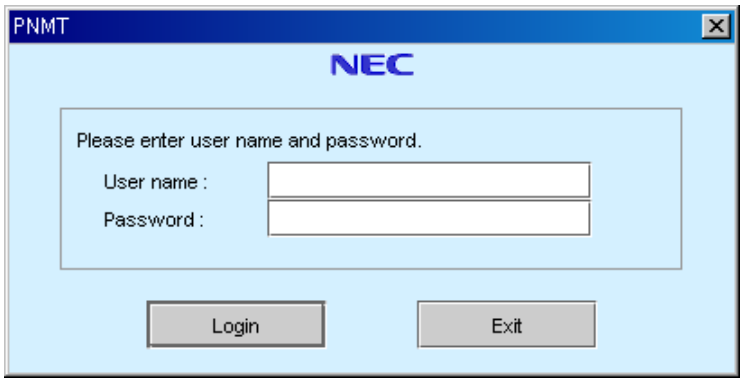
To start PNMT:

1. Turn system power ON.

NOTE

Connect the PNMT cable 30 seconds after IDU power has been turned ON and make sure that the PNMT cable is connected between Com 1 port of the PNMT PC and the PNMT port of the IDU.

2. Login to Windows.
3. Click **Start → Programs → PNMTj → Pnmt**, then continue to the login window.



NOTE

Please do not change the clock settings of your computer once PNMT has started

2.3 Login

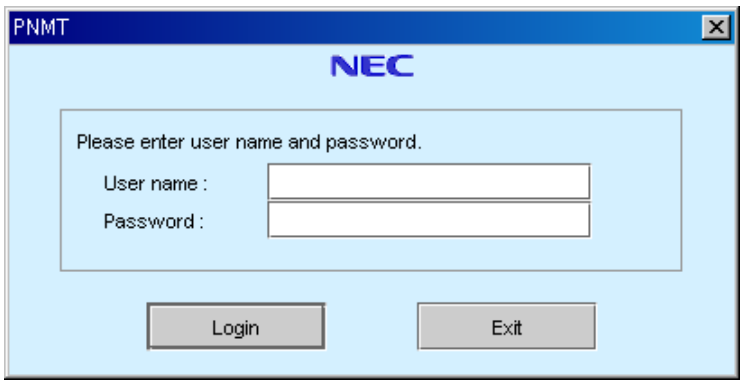
Users are registered by means of login name and password.

To protect the network and network management system from unauthorized access or unauthorized modifications, five levels of users with different access privileges are defined (refer to the table shown in section 2.3.1 **User Access Privilege Levels**). The functions that are available depend on the individual user's access level.

The highest level or administrator level has full access to the network and network management system.

To login:

1. Start PNMT, and the Login window appears.



Login window

2. Enter the <User name>.
3. Enter the valid <Password> for the specific user.
4. Click **[Login]**.

   If you want to exit the program, click **[Exit]**.

2.3.1 User Access Privilege Levels

User Access Privileges for STM-1

✓: Available, –: Not Available

Function			User Name and Accessible Functions				
Category		Item	Monitor	User	Local	Remote	Admin
Menu -System		Change Password	✓	✓	✓	✓	✓
		Alarm Buzzer	–	✓	✓	✓	✓
		Connect (Remote Login)	–	–	–	✓	✓
		Exit	✓	✓	✓	✓	✓
CTRL		Date/Time	–	–	✓	✓	✓
		CPU Reset	–	–	✓	✓	✓
		Download Configuration File	–	–	–	–	✓
		Update	–	–	–	–	✓
		Upload Configuration File	–	–	–	–	✓
		Download Program File	–	–	–	–	✓
Provisioning	MTPC	MTPC TX Power	–	–	✓	✓	✓
		RX Threshold Level	–	–	✓	✓	✓
		Additional Attenuation	–	–	✓	✓	✓
	ATPC	TX MAX Power	–	–	✓	✓	✓
		TX MIN Power	–	–	✓	✓	✓
		HYSTERESIS	–	–	✓	✓	✓
		RX Threshold Level	–	–	✓	✓	✓
		Additional Attenuation	–	–	✓	✓	✓
		ODU ALM Mode	–	–	✓	✓	✓
	BER ALM THRESHOLD (MUX)	Signal Degrade (MUX) Threshold	–	–	✓	✓	✓
		E-BER(MUX) Threshold	–	–	✓	✓	✓
	BER ALM THRESHOLD (DMR)	Signal Degrade (DMR) Threshold	–	–	✓	✓	✓
		E-BER (DMR) Threshold	–	–	✓	✓	✓
	BER ALM THRESHOLD (RADIO)	High BER (Radio) Threshold	–	–	✓	✓	✓
		Low BER (RADIO) Threshold (for RX Switch)	–	–	✓	✓	✓
	MAIN INTFC	ALS	–	–	✓	✓	✓
		ALS Delay Time	–	–	✓	✓	✓
		TX Power Control	–	–	✓	✓	✓
		PORT Usage	–	–	✓	✓	✓
		PORT1 SETTING	–	–	✓	✓	✓
		PORT2 FLOW CONTROL SETTING	–	–	✓	✓	✓
		PORT1 COLLISION REPORT SETTING	–	–	✓	✓	✓
		PORT2 SETTING	–	–	✓	✓	✓
		PORT2 FLOW CONTROL SETTING	–	–	✓	✓	✓
		PORT2 COLLISION REPORT SETTING	–	–	✓	✓	✓
		Far End Link Down	–	–	✓	✓	✓
		Clock Source	–	–	✓	✓	✓
	SUB BASEBAND INTERFACE	SUB INTFC	–	–	✓	✓	✓
		WS INTFC	–	–	✓	✓	✓
		WS Length	–	–	✓	✓	✓
	OH ASSIGNMENT	Assignment	–	–	✓	✓	✓
		Channel Usage	–	–	✓	✓	✓
		V11-n Direction Setting	–	–	✓	✓	✓
	MS-AIS GENERATION	MS-AIS Generation	–	–	✓	✓	✓
	SW PRIORITY	TX SW Priority	–	–	✓	✓	✓

✓: Available, –: Not Available

Function			User Name and Accessible Functions				
Category		Item	Monitor	User	Local	Remote	Admin
		RX SW Priority	–	–	✓	✓	✓
	ACCESS CODE	ACCESS CODE SETTING	–	–	✓	✓	✓
		ACCESS CODE	–	–	✓	✓	✓
MAINT		MAINT	–	✓	✓	✓	✓
		TX Frequency	–	–	✓	✓	✓
		TX Switch	–	–	✓	✓	✓
		RX Switch	–	–	✓	✓	✓
		Main Signal Loopback-1	–	–	✓	✓	✓
		Main Signal Loopback-2	–	–	✓	✓	✓
		ALS Restart	–	–	✓	✓	✓
		IF Loopback	–	–	✓	✓	✓
		CW (Mod Carrier)	–	–	✓	✓	✓
		TX Mute	–	–	✓	✓	✓
		ATPC Manual	–	–	✓	✓	✓
		XPIC Forced Reset	–	–	✓	✓	✓
		LINEARIZER CONTROL	–	–	✓	✓	✓
		LAN DEVICE RESET	–	–	✓	✓	✓
Equipment Setup		Equipment Setup	–	–	✓	✓	✓
		NE Name	–	–	✓	✓	✓
		Note	–	✓	✓	✓	✓
Aux I/O		Input Name	–	✓	✓	✓	✓
		Input Condition	–	✓	✓	✓	✓
		Input Status Strings	–	✓	✓	✓	✓
		Input X.733	–	✓	✓	✓	✓
		Output Name	–	✓	✓	✓	✓
		Output Control	–	✓	✓	✓	✓
		Relay Configuration	–	✓	✓	✓	✓
PMON		PMON Threshold	–	✓	✓	✓	✓
		Save to disk	–	✓	✓	✓	✓
Logging		Save to disk	–	✓	✓	✓	✓
CTRL (MODEM, ODU)		Reset	–	–	✓	✓	✓

*Admin: Enabled to access all Network Elements.

*Remote: Enabled to access all Network Elements.
(Disabled from changing network configuration and changing/downloading programs)

*Local: Enabled to access Local NE and Opposite NE.
(Disabled from changing network configuration and changing/downloading programs)

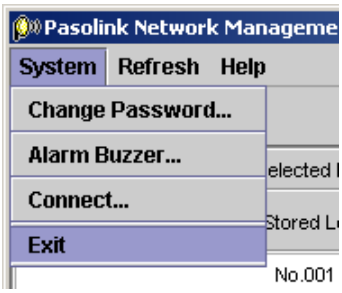
*User: Enabled to access items which do not affect to the equipment.

*Monitor: Enabled only to monitor(disabled from control).

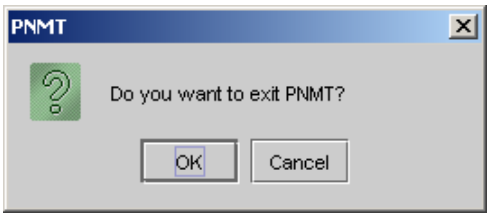
2.4 Shutting Down PNMT

To exit the PNMT application:

1. Click **System -> Exit** on the menu bar of the main window



2. Click **[OK]** to confirm that you wish to exit the application.

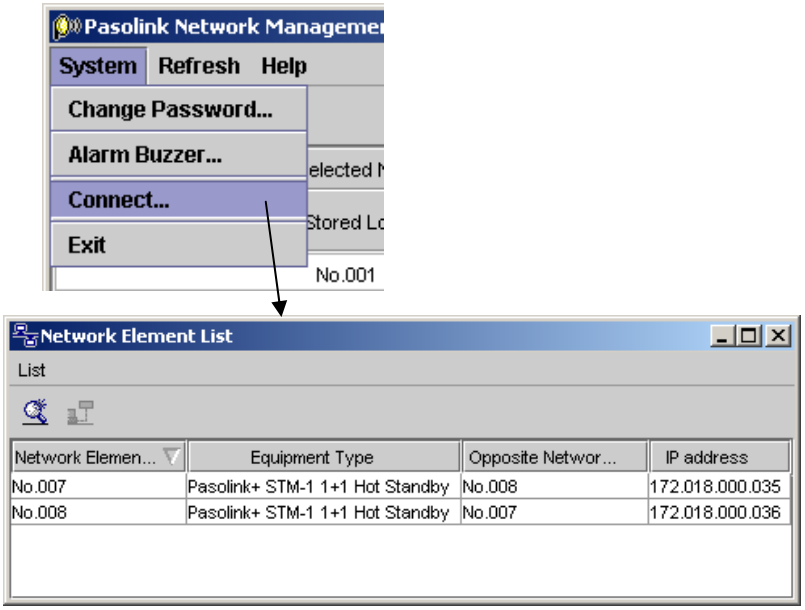


2.5 Searching for and Connecting to Selected Network Elements

The summary description of the current Network Element (Network Element Name, Equipment Type, Opposite Network Element, etc.) where PNMT is connected is displayed using this function. Summary description of the opposite Network Element belonging to that link is also displayed.

To search for or connect to a Network Element in the network:

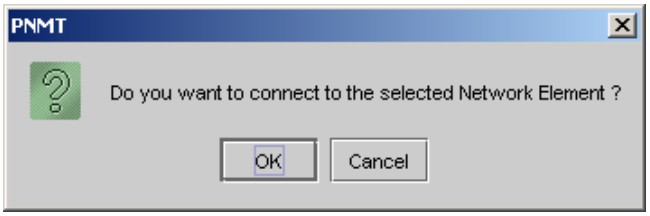
1. Click **System → Connect…** in menu bar of **PNMT** main window.



NOTE

Initially only the current NE physically connected to the PNMT and its opposite NE will be shown on the Network Element List.

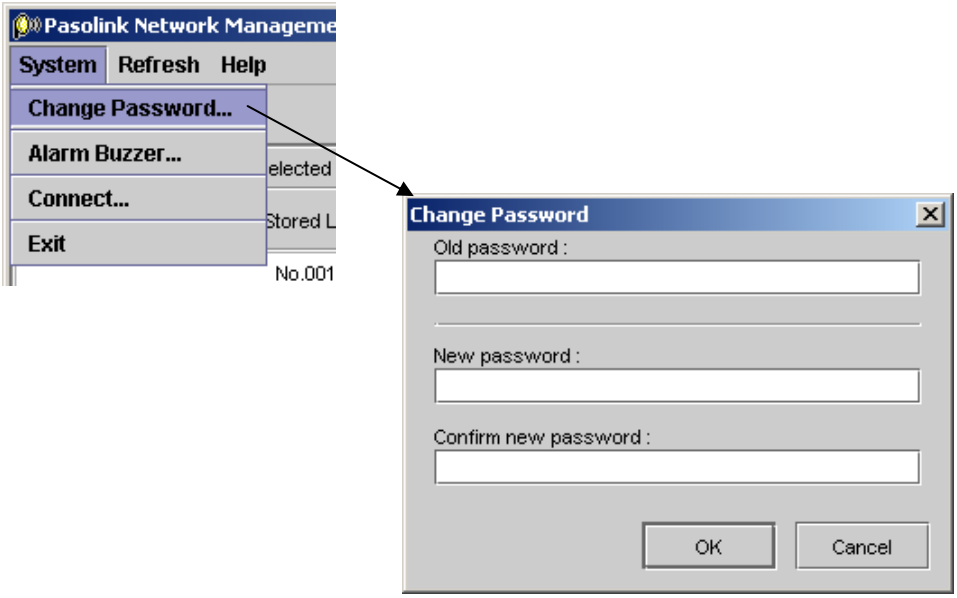
2. Click **the Search for Element** icon ( ) in the tool bar or **List → Search for Network Element** in the menu bar of the **Network Element List** window to display all connectable Network Elements in the network.
3. Select and highlight the Network Element to be viewed.
4. Click the **Connect to Network Element** icon ( ) in the tool bar or **List → Connect to Network Element** in the menu bar of the Network Element List window. The PNMT main window of the selected Network Element and its opposite Network Element will be displayed.



2.6 Change Password

To change the password:

1. Click **System → Change Password** on the menu bar on main window.



2. Enter the **Old password**.
3. Enter **New Password**
4. Enter new password in **Confirm New Password** to confirm.
5. Click **[OK]**.

NOTE

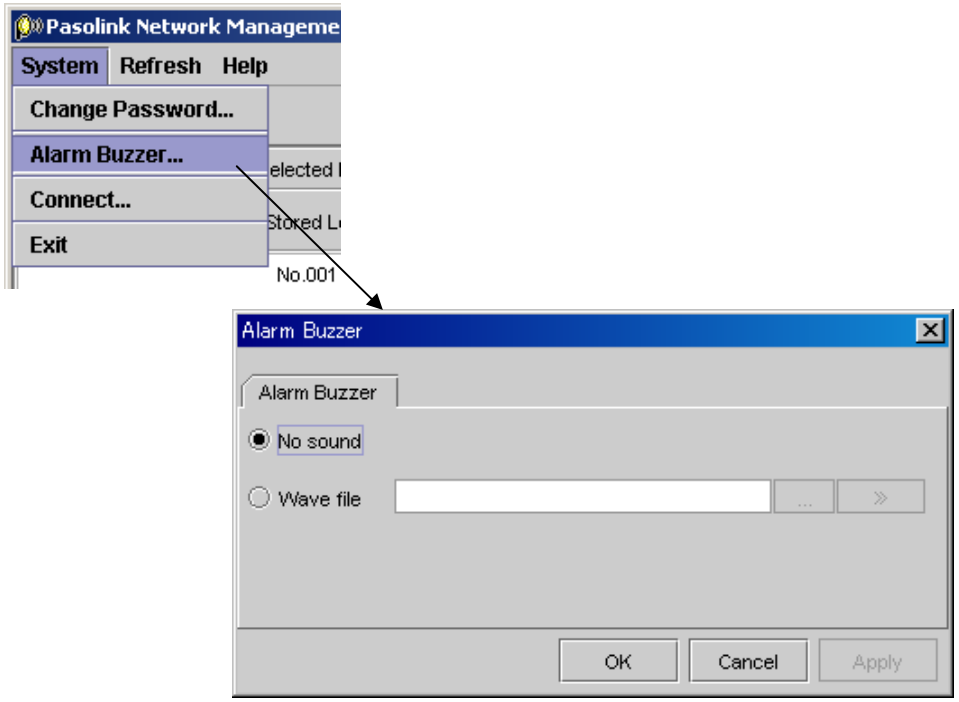
For details on initial user name and password, please refer to PNMT Installation manual.

2.7 Alarm Buzzer Setting

This function is used to activate and set the Alarm Buzzer. The desired sound scheme can also be set using this function.

To set the Alarm Buzzer:

1. Click **System → Alarm Buzzer** in the main window.



2. Select the **Wave file** box to activate the buzzer. **No sound** is the factory setting of the PNMT.
3. Enter the location of the sound file (*.wav) Otherwise; click **[…]** to locate the desired file. You can also preview the *.wav file by clicking on the arrow next to the browse button.
4. Click **[OK]** to activate the new setting.

NOTE

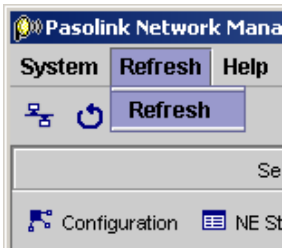
When the text column is a blank, it is possible to set it. In this case, the buzzer sound does not ring even though the buzzer stop function is enabled.

2.8 Refresh

This function is supported only by PNMT. This function enables PNMT to acquire all status manually and to update equipment information

To Refresh:

1. Click **Refresh → Refresh** in the main window or click on the refresh icon in the tool bar.



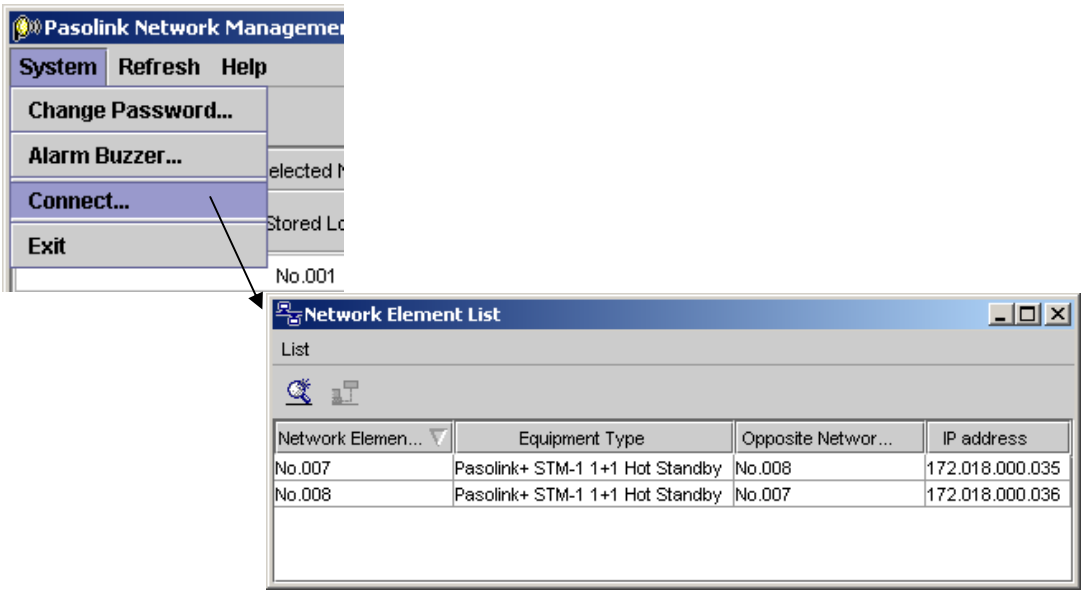
NOTE

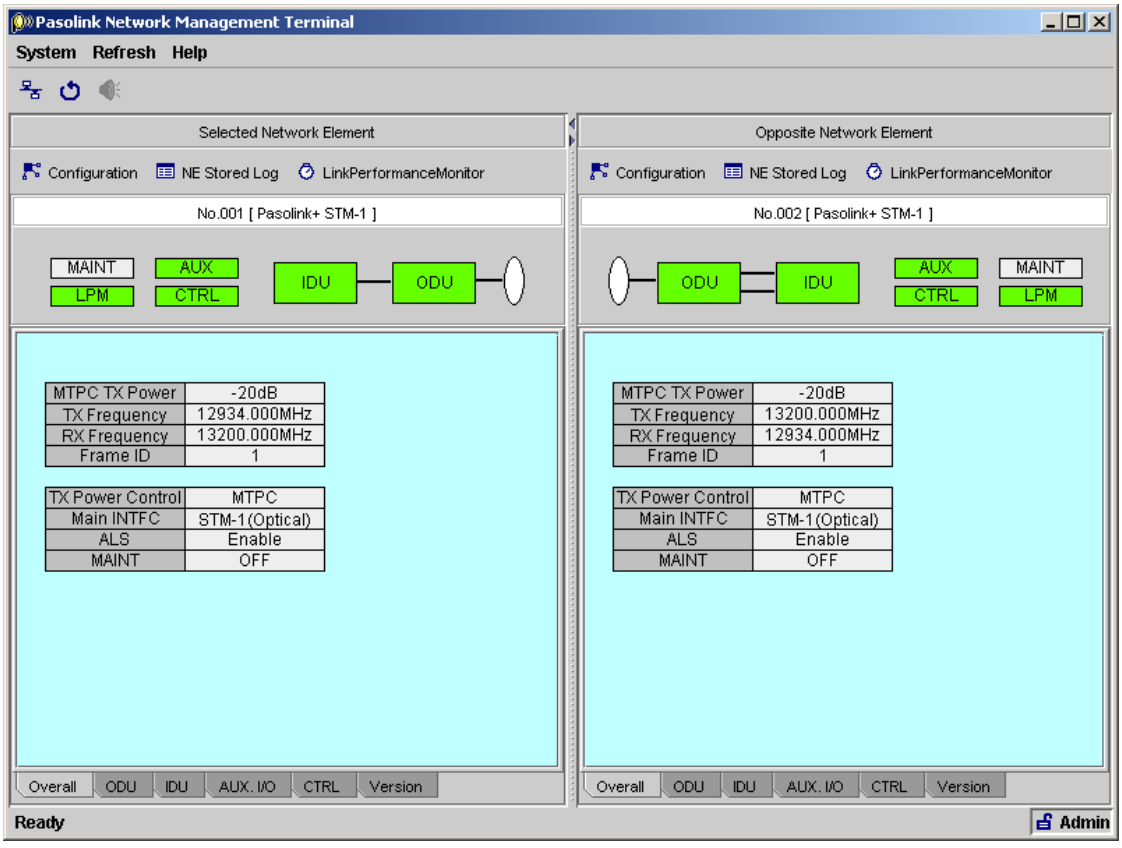
Metered items such as TX power, RX level, power supply and BER are automatically refreshed every 15 seconds. This function is used when the immediate refresh of these metered items is necessary or when confirmation of all current status information is immediately required.

2.9 Remote Viewing PNMT main window

You can view a target link within one Root-NE cluster of the Pasolink+ network by searching through the connected NEs and then connecting to a target NE. Please refer to **Section 2.5 Searching for and Connecting to Selected Network Elements**. This function allows remote connection to any NE in the network.

NOTE: For multi-Root-NE network, you can only connect to NEs that belong to the same network as the Root-NE for the local NE to which you are directly connected via the PNMT cable.





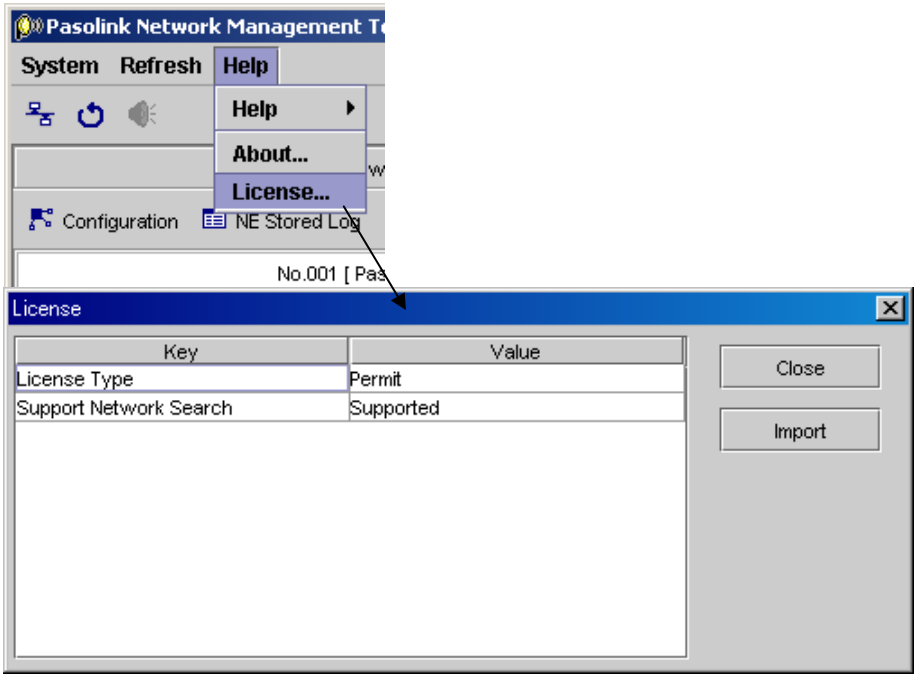
PNMT Main window (1+0 configuration)

2.10 License

To protect PNMT functions, the PNMT application includes license files.

To display the current license status,

1. Click **Help → License…** in the main window.



2. If you wish to change the license file, click **[Import]**.

2.11 Overall Tab

This tab is displayed on startup. The **Overall** tab provides an overall snapshot of the most significant monitored items in the NE.

The **Overall** tab gives a snapshot of the important settings of the NE. This window only displays current settings and there is no control function associated with this window.

MTPC TX Power	-20dB
TX Frequency	12934.000MHz
RX Frequency	13200.000MHz
Frame ID	1

TX Power Control	MTPC
Main INTFC	STM-1(Optical)
ALS	Enable
MAINT	OFF

Overall Tab
1+0 Configuration

	No.1	No.2
MTPC TX Power	-20dB	-20dB
TX Frequency	12934.000MHz	12934.000MHz
RX Frequency	13200.000MHz	13200.000MHz
Frame ID	1	1

TX Power Control	MTPC
Main INTFC	STM-1(Optical)
ALS	Disable
MAINT	OFF
Selected RX	No.2

Overall Tab
1+1 Twinpath Configuration

MTPC TX Power	-20dB
TX Frequency	12934.000MHz
RX Frequency	13200.000MHz
Frame ID	1

TX Power Control	MTPC
Main INTFC	STM-1(Optical)
ALS	Disable
MAINT	OFF
Selected TX	No.1
Selected RX	No.2

Overall Tab
1+1 Standby Configuration

MTPC TX Power	-20dB
TX Frequency	12934.000MHz
RX Frequency	13200.000MHz
Frame ID	1

TX Power Control	MTPC
Main INTFC	STM-1(Optical)
ALS	Disable
XPIC	Master
MAINT	OFF
Selected TX	No.1
Selected RX	No.2

Overall Tab
1+1 Hot Standby Configuration
(for XPIC system)

The following items are displayed in this tab:

- **MTPC TX Power** – the current value (in dB) of the Manual Transmitter Power Control attenuation set in the ODU. The MTPC Attenuation will only have a valid data if the MTPC is enabled.
- **TX Frequency** – the current transmit frequency used.
- **RX Frequency** – the current receive frequency used.
- **Frame ID** – the set frame ID of the NE.
- **TX Power Control** – shows the current power control mode used by the ODU. The TX Power Control is either Automatic Transmitter Power Control (ATPC) or Manual Transmitter Power Control (MTPC).
- **MAIN INTFC** – shows the current main interface used by the IDU. The available interfaces for the STM-1 signal are: Electrical, Optical and Optical Single Fiber (SF) and 10/100BASE-T.
- **ALS** – shows the current setting of the Automatic Laser Shutdown (ALS). It can either be set to Enable or Disable. The ALS is an IDU function that intermittently turns on/off the laser output when a certain period elapses after STM-1 LOS mode starts.
- **MAINT** – shows the current state of the **Maintenance** status.
- **Selected TX** (for Hot-standby configuration only) – shows the current system used for signal transmission.
- **Selected RX** (for 1+1 system only) – shows the current system used for signal reception.
- **XPIC** (for XPIC system only) - shows the current setting of XPIC function.
  The XPIC can be set to Master, Slave, or Not Used (disabled).

2.12 ODU Tab

This function is used to display the values and status of the monitored items of the ODU. This window only displays current settings and there is no control function associated with this window.

To set the ODU parameters, see the chapters on Equipment Setup and Provisioning.

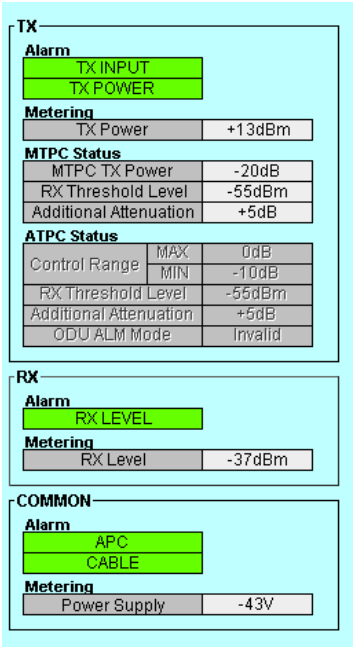
NOTE

Please refer to APPENDIX A RESTRICTION regarding ODU combinations.

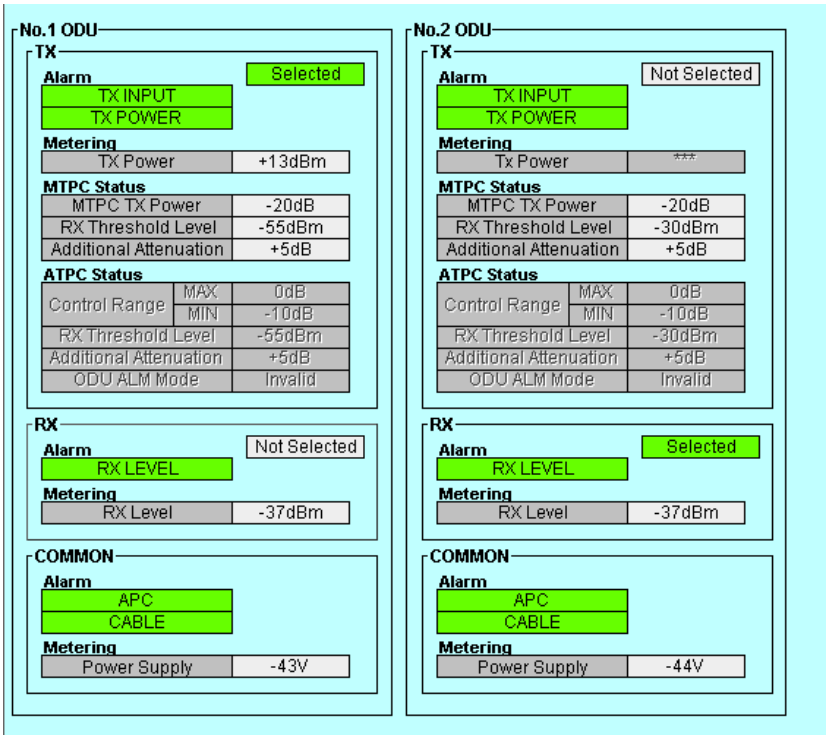
2.12.1 ODU tab

To view the alarm and status display of the ODU:

1. Click **ODU** tab in **PNMT** main window of the target NE.



1+0 ODU Window



ODU Window (1+1 configuration)

Monitored Items in the ODU

TX PORTION

Alarm

- TX INPUT: alarm occurs when the TX IF input signal from the IDU is lost. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.
- TX POWER: TX RF Power decreases 3 to 6 dB from nominal value. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.

Metering

TX Power: The transmitted power of the ODU in dBm. Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.

MTPC Status (This portion of screen is only active if MTPC is used.)

- MTPC TX Power *: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.
- RX Threshold Level*: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.
- Additional Attenuation*: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.

ATPC Status (This portion of screen is only active if ATPC is used.)

- Control Range*: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.
- RX Threshold Level*: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.
- Additional Attenuation*: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.
- ODU ALM Mode *: Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.

RX PORTION

Alarm

RX LEVEL: Alarm occurs when the input level decreases by preset value from squelch level. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.

Metering

RX Level: The received level interpreted in dBm. Item and status area are shown and item area uses black font and status has no information in case of PS Alarm or CABLE Alarm.

COMMON PORTION

Alarm

- APC – alarm occurs when the Local Oscillator is locked out. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.
- CABLE – alarm occurs when the communication between the ODU and the IDU is lost. Item/Status area is shown with transparent letters and gray background in case of PS Alarm.

Metering

Power Supply: Display PS value (V). Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.

* For the detailed description of these items, see *2.17 Equipment Setup* and *2.18 Provisioning*.

2.13 IDU Tab

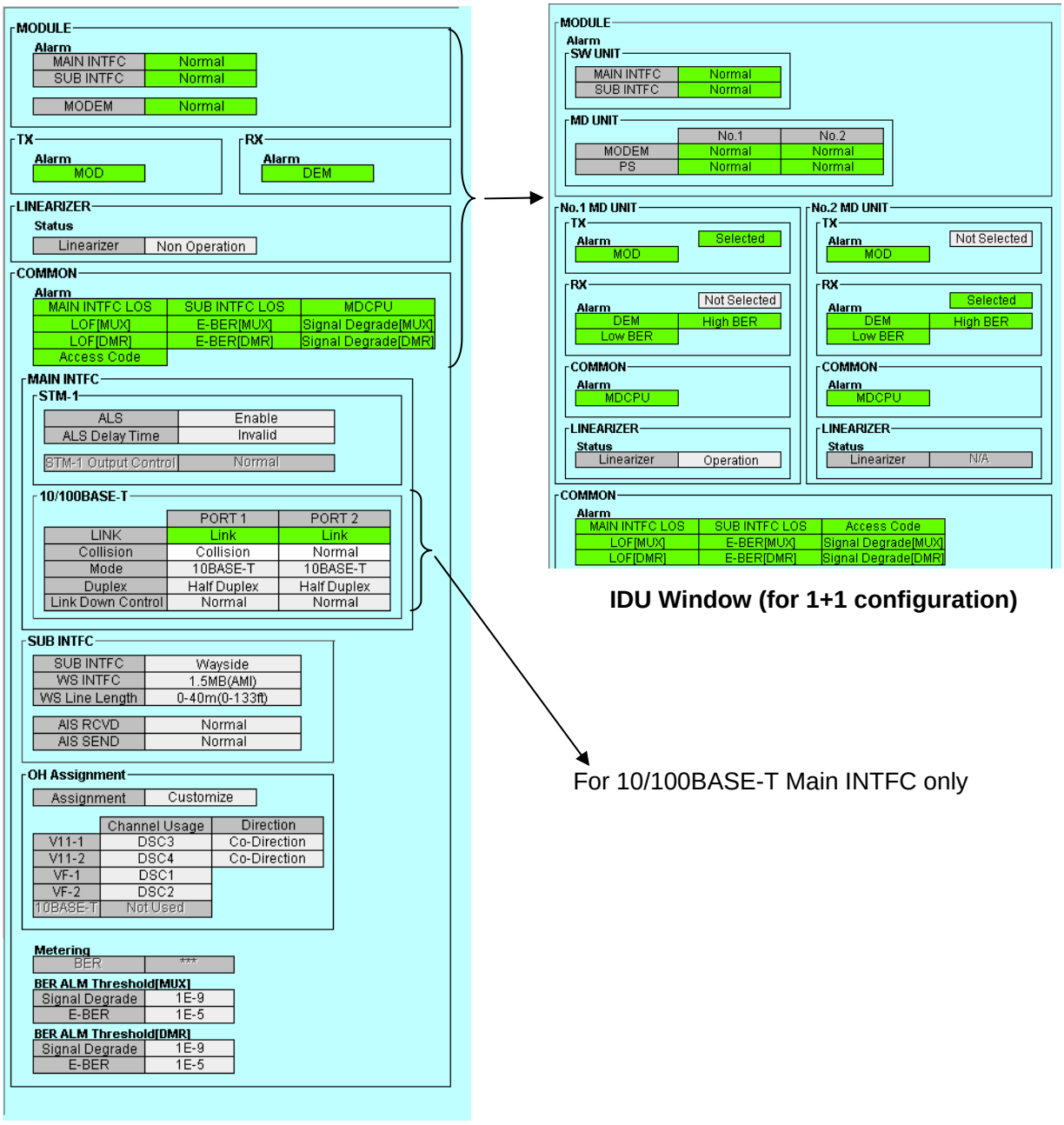
This function is used to display the values and status of the monitored items of the IDU. This window only displays current settings and no control functions are associated with this window.

To set the IDU parameters, see the chapters on Equipment Setup and Provisioning.

2.13.1 IDU Tab

To view the alarm and status of the IDU:

1. Select the **IDU** tab in **PNMT** main window of the target NE. The figure below illustrates the difference between the IDU tab of a 1+0 and a 1+1 system.



IDU Window (1+0 configuration)

IDU Window (for 1+1 configuration)

Monitored Items in IDU tab

Following items are monitored:

MODULE	**COMMON PORTION**
Alarm MAIN INTFC – alarm occurs when the 150MB INTFC/OPT INTFC module fails. SUB INTFC – alarm occurs when the WS INTFC/LAN CARD fails. MODEM – alarm occurs when there is a modem failure. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. **TX PORTION** Alarm MOD - alarm occurs when the TX unit (modem) failed. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. Status Selected (for 1+1 Hot Standby systems only) Selected/Not Selected(This portion of screen is only active if 1+1 system is used) This item shows if the System is selected or not selected. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm **RX PORTION** Alarm DEM – alarm occurs when the RX unit (demodulator) fails or the IF signal is lost. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. LOF – alarm occurs when loss of frame occurred. High BER – alarm occurs when the signal is deteriorated below the threshold value. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. Low BER – alarm occurs when the signal is deteriorated below the threshold value. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. Status Selected (for 1+1 systems only) Selected/Not Selected(This portion of screen is only active if 1+1 system is used) This item shows if the System is selected or not selected. Item/Status area is shown with transparent letters and gray background in case of PS Alarm or CABLE Alarm.	Alarm MAIN INTFC LOS – alarm occurs when the STM-1 signal in the MUX is lost. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T. SUB INTFC LOS – alarm occurs when the WS INFC/LAN CARD signal is lost. MDCPU – alarm occurs when there is a failure in the communication between modules. Item/Status area is shown with transparent letters and gray background in case of PS Alarm. LOF (MUX) – alarm occurs when loss of frame has occurred in the MUX. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T. LOF (DMR) – alarm occurs when loss of frame occurred in the wireless portion. E-BER (MUX) – alarm occurs when BER in the MUX portion is worse than E-BER threshold. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T. E-BER (DMR) – alarm occurs when BER in the wireless portion is worse than threshold Signal Degrade (MUX) – alarm occurs when BER (in MUX) is worse than the Signal Degrade threshold. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T. Signal Degrade (DMR) – alarm occurs when BER (in the radio portion) is worse than the threshold. ATPC X CTRL – alarm occurs when triggered by loss of the cable connection between the master and slave IDU modules. (For XPIC systems only) Access Code – alarm occurs when the access code set up in the wireless communications equipment does not match the opposite wireless communications unit. (Available on Linearizer-systems only) **Main INTFC** ALS * Item and status areas are shown with transparent letters and gray background in case Main INTFC is not Optical. ALS Delay Time* Item and status areas are shown with transparent letters and gray background in case ALS is not available. STM-1 Output Control - STM-1 output is shut off or not. Item and status areas are shown with transparent letters and gray background in case MS-AIS Generation is enabled. Link – Link failure in Port1/Port2 on the LAN

XPIC PORTION (for XPIC system only) Alarm X IF LEVEL - alarm occurs when the IF signal level of the cross polarization channel is lower than required level. Status XPIC Reset – the status of XPIC function. **Linearizer PORTION** Status Linearizer – the status of Linearizer function. (Available on Linearizer-systems only)	occurs. ** Item and status areas are shown with transparent letters and gray background in case Main INTFC is not 10/100BASE-T. Collision - Collision condition in Port1/Port2 on the LAN occurs. ** Mode - LAN Speed **: Item and status areas are shown with transparent letters and gray background in case Main INTFC is not 10/100BASE-T. Duplex - Full or Half Duplex **: Item and status areas are shown with transparent letters and gray background in case Main INTFC is not 10/100BASE-T. Link Down Control - 10/100BASE-T output is shut off or not. ** Item and status areas are shown with transparent letters and gray background in case Main INTFC is not 10/100BASE-T. **SUB INTFC** SUB INTFC* WS INTFC* WS Line Length* AIS Send AIS RCVD
OH Assignment Assignment* V11 –1/2* VF-1/2* 10BASE-T*** **Metering** BER – The current overall value of the Bit Error-Rate. **BER ALM Threshold (MUX)** Signal Degrade - the current value of the signal degraded threshold in the MUX. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T. E-BER – the current value of E-BER threshold in the MUX. Item and status areas are shown with transparent letters and gray background in case Main INTFC is 10/100BASE-T.	**BER ALM Threshold (DMR)** Signal Degrade - the current value of the signal degrade threshold in the radio portion. E-BER – the current value of the E-BER threshold in the DMR side. **BER ALM Threshold** High BER - the current value of the High BER threshold. Low BER – the current value of the Low BER threshold. **SW Priority** "SW Priority" letters are filled with transparent letters in case of 1+1 Twin Path. TX SW Priority – Item and status area are shown and item area filled with transparent letters, status is no information in case of 1+1 Twin Path. RX SW Priority - Item and status area are shown and item area filled with transparent letters, status is no information in case of 1+1 Twin Path.

* For the detailed description of this items see *Equipment Setup* and *Provisioning*

** For 10/100BASE-T Main INTFC only.

*** For 10BASE-T Sub INTFC and non Linearizer-systems only.

NOTE

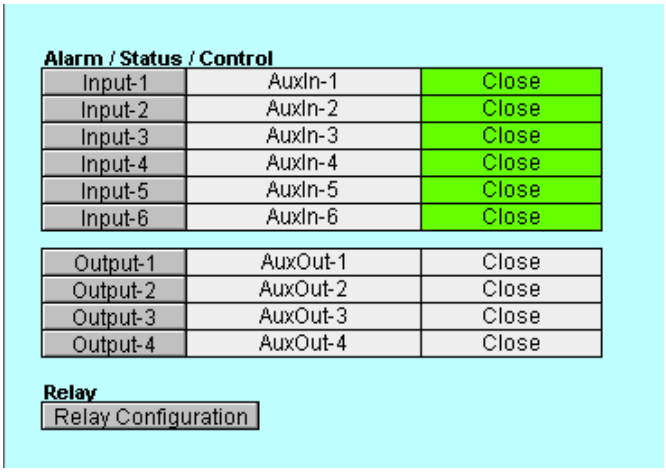
Please refer to APPENDIX "RESTRICTION" about the IDU.

2.14 Auxiliary I/O Tab

4 relay outputs and 6 photocoupler inputs are provided in the IDU for external controls and alarms. The setting for each relay output/photocoupler input is available by clicking on the selected device in the Auxiliary I/O data window.

To monitor and set the Auxiliary I/O:

1. Select the **Aux. I/O** tab in the **PNMT** main window



2.14.1 Monitored Items

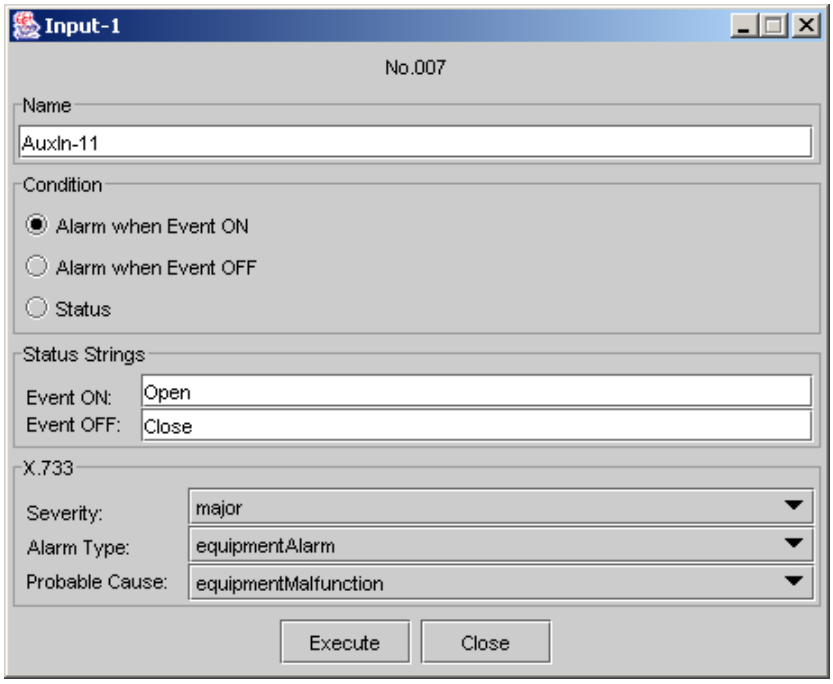
The following items are monitored in this tab:

1. Six (6) photocoupler inputs (Input-1 to Input-6)
2. Four (4)-relay outputs (Output-1 to Output-4)

2.14.1.1 Photocoupler Input Setting

To set the Photocoupler input:

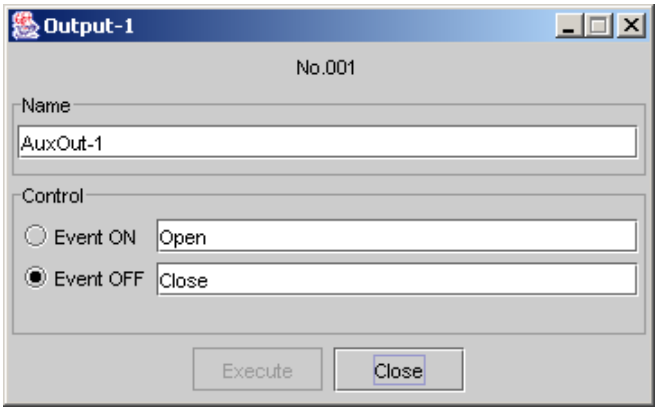
1. Click on the selected **[Input-*n*]** in **Aux. I/O** tab.
2. The inputted properties will be displayed in the following window.



2.14.1.2 Setting the Selected Input to Alarm or Status

1. Select the Condition and X.733 setting of the selected input. You can select the input status for when the target input will send the alarm event data to the PNMS/PNMT. Also you can preset (by inputting) to just send the status event data instead of alarm event data. The alarm input severity is defined in the X.733 recommendations. Select the desired severity of the alarm, its type and probable cause by clicking on the pull-down arrow on the right-hand side of the field.
2. Enter the name and status strings of the selected input in the **Name, Event ON** and **Event OFF** field. A maximum of 32 characters can be used.
3. Click **[Execute]** to activate the selected state of the device.
4. Click **[Close]** when finished.

2.14.2 Relay Output Setting



To set the relay output:

1. Click **[Output-*n*]** in **Aux. I/O** window.
2. To define the open or close status of the selected relay output, click on the **Event ON** or **Event OFF** button respectively.
3. Enter the desired strings for the open and close status of the relay output in the appropriate **Event ON** and **Event OFF** fields. A maximum of 32 characters can be used.
4. Click Name tab.
5. Enter the desired name of the relay output in the **Name** field. A maximum of 32 characters can be used.
6. Click **[Execute]** to carry out the command.
7. Click **[Close]** when finished.

2.14.3 Relay Configuration

There are 11 relays in the PASOLINK$^+$ IDU. Consequently, 11 parallel alarms can be defined. Relays RL01, RL02 and RL03 have fixed alarms. Maintenance, PS ALM and CPU Alarm are outputted on RL01, RL02 and RL03 respectively.

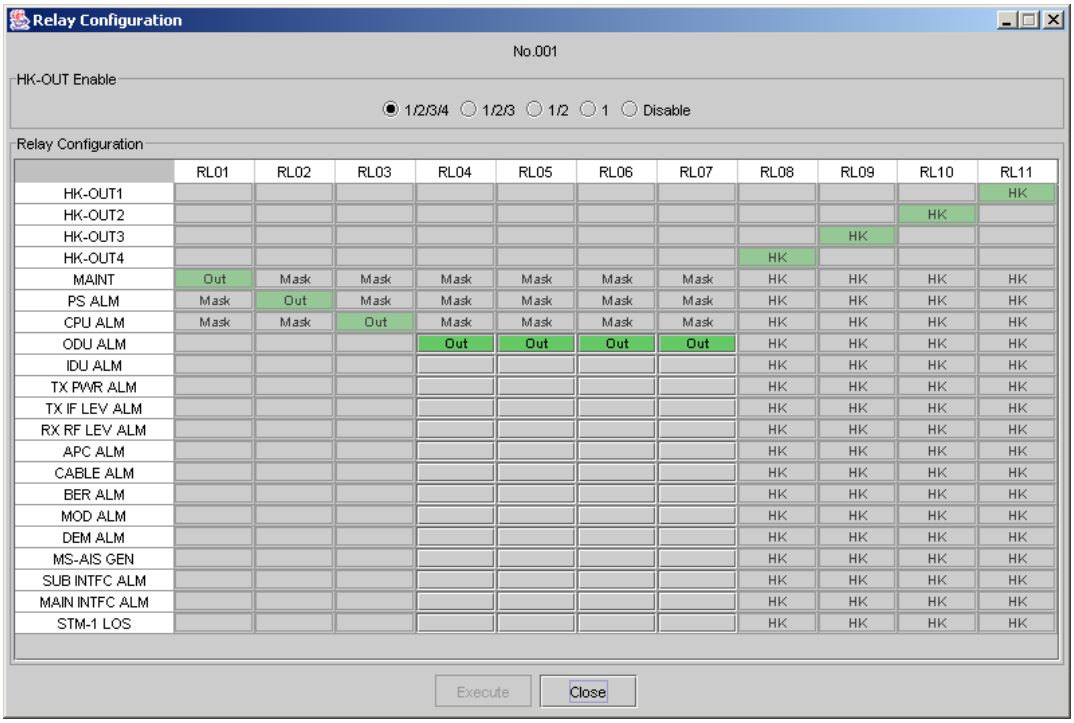
RL04 to RL11 are user-definable relays. If the HK-OUT's are enabled, RL08 to RL11 are allocated for Housekeeping (HK) controls.

The PNMT allows the user to configure the relays in a table format. The columns indicate the relays (RL01 to RL11) and the rows indicate the parallel alarms available in the PASOLINK$^+$ IDU. The following indicators are used in the table:

- **Out** – indicates that the alarm in the corresponding row is issued on the corresponding relay.
- **HK** – indicates that the corresponding relay is used for House Keeping.
- **Mask** – indicates that no alarm is issued in the corresponding relay when the maintenance mode is activated.
- **Blank button** – not related to the corresponding alarm.

To set the relay configuration:

1. Click **[Relay Configuration]** in **Aux. I/O** window.
2. Select the HK-OUT used in the IDU. There are four (4) available HK-OUT's in the PASOLINK^{+} system. Selecting "**1/2/3/4"** button means all HK-OUT's will be enabled; "**1/2/3"** means only HK-OUT 1, 2 and 3 will be enabled; and so on. If the HK-OUT's will not be used, select "**Disable**" button.



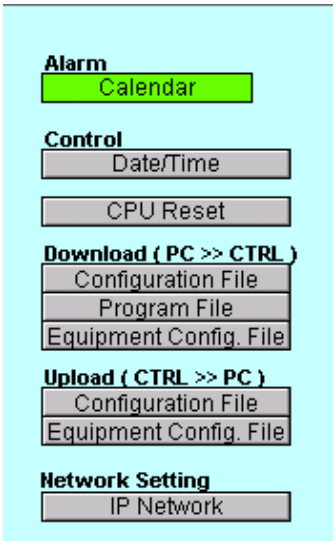
	RL01	RL02	RL03	RL04	RL05	RL06	RL07	RL08	RL09	RL10	RL11
HK-OUT1											HK
HK-OUT2										HK	
HK-OUT3									HK		
HK-OUT4								HK			
MAINT	Out	Mask	Mask	Mask	Mask	Mask	Mask	HK	HK	HK	HK
PS ALM	Mask	Out	Mask	Mask	Mask	Mask	Mask	HK	HK	HK	HK
CPU ALM	Mask	Mask	Out	Mask	Mask	Mask	Mask	HK	HK	HK	HK
ODU ALM				Out	Out	Out	Out	HK	HK	HK	HK
IDU ALM								HK	HK	HK	HK
TX PWR ALM								HK	HK	HK	HK
TX IF LEV ALM								HK	HK	HK	HK
RX RF LEV ALM								HK	HK	HK	HK
APC ALM								HK	HK	HK	HK
CABLE ALM								HK	HK	HK	HK
BER ALM								HK	HK	HK	HK
MOD ALM								HK	HK	HK	HK
DEM ALM								HK	HK	HK	HK
MS-AIS GEN								HK	HK	HK	HK
SUB INTFC ALM								HK	HK	HK	HK
MAIN INTFC ALM								HK	HK	HK	HK
STM-1 LOS								HK	HK	HK	HK

3. Click on the button(s) that corresponds to the target alarm(s) and relay(s).
4. Click **[Execute]** to activate the new relay configuration.
5. Click **[Close]** when finished.

2.15 Control (CTRL) Tab

2.15.1 The Control Module

1. Select the **CTRL** tab in **PNMT** main window of the target NE.



The following items can be monitored and controlled in the **CTRL** tab:

- Calendar Alarm:
- Date/Time
- CPU Reset
- Download - Configuration File
- Download - Program File
- Download - Equipment Config. File
- Upload - Configuration File
- Upload - Equipment Config. File
- IP Network Setting

NOTE

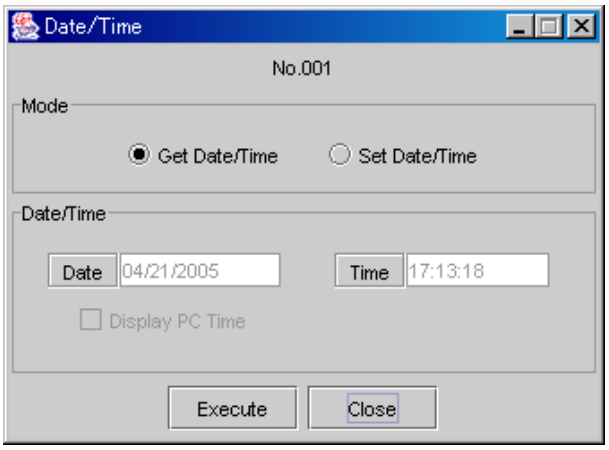
Only STM-1 CTRL version **1.6.4** or higher supports Auto-discovery and the connection to PNMT displays "IP Network Setting" items

2.15.2 Setting the Date/Time

The Date and Time stored in control module can be displayed and adjusted using this function.

To set the Date/Time:

1. Click **[Date/Time]** in the **CTRL** tab.



NOTE

To set the value of the Date and Time field to the same value as that of the PNMT computer, check on the Display PC Time box.

a. To check the Date and Time on the Control module:

a-1. Select **Get Date/Time** in the **Date/Time** window.

a-2. Click **[Execute]**.

a-3. The current date and time in the control will be displayed in the **Date** and **Time** field.

b. To set the Date and Time on the Control module:

b-1. Select **Set Date/Time** in the **Date/Time** window.

b-2 Enter the date at **Date field** in the MM/dd/yyyy format, where MM is for month, dd is for date and yyyy is for year.

b-3. Enter the time at the **Time Field** in the hh:mm format, where hh is for hour and mm is for minutes.

b-4. Click **[Execute]**.

b-5. Click **[Close]** when finished.

2.15.3 CPU Reset

The control module can be reset using this function.

NOTE

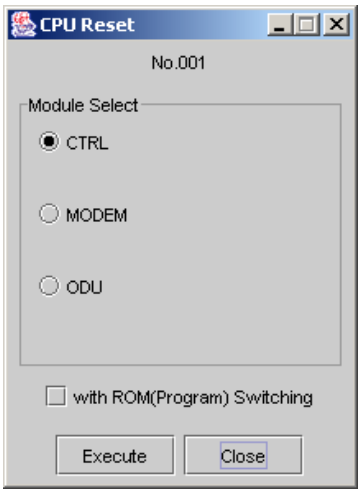
Resetting the control module will not affect the traffic. The connection to the selected NE will be disrupted a few minutes, but it will be restored automatically.

NOTE

MAINT, TX Mute, CW, Loopback and ATPC Manual will be cleared when the power is turned off and on, or the RESET switch depressed.

To reset the control module:

1. Click **[CPU Reset]** in **CTRL** tab.
2. Select **with ROM (Program) Switching** option if you want to switch to reserved control module Program file.
3. Click **[Execute]** to continue the control module reset operation.
   *__[Execute]__ Button is only available when MAINT is ON.



NOTE

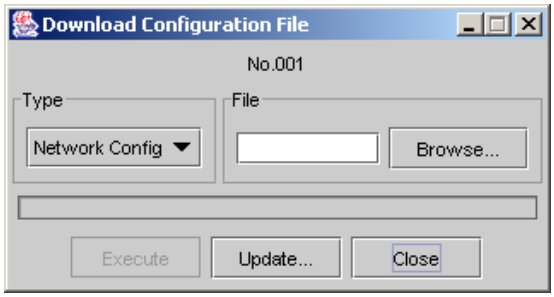
First, switch ON maintenance mode before executing CPU Reset.

2.15.4 Downloading the Configuration Files to the Control Module

This function is used to download configuration files from the PNMT to the control module. The configuration file **pp_network.cfg** contains the IP address of the NE as well as the IP address of the opposite station and the information about the PASOLINK network where the NE is located. The **pp_mib.cfg** file contains the information about the equipment (i.e. name, pm type, etc.) and housekeeping (AUX I/O).

To download new configuration file to the NE:

1. Click **[Configuration File]** in the **CTRL** tab's **Download (PC>>CTRL)** section.
2. Select the type of file to be downloaded in the **Type** list.
3. Enter the location of the configuration file in the **File** field, or click **[Browse]** to locate the file on the local hard disk or floppy diskette.



WARNING!!!

Make sure that the correct configuration file is downloaded to the correct Control module. Incorrect configuration files may lead to Control module or network failure.

4. Click **[Execute]** to start the operation.
   *__[Execute]__ Button is only available when MAINT is ON.

NOTE

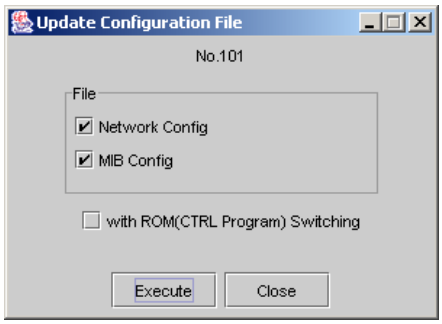
First, switch ON maintenance mode before executing: Download Configuration File.

5. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING:

Make sure that you have successfully downloaded the configuration file before conducting an Update. Otherwise the Control module will switch to an empty ROM that may cause Control module failure.

6. Click **[Update]** to activate the new configuration file(s).
   *__[Update]__ Button is only available when MAINT is ON. ("Switch to maintenance mode first" is displayed in case it is set to OFF.)



7. Select the appropriate box for the type of configuration file that will be updated. One or more configuration files can be updated by checking the box opposite to the configuration file name. Click **[Execute]** to start the operation. The "**with ROM (CTRL Program) Switching**" box is for switching to the ROM with the new CTRL Program and has the same function that was previously described in section *2.15.3 CPU Reset*.

NOTE

When updating pp_network.cfg file, NE-to-NE communication will be disrupted when the Control module re-initialises to the new system configuration. This WILL NOT affect the wireless link. During this time, PNMT connection to the NE will be disrupted; but, it will be restored automatically after the Control module resets.

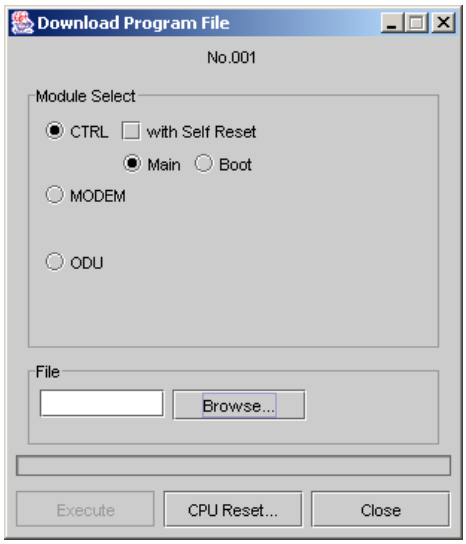
NOTE

Updating the CTRL will not affect the traffic. The connection to the selected Pasolink will be disrupted a few minutes, but it will be restored automatically.

8. Click **[Close]** when done.

2.15.5 Downloading a new Program File to the Control Module

This function is used to update the application program via the Control module. This operation affects only the NMS communication but not the wireless link, and will not disrupt communications.



To download the program file to control module:

1. Click **[Program File]** in the **CTRL** tab's **Download (PC>>CTRL)** section.
2. Check the CTRL button. If you check the **"with Self Reset"** box, the control module will be reset automatically after program file download is completed. In this case, you will not need to complete steps 5 through 8.
3. Enter the appropriate location of the program file (*.out) in the **File** field, or else click **[Browse]** to locate the file.

WARNING!!!

Make sure that the correct program file is downloaded to the Control module. Incorrect program files may lead to equipment failure.

4. Click **[Execute]** to start the operation.
   *__[Execute]__ Button is only available when MAINT is ON.

NOTE

Switch ON maintenance mode first before executing Download Program File.

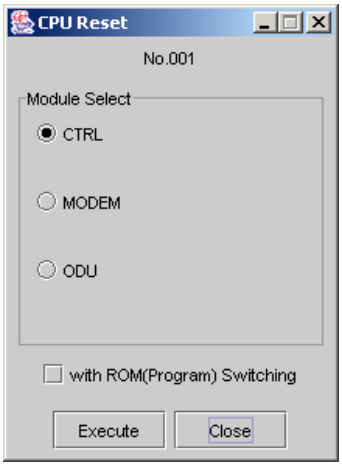
5. A message window will appear displaying the status of the operation. The message window will close automatically once the download is completed.

NOTE

This operation may take several minutes depending on the program file size.

6. Click **[CPU Reset]** to switch to the new program file.
   *__[CPU Reset]__ Button is only available when MAINT is ON. ("Switch to Maintenance mode first" is displayed in case it is set to OFF.)

7. Check the **with ROM (Program) Switching** box.
8. Click **[Execute]** to complete the switch to the new program file.



NOTE

The connection from PNMT to the selected Pasolink equipment will be disrupted for a few minutes; but, it will be restored automatically.

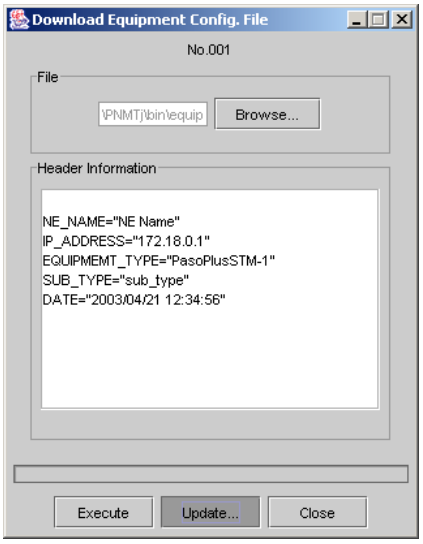
9. Click **[Close]** when done.

2.15.6 Downloading the Equipment Configuration Files to the Control Module

This function is used to download equipment configuration files from the PNMT to the control module. The Equipment configuration file contains the wireless communications configuration data (i.e. frequency, main interface) and provisioning data (i.e. OH assignment, BER alarm threshold).

To download new configuration file to the NE:

1. Click **[Equipment Config. File]** in the CTRL tab's **Download (PC>>CTRL)** section.
2. Click **[Browse]** to locate the file on the local hard disk or floppy diskette.



WARNING!!!

Make sure that the correct configuration file is downloaded to the correct Control module. An incorrect configuration file will lead to Control module or network failure.

3. Click **[Execute]** to start the operation.
   *__[Execute]__ Button is only available when MAINT is ON. ("Switch to maintenance mode first" is displayed in case it is set to OFF.)
4. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING!!!

Make sure that you have successfully downloaded the configuration file before conducting an Update. Otherwise the Control module will switch to an empty ROM that may cause Control module failure.

5. Click **[Update]** to activate the new equipment configuration file. Click **[Execute]** to start the operation. *__[Update]__ Button is only available when MAINT is ON.

NOTE

Switch ON maintenance mode first before executing Download Equipment Configuration File.

NOTE

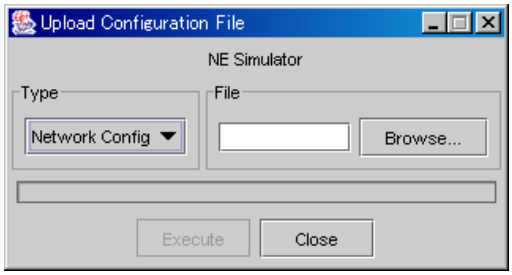
The connection to the selected NE will be lost a few minutes and will automatically re-connect.

6. Click **[Close]** when done.

2.15.7 Uploading Control Module Configuration file to PNMT PC

This function is used to upload the configuration file from the Control module of the selected NE to the PNMT PC.

To upload configuration file from the Control module to the PNMT:



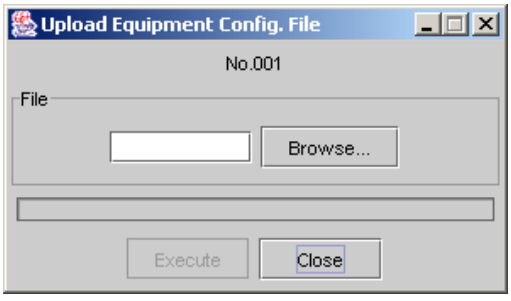
1. Click **[Configuration File]** in the **CTRL** tab's **Upload (CTRL>>PC)** section.
2. Select the type of file to be uploaded on the **Type** field.
3. Click **[Execute]** to start the operation.
4. Enter the desired file name for the uploaded file, and select and the directory where the uploaded file will be saved.
5. A message window indicating the status of the operation will appear. It will close automatically once the operation is completed.
6. After the upload is finished click **[Close]**.
7. Verify that the file was uploaded to the specified directory.

2.15.8 Uploading Equipment Configuration file to PNMT PC

This function is used to upload the Equipment configuration file from the Control module of the selected NE to the PNMT PC.

To upload configuration file from the Control module to the PNMT:

1. Click **[Equipment Config. File]** in the CTRL tab's Upload (CTRL>>PC) section.
2. Click **[Execute]** to start the operation.

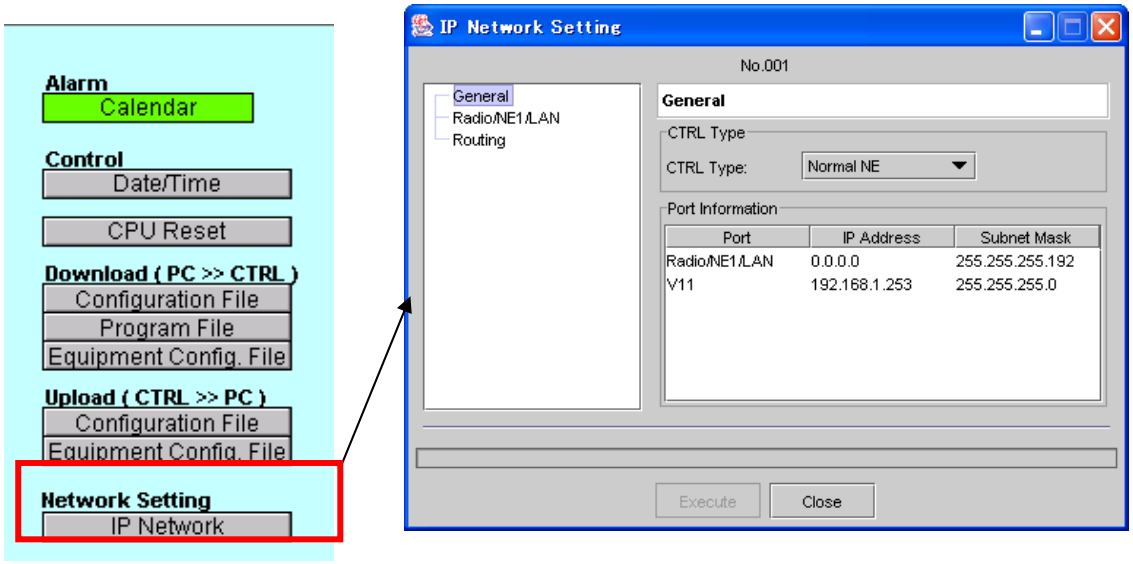


3. Enter the desired file name for the uploaded file, and select and the directory where the uploaded file will be saved.
4. A message window indicating the status of the operation will appear. It will close automatically once the operation is completed.
5. After the upload is finished click **[Close]**.
6. Verify that the file was uploaded on the specified directory.

2.15.9 Configuring the IP Network Settings

In order to operate *Auto Discovery* and Network function respectively for PNMS and PNMT it is necessary in advance, to connect PNMT to each NE to set Network information

This function is used to configure the IP network settings (i.e. IP addresses, subnet masks, Default gateway) using the tags in the lefthand field of the IP Network Settings window of the selected NE for the PNMT PC.



Please refer to **Appendix B**.

2.16 Maintenance

There are several maintenance control items that can be executed in the maintenance menu. The function of each control is as follows.

MAINT:	To switch Maintenance mode to ON
TX Switch:	To control the TX switch (for 1+1 Hot Standby systems only.)
RX Switch:	To control the RX switch manually (for 1+1 systems only)
TX Frequency	To Control Transmit (TX) Frequency.
RX Frequency	To monitor Receive (RX) Frequency.
Frequency Channel:	To monitor Frequency Channel.
TX Mute:	To turn off TX power (Local only)
CW (MOD Carrier):	To turn on the Continuous Wave for measurements (Local only)
Main Signal Loopback – 1:	Disabled for line input of 150MB INTFC/OPT INTFC
Main Signal Loopback – 2:	Disabled for line output of 150MB INTFC/OPT INTFC
IF Loopback:	(Local only)
ALS Restart:	To set the time of manual restart Automatic Laser Shutdown (ALS)
LAN Device Reset:	To reset LAN Device of Main INTFC or Sub INTFC.
ATPC Manual:	To enable the optional setting of manually transmitted power when the ATPC is in operation.
Linearizer Control:	To disable the linearizer function manually (for Linearizer-systems only)
XPIC FORCED Reset:	To disable the XPIC function. (for XPIC systems only)

* These controls are only available when MAINT is ON. (“Switch to Maintenance mode first” is displayed in case it is set to OFF.)

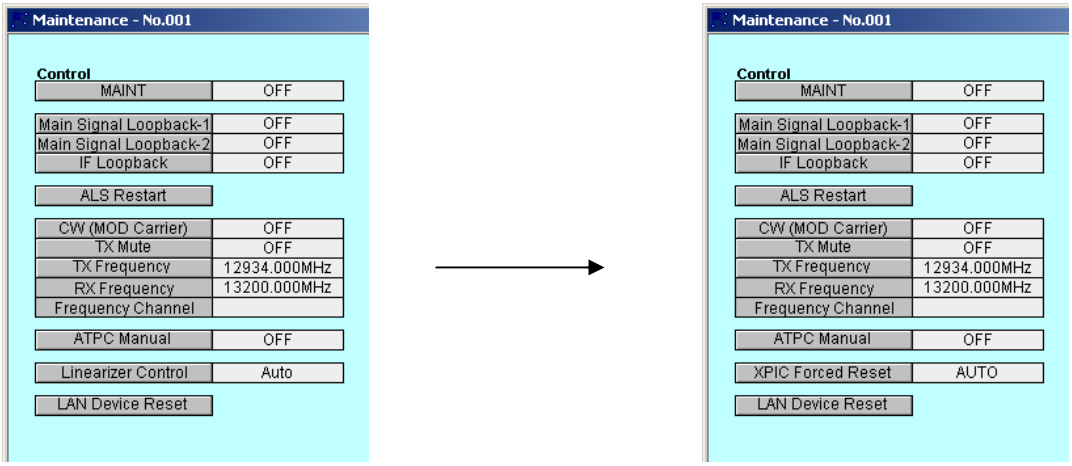
NOTE

MAINT, TX Mute, CW, Loopback and ATPC Manual will be cleared if the power is turned off and on or the RESET switch is depressed.

2.16.1 Maintenance Menu

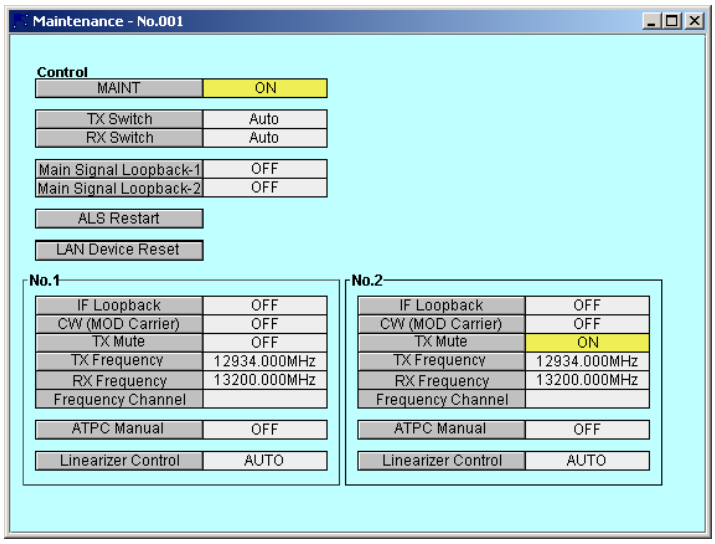
To display the **Maintenance** window:

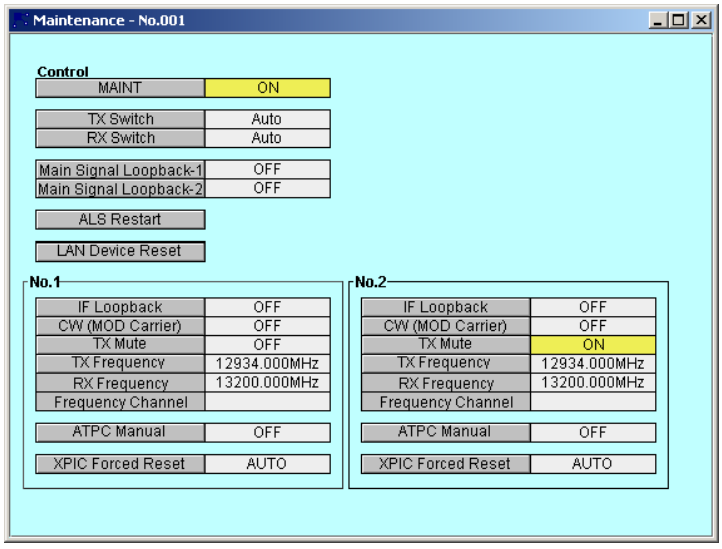
1. Select **Configuration → Maintenace** in the NE-specific menu bar of the PNMT main window.



Maintenance Window (1+0configuration) **For XPIC system**

Maintenance Window (1+1 configuration)

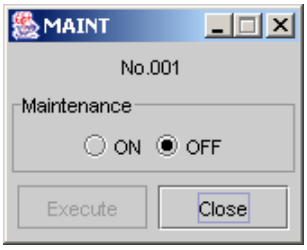




Maintenance Window (1+1 configuration)

For XPIC systems

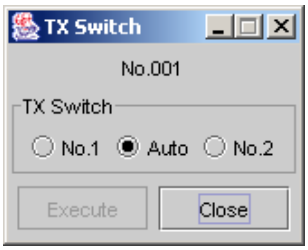
2.16.2 Selecting Maintenance mode



To switch the NE to maintenance mode:

1. Click **[MAINT]** in **Maintenance** window.
2. Select on **ON/OFF** depending on desired state.
3. Click **[Execute]** to carry out the command.
4. Click **[Close]** when finished.

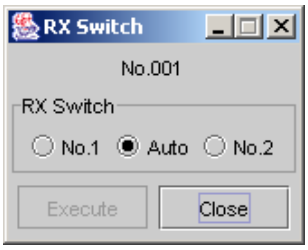
2.16.3 Switching TX (for 1+1 system only)



To control the TX switch manually:

1. Click **[TX Switch]** in **Maintenance** window.
2. Select the system that you want to use for the TX portion. The default value is **Auto**.
3. Click **[Execute]** to switch the TX to the selected system.
4. Click **[Close]** when finished.

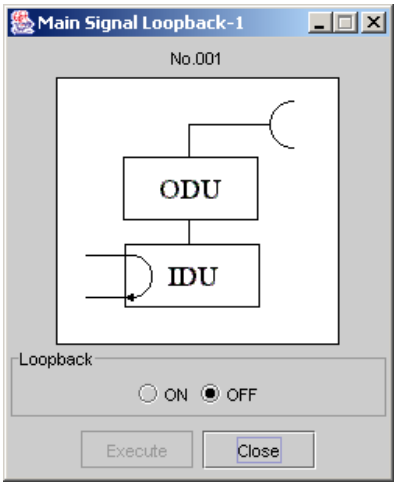
2.16.4 Switching RX (for 1+1 system only)



To control the RX switch manually:

1. Click **[RX Switch]** in **Maintenance** window.
2. Select the system that you want to use for the RX portion. The default value is **Auto**.
3. Click **[Execute]** to switch the TX to the selected system.
4. Click **[Close]** when finished.

2.16.5 Main Signal Loopback-1



This loopback is created at the line input of 150MB INTFC/OPT INTFC.

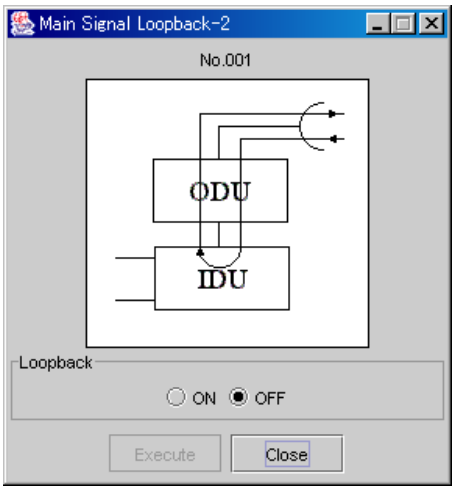
To set the Main Signal Loopback-1:

1. Click **[Main Signal Loopback-1**] in the Maintenance window.
2. Select **ON** to activate the loopback.
3. Click **[Execute]** to activate the loopback.
4. Click **[Close]** when finished.

CAUTION

When Loopback is changed from the default setting (OFF) to ON, a confirmation message appears.

2.16.6 Main Signal Loopback -2



This loopback is created at the line output of 150MB INTFC/OPT INTFC.

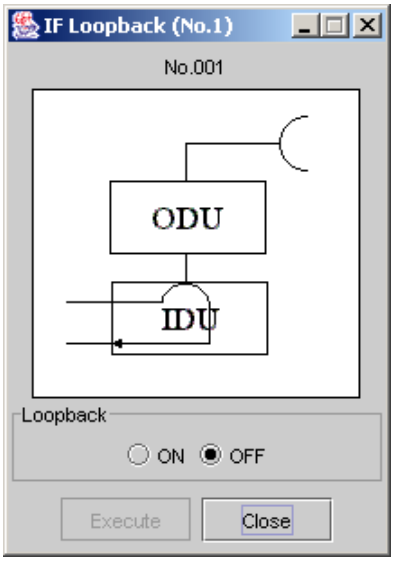
To set the Main Signal Loopback-2:

1. Click **[Main Signal Loopback-2**] in the **Maintenance** window.
2. Select **ON** to activate the loopback.
3. Click **[Execute]** to activate the loopback.
4. Click **[Close]** when finished.

CAUTION

When Loopback is changed from the default setting (OFF) to ON, a confirmation message appears.

2.16.7 IF Loopback (STM-1 near-end loopback)



This type loopback is created at the 150MB INFTC/OPT INTFC of the selected NE.

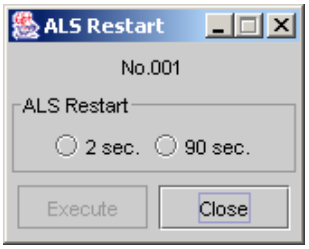
To set the STM-1 near-end loopback:

1. Click **[IF Loopback]** in the **Maintenance** window.
2. Select ON to activate the loopback.
3. Click **[Execute]** to activate the loopback.
4. Click **[Close]** when finished.

2.16.8 ALS Restart

This function is used to set the time of manual restart of the Automatic Laser Shutdown (ALS). When the optical input signal is off due to ALS, the IDU will emit laser signal from TX to RX at a preset value (2 sec or 90 sec), at this point, if the fault has been recovered then the ALS will be released and operation will return to normal. Otherwise, the laser emission will terminate immediately. (See PASOLINK^{+} Instruction Manual for further details.)

To set the ALS restart:



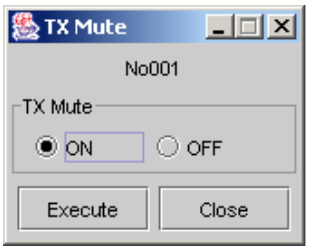
1. Click **[ALS Restart]** in the Maintenance window.
2. Select the timing in seconds of the laser emission for manual restart.
3. Click **[Execute]** to activate the timing for the manual restart.
4. Click **[Close]** when finished.

2.16.9 Selecting TX Mute status

TX power of the ODU is switched off when TX Mute is ON. This should be OFF in normal operation.

To change the TX Mute status:

1. Click **[TX Mute]** in **Maintenance** window.



NOTE

Switch maintenance mode ON first before executing TX Mute.

2. Select **ON/OFF** depending on the desired state.
3. Click **[Execute]** to carry out the command.

NOTE

The message TX mute ON will affect visibility of the wireless connection. The connection to the opposite Pasolink will be lost a few minutes.

4. Click **[Close]** when finished.

2.16.10 TX Frequency

Control the current RF transmitted frequency and consequently its pair receiving frequency.

(See 2.17 Equipment Setup.)

2.16.11 RX Frequency

Display the current RF receiving frequency used by the ODU.

(See 2.17 Equipment Setup.)

2.16.12 Selecting Carrier Wave status

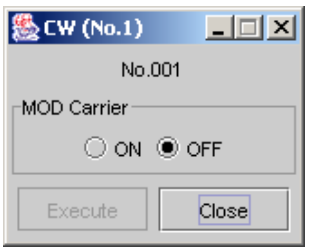
When conducting frequency measurements, the CW should be turned ON to have an unmodulated signal. During normal operations this status should be OFF.

To change the CW (MOD Carrier) status:

1. Click **[CW (MOD Carrier)]** in **Maintenance** window

NOTE

Switch maintenance mode ON first before executing CW.



2. Click **ON/OFF** depending on desired state.
3. Click **[Execute]** to carry out command.

NOTE

The message CW ON will affect visibility of the wireless connection. The connection to the opposite Pasolink will be lost a few minutes.

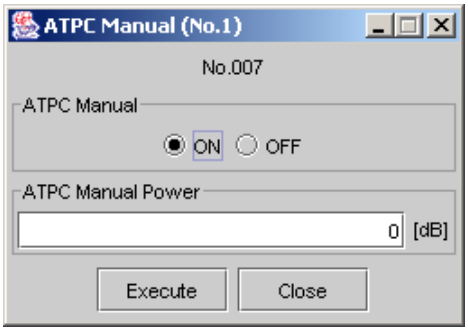
4. Click **[Close]** when finished.

2.16.13 ATPC Manual

Used when optional power transmission is required when the ATPC is in operation.

To set the ATPC Manual:

Note: This function is not available when TX MUTE is ON.

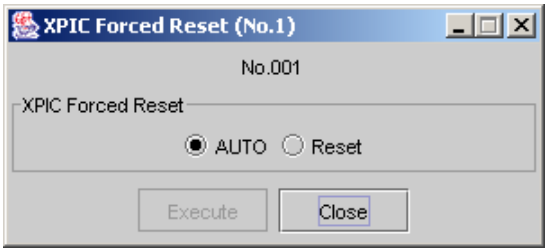


1. Click **[ATPC Manual]** in **Maintenance** window
2. Select whether to manually turn ON or OFF the ATPC manual and the ATPC manual power that will be transmitted in dB.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.16.14 XPIC Forced Reset (for XPIC systems only)

Forces XPIC function to be disabled.

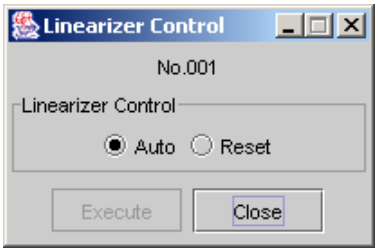
To set the XPIC Forced Reset



1. Click **[XPIC Forced Reset]** in **Maintenance** window.
2. Click **Auto/Reset** depending on desired state.
3. Click **[Execute]** to execute command.
4. Click **[Close]** when finished

2.16.15 Linearizer Control (for Linearizer-systems only)

The Linearizer function is used to remove the distortion from the main amplifier in the IDU. This function is set to “Auto” by default. In case there is a need to reset it:



1. Click **[Linearizer Control]** in **Maintenance** window.
2. Click **Auto/Reset** depending on desired state.
3. Click **[Execute]** to execute command.
4. Click **[Close]** when finished

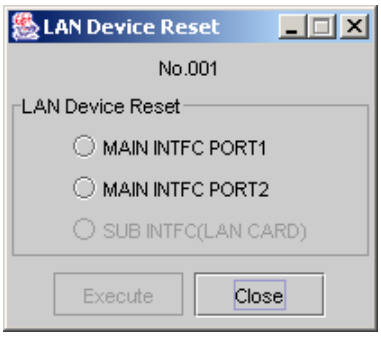
2.16.16 LAN Device Reset

The LAN Device can be reset using this function

NOTE

Resetting the LAN will affect the traffic. The connection to the selected NE will be lost for a few minutes and will be automatically reconnected.

1. Click **[LAN Device Reset]** in **Maintenance** window.
2. Click **MAIN INTFC PORT1 / MAIN INTFC PORT2 / SUB INTFC** depending on desired device.
3. Click **[Execute]** to execute command.
4. Click **[Close]** when finished.



2.17 Equipment Setup

Main signal, ODU and CTRL portion can be monitored and controlled in this window.

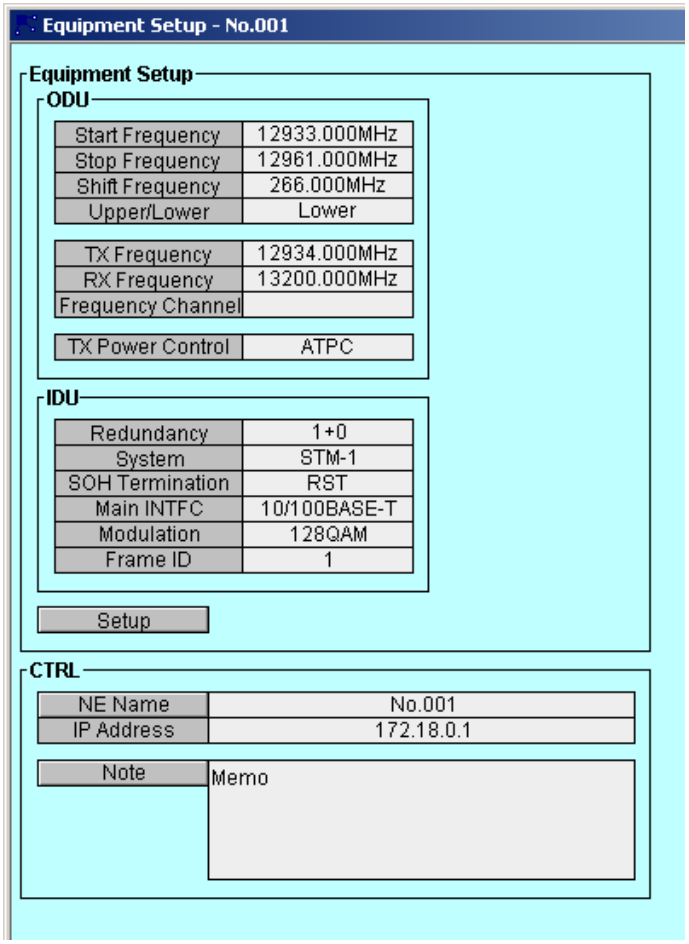
NOTE

If each setting item of "Equipment Setup" is changed when equipment is in-service mode, the service will be interrupted.

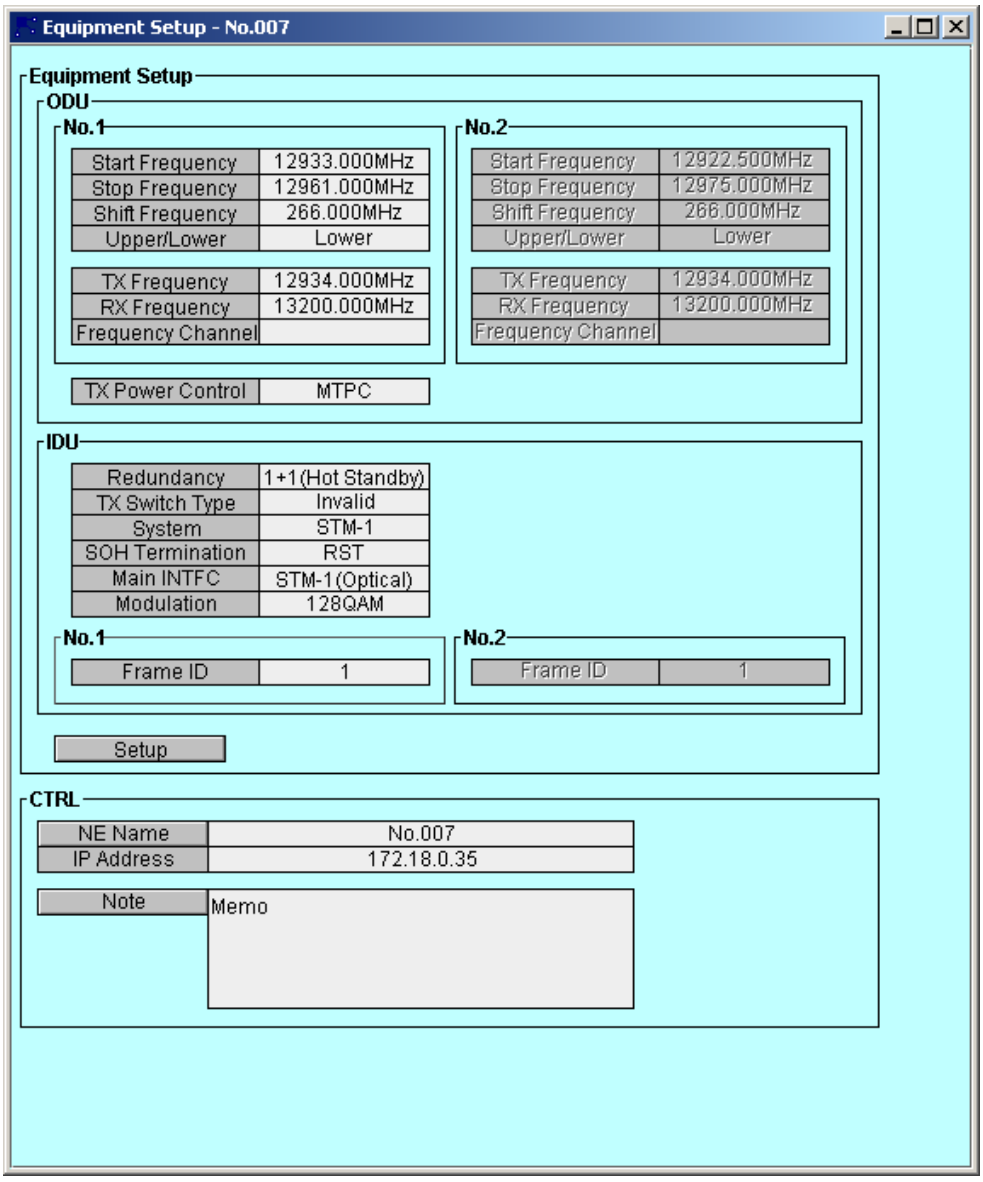
2.17.1 Equipment Configuration Monitor and Setup

To open the Equipment Setup window:

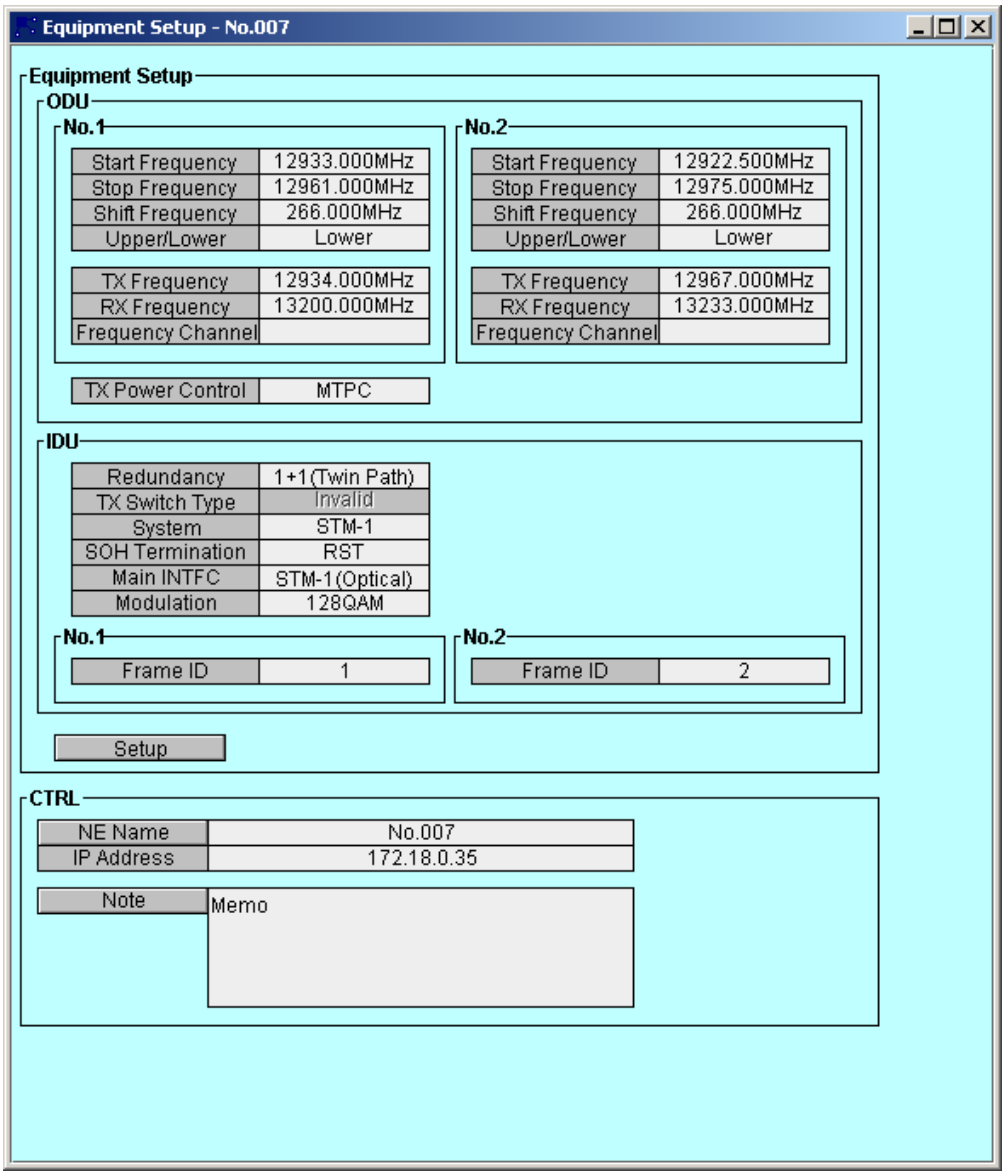
1. Select **Configuration → Equipment Setup** in the NE-specific menu bar of the PNMT main window.
2. This window contains the setup information and control for the IDU and the ODU. The **Equipment Setup** window is shown below.



Equipment Setup 1+0 / 1+0 Expandable window



Equipment Setup 1+1 Hot Standby window

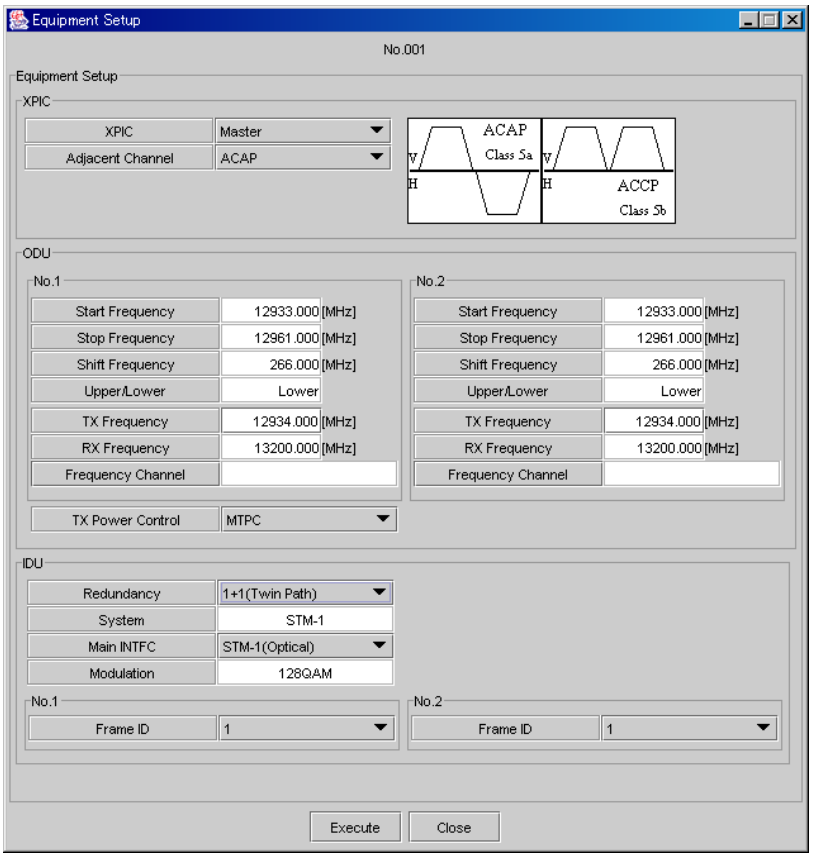


Equipment Setup 1+1 Twin Pass window

2.17.2 Setup

To setup the ODU and IDU parameters:

1. Click **[Setup]** in the **Equipment Setup** window.



Equipment Setup – Setup window (1+1 Twin Path for XPIC)

2. On the **Setup** window, the configurable items are shown and described in the table below:

XPIC*	**XPIC** – sets the XPIC function mode to Master, Slave, or Not Used (disabled).
	Adjacent Channel – sets the adjacent channel to ACAP or ACCP mode Note: **when** an adjacent channel exists, ACAP must be selected.
ODU	**TX Frequency** – sets the RF transmit frequency and consequently the RF receive frequency of the ODU If frequency Channel file is previously registered, frequency setting by Channel name is available. Refer to "Frequency Channel" screen shown as below.
	TX Power Control – method used by the ODU for power control functions can be set here. Either Automatic Transmit Power Control (ATPC) or Manual Transmit Power Control (MTPC) can be selected.
IDU	**Redundancy** – This function Is available only for 1+1 systems. Hot Standby or Twin-Patch systems configuration can be set using this function.
	Main INTFC – the main interface of the IDU can be selected here. The available interfaces are STM-1(Optical), STM-1(Electrical), and STM-1(Optical SF) or 10/100BASE-T.
	TX Switch Type – The type of TX Switch in 1+1 Hot Standby configuration can be set up here. RF Switch or Mute can be selected. (Only available on 1+1 HS, except XPIC systems)
	Frame ID – used to synchronize the TX and RX frames of opposing NEs in the hop. The frame ID can be set from 1 to 8.

*: for XPIC-systems only

3. Click **[Execute]** to activate the new set of values.

CAUTION

The message about changing the TX frequency will cause the wireless connection to appear.

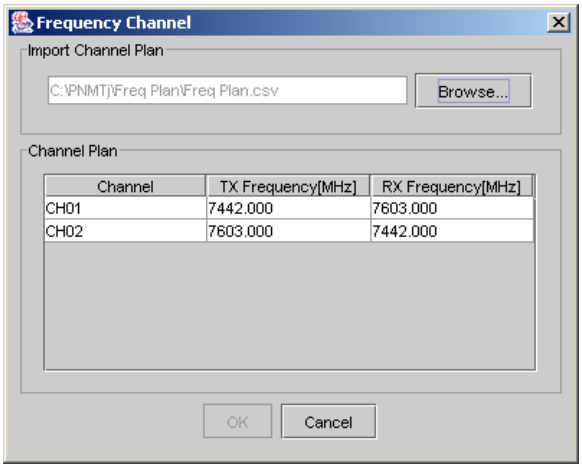
4. Click **[Close]** when finished.

NOTE

1. In XPIC systems, TX Power Control of slave equipment is not configurable. The slave equipment follows the TX Power Control setting of the master equipment.
2. In XPIC systems, if TX Power Control of master equipment is changed, the TX Power Control of the slave equipment is also changed. This will be displayed on the event log (two lines).

2.17.3 Frequency Channel

1. Click **[Browse]** to locate the Channel plan file on the local hard disk.



2. Select Channel and click **[OK]**, then TX and RX frequency corresponding to the channel will be set.

Frequency channel file format is csv, including channel name, TX frequency and RX frequency.

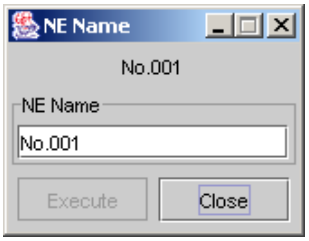
Examples

Ch1, 7442.000, 7603.000

Ch2, 7603.000, 7442.000

2.17.4 Editing the NE Name

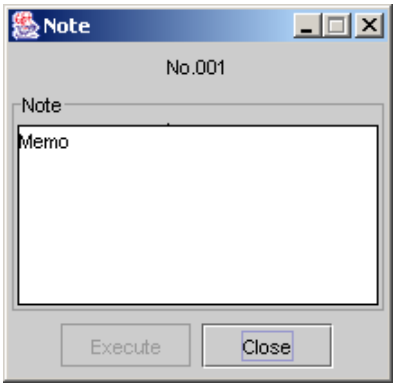
To edit the NE name:



1. Click **[NE Name]** in **Equipment Setup** window.
2. Enter new PASOLINK name in the **NE Name** dialog box. A maximum of 32 characters can be used.
3. Click **[Execute]** to change to new name.
4. Click **[Close]** when finished.

2.17.5 Editing the Note for NE

To add an optional description to the current PASOLINK:



1. Click **[Note]** in **Equipment Setup** window.
2. Enter the optional description for the specific PASOLINK in the **Note** dialog box. A maximum of 100 characters can be used in this field
3. Click **[Execute]** to save.
4. Click **[Close]** when finished.

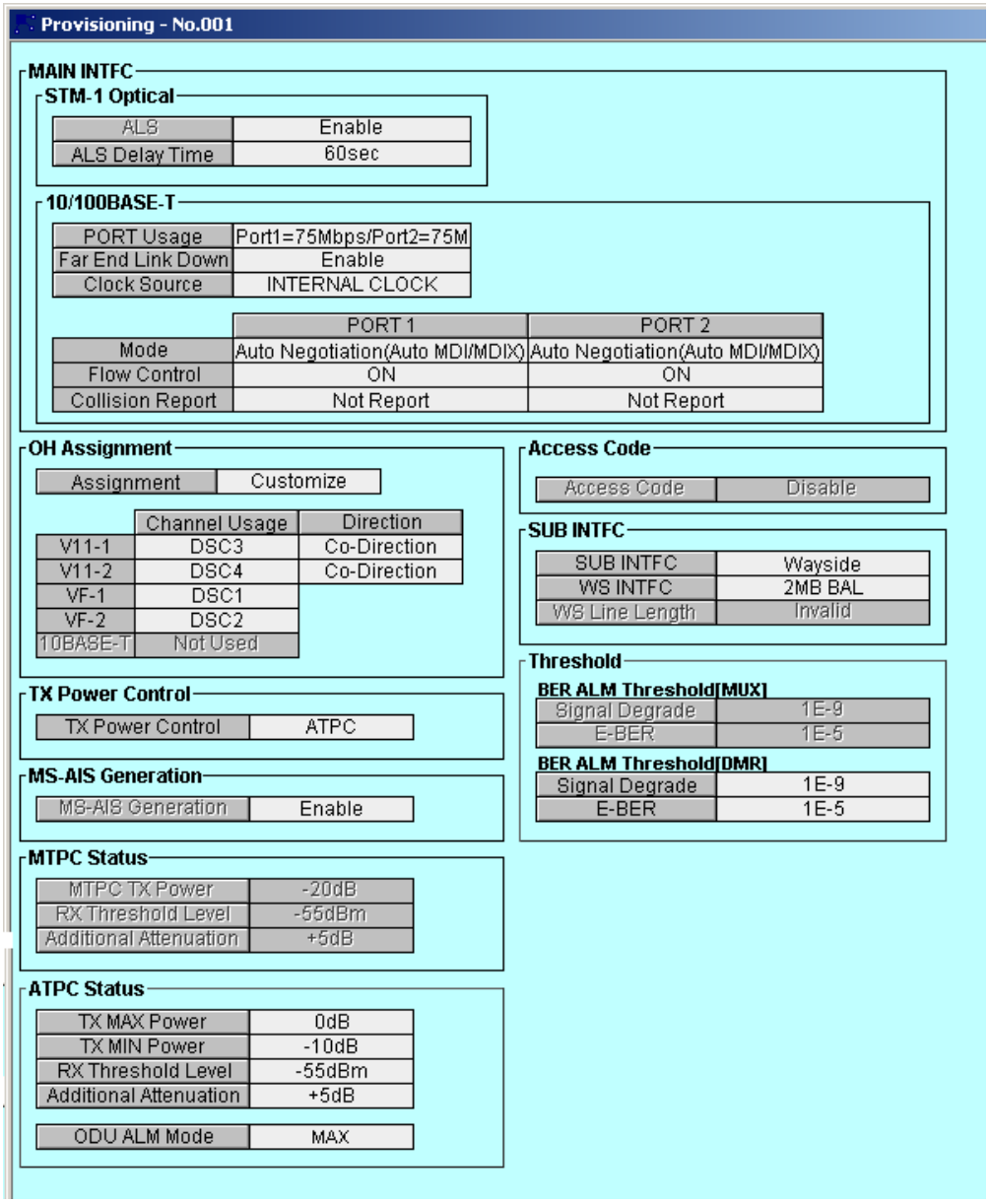
2.18 Provisioning

The main interface (MAIN INTFC), overhead (OH), MTPC and ATPC can be set in this window.

2.18.1 Provisioning window

To open the **Provisioning** window:

1. Select **Configuration → Provisioning** in the NE-specific menu bar.
2. This window contains the setup information of the main INTFC, OH, MTPC and ATPC. The **Provisioning** window is shown below.



2.18.2 MAIN INTFC

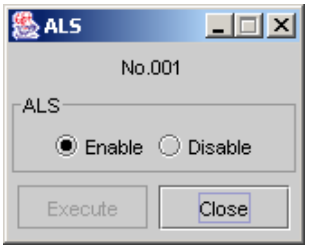
This function enables you to set the STM-1 Optical and 10/100Base-T Setting.

STM-1 Optical function enables you to set the ALS and its properties. The ALS or Automatic Laser Shutdown is a function available in the IDU that cuts the laser emission on the main interface after the STM-1 LOS has been activated for a certain length of time.

2.18.2.1 Enabling the ALS

When the ALS is enabled, the laser emission will be cut off after a certain period has elapsed after the IDU has issued an STM-1 LOS. If the ALS is disabled, the laser emission will be continuously outputted.

To enable the ALS:

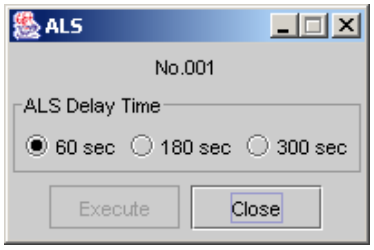


1. Click **[ALS]** on the **Provisioning** window.
2. Select Enable on the ensuing window.
3. Click **[Execute]** to enable the ALS.
4. Click **[Close]** when finished.

2.18.2.2 Setting the ALS Delay Time (ALS Restart)

This function allows you to set the time in seconds before the ALS will try automatically to release the laser lock-off. After the preset time has elapsed, the IDU will cause the laser to emit intermittently and if the fault has been corrected the ALS will be released and continue with normal operation. Otherwise, the laser will be immediately cut off.

To set the ALS delay time:

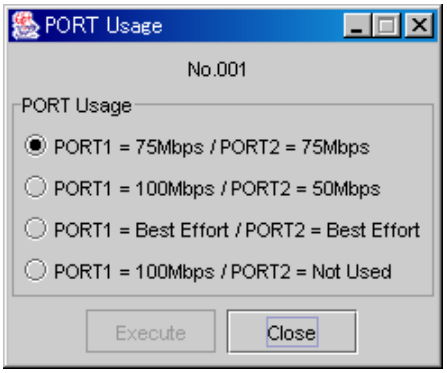


1. Click **[ALS Delay Time]** on the **Provisioning** window.
2. Select the time in seconds when the ALS will try to automatically release the lock-off in laser emission in the ensuing window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.18.2.3 Setting the PORT Usage

This function selects band width for Port1 and Port2. Sum of bandwidth with Port1+Port2=150Mbps. When selecting usage of Port1=100Mbps and Port2=Not used, provisioning setting of following function for only Port1 is available.

To set the PORT Usage:



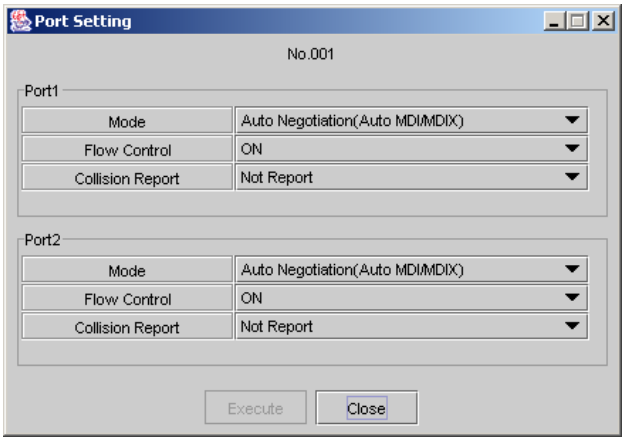
1. Click **[PORT Usage]** on the **Provisioning** window.
2. Select the combination of Port1 and Port2 usage.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

Setting the PORT 1/2

In the **Setup** window, the configurable items are shown and described in the table below:

Port Setting	**Mode** – sets the type of the speed and the duplex of each port. The available types are AUTONEG (AUTO-MD1/MDIX), 10M-HALF(MDI), 10M-FULL(MDI), 100M-HALF(MDI), 100M-FULL(MDI), 10MHALF(MDIX), 10M-FULL(MDIX), 100M-HALF(MDIX) and 100MFULL(MDIX).
	Flow Control – specify the Flow Control of each port.
	Collision Report – set the status of each port to report when collision occurs.

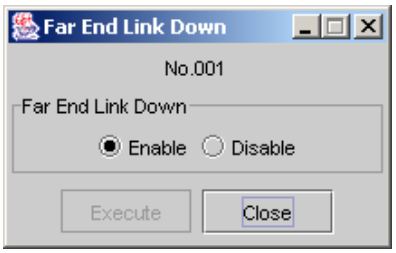
1. Click **[PORT 1]** or **[PORT 2]** on the **Provisioning** window.
2. Select the Port1 and Port2 settings.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.18.2.4 Enabling the Far End Link Down

When Link fault information is received from opposite site, release the LAN connection from interface. When it a Link fault is detected, Link fault information is sent to the opposite site and the LAN connection is also released. Disable means that Far End Link Down control is not used.

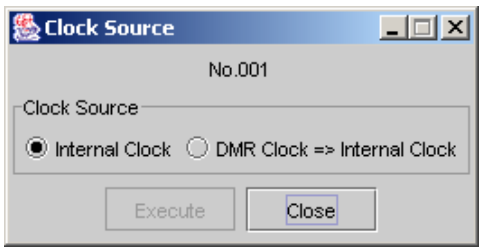
1. Click **[Far End Link Down]** on the Provisioning window.
2. Select Enable on the following window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.18.2.5 Setting the Clock Source

Internal Clock means the timing source for synchronization applied from the inner system clock. DMR -> Internal Clock means the timing source for synchronization is applied from received clock via DMR.

1. Click **[Clock Source]** on the **Provisioning** window.
2. Select the way to use the timing for synchronization.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



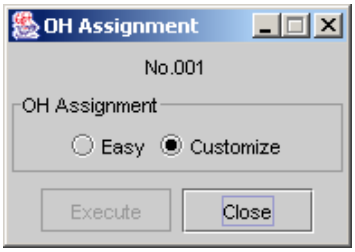
2.18.3 Overhead (OH) Assignment

2.18.3.1 OH Assignment Type

The OH can be either set at factory default (Easy) or customized (Custom) according to user requirements.

To set the OH Assignment type:

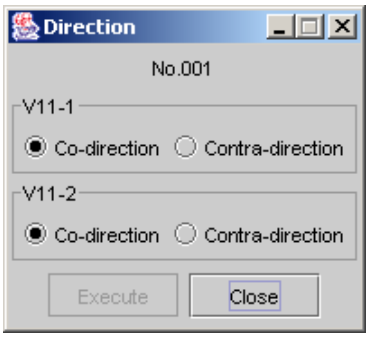
1. Click **[Assignment]** in the **Provisioning** window.
2. Select the type of OH assignment that will be employed.
3. Click **[Execute]** to activate the setting.
4. Click **[Close]** when finished.



2.18.3.2 Direction

To set the direction:

1. Click **[Direction]** in the OH Assignment table.
2. On the ensuing table, you will be able to select the direction for the V11-1 and V11-2 interface.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

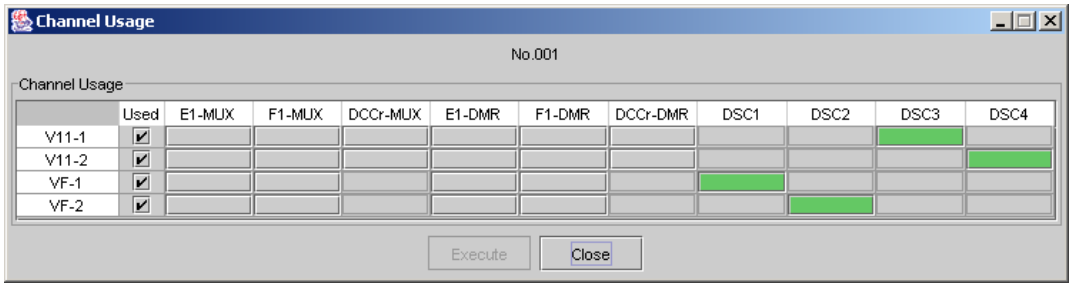


2.18.3.3 Channel Usage

This function allows you to set the interface used on the available user channels (E1, F1, DCCr, DSC, etc.) in the PASOLINK^{+}. The user channels can be set as V11, VF or LAN (Ethernet) using this function.

To set the channel usage:

1. Click **[Channel Usage]** in the OH Assignment table.
2. In the following window, the channel usage table will be displayed. You can assign a target channel to use a specific interface by plotting the channel (column) and the interface (row) on the table and clicking on the button that corresponds to the target channel and interface. Note that for each channel you can set only one interface.



3. Click **[OK]** to activate the new settings.

2.18.4 Manual Transmit Power Control (MTPC) Status

When the MTPC is selected over ATPC the buttons on this section will become sensitive and the MTPC parameters can be set. The MTPC has four (4) parameters:

- MTPC TX Power
- RX Threshold
- And Additional Attenuation

The procedure for setting these parameters will be presented in this section.

NOTE

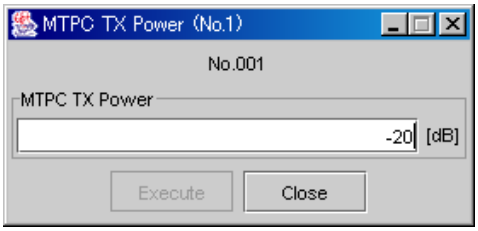
1. In XPIC systems, MTPC status of slave equipment is not configurable. The slave equipment follows the MTPC status setting of the master equipment.
2. In XPIC systems, if MTPC status of master equipment is changed, of the MTPC status of slave equipment is also changed. This is shown in the event log (two lines). This is normal operation.

2.18.4.1 MTPC TX Power

When the MTPC is in operation, the transmission power (dB) can be set using this function.

To set the maximum transmission power in MTPC:

1. Click **[MTPC TX Power]** in the **MTPC Status** section of the **Provisioning** window. Set the power (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field.
2. Click **[Execute]** to set the maximum MTPC TX power.
3. Click **[Close]** when finished.



2.18.4.2 RX Threshold

Set the threshold value of the receiving level. When the received level converge on the preset value of the threshold the TX power is controlled by sending control signals in the Radio Frame Complementary Overhead (RFCOH).

To set the RX threshold:

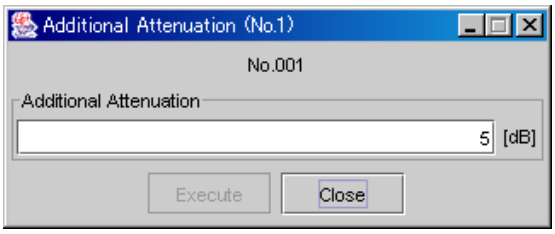
1. Click **[RX Threshold]** in the **MTPC Status** section of the **Provisioning** window.
2. Set the power (dB) in the following window. You can highlight the input field and enter the dB value using the keypad in the input field.
3. Click **[Execute]** to activate the new preset value.
4. Click **[Close]** when finished.

2.18.4.3 Additional Attenuation

If the transmission length of the wireless segment is short, additional span attenuators can be set in the ODU. The additional attenuation can be set from 0 to 5 dB.

To set the additional attenuation:

1. Click **[Additional Attenuation]** button in the **MTPC Status** section of the **Provisioning** window.
2. Set the attenuation (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field
3. Click **[Execute]** to set the attenuation.
4. Click **[Close]** when finished.



2.18.5 Automatic Transmit Power Control (ATPC) Status

When the ATPC is selected over MTPC the buttons on this section will become sensitive and the ATPC parameters can be set. The ATPC has five (5) parameters:

- TX MAX Power
- TX MIN Power
- RX Threshold
- Additional Attenuation
- ODU ALM Mode

The procedure for setting these parameters will be presented in this section.

NOTE

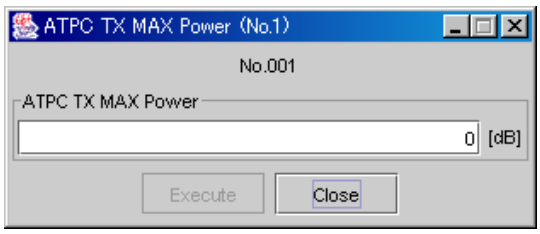
1. In XPIC systems, ATPC status of slave equipment is not configurable. The slave equipment follows the ATPC status setting of the master equipment.
2. In XPIC systems, if ATPC status of master equipment is changed, of the ATPC status of slave equipment is also changed. This is shown in the event log (two lines). This is normal operation.

2.18.5.1 TX MAX Power

When the ATPC is in operation, the maximum transmission power (dB) can be set using this function.

To set the maximum transmission power in ATPC:

1. Click **[TX MAX Power]** in the **ATPC Status** section of the **Provisioning** window.
2. Set the power (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field.
3. Click **[Execute]** to set the maximum ATPC TX power.
4. Click **[Close]** when finished.

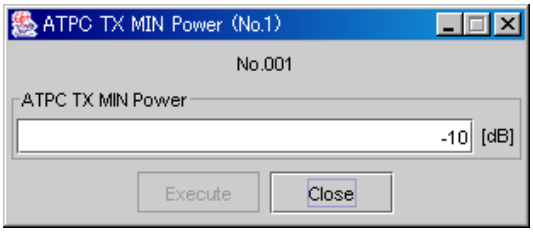


2.18.5.2 TX MIN Power

When the ATPC is in operation, the minimum transmission power (dB) can be set using this function.

To set the maximum transmission power in ATPC:

1. Click **[TX MIN Power]** in the **ATPC Status** section of the **Provisioning** window.
2. Set the power (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field.
3. Click **[Execute]** to set the minimum ATPC TX power.
4. Click **[Close]** when finished.



2.18.5.3 RX Threshold

Set the threshold value of the receiving level. When the received level converges on the preset value of the threshold the TX power is controlled by sending control signals in the Radio Frame Complementary Overhead (RFCOH).

To set the RX threshold:

1. Click **[RX Threshold]** in the **ATPC Status** section of the **Provisioning** window.
2. Set the power (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field.
3. Click **[Execute]** to activate the new preset value.
4. Click **[Close]** when finished.

NOTE

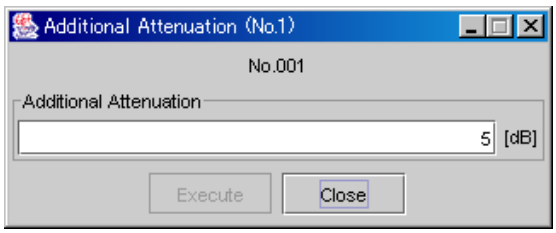
When modulation type is 128QAM, RX Threshold is set to the threshold value of receiving level.
If system quality can deteriorate by -60 dBm or less, RX Threshold should be set between -60 dBm and -30 dBm.

2.18.5.4 Additional Attenuation

If the transmission length of the wireless segment is short, additional span attenuators can be set in the ODU. The additional attenuation can be set from 0 to 5 dB.

To set the additional attenuation:

1. Click **[Additional Attenuation]** in the **ATPC Status** section of the **Provisioning** window.
2. Set the attenuation (dB) in the ensuing window. You can highlight the input field and enter the dB value using the keypad in the input field
3. Click **[Execute]** to set the attenuation.
4. Click **[Close]** when finished.



2.18.5.5 ODU ALM Mode

This item defines the ODU transmit power level when ATPC is under abnormal operation (for example, when the collection of the ATPC information from the opposite station can not be performed or when MAX power output is continued).
To set the ODU ALM mode:

Click **[ODU ALM Mode]** in the ATPC status section of the **Provisioning window**.

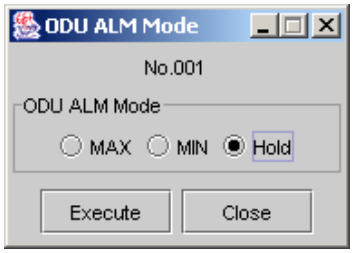
Select the action of the ODU in case of IDU communication failure. For MTPC, only Hold mode is available.

1. Click **[ODU ALM Mode]** in the **MTPC Status** section of the **Provisioning** window.
2. Select the action of the ODU in case of IDU communication failure. For MTPC, only Hold mode is available.

   MAX: Select this to cause the ODU to transmit at the ATPC Maximum PWR setting.

   MIN: Select this to cause the ODU to transmit at the ATPC Minimum PWR setting.

   Hold: Select this to cause the ODU to maintain the transmit power at times of failure.

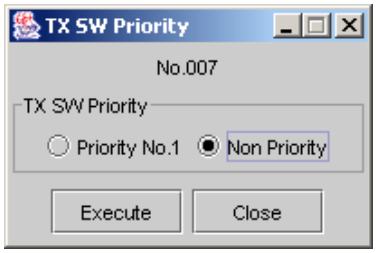


3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.18.6 SW Priority

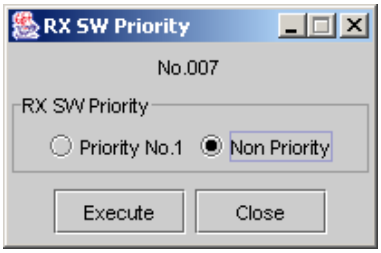
2.18.6.1 TX SW Priority

This function specifies that the use priority of No.1 unit is higher from a TX viewpoint than No.2 or those of the same priority. In case the switch in front panel of IDU is explicitly set to No.1 or No.2, usage obeys the switch, in which case this function is ignored. This function is also ignored when the TX switch mode is manually set to No.1 or No.2 from PNMT. It is available when both IDU and PNMT are in auto TX switch mode. **Priority No.1** makes TX switch turn to No.1 when TX switch mode is changed to auto from manual, even if TX switch is set to No.1 or No.2 before changing of the switch mode. **Non-Priority** makes TX switch not change when TX switch mode is changed to auto from manual even if TX switch is set to No.1 or No.2 before changing of the switch mode.



2.18.6.2 RX SW Priority

This function specifies that the use priority of No.1 unit is higher from a RX viewpoint than No.2 or those of the same priority. In case the switch in front panel of IDU is explicitly set to No.1 or No.2, usage obeys the switch, in which case this function is ignored. This function is also ignored when the RX switch mode is manually set to No.1 or No.2 from PNMT. It is available when both IDU and PNMT are an auto RX switch mode. **Priority No.1** makes RX switch turn to No.1 when RX switch mode is changed to auto from manual even if RX switch is set to No.1 or No.2 before changing of the switch mode. **Non-Priority** makes RX switch no-change when RX switch mode is changed to auto from manual even if RX switch is set to No.1 or No.2 before changing of the switch mode.



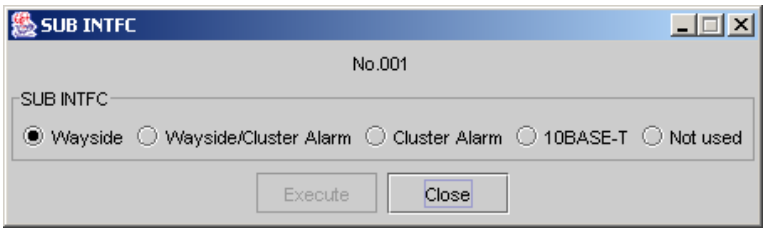
2.18.7 Sub INTFC

There are 2 optional sub interfaces available in the PASOLINK+ system. On this section, these sub-interfaces can be defined and specified accordingly.

2.18.7.1 Defining the SUB INTFC

To set the type of sub interface mounted in the IDU:

1. Click **[SUB INTFC]** in the Provisioning window.
2. Select the type of interface used from the ensuing window. If there are no WS and LAN card plugged into the IDU, “Not used” must be selected.



3. Click **[Execute]** to activate the newly defined sub interface.
4. Click **[Close]** when finished.

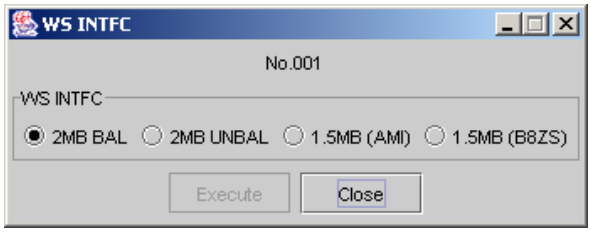
NOTE

If 10BASE-T is used for SUB INTFC, please refer to APPENDIX A RESTRICTION about SUB INTFC.

2.18.7.2 Defining the Wayside (WS) Interface

To specify the type of WS interface used:

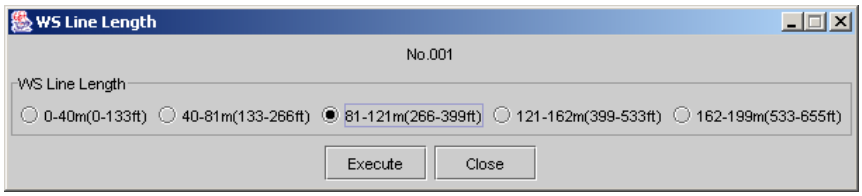
1. Click **[WS INTFC]** in the **Provisioning** window.



2. Select the type of WS interface on the ensuing window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.18.7.3 WS Line Length

To specify the WS line length:



1. Click **[WS Line Length]** in the **Provisioning** window.
2. Select the line length in meters from the ensuing window. The WS line length can be set from 0 to 199.6 meters.
3. Click **[Execute]** to activate the newly specified length.
4. Click **[Close]** when finished.

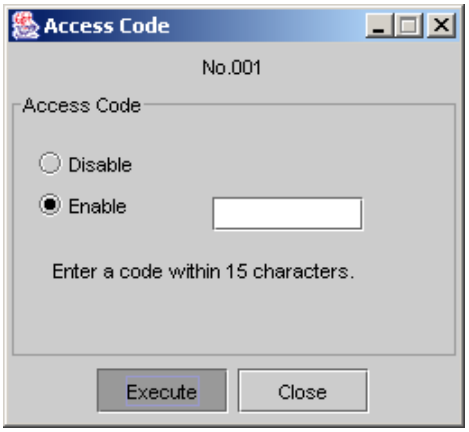
2.18.8 Access Code

To set to enable or disable the Access Code:

1. Click **[Access Code]** in the **Provisioning** window.
2. When you want to enable the Access Code, select "Enable" radio button and input the suitable Access Code characters.

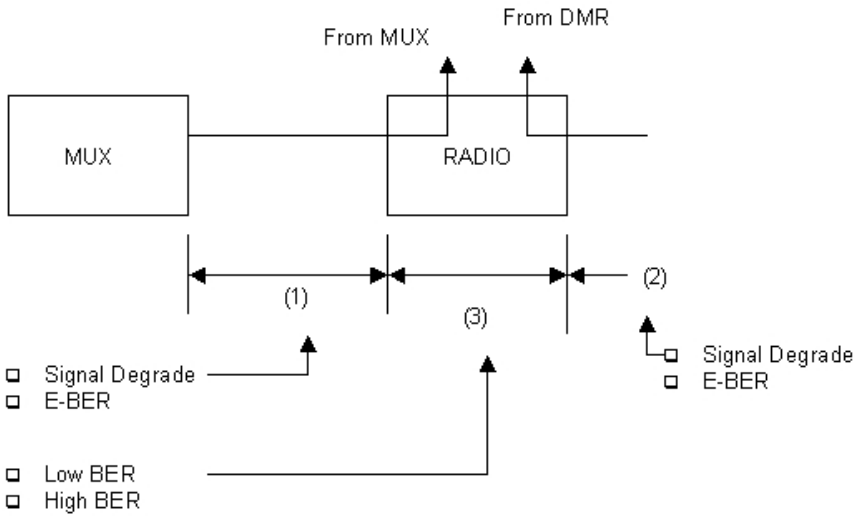
   *Access Code is up to 15 alphanumeric characters.

   When you want to disable the Access Code, select "Disable" radio button.
3. Click **[Execute]** in the **Access Code** window.
4. Click **[Close]** when finished.



2.18.9 BER Threshold

The BER in the PASOLINK^{+} system is monitored in 3 sections – (1) the MUX section, (2) the DMR section and the (3) Radio section. The Radio section is available in 1+1 systems only and is used for switchover function. The figure below illustrates these sections:



The MUX and DMR section BER is measured in terms of Signal Degrade and E-BER. Signal Degrade is triggered when the BER is worse than the preset threshold (1E-6, 1E-7, etc.). Excessive BER (E-BER) occurs when the BER is worse than the preset threshold (1E-3, 1E-4, or 1E-5).

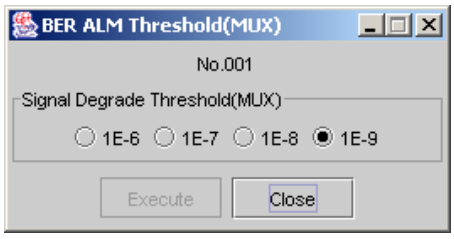
The radio section, on the other hand, monitors the BER for switchover purposes. When the BER becomes worst than the preset value of the Low BER (RX Switch) the RX is switched to the other system in a 1+1 configuration. In a similar manner, when the BER becomes worse than the preset value for High BER, it is switched to the other system.

The preset value mentioned above is called the BER Threshold. The BER threshold can be set in 6 points: (1) Signal Degrade (MUX), (2) E-BER (MUX), (3) Signal Degrade (DMR), (4) E-BER (MUX), (5) Low BER, and (6) High BER. Low BER and High BER, however, are only available in 1+1 systems.

2.18.9.1 Signal Degrade (MUX)

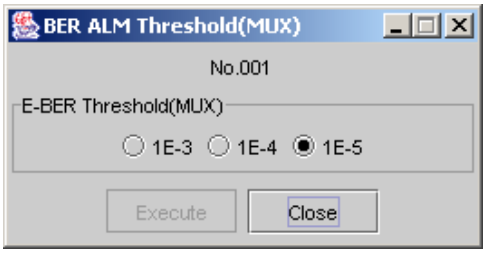
To set the threshold for Signal Degrade (MUX):

1. Click **[Signal Degrade (MUX)]** in the Provisioning window.
2. Select the preset BER value that will trigger signal degrade. The factory setting is 1E-6.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.



2.18.9.2 E-BER (MUX)

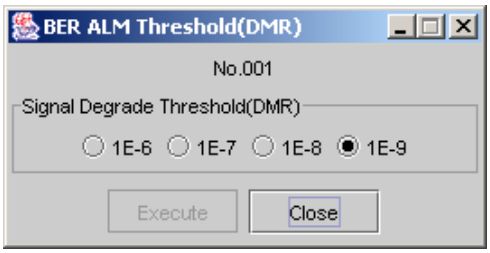
To set the E-BER Threshold for the MUX section:



1. Click **[E-BER (MUX)]** in the Provisioning window.
2. Select the preset value wherein the E-BER will be triggered.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.

2.18.9.3 Signal Degrade (DMR)

To set the threshold for Signal Degrade (DMR):



1. Click **[Signal Degrade (DMR)]** in the Provisioning window.
2. Select the preset BER value that will trigger signal degrade. The factory setting is 1E-6.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.

2.18.9.4 E-BER (DMR)

To set the E-BER Threshold for the DMR section:

1. Click **[E-BER (DMR)]** in the Provisioning window.
2. Select the preset value wherein the E-BER will be triggered.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.

2.18.9.5 High BER (Radio) [for 1+1 systems only]

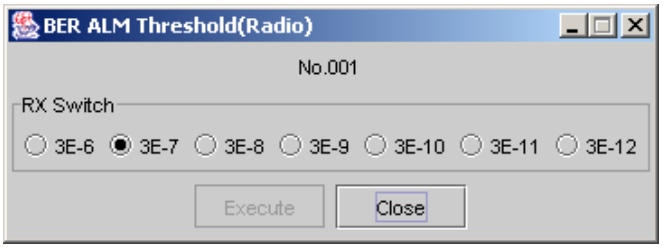
To set the threshold for High BER:

1. Click **[High BER]** in the Provisioning window.
2. Select the preset BER value that will trigger signal degrade. The factory setting is 3E-4.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.

2.18.9.6 Low BER (Radio) [for 1+1 systems only]

To set the Low BER:

1. Click **[Low BER]** in the Provisioning window.
2. Select the preset value wherein the E-BER will be triggered.



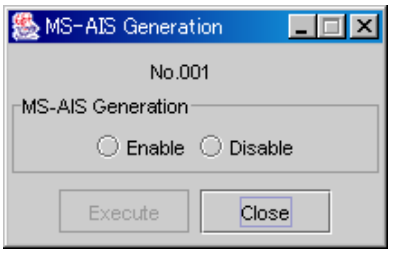
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.

2.18.10 MS-AIS Generation

2.18.10.1 MS-AIS Generation

This setting is available only for systems provided with STM-1 INTFC and MS-AIS Generation. Enable means that a Multiplexer Section AIS signal is generated when an AIS condition occurs. Disable means that the Multiplexer Section AIS signal generation function is unavailable. When an AIS condition occurs, MS-AIS is not transmitted.

1. Click **[MS-AIS Generation]** in the Provisioning window.
2. Select Enable on the following window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.19 Link Performance Monitor

The following performance items can be monitored according to the G.826 recommendation:

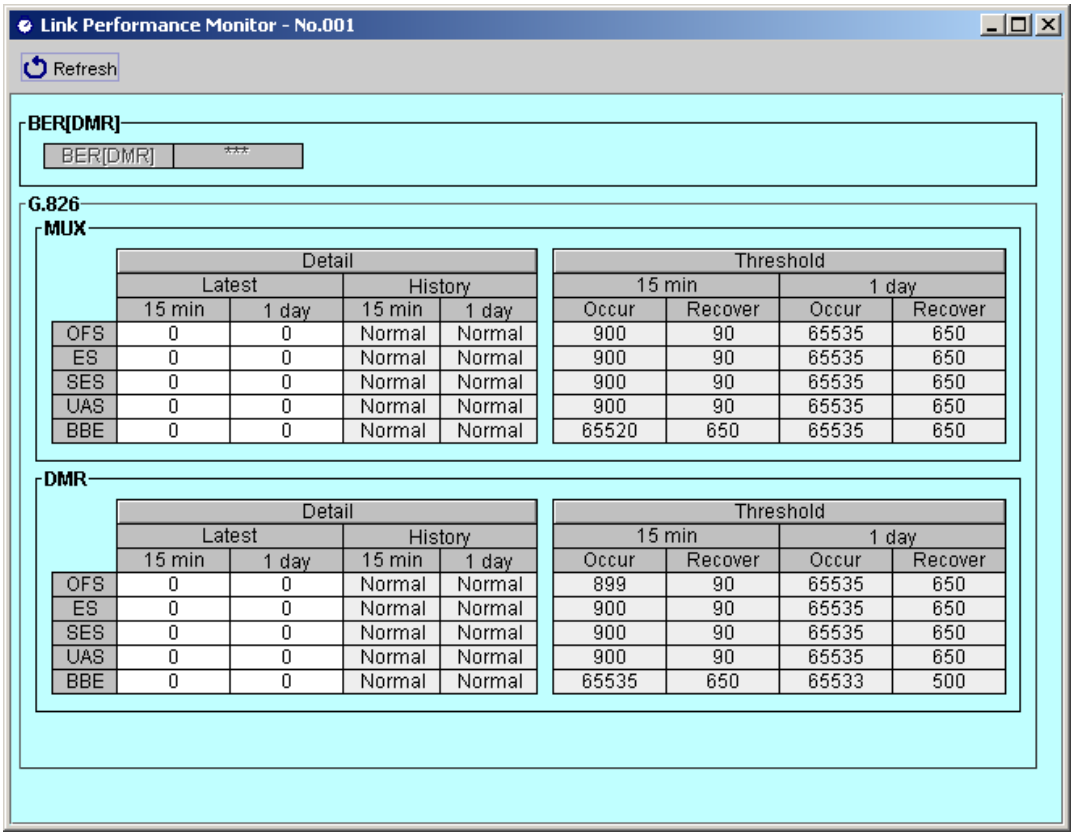
- **Out of Frame Second (OFS)** – the total number of seconds the "out of frame" condition is generated in 15 minute-blocks.(OFS is applied to the Total only)"
- **Errored Second (ES)** – the cumulative time in which more than one B1 error pulse per second was detected
- **Severely Errored Second (SES)** – the cumulative time in which the BER of one second period exceeded 10E-3.
- **Unavailable Second (UAS)** – the cumulative time in which the unit remained inoperative
- **Background Block Error (BBE)** – the sum of the B1 background block error

Red color in Performance monitor window indicates the occurrence of performance items exceeding the threshold value. The threshold values can be set in Threshold window. The detailed daily performance data can be seen by clicking on the **[Detail]** button.

2.19.1 Viewing Summary Link Performance Monitor

To view Summary Link Performance Monitor:

1. Click **Link Performance Monitor** in the **NE-specific** menu bar of the target NE, i.e. the NE that you intend to monitor.

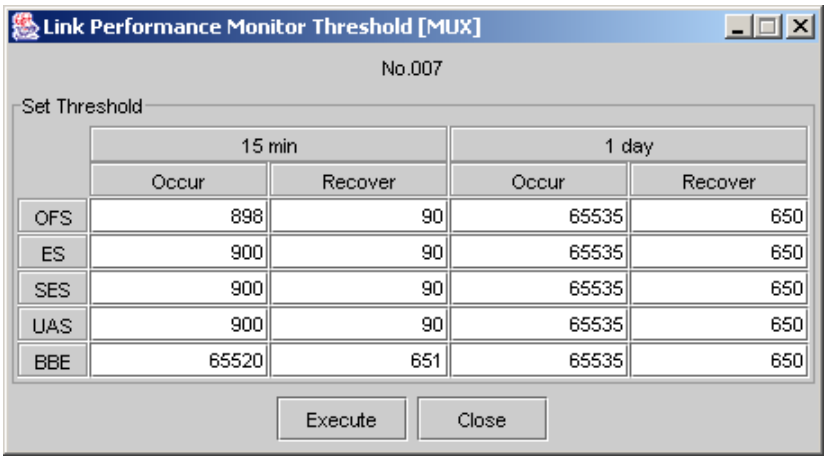


Summary Link Performance Monitor Window

2.19.2 Threshold Setting

To set the threshold values:

1. Click **[Threshold]** in the **Summary Link Performance Monitor** window



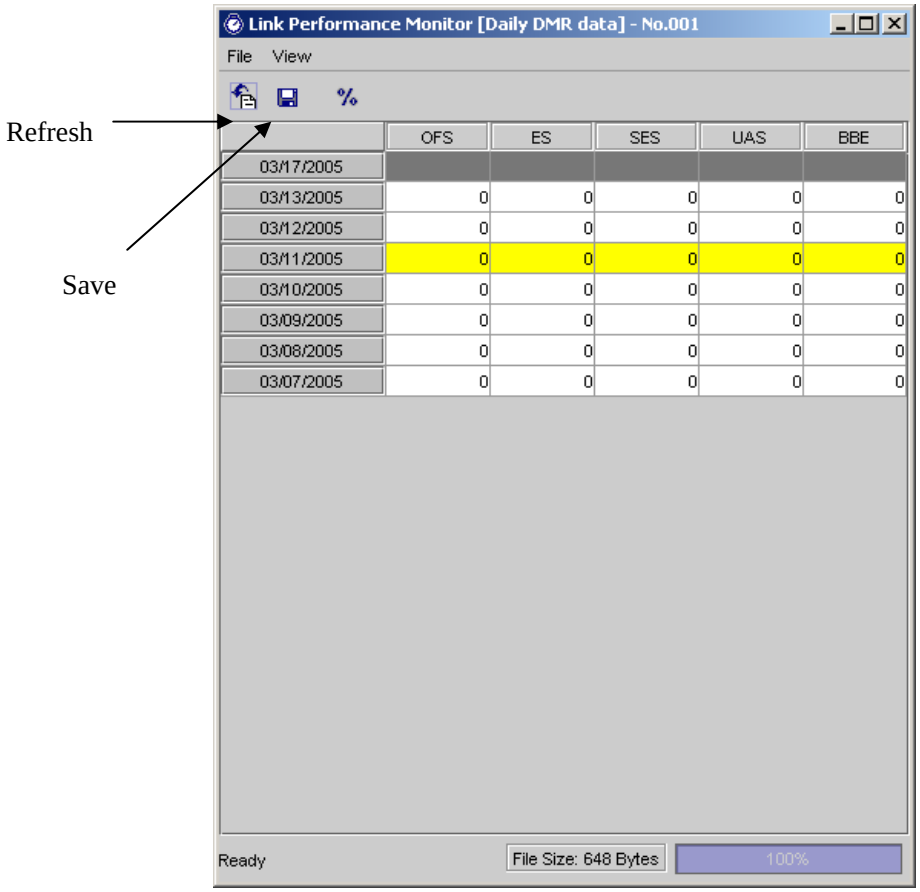
2. Select the performance item that is to be configured on the table shown above. The G.826 measure becomes available for setting when selected. The arrow buttons on the left-hand side of the field indicate this availability.
3. Set the value when the alarm is to **Occur** and when the alarm is to **Recover** in the appropriate fields. This measure will issue an alarm status when it reaches the alarm occur value and will issue an alarm clear status when it reaches the recover value set in the threshold table.
4. Click **[Execute]** to activate the new settings.
5. Click **[Close]** when finished.

2.19.3 Link Performance Monitor (Daily Data) window.

This window contains the Link Performance data of the past 8 days.

To view the Link Performance Monitor (Daily Data) window:

1. Click **[Detail]** in the Link Performance Monitor window.



Link Performance Monitor Window

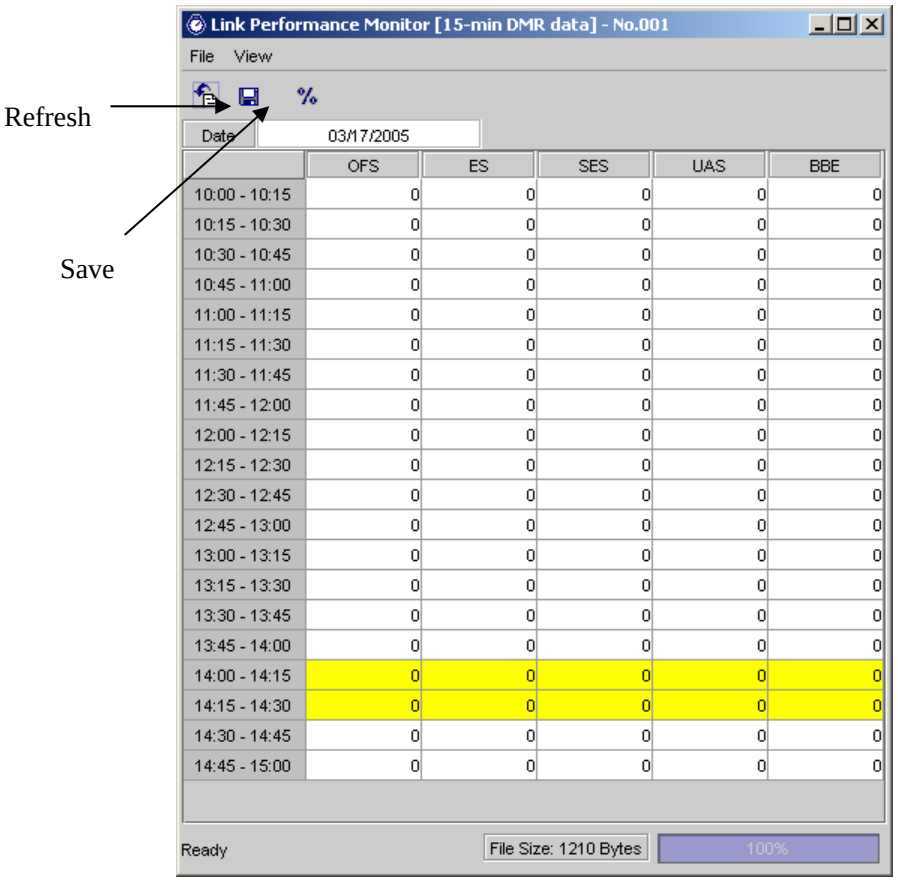
2. In this window a table shows the data available in the NE. The table is shows G.826 values by date. The date buttons on the right-hand side of the table are selectable. Moreover, the buttons also reflect the summary alarm for that specific date.

3. Click date buttons to display detailed 15-min data (data in 15 minute increments) for that date.

2.19.4 Link Performance Monitor (15-min Data) window

To view the 15-min Data:

1. Click of the target date in Link Performance Monitor (Daily Data) window to display the detailed 15-min performance data.



Link Performance Monitor (15-min Data) Window

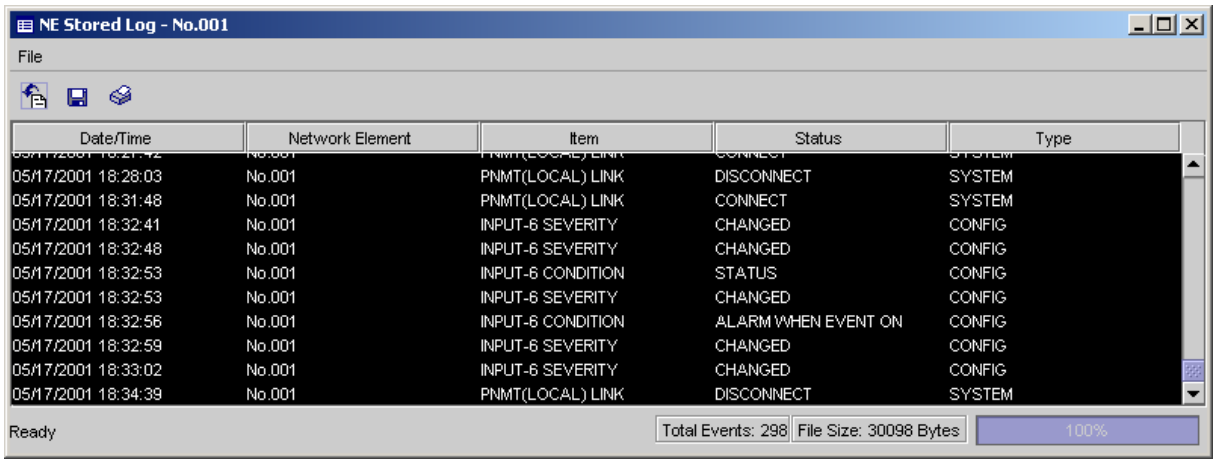
2. The data can be saved in text format by clicking on the save icon, or can be refreshed by clicking on the refresh icon.

2.20 NE Stored Log

The Event Log window displays the date/time when the event or command was received, item and status.

2.20.1 NE Stored Log monitor

1. Click **NE Stored Log** in the **NE-specific** menu bar of the target NE – the NE that you intend to monitor.
2. A message window showing the progress of the uploading of the Event Log data will appear on the screen. Wait until the PNMT finishes the uploading of the data. The progress window will automatically close once the uploading is completed.
3. The **NE Stored Log View** will be displayed. The event log is presented in tabular format showing the date of the event, the item that triggered the event and the changed status.
4. Sorting is possible for every column in Event Log window.
5. The date shown in the Event Log window will be the format set up by the OS.



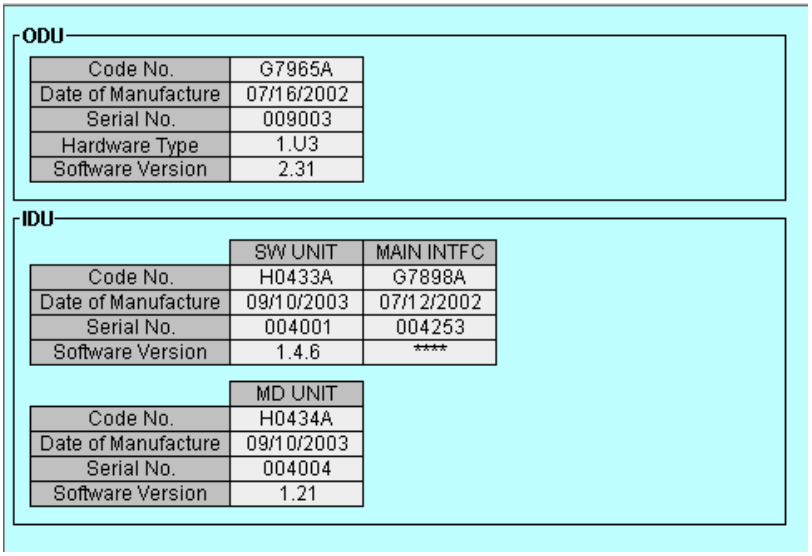
2.21 Version Tab

The inventory information of the ODU and the IDU can be viewed using this function.

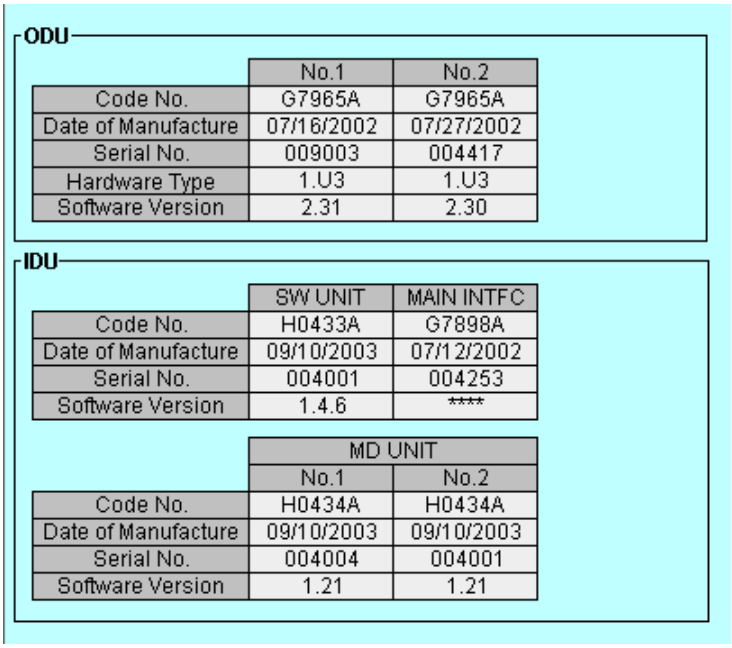
2.21.1 Version Monitor

To display the version of ODU and IDU:

1. Select the **Version** tab in **PNMT** main window.
2. The **Version** tab shows the Code No., Date of Manufacture, Serial No., Hardware Type (only for ODU) and Software Version of the ODU and the IDU.



Version Window for 1+0 Configuration



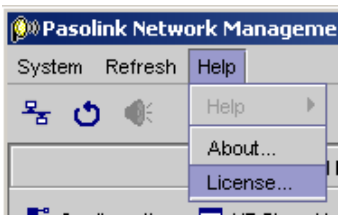
Version Window for 1+1 Configuration

2.22 License import

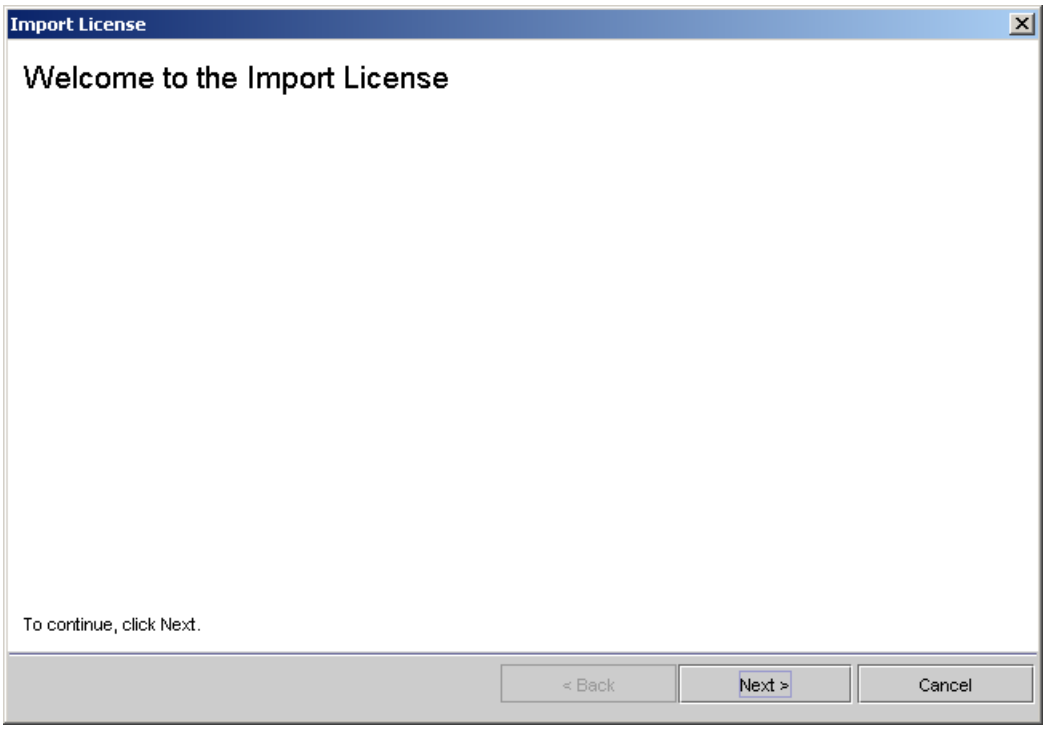
2.22.1 License import

To update the license file:

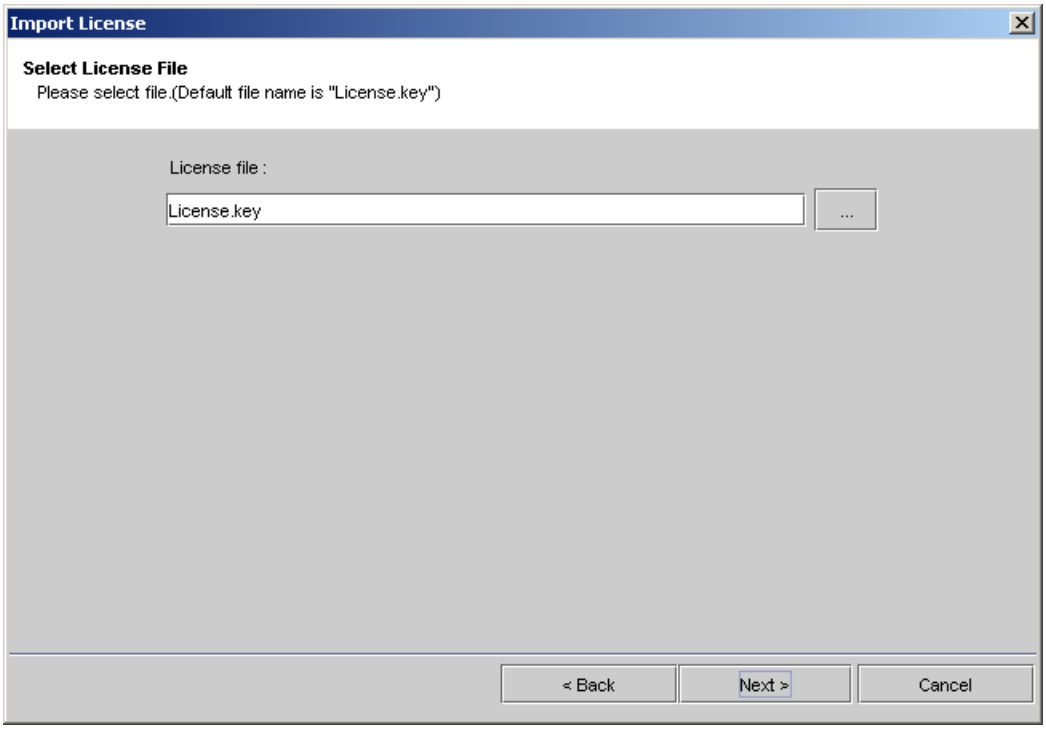
1. Go to **Help → License** in menu bar of PNMT main window.



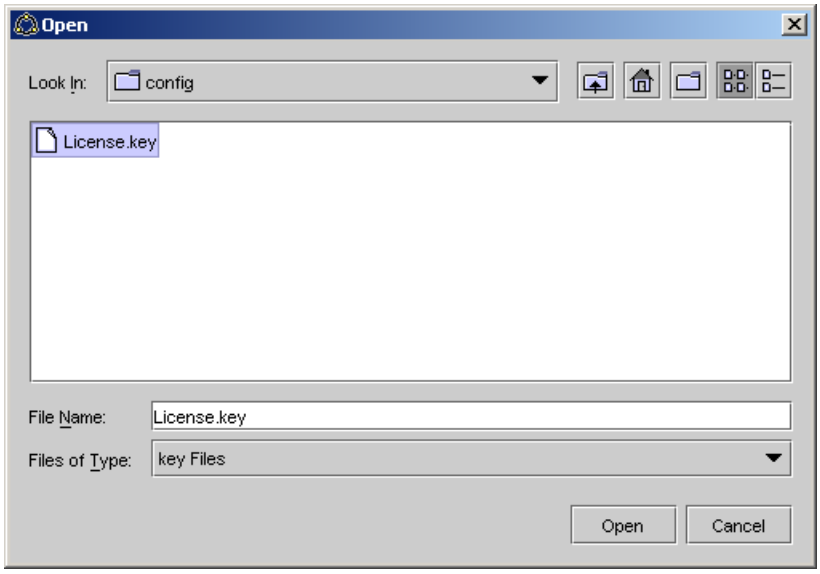
2. Import License Wizard will appear on screen. Click **[Next]** to continue.



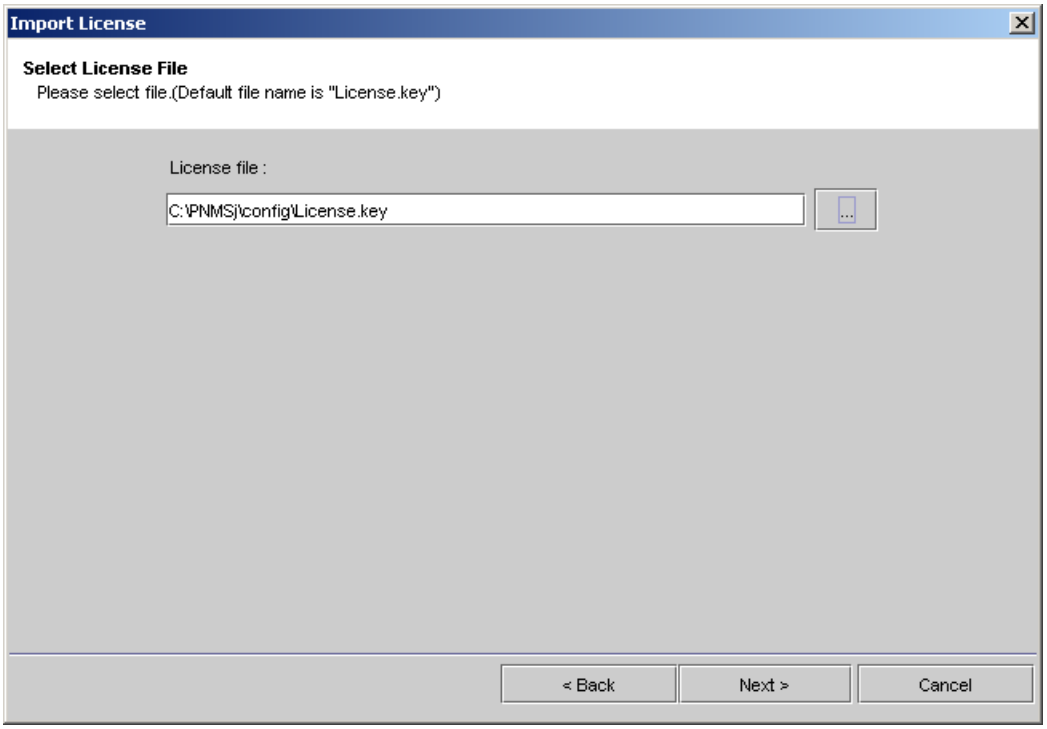
3. Click **[…]** to locate the new license key file.



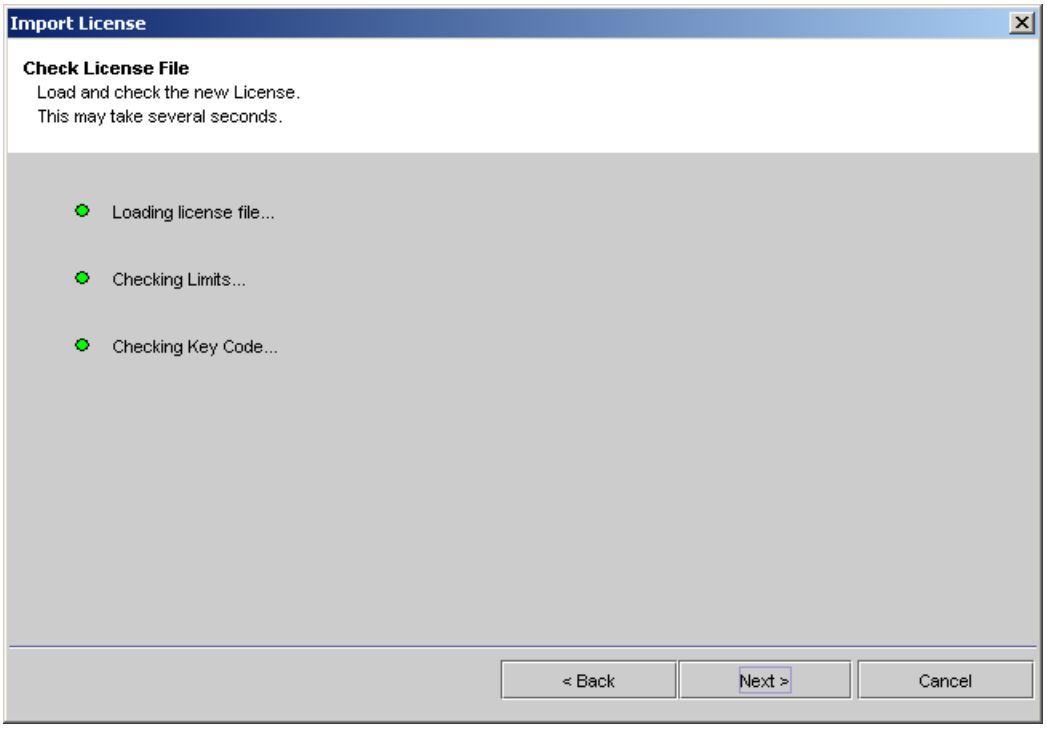
4. Indicate a License key file (i.e. License.key) that will be associated to PNMT. Select a License key file and click **[Open]** to continue.



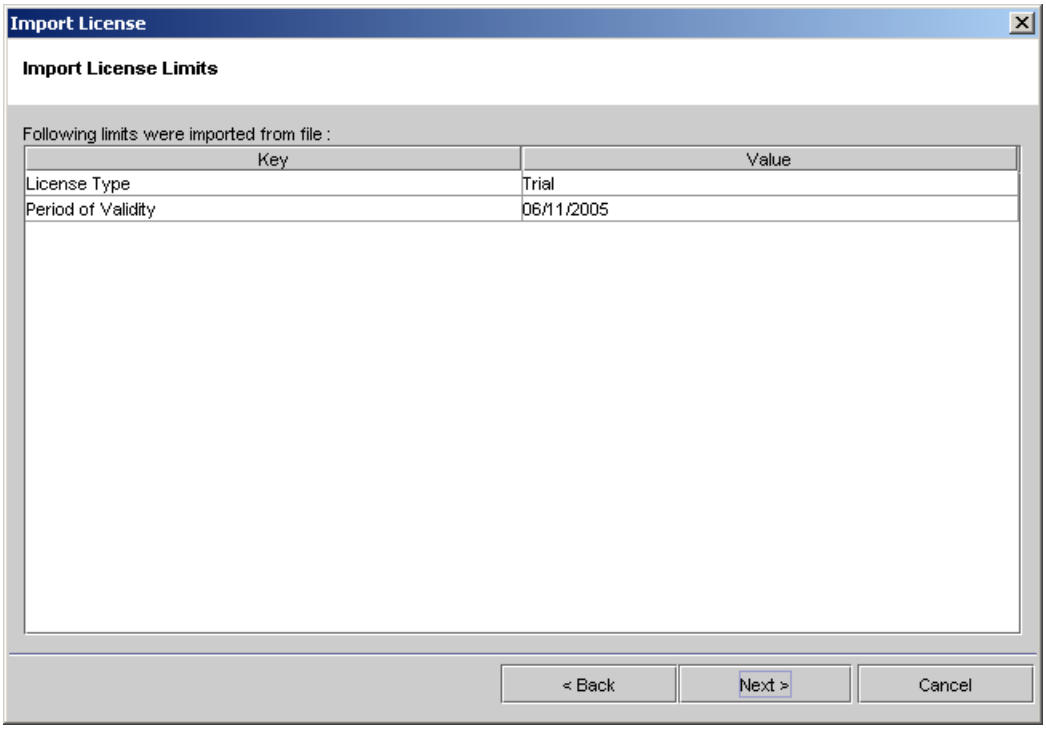
5. After verifying the path to the License key file is correct, click **[Next]** to proceed.



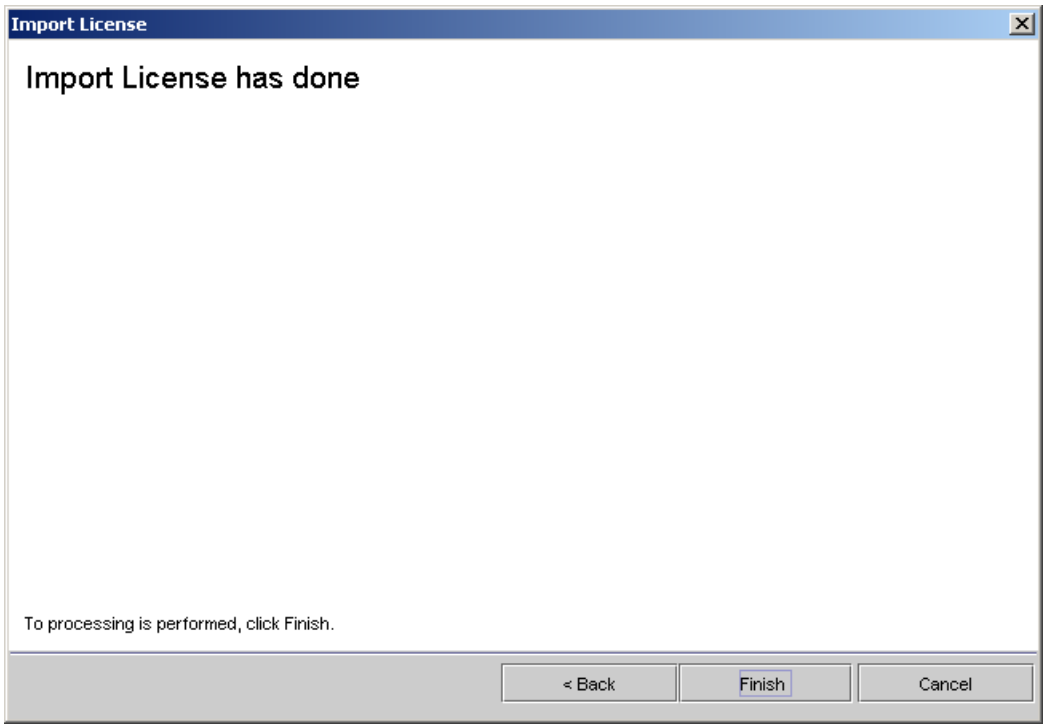
6. The progress of checking the license file will be displayed. If no error is encountered in the checking of the license file, click **[Next]** when the button becomes available.



7. Verify the contents of the license that you applied.



8. Click **[Finish]** in ensuing window to complete application for the license.



3 APPENDIX A: RESTRICTION

The restrictions of PASOLINK^{+} STM-1 equipment are shown below.

For details, please refer to the equipment manual.

1. When the different type of IDU is used at opposite side, the connection is not established.
2. The connectable combination of ODU and IDU is as follows.

✓: Available, –: Not Available

		ODU				
		HG	SHG	UHG	SHG3	UHG3
IDU (1+0/1+1)	STM-1 / 32QAM	✓	✓	✓	✓	✓
	STM-1 / 128QAM	–	✓	✓	✓	✓
	STM-1 / 128QAM / XPIC	–	–	✓	–	✓
	STM-1 / 128QAM / Linearizer	–	–	–	✓	✓

Note: In 1+1 system, two set of ODU with the same grade are only connectable with IDU.

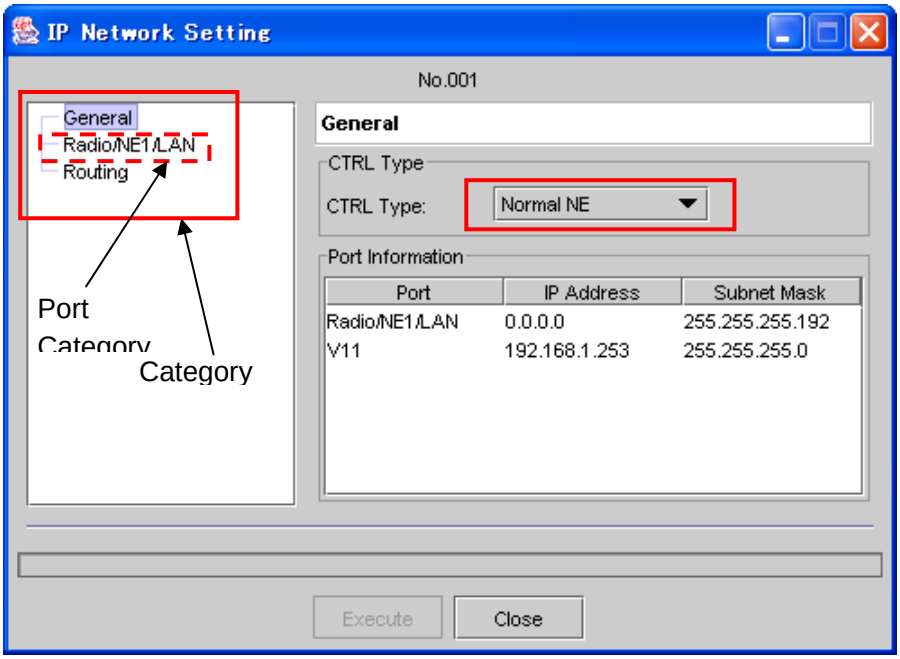
3. For only XPIC systems only, equipment with XPIC master function cannot be used in combination with others without XPIC master.
4. For SUB INTFC only, the H1010A LAN CARD cannot be used in combination with a G7906A LAN CARD on the opposite side, and vice versa. Please be sure to use in combination with the same type of LAN CARD.

4 Appendix B: IP Network Settings

In *IP Network Setting*, the set item of each NE is different. A set item of each NE is depend on selecting CTRL Type.

CTRL Type (General)	Category	Input Item	
Root NE (PNMS Connection: LAN)	General	CTRL Type	
	Radio/NE1	IP Address	
		Subnet Mask	
	PNMS	PNMS Connection	LAN
			V11
		LAN	IP Address
			Subnet Mask
		V11 (Disable)	IP Address (Fix)
			Subnet Mask (Fix)
			Speed (Fix)
	Routing	Default Gateway	
Root NE (PNMS Connection: V11)	General	CTRL Type	
	Radio/NE1/LAN	IP Address	
		Subnet Mask	
	PNMS	PNMS Connection	LAN
			V11
		LAN (Disable)	IP Address
			Subnet Mask
		V11	IP Address (Fix)
			Subnet Mask (Fix)
			Speed (Fix)
	Routing	Default Gateway	
Normal NE	General	CTRL Type	
	Radio/NE1/LAN	IP Address	
		Subnet Mask	
	Routing	Default Gateway	

1. In *Category* → **General** and select two **CTRL Type.**



The NE will appear as follows according to configuration.

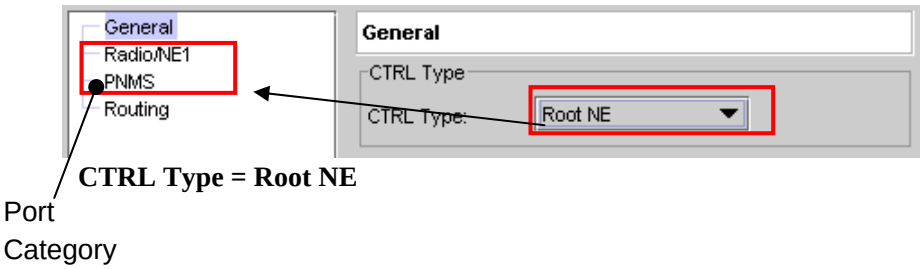
- Root NE

  The nearest NE to PNMS configure as Root NE

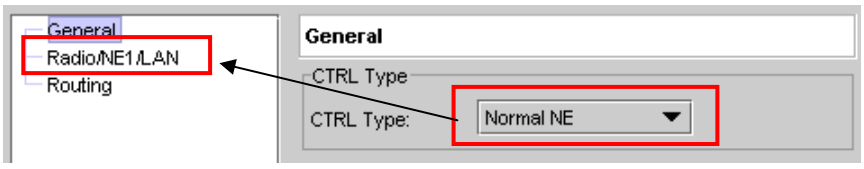
- Normal NE

  The rest of all NE (except above mentioned) is Normal NE.

1. The **Port Category** item changes according to **CTRL Type**.



CTRL Type = Root NE

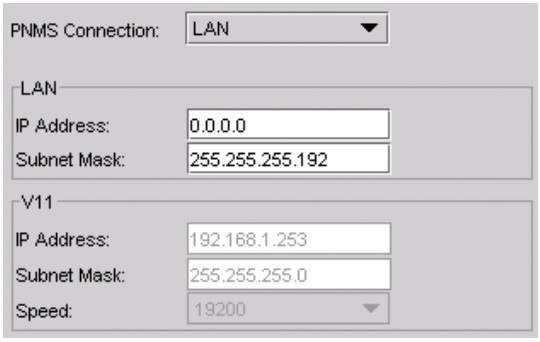


TRL Type = Normal NE

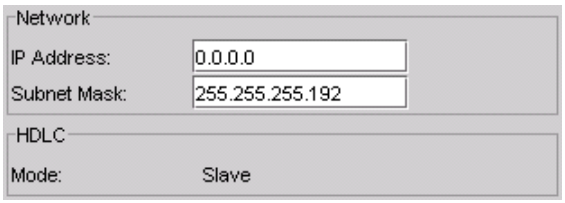
2. Set and select **Port category**. The right hand screen will change according to the selected item in **Category**.

   - IP Address & Subnet Mask

     The following items are set to each Port

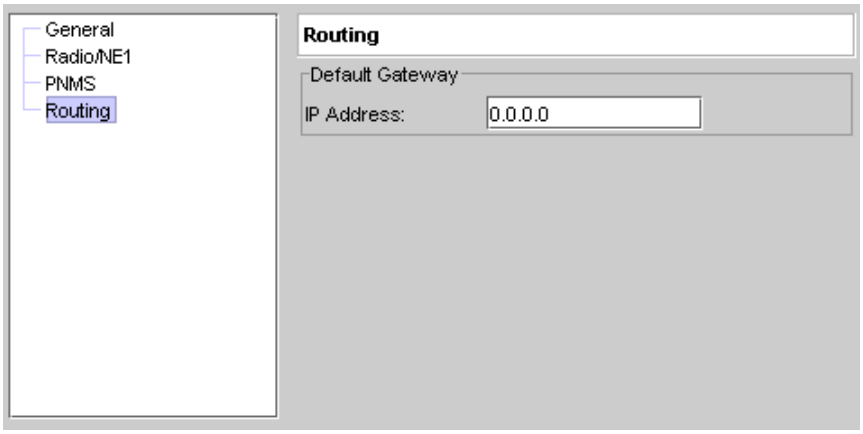


PNMS



Radio/NE1 or Radio/NE1/LAN

3. Set **Default Gateway**.



Routing

4. Click **[Execute]** button to activate the IP Networking setting.

NOTE:

When executing IP Network Setting communication will be lost when the Control module re-initialises to the new system configuration. This WILL NOT affect the wireless link. During this time PNMT connection to the NE will be lost but will automatically be reconnected after the Control module resets.

< Sample Network Configuration >

NOTE

Only SYNC or LAN back to back NMS connection between Mx is supported. ASYNC back to back NMS connection used in multi-drop is NOT supported. Therefore, connections using NE2 port on the Mx should be avoided. In case of multi-drop connection, LAN port can be used together with LAN Hub/Switch.

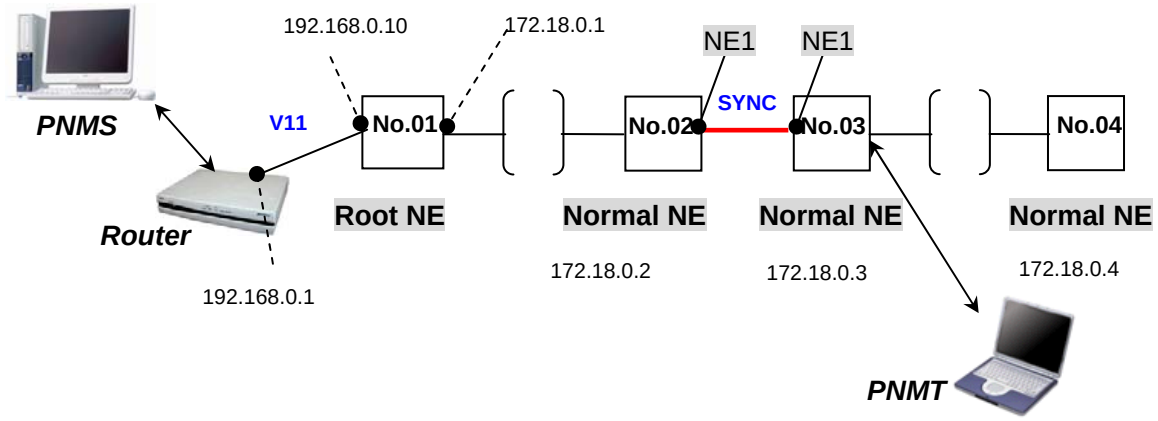
NOTE

It is necessary to set in the fourth octet of IP address in both ends NE of SYNC connection and both ends NE of radio opposition where becomes the pair of the odd number and the even number respectively.

NOTE

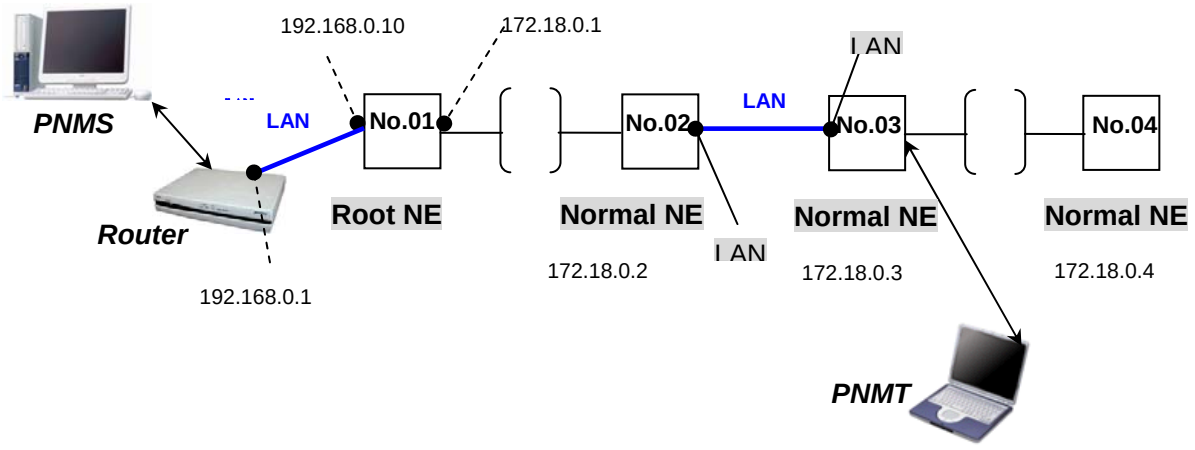
The Mx network which is supported for Auto discovery, Only one subnetwork can be configured (subnetwork is not dividable) and support maximum 62 NEs. Therefore, mixing of other equipments to Mx network should be avoided.

1. Network configuration for SYNC Back-back NMS connection



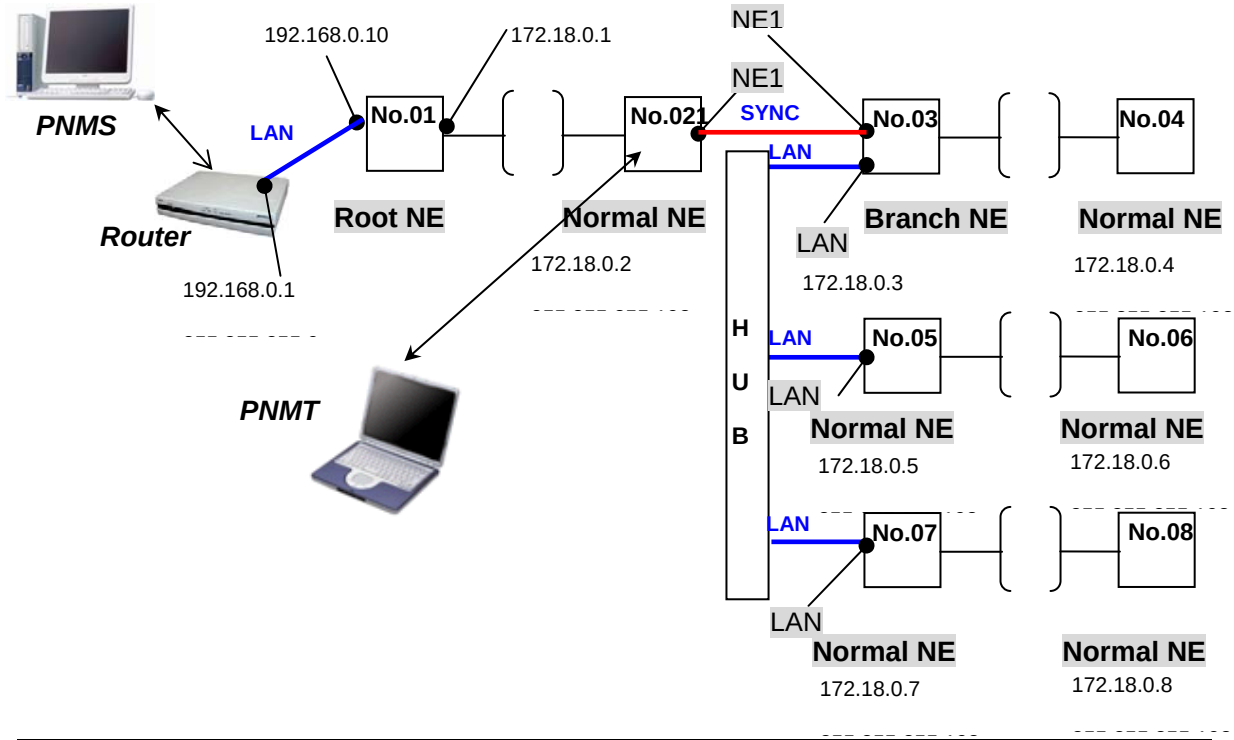
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1/LAN	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: V11)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
			Speed	19200
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.2
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.03	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.3
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.04	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.4
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1

2. Network configuration for LAN Back to back NMS connection



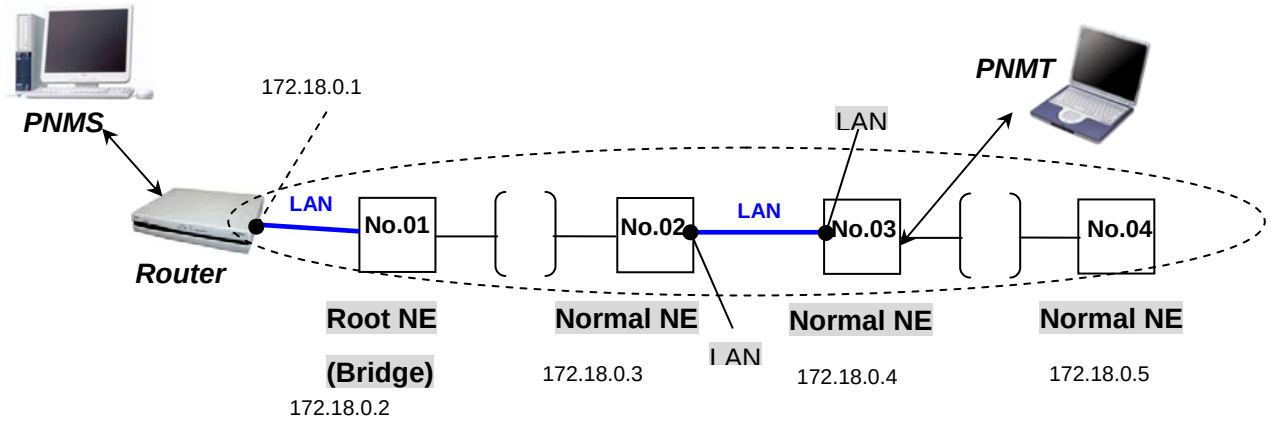
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: LAN)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.2
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.03	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.3
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.04	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.4
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1

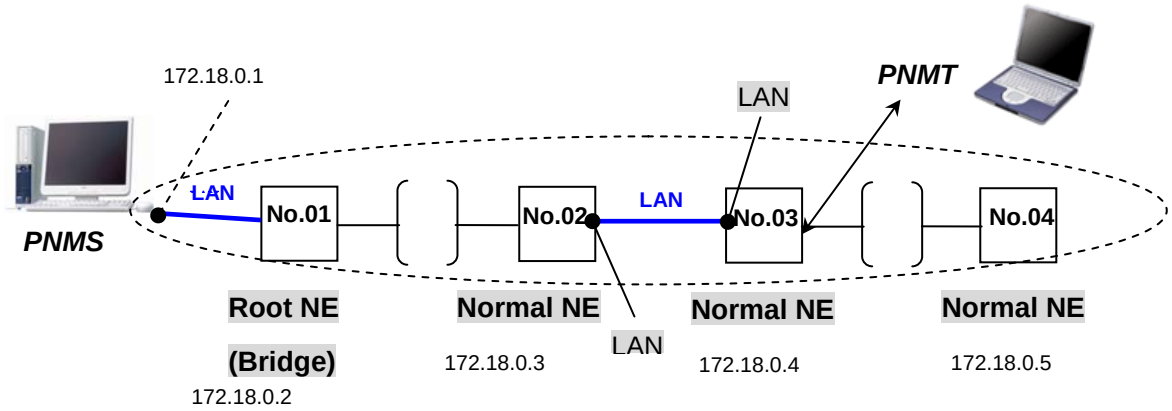
3. Network configuration for LAN Multi-drop NMS connection



NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: LAN)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.2
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.03	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.3
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.04	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.4
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.05	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.5
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.06	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.6
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.07	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.7
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.08	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.8
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1

4. Network configuration for Root NE(Bridge)





NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE (Bridge)	Radio/NE1/LAN	IP Address	172.18.0.2
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.3
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.03	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.4
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1
No.04	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.5
			Subnet Mask	255.255.255.192
		Routing	Default Gateway	172.18.0.1