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NEC

P ASOLINK

N ETWORK

M ANAGEMENT

T ERMINAL

PNMT (Java version) Operation Manual

(for PASOLINK+ PDH)

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, operation modes, set parameters, PNMS/PNMT application version, etc. Screens contained in this manual are current at the time of publication, and may differ slightly from the actual screens 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. Always 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 its PASOLINK and 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 PASOLINK series 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)	Items (phrases) in the user interface. Items (phrases) in the computer display. File and directory names.	The **Overall window** … ***Confirm New Password***
[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 menu and then a item. When the 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 are possible:

- 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 on the front of the PASOLINK+ unit.

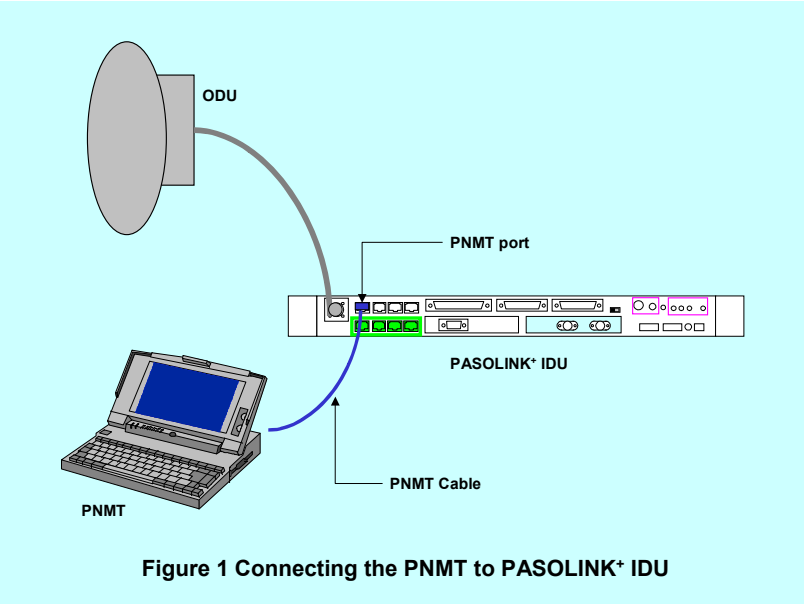


Figure 1 Connecting the PNMT to PASOLINK+ IDU

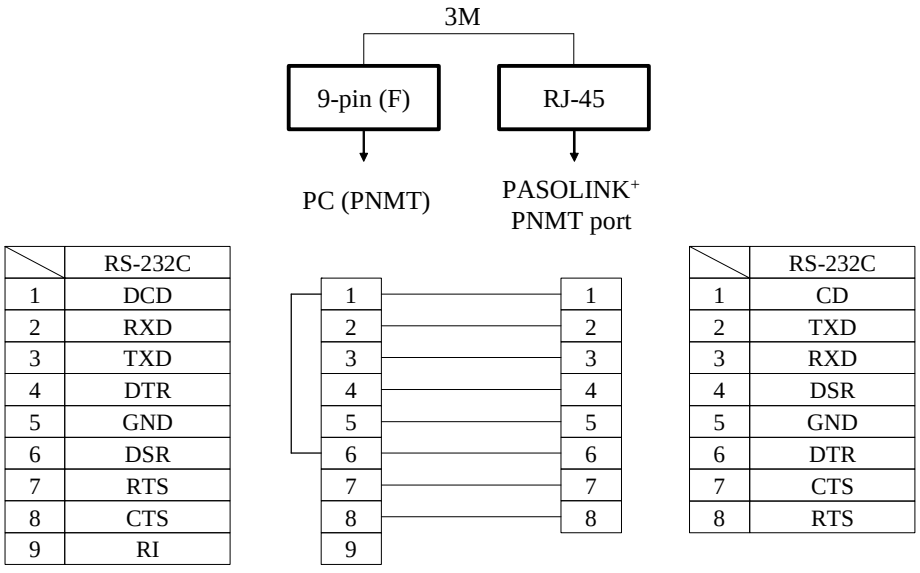
The **PNMT** port consists of an RJ-45 connector that plugs in to the Control (CTRL) Module installed in the IDU via a serial cable which connects to the relevant communications port of the PNMT Computer.

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 shows the pin allocation 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

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

Cabling Diagram for PNMT PC to PNMT Port connections

2 System Operation & Maintenance

This chapter explains the menu structure and procedures for operating 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 a window.

- **Standard Menu Bar**

  The common menu bar of the window presents the **System** and **Help** options, which commands that 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 functions involving the network element (NE) displayed in the PNMT. **Configuration**, **Event Log**, and **Link Performance Monitor** functions can be executed with the NE-specific Menu bar.

- **Block Diagram**

  The block diagram shows the equipment comprising the PASOLINK^{+} wireless communication system. Its main purpose is to show the current alarm status summary for the equipment in the display window. You can click a specific block to display the status of the network elements (NE) in the data window.

- **Data Window**

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

- **Tabs**

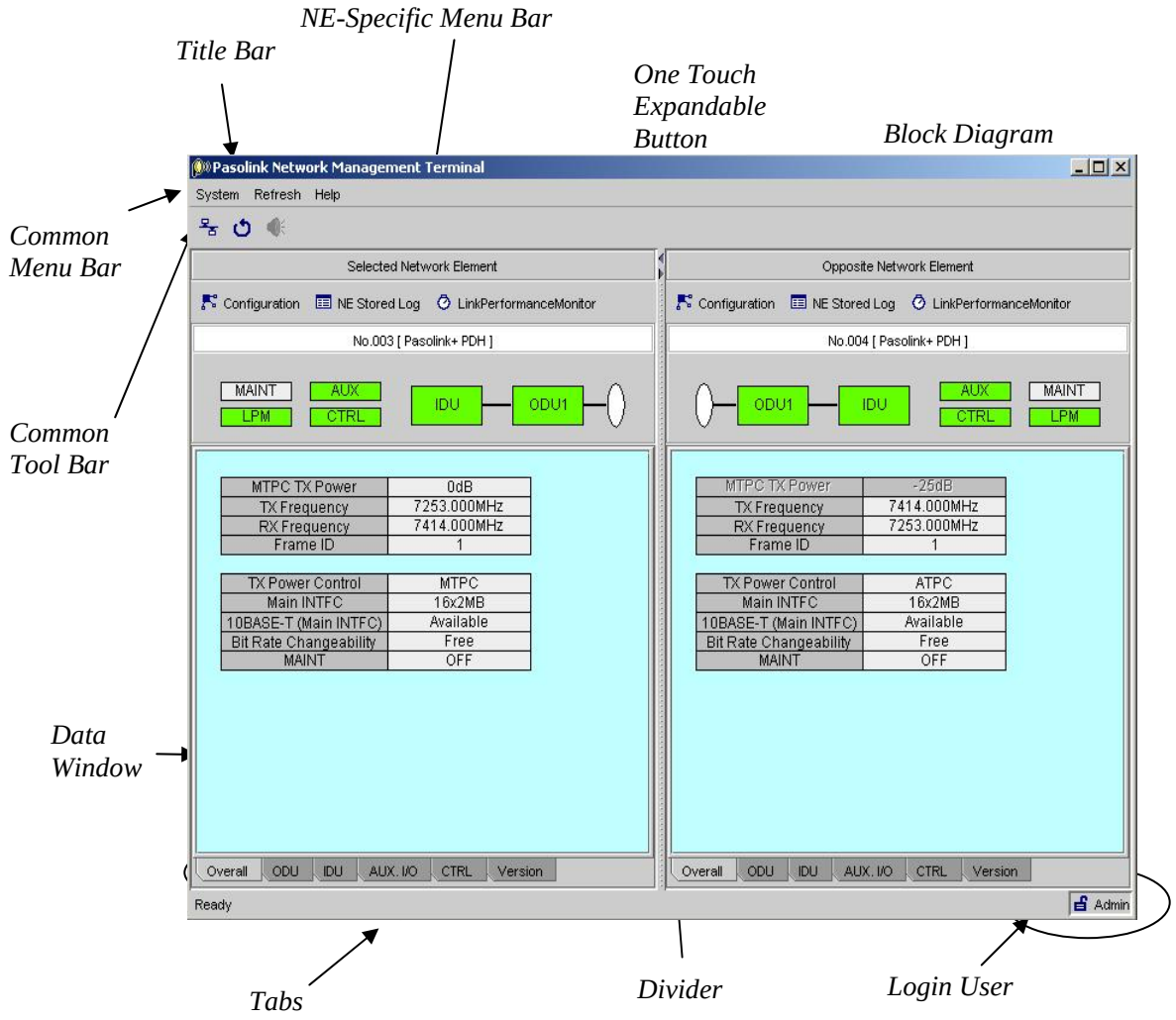
  To view the status and alarms in the PASOLINK radio, click tab at the bottom of the Data window.

- **User Login**

  This indicates the user who is currently logged-into 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 expand either of the screens by moving the divider to the right or left.



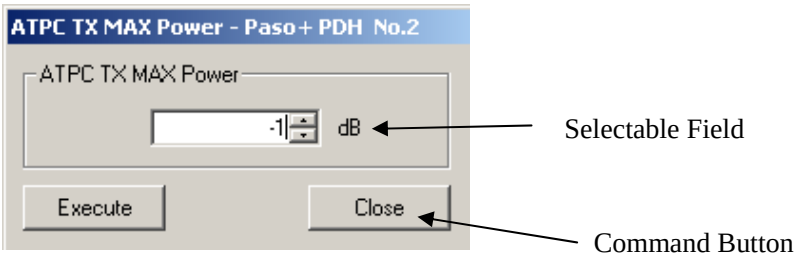


Fig. 1: Standard Components of PNMT window

2.2 Launching the PNMT Application

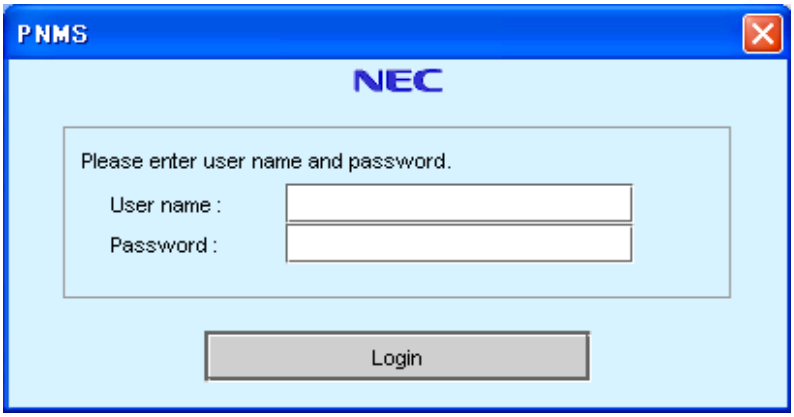
To start PNMT:

1. Turn system power ON.

NOTE

Connect the PNMT cable 30seconds 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 OS.
3. Click **Start → Programs → Pnmt → Pnmt**, then continue to PNMT system logo, the PNMT main window appears. (See display below.)



NOTE

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

2.3 Login

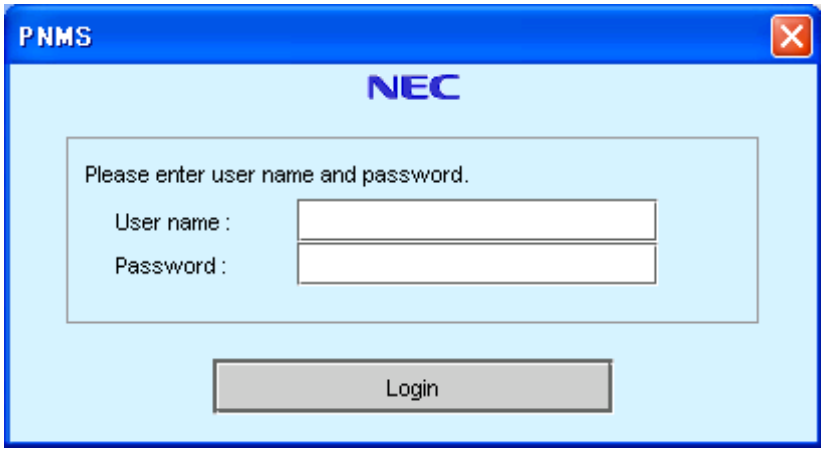
Users are registered by means of login name and password.

To protect the network and the network management system from unauthorized access or 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 in the window depend on the individual user's access level.

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

To login:

1. Start PNMT, and then the **Login** window appears.



2. Enter the <user name>.

3. Enter the valid <password> for the specific user.

4. Click **[Login]**.

2.3.1 User Access Privilege Levels

✓: Available, –: Not Available

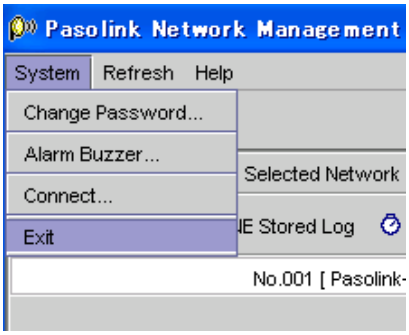
Function			User Name and Accessible Functions				
Category		Item	Monitor	User	Local	Remote	Admin
System		Alarm Buzzer	–	✓	✓	✓	✓
		Connect (Remote Login)	–	–		✓	✓
Provisioning	MTPC	MTPC TX Power	–	–	✓	✓	✓
		RX Threshold Level	–	–	✓	✓	✓
		Additional Attenuation	–	–	✓	✓	✓
	ATPC	ATPC MAX Power	–	–	✓	✓	✓
		ATPC MIN Power	–	–	✓	✓	✓
		RX Threshold Level	–	–	✓	✓	✓
		Additional Attenuation	–	–	✓	✓	✓
	TX Power Control on ALM	ODU ALM Mode	–	–	✓	✓	✓
	BER ALM	BER Threshold	–	–	✓	✓	✓
	TX SW Priority	TX SW Priority	–	–	✓	✓	✓
	RX SW Priority	RX SW Priority	–	–	✓	✓	✓
	Channel Usage Error	Channel Usage Error	–	–	✓	✓	✓
	Main INTFC	Main Usage (CH01-04)	–	–	✓	✓	✓
		Main Usage (CH05-16)	–	–	✓	✓	✓
		WAN FRAM (CH01-04) for 10Base-T	–	–	✓	✓	✓
		WAN CAS (CH01-04) for 10Base-T	–	–	✓	✓	✓
		WAN CRC (CH01-04) for 10Base-T	–	–	✓	✓	✓
	Sub Baseband Interface	10Base-T	–	–	✓	✓	✓
		Wayside	–	–	✓	✓	✓
	SC Assignment	Assignment	–	–	✓	✓	✓
		Channel Usage	–	–	✓	✓	✓
		DSC 64K Directional Interface Setting	–	–	✓	✓	✓
Maintenance		MAINT	–	✓	✓	✓	✓
		TX/RX Frequency	–	–	✓	✓	✓
		TX Switch	–	–	✓	✓	✓
		TX Mute	–	–	✓	✓	✓
		IF Loopback	–	–	✓	✓	✓
		Main 2M Loopback-1 (CH01-16)	–	–	✓	✓	✓
		Main 2M Loopback-2 (CH01-16)	–	–	✓	✓	✓
		All CH Reset	–	–	✓	✓	✓
		CW	–	–	✓	✓	✓
		BER AIS	–	–	✓	✓	✓
		ATPC Manual Control	–	–	✓	✓	✓
		RX Switch	–	–	✓	✓	✓
		Antenna Alignment Mode	–	–	✓	✓	✓
Equipment Setup		Equipment Setup	–	–	✓	✓	✓
		NE Name	–	–	✓	✓	✓
		Note	–	✓	✓	✓	✓
Auxiliary I/O		Input	–	✓	✓	✓	✓
		Output	–	✓	✓	✓	✓
		Relay Configuration	–	✓	✓	✓	✓
Performance Monitor		PMON Threshold (Total, CH01-16)	–	✓	✓	✓	✓
		All Channels Setting	–	✓	✓	✓	✓
		Save to disk	–	✓	✓	✓	✓
Event Log		Save to disk	–	✓	✓	✓	✓
CTRL	Control	Date/Time	–	–	✓	✓	✓
	Download	Network Configuration File	–	–	✓	✓	✓
		Program File	–	–	✓	✓	✓
		Equipment Configuration File	–	–	✓	✓	✓
	Upload	Network Configuration File	–	–	✓	✓	✓
		Equipment Configuration File	–	–	✓	✓	✓
	CPU	Reset	–	–	✓	✓	✓

Admin: Enabled to access all NEs and all the functions.
Remote: Enabled to access all NEs and all the functions excepting to change the Configuration File, Program File.
Local: Enabled to access to Local and Opposite NE and all the functions excepting to change the Configuration File, Program File.
User: Enabled to access to Local and Opposite NE and the functions which do not affect the equipment.
Monitor: Enabled to only monitor the Local and Opposite NE

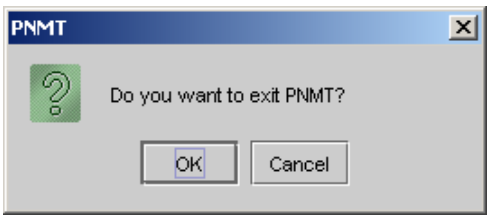
2.4 Shutting Down PNMT

To exit the PNMT application:

1. Click **System → Exit** on the menu bar of the PNMT main window.



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

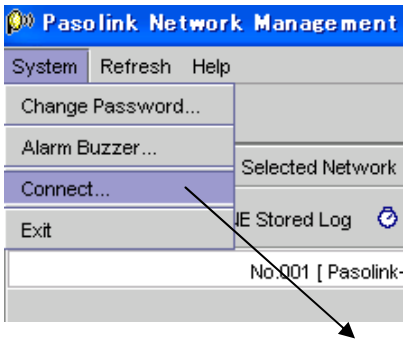


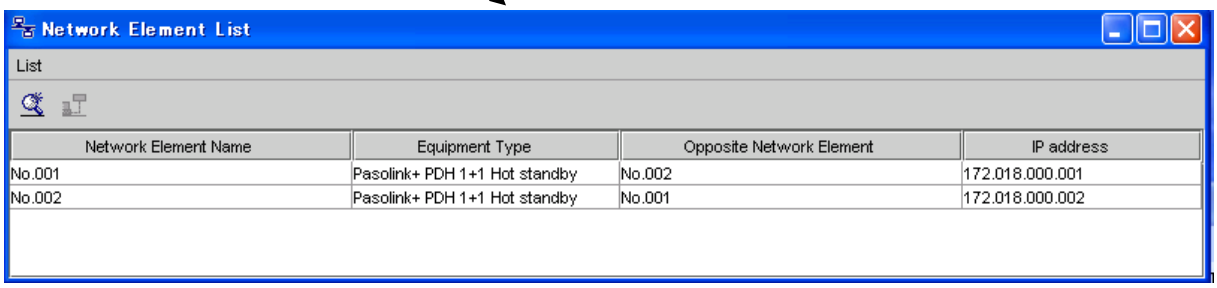
2.5 Searching for Selected Network Elements and Connecting to Them

The summary description (NE name, Equipment type, Opposite NE, etc.) for the NE that the PNMT is currently connected to (as well as their opposite NE can be displayed with this function.

To search for, or connect PNMT to, a particular NE:

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





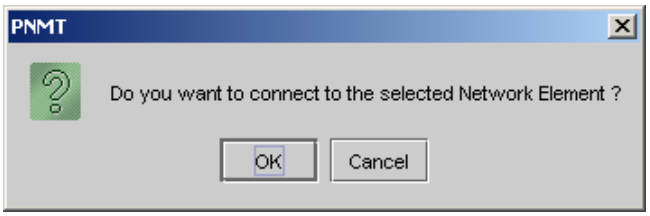
NOTE

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

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.

2. Select and highlight the network element to be viewed.

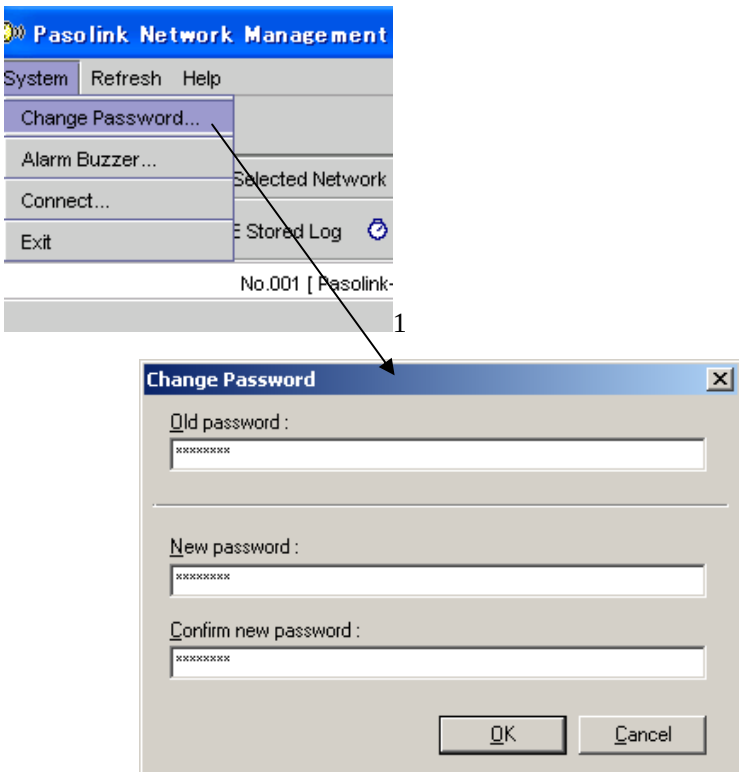
3. Click the Connect to network Element( ) icon in the tool bar or **List □ Connect to Network Element** in the menu bar of the **Network Element List** window. The PNMT main window of the selected network element and its opposite NE counterpart will be displayed.



2.6 Change Password

To change the password:

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



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

NOTE

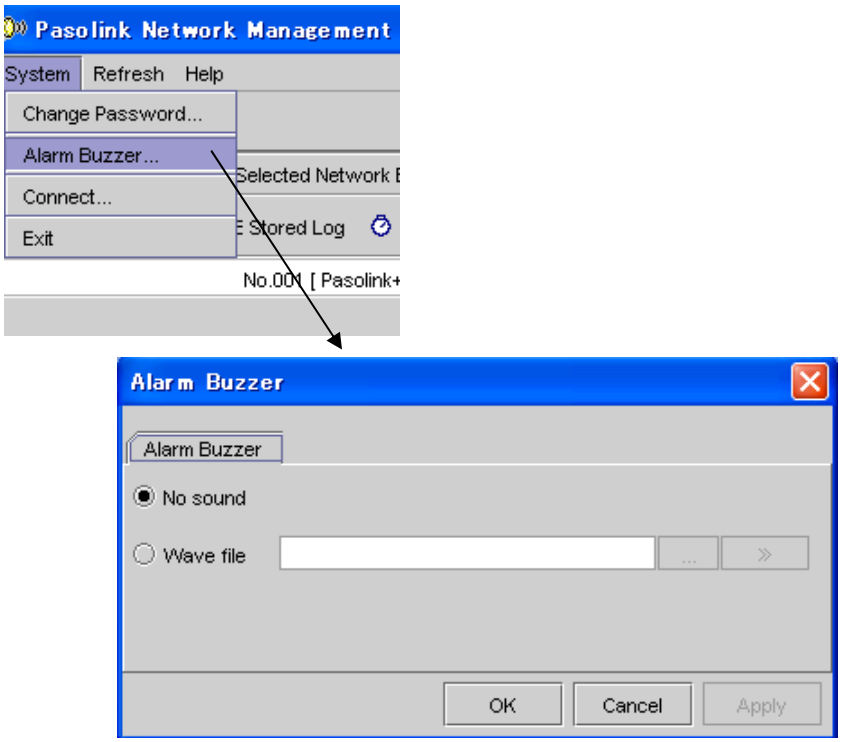
For details on initial user name and password, please refer to PNMT Installation manual.

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** or **Beep** box to activate the buzzer. (**No sound** is the initial factory setting of the PNMT).

3. If you select the **Wave file** box, 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. If you select the **Beep** box, click **[Edit…]** to edit the beep with its frequency and duration. You can also preview the Beep by click the arrow next to the **[Edit…]**browse button.

4. Click **[OK]** to activate the new setting.

NOTE

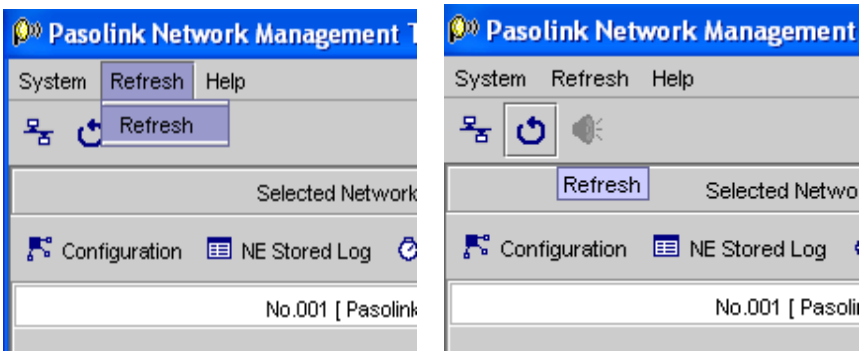
When the text box is blank, it is possible to set it. In this case, the buzzer does not sound even though the buzzer stop function is enabled.

2.8 Refresh

This function is available only for PNMT. This function enables PNMT to acquire all status data manually and NE information to be updated.

To Refresh:

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



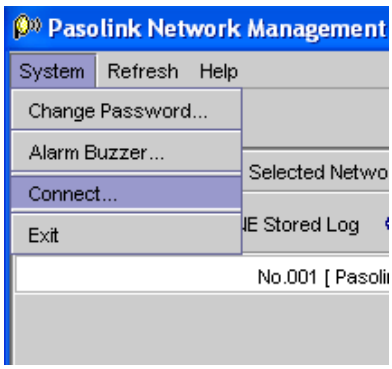
NOTE

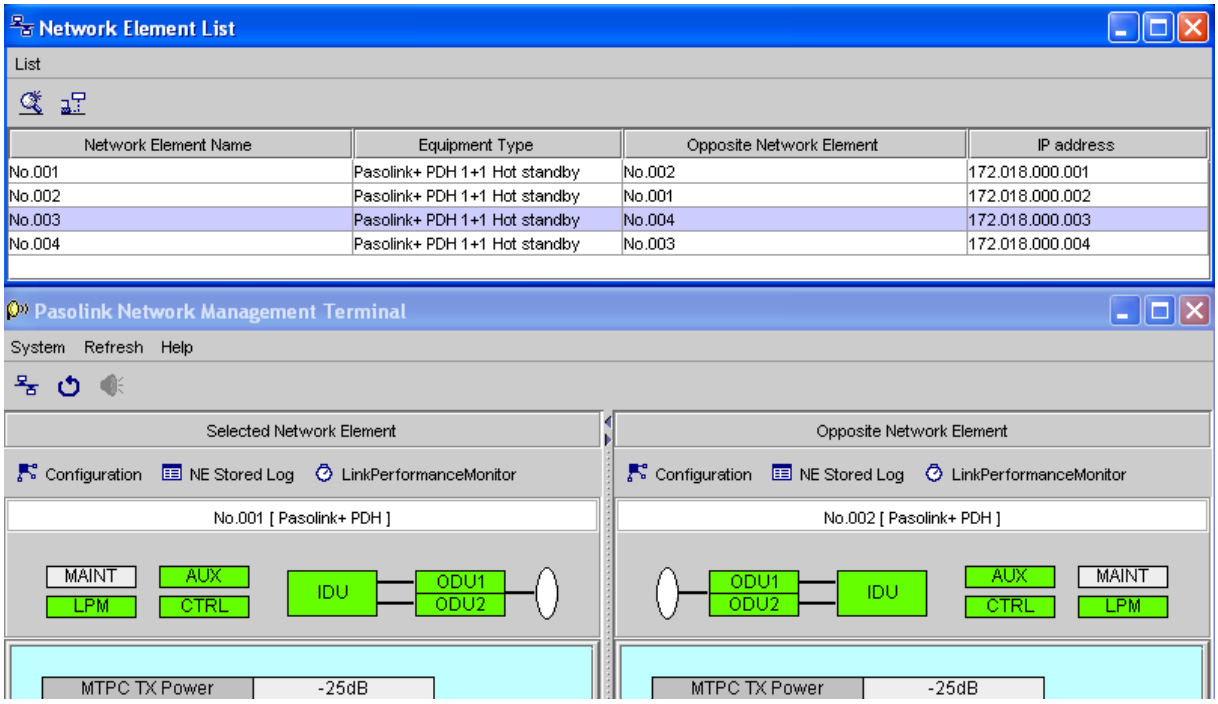
Metered items such as TX power, RX level, power supply and BER are automatically refreshed every 15 seconds. This function is used when the data from the metered items needs to be immediately refreshed or when immediate confirmation of all current status information is required.

2.9 Remote Viewing PNMT main window

You can view a target link within one Root NE in the Pasolink network by searching through the connected NEs and then connecting a target NE to PNMT. Please refer to **Section 2.6 Searching for and Connecting Selected NE to PNMT**. This function allows remote connection with any NE in the network.

NOTE: with multi-Root NE networks, you can only connect to NE's that are being polled by the same Root NE as the local NE to which you are directly connected – via the PNMT cable.





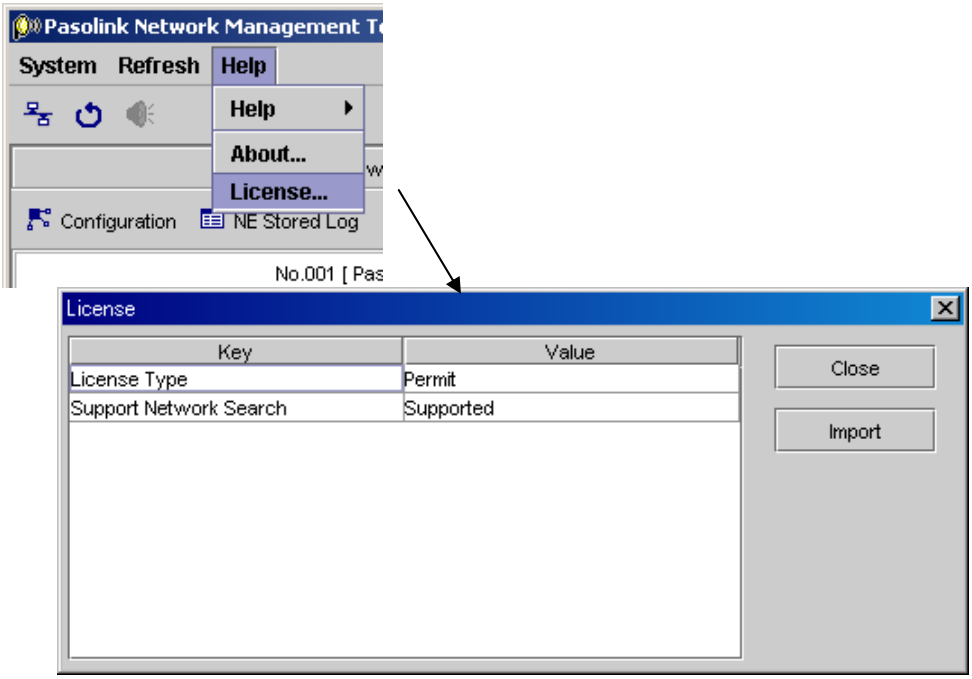
PNMT Main window (1+1 configuration)

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.

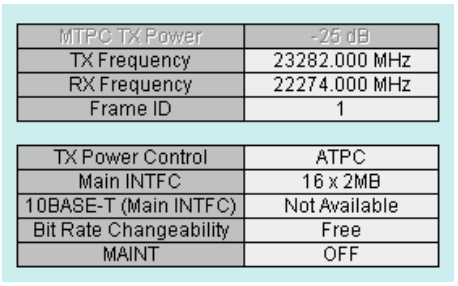


If you wish to change the license file, click **[Import]**.

2.11 Overall Tab

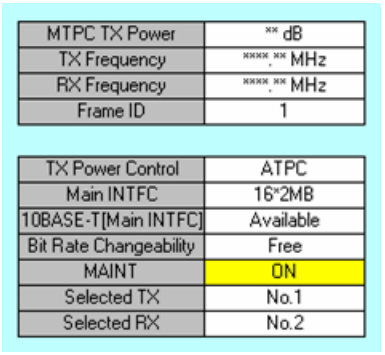
This tab is displayed at startup. The overall tab provides an overall snapshot of the most significant monitored items in the NE.

Overall Tab
(1+0 configuration)



MTPC TX Power	-25 dB
TX Frequency	23282.000 MHz
RX Frequency	22274.000 MHz
Frame ID	1

TX Power Control	ATPC
Main INTFC	16 x 2MB
10BASE-T (Main INTFC)	Not Available
Bit Rate Changeability	Free
MAINT	OFF



MTPC TX Power	** dB
TX Frequency	****.** MHz
RX Frequency	****.** MHz
Frame ID	1

TX Power Control	ATPC
Main INTFC	16*2MB
10BASE-T[Main INTFC]	Available
Bit Rate Changeability	Free
MAINT	ON
Selected TX	No.1
Selected RX	No.2

Overall Tab
(1+1 Hot-standby configuration)

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

The following items are displayed with 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 currently used transmission frequency.
- **RX Frequency** – the currently used reception frequency.
- **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 PDH signal are: 10BASE-T or 2M.
- **10BASE-T(Main INTFC)** – shows whether 10BASE-T INTFC is available in Main INTFC or not.
- **Bit Rate Changeability** – shows whether the user can change the bit rate or not. In case of Fixed, the rate depends on the equipment. Note that only Bit-Free equipment have changeable bit rate.
- **MAINT** – the current Maintenance status.
- **Selected TX** (for Hot standby configuration only) – shows the currently used signal transmission system.-

Selected RX (for 1+1 system only) – shows the currently used signal reception system.

2.12 ODU Tab

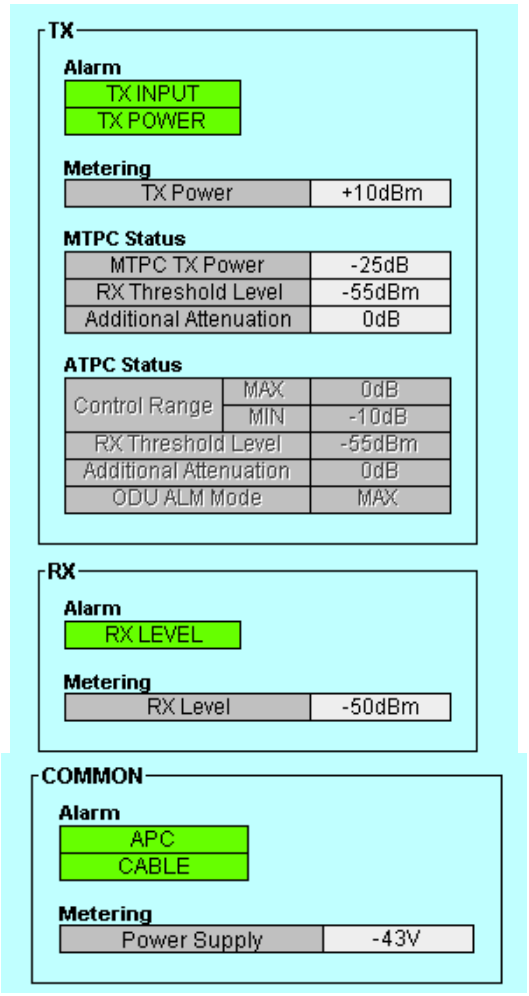
This function is used to display the values and status of the monitored items of the ODU. This window only displays current settings and there are no control functions associated with this window.

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

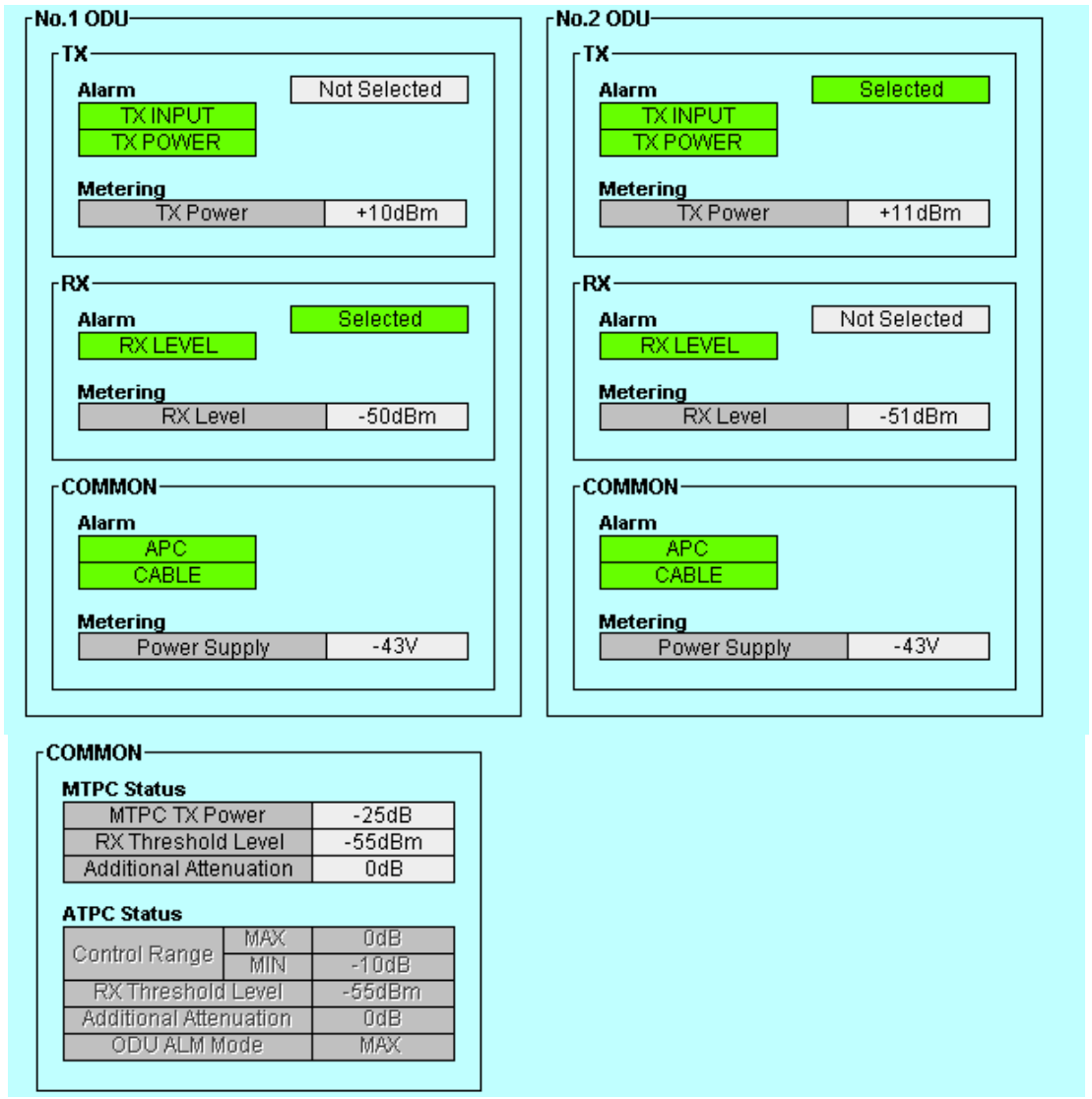
2.12.1 ODU Tab

To view the alarm and status display of the ODU:

1. Click the **ODU** tab in Link Summary window of the target NE.



ODU window (1+0 configuration)



ODU window (1+1 configuration)

Monitored items

TX PORTION

Alarm

- TX INPUT: alarm occurs when the TX IF input signal from the IDU is lost
- TX POWER: TX RF Power decreases 3 to 6 dB from nominal value.

Metering

TX Power: The transmitted power of the ODU in dBm.

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

- MTPC Attenuation *
- RX Threshold Level*
- Additional Attenuation*
- ODU ALM Mode*

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

- Control Range*
- RX Threshold Level*
- Additional Attenuation*
- ODU ALM Mode *

RX PORTION

Alarm

RX LEVEL: alarm occurs when the input level decreases by preset value from squelch level. (See Provisioning: RX Threshold)

Metering

RX Level: The received level interpreted in dBm.

COMMON PORTION

Alarm

- APC – this alarm occurs when the Local Oscillator is locked out.
- CABLE – this alarm occurs when the communication between the ODU and the IDU is lost.

Metering

Power Supply: Display PS value (V)

* For the detailed description of theses items see *2.16 Equipment Setup* and *2.17 Provisioning*.

2.13 IDU Tab

This function displays the values and status of the monitored items of the IDU. This window only displays current settings and there are no control functions 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. Only the TX, RX and Common portion is different for both systems.

Monitored Items

MODULE

Alarm

- MAIN INTFC – alarm occurs when the MAIN INTFC module fails.
- SUB INTFC – alarm occurs when the WS INTFC/LAN CARD fails.
- MODEM – alarm occurs if there is a modem failure.

TX PORTION

Alarm

MOD - alarm occurs when the TX unit (modem) failed.

Status

Selected (for 1+1 systems only)

RX PORTION

Alarm

DEM – alarm occurs when the RX unit (demodulator) fails or the IF signal is lost.

LOF – loss of frame occurred

BER

COMMON PORTION

Alarm

- INTFC TX ALM – alarm occurs when TX is lost.
- INTFC RX ALM – alarm occurs when the RX is lost.
- SUB INTFC 2M LOS – alarm occurs when the 10BASE-T/DSC/Wayside signal is lost.

  MDCPU – alarm when there is a failure in the communication between modules.

MAIN INTFC

Usage

LOS

AIS RCVD

Usage Error

Sub INTFC

10BASE-T

DSC 64KB

Wayside

2M AIS RCVD

SH Assignment:

Assignment*

DSC 64KB-1

DSC 64KB-2

DSC 9.6KB-1

DSC 9.6KB-2

VF

Cluster ALM

10BASE-T(DSC)

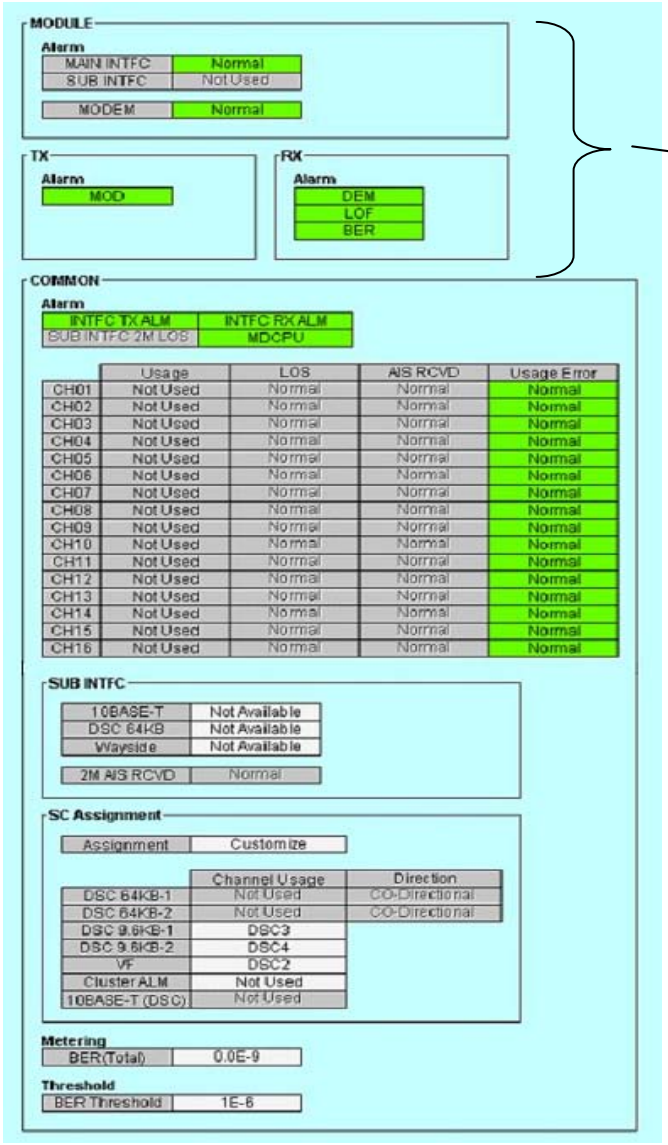
Metering

BER: The current overall value of the Bit-Error-Rate

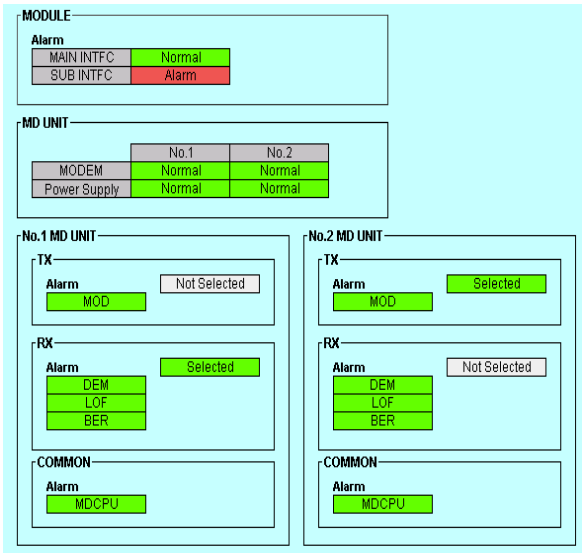
BER ALM Threshold

- The current value of the BER threshold.

For the detailed description of this items see *2.15 Equipment Setup* and *2.17 Provisioning*



IDU window (1+0 configuration)



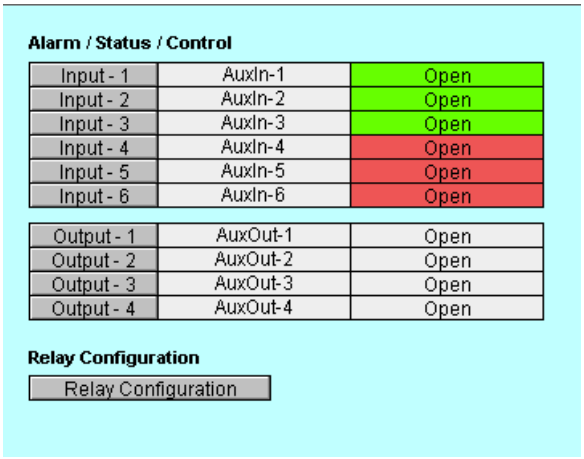
IDU window (1+1 configuration)

2.14 Auxiliary I/O Tab

4-relay output and 6 photocoupler inputs are provided in the IDU for external control and alarms. The setting for each relay output/photocoupler input is enabled 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

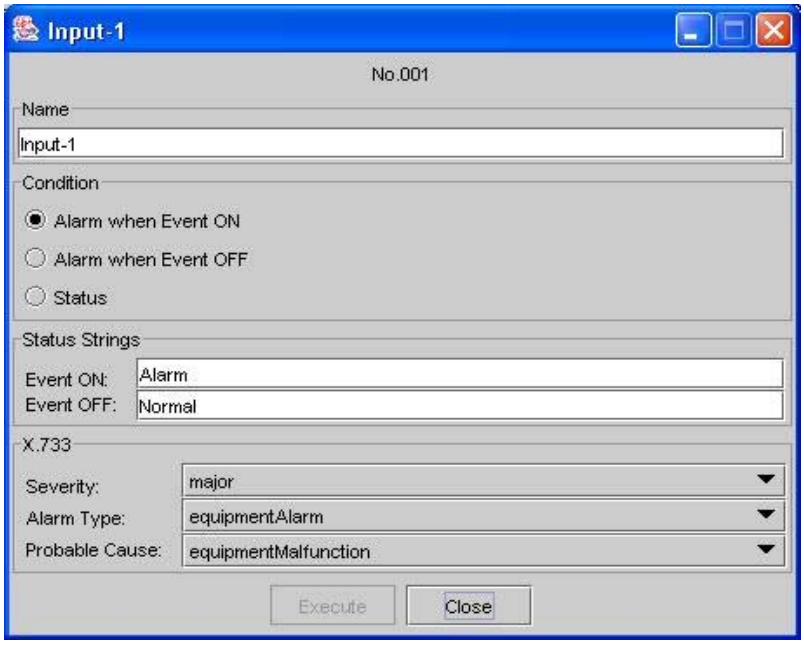
The following items are monitored in this tab:

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

2.14.2 Photocoupler Input Setting

To set the photocoupler input:

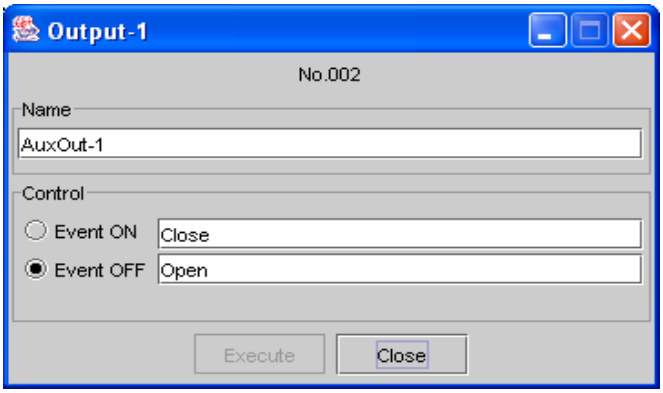
1. Click the selected **[Input-*n*]** from the **Aux. I/O** tab view. The inputted properties will be displayed in the ensuing window.



2.14.2.1 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 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 the 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 32 characters can be used.
3. Click **[Execute]** to activate the selected state of the device.
4. Click **[Close]** when finished.

2.14.3 Relay Output Setting



To set the relay output:

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

2.14.4 Relay Configuration

There are 11 relays in the PASOLINK+ IDU. Consequently, 11 parallel alarms/controls 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.

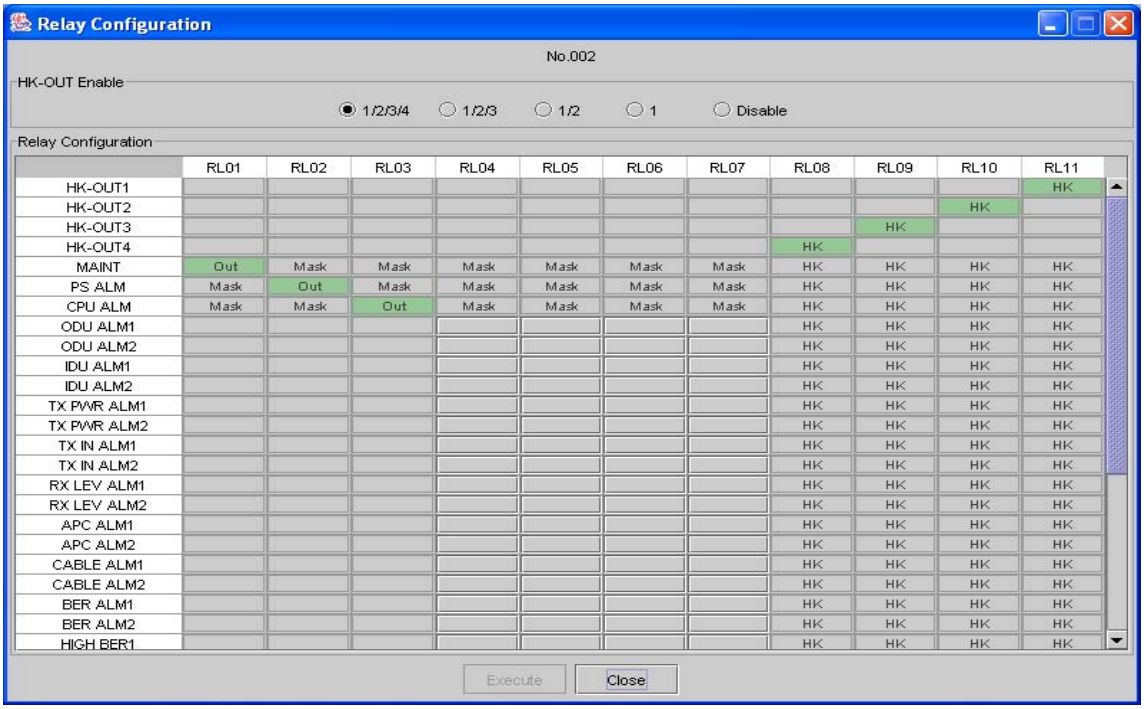
RL04 to RL11 are user-definable relays. If the HK-OUT's are enabled, RL08 to RL11 are allocated for Housekeeping (HK) controls.

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/controls 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" means all HK-OUT's will be enable; "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".



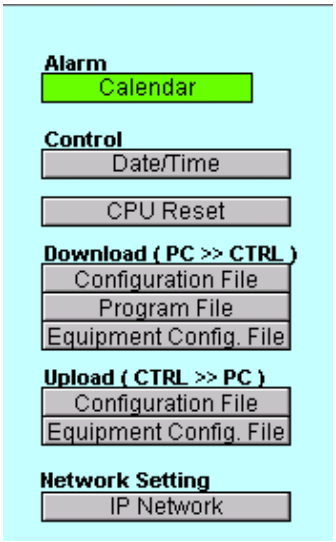
	RL01	RL02	RL03	RL04	RL05	RL06	RL07	RL08	RL09	RL10	RL11
HK-OUT1											HK
HK-OUT2										HK	
HK-OUT3									HK		
HK-OUT4								HK			
MAINT	Out	Mask	Mask	Mask	Mask	Mask	Mask	HK	HK	HK	HK
PS ALM	Mask	Out	Mask	Mask	Mask	Mask	Mask	HK	HK	HK	HK
CPU ALM	Mask	Mask	Out	Mask	Mask	Mask	Mask	HK	HK	HK	HK
ODU ALM1								HK	HK	HK	HK
ODU ALM2								HK	HK	HK	HK
IDU ALM1								HK	HK	HK	HK
IDU ALM2								HK	HK	HK	HK
TX PWR ALM1								HK	HK	HK	HK
TX PWR ALM2								HK	HK	HK	HK
TX IN ALM1								HK	HK	HK	HK
TX IN ALM2								HK	HK	HK	HK
RX LEV ALM1								HK	HK	HK	HK
RX LEV ALM2								HK	HK	HK	HK
APC ALM1								HK	HK	HK	HK
APC ALM2								HK	HK	HK	HK
CABLE ALM1								HK	HK	HK	HK
CABLE ALM2								HK	HK	HK	HK
BER ALM1								HK	HK	HK	HK
BER ALM2								HK	HK	HK	HK
HIGH BER1								HK	HK	HK	HK

3. Click 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 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 Configuration File
- Upload Configuration File
- Upload Equipment Configuration File
- IP Network Setting

NOTE

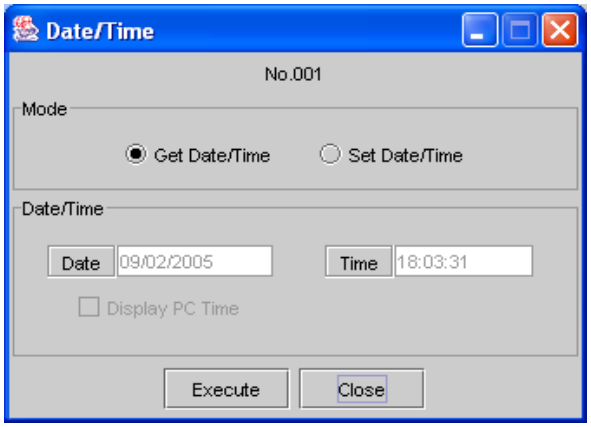
***Only** PDH CTRL version **1.2.1** or higher supports Auto-discovery and the connection to PNMT displays "IP Network Setting" items*

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 synchronize the Date and Time fields with the PNMT computer, tick (check) the Display PC Time box.

2 To check the Date and Time on the Control module:

2.1 Select **Get Date/Time** in the Date/Time window.

2.2 Click **[Execute]**.

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

3 To set the Date and Time on the Control module:

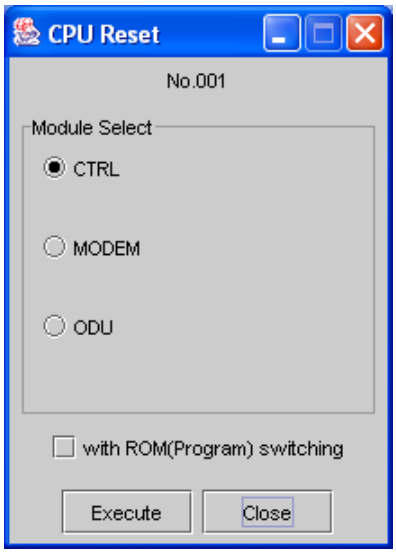
3.1 Select **Set Date/Time** in the Date/Time window.

3.2 Click **[Execute]**.

3.3 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 traffic. The connection to the selected NE will be disrupted a few minutes but will be automatically restored.

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 wish to switch to a newly downloaded control module program file.
3. Click **[Execute]** to continue the control module resetting.

NOTE

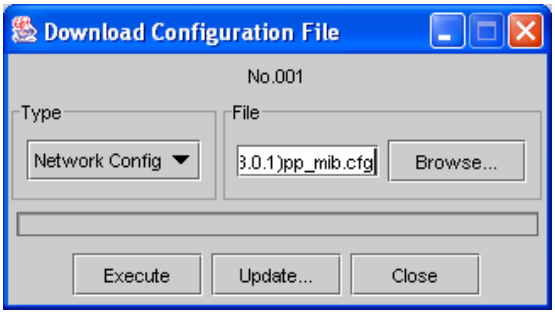
Be sure to switch ON maintenance mode before executing CPU Reset.

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 CTRL as well as the IP address of the opposite station and the information about the PASOLINK network where the CTRL is located. The **pp_mib.cfg** contains the information about the equipment (i.e. name, pm type, etc.) and housekeeping (AUX I/O)

To download new configuration file to CTRL:

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 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.

NOTE

Be sure to first switch ON maintenance mode before executing: Download Configuration File.

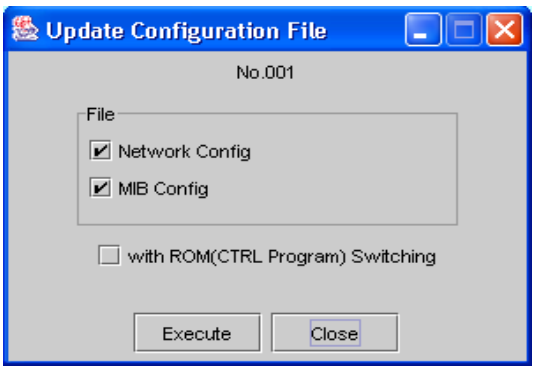
5. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

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).
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 discussed in section *2.14.5 Downloading a new Program file to the Control Module*.



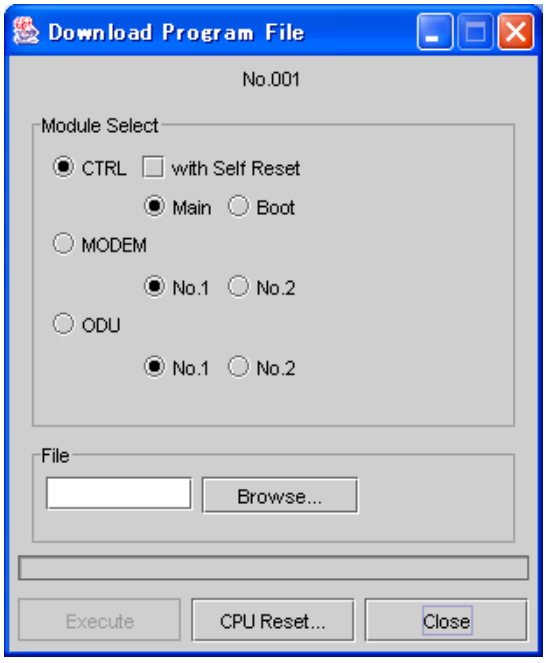
NOTE

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 wirelesso link. During this time PNMT connection to the NE will be disrupted but will be restored automatically after the Control module resets.

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 tick 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 thru 8.
3. Enter the appropriate location of the program file (*.out) in the **File** field. Otherwise, click **[Browse]** to locate the file.

WARNING!!!

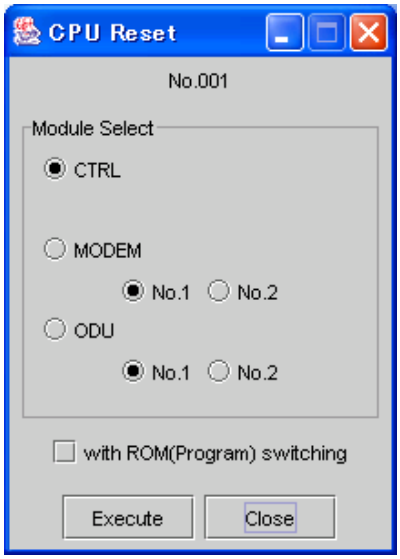
Make sure that the correct program file is downloaded to the Control module. Incorrect program files may lead to Control module or network failure.

4. Click **[Execute]** to start the operation.

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

NOTE

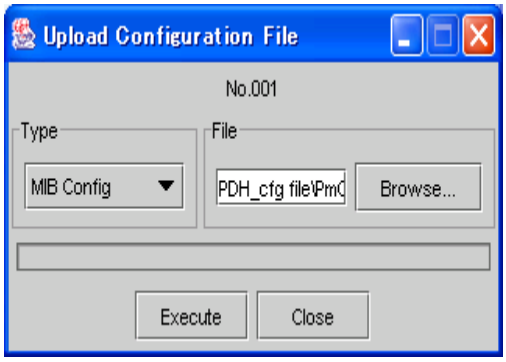
The connection to the selected NE will be disrupted for a few minutes but will automatically be restored.

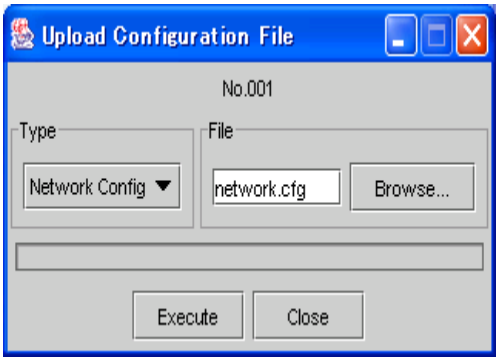
2.15.6 Uploading Control Module Configuration File to PNMT PC

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.



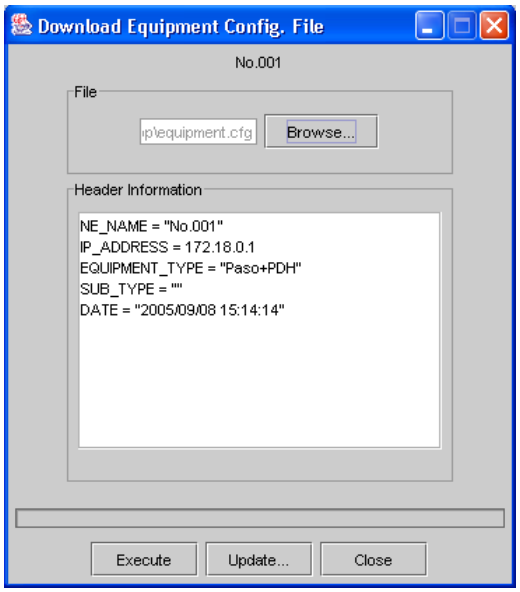


2. Select the type of file to be uploaded on the **Type** field.
3. Enter the desired file name for the uploaded file. And select and the directory where the uploaded file will be saved.
4. Click **[Execute]** to start the operation.
5. A message window indicating the status of the operation will appear. It will close automatically once the operation is completed.
6. After the upload is finished click **[Close]**.
7. Verify that the file was uploaded on the specified directory.

2.15.7 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 radio configuration data (i.e. frequency, main interface) and provisioning data (i.e. SC assignment, BER alarm threshold).

To download new equipment 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 diskette.

WARNING!!!

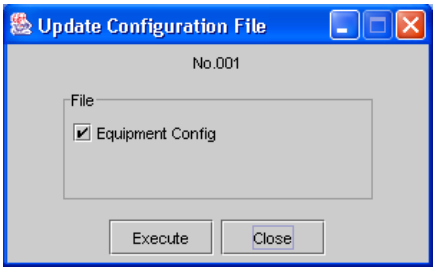
Make sure that the correct configuration file is downloaded to the Control module. Incorrect configuration file may lead to Control module failure or traffic disruption.

3. Click **[Execute]** to start the operation.
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.

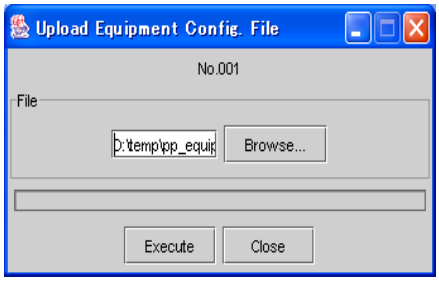
5. Click **[Update]** to activate the new equipment configuration file. Click **[Execute]** to start the operation.
6. Click **[Close]** when done.



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 a 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.

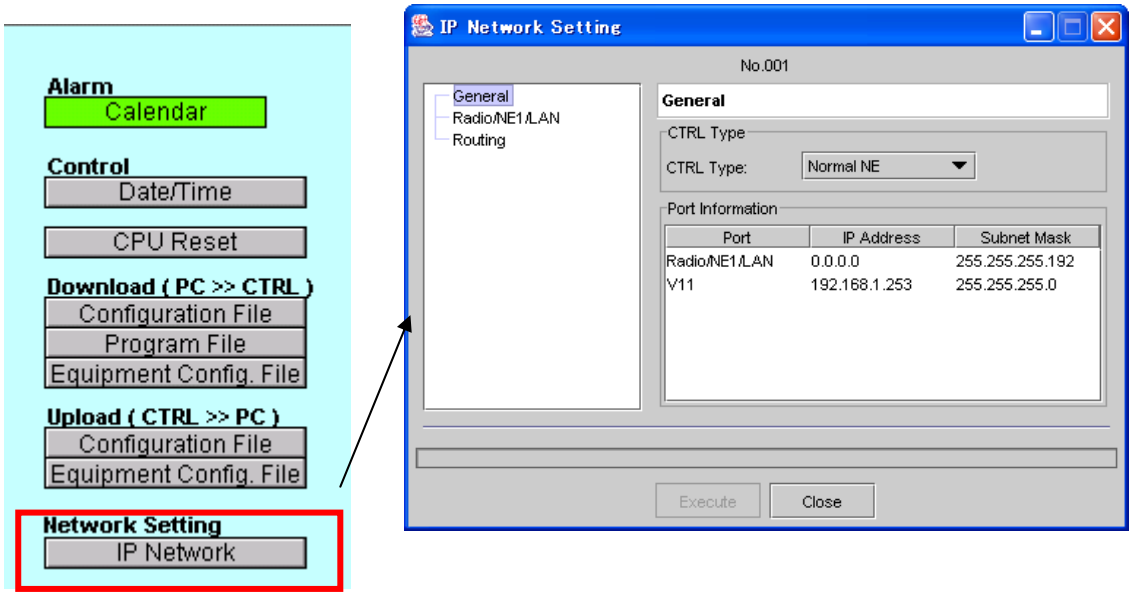
CAUTION:

Please be sure to add the suffix [.cfg] of the uploaded file name.

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 A**.

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 Mute: To turn off TX power

CW (MOD Carrier): To turn on the Continuous Wave for measurements

Antenna Alignment Mode: To use for extending the dynamic range of the RX LEVEL MONITOR.

IF Loopback: To create the loopback at the MAIN INTFC of the selected NE.

ATPC Manual: To use an optional transmitting power when the ATPC is in operation.

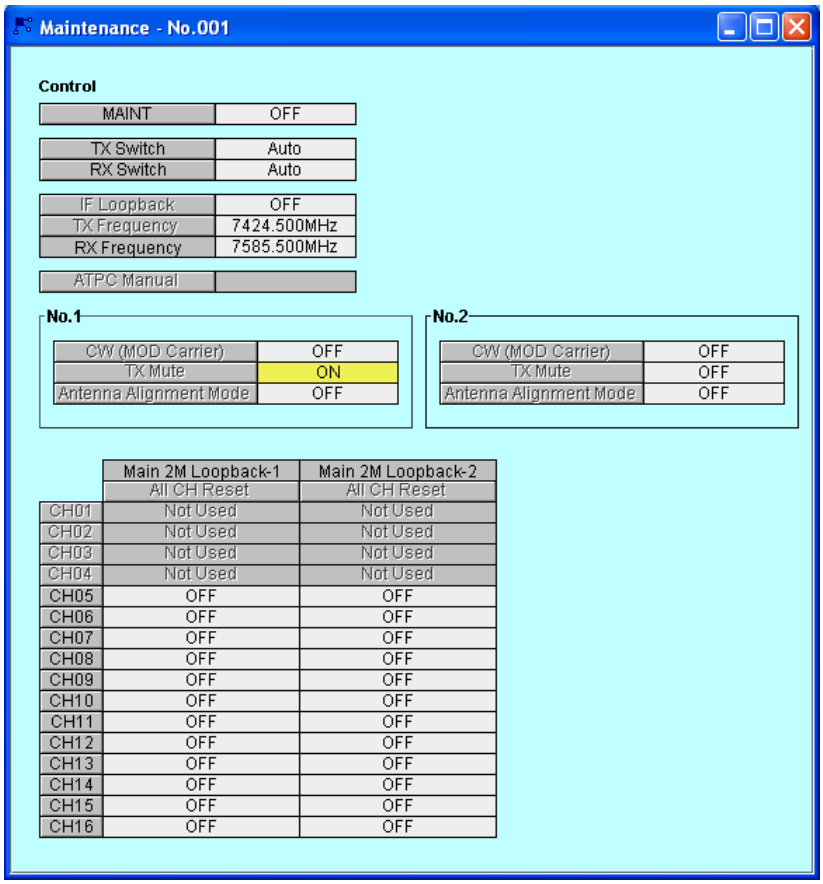
Main 2M Loopback-1, 2: To set the loop back at the line input of E1

*These windows are not available when MAINT is OFF. (“Switch to Maintenance mode first” is displayed.)

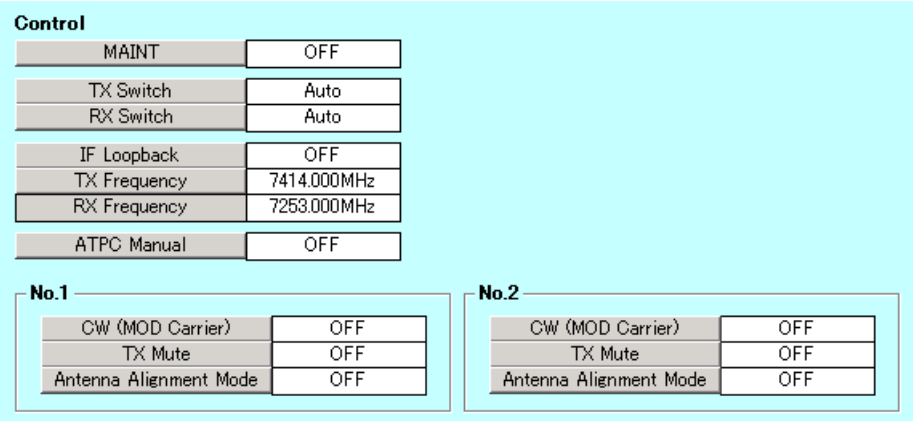
2.16.1 Maintenance Menu

To go to maintenance window:

Click **Maint (Maintenance)** button in block diagram in **PNMT main windo**w

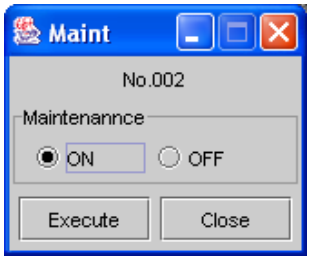


Maintenance window (1+1 configuration)



Maintenance window (1+1 configuration)

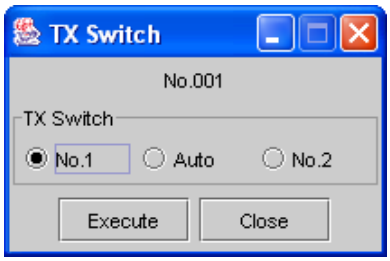
2.16.2 Selecting Maintenance Mode



To switch the NE to maintenance mode:

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

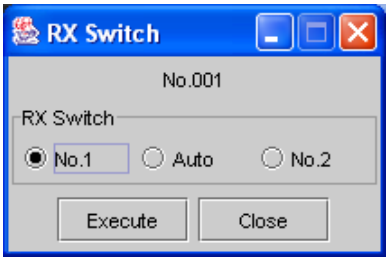
2.16.3 TX Switch (for 1+1 system only)



To control the TX switch manually:

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

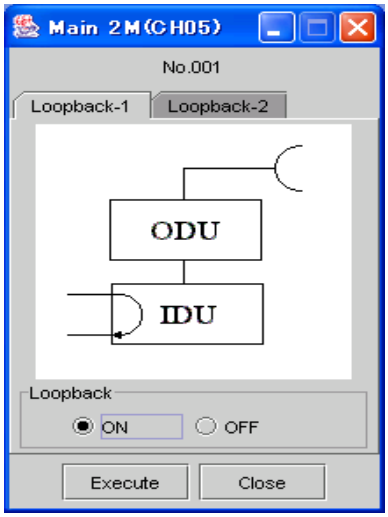
2.16.4 RX Switch (for 1+1 system only)



To control the RX switch manually:

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

2.16.5 Main Signal Loopback-1 (near-end loopback)



This type loopback is created at the MAIN INTFC of the selected NE – where you are currently connected.

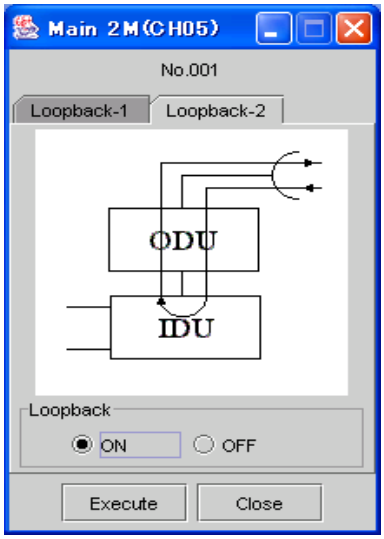
To set the near-end loopback:

1. Click **[Main Signal Loopback-1**] in the Maintenance window.
2. Select ON to activate the loopback.
3. Click **[Execute]** to activatethe 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 (far-end loopback)



This type loopback is created at the IMAININTFC of the opposite NE.

To set the far-end loopback:

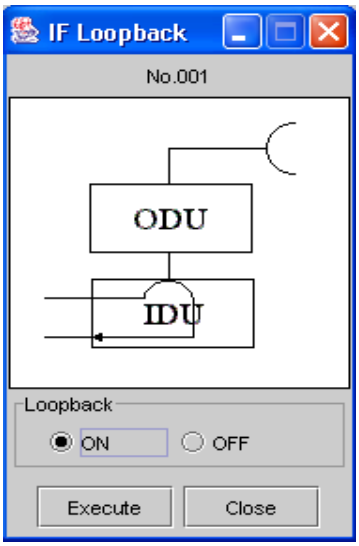
1. Click **[Main Signal Loopback-2**] in the **Maintenance** window.
2. Select ON to activate the loopback.
3. Click **[Execute]** to activate the loopback.
4. Click **[Close]** when finished.

CAUTION

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

2.16.7 IF Loopback

This type of loopback is created at the MAIN INTFC of the selected NE.



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 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.

2. Select **ON/OFF** as desired.
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.

2.16.9 TX Frequency

Sets the RF transmitted frequency and consequently its pair receiving frequency.
(See 2.16 Equipment Setup.)

2.16.10 RX Frequency

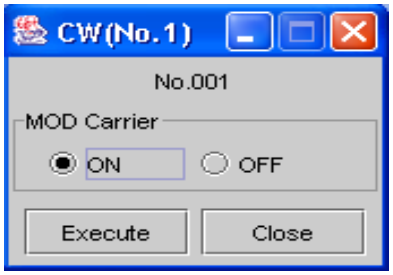
Displays the current RF receiving frequency used by the ODU.
(See 2.16 Equipment Setup.)

2.16.11 CW (MOC Carrier) Status

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

To change the CW (MOD Carrier) status:

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



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

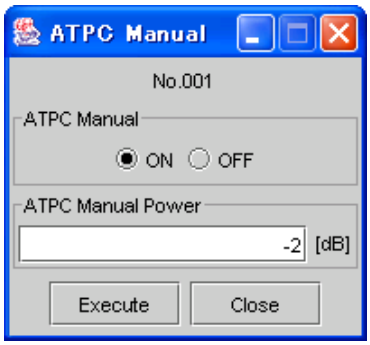
NOTE

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

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

2.16.12 ATPC Manual

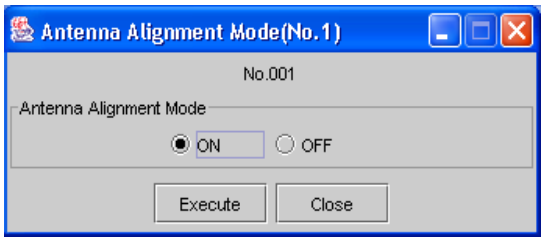
Used when an optional transmitting power is required when the ATPC is in operation.
To set the ATPC Manual:



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.

2.16.13 Antenna Alignment Mode

The Antenna Alignment Mode is used for Antenna Orientation. This mode is used for extending the dynamic range of the RX LEVEL MONITOR. The output of RX LEVEL MON in ODU and the OW/RX LEV Monitor meter range can be increased. In this mode, since control of TX power stops, the normal operation cannot be performed.



1. Click **[Antenna Alignment Mode]** in Maintenance window.
2. Click [**ON/OFF]** as desired.
3. Click **[Execute]** to carry out command.
4. Click **[Close]** when finished.

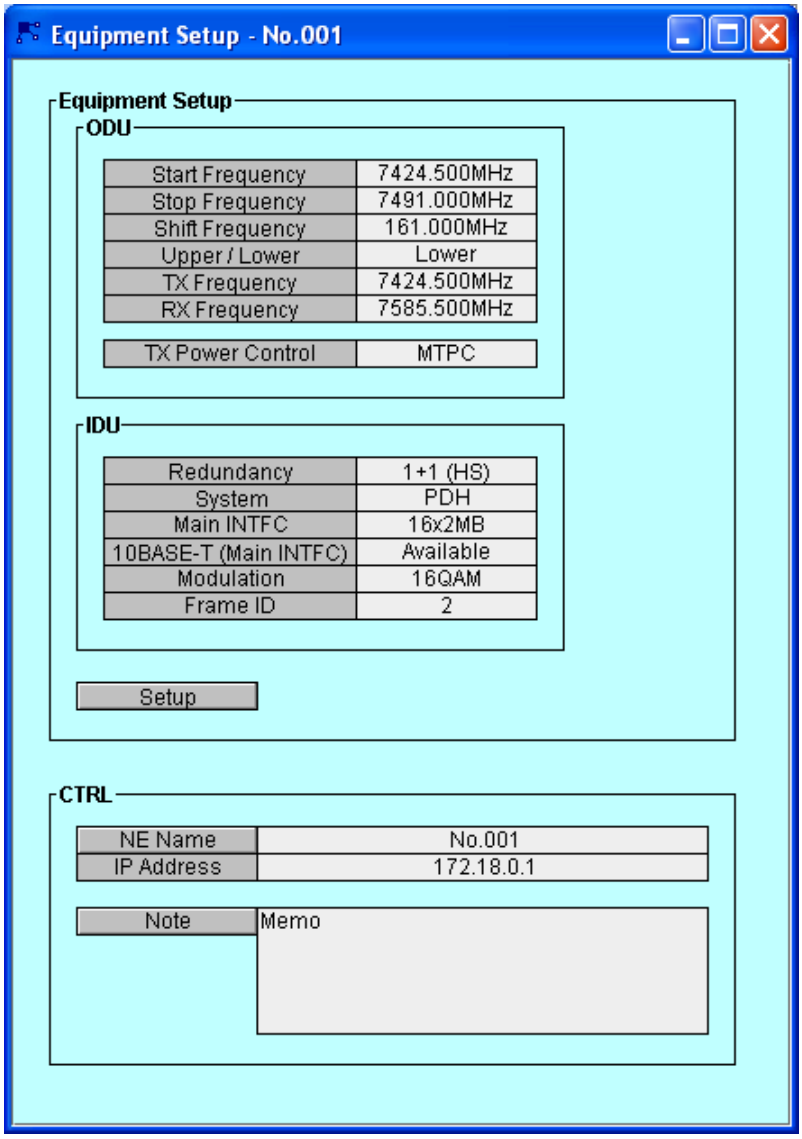
2.17 Equipment Setup

Main signal, Wayside signal, Service signal, ODU and CTRL status can be monitored and controlled in this window.

2.17.1 Equipment Configuration Window

To open the Equipment Configuration Monitor:

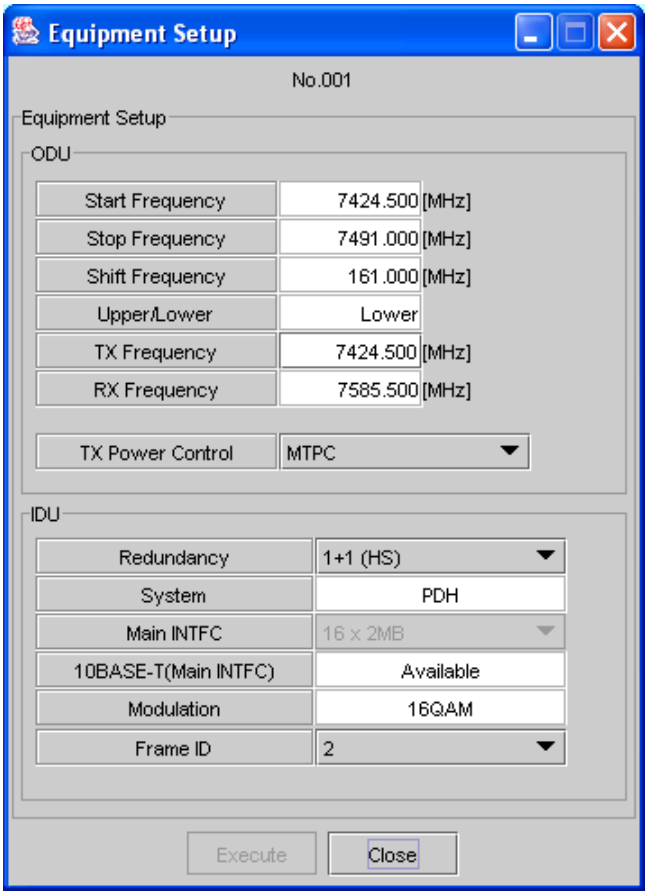
1. Select **Configuration → Equipment Setup** in the NE-specific menu bar.
2. This window contains the setup information and controls for the IDU and the ODU. The **Equipment Setup** window is shown below.



2.17.2 Setup

To set the ODU and IDU parameters:

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



2. In the **Setup** window, the configurable items are shown and described as per the table below:

ODU	**TX Frequency** – sets the RF transmit frequency and consequently the RF receive frequency of the ODU
	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-Stand-By or 1+0 (Expandable) configuration can be set using this function.
	Main INTFC – the main interface bit rate of IDU can be selected here. The available **rates** are 16*2MB, 8*2MB.
	Frame ID – used to **synchronize** the TX and RX frames of opposing NE's in the hop. The frame ID can be set from 1 to 8.

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

CAUTION

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

2.17.3 Editing the NE Name

To edit the NE name:

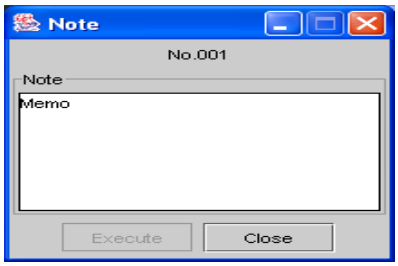
1. Click **[NE Name]** in **Equipment Setup** window.

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

2.17.4 Editing the Note for NE

To addput an optional description for the current NE:

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



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

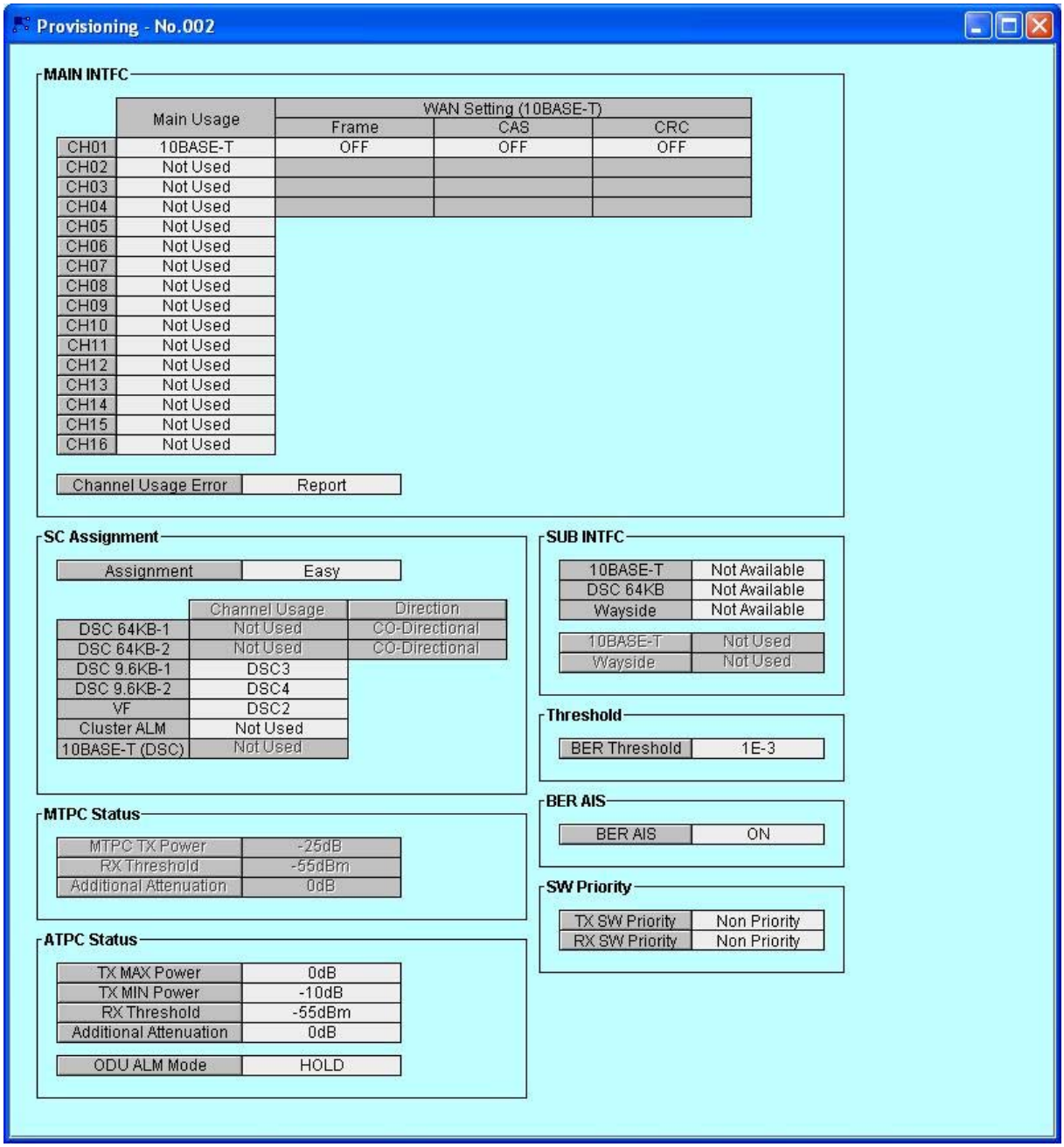
2.18 Provisioning

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

2.18.1 Provisioning Window

To open the Equipment Configuration Monitor:

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



2.18.2 MAIN INTFC

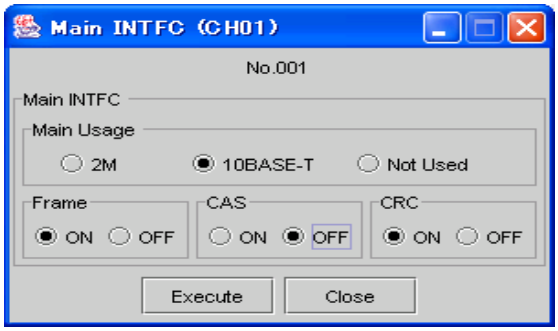
This function enables you to set the 10BASE-T or 2M and its properties.

2.18.2.1 Main Usage / WAN Setting

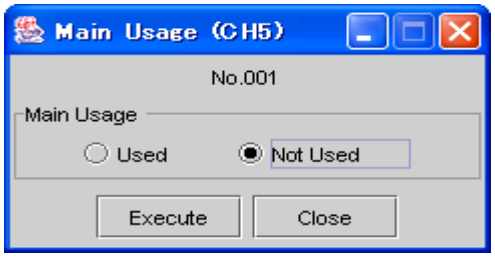
When the 10BASE-T is available, you can select the 10BASE-T in the Main Usage box. WAN Setting can only be set through channels CH01 to CH04. (Channels from CH05 onwards are not used. If the 10BASE-T is disabled, 10BASE-T option is not available.

To enable the 10BASE-T:

1. Click **[CHxx]** in the **Provisioning** window.
2. Select Enable in the ensuing window.



(CH01 - CH04)



(H05 - CH08 or CH16)

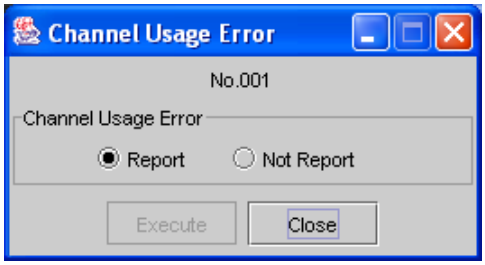
3. Click **[Execute]** to enable the 10BASE-T or 2M.
4. Click **[Close]** when finished.

2.18.2.2 Setting the Channel Usage Error

This function allows you to see the report of the connection state of the unused channels. When the Channel Usage Error is set to “Not Report”, the connection state of the channel is not logged.

To set the **Channel Usage Error**:

1. Click **[Channel Usage Error]** I in the Provisioning window.
2. Select whether to get a Report or not **[Not Report]** in the ensuing window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



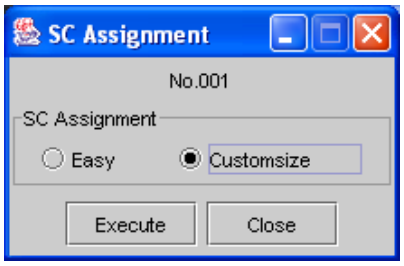
2.18.3 SC Assignment

2.18.3.1 SC Assignment Type

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

To set the SC Assignment type:

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



2.18.3.2 Direction

To set the direction:

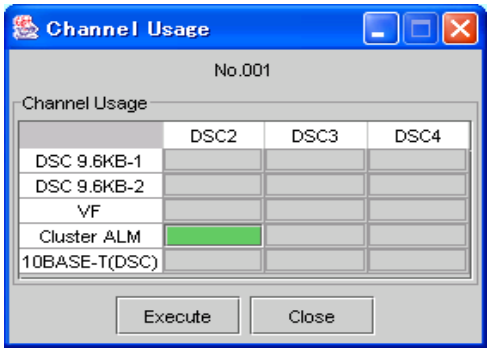
1. Click **[Direction]** in the SC Assignment table.
2. In the ensuing table, you will be able to select the direction for the DSC 64KB-1 and DSC 64KB-2 interface.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.18.3.3 Channel Usage

This function allows you to set the interface used on the available user channels (DSC) in the PASOLINK^{+}. The user channels can be set as DSC, VF or Cluster ALM using this function.

To set the channel usage:

1. Click [Channel Usage] in the SC Assignment table.
2. In the ensuing 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 **[Execute]** to activate the new settings.



2.18.4 Manual Transmit Power Control (MTPC) Status

When the MTPC is selected the buttons in this section will become active and the MTPC parameters can be set. The MTPC has three (3) parameters:

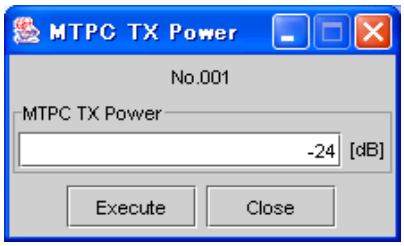
- MTPC TX Power
- RX Threshold
- Additional Attenuation

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

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 Provisioning button.
2. Set the power (dB) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field.
3. Click **[Execute]** to activate the maximum MTPC TX power.
4. Click **[Close]** when finished.

2.18.4.2 RX Threshold

This sets the threshold value for the reception level. The TX power is regulated by sending control signals piggyback via the Radio Frame Complementary Overhead (RFCOH) until the desired reception level is reached in the Radio Frame Complementary Overhead (RFCOH).

To set the RX threshold:

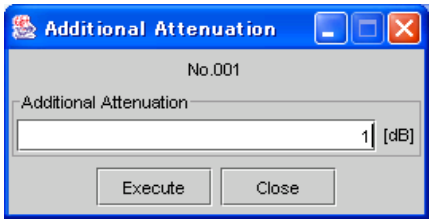
1. Click **[RX Threshold]** in the MTPC status section of the Provisioning window.
2. Set the power (dBm) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown 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 radio section 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 MTPC status section of the Provisioning window.
2. Set the attenuation (dB) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field



3. Click **[Execute]** to activate 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 active 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

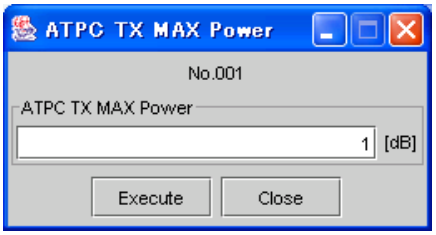
The procedure for setting these parameters will be presented in this section.

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 Provisioning window.
2. Set the power (dB) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field.



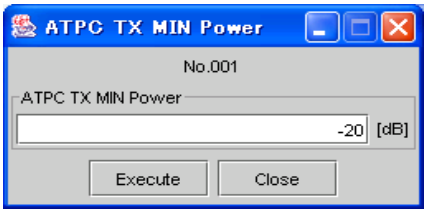
3. Click **[Execute]** to activate the maximum ATPC TX power.
4. Click **[Close]** when finished.

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 Provisioning window
2. Set the power (dB) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field.
3. Click **[Execute]** to activate the minimum ATPC TX power.
4. Click **[Close]** when finished.



2.18.5.3 RX Threshold

When the ATPC is in operation, the threshold value of the receiving level can be set with this function. The TX power is regulated by sending control signals piggyback via the Radio Frame Complementary Overhead (RFCOH) until the desired reception level is reached in the Radio Frame Complementary Overhead (RFCOH).

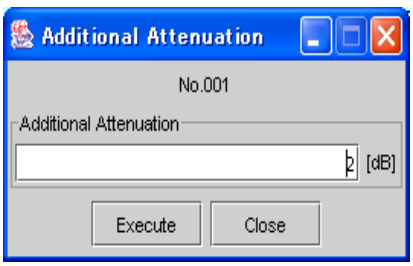
To set the RX threshold:

1. Click **[RX Threshold]** in the ATPC status section of the **Provisioning** window.
2. Set the power (dB) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field.
3. Click **[Execute]** to activate the new preset value.
4. Click **[Close]** when finished.

2.18.5.4 Additional Attenuation

If the transmission length of the radio section 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 either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown in the input field
3. Click **[Execute]** to activate the attenuation.
4. Click **[Close]** when finished.

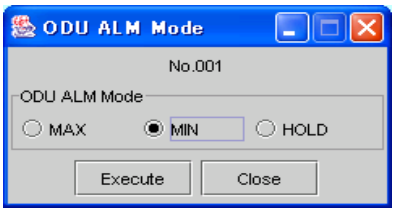


2.18.5.5 ODU ALM Mode

When the ODU loses communication with the IDU due to failure, the response of the ODU can be preset using this function. Since the control function of the TX power is in the IDU, the ODU will be cut-off to this control when a failure in the communication between the ODU and the IDU occurs. In this case, the ODU either mutes the TX or maintains (HOLD) the current TX power, depending on the preset ODU ALM mode.

To set the ODU ALM mode:

1. Click **[ODU ALM Mode]** in the ATCP status section of the **Provisioning** window.
2. Select the action of the ODU in case of IDU communication failure. For ATPC, MAX Hold, MIN Hold or Hold modes are available.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



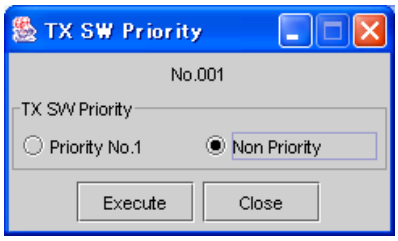
2.18.6 SW Priority

2.18.6.1 TX SW Priority

The TX SW priority defines the channel that will be selected by the TX switch when both channels are normal.

Non-priority: There is no priority.

Priority No.1: Priority is given to No.1 channel.

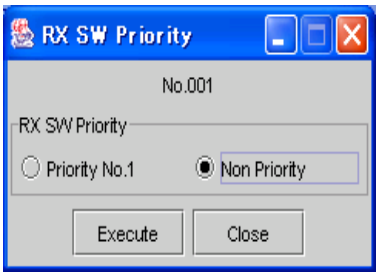


2.18.6.2 RX SW Priority

The RX SW priority defines the channel that will be selected by the RX switch when both channels are normal.

Non-priority: There is no priority.

Priority No.1: Priority is given to No.1 channel.



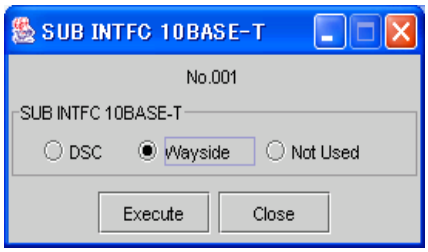
2.18.7 Sub INTFC

There are 2 optional sub interfaces available in the PASOLINK+ system. In 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 **[10BASE-T]** in the **Provisioning** window.
2. Select the type of interface used from the ensuing window. If there are no DSC or Wayside plugged-in in the IDU, there is no way to select.
3. Click **[Execute]** to activate the newly defined sub interface.
4. Click **[Close]** when finished.



2.18.7.2 Defining the Wayside Interface

To specify the type of WS interface used:

1. Click **[Wayside]** in the **Provisioning** window.
2. Select **Used** or **Not Used** of WS interface on the ensuing window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

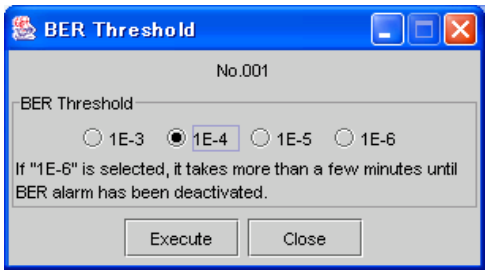
2.18.8 BER Alarm Threshold

The BER in the PASOLINK+ system monitors the DMR section. The figure below illustrates these sections.

2.18.8.1 Setting the BER Threshold

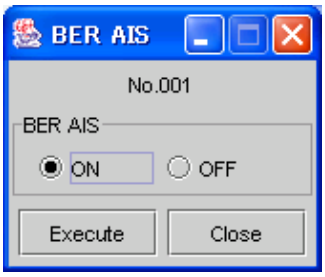
To set the threshold for BER:

1. Click **[BER Threshold]** in the **Provisioning** window.
2. Select the preset BER value that will trigger.
3. Click **[Execute]** to activate the new threshold.
4. Click **[Close]** when finished.



2.18.8.2 BER AIS: Bit Error Rate Alarm Indication Signal

To set the BER AIS:



1. Click **[BER AIS]** in the Provisioning window.
2. Select **ON** or **OFF** of **BER AIS** on the ensuing window.
3. Click **[Execute]** to activate.
4. Click **[Close]** when finished.

2.19 Link Performance Monitor

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

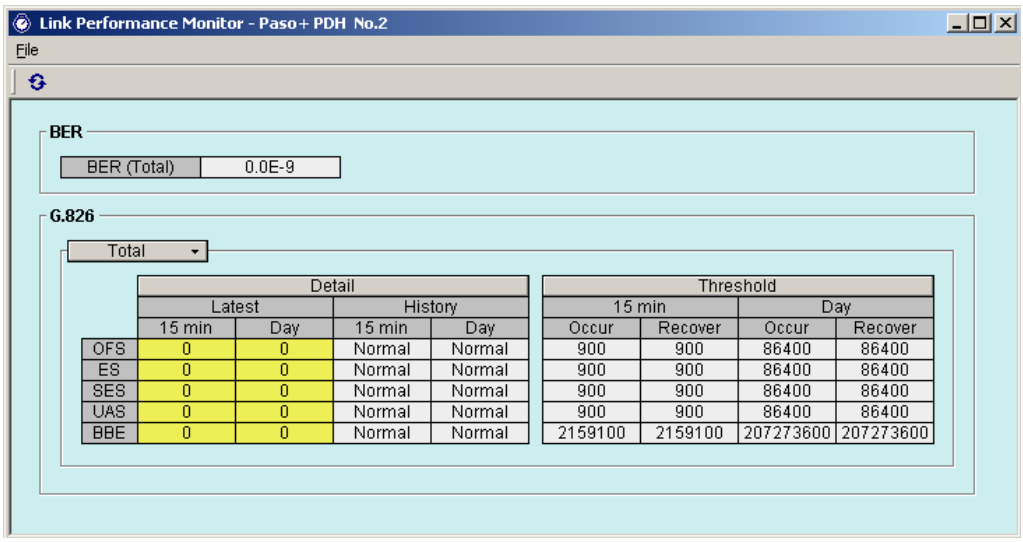
- **Out of Frame Second (OFS)** – the total number of seconds the "out of frame" condition is generated in 15 minute-blocks.(OFS is applied to the Total only)"
- **Errored Second (ES)** – the cumulative time in which more than one B1 error pulse per second was detected
- **Severely Errored Second (SES)** – 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]**.

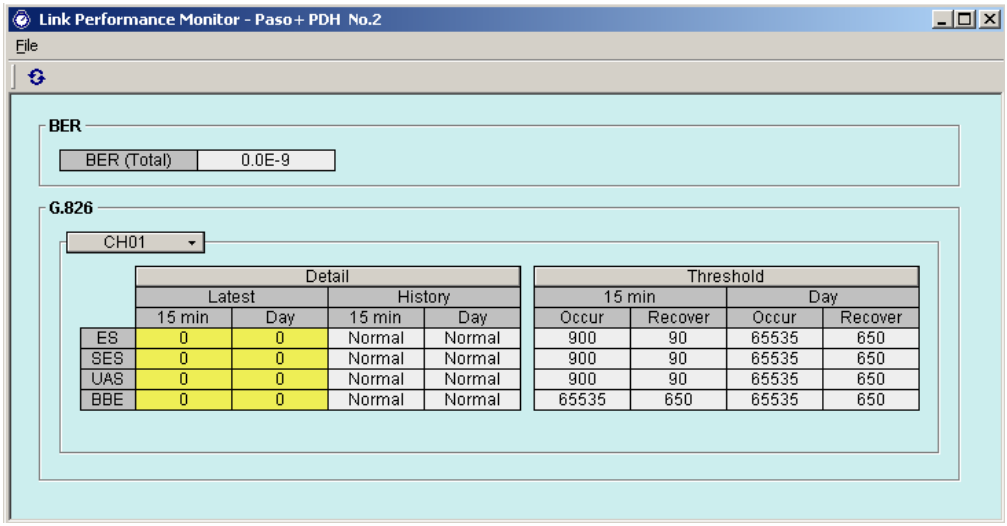
2.19.1 Viewing Summary Link Performance Monitor

To view Summary Link Performance Monitor:

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



Summary Link Performance Monitor window (Total)

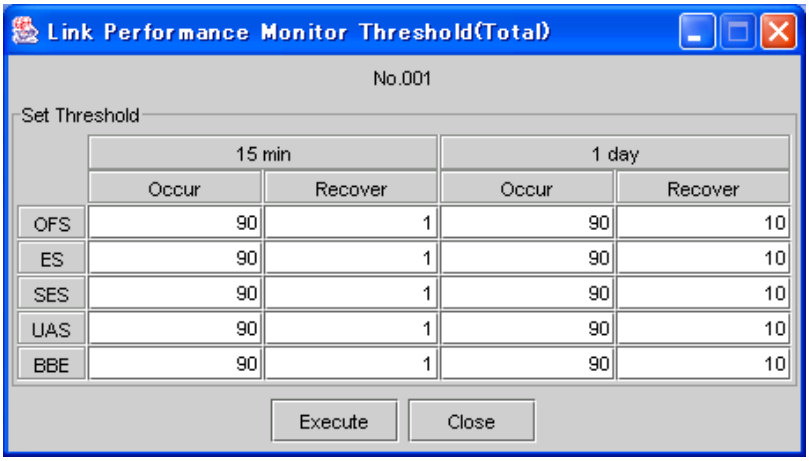


Summary Link Performance Monitor window (CH01-16)

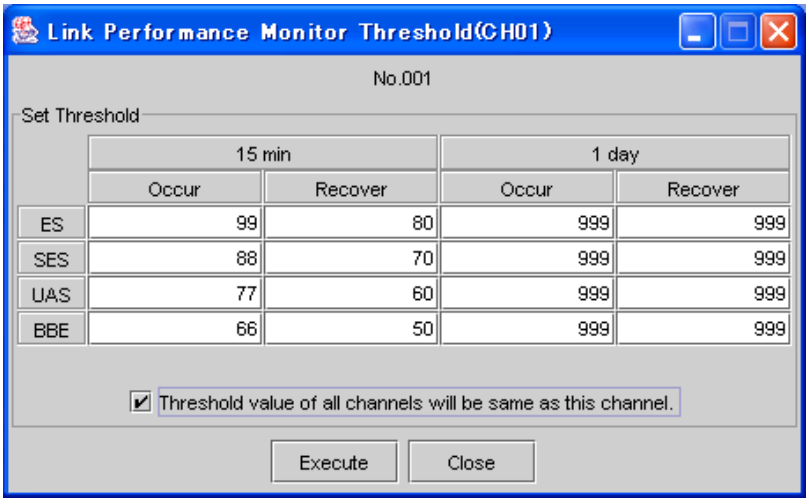
2.19.2 Threshold Setting

To set the threshold values:

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



Summary Link Performance Monitor Threshold (Total)



Summary Link Performance Monitor Threshold (CH)

2. Select the performance item that is to be configured in the table shown above. The G.826 measuring parameters become available for setting when selected. The arrow buttons on the left-hand side of the field indicates this.

3. Set the value when the alarm **occurred (Occur)** and when the alarm **was resolved (Recover)** in the appropriate field. The measuring parameter will initiate an alarm status indication when it reaches the alarm occurrence (occur) value or an alarm clear status when it reaches the resolution (recover) value set in the threshold table.

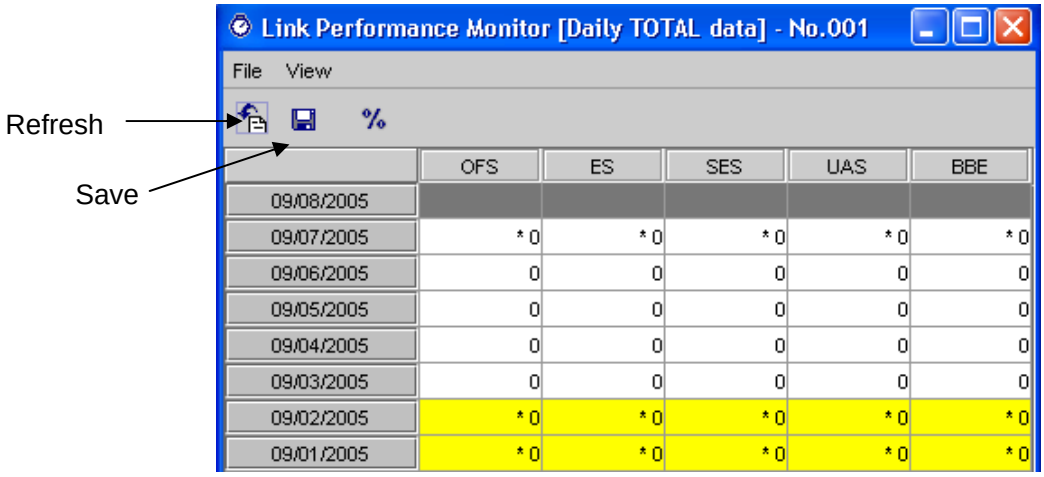
4. Click **[Execute]** to activate the new settings.

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

2.19.3 Link Performance Monitor (1day / 15-min Data) Window

To view the 1day Data:

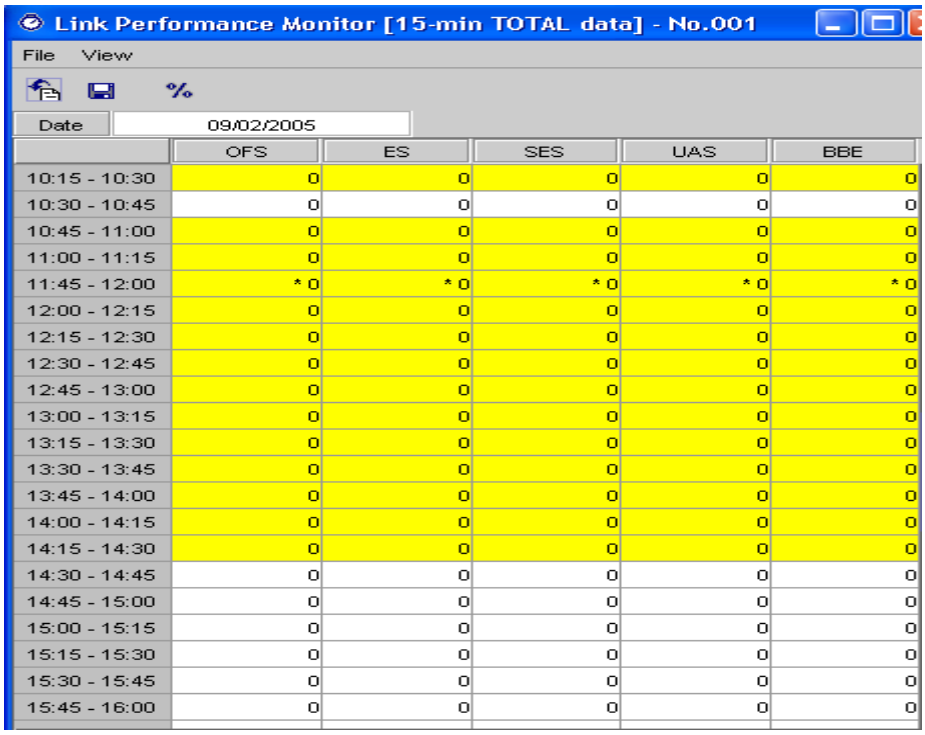
1. Click button of the Detail in Link Performance Monitor window.



Link Performance Monitor (1day Data) window (Total)

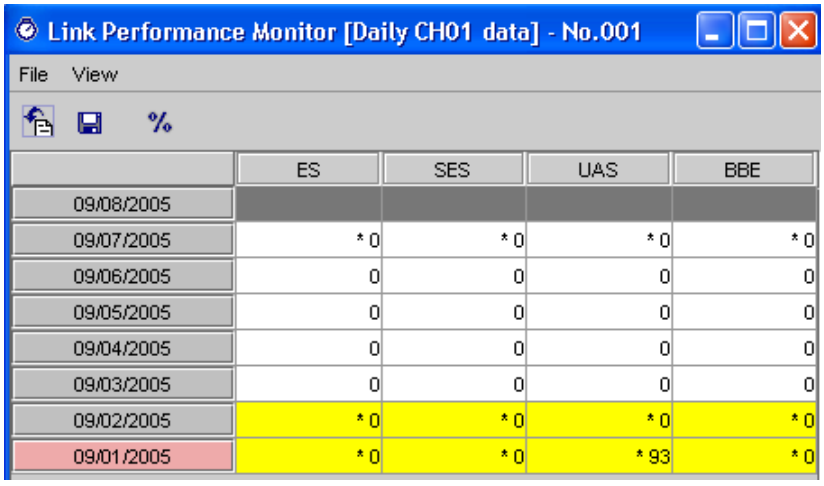
To view the 15-min Data:

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



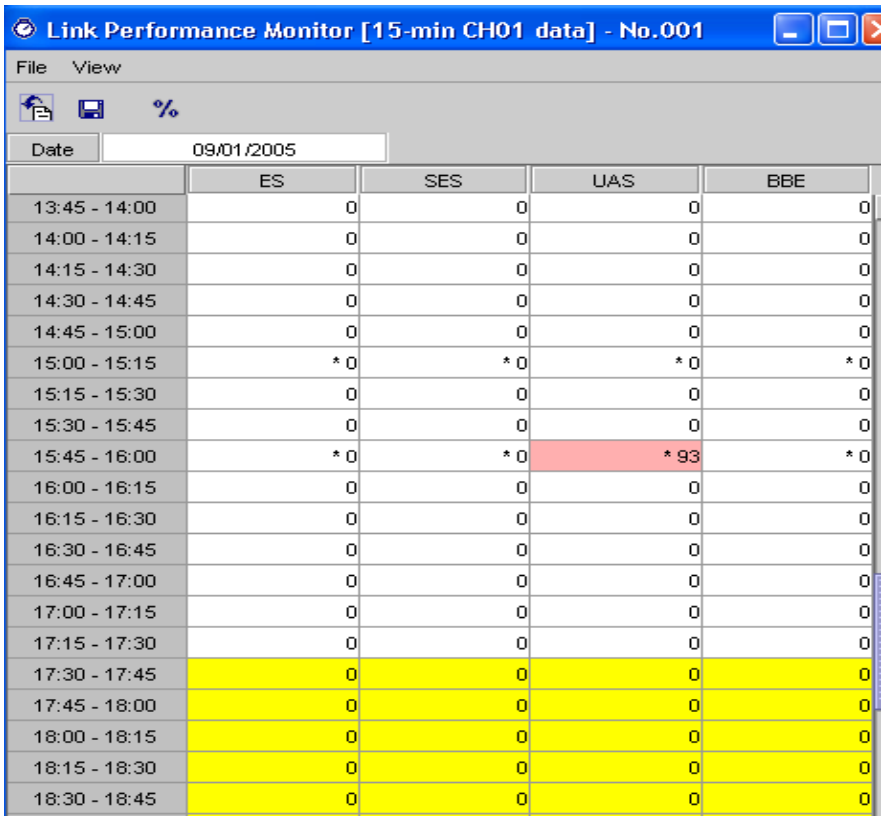
	OFS	ES	SES	UAS	BBE
10:15 - 10:30	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0
11:45 - 12:00	* 0	* 0	* 0	* 0	* 0
12:00 - 12:15	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0

Link Performance Monitor (15-min Data) window (Total)



	ES	SES	UAS	BBE
09/08/2005				
09/07/2005	* 0	* 0	* 0	* 0
09/06/2005	0	0	0	0
09/05/2005	0	0	0	0
09/04/2005	0	0	0	0
09/03/2005	0	0	0	0
09/02/2005	* 0	* 0	* 0	* 0
09/01/2005	* 0	* 0	* 93	* 0

Link Performance Monitor (1day Data) window (CH)



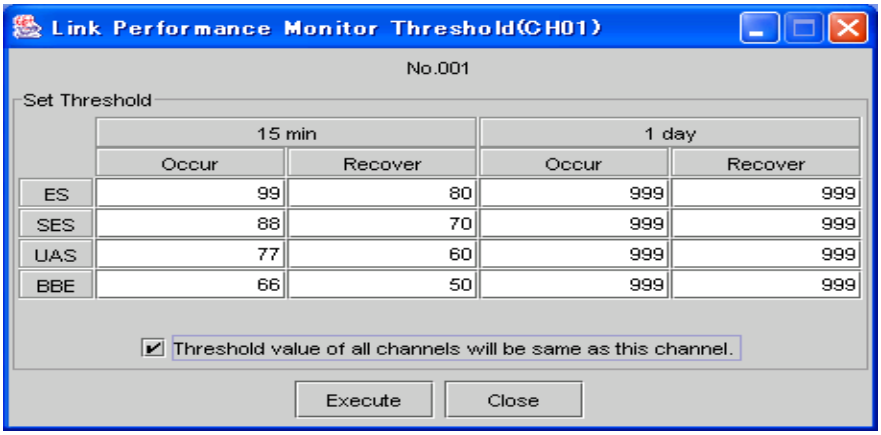
	ES	SES	UAS	BBE
13:45 - 14:00	0	0	0	0
14:00 - 14:15	0	0	0	0
14:15 - 14:30	0	0	0	0
14:30 - 14:45	0	0	0	0
14:45 - 15:00	0	0	0	0
15:00 - 15:15	* 0	* 0	* 0	* 0
15:15 - 15:30	0	0	0	0
15:30 - 15:45	0	0	0	0
15:45 - 16:00	* 0	* 0	* 93	* 0
16:00 - 16:15	0	0	0	0
16:15 - 16:30	0	0	0	0
16:30 - 16:45	0	0	0	0
16:45 - 17:00	0	0	0	0
17:00 - 17:15	0	0	0	0
17:15 - 17:30	0	0	0	0
17:30 - 17:45	0	0	0	0
17:45 - 18:00	0	0	0	0
18:00 - 18:15	0	0	0	0
18:15 - 18:30	0	0	0	0
18:30 - 18:45	0	0	0	0

Link Performance Monitor (15-min Data) window (CH)

3. The data can be saved in text format by clicking then save icon. It can be refreshed by clicking the refresh button.

2.19.4 All Channel Setting

1. Click **[Threshold]** in the Summary Link Performance Monitor window.
2. If you set the threshold value to all channels at once, you put the check mark to "Threshold value of all channels will be the same as this channels". There is no effect to **Total Screen**.



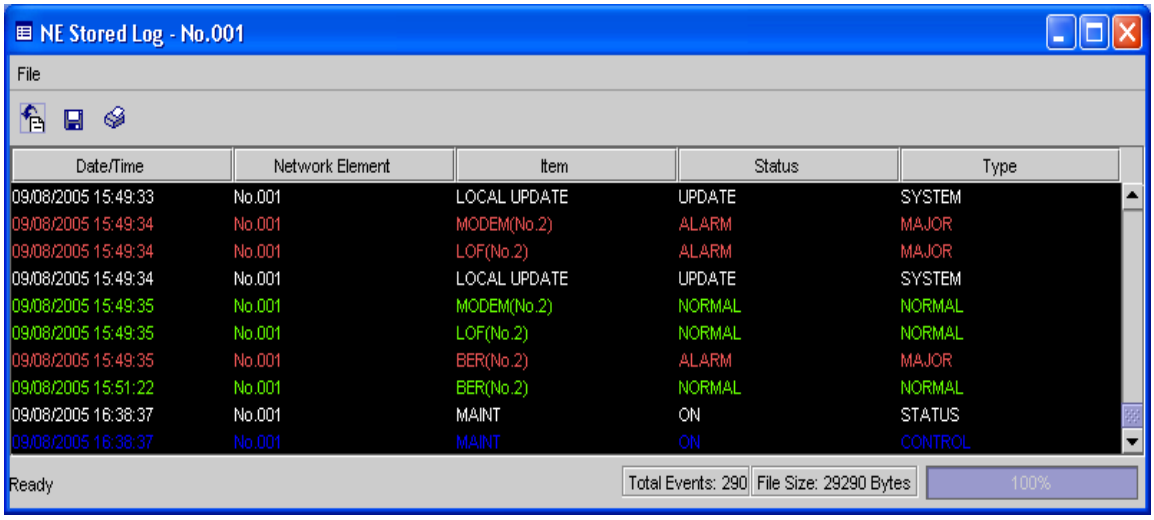
3. Click **[Execute]** to set the same value to all channel.
4. Click **[Close]** when finished.

2.20 Event Log

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

2.20.1 NE Stored Log View

1. Click **Event 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 **Event Log View** will be displayed. The event log is presented in a table form showing the date of the event, the item that triggered the event and the status change.
4. Sorting is possible based on every column/criterion in the Event Log window.
5. The date format shown in the Event Log window depends on the OS of the computer.



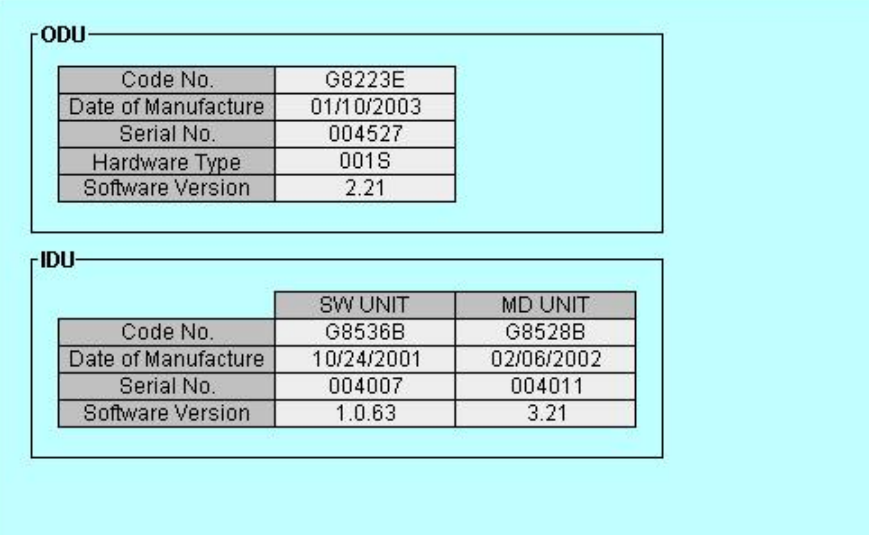
2.21 Version Tab

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

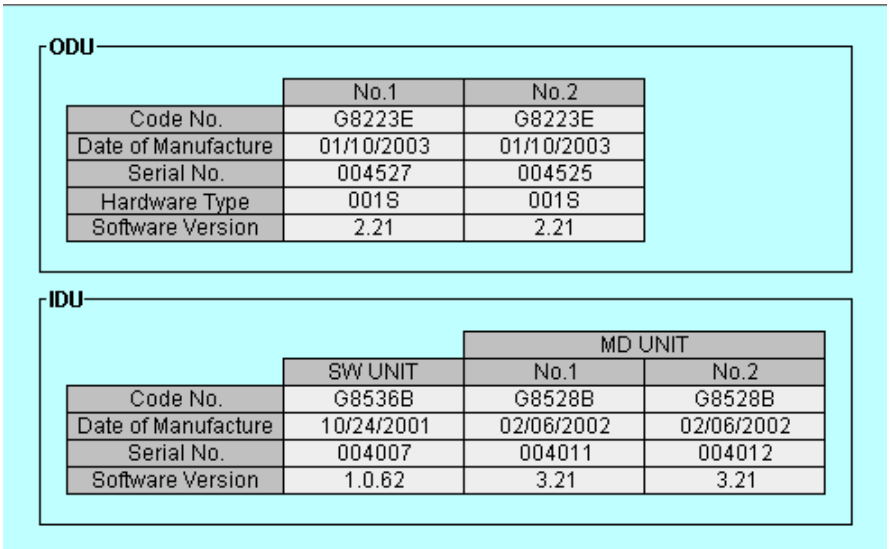
2.21.1 Version Monitor

To display version of ODU, IDU and CTRL.

1. Select the **Version** tab in **PNMT** main window.
2. The **Version** tab shows the Date of Manufacture, Software Version, Serial No. and Code No. of the ODU and IDU. Note that only ODU V3 supports this function.



Version window (1+0 configuration)



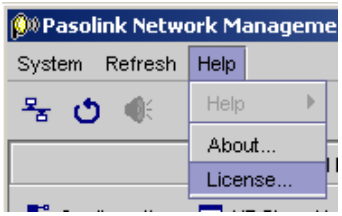
Version window (1+1 configuration)

2.22 License import

2.22.1 License import

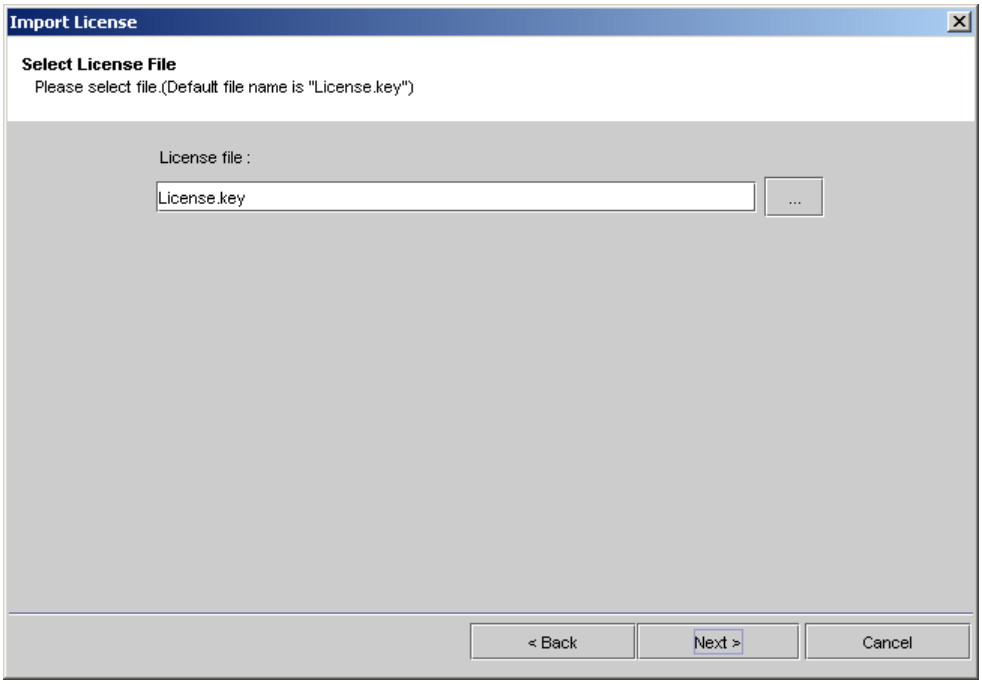
To update the license file:

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

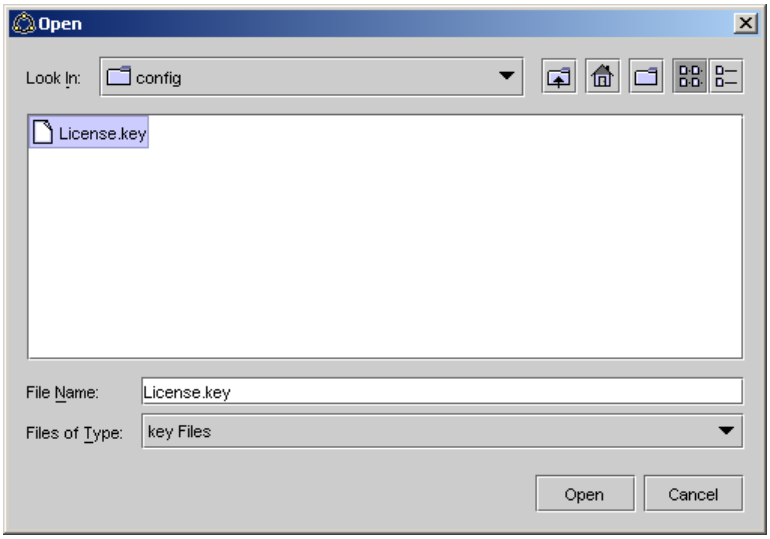


2. Import License Wizard will appear on screen. Click **[Next]** to continue.

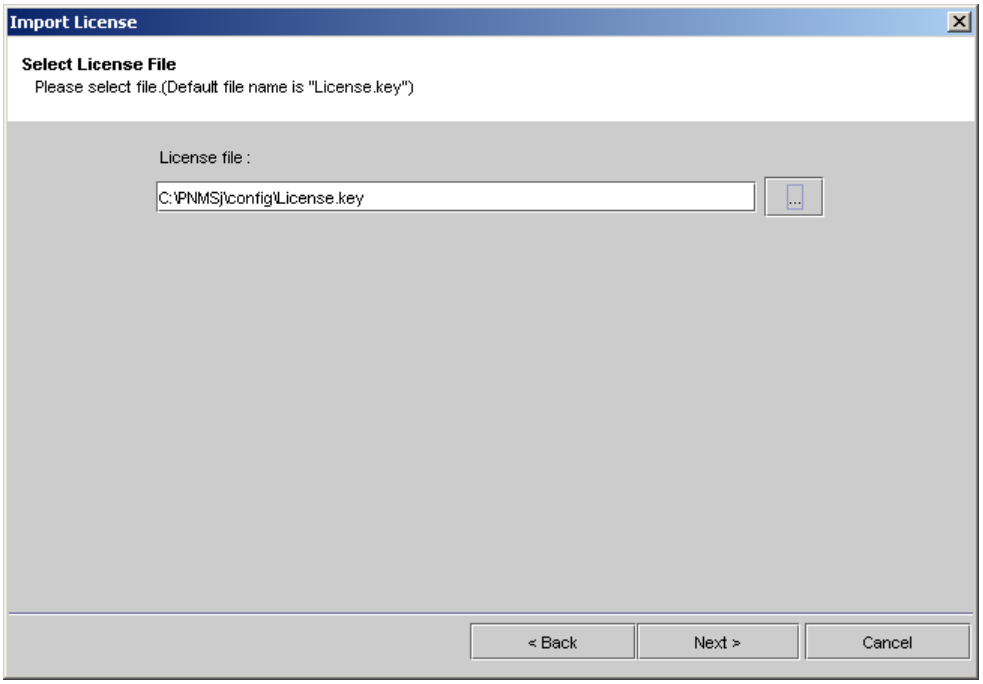
3. Click **[…]** to locate the new license key file.



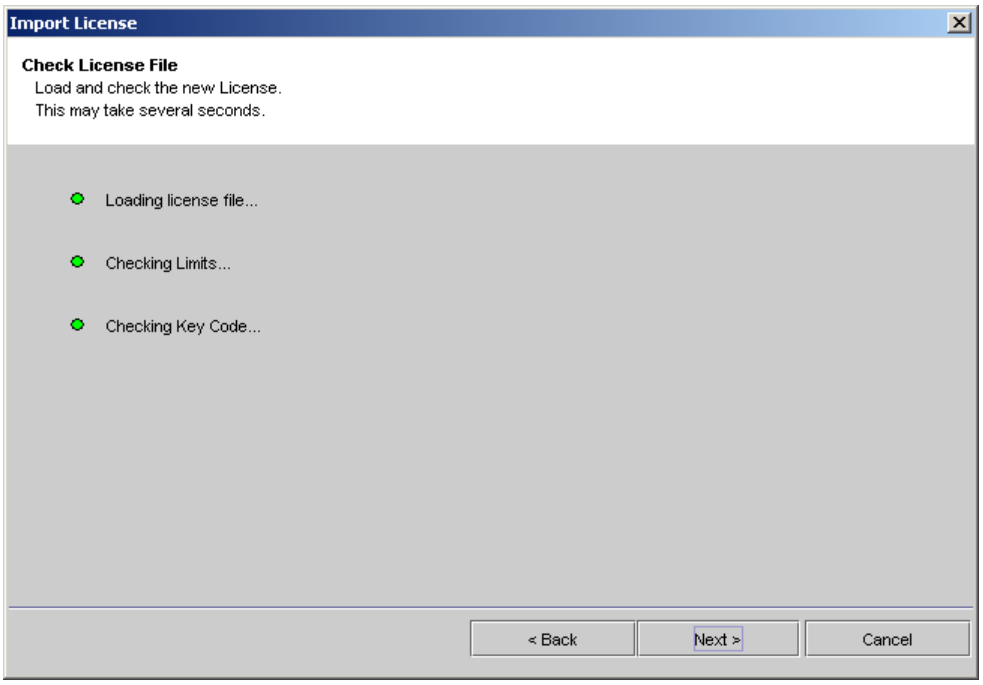
4. Indicate a License key file (i.e. License.key) that will be associated to PNMT. Select a License key file and click **[Open]** to continue.



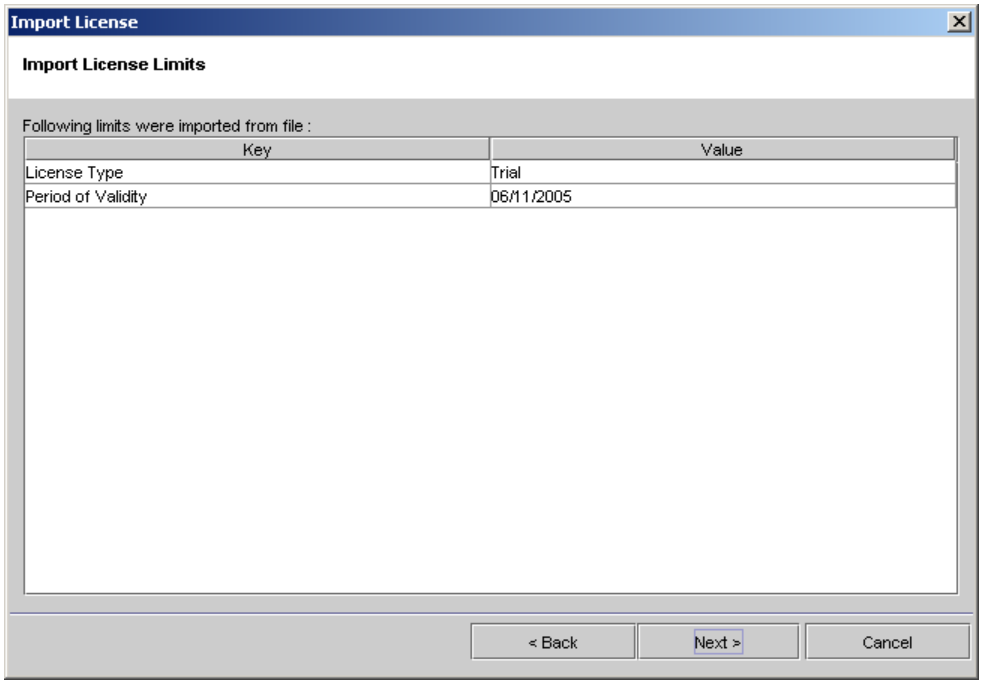
5. After verifying the path to the License key file is correct, click **[Next]** to proceed.



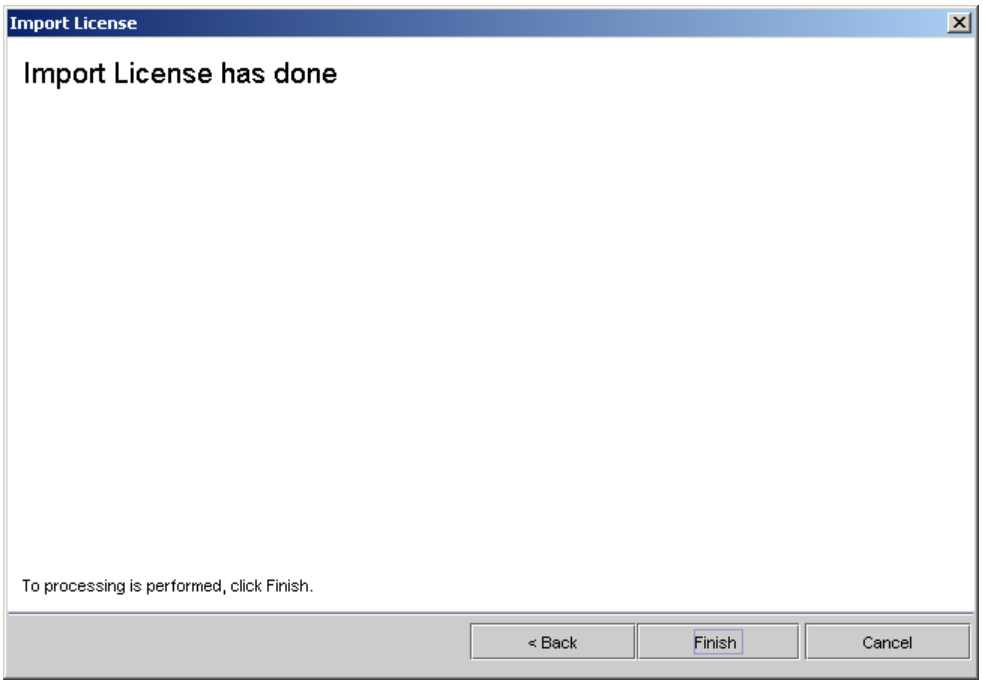
6. The progress of checking the license file will be displayed. If no error is encountered in the checking of the license file, click **[Next]** when the button becomes available.



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



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

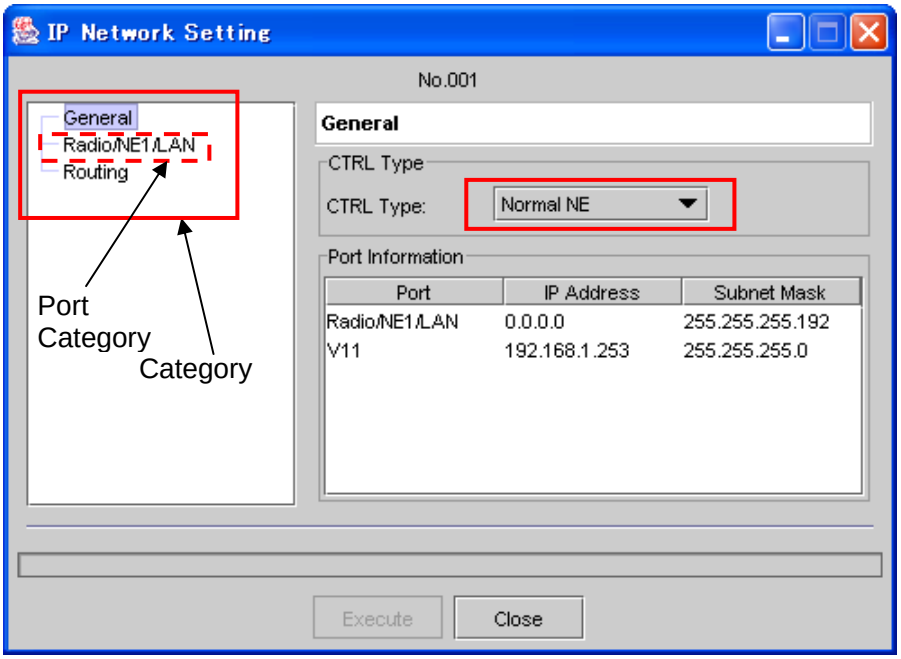


Appendix A: IP Network Settings

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.

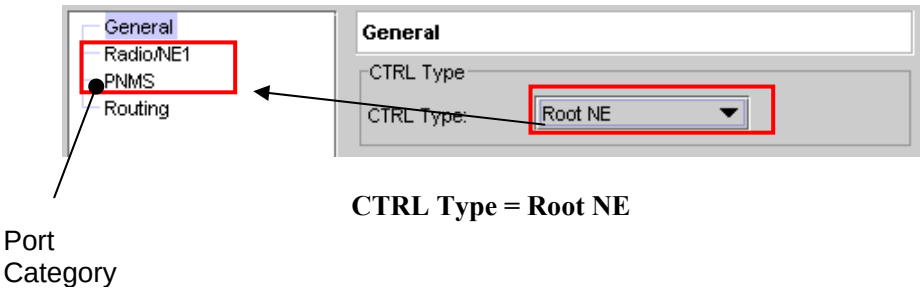
- Root NE

  The nearest NE to PNMS configure as Root NE

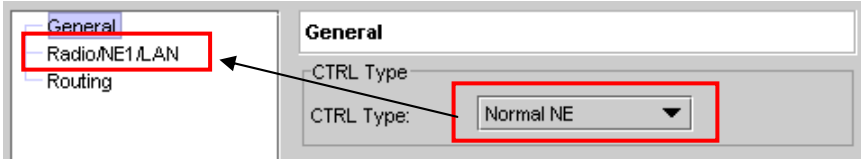
- Normal NE

  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

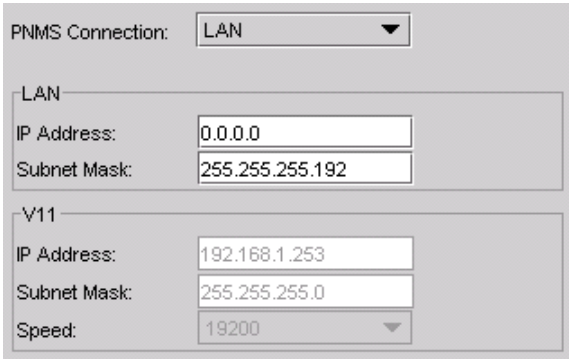


TRL Type = Normal NE

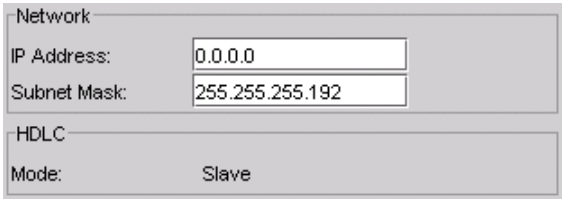
2. Set and select **Port category**. The right hand screen will change according to the selected item in **Category**.

- IP Address & Subnet Mask

  The following items are set to each Port

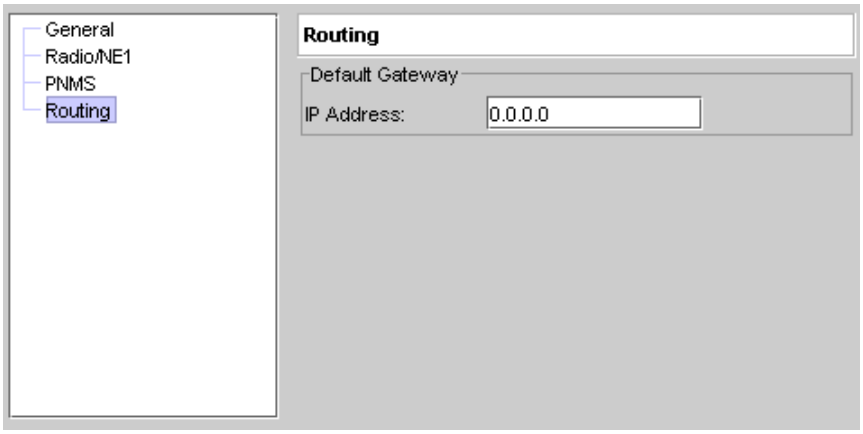


PNMS



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.

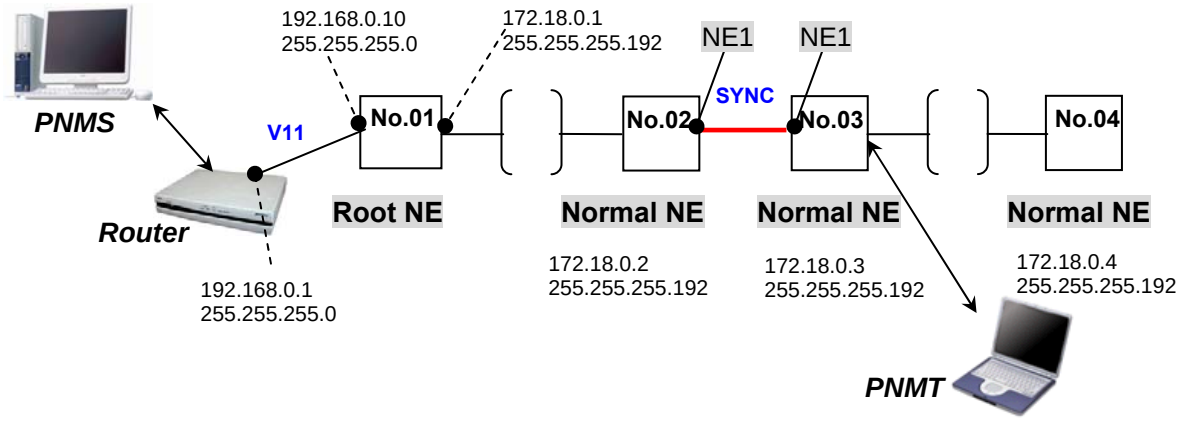
NOTE

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

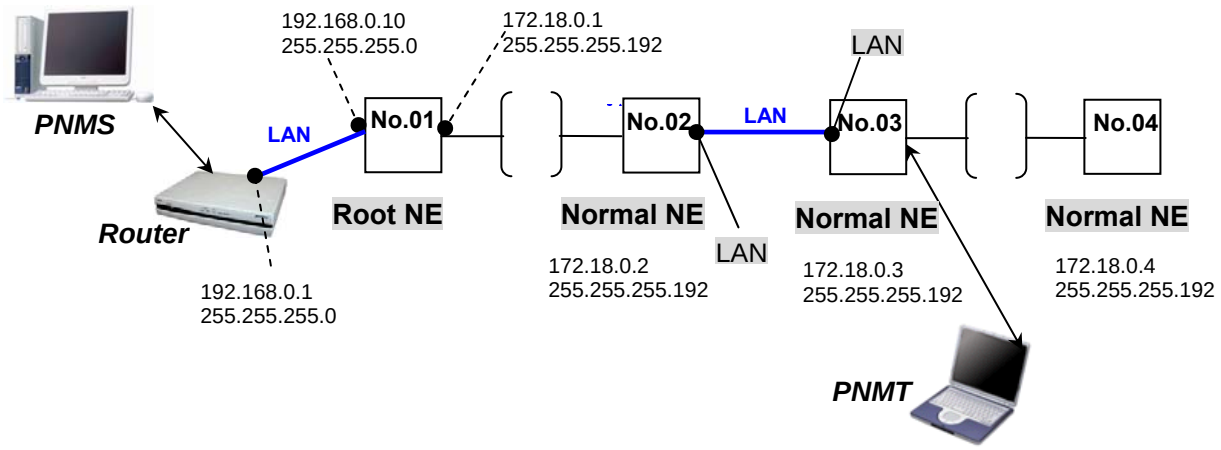
The Mx network which is supported for Auto discovery, Only one subnetwork can be configured (subnetwork is not dividable) and support maximum 62 NEs. Therefore, mixing of other equipments to Mx network should be avoided.

1. Network configuration for SYNC Back-back NMS connection



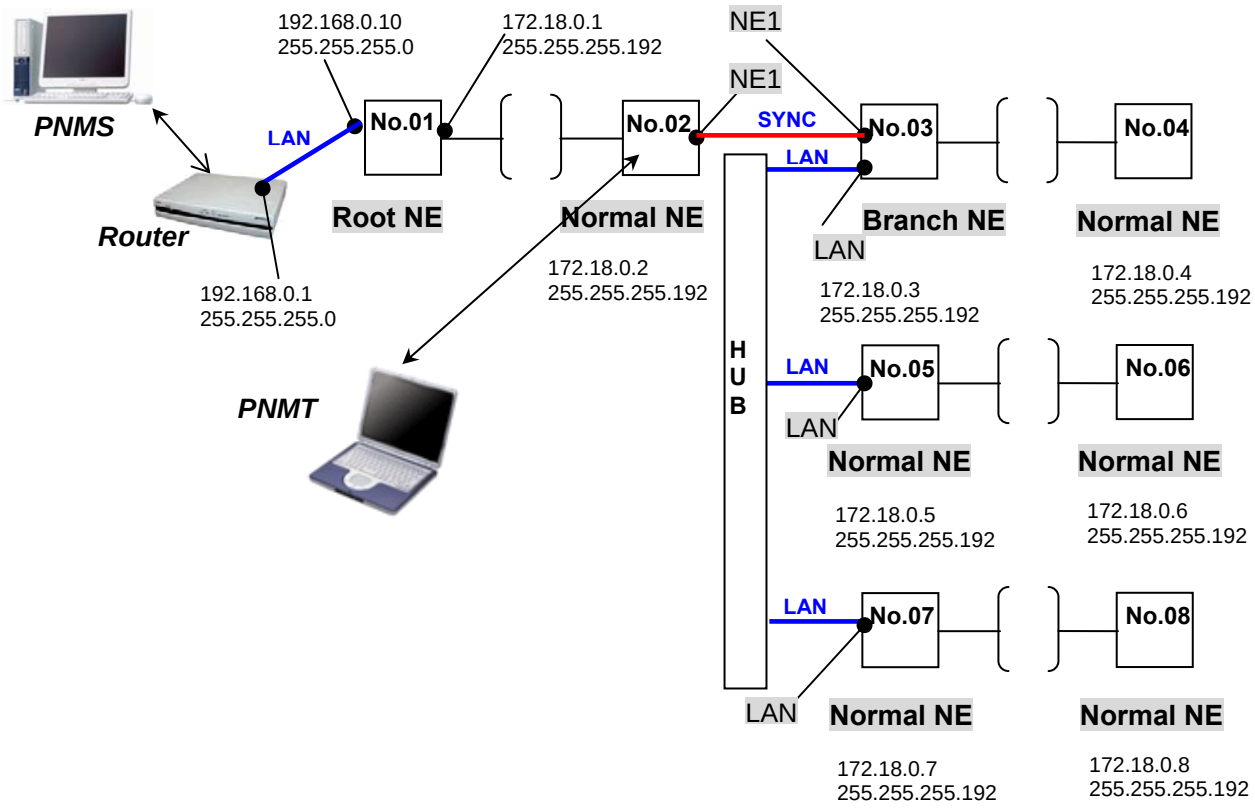
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1/LAN	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: V11)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
			Speed	19200
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP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



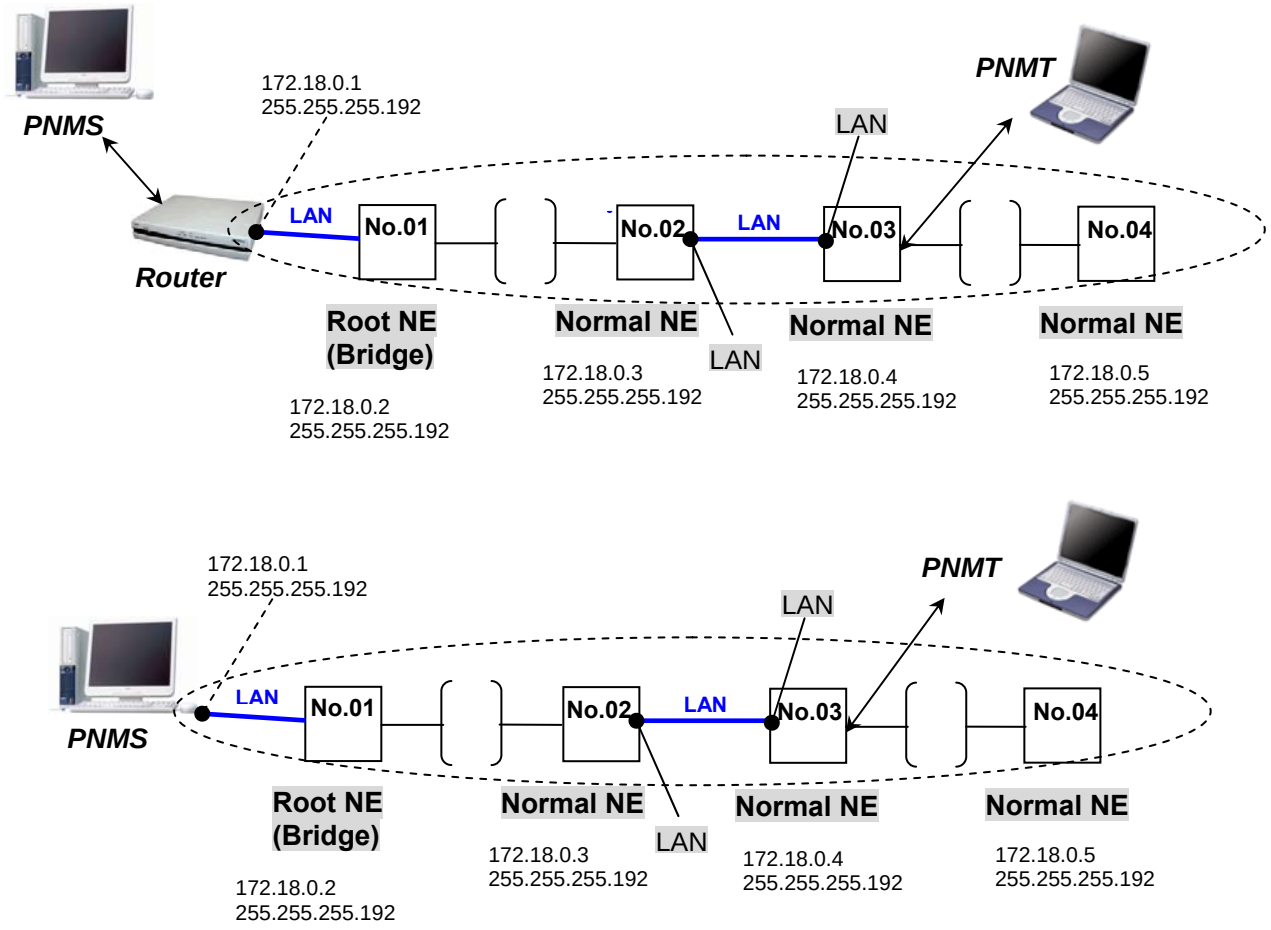
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: LAN)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.2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