ROI-S05936-054E
081024

NEC

P ASOLINK

N ETWORK

M ANAGEMENT

T ERMINAL

PNMT (Java version) Operation Manual

(for PASOLINK Mx)

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, setting parameters, PNMS/PNMT application program version, etc. Screens contained in this manual are current at the moment of publication, and may differ slightly from the actual screens on your PNMS/PNMT.
3. To use this manual, that you need a sound understanding of the restrictions, limitations and precautions involved in operating the equipment properly. Always refer to the respective 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 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 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
[Button]	Buttons in the user interface.	Click on **[OK]** button to continue Click on **[Execute]** button to send command.
Menu Items	A menu name followed by a colon (:) means that you must select the menu and then 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

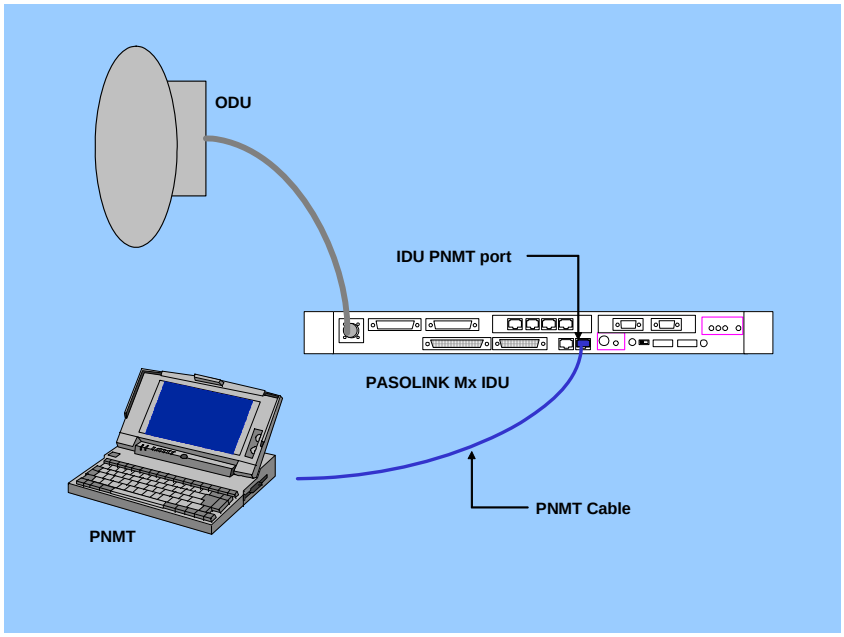
1.3.1 Communications

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

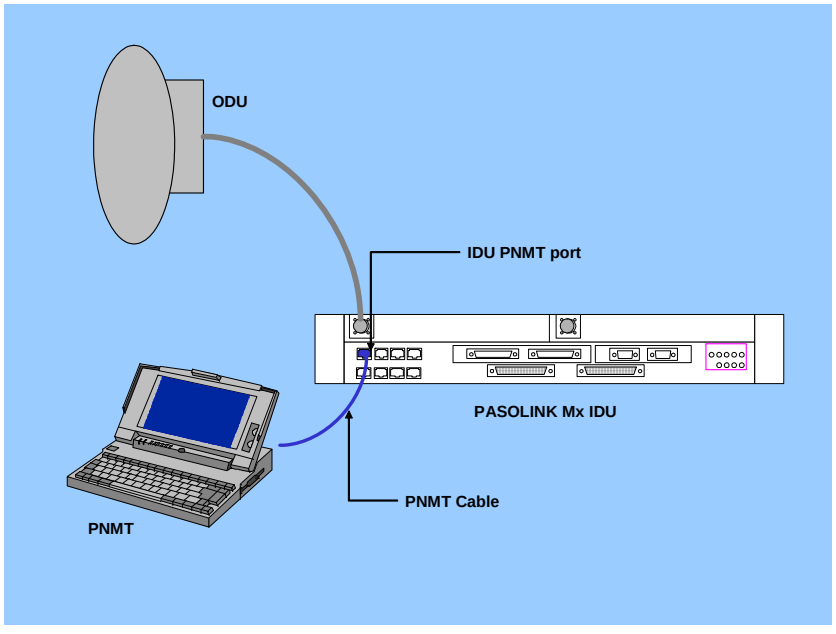
- via the **PNMT** port of the equipment,
- via the **DSC** to a remote node in the network.

1.3.1.1 PNMT Port Interface

The PNMT port is located on the front of the equipment.



1+0 (4x2M), 1+0 (20x2M)



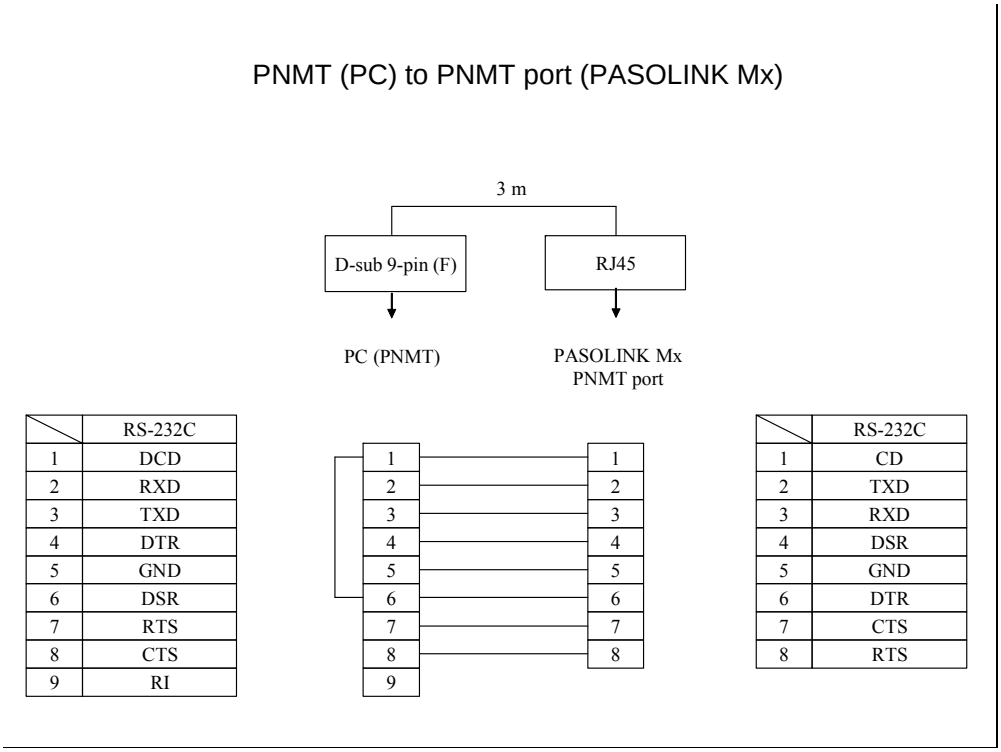
1+0, 1+0 (Expandable), 1+1 (Hot Stand-by), 1+1 (Twin Path)

The PNMT port consists of an RJ-45 connector that plugs into 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.



Cabling Diagram for PNMT PC to PNMT Port connections

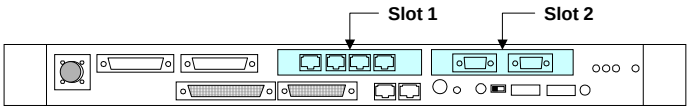
1.4 Equipment Configuration of PASOLINK Mx

PASOLINK Mx has 6 types of IDU.

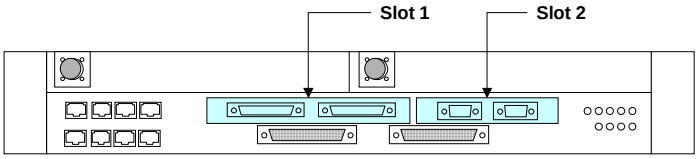
- 1+0 (4 x 2M)
- 1+0 (20 x 2M)
- 1+0
- 1+0 (Expandable)
- 1+1 (Hot Stand-by)
- 1+1 (Twin Path)

Every IDU has 2 optional slots.

1+0 (4 x 2M) and 1+0 (20 x 2M) can support TNS Card / PNMS Card in Slot1, and LAN INTFC-S in Slot2. 1+0, 1+0 (Expandable), 1+1 (Hot Stand-By) and 1+1 (Twin Path) support 2M INTFC-M (32 x 2M) in Slot1, and 2M INTFC-S (8 x 2M) / LAN INTFC-S in Slot2.



1+0 (4 x 2M), 1+0 (20 x 2M)



1+0, 1+0 (Expandable), 1+1 (Hot Stand-by), 1+1 (Twin Path)

2 System Operation & Maintenance

This chapter explains the menu structure and procedures for operating 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 of a window is used to indicate the title of the window.

Standard Menu bar
The common menu bar of the window presents the System and Help options, illustrates 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 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.

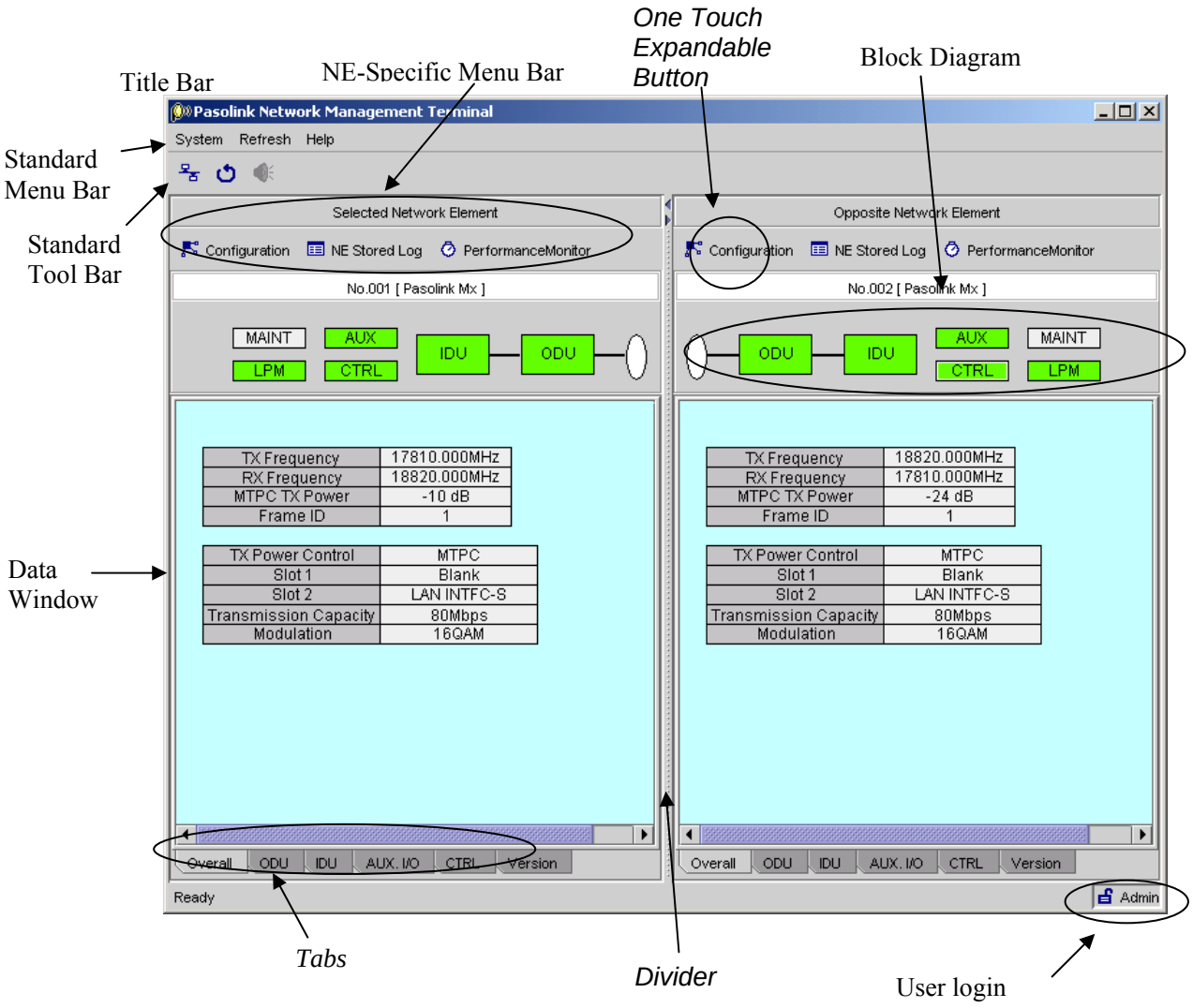
Block Diagram
The block diagram shows the equipment comprising the PASOLINK Mx wireless communication system. Its main purpose is to show the current alarm status summary for the equipment in the display window. You can click on a specific block to display the status of the network elements (NE) in the 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 which 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.

User Login
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 withing a hop by using a divider. Click this button to move the divider to the edge of the window.



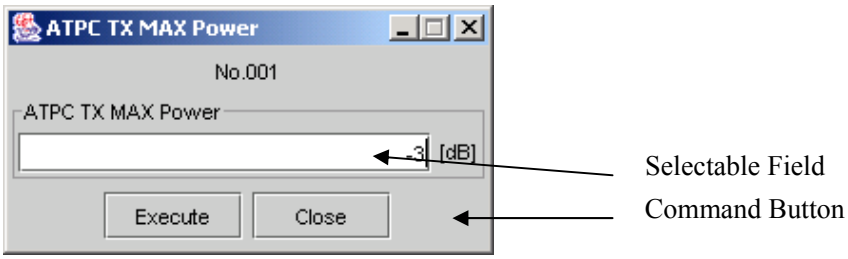


Figure 1 Standard Components of PNMT Window

2.2 Launching the PNMT Application

To start PNMT:

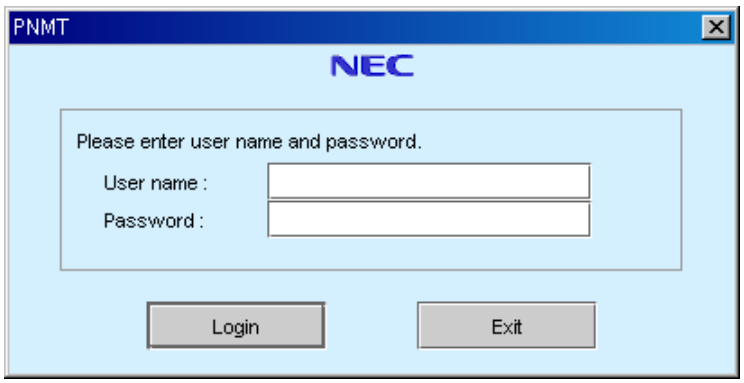
1. Turn system power ON .

NOTE

Connect the PNMT cable 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

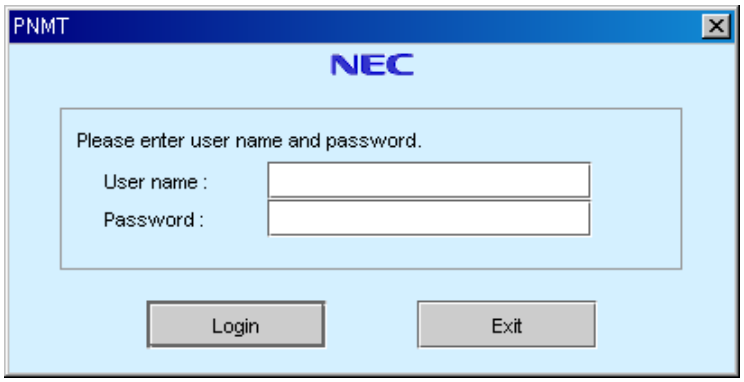
Users are registered by means of login name and password.

To protect the network and 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 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 Login window appears.



Login window

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

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

2.3.1 User Access Privilege Levels

✓: Available, -: Not Available

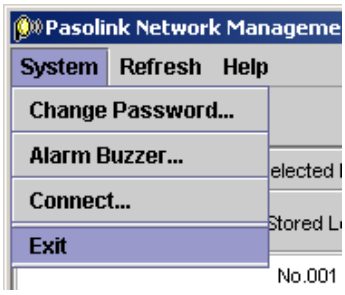
Functions			User Name and Accessible Functions				
Category		ITEM	Monitor	User	Local	Remote	Admin
SYSTEM		ALARM BUZZER	-	✓	✓	✓	✓
		CONNECT(Remote Login)	-	-	-	✓	✓
SUMMARY		MODULE DETECTED (Show Module Detected Symbol)	✓	✓	✓	✓	✓
		MODULE DETECTED (Open Control-Equipment Setup)	-	-	✓	✓	✓
IDU	COMMON/MAIN INTFC	DETAIL	✓	✓	✓	✓	✓
AUX I/O		INPUT	-	✓	✓	✓	✓
		OUTPUT	-	✓	✓	✓	✓
		RELAY CONFIGURATION	-	✓	✓	✓	✓
CTRL	CONTROL	DATE/TIME	-	-	✓	✓	✓
		CPU RESET	-	-	✓	✓	✓
	DOWNLOAD	CONFIGURATION FILE	-	-	-	-	✓
		PROGRAM FILE	-	-	-	-	✓
		EQUIPMENT CONFIG. FILE	-	-	-	-	✓
	UPLOAD	CONFIGURATION FILE	-	-	-	-	✓
		EQUIPMENT CONFI.G. FILE	-	-	-	-	✓
	IP NETWORK SETTING	IP NETWORK	-	-	-	-	✓
EQUIPMENT SETUP	EQUIPMENT SETUP	SETUP	-	-	✓	✓	✓
	CTRL	NE NAME	-	-	✓	✓	✓
		NOTE	-	✓	✓	✓	✓
PROVISIONING	MTPC STATUS	MTPC TX POWER	-	-	✓	✓	✓
		RX THRESHOLD	-	-	✓	✓	✓
		ADDITIONAL ATT	-	-	✓	✓	✓
	ATPC STATUS	ATPC (MAX)	-	-	✓	✓	✓
		ATPC (MIN)	-	-	✓	✓	✓
		RX THRESHOLD	-	-	✓	✓	✓
		ADDITIONAL ATT	-	-	✓	✓	✓
		ODU ALM MODE	-	-	✓	✓	✓
	BER ALM THRESHOLD	HIGH BER	-	-	✓	✓	✓
		LOW BER	-	-	✓	✓	✓
	CLUSTER ALM SETTING	CLUSTER ALM 1	-	-	✓	✓	✓
		CLUSTER ALM 2	-	-	✓	✓	✓
	SW PRIORITY	TX SW PRIORITY	-	-	✓	✓	✓
		RX SW PRIORITY	-	-	✓	✓	✓
	MAIN INTFC SETTING	CHANNEL USAGE ERROR REPORT	-	-	✓	✓	✓
		AIS RECEIVED REPORT	-	-	✓	✓	✓
		AIS GENERATED REPORT	-	-	✓	✓	✓
		AIS RECEIVED CONDITION SETTING	-	-	✓	✓	✓
		CHANNEL USAGE	-	-	✓	✓	✓
	AIS ACTIVARTION	AIS ACTIVATION CONDITION	-	-	✓	✓	✓
	SC ASSIGNMENT	SETTING	-	-	✓	✓	✓
	LAN INTFC-S	PORT SETTING	-	-	✓	✓	✓
	LAN INTFC-M	PORT SETTING	-	-	✓	✓	✓
MAINTENANCE		MAINT	-	✓	✓	✓	✓
		TX SWITCH	-	-	✓	✓	✓
		RX SWITCH	-	-	✓	✓	✓
		2 PORT LAN RESET	-	-	✓	✓	✓
		4 PORT LAN RESET	-	-	✓	✓	✓
		TX/RX FREQUENCY	-	-	✓	✓	✓
		SUB BAND	-	-	✓	✓	✓
		TX MUTE	-	-	✓	✓	✓
		IF LOOPBACK	-	-	✓	✓	✓
		CW	-	-	✓	✓	✓
		ATPC MANUAL	-	-	✓	✓	✓
		SHIFT FREQUENCY	-	-	✓	✓	✓
		ANTENNA ALIGNMENT MODE	-	-	✓	✓	✓
	2M CH LOOPBACK-1/2	2M CH LOOPBACK	-	-	✓	✓	✓
		2M CH LOOPBACK-1 ALL CH RESET	-	-	✓	✓	✓
		2M CH LOOPBACK-2 ALL CH RESET	-	-	✓	✓	✓
EVENT LOG		SAVE TO DISK	-	✓	✓	✓	✓
PMON	PMON	PMON THRESHOLD	-	✓	✓	✓	✓
		SAVE TO DISK	-	✓	✓	✓	✓

*Admin:	Enable to access to the all Network Elements.
*Remote:	Enable to access to the all Network Elements. (Disable to change network configuration and change program with downloading)
*Local:	Enable to access to Local NE and Opposite NE. (Disable to change network configuration and change program with downloading)
*User:	Enable to access to items which doesn't effect to the equipment.
*Monotor:	Enable to monitor only and disablet to control.

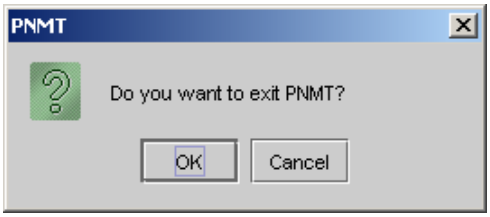
2.4 Shutting Down PNMT

To close the PNMT application:

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



2. Click **[OK]** to confirm closing the application.

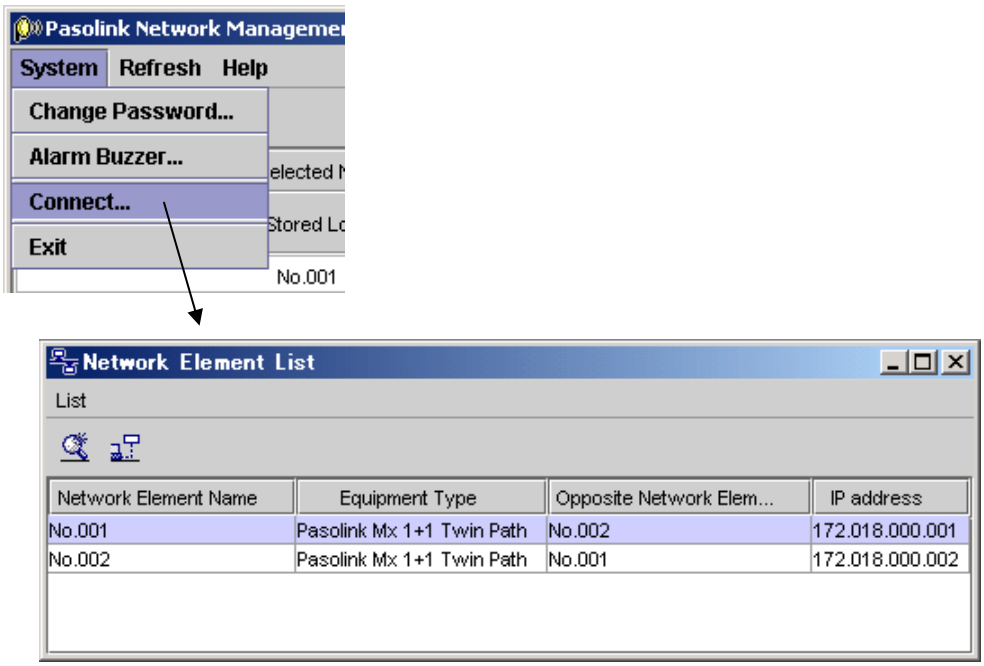


2.5 Searching for and Connecting to Selected Network Elements

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

To search for or connect to, a particular Network Element:

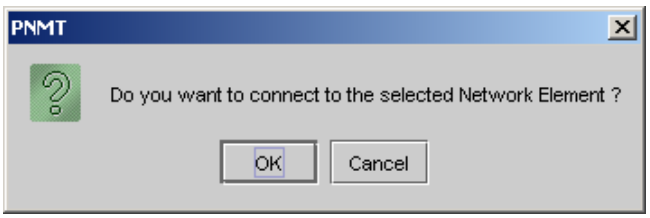
1. Click **System → Connect** ... on menu bar of **PNMT** main window.



NOTE

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

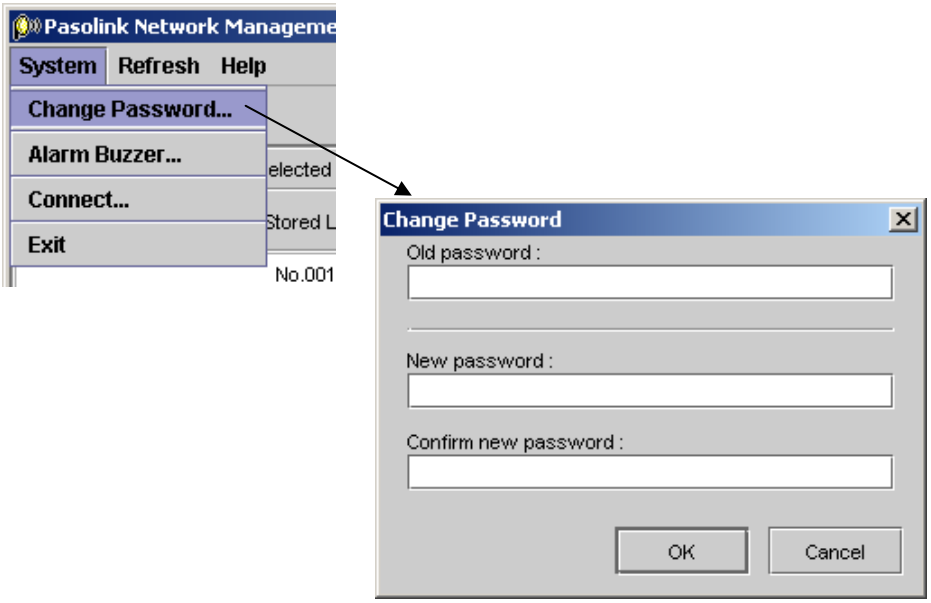
2. Click icon in the tool bar or **List → Search for Network Element** in the menu bar onfthe Network Element List window to display all connectable Network Elements in the network.
3. Select and highlight the network element to be viewed.
4. Click icon in the tool bar or **List → Connect to Network 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** in the menu bar of the 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

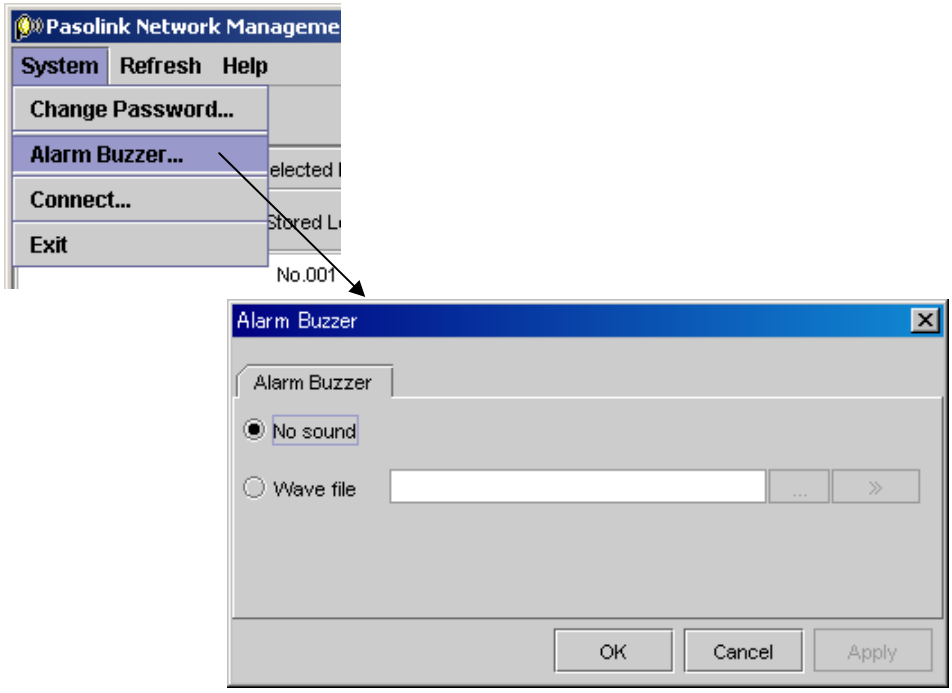
For details on initial user name and password, please refer to PNMT Installation manual.

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** box to activate the buzzer. **No sound** is the initial 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

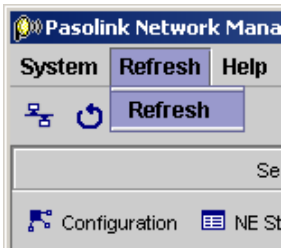
When the text column is blank, it is possible to set it.
Otherwise, the buzzer does not sound.

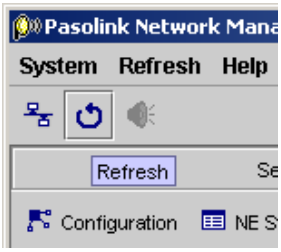
2.8 Refresh

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

To Refresh:

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





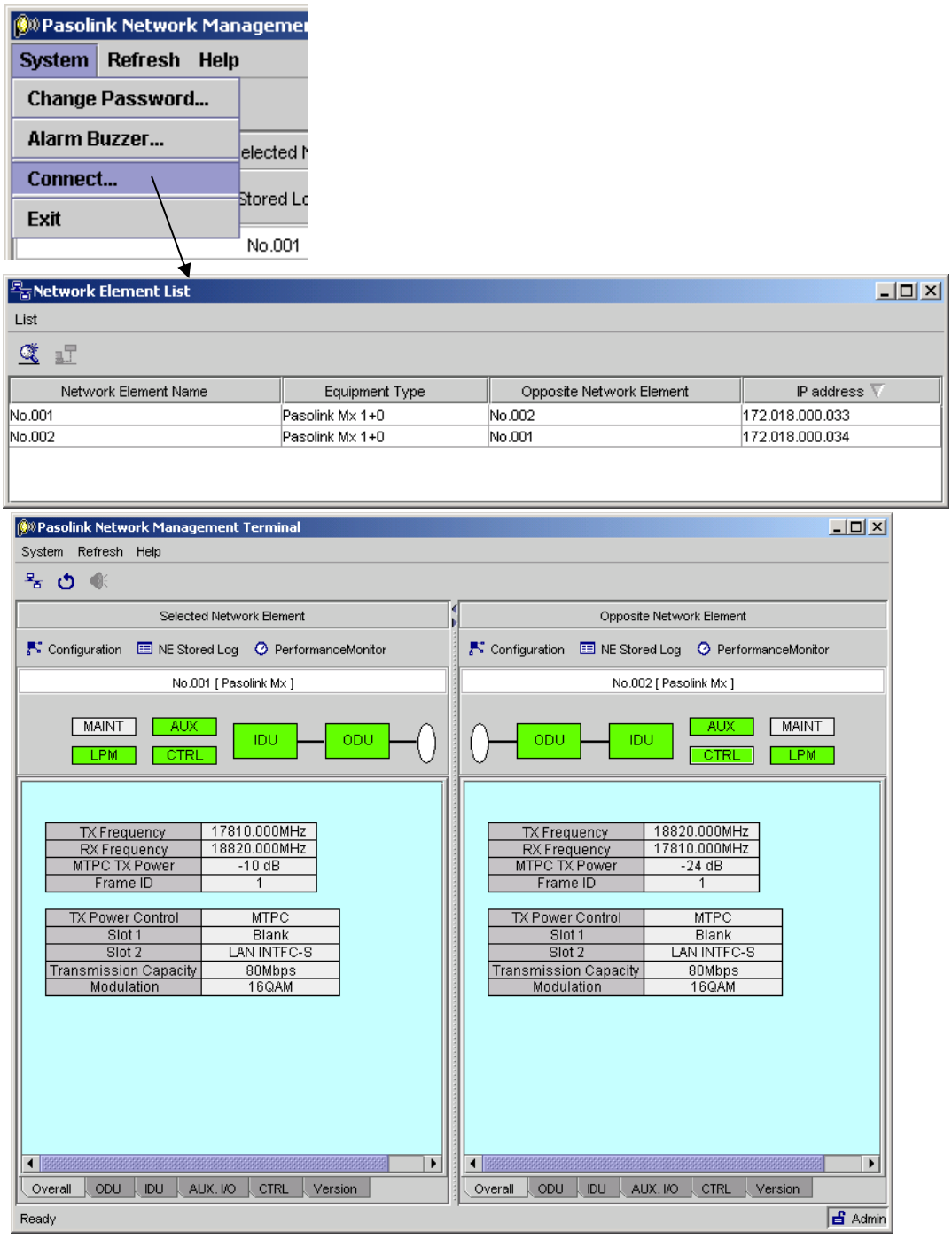
NOTE

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 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 cluster of the Pasolink+ network by searching through the connected NE's 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 NE's that belong to the same network as Root-NE as the local NE to which you are directly connected – via the PNMT cable.



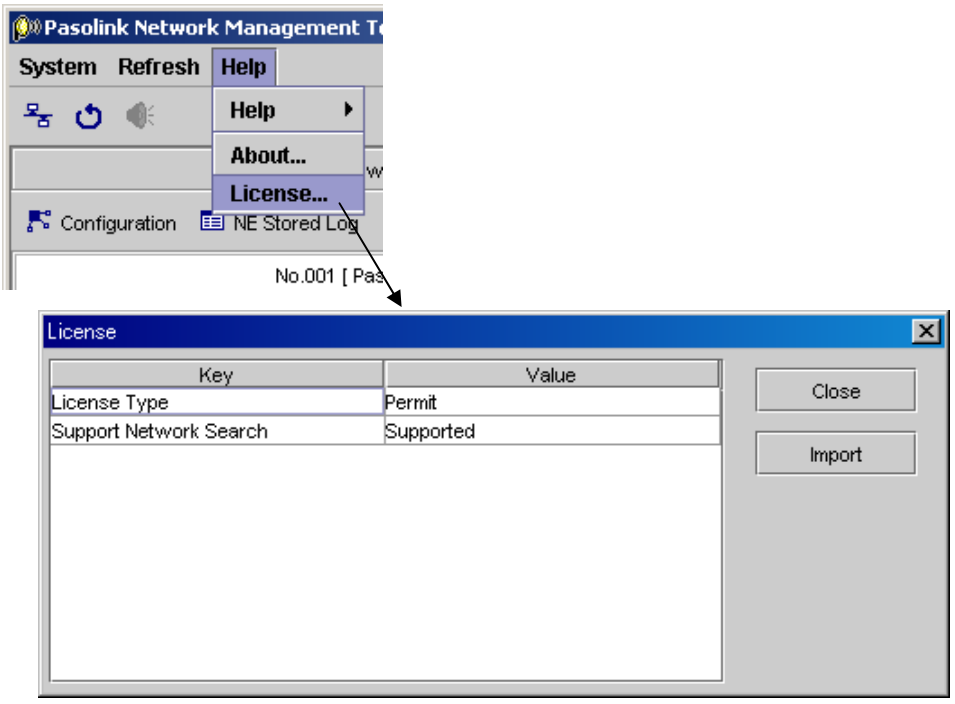
PNMT Main window (1+0 configuration)

2.10 License

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

To display the current license status,

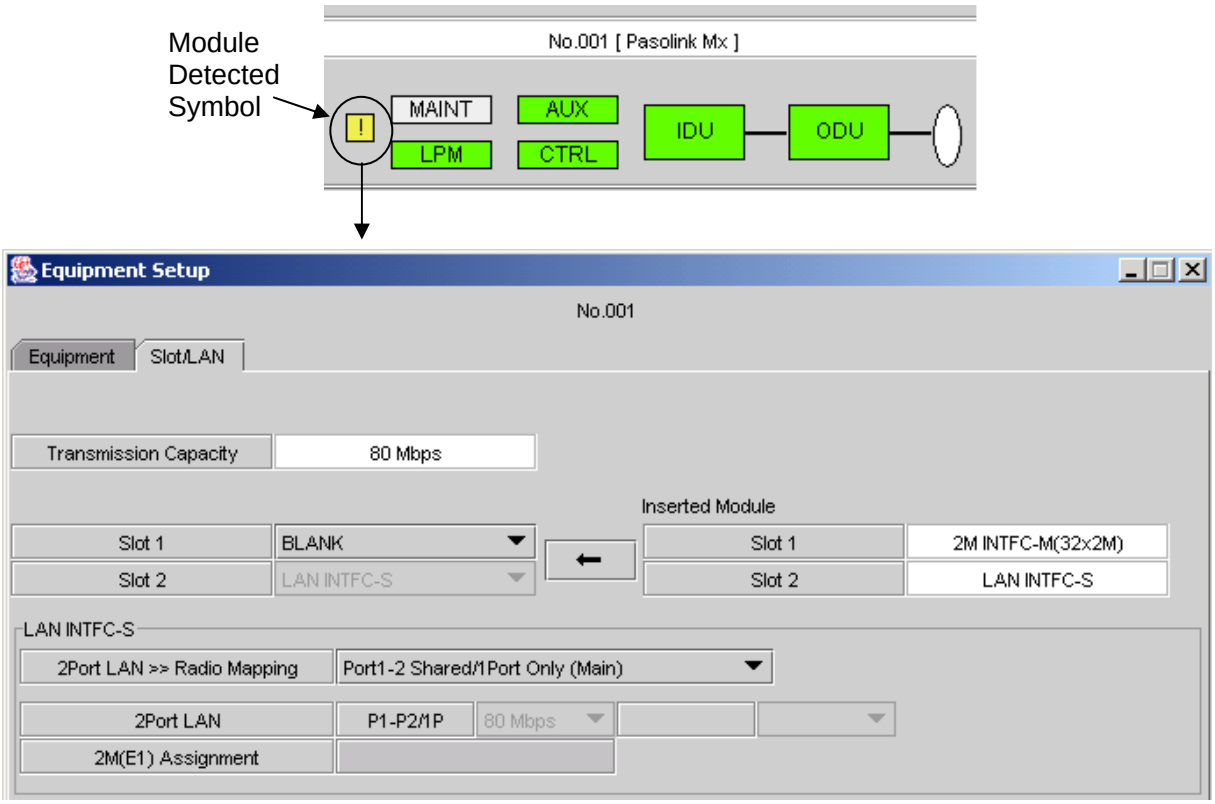
1. Click **Help → License ...** in the main window.



When changing the license file, click **[Import]**.

2.11 Module Detected Symbol

If IDU detects the difference between the module configuration and currently inserted modules in the slot(s), module detected symbol (!) will be flashed in the block-diagram portion of the PNMT screen. You can click on this symbol to be redirected to the Equipment Setup window or go to Configuration → Equipment Setup → Slot/LAN tab to synchronize the module configuration.



1. Click [<-] symbol to apply the detected (inserted) module in the configuration.

   (See 2.18 Equipment Setup)

2.12 Overall Tab

This tab is displayed at 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.

Overall Tab (1+0 configuration)

TX Frequency	19309.500 MHz
RX Frequency	18301.500 MHz
MTPC TX Power	-24 dB
Frame ID	1

TX Power Control	MTPC
Slot 1	PNMS Card
Slot 2	LAN INTFC-S
Transmission Capacity	10Mbps(Fix)
Modulation	16QAM

Overall Tab (1+1 configuration)

	No.1	No.2
TX Frequency	12754.500 MHz	12754.500 MHz
RX Frequency	13020.500 MHz	13020.500 MHz
MTPC TX Power	-24 dB	-24 dB
Frame ID	1	2

TX Power Control	MTPC
Slot 1	2M INTFC-M(32x2M)
Slot 2	2M INTFC-S
Transmission Capacity	80Mbps
Modulation	16QAM

Selected RX	No.1

The following items are displayed with this tab:

- **TX Frequency** – the currently used transmission frequency.
- **RX Frequency** – the currently used reception frequency
- **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.
- **Frame ID** – the current predefined value of the 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).
- **Slot1** – the current setting of Slot1.
- **Slot2** – the current setting of Slot2.
- **Transmission Capacity** – shows the transmission capacity of the system.
- **Modulation** – the current modulation type used.
- **Selected TX** (for hot standby configuration only) – shows the currently used signal transmission.
- **Selected RX** (for 1+1 system only) – shows the currently used signal reception system.

2.13 ODU Tab

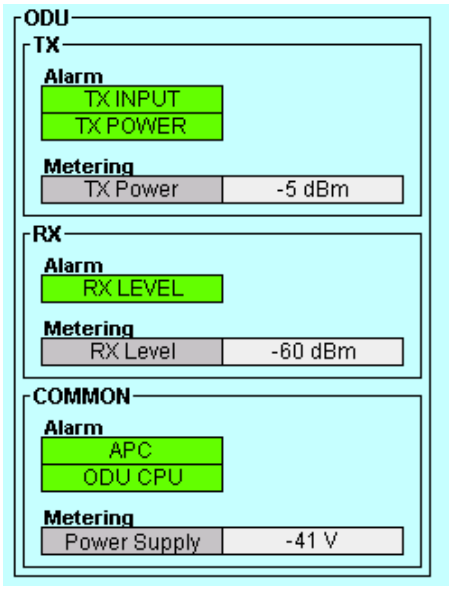
This function is used to display the values and status of the monitored items of the ODU. This window only displays current settings and there are no control functions associated with this window.

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

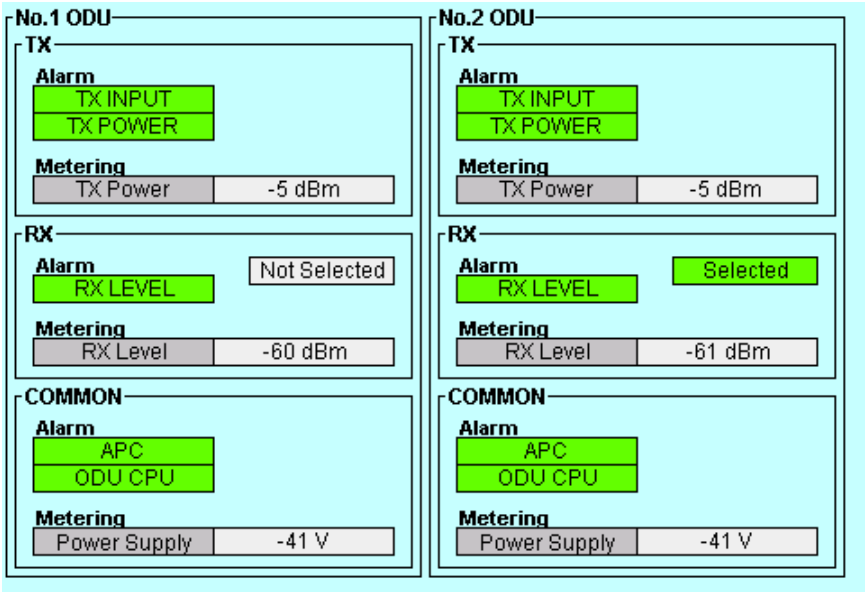
2.13.1 ODU Tab

To view the alarm and status display of the ODU:

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



ODU Tab
(1+0 Configuration)



ODU Tab (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 transparency letters and gray background in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.
- TX POWER: TX RF Power decreases 3 to 6 dB from nominal value. Item/Status area is shown with transparency letters and gray background in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.
- Selected/Not Selected: shows the current system used for signal transmission.

  (for 1+1 systems only)

Metering

TX Power: The transmitted power of the ODU in dBm. Item and status area are shown and item area filled with black font, status is no information in case PS Alarm, ODU CPU Alarm or IF Cable Short 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 transparency letters and gray background in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.
- Selected/Not Selected: shows the current system used for signal reception.

  (for 1+1 systems only)

Metering

RX Level: The received level interpreted in dBm. Item and status area are shown and item area filled with black font, status is no information in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.

COMMON PORTION

Alarm

- APC: this alarm occurs when the Local Oscillator is locked out. Item/Status area is shown with transparency letters and gray background in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.
- ODU CPU: this alarm occurs when the communication between the ODU and the IDU is lost. Item/Status area is shown with transparency letters and gray background in case PS Alarm

Metering

Power Supply: Display PS voltage value (V). Item/Status area is shown with transparency letters and gray background in case PS Alarm, ODU CPU Alarm or IF Cable Short Alarm.

2.14 IDU Tab

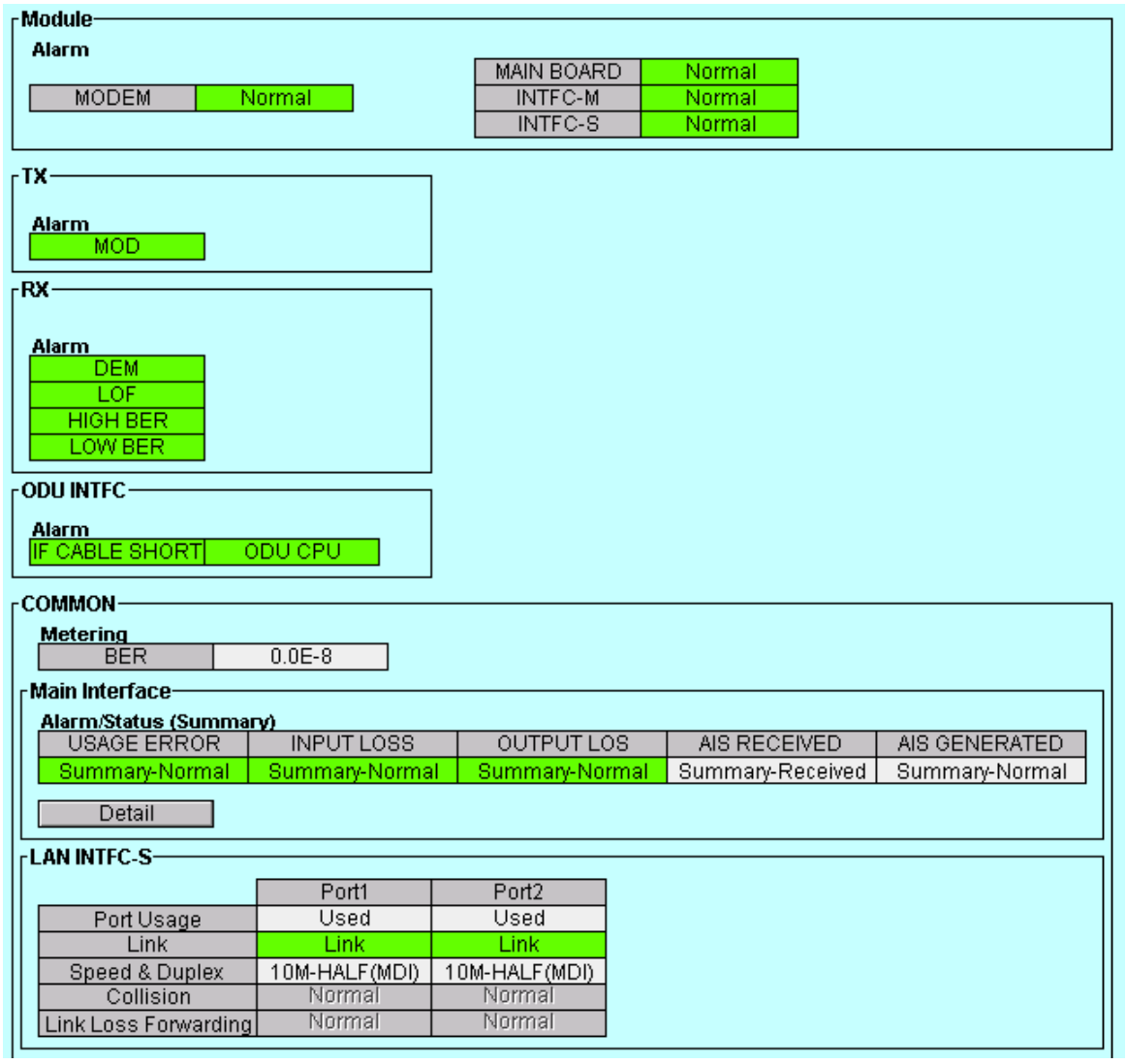
This function is to display the values and status of the monitored items of the IDU. This window only displays current settings and there is no control functions associated with this window.

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

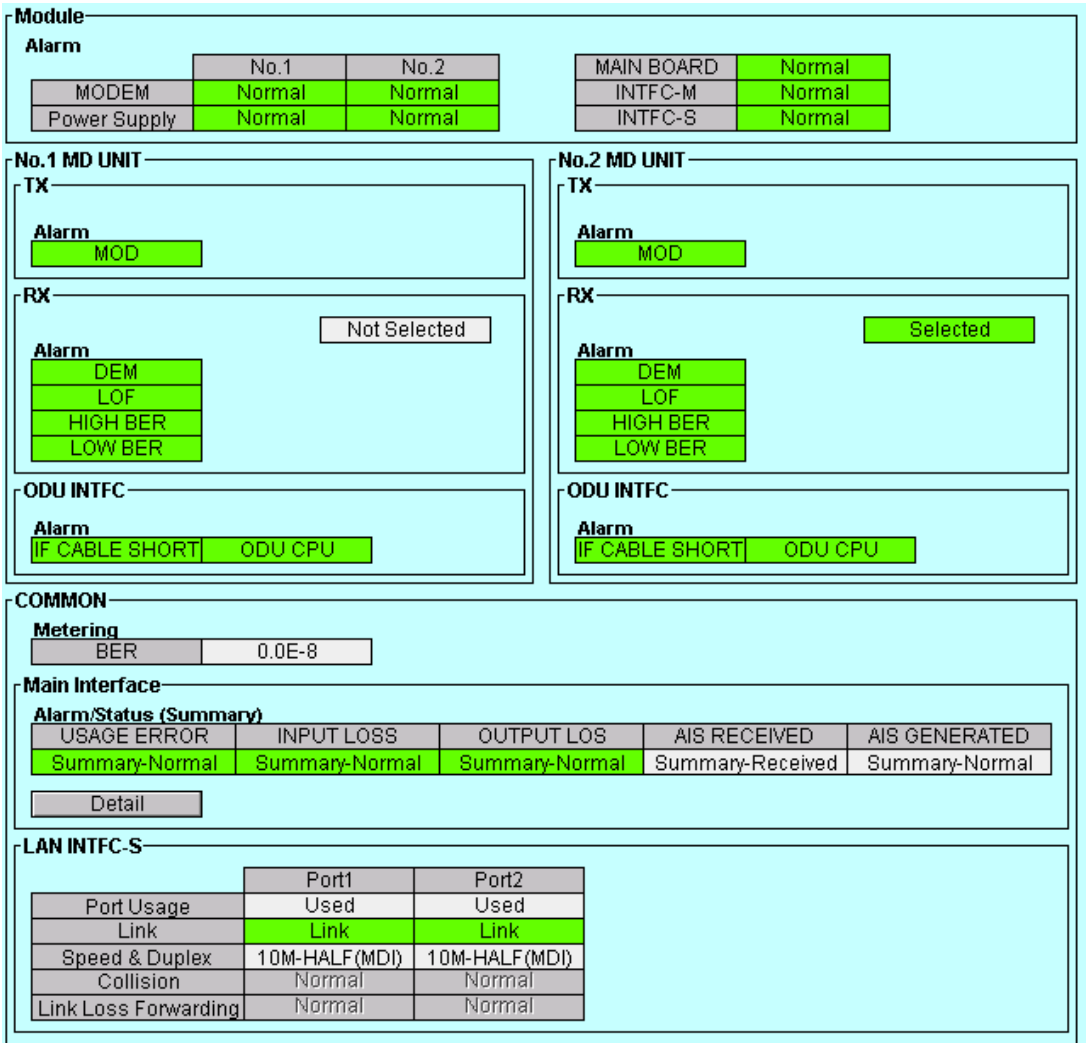
2.14.1 IDU Tab

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 are different for both systems.



IDU window (1+0 Configuration)



IDU window (1+1 Configuration)

COMMON

MAIN INTFC(DETAIL)

	USAGE	USAGE ERROR	INPUT LOSS	OUTPUT LOSS	AIS RECEIVED	AIS GENERATED
		Summary-Normal	Summary-Normal	Summary-Normal	Summary-Received	Summary-Normal
CH01	Not Used	Normal	Normal	Normal	Received	Normal
CH02	Used	Normal	Normal	Normal	Normal	Normal
CH03	Used	Normal	Normal	Normal	Normal	Normal
CH04	Used	Normal	Normal	Normal	Normal	Normal
CH05	Used	Normal	Normal	Normal	Normal	Normal
CH06	Used	Normal	Normal	Normal	Normal	Normal
CH07	Used	Normal	Normal	Normal	Normal	Normal
CH08	Used	Normal	Normal	Normal	Normal	Normal
CH09	Used	Normal	Normal	Normal	Normal	Normal
CH10	Used	Normal	Normal	Normal	Normal	Normal
CH11	Used	Normal	Normal	Normal	Normal	Normal
CH12	Used	Normal	Normal	Normal	Normal	Normal
CH13	Used	Normal	Normal	Normal	Normal	Normal
CH14	Used	Normal	Normal	Normal	Normal	Normal
CH15	Used	Normal	Normal	Normal	Normal	Normal
CH16	Used	Normal	Normal	Normal	Normal	Normal
CH17	Used	Normal	Normal	Normal	Normal	Normal
CH18	Used	Normal	Normal	Normal	Normal	Normal
CH19	Used	Normal	Normal	Normal	Normal	Normal
CH20	Used	Normal	Normal	Normal	Normal	Normal

Detail window of Main Interface

Monitored Items in IDU Tab

MODULE

Alarm

- MODEM: alarm occurs if there is a modem failure. Item/Status area is shown with transparency letters and gray background in case PS Alarm.
- Power supply: alarm occurs if the power supply fails.
- MAIN BOARD: alarm occurs when the INTFC module or CPU (SUB) fails.
- TNS/PNMS CARD: alarm occurs if when TNS Card or PNMS Card in Slot1 fails.
- INTFC-S: alarm occurs when the LAN INTFC-S Card or 2M INTFC-S (8x2M) Card in Slot2 fails.

MODEM

TX

Alarm

- MOD: alarm occurs when the TX unit (modem) failed. Item/Status area is shown with transparency letters and gray background in case 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 transparency letters and gray background in case PS Alarm.

RX

Alarm

- DEM: alarm occurs when the RX unit (demodulator) fails or the IF signal is lost. Item/Status area is shown with transparency letters and gray background in case PS Alarm.
- LOF: loss of frame occurred. Item/Status area is shown with transparency letters and gray background in case PS Alarm.
- HIGH BER: alarm occurs if the signal is deteriorated below the threshold value. Item/Status area is shown with transparency letters and gray background in case PS Alarm.
- LOW BER: alarm occurs if the signal is deteriorated below the threshold value. Item/Status area is shown with transparency letters and gray background in case 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 transparency letters and gray background in case PS Alarm or CABLE Alarm.

ODU INTFC

Alarm

- IF CABLE SHORT: alarm occurs when the cable between IDU and ODU is shorted. Item/Status area is shown with transparency letters and gray background in case PS Alarm.
- ODU CPU: alarm occurs when the connection between IDU and ODU disconnects. Item/Status area is shown with transparency letters and gray background in case PS Alarm or IF CABLE SHORT Alarm.

COMMON

Metering

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

MAIN INTFC

Item/Status area is shown with transparency letters and gray background in case every channel is Not Used.

Alarm/Status

- USAGE ERROR: alarm occurs when 2MB bipolar signal is inputted into the channel that has been chosen “Not Used”.
- INPUT LOSS: alarm occurs when 2MB bipolar signal is disconnected.
- OUTPUT LOSS: alarm occurs when the received signal from radio link is lost.
- AIS RECEIVED: indicates the status of AIS RECEIVED signal for transmitting channel in the MAIN INTFC. Status area is shown with transparency letters and gray background in case AIS Received Report is Not Reported.
- AIS GENERATED: indicates the status of AIS generation signal for receiving channel in the MAIN INTFC. Status area is shown with transparency letters and gray background in case AIS Generated Report is Not Reported.

LAN INTFC-S

Item/Status area is shown with transparency letters and gray background in case 2 Port LAN Radio Mapping is Not Used.

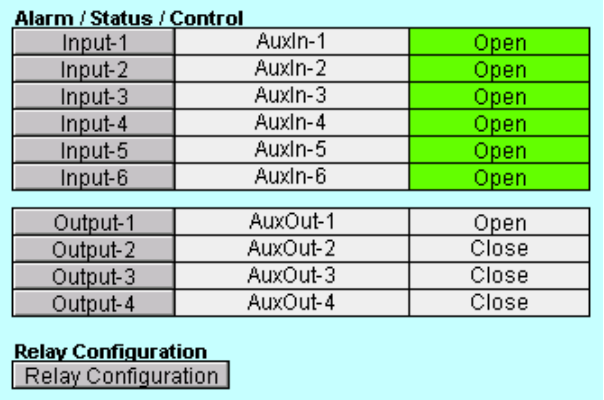
- Port Usage: enables to apply the each port.
- Link: alarm occurs when the link fails on each port. Status area is shown with transparency letters and gray background in case Port Usage is Not Used.
- Speed & Duplex: indicates the status of Speed & Duplex. Status area is shown with transparency letters and gray background in case Port Usage is Not Used.
- Collision: indicates the status of Collision. Status area is shown with transparency letters and gray background in case Port Usage is Not Used, Collision Report is Not Reported or Speed & Duplex is Full.
- Link Loss Forwarding: indicates the status of Link Loss Forwarding. Status area is shown with transparency letters and gray background in case Port Usage is Not Used or Link Loss Forwarding is Disable.

2.15 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 each device in the Auxiliary I/O monitor window.

To monitor and set the Auxiliary I/O:

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



Aux. I/O window

2.15.1 Monitored Items

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)

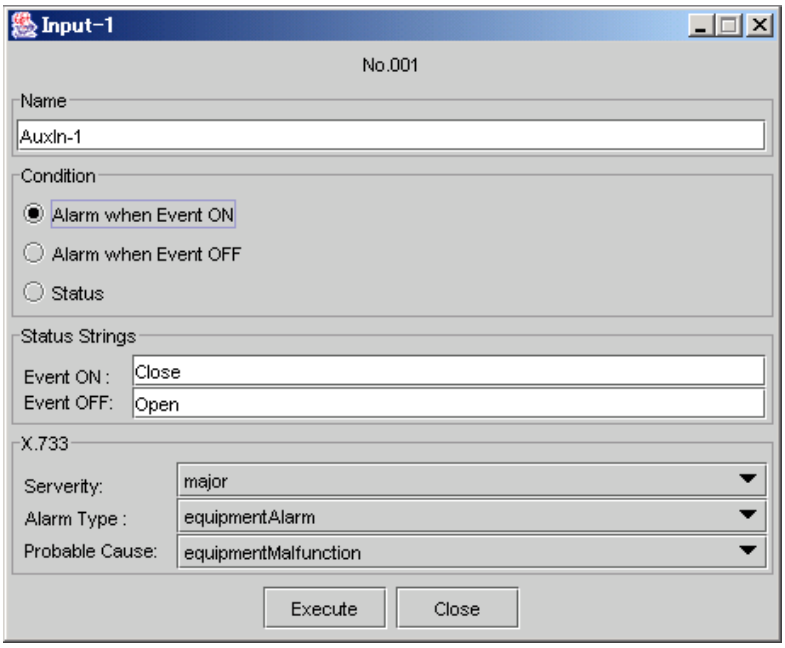
When Cluster ALM Setting (Input) is enabled, following Input items are used as Cluster ALM.

1. When Cluster ALM1 is enabled, Input-6 item is used as Cluster ALM1.
2. When Cluster ALM2 is enabled, Input-5 item is used as Cluster ALM2.

2.15.2 Photocoupler Input Setting

To set the photocoupler input:

1. Click the selected **[Input-*n*]** in **Aux. I/O** window.
2. The input properties will be displayed in the ensuing window.

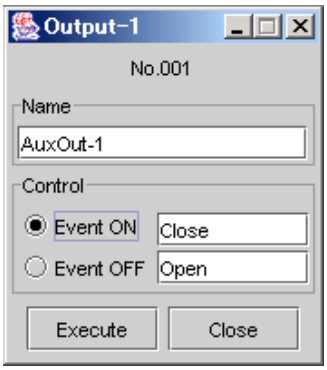


2.15.2.1 Setting the Selected Input to Alarm or Status

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 to the PNMSj/PNMTj. Also you can preset the input to just send the status event instead of the alarm event. The alarm input severity is defined in the X.733 recommendations. Select the severity of the alarm, its type and probable cause by clicking 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.

2.15.3 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 **Event ON** or **Event OFF** 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.

2.15.4 Relay Configuration

There are 7 relays in the IDU. Consequently, 7 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 RL07 are user-definable relays for Housekeeping (HK), Cluster alarm or other external parallel alarms. If the HK-OUT's are enabled, RL04 to RL07 are allocated for Housekeeping (HK). Cluster alarm 1 and 2 are outputted on RL07 and RL06 respectively.

NOTE

Relays RL04 to RL07 are available for allocation of Housekeeping (HK), Cluster alarms and equipment alarms. These alarms are outputted on the same relay.

CAUTION:

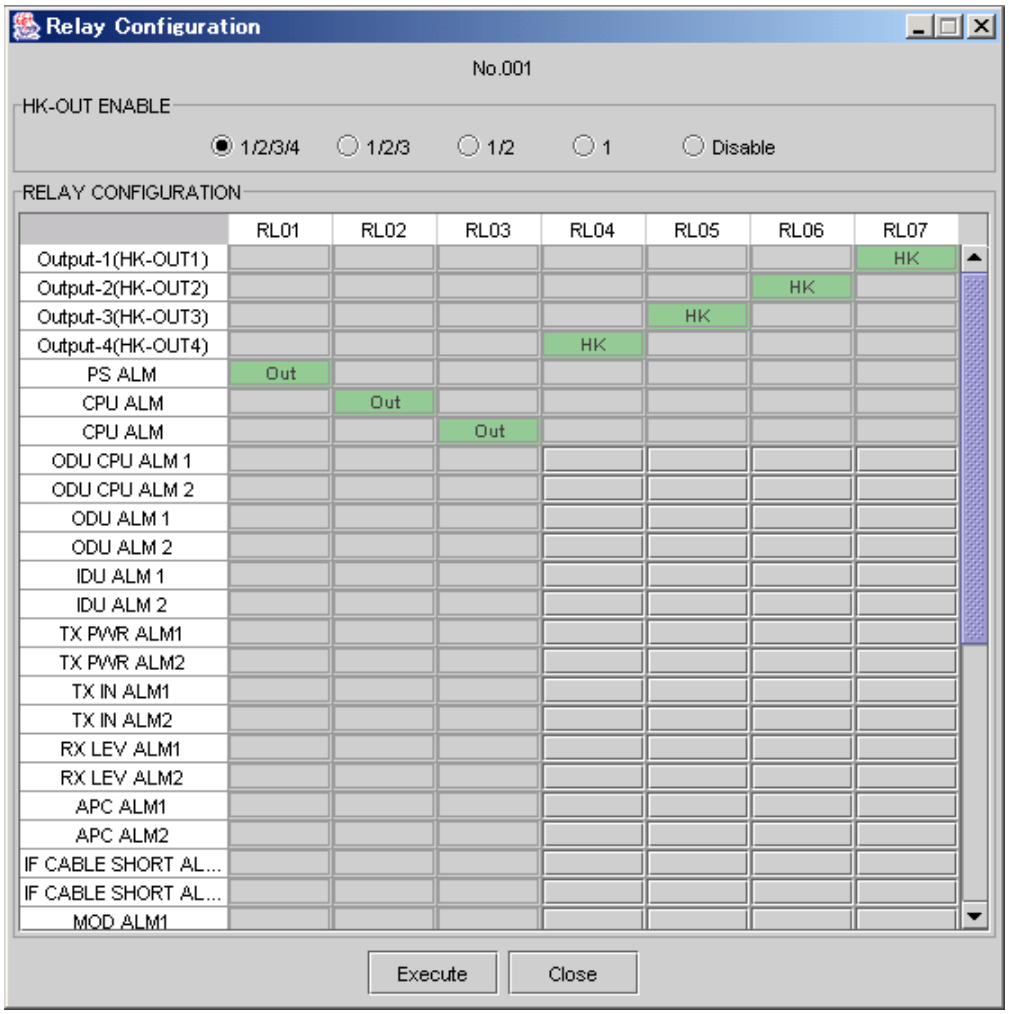
When setting RL07 or RL-06 to output the cluster alarm, it is recommended that Housekeeping (HK) and equipment alarms be removed from the form – this is to ensure that RL07 or RL06 will output only the cluster alarm.

The PNMT allows the user to configure the relays in a table format. The columns indicate the relays (RL01 to RL07) and the rows indicate the parallel alarms available. 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.
- **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 equipment. There are four (4) available HK-OUT's in the system. Selecting "**1/2/3/4**" button 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**" button.



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

The following alarms are available for allocation on the relays.

	RL1	RL2	RL3	RL4	RL5	RL6	RL7
Output-1(HK-OUT-1)							
Output-2(HK-OUT-2)							
Output-3(HK-OUT-3)							
Output-4(HK-OUT-4)							
MAINT	Out						
PS ALM		Out					
CPU ALM			Out				
ODU CPU ALM							
ODU ALM							
IDU ALM							
TX PWR ALM							
TX IN ALM							
RX LEV ALM							
APC ALM							
IF CABLE SHORT ALM							
MOD ALM							
DEM ALM							
HIGH BER ALM							
LOW BER ALM							
LOF							
INPUT LOSS							
OUTPUT LOSS							
AIS RECEIVED							
AIS GENERATED							
USAGE ERROR							
Cluster ALM 1							
Cluster ALM 2							

: Not Available
Out : Fixed Alarm Only
: User-Selectable

Relay Configuration List (1+0)

	RL1	RL2	RL3	RL4	RL5	RL6	RL7
Output-1(HK-OUT-1)							
Output-2(HK-OUT-2)							
Output-3(HK-OUT-3)							
Output-4(HK-OUT-4)							
MAINT	Out						
PS ALM		Out					
CPU ALM			Out				
ODU CPU ALM 1							
ODU CPU ALM 2							
ODU ALM 1							
ODU ALM 2							
IDU ALM 1							
IDU ALM 2							
TX PWR ALM 1							
TX PWR ALM 2							
TX IN ALM 1							
TX IN ALM 2							
RX LEV ALM 1							
RX LEV ALM 2							
APC ALM 1							
APC ALM 2							
IF CABLE SHORT ALM 1							
IF CABLE SHORT ALM 2							
MOD ALM 1							
MOD ALM 2							
DEM ALM 1							
DEM ALM 2							
HIGH BER ALM 1							
HIGH BER ALM 2							
LOW BER ALM 1							
LOW BER ALM 2							
LOF 1							
LOF 2							
INPUT LOSS							
OUTPUT LOSS							
AIS RECEIVED							
AIS GENERATED							
USAGE ERROR							
Cluster ALM 1							
Cluster ALM 2							

: Not Available
Out : Fixed Alarm Only
: User-Selectable

Relay Configuration List (1+1)

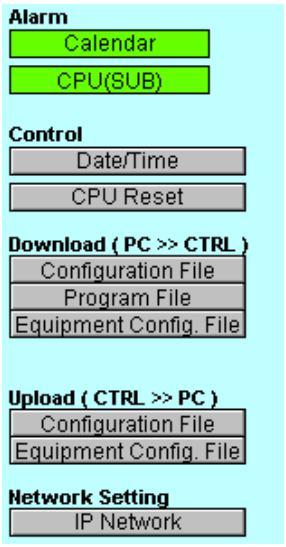
NOTE

When maintenance mode is ON, all other alarms except HK and cluster alarms are masked.

2.16 Control (CTRL) Tab

2.16.1 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 window:

- Calendar Alarm
- CPU (SUB) 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

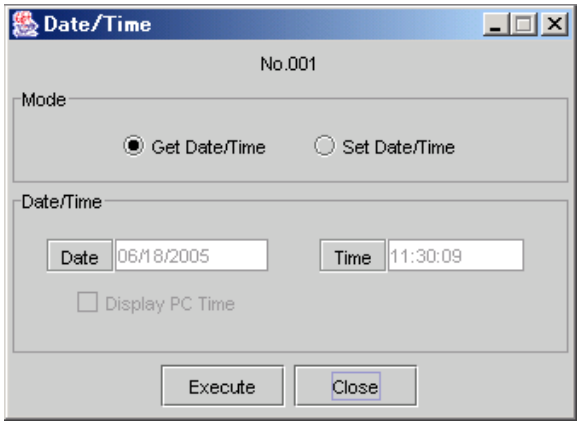
Only Mx CTRL version **1.2.1** or higher supports Auto-discovery and the connection to PNMT displays "IP Network Setting" items

2.16.2 Setting the Date/Time

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

To set the Date/Time:

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



NOTE

To set the values of the Date and Time fields to the same value as the PNMT computer, check 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.

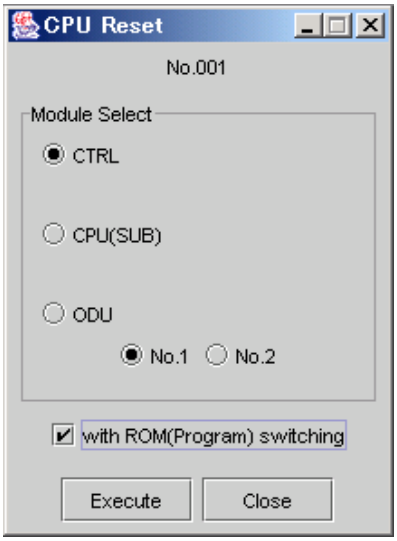
b-4. Click **[Execute]**.

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

2.16.3 CPU Reset

The Control module can be reset using this function

*The CPU Reset window is not available when MAINT is OFF.



NOTE

Resetting the Control module will not affect the traffic. The connection to the selected NE will be lost a few minutes and will be automatically re-connected.

NOTE

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

To reset the Control module:

1. Click **[CTRL Reset]** in **CTRL** window.
2. You can select the "**with ROM (Program) Switching"** option if you want to switch to a newly downloaded Control module Program file.
3. Click **[Execute]** to continue the Control module reset operation.

NOTE

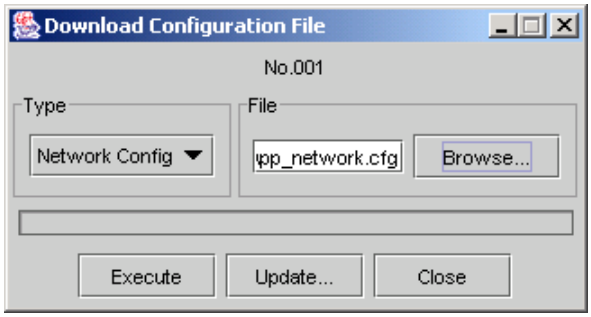
Switch ON maintenance mode first before executing CPU Reset.

2.16.4 Downloading the Configuration Files to the Control Module

This function is for download the network configuration files from the PNMT to the Control module. The network configuration file – **pp_network.cfg**, contains the IP addresses of the target NE as well opposite NE and the information about the network where the target 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 the new configuration file to the CTRL:

1. Click **[Configuration File]** in the **Download (PC>>CTRL)** section on **CTRL** window.



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 w can cause Control module or network failure.

---

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

NOTE

Switch ON maintenance mode first then executing the 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:

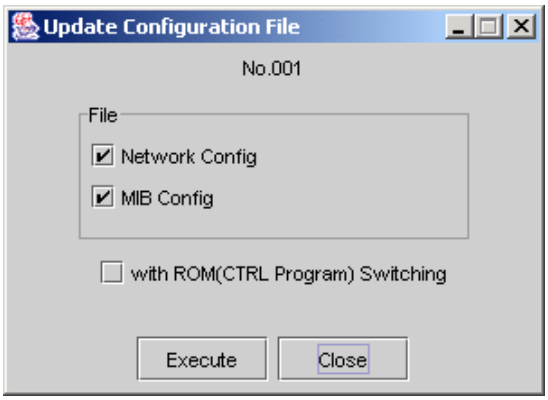
Make sure that you have successfully downloaded the configuration file before attempting an Update. Otherwise the Control module will switch to an empty ROM that may cause the Control module failure.

---

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 file(s) can be updated by checking the selection box of the configuration file name. Click on **[Execute]** button 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 *2.16.3 CPU Reset*.



NOTE

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

NOTE

Updating the CTRL will not affect the traffic. The connection to the selected Pasolink will be disrupted for a few minutes but will be automatically re-stored.

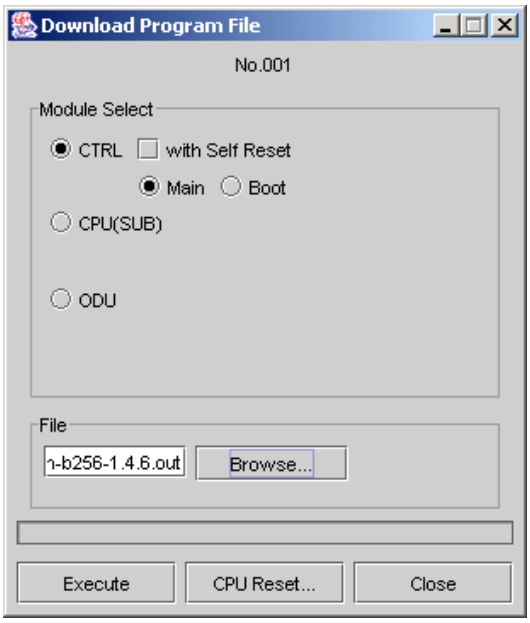
8. Click **[Close]** when done.

2.16.5 Downloading a new Program File to the Control Module

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

To download the program file to Control module:

1. Click **[Program File]** in the **Download (PC>>CTRL)** section on **CTRL** window.



2. Select the module select button of CTRL. If you tick the "**with Self Reset**" the Control module will be reset automatically after program file download is completed. In this case, you won't need to do 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 file will lead to 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. It 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 to the selected NE will be disrupted a few minutes will automatically be restored.

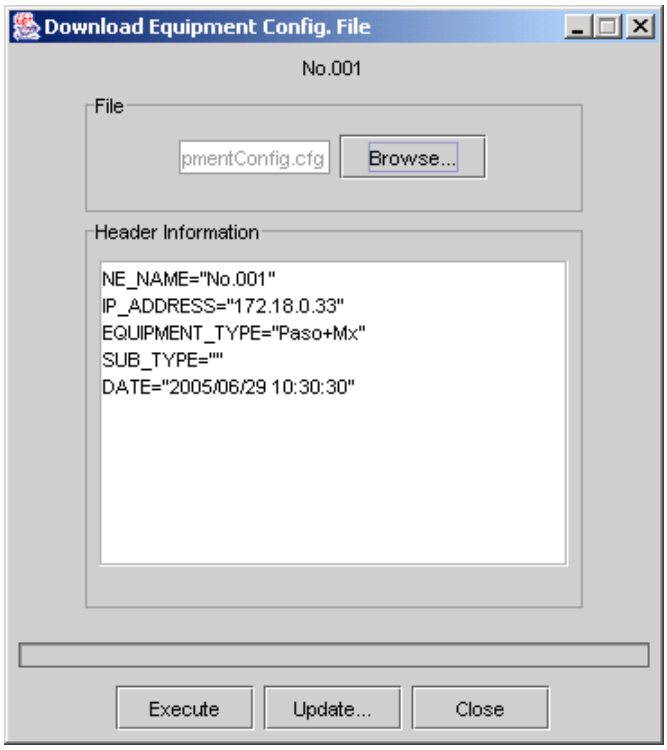
9. Click **[Close]** when done.

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

To download new configuration file to the NE:

1. Click **[Equipment Config. File]** in the **Download (PC>>CTRL)** section on **CTRL** window.



2. Click **[Browse]** to locate the file on the local hard disk or diskette.

WARNING!!!

Make sure that the correct equipment configuration file is downloaded to the correct Control module. 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.)

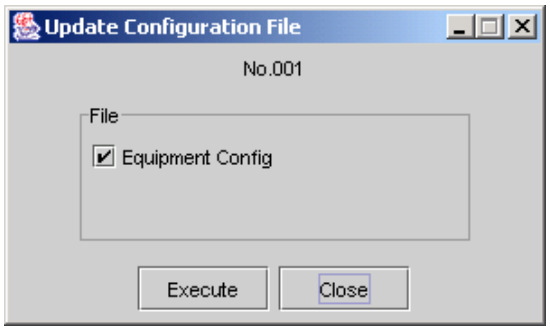
4. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING!!!

Make sure that you have successfully downloaded the configuration file before doing 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 update 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.

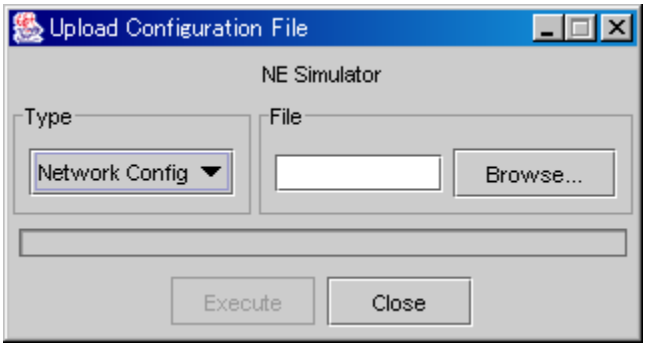
6. Click on **[Close]** button when done.

2.16.7 Uploading 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 the configuration file from the Control module to the PNMT:

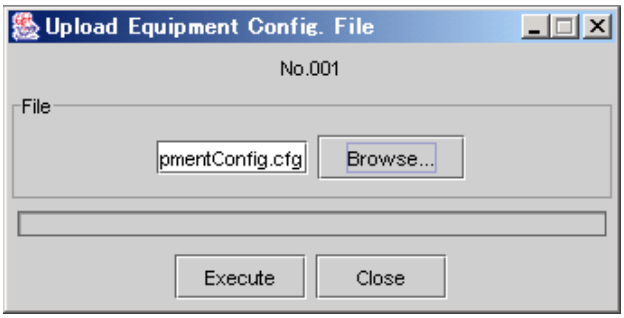
1. Click **[Configuration File]** in the **Upload (CTRL>>PC)** section of the **CTRL** window.



2. Select the type of file to be uploaded with the **Type** field.
3. Enter the desired file name for the uploaded file. And select 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 to the specified directory.

2.16.8 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.



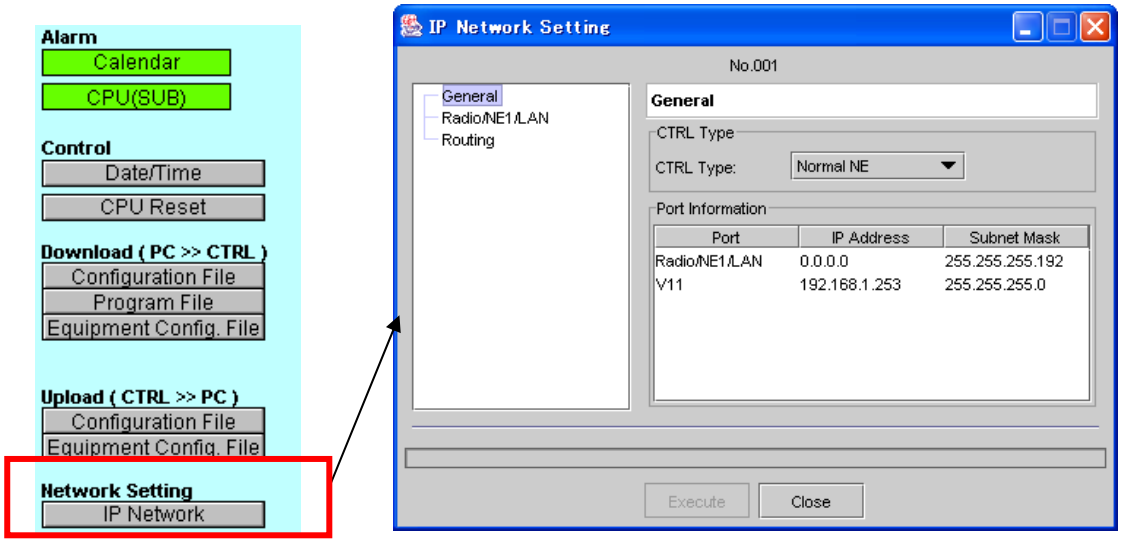
To upload the equipment configuration file from the Control module to the PNMT:

1. Click **[Equipment Config. File]** in the **Upload (CTRL>>PC)** section of the **CTRL** window.
2. Click **[Execute]** to start the operation.
3. Enter the desired file name for the uploaded file. And select 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 to the specified directory.

2.16.9 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**.

2.17 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 manually
	(for 1+1 Hot Standby system only.)
RX Switch:	To control the RX switch manually
	(for 1+1 system only)
2Port LAN Reset:	To reset LAN Ports of LAN INTFC-S interface
TX/RX Frequency:	To set TX Frequency and RX Frequency
Sub Band:	To select Sub Band
TX Mute:	To turn off TX power
IF Loopback:	To set the IF loop back (Local only)
CW (MOD Carrier):	To turn on the Continuous Wave for measurements (Local only)
ATPC Manual:	To use an optional transmitting power when the ATPC is in operation
Shift Frequency:	To select Shift Frequency (for 1+0(4x2M), 1+0(20x2M) only)
Antenna Alignment Mode:	To turn on Antenna Alignment Mode (only available for the specific type of ODU)
Loopback-1:	To set the loop back at the line input of E1
Loopback-2:	To set the loop back at the line output of E1

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

NOTE

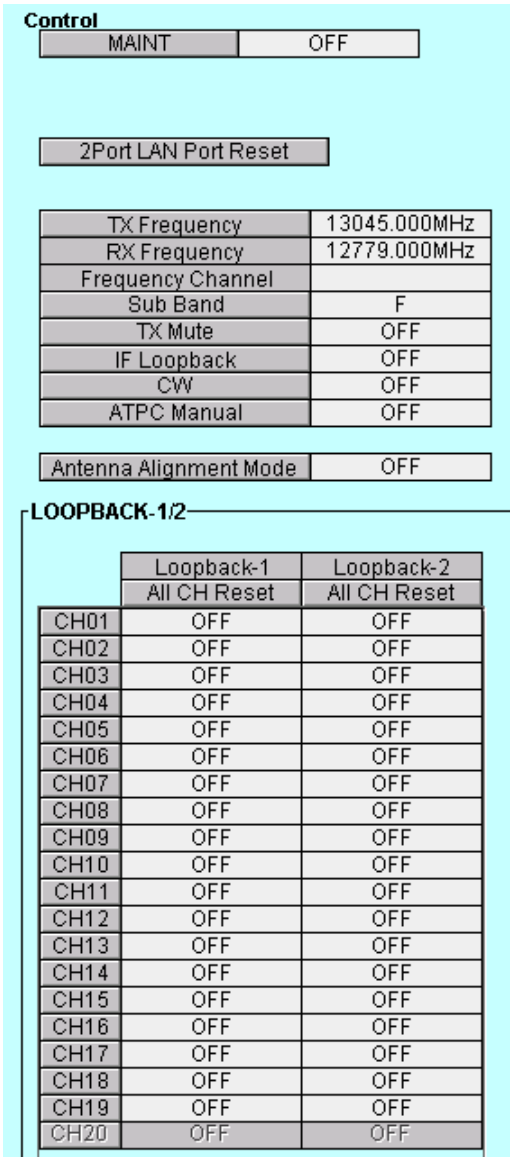
MAINT, TX Mute, CW, Loopback and ATPC Manual will be cleared if the power is turned off and on or the RESET switch is depressed.

2.17.1 Maintenance Menu

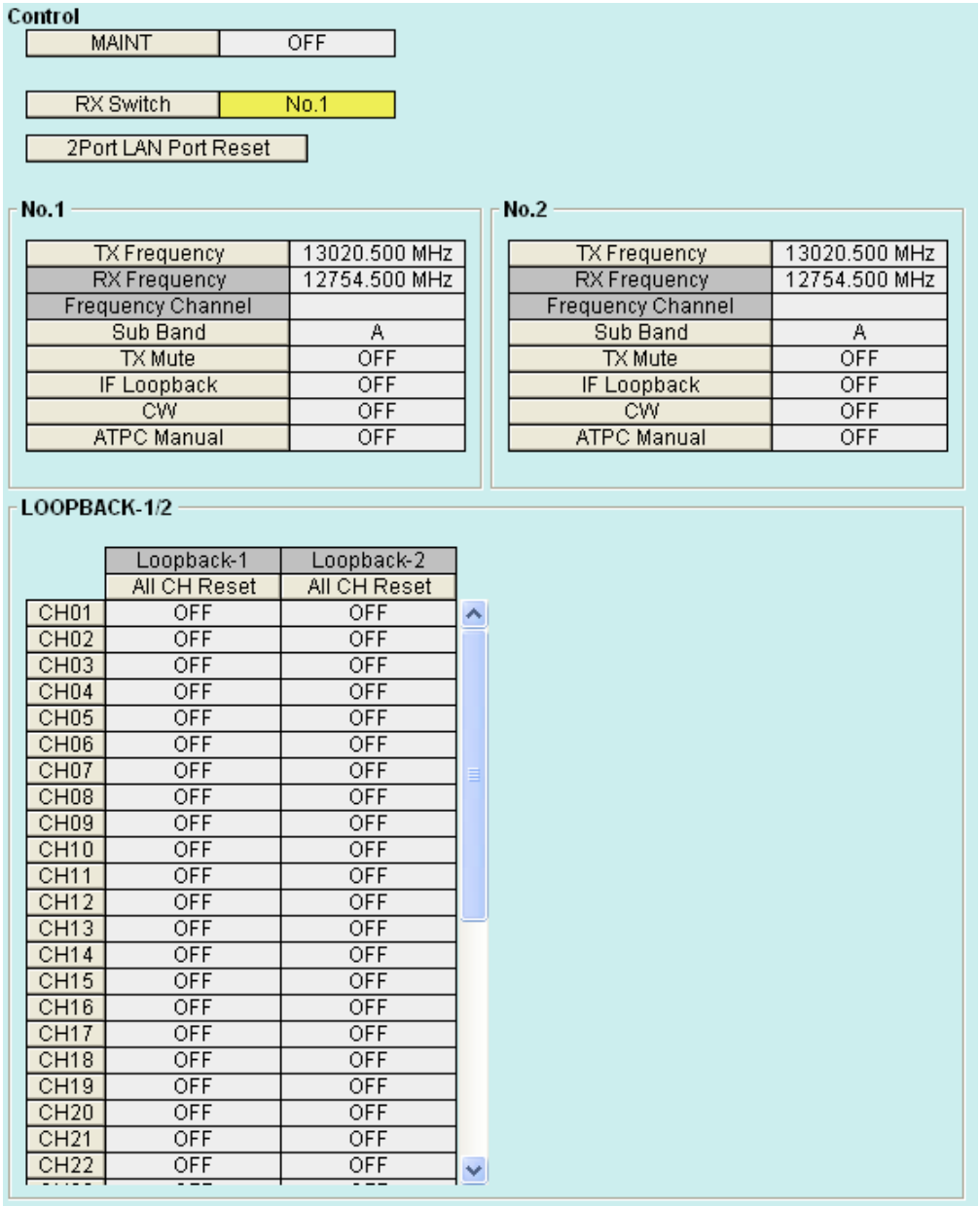
To open the Maintenance window:

1. Select **Configuration → Maintenance** in the NE-specific menu bar.

This window contains the setup information of MAINT and several maintenance control items that have to been set during Maintenance Mode. The **Maintenance** window is shown below.



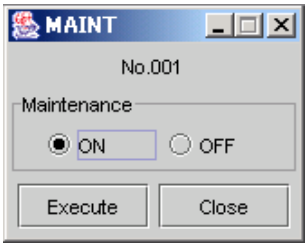
Maintenance window (1+0 Configuration)



Maintenance window (1+1 Configuration)

2.17.2 Selecting Maintenance Mode

To switch the NE to maintenance mode:

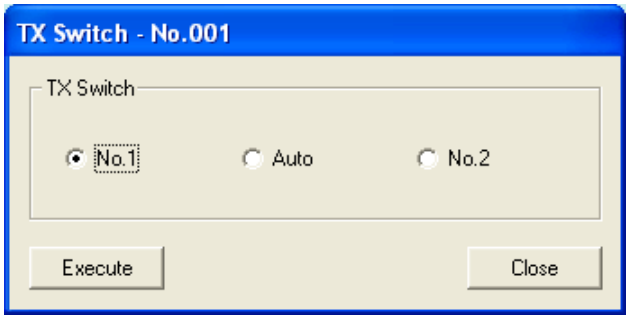


1. Click **[MAINT]** in **Maintenance** window.
2. Select **ON/OFF** depending on desired state.
3. Click **[Execute]** to carry out the command.
4. Click **[Close]** when finished.

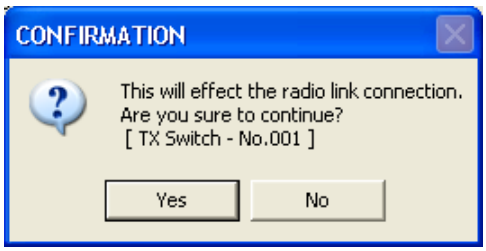
2.17.3 TX Switch (for 1+1 Hot Stand-by system only)

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 setting is Auto.



3. Click **[Execute]** to switch the TX to the selected system.



CAUTION:

When TX Switch is changed from the default setting (Auto) to either No.1 or No.2, the confirmation message appears.

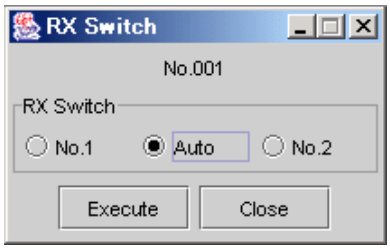
If the TX switch has been manually switched to either No.1 or No.2, the confirmation message will NOT appear. However, this operation still may affect the radio link connection.

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

2.17.4 RX Switch (for 1+1 system only)

To control the RX switch manually:

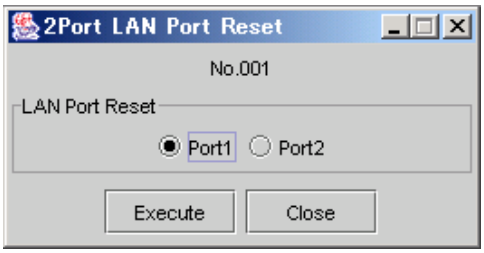
1. Click **[RX Switch]** in **Maintenance** window.
2. Select the system that you wish to use for the RX portion of the radio. The default setting is Auto.
3. Click **[Execute]** to switch the RX to the selected system.
4. Click **[Close]** when finished.



2.17.5 2 Port LAN Reset

To reset LAN Ports of LAN INTFC-S interface:

1. Click **[2Port LAN Reset]** in **Maintenance** window.
2. Select the port that you want to reset.
3. Click **[Execute]** to reset LAN ports.
4. Click **[Close]** when finished.



2.17.6 TX/RX Frequency

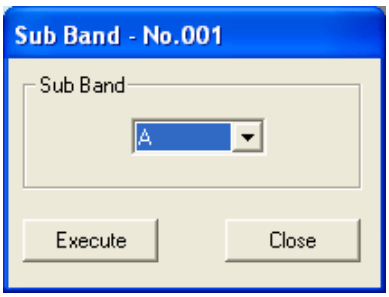
Display the RF transmitted frequency and consequently its pair receiving frequency. (See 2.18 Equipment Setup.)

2.17.7 Sub Band

Sub Band of ODU can be selected

To select Sub Band:

1. Click **[Sub Band]** in **Maintenance** window.
2. Select the type of Sub Band in the Sub Band list.
3. Click **[Execute]** to carry out the command.
4. Click **[Close]** when finished.

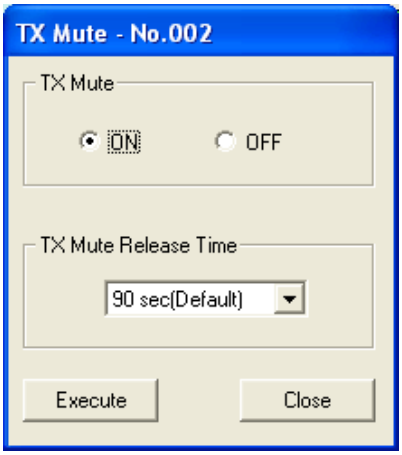


2.17.8 TX Mute status

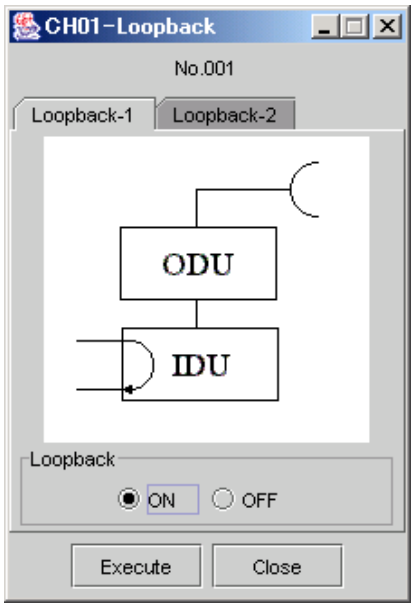
TX power of the ODU is switched off when TX Mute is **ON**. This should be **OFF** in normal operation.

To change the TX Mute status:

1. Click **[TX Mute]** in **Maintenance** window.
2. Select **ON/OFF** depending on the desired state.
3. When you are setting to the opposite NE, you have to also select **TX Release Time** in the **TX Mute Release Time** list.
4. Click **[Execute]** to carry out the command.
5. Click **[Close]** when finished.



2.17.9 Loopback-1

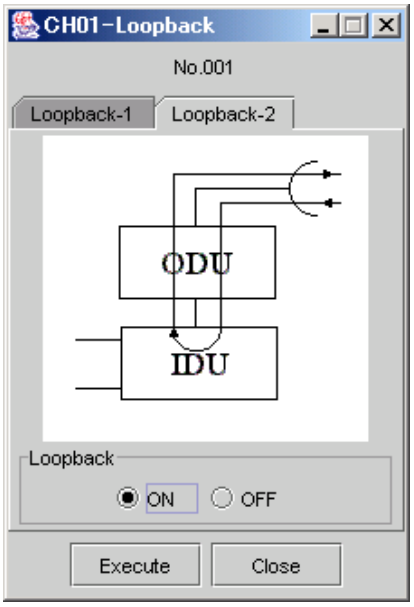


This type loopback is created at the line input of E1..

To set the Loopback-1:

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

2.17.10 Loopback-2



This type loopback is created at the line output of E1.

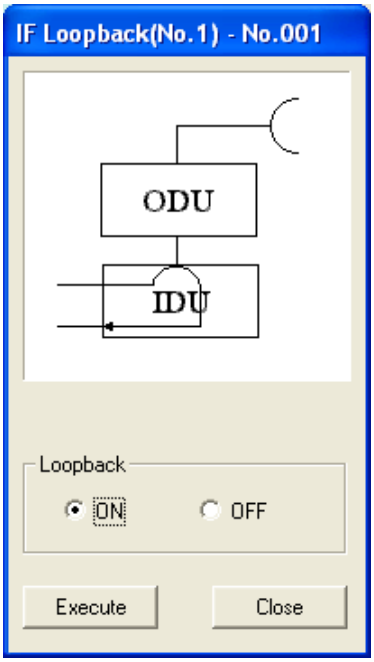
To set the Loopback-2:

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

2.17.11 IF Loopback

This type loopback is created at the IF stage.

1. Click **[IF LoopBack]** in the Maintenance window.



NOTE

Switch ON maintenance mode first before executing IF Loopback.

2. Select ON to activate the loopback.
3. Click **[Execute]** to apply the loopback.
4. Click **[Close]** when finished.

2.17.12 CW (MOD Carrier) status

When doing frequency measurements, the CW should be turned ON to have an un-modulated signal. During normal operations this status should be OFF.

To change the CW (MOD Carrier) status:

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

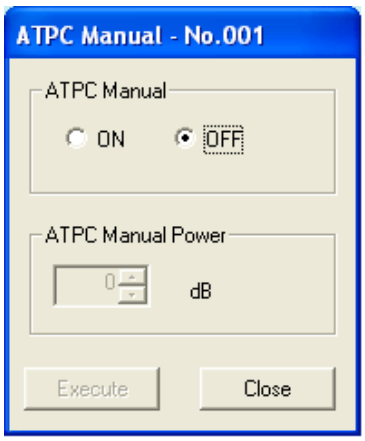
NOTE

Switch ON maintenance mode first before executing CW.

2. Click **ON/OFF** depending on desired state.
3. Click **[Execute]** to carry out the operation.
4. Click **[Close]** when finished.

2.17.13 ATPC Manual

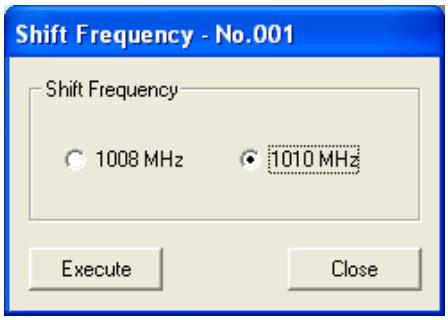
Use when an optional transmitting power is required when the ATPC is in operation.
To set the ATPC Manual:



1. Click **[ATPC Manual]** in **Maintenance** window.
2. Select the 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.

2.17.14 Shift Frequency

The shift frequency function is used to select the type of shift frequency. This function is only available for 1+0 (4x2M) and 1+0 (20x2M) system configuration
To select Shift Frequency:

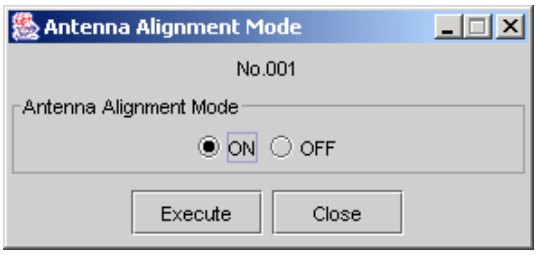


1. Click **[Shift Frequency]** in Maintenance window.
2. Select the type of **Shift Frequency** in the **Shift Frequency** window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.15 Antenna Alignment Mode (only available for the specific type of ODU)

The Antenna Alignment Mode function is used for extending the dynamic range of the RX LEVEL MONITOR (ODU). This function is only available for the specific type of ODU.

To set Antenna Alignment Mode:



1. Click **[Antenna Alignment Mode]** in Maintenance window.
2. Select ON/OFF
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.18 Equipment Setup

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

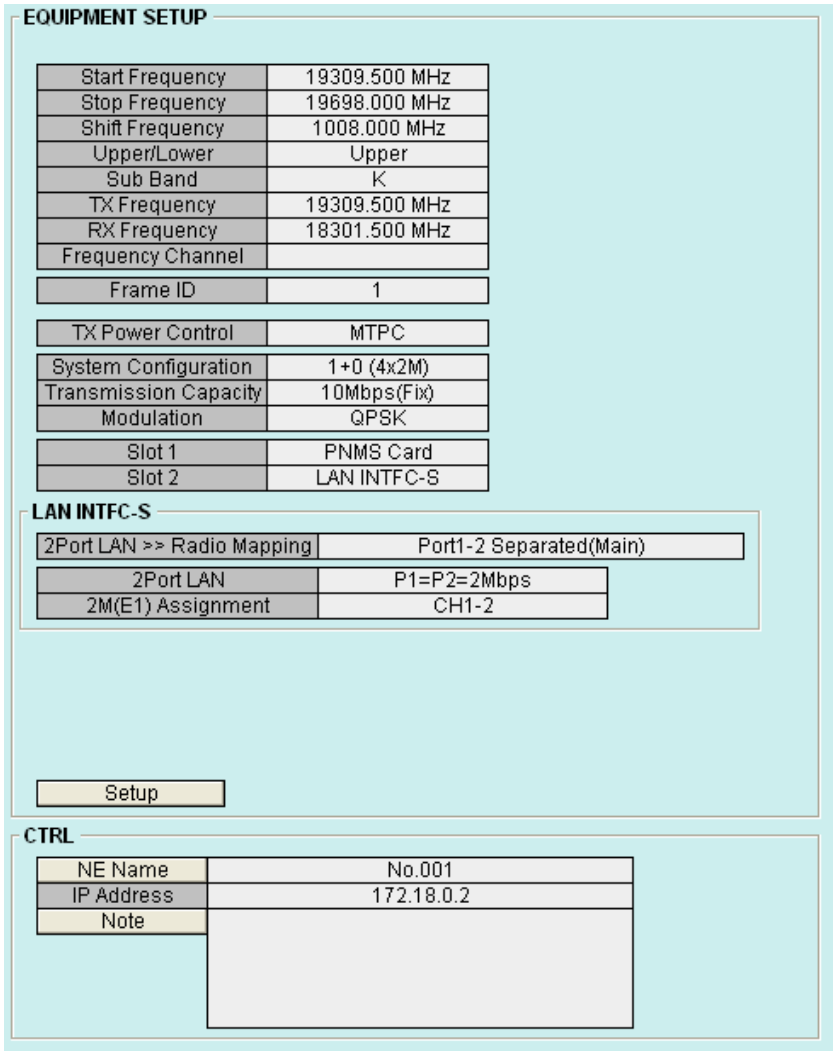
NOTE

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

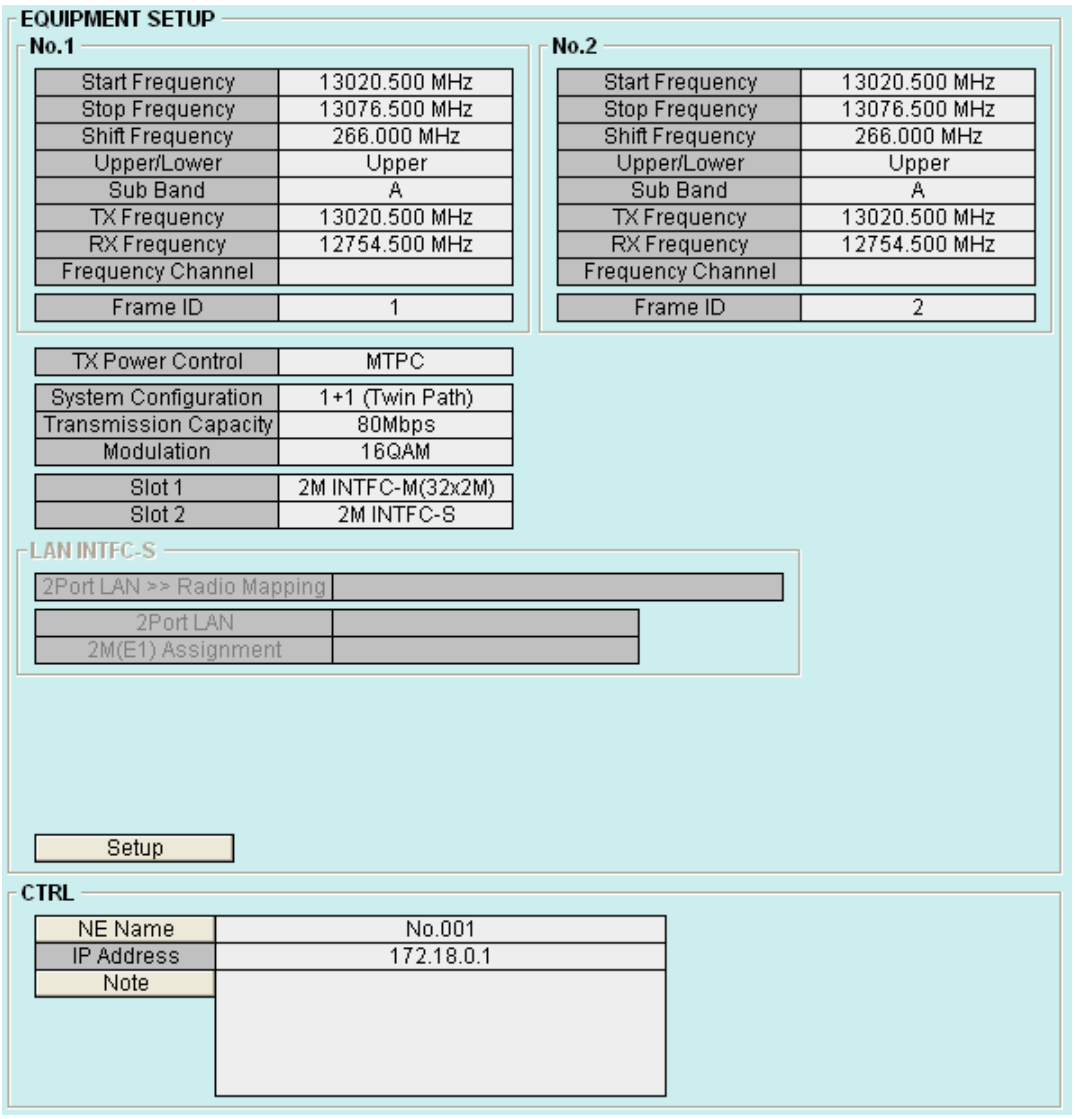
2.18.1 Equipment Configuration window

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 control for the ODU and the IDU. The **Equipment Setup** window is shown below.



Equipment Setup window (1+0 System, 1+1 Hot Stand-by Configuration)

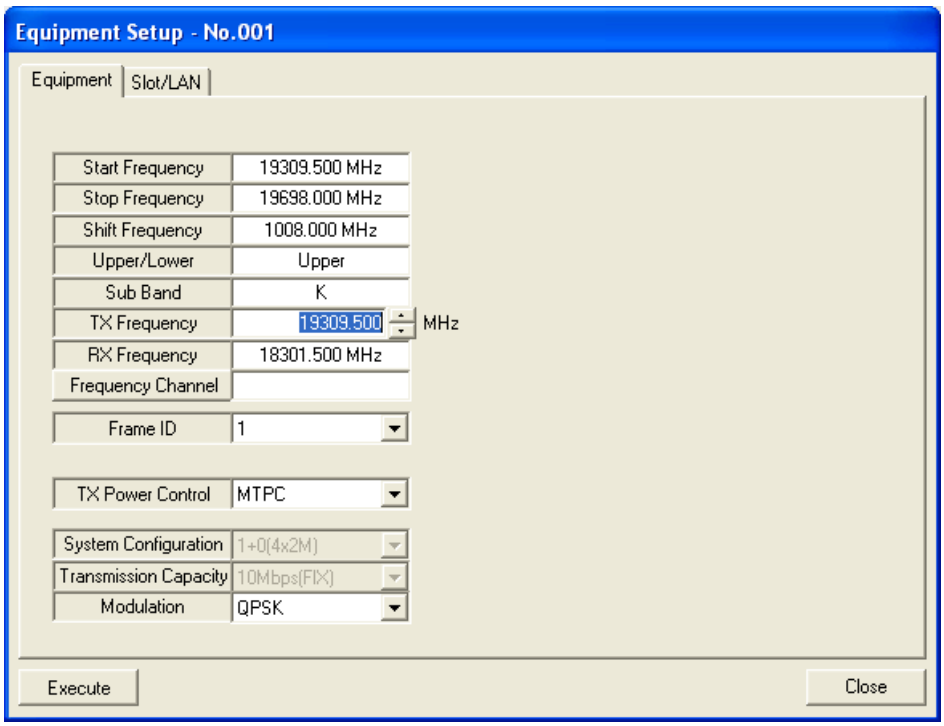


Equipment Setup window (1+1 Twin Path Configuration)

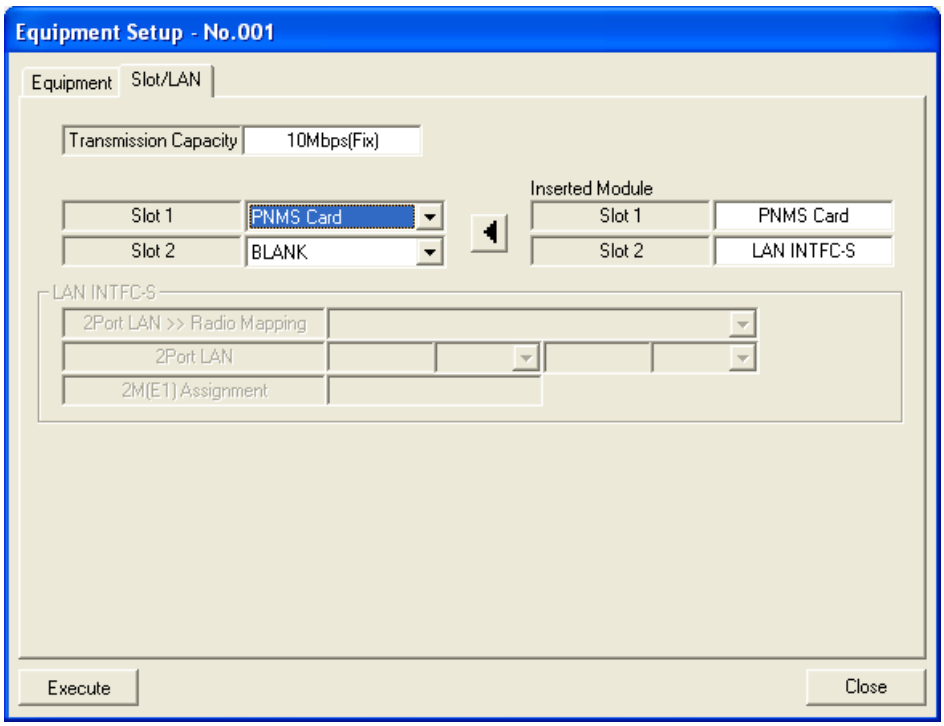
2.18.2 Setup

To set the ODU and IDU parameters:

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



Setup – Equipment Tab



Setup – Slot/LAN Tab

2. On both Equipment Tab and Slot/LAN Tab of **Setup** window, the configurable items are shown and described in the table below:

Equipment	**TX Frequency** – sets the RF transmit frequency and consequently the RF received frequency of the ODU. If frequency Channel file is previously registered, frequency setting by Channel name is available. Refer to "Frequency Channel" screen shown below.
	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.
	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.
	System Configuration – This function Is available only for 1+1 systems Hot Stand-by or 1+0 (Expandable) configuration can be set using this function.
	Transmission Capacity – the main interface bit rate of IDU can be selected here. The available rates are 10Mbps, 20Mbps, 40Mbps and 80Mbps. 1+0(4x2M) can be set to only 10Mbps (FIX). 1+0(20x2M) can be set 10Mbps, 20Mbps, or 40Mbps. 1+0, 1+0 (Expandable) or 1+1 systems can be set using this function.
	Modulation– the modulation can be selected here. The available modulations are PQSK, and 16QAM. When the transmission capacity is set 80Mbps, you can select only 16QAM.
Slot/LAN	**Slot1** – sets the type of the module of Slot1.If this current setting is different from the inserted module type, you can click the reflect [◄] button and you can set the type to that of the inserted module.
	Slot2 – sets the type of the module of Slot2. If this current setting is different from the inserted module type, you can click the reflect [◄] button and you can set the type to that of the inserted module.
	LAN INTFC-S – This function is available only when the current setting type of Slot2 is LAN INTFC-S. You can select Radio Mapping and bit rate for each port for 2-Port LAN interface module. Also the E1 (2Mbps main interface) assignment information is displayed. If you change the Transmission Capacity, the 2Port LAN setting will be cleared and you need to set it again.

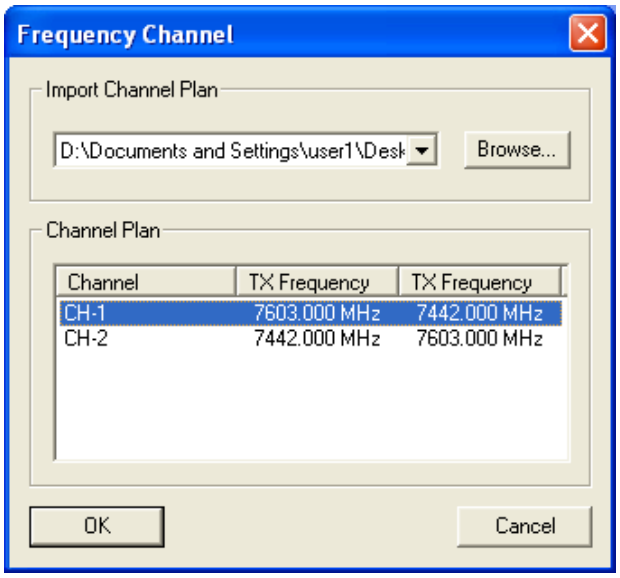
3. Click **[Execute]** to apply the new set of values.

CAUTION:

Changing the TX/RX CH will interrupt traffic.

2.18.3 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.

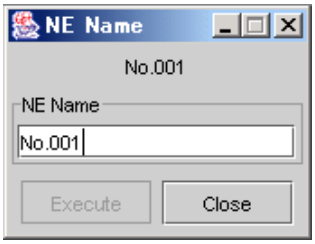
Frequency channel file format is csv, including channel name, TX frequency and RX frequency.

Examples

CH-1, 7442.000, 7603.000
CH-2, 7603.000, 7442.000

2.18.4 Editing the NE Name

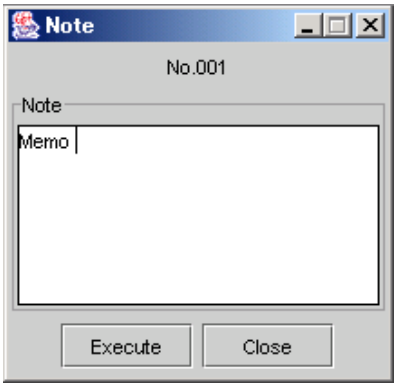
To edit the NE name:



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 change to new name.
4. Click **[Close]** when finished.

2.18.5 Editing the Note for NE

To enter an optional description on 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.

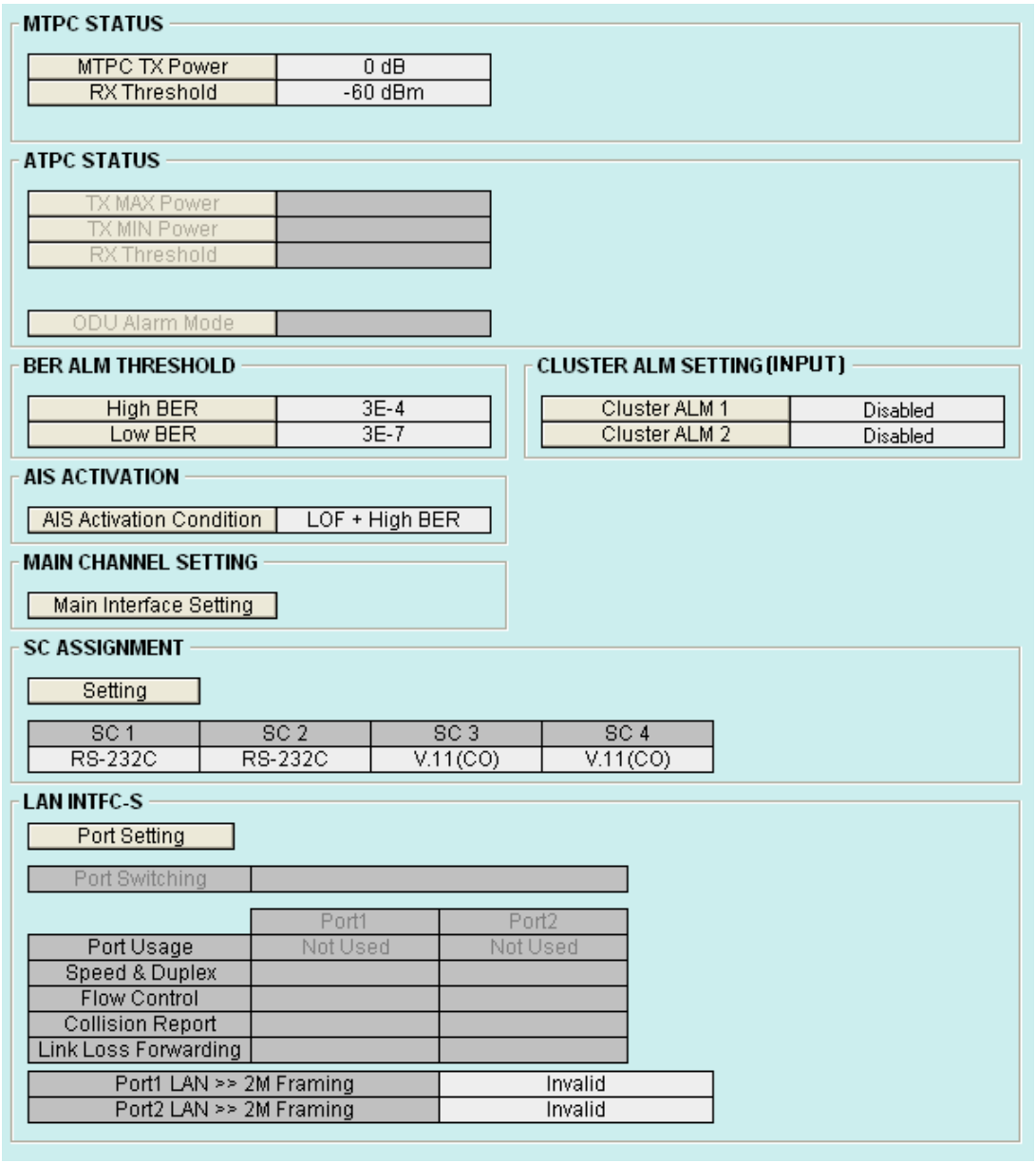
2.19 Provisioning

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

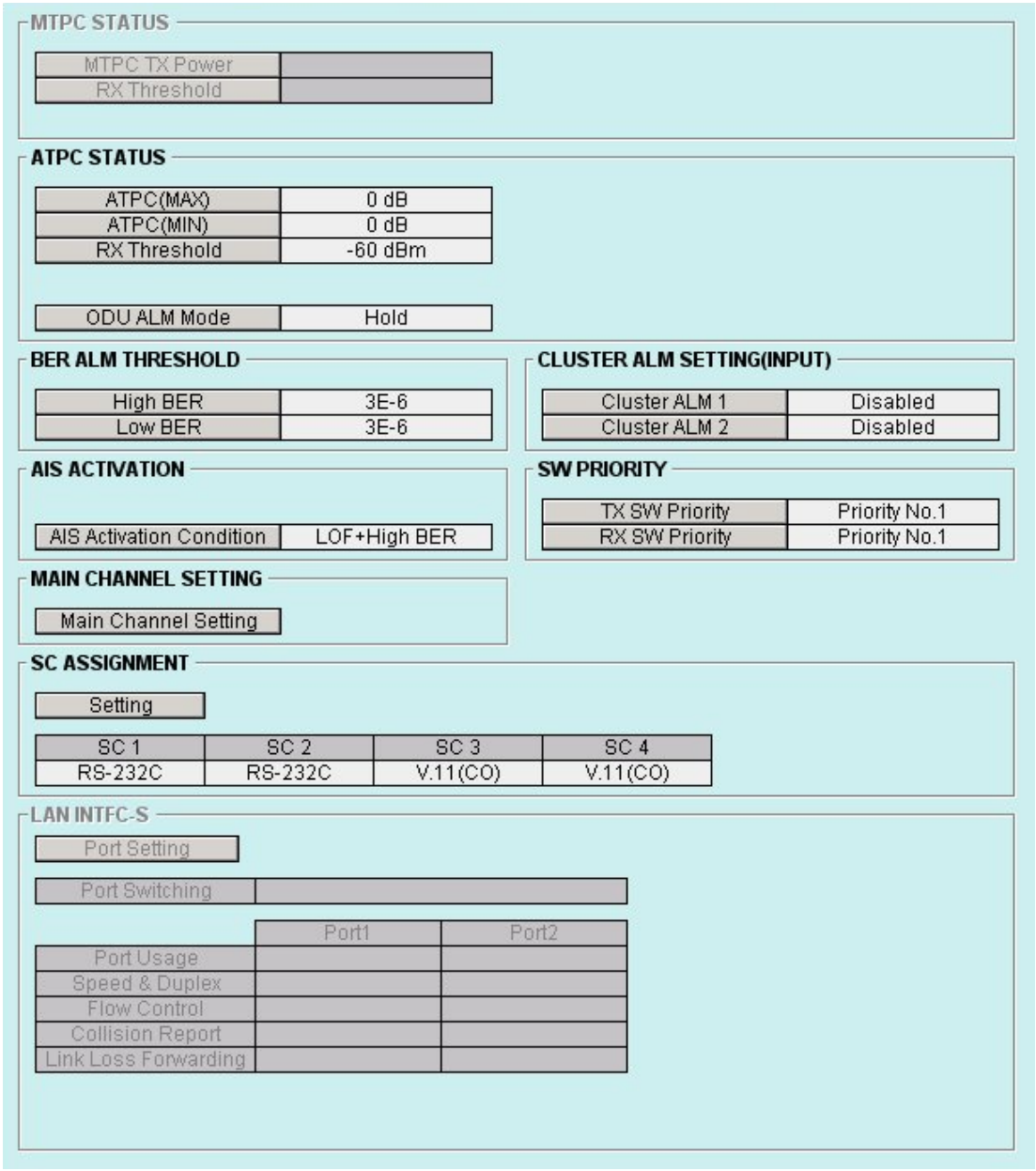
2.19.1 Provisioning window

To open the Equipment Configuration Monitor:

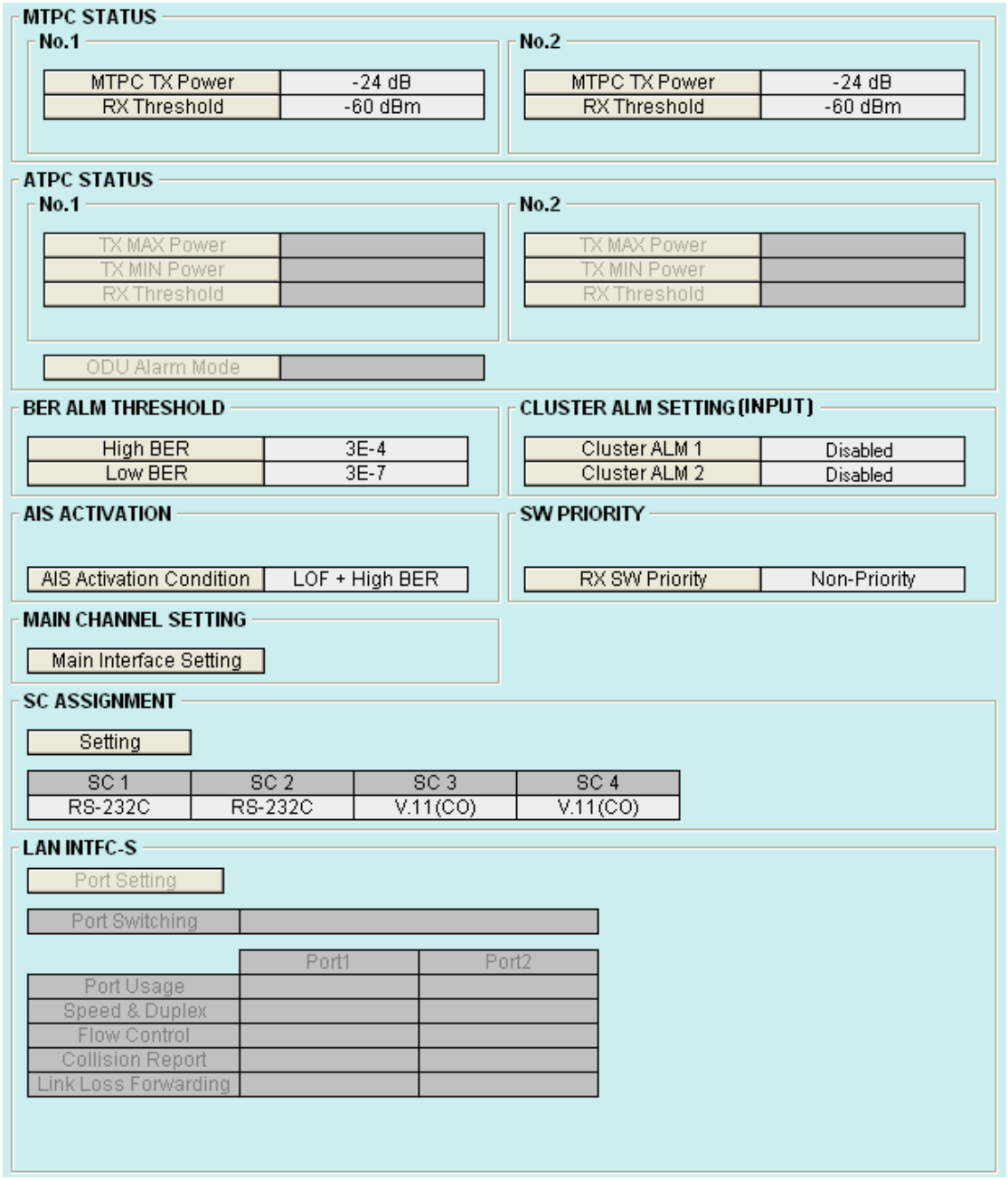
1. Select **Configuration → Provisioning** in the NE-specific menu bar.
2. This window contains the setup information of the MTPC, ATPC, BER Alarm Threshold, Cluster ALM Setting (Input), AIS Activation, Main Channel Setting, SC Assignment and LAN INTFC-S. . The **Provisioning** window is shown below.



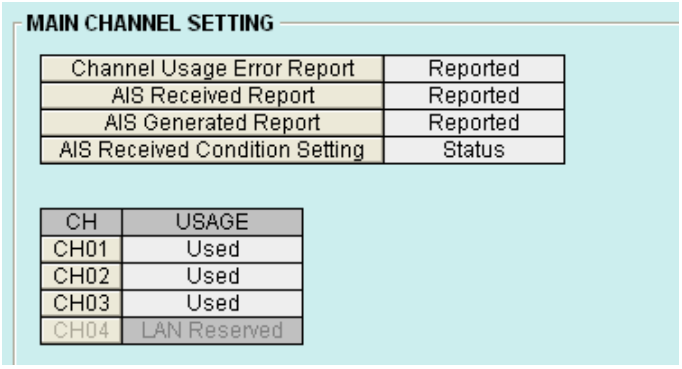
Provisioning window (1+0 Configuration)



Provisioning window (1+1 Hot Stand-by Configuration)



Provisioning window (1+1 Twin Path Configuration)



Main Interface Setting

2.19.2 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 three (3) parameters:

- MTPC TX Power
- RX Threshold
- Additional Attenuation (Additional ATT) (for PASOLINK^{+} type ODU only)

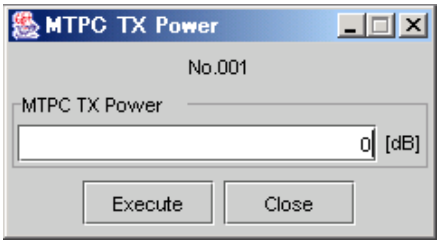
The procedure for setting these parameters will be presented in this section.

2.19.2.1 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 apply the maximum MTPC TX power.
4. Click **[Close]** when finished.



2.19.2.2 RX Threshold

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

To set the RX threshold:

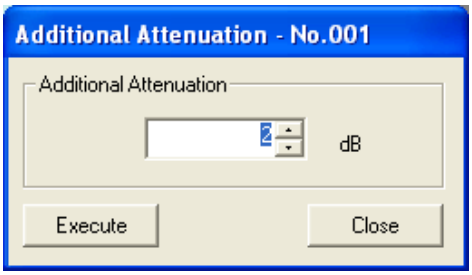
1. Click **[RX Threshold]** in the MTPC status section of the Provisioning window.
2. Set the power (dBm) in the ensuing window. You can either highlight the input field and enter the dB value using the keypad or use the arrows on the right-hand corner of the field to increase or decrease the value shown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

2.19.2.3 Additional Attenuation (Additional ATT) (only available for the specific type of ODU)

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. This function is only available for the specific type of ODU.

To set the additional attenuation:

1. Click **[Additional ATT]** 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 apply the attenuation.
4. Click **[Close]** when finished.



2.19.3 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:

- ATPC (MAX) (TX MAX Power)
- ATPC (MIN) (TX MIN Power)
- RX Threshold
- Additional Attenuation (Additional ATT) (only available for the specific type of ODU)
- ODU Alarm Mode

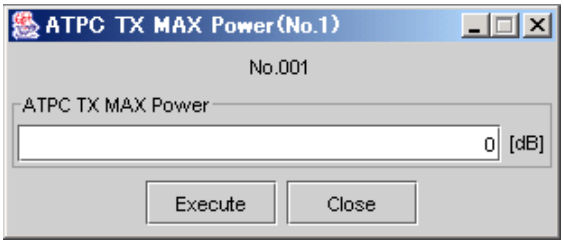
The procedure for setting these parameters will be presented in this section.

2.19.3.1 ATPC (MAX) (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 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 apply the maximum ATPC TX power.
4. Click **[Close]** when finished.

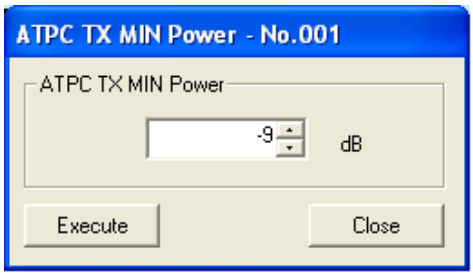


2.19.3.2 ATPC (MIN) (TX MIN Power)

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

To set the minimum 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 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 apply the minimum ATPC TX power.
4. Click **[Close]** when finished.

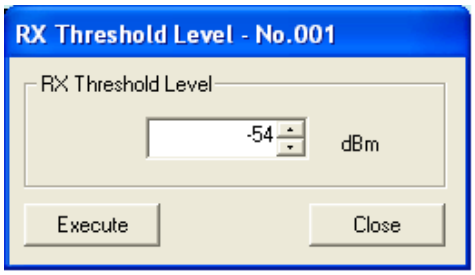


2.19.3.3 RX Threshold

Set the threshold value for the receiving level. When the received level coincides with the preset threshold value, 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 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 apply the new preset value.
4. Click **[Close]** when finished.

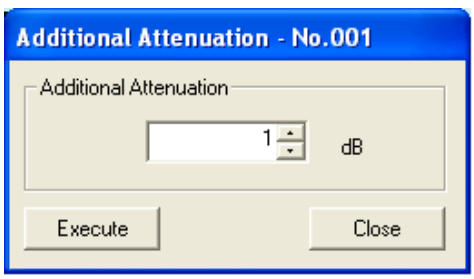


2.19.3.4 Additional ATT (Attenuation) ((only available for specific type of ODU)

If the transmission 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 ATT]** 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 apply the attenuation.
4. Click **[Close]** when finished.

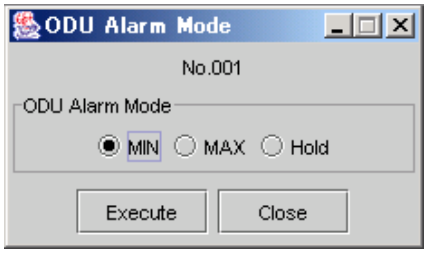


2.19.3.5 ODU Alarm Mode

When the ODU loses communication with the IDU due to a failure of some sort, 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 from this control when communication between ODU and IDU is disrupted. In this case, the ODU either mutes the TX or holds the current TX power, depending on the preset ODU ALM mode.

To set the ODU Alarm mode:

1. Click **[ODU Alarm Mode]** in the ATPC status section of the Provisioning window.
2. Select the action of the ODU in case of IDU communication disruption. For ATPC, **MAX Hold**, **MIN Hold** or **Hold** mode is available.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.



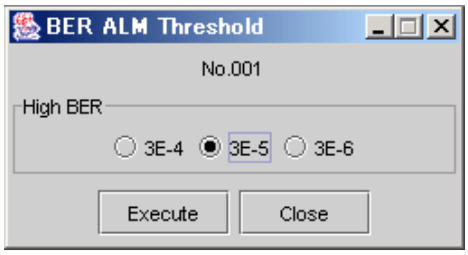
2.19.4 BER Alarm Threshold

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

2.19.4.1 High BER

To set the threshold for High BER:

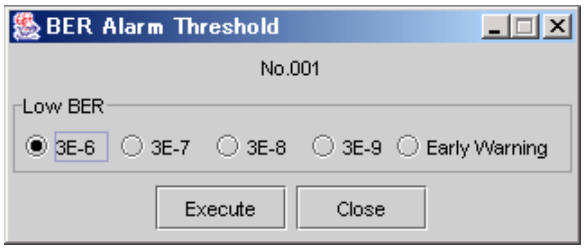
1. Click **[High BER]** in the Provisioning window.
2. Select the preset BER value that will trigger.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.



2.19.4.2 Low BER

To set the threshold for Low BER:

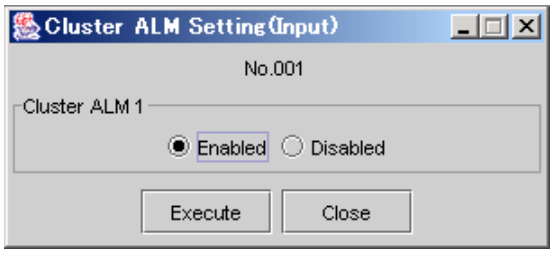
1. Click **[Low BER]** in the Provisioning window.
2. Select the preset BER value that will trigger.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.



2.19.5 Cluster ALM Setting (Input)

This function enables or disables the Cluster Alarm setting.

1. Click **[Cluster ALM 1/2]** in the Provisioning window.
2. Select **Enabled/Disabled** depending on the desired state.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.



2.19.6 AIS Activation

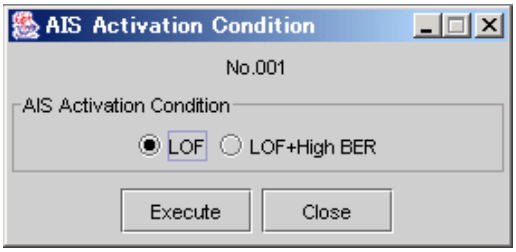
This function is used to set the AIS Activation Condition and AIS Activation Delay Time.

2.19.6.1 AIS Activation Condition

This function allows you to set whether AIS signal for main 1.5MB is by LOF, High BER or both alarm conditions.

To set the AIS Activation Condition:

1. Click **[AIS Activation Condition]** button in the Provisioning window.
2. Select **LOF/LOF or High BER** depending on the desired state.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.



2.19.7 SW Priority

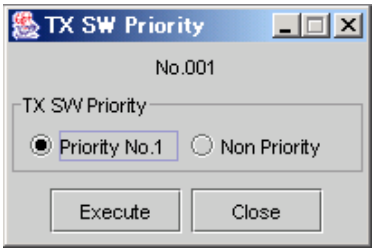
2.19.7.1 TX SW Priority

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

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

Non-priority: There is no priority.

This function is available for 1+1(HS) system only.



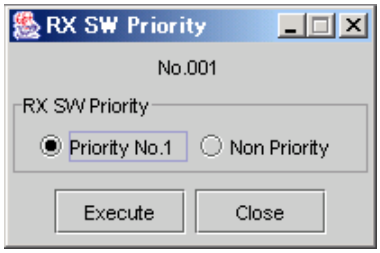
2.19.7.2 RX SW Priority

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

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

Non-priority: There is no priority.

This function is available for 1+1 system only.



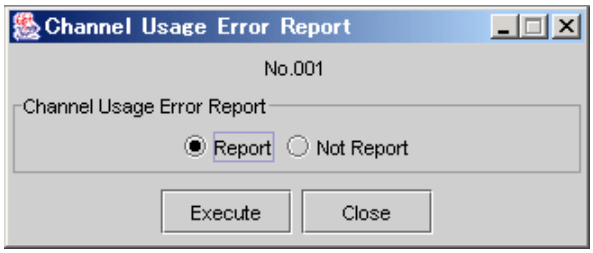
2.19.8 Main Interface Setting

2.19.8.1 Channel Usage Error Report

This function is to enable or disable the Channel Usage Error Report function. This error is reported when 2MB bipolar signal is inputted into the channel chosen “Not Used”.

To set the Channel Usage Error Report:

1. Click **[Channel Usage Error]** in the Provisioning - Main Interface window.
2. Select **Reported/Not Reported** depending on the desired state.
3. Click **[Execute]** apply the new setting.
4. Click **[Close]** when finished.

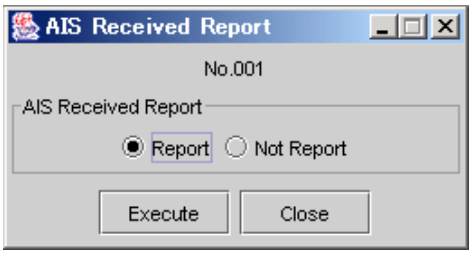


2.19.8.2 AIS Received Report

This function is to enable or disable the AIS Received Report function.

To set the AIS Received Report:

1. Click **[AIS Received Report]** in the Provisioning - Main Interface window.
2. Select **Reported/Not Reported** depending on the desired state.
3. Click **[Execute]** apply the new setting.
4. Click **[Close]** when finished.

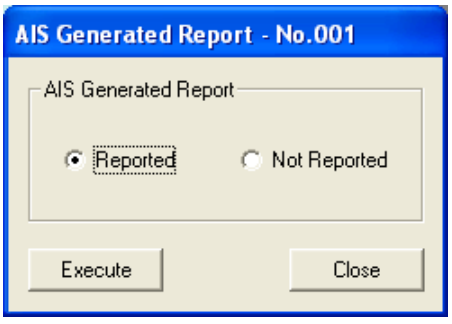


2.19.8.3 AIS Generated Report

This function is to enable or disable the AIS Generated Report function.

To set the AIS Generated Report:

1. Click **[AIS Generated Report]** in the Provisioning - Main Interface window.
2. Select **Reported/Not Reported** depending on the desired state.
3. Click **[Execute]** apply the new setting.
4. Click **[Close]** when finished.

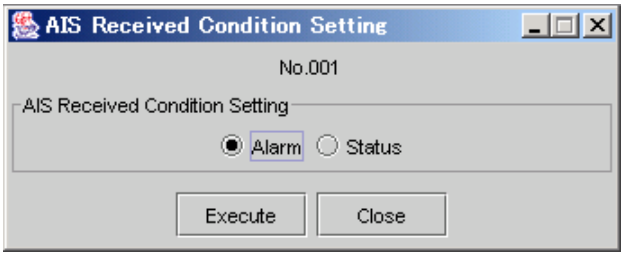


2.19.8.4 AIS Received Condition Setting

This function enables to set the type of AIS Received Condition.

To set the AIS Received Condition Setting:

1. Click **[AIS Received Condition]** in the Provisioning - Main Interface window.



2. Select **Alarm/Status** depending on the desired state.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.

2.19.9 SC Assignment

This function is for displaying the assigned interface type {LAN or RS-232C} of the available four user channels (DSC), and sets the type of directional interface for SC3 and SC4.

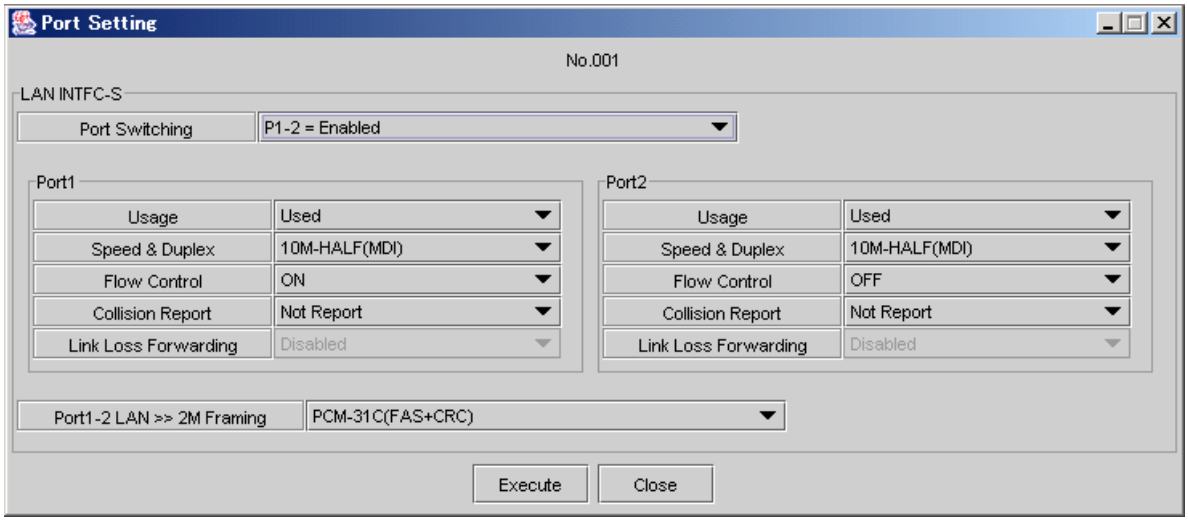
2.19.9.1 Direction (for 1+0 (Expandable) and 1+1 system only)

To set the type of directional interface for SC3 and SC4:

1. Click **[Setting]** in the SC Assignment section of the Provisioning window.

2. In the ensuing window, you will be able to select the type of directional interface for SC3 and SC4.
3. Click **[Execute]** to apply the new setting.
4. Click **[Close]** when finished.

2.19.10 LAN INTFC-S



Port Setting (LAN INTFC-S)

Port Setting	**Port Switching** – set the Port Switching when 2-Port LAN interface is used as {Port1-2 Shared/1 Port Only (Main) or Port1-2 Shared/1 Port Only (SC)}.
	Usage – specify the usage of each port.
	Speed & Duplex – set 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),10M-HALF(MDIX),10M-FULL(MDIX),100M-HALF(MDIX) and 100M-FULL(MDIX).
	Flow Control – specify the Flow Control of each port.
	Collision Report – set the status of each port to report when some collision occurs.
	Link Loss Forwarding– set enable of Link Loss Forwarding of each port.
Slot/LAN	**Port1-2 LAN >> 2M Framing** – set the type of 2M Framing. This parameter is available when the following conditions are true 2-Port LAN >> Radio Mapping = Port1-2 Shared / 1 Port Only (Main) and 2Port LAN = 2Mbps in Equipment Setup window.
	Port1 LAN >> 2M Framing – set the type of 2M Framing. This parameter is available when the following conditions are true: {2-Port LAN >> Radio Mapping = Port1-2 Shared / 1 Port Only (Main) and 2Port LAN = 2Mbps}, or {2-Port LAN >> Radio Mapping=Port1-2 Shared / 1 Port Only (SC) and 2Port LAN=2Mbps} in Equipment Setup window.
	Port2 LAN >> 2M Framing – set the type of 2M Framing This parameter is available when 2-Port LAN >> Radio Mapping = Port1-2 Separated (Main) and 2Port LAN =2Mbps in Equipment Setup window.

2.20 Link Performance Monitor

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

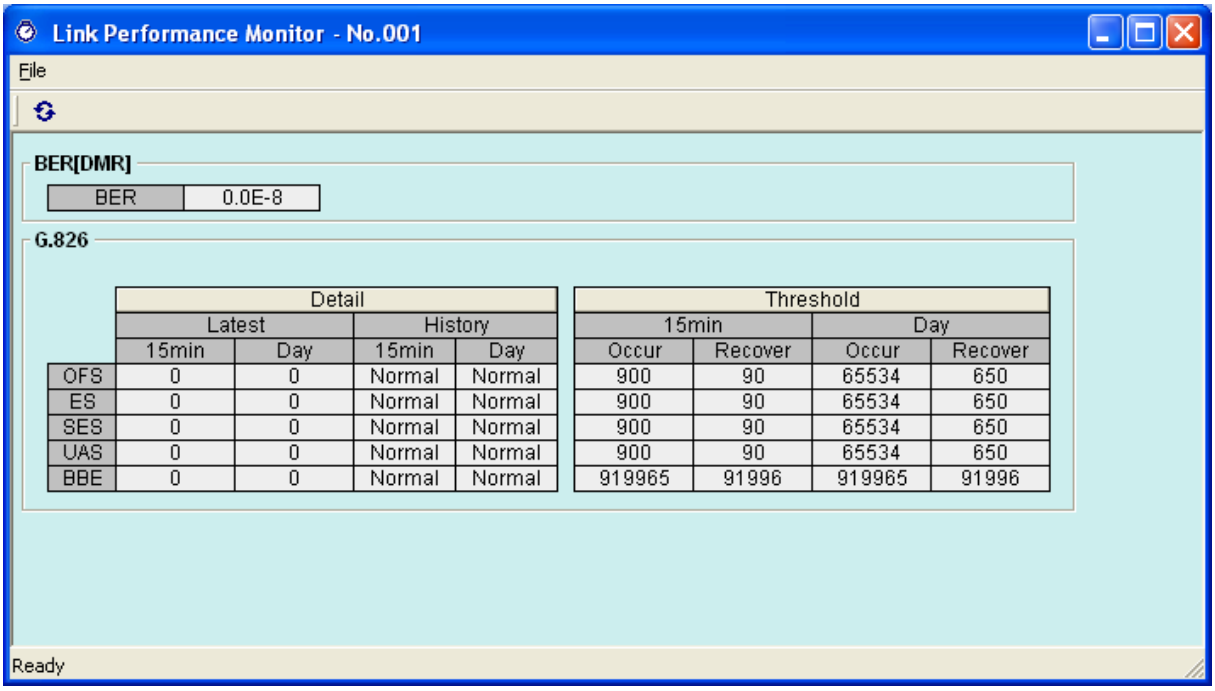
- **Out of Frame Second (OFS)** – the total number of seconds the "out of frame" condition is generated in 15 minute-blocks.(OFS is applied to the Total only)"
- **Errored Second (ES)** – the cumulative time in which more than one B1 error pulse per second was detected
- **Severely Errored Second (SES)**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

2.20.1 Viewing Summary Link Performance Monitor

To view Summary Link Performance Monitor:

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

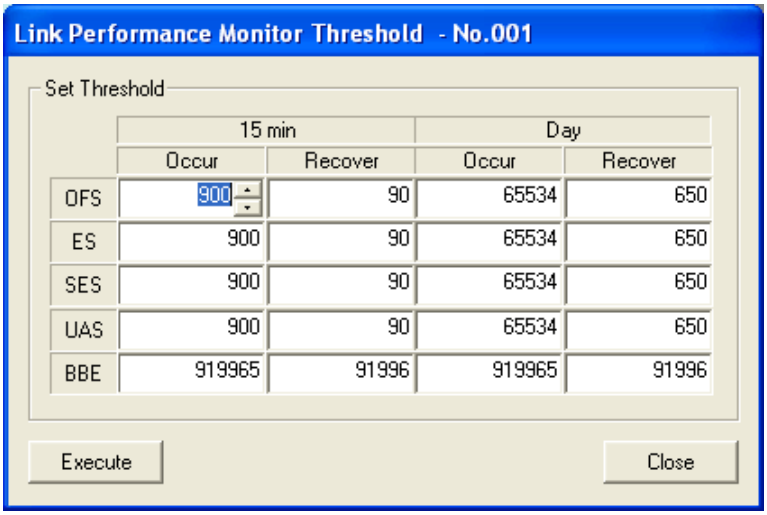


Summary Link Performance Monitor window

2.20.2 Threshold Setting

To set the threshold values:

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



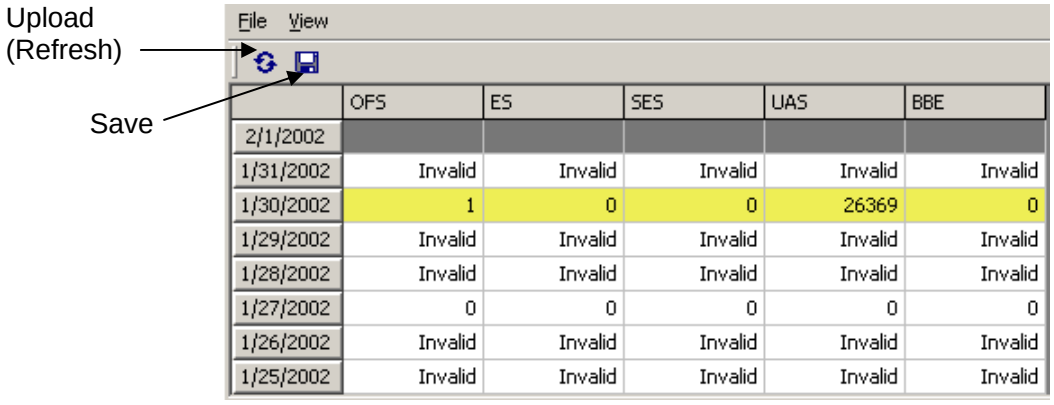
Summary Link Performance Monitor Threshold

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 indicate this.
3. Set the value when the alarm **occurred (Occur)** and when the alarm **was resolved (Recover)** in the appropriate field. The measuring parameters 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.

2.20.3 Link Performance Monitor (1day / 15 min. Data) window

To view the 1day Data:

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



	OFS	ES	SES	UAS	BBE
2/1/2002					
1/31/2002	Invalid	Invalid	Invalid	Invalid	Invalid
1/30/2002	1	0	0	26369	0
1/29/2002	Invalid	Invalid	Invalid	Invalid	Invalid
1/28/2002	Invalid	Invalid	Invalid	Invalid	Invalid
1/27/2002	0	0	0	0	0
1/26/2002	Invalid	Invalid	Invalid	Invalid	Invalid
1/25/2002	Invalid	Invalid	Invalid	Invalid	Invalid

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

To view the 15-min. Data:

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

Date 1/30/2002

	OFS	ES	SES	UAS	BBE
2:45 PM - 3:00 PM	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0
4:00 PM - 4:15 PM	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0
4:30 PM - 4:45 PM	1	0	0	269	0
4:45 PM - 5:00 PM	0	0	0	900	0
5:00 PM - 5:15 PM	0	0	0	900	0
5:15 PM - 5:30 PM	0	0	0	900	0
5:30 PM - 5:45 PM	0	0	0	900	0
5:45 PM - 6:00 PM	0	0	0	900	0
6:00 PM - 6:15 PM	0	0	0	900	0

Link Performance Monitor (15-min. Data) window

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

2.21 Remote Network Monitoring (RMON)

Remote Network Monitoring (RMON) function can monitor the signal through the LAN port, both LINE-side (the port on the NE) and DMR side. RMON can count the number of received or transmitted packets and packets errors. These items are then displayed in the PNMT.

The following RMON items can be monitored:

RMON	**RX Unicast Pkts** – the total number of unicast packets received. This item measures from 64 octets to 1536 octets.
	RX Broadcast Pkts – the total number of packets received that were directed to the broadcast address. This item measures from 64 to 1536 octets in length.
	RX Multicast Pkts – the total number of packets received that were directed to a multicast address. This item measures from 64 to 1536 octets in length.
	RX Pause Pkts – the total number of packets received that were paused.
	RX CRC Errors – the total number of packets received that detected FCS error. This item measures from 64 to 1536 octets in length.
	RX Align Errors – the total number of packets received that detected Alignment error. This item measures from 64 to 1536 octets in length.
	RX Symbol Errors – the total number of packets received that detected Symbol error. This item measures from 64 to 1536 octets in length.
	RX Undersize Pkts – the total number of good packets received that were less than 64 octets in length.
	RX Fragments – the total number of packets (Including bad packets) received that were less than 64 octets in length.
	RX Pkts 64 – the total number of packets (Including bad packets) received that were 64 octets in length.
	RX Pkts 65-127 – the total number of packets (Including bad packets) received that were between 65 and 127 octets in length.
	RX Pkts 128-255 – the total number of packets (Including bad packets) received that were between 128 and 255 octets in length.
	RX Pkts 256-511 – the total number of packets (Including bad packets) received that were between 256 and 511 octets in length.
	RX Pkts 512-1023 – the total number of packets (Including bad packets) received that were between 512 and 1023 octets in length.
	RX Pkts 1024-1536 – the total number of packets (Including bad packets) received that were between 1024 and 1536 octets in length.
	RX Pkts 1537-MAX – the total number of good packets received that were between 1537 and 1916 octets in length.
	RX Jabbers – the total number of packets received (Including bad packets) that were longer than 1537 octets.
	TX Unicast Pkts – the total number of unicast packets transmitted. This item measures from 64 to 1916 octets in length.
	TX Broadcast Pkts – the total number of packets transmitted that were directed to the broadcast address. This item measures from 64 to 1916 octets in length.
	TX Multicast Pkts – the total number of packets transmitted that were directed to a multicast address. This item measures from 64 to 1916 octets in length.
	TX Pause Pkts – the total number of packets transmitted that were paused.
	TX Total Collisions – the total number of collisions when it is transmitting.

NOTE:

If an item causes overflow, "+" will be shown in front of the number.

If an item is invalid, "*" will be shown in front of the number. When the total number is imperfect, it will be shown as invalid.

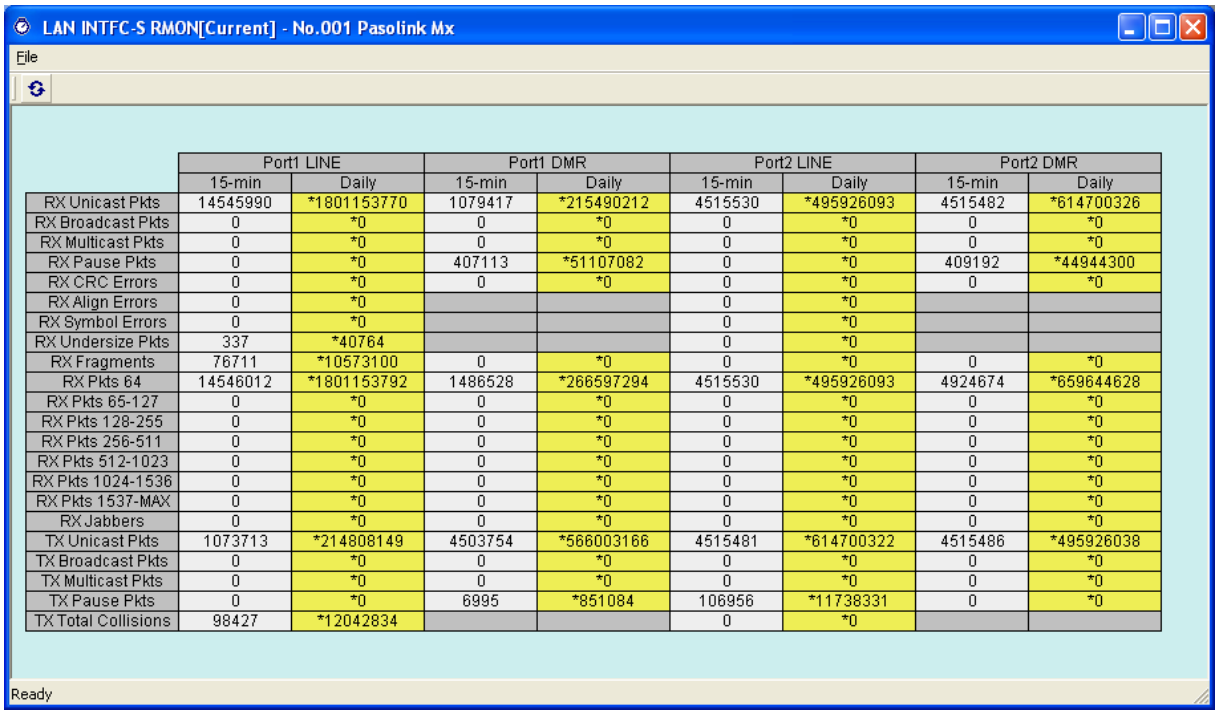
During maintenance mode, an item will be shown with maintenance color (yellow as default).

2.21.1 Viewing RMON LAN INTFC-S [Current]

This window contains the latest 15-minute data (15-min) and to the current day's total data (Daily) for all RMON items.

To view RMON LAN INNTFC-S [Current] Monitor:

Select **Performance Monitor → RMON LAN INTFC-S [Current]** in the **NE-specific** menu bar of the target NE that you intend to monitor.



	Port1 LINE		Port1 DMR		Port2 LINE		Port2 DMR	
	15-min	Daily	15-min	Daily	15-min	Daily	15-min	Daily
RX Unicast Pkts	14545990	*1801153770	1079417	*215490212	4515530	*495926093	4515482	*614700326
RX Broadcast Pkts	0	*0	0	*0	0	*0	0	*0
RX Multicast Pkts	0	*0	0	*0	0	*0	0	*0
RX Pause Pkts	0	*0	407113	*51107082	0	*0	409192	*44944300
RX CRC Errors	0	*0	0	*0	0	*0	0	*0
RX Align Errors	0	*0			0	*0		
RX Symbol Errors	0	*0			0	*0		
RX Undersize Pkts	337	*40764			0	*0		
RX Fragments	76711	*10573100	0	*0	0	*0	0	*0
RX Pkts 64	14546012	*1801153792	1486528	*266597294	4515530	*495926093	4924674	*659644628
RX Pkts 65-127	0	*0	0	*0	0	*0	0	*0
RX Pkts 128-255	0	*0	0	*0	0	*0	0	*0
RX Pkts 256-511	0	*0	0	*0	0	*0	0	*0
RX Pkts 512-1023	0	*0	0	*0	0	*0	0	*0
RX Pkts 1024-1536	0	*0	0	*0	0	*0	0	*0
RX Pkts 1537-MAX	0	*0	0	*0	0	*0	0	*0
RX Jabbers	0	*0	0	*0	0	*0	0	*0
TX Unicast Pkts	1073713	*214808149	4503754	*566003166	4515481	*614700322	4515486	*495926038
TX Broadcast Pkts	0	*0	0	*0	0	*0	0	*0
TX Multicast Pkts	0	*0	0	*0	0	*0	0	*0
TX Pause Pkts	0	*0	6995	*851084	106956	*11738331	0	*0
TX Total Collisions	98427	*12042834			0	*0		

RMON LAN INTFC-S [Current] window

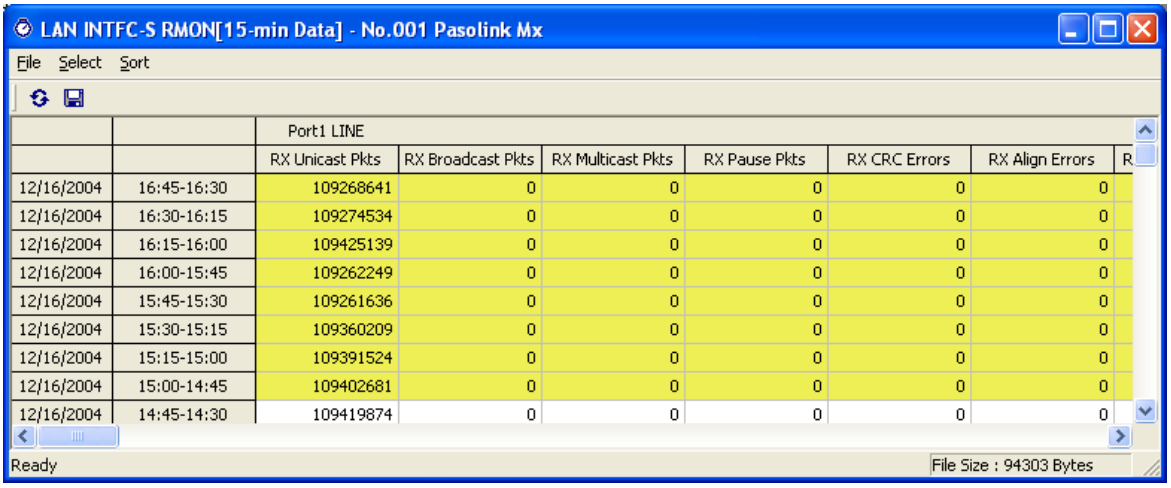
This data can be refreshed by selecting **File → Refresh** menu or clicking on Refresh  icon.

2.21.2 Viewing RMON LAN INTFC-S [15-min]

This window contains the total 15-minute data in 24 hours for all RMON items.

To view RMON LAN INTFC-S [15-min] Monitor:

1. Select **Performance Monitor → RMON LAN INTFC-S [15-min]** in the **NE-specific** menu bar of the target NE that you intend to monitor.



RMON LAN INTFC-S [15-min] window

2. This data can be saved by selecting **File → Save All Data** menu or clicking on Save All Data icon. The default file name that it will be saved to is **"15min-s.rmon"**.

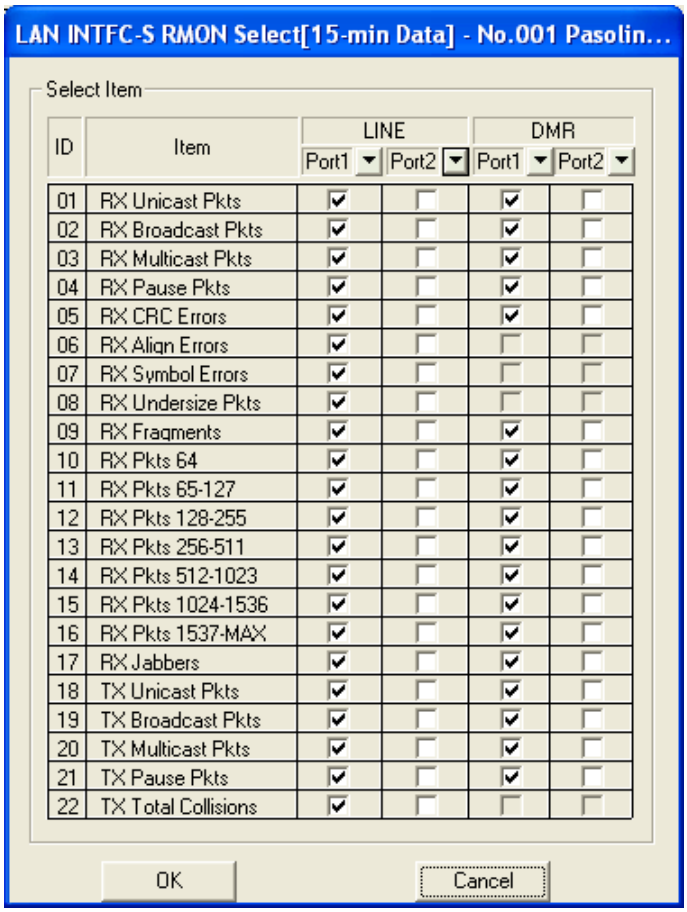
3. This data can be refreshed by selecting **File → Reload** menu or clicking on Reload icon.

4. This data can be sorted by port or Item by selecting **Sort → Port Sort** or **Item Sort** menu.

5. The viewing RMON items can be selected with the Select window.

To view the Select window:

Select **Select → Select** menu.



RMON LAN INTFC-S [15-min] Select window

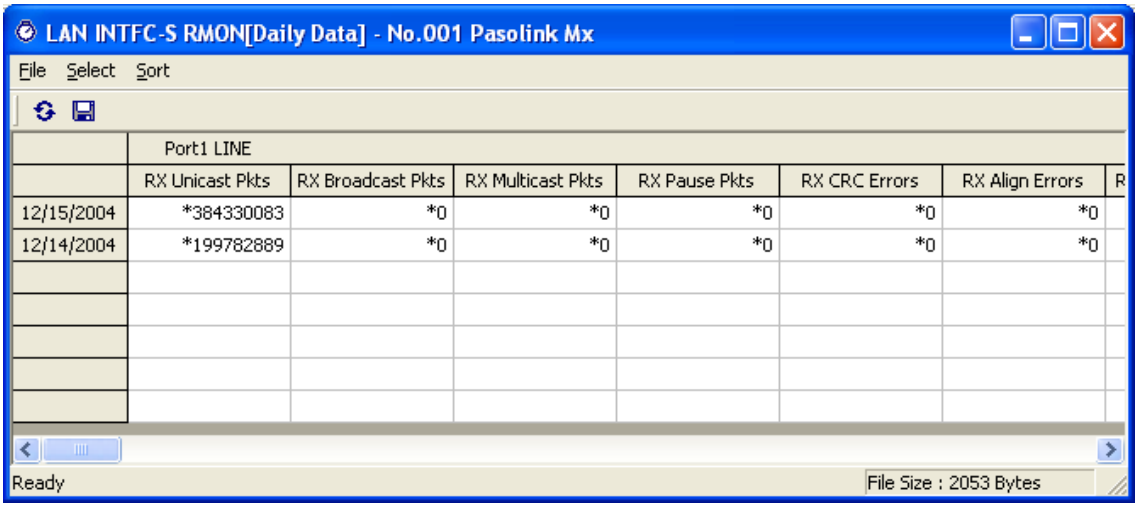
You can select/deselect the items that you want to be shown by clicking the list [▼] icon and selecting from the pull down menu {Select All / Clear All}, Package control for all the item(s) can be carried out for individual Port.

2.21.3 Viewing RMON LAN INTFC-S [Daily]

This window contains the daily data in 7 days for all RMON items.

To view RMON LAN INNTFC-S [Daily] Monitor:

1. Select **Performance Monitor → RMON LAN INTFC-S [Daily]** in the **NE-specific** menu bar of the target NE that you intend to monitor.

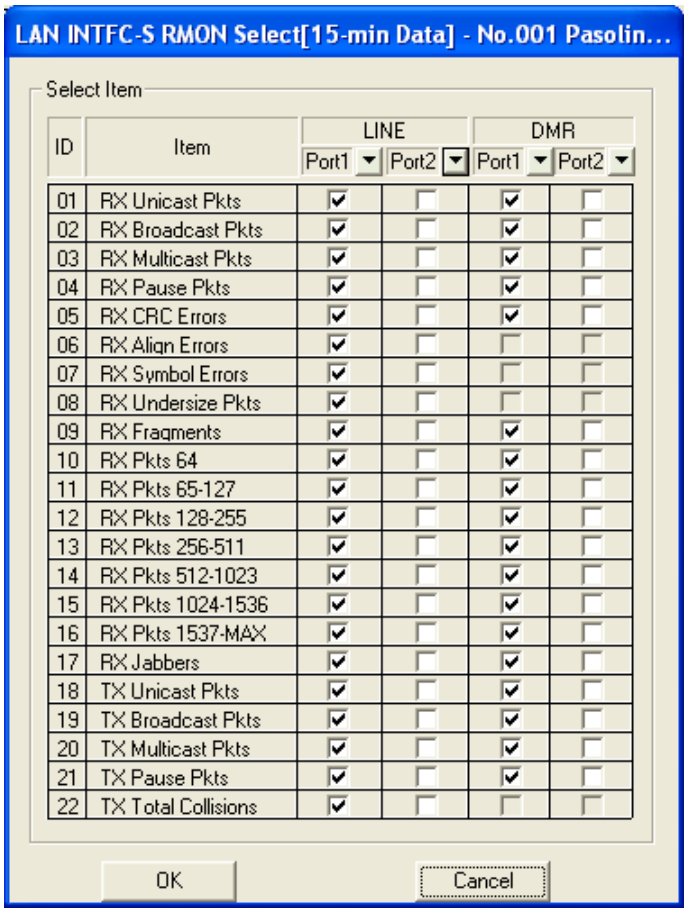


RMON LAN INTFC-S [Daily] window

1. This data can be saved for all items by selecting **File → Save All Data** menu or clicking on **Save All Data** icon. The default file name is **"daily-s.rmon"**.
2. This data can be refreshed by selecting **File → Reload** menu or clicking on Reload icon.
3. This data can be sorted by port or Item by selecting **Sort → Port Sort** or **Item Sort** menu.
4. The viewing RMON items can be selected with the Select window.

To view the Select window:

Go to **Select → Select** menu.



RMON LAN INTFC-S [Daily] Select window

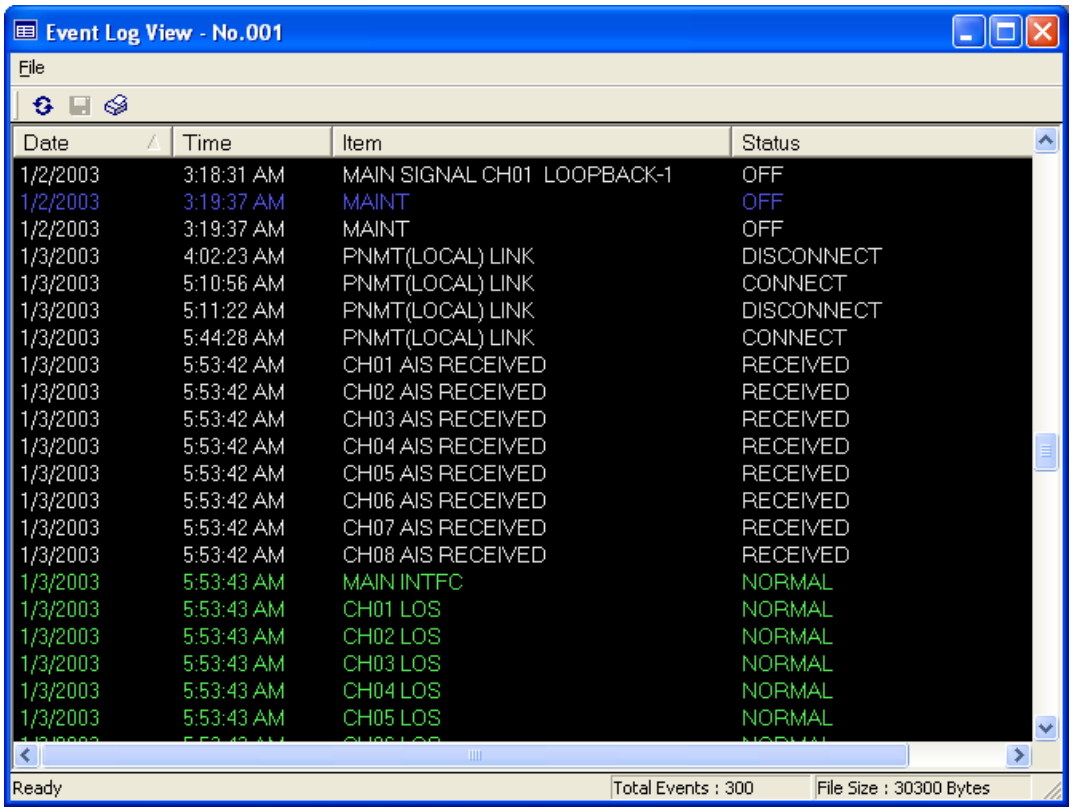
You can select the items that you want to be shown by clicking on the list [▼] button and selecting from the pull-down menu {Select All / Clear All}. Package control of all the item(s) can be carried out for individual Port.

2.22 NE Stored Log

NE Stored Log window displays the date/time when the event data was received, item, and status.

2.22.1 NE Stored Log monitor

1. Click on **[NE Stored Log]** in the **NE-specific** menu bar of the target NE that you intend to monitor.
2. A message window showing the progress of the uploading of the NE Stored 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 a table form showing the date of the event, the item that triggered the event and the status change.
4. Sorting is possible for every column in NE Stored Log window.
5. The date shown in the NE Stored Log window will be the format set up by OS.
6. The data can be refreshed by clicking on the upload (refresh) icon.



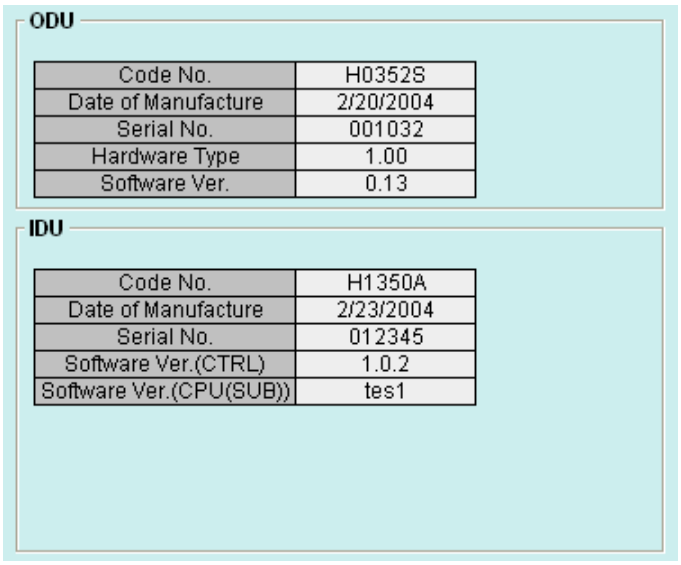
2.23 Version Tab

The inventory information of the equipment can be viewed using this function.

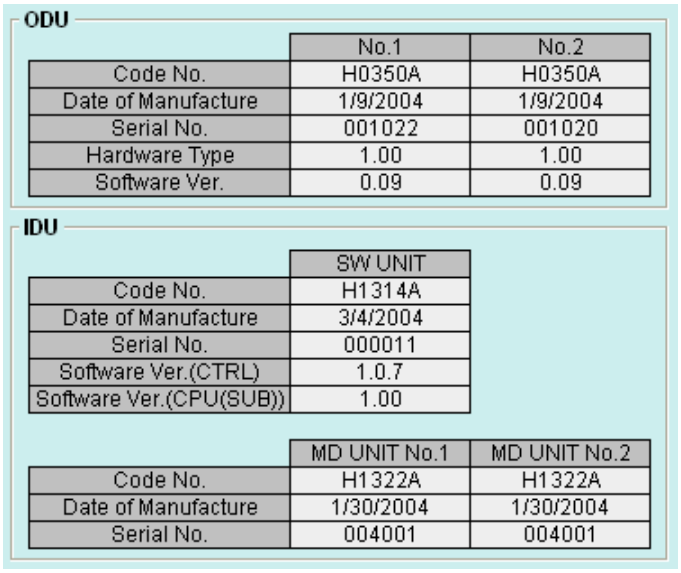
2.23.1 Version Monitor

To display the version of the equipment:

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



Version window (1+0 Configuration)



Version window (1+1 Configuration)

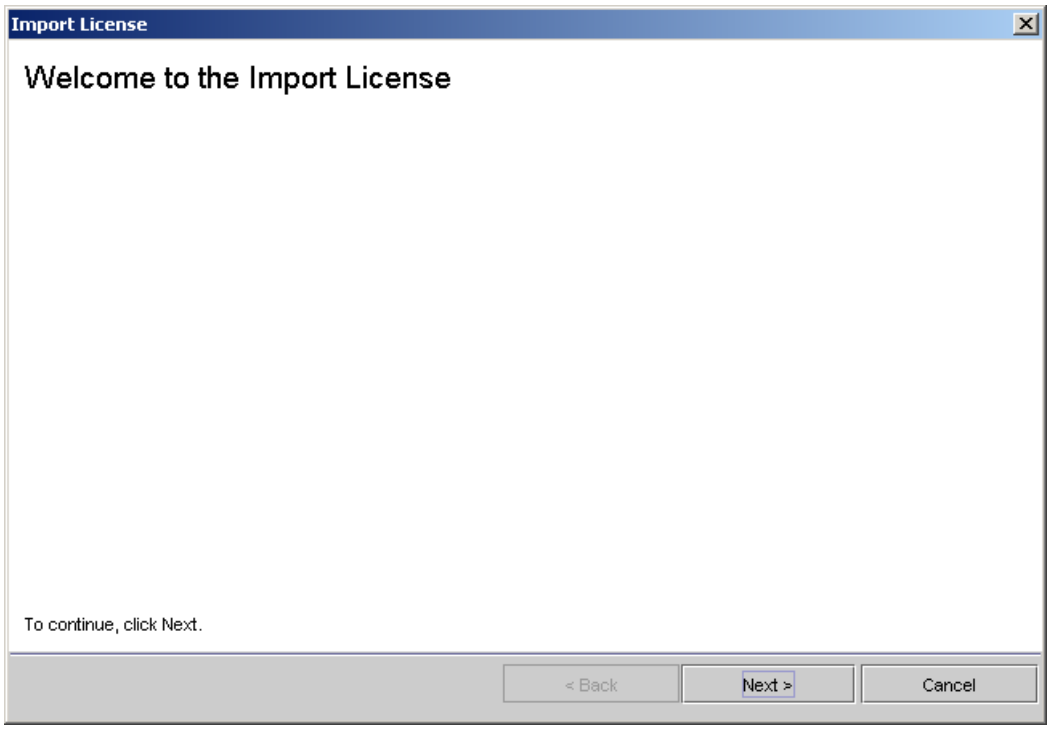
2.24 License import

2.24.1 License import

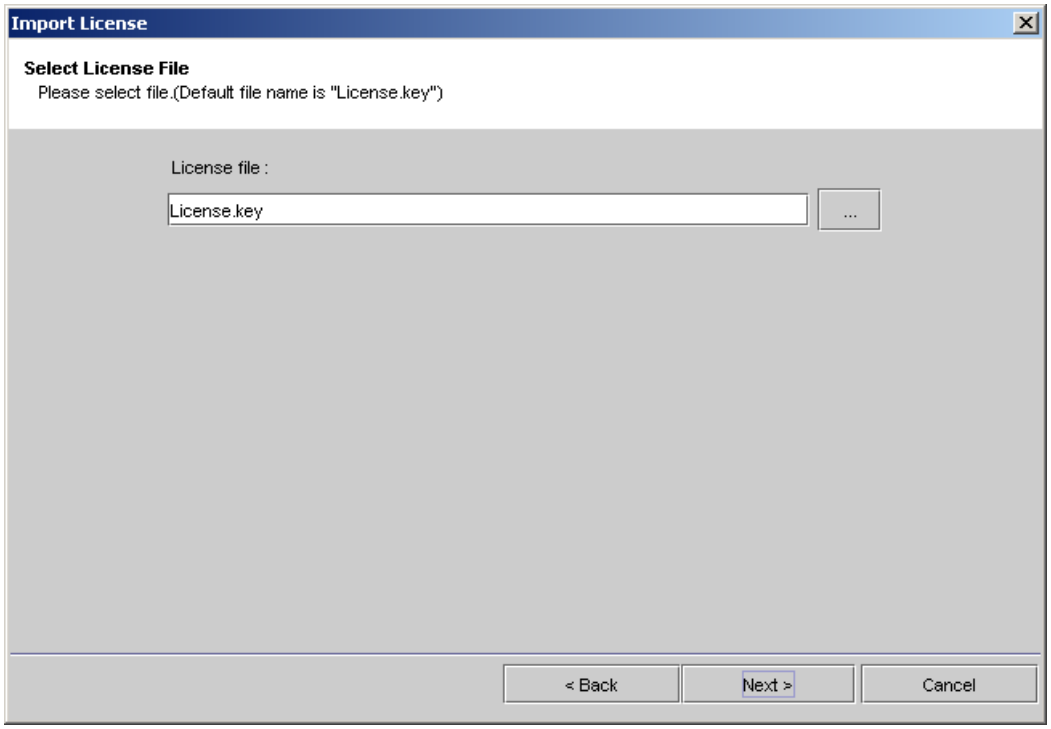
To update the license file:

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

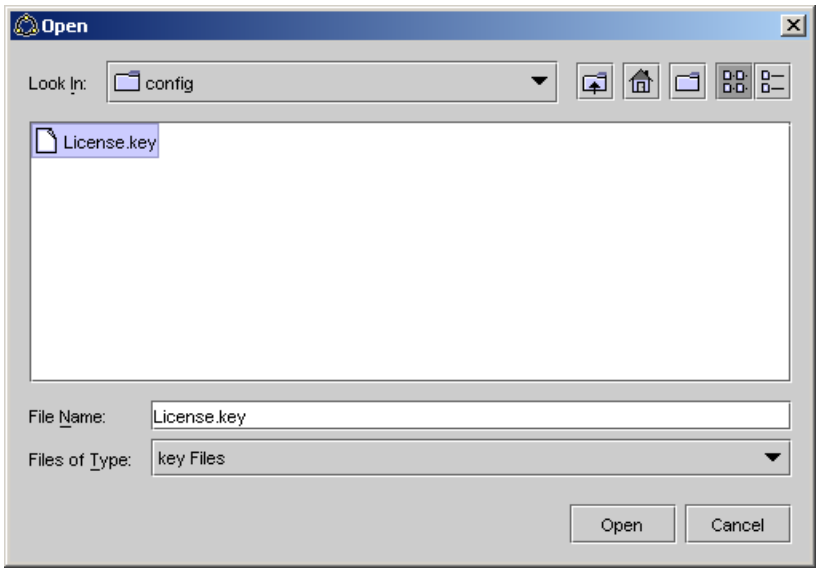
2. Import License Wizard will appear on screen. Click **[Next]** to continue.



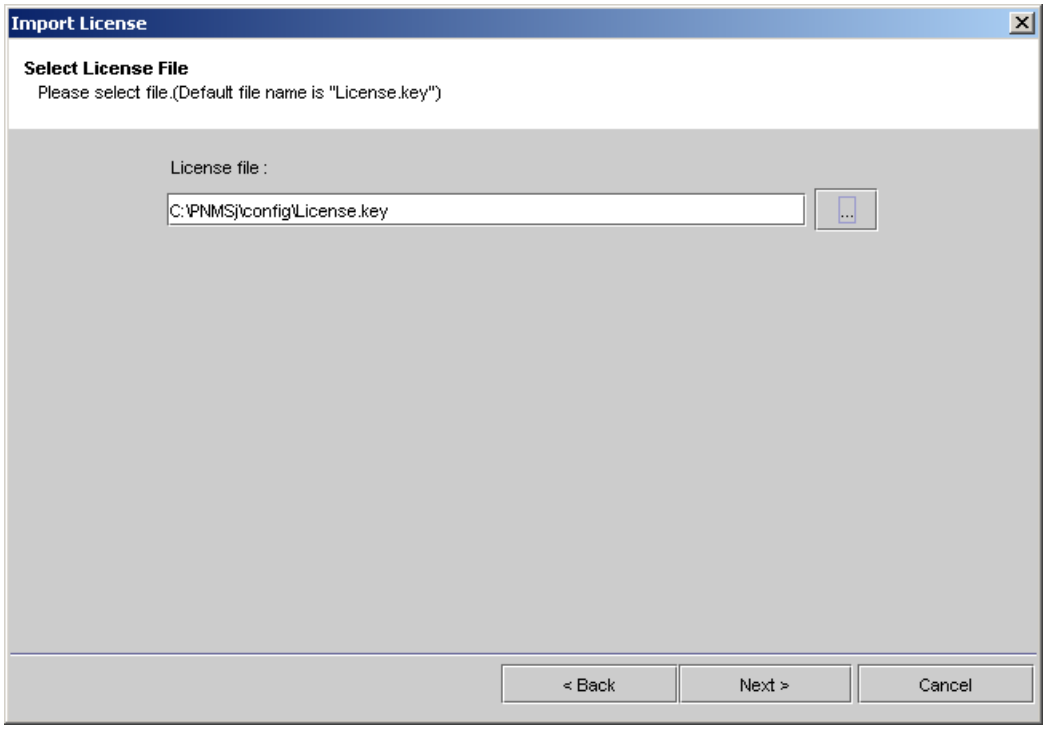
3. Click **[...]** to locate the new license key file.



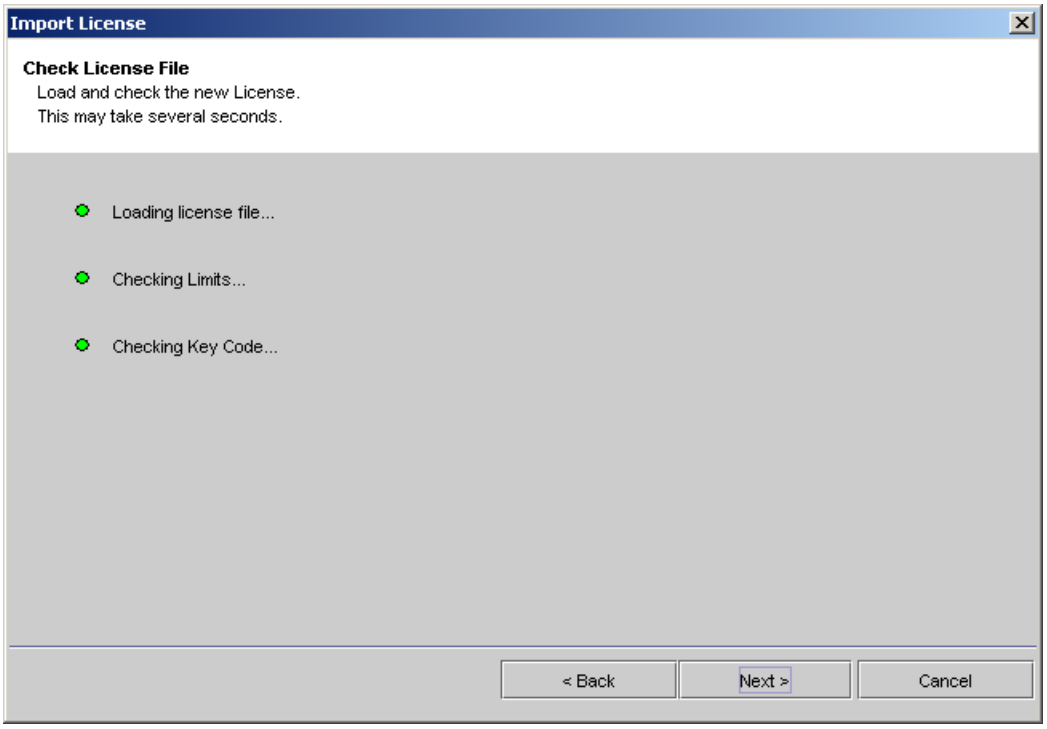
4. Indicate a License key file (i.e. License.key) that will be associated to PNMT. Select a License key file and click **[Open]** to continue.



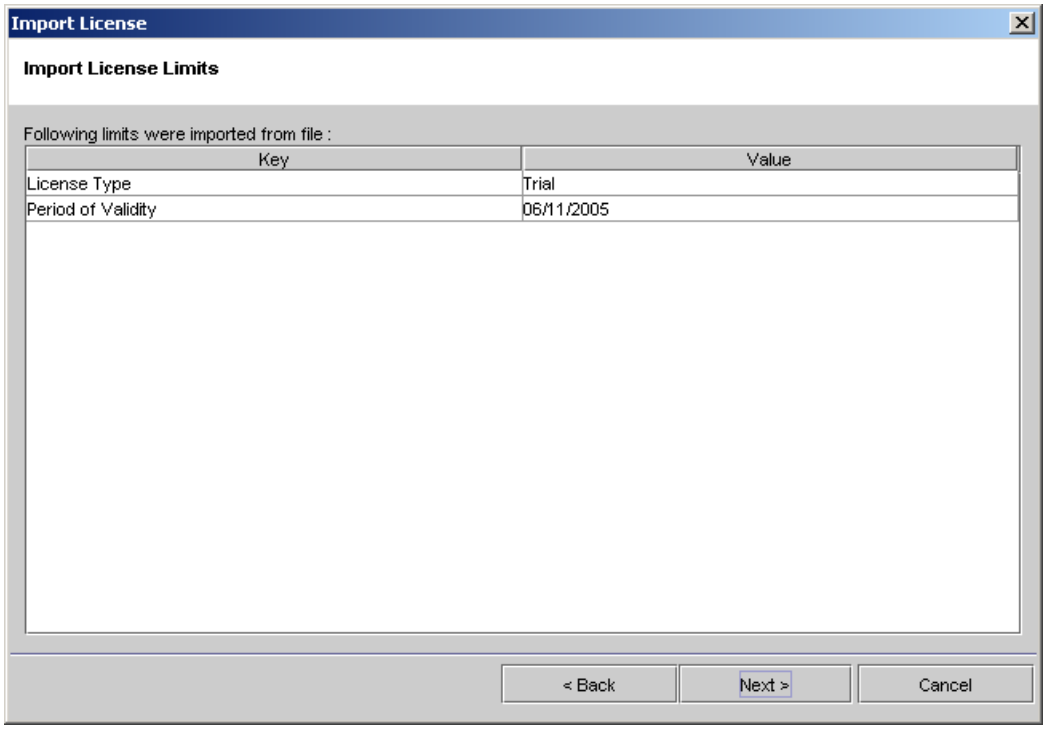
5. After verifying the path to License key file is correct, click **[Next]** to proceed.



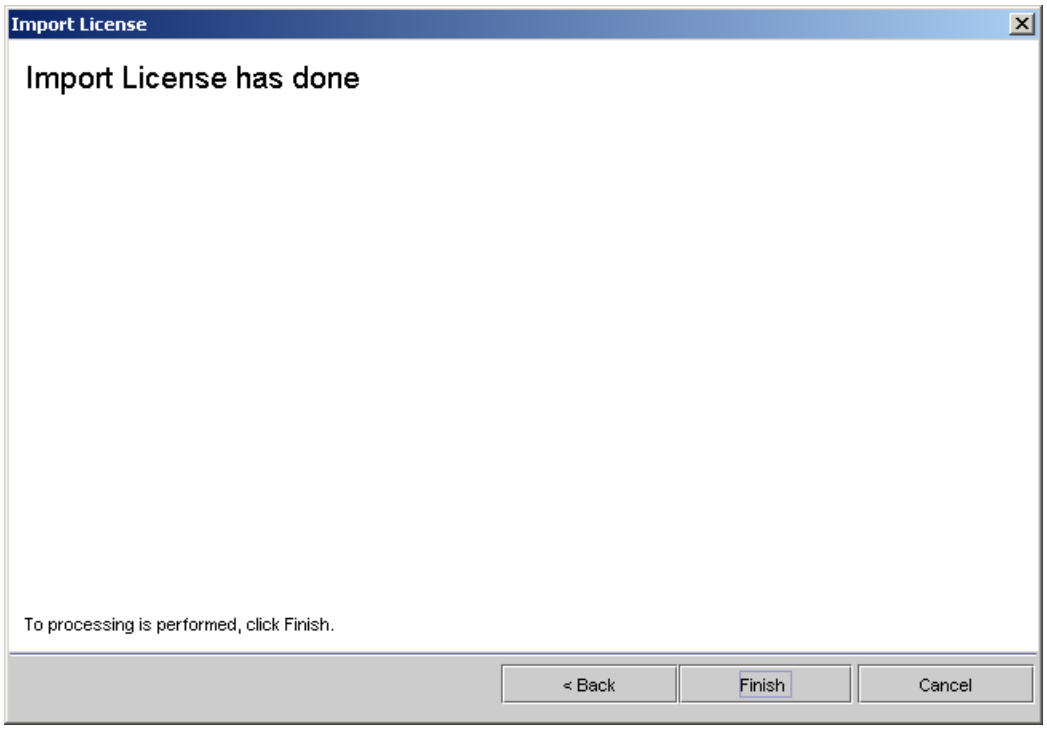
6. The progress of checking license file will be displayed. If no error is encountered in checking of the license file, click **[Next]** when the button becomes available.



7. Verify the contents of license that you applied.



8. Click **[Finish]** in ensuing window to complete applying license.

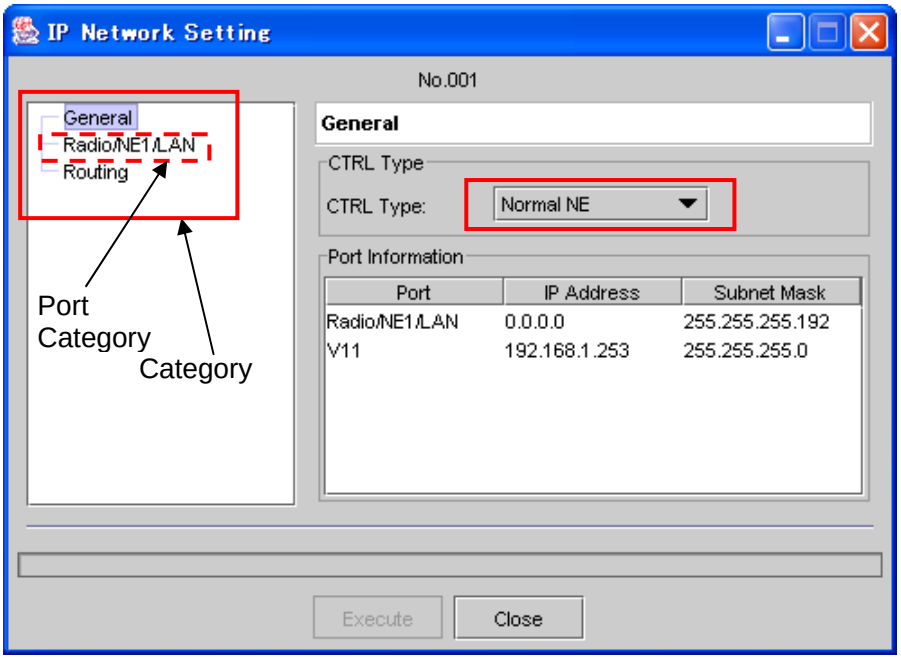


Appendix A: IP Network Settings

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.

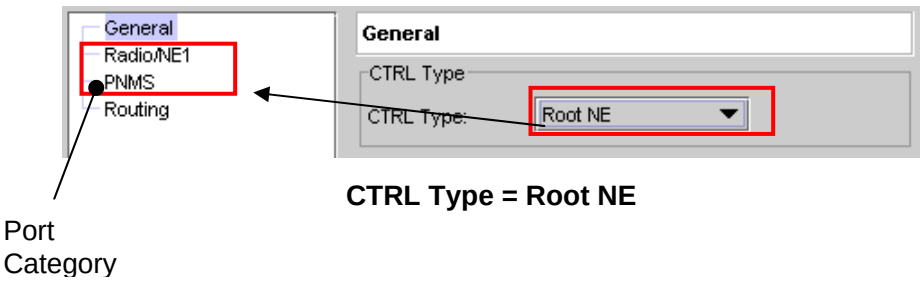
- Root NE

  The nearest NE to PNMS configure as Root NE

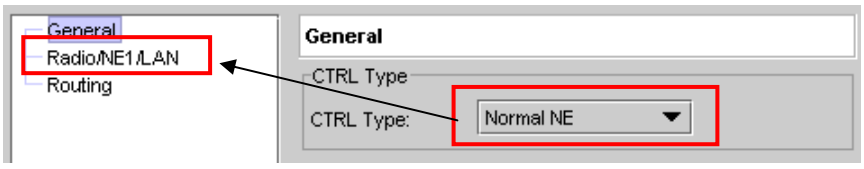
- Normal NE

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

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



CTRL Type = Root NE

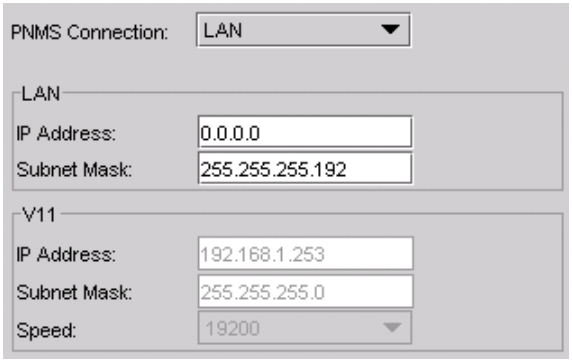


TRL Type = Normal NE

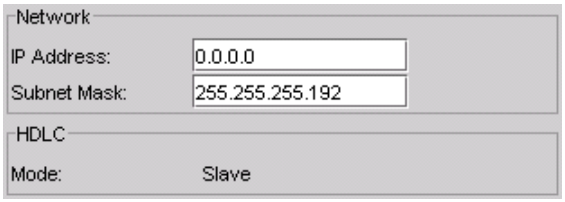
3. Set and select **Port category**. The right hand screen will change according to the selected item in **Category**.

- IP Address & Subnet Mask

  The following items are set to each Port

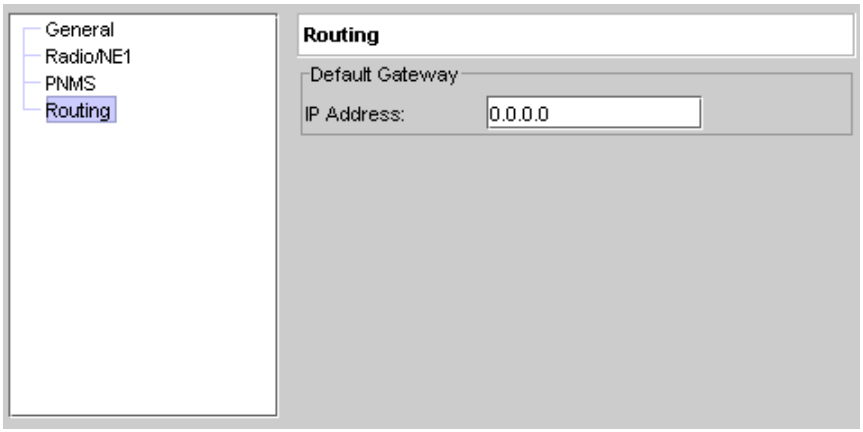


PNMS



Radio/NE1 or Radio/NE1/LAN

4. Set **Default Gateway**.



Routing

5. 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.

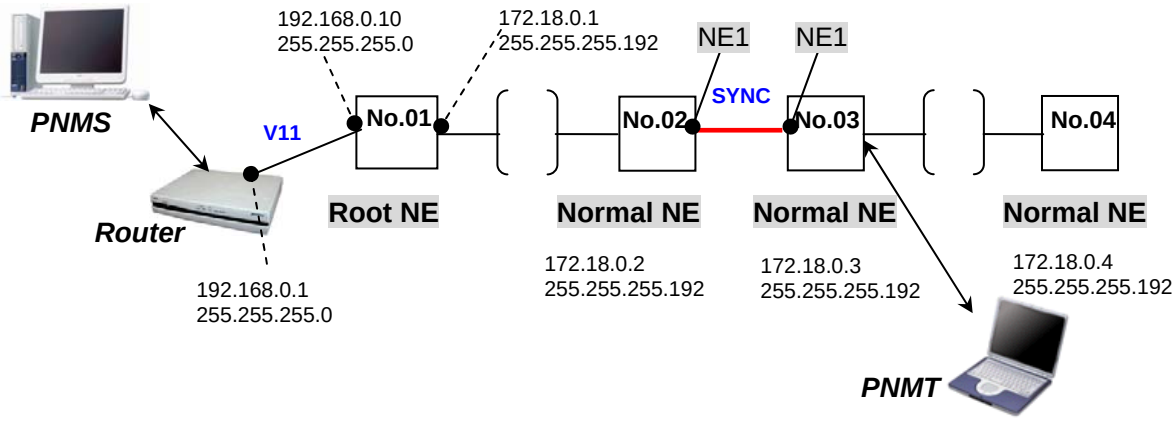
NOTE

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

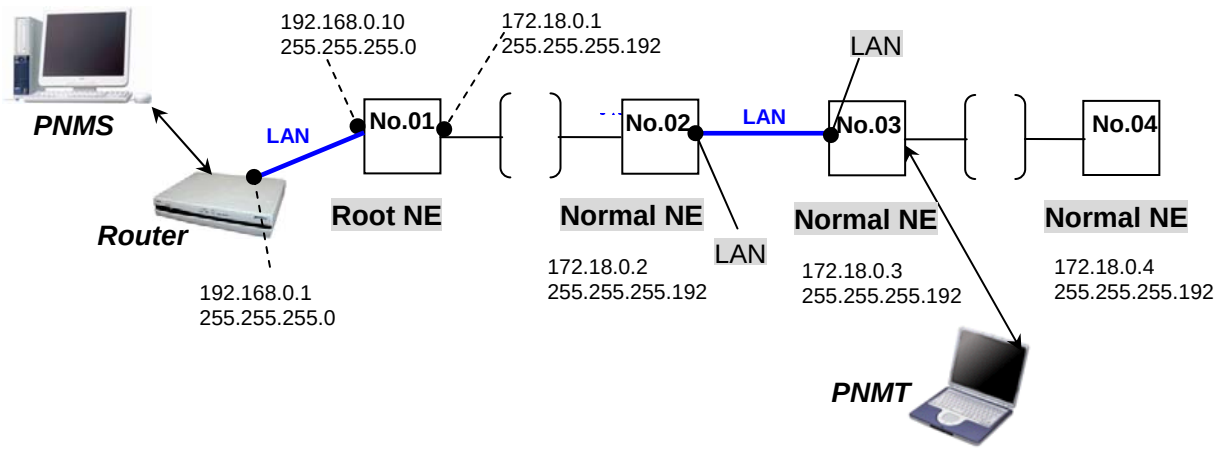
The Mx network which is supported for Auto discovery, Only one subnetwork can be configured (subnetwork is not dividable) and support maximum 62 NEs. Therefore, mixing of other equipments to Mx network should be avoided.

1. Network configuration for SYNC Back-back NMS connection



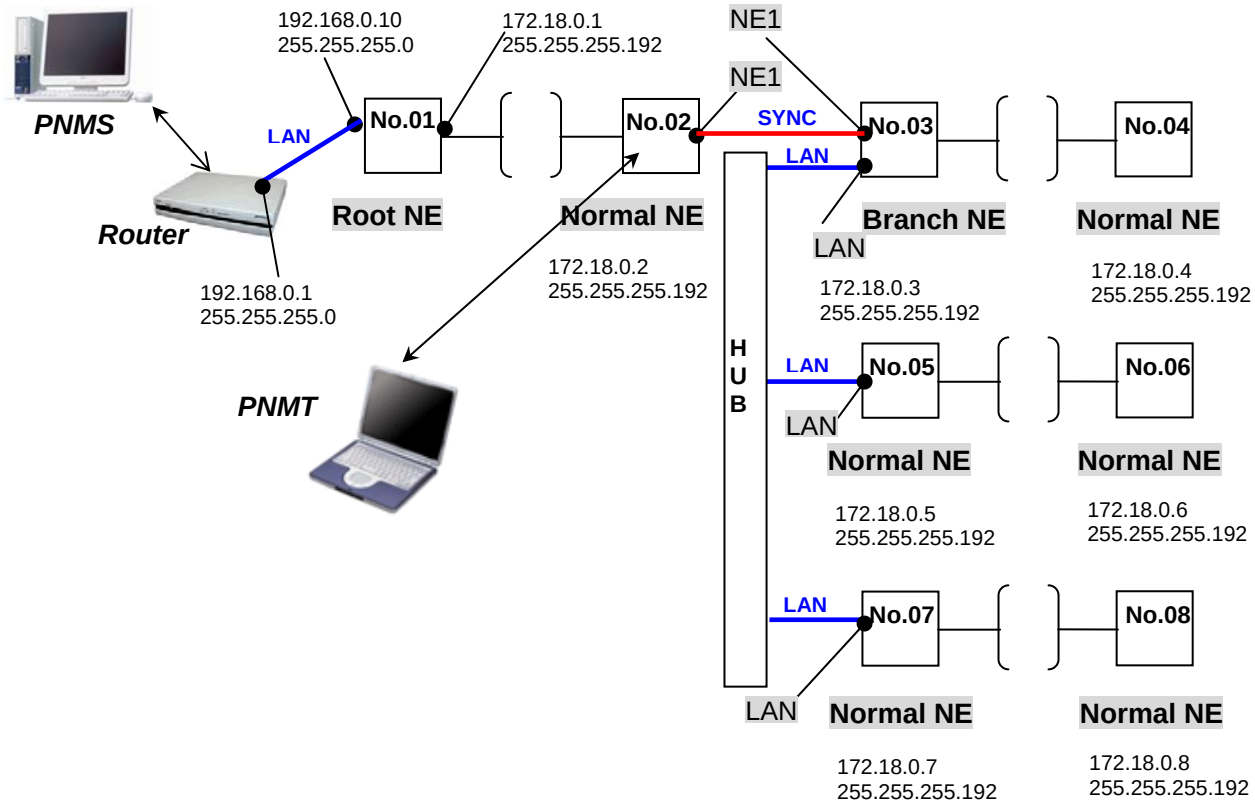
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1/LAN	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: V11)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
			Speed	19200
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP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



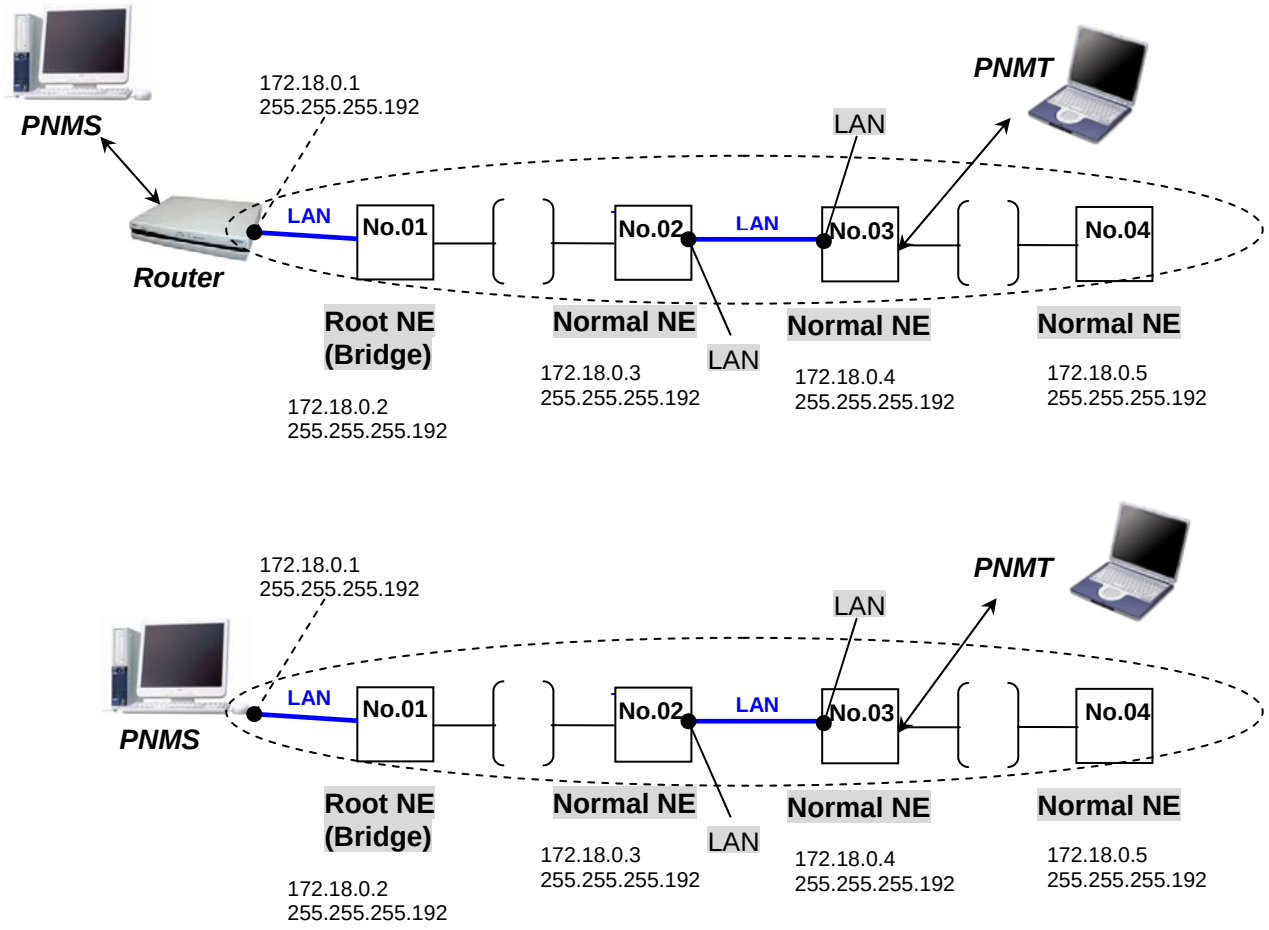
NE	CTRL Type (General)	Category	Item Name	Input data
No.01	Root NE	Radio/NE1	IP Address	172.18.0.1
			Subnet Mask	255.255.255.192
		PNMS (PNMS Connection: LAN)	IP Address	192.168.0.10
			Subnet Mask	255.255.255.0
		Routing	Default Gateway	192.168.0.1
No.02	Normal NE	Radio/NE1/LAN	IP Address	172.18.0.2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