NWD-095305-02E

NEC

P ASOLINK

N ETWORK

M ANAGEMENT

T ERMINAL

PNMT (Java version) Operation Manual

for PASOLINK NEO/c

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 screen images in this manual are only examples. Screens will vary according to equipment configurations, equipment operation modes, setting parameters, PNMS/PNMT application program version, etc. Screens contained in this manual are current at the moment of publishing; however, they may differ slightly from the actual screens on your PNMS/PNMT.
3. This manual is written on the assumption that you already understand the restrictions, limitations and precautions necessary to operate the equipment properly. Refer to the equipment manual for details.

1 Getting Started

1.1 Introduction

The PNMT is a computer-based PASOLINK Network Management Terminal system developed by NEC for management of NEC's PASOLINK wireless transmission network. The PNMT is a scaled down version of 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. Throughout this manual, "the PNMT" generally refers to the mobile laptop computer in which the NEC PNMT software package (that interfaces and controls NEC PASOLINK series short haul wireless equipment) is installed.

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

1.2 Conventions Used in This Manual

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

1.3 PNMT Communication Interfaces

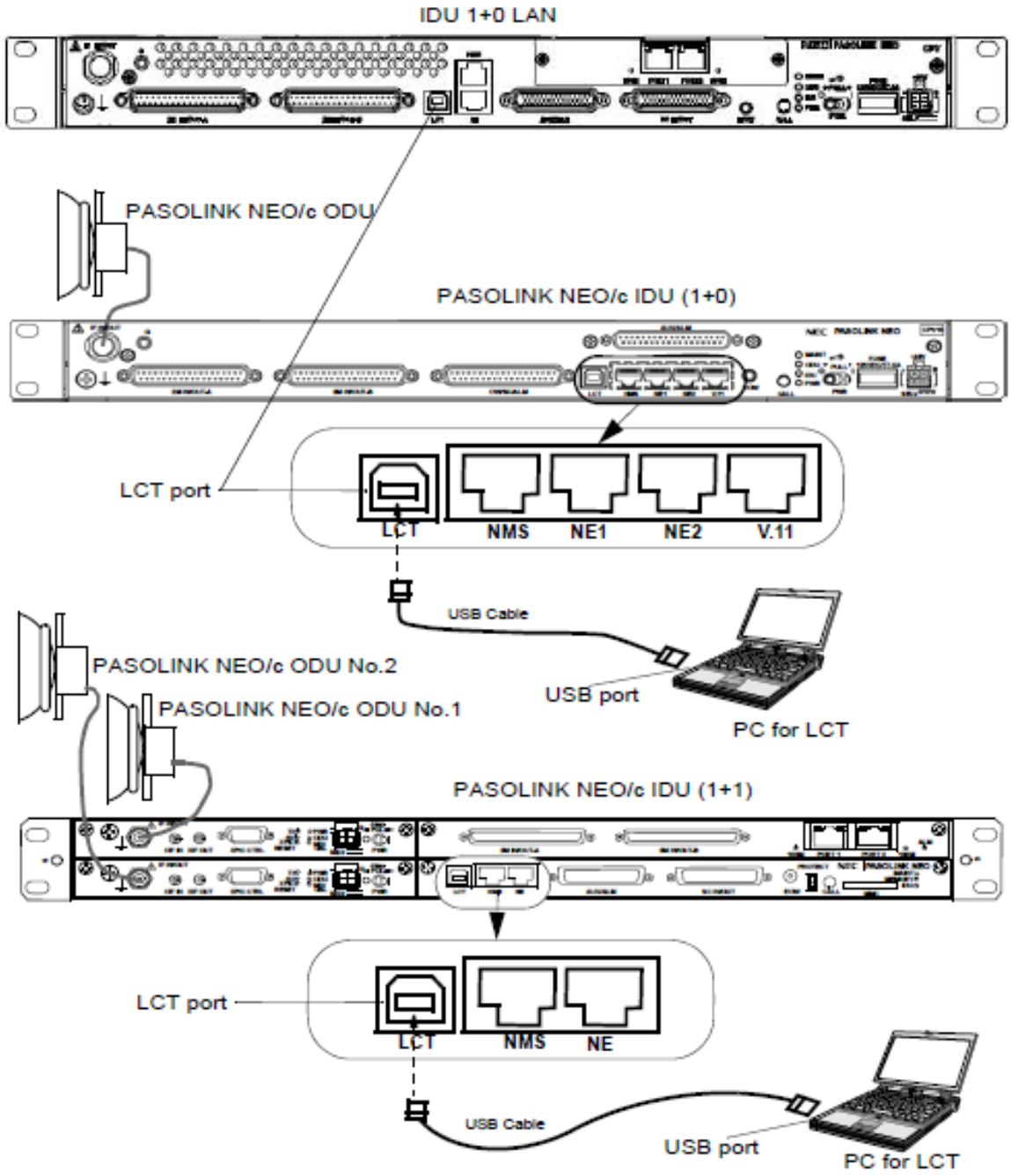
1.3.1 Communications

Communications between the PNMT and the wireless network equipment is possible

- via the **LCT** port of the equipment

1.3.2 LCT Port Interface

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



PNMT – IDU Connection

The PNMT and the Control (CTRL) Module mounted in the IDU must be connected using a standard USB cable (the ***Type A*** plug is fitted into the ***Type A*** socket of the PNMT computer and the ***Type B*** plug is fitted into the ***Type* B** socket of the LCT Port on the IDU Control (CTRL) Module)

The LCT port has the following specifications:

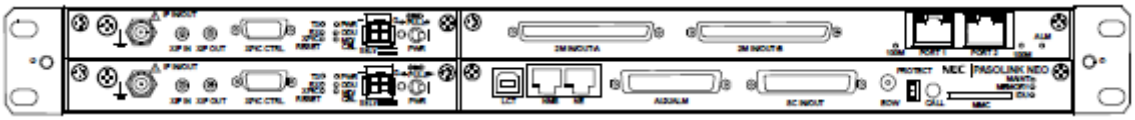
- Connector type: USB Type B (female)
- Bit per second rate: 1200/2400/4800/9600/19200 (default 19200)
- Stop bits: 1
- Data bit length: 8
- Parity: no parity

1.4 Equipment Configuration of PASOLINK NEO CPV (PASOLINK NEO/c)

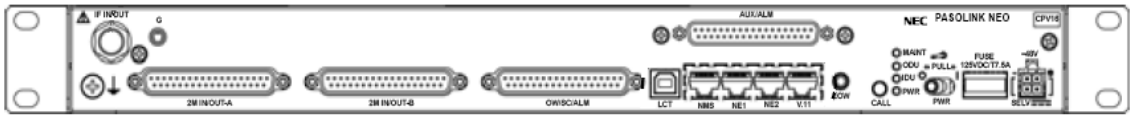
PASOLINK NEO CPV (PASOLINK NEO/c) has 5 types of IDU.

- 1+0 (Terminal)
- 1+1 (Hot Stand-by)
- 1+1 (Twin Path)
- 1+0 (Fix)
- 1+0 (LAN)

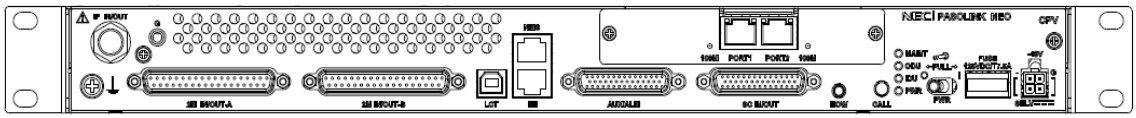
1+0 (Terminal)



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



1+0 (Fix)



1+0 (LAN)

1.5 Hardware Requirements

Recommended configuration of PNMT mobile computer.

- CPU: Pentium M 1.60GHz or equivalent
- RAM: 512MB or more
- HD: 40GB or more
- Display: color LCD (1,024 × 768) or more
- FD drive
- CD-ROM drive
- USB port
- Serial port (RS-232C)
- 10/100BASE-T (X) LAN port
- USB cable with USB-B connecter
- Internal sound system with speaker

1.6 Software Requirements

- OS: Windows 2000 Professional (English version) with SP4 or higher
  Windows XP Professional (English version) with SP2 or higher
- IE6.0 with SP2 or higher
- Java Runtime Environment **v 1.4.2_11** or higher
  (**JRE v 1.5** is not currently supported.)
- Acrobat Reader
- PNMT Application software

2 System Operation & Maintenance

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

2.1 The PNMT Screen { XE "Window: Configuration" }

The PNMT window comprises the following main parts (Refer to Figure 1).

- **Title Bar { XE "Window: Title Bar" }**

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

- **Common Menu Bar { XE "Window: Menu Bar" }**

The common menu bar of the window presents the **System** and **Help** options, illustrates the commands that can be executed from the various options. The **Help** function also can display operation manual.

- **NE-specific Menu Bar { XE "Window: Pull down menu" }**

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

- **Block Diagram { XE "Window: Pull down menu" }**

The block diagram illustrates the equipment/part of the PASOLINK wireless system. Its main purpose in the window is to display the current summary alarm state of the equipment. You can click a specific block to display the status of equipment in the Data Window.

- **Overall Status Window**

The Overall Status Window shows a snapshot of all important parameters/settings for the NE. This window only displays current settings; control functions cannot be performed here.**{** XE "Window: Pop-up Window" **}**

- **Data Window { XE "Window: Pop-up Window" }**

This window displays in detail the status and alarm items of a specific equipment/part of the NE. You can select the tab or the block of the specific equipment/part which you want to monitor in the Data Window.

- **Tabs { XE "Window: Entry Field" }**

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

- **Command Button { XE "Window: Command Button" }**

The command button is used to enter the data selected in the pop-up window into the computer.

- **Text Box { XE "Window: Command Button" }**

This is a standard Windows dialog box where the user inputs the desired value.

- **Login User**

Denotes the user currently logged-in to the PNMT.

- **Background color attribute for each alarm and status**

The respective Background color for each alarm and status is as follows:
normal: Green, major alarm: Red, minor alarm: Pink,

status value: White, disabled: Gray, maintenance: Yellow

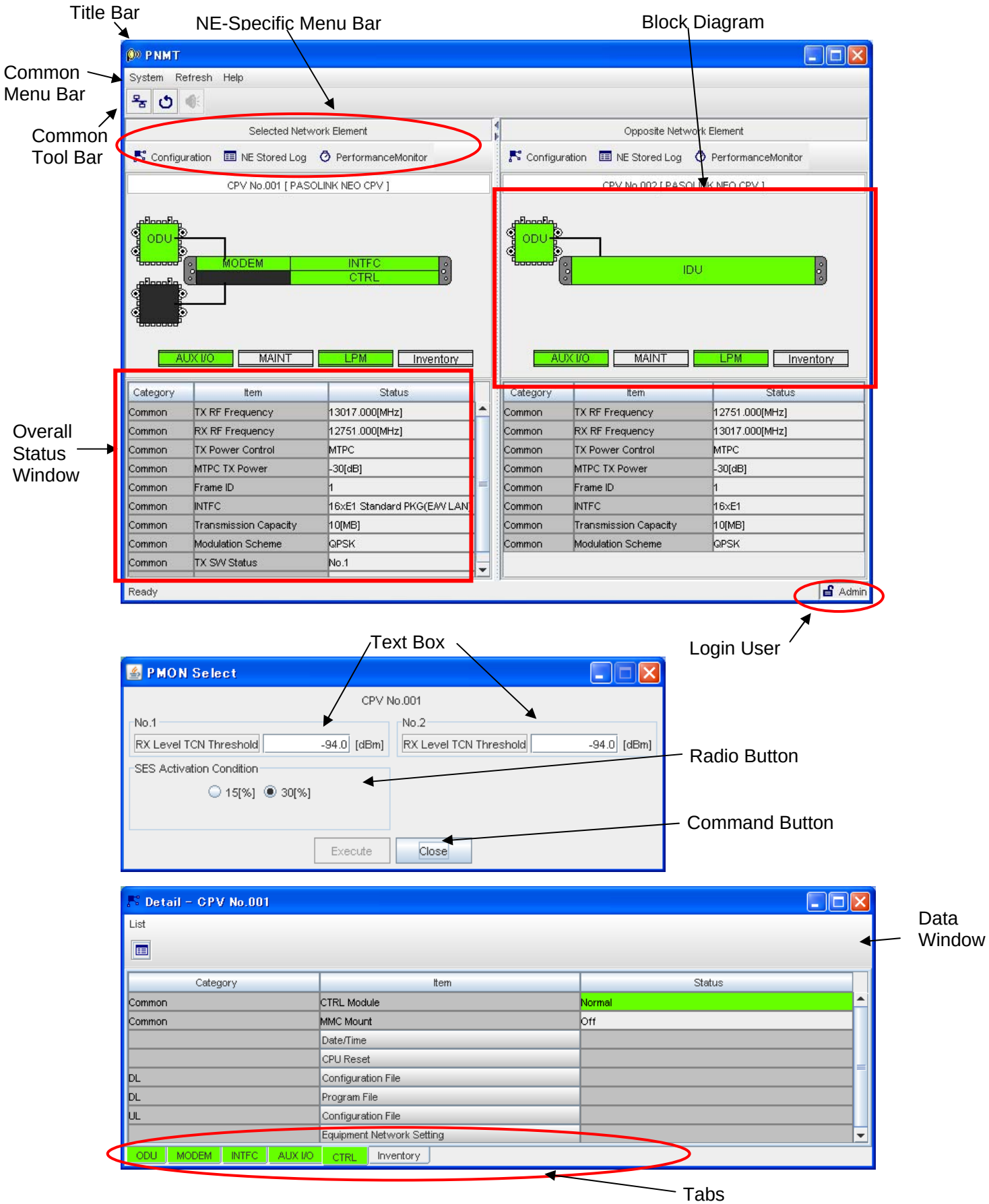


Figure 1 Standard components of PNMT Window

2.2 Launching the PNMT Application

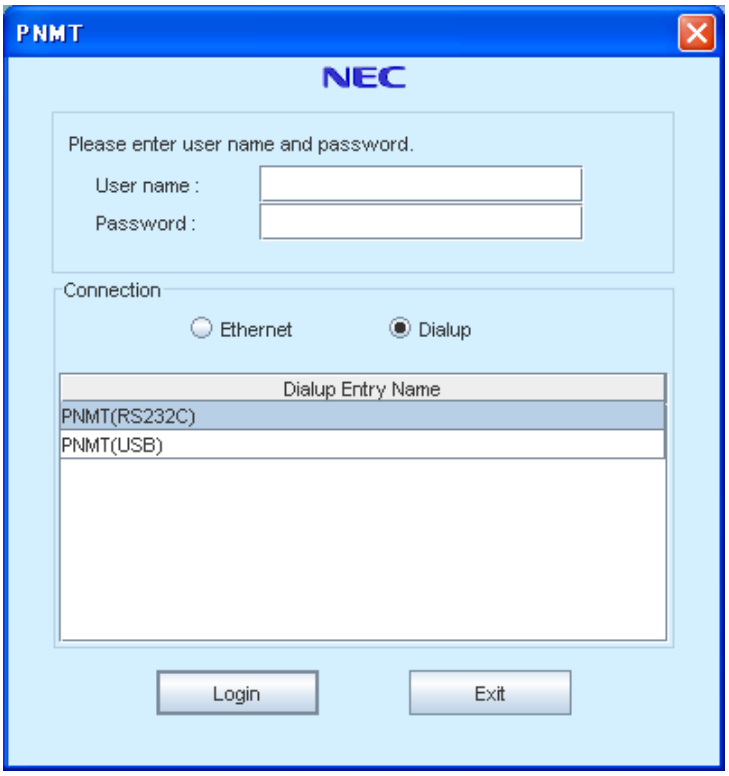
To start PNMT:

1. Turn ON the computer.

NOTE

Connect the PNMT cable 30 seconds after IDU's power is ON and make sure that the PNMT cable is connected between USB port of the PNMT computer and the LCT port of the IDU.

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



NOTE

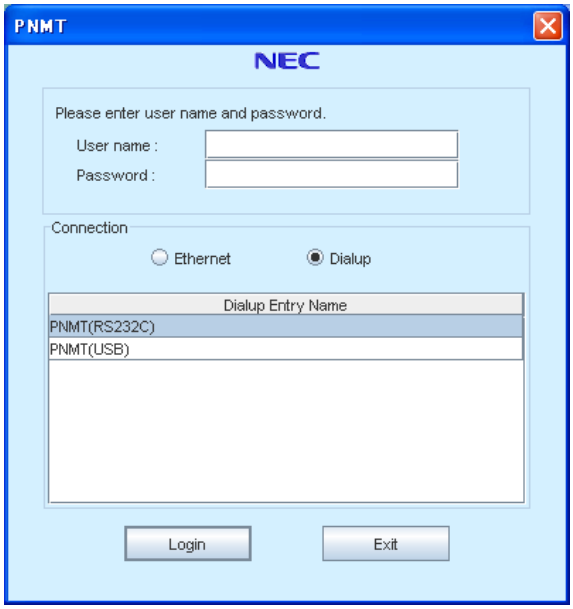
Please do not change the clock settings of your computer once PNMT has started.

2.3 Login

Users are registered by means of login name and password.

To protect the network and network management system from unauthorized access or unauthorized modifications, five levels (refer to the table shown in section 2.3.1 User Access Privilege Levels) of users are defined with different privileges. The functions available in the window depend on the user's access level. Therefore, some of the functions may or may not be carried out.

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



To login:

1. Start PNMT, and then Login window appears.

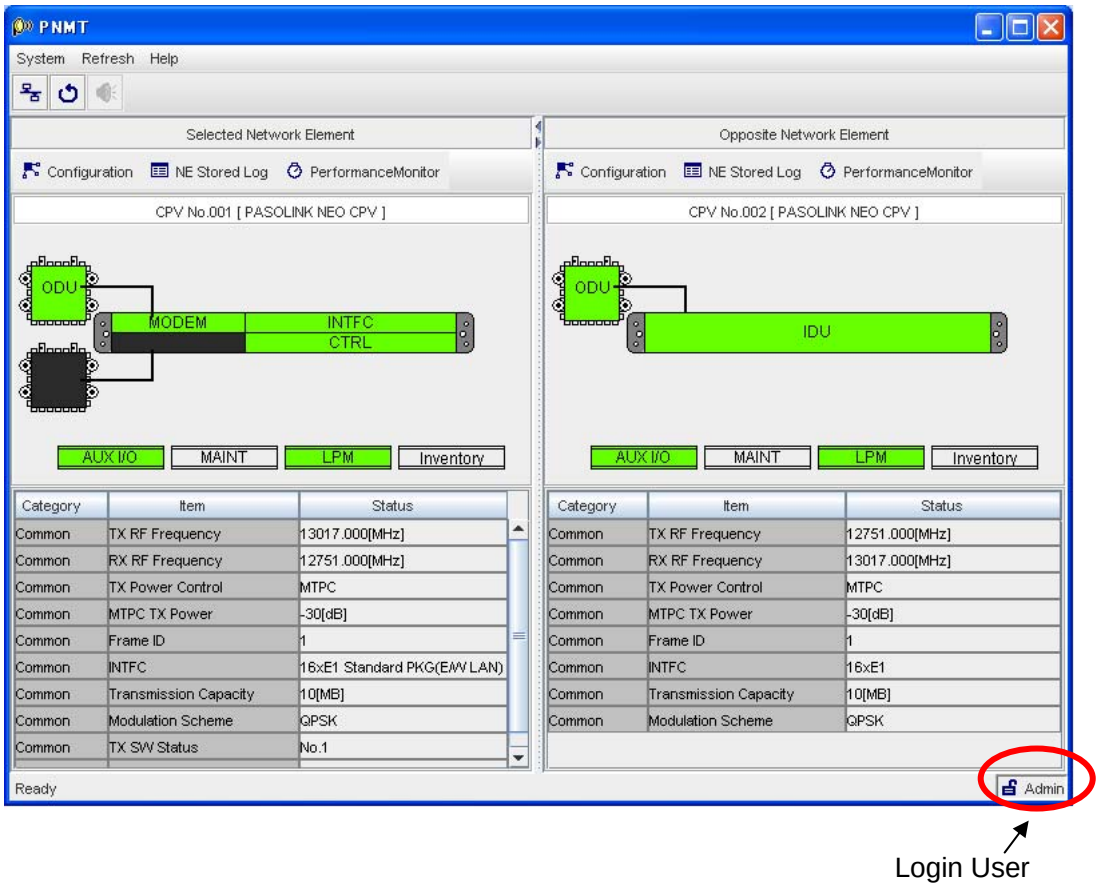
2. Enter the <user name>.

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

4. For Connection select **Dialup**.

5. For Dialup Entry Name select **PNMT(USB)**.

6. Click the **[Login]** button. If you wish to exit the program, click **[Exit]** button.



Login User

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)	-	-	-	✓	✓
NE LIST		CONNECT	-	-	-	✓	✓
NE STORED LOG		SAVE AS	-	✓	✓	✓	✓
EQUIPMENT SETUP		(Wizard Setting)	-	-	✓	✓	✓
		NE NAME	-	-	✓	✓	✓
		NOTE	-	✓	✓	✓	✓
PROVISIONING	CHANNEL SETTING	CH USAGE	-	-	✓	✓	✓
		CH USAGE ERROR REPORT	-	-	✓	✓	✓
		AIS ACTIVATION CONDITION	-	-	✓	✓	✓
		AIS GENERATED REPORT	-	-	✓	✓	✓
		AIS RECEIVED REPORT	-	-	✓	✓	✓
		AIS RECEIVED CONDITION	-	-	✓	✓	✓
		E1 PORT IMPEDANCE	-	-	✓	✓	✓
	BER THRESHOLD SETTING	HIGH BER THRESHOLD	-	-	✓	✓	✓
		LOW BER THRESHOLD	-	-	✓	✓	✓
	SC ASSIGNMENT	RS-232C-1	-	-	✓	✓	✓
		RS-232C-2	-	-	✓	✓	✓
		V11-1	-	-	✓	✓	✓
		V11-2	-	-	✓	✓	✓
		SC LAN1	-	-	✓	✓	✓
		V11-1 DIRECTION SETTING	-	-	✓	✓	✓
	LAN PORT SETTING	LAN PORTx USAGE	-	-	✓	✓	✓
		SWITCHING FUNCTION	-	-	✓	✓	✓
		SPEED & DUPLEX PORTx	-	-	✓	✓	✓
		FLOW CONTROL PORTx	-	-	✓	✓	✓
		COLLISION REPORT PORTx	-	-	✓	✓	✓
		LINK LOSS FORWARDING PORTx	-	-	✓	✓	✓
		2M FRAMING	-	-	✓	✓	✓
	TX POWER CTRL	MTPC TX POWER	-	-	✓	✓	✓
		ATPC THRESHOLD LEVEL	-	-	✓	✓	✓
		ADDITIONAL ATT	-	-	✓	✓	✓
		ATPC RANGE (MAX)	-	-	✓	✓	✓
		ATPC RANGE (MIN)	-	-	✓	✓	✓
		ATPC POWER MODE	-	-	✓	✓	✓
		COMM ALARM MODE	-	-	✓	✓	✓
	CONDITION for TX/RX SW	TX SW PRIORITY	-	-	✓	✓	✓
		TX SW LOCK IN USAGE	-	-	✓	✓	✓
		TX SW REVERSE FUNCTION	-	-	✓	✓	✓
		TX SW SENSITIVITY	-	-	✓	✓	✓
		RX SW PRIORITY	-	-	✓	✓	✓
		RX SW MAINTENANCE MODE	-	-	✓	✓	✓
		RX SW CONDITION-EARLY WARNING	-	-	✓	✓	✓
	RELAY	RELAY CONFIGURATION	-	-	✓	✓	✓
	TCN THRESHOLD	TCN THRESHOLD	-	-	✓	✓	✓
	EOW IF TYPE	EOW2 EXTERNAL SETTING	-	-	✓	✓	✓
	PMON SELECT	RX LEV TCN THRESHOLD	-	-	✓	✓	✓
		SES ACTIVATION CONDITION	-	-	✓	✓	✓
	ALARM CORRELATION	ALARM CORRELATION CAPABILITY	-	-	✓	✓	✓
MAINTENANCE		MAINTENANCE	-	✓	✓	✓	✓
		TX SW MANUAL CONTROL	-	-	✓	✓	✓
		RX SW MANUAL CONTROL	-	-	✓	✓	✓
		ATPC MANUAL CONTROL	-	-	✓	✓	✓
		ATPC MANUAL CONTROL POWER	-	-	✓	✓	✓
		TX MUTE CONTROL	-	-	✓	✓	✓
		TX MUTE OFF CONTROL TIME	-	-	✓	✓	✓
		CW CONTROL	-	-	✓	✓	✓

✓: Available, -: Not available

Functions			User Name and Accessible Functions				
Category		ITEM	Monitor	User	Local	Remote	Admin
		MAIN CH LOOPBACH-1	-	-	✓	✓	✓
		MAIN CH LOOPBACH-2	-	-	✓	✓	✓
		DADE ADJUST	-	-	✓	✓	✓
		LAN DEVICE RESET	-	-	✓	✓	✓
		RF SETTING SUB BAND	-	-	✓	✓	✓
		ANTENNA ALIGNMENT MODE	-	-	✓	✓	✓
AUX I/O		INPUT	-	✓	✓	✓	✓
		OUTPUT	-	✓	✓	✓	✓
		CLUSTERx ALARM	-	✓	✓	✓	✓
PMON	PMON	ALL DATA CLEAR	-	✓	✓	✓	✓
		SAVE AS	-	✓	✓	✓	✓
RMON		ALL DATA CLEAR	-	✓	✓	✓	✓
		SAVE AS	-	✓	✓	✓	✓
CTRL	CONTROL	DATE/TIME	-	-	✓	✓	✓
	DOWNLOAD	CONFIGURATION FILE	-	-	-	-	✓
		PROGRAM FILE	-	-	-	-	✓
		EQUIPMENT CONFIG. FILE	-	-	-	-	✓
	UPLOAD	CONFIGURATION FILE	-	-	-	-	✓
		EQUIPMENT CONFIG. FILE	-	-	-	-	✓
		OSPF DUMP FILE	-	-	-	-	✓
	EQUIPMENT NETWORK SETTING	NETWORK SETTING	-	-	-	-	✓
		NETWORK SETTING (OSPF)	-	-	-	-	✓
	CPU RESET	RESET	-	-	✓	✓	✓

*Admin: Enabled to access all Network Elements.

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

*Local: Enabled to access directly connected Network Elements.
(Disabled from changing network configuration and changing/downloading programs)

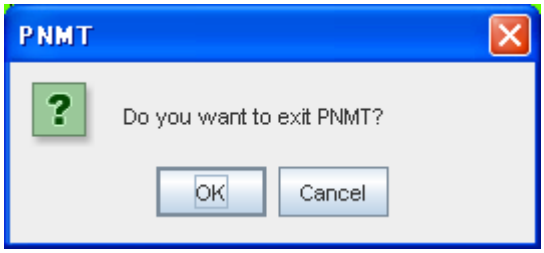
*User: Enabled only to access items which do not affect the equipment.

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

2.4 Shutting Down the PNMT

To close the PNMT application:

1. Click **System → Exit** in the menu bar of the PNMT main window.
2. Click **[OK]** button in the confirmation message window to close the application.

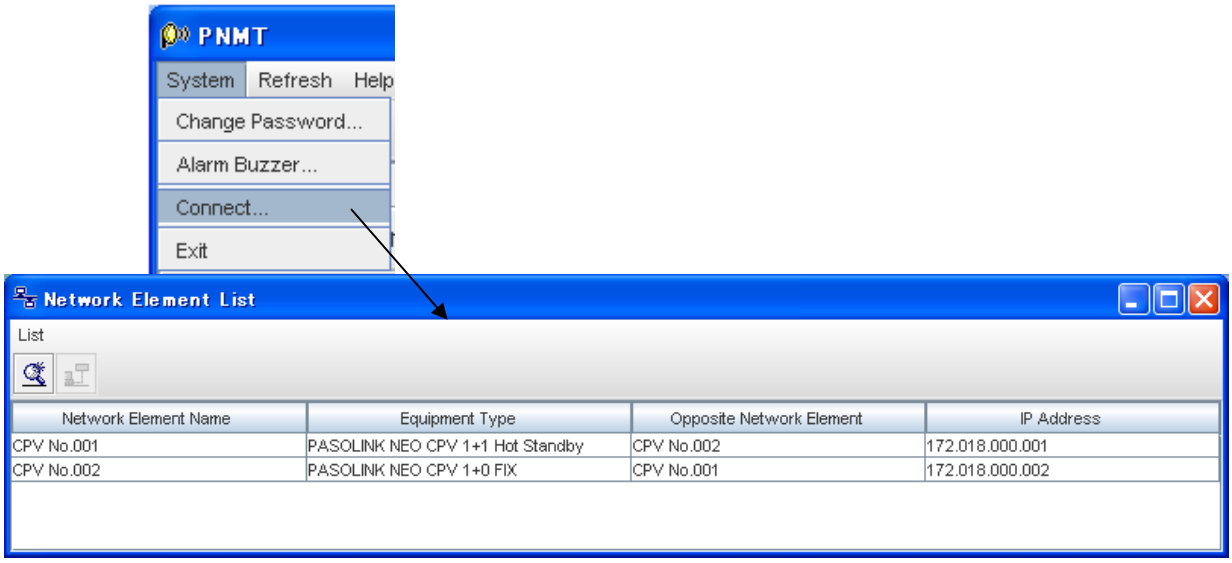


2.5 Searching for Network Elements and Connecting to Selected NE

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

To search for or connect to NE in the network:

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



NOTE

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

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

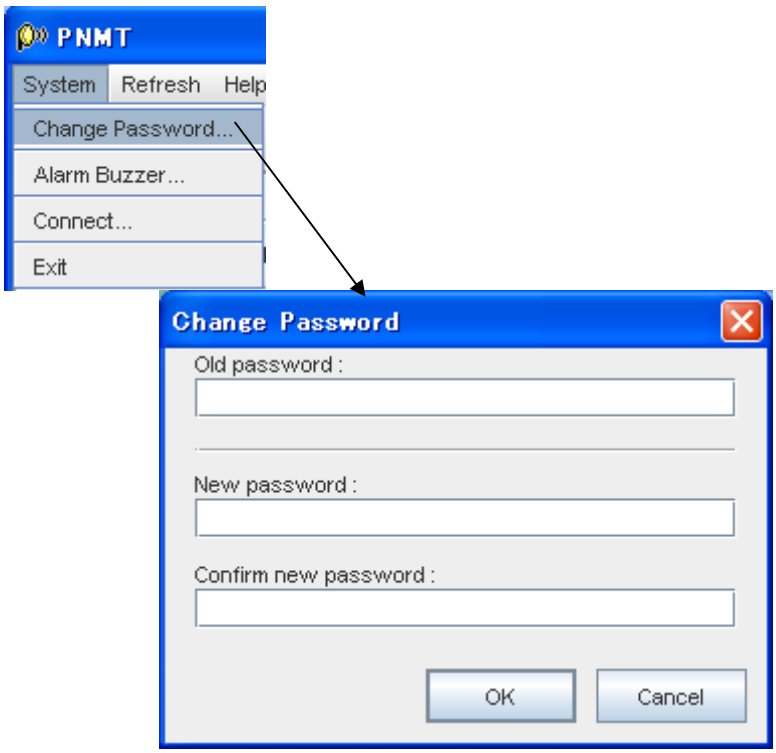
NOTE

Simultaneous connection from multiple PNMT to the same NE is possible:
1 Local connection
PNMT is directly connected to the NE
2 Opposite connection
PNMT is connected to opposite NE (of the local network)
3 Remote connection
PNMT is connected to the NE via remote access.

2.6 Change Password

To change the password:

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



2. Enter the old <password>.
3. Enter the new <password>.
4. Re-enter the new <password> in the **Confirm New Password** box to confirm.
5. Click **[OK]** button.

NOTE

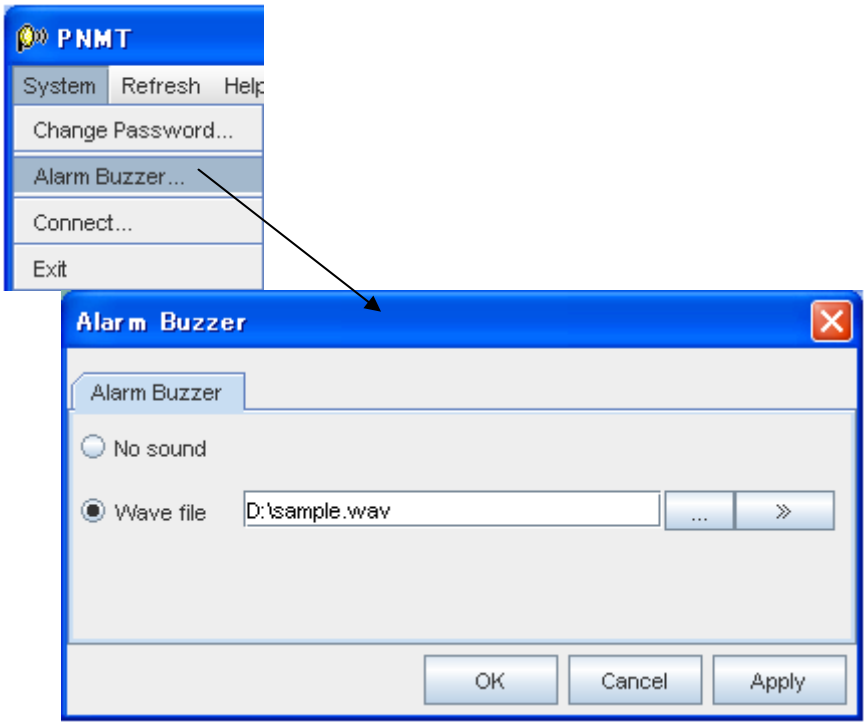
For details on initial user name and password, please refer to PNMT Installation Manual.

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 menu bar of PNMT main window.



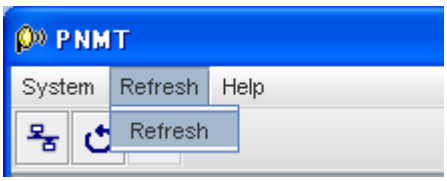
2. Select the **Wave file** to activate the buzzer. **No sound** is the factory setting of the PNMT.
3. If you select the **Wave file** box, enter the location of the sound file (*.wav) Otherwise; click the browse  button to locate the desired file. You can also preview the *.wav file by clicking on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

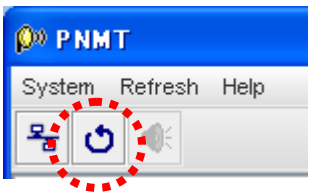
2.8 Refresh

This function is supported only by PNMT. This function enables PNMT to manually obtain metering and alarm status, as well as to update equipment information.

To Refresh:

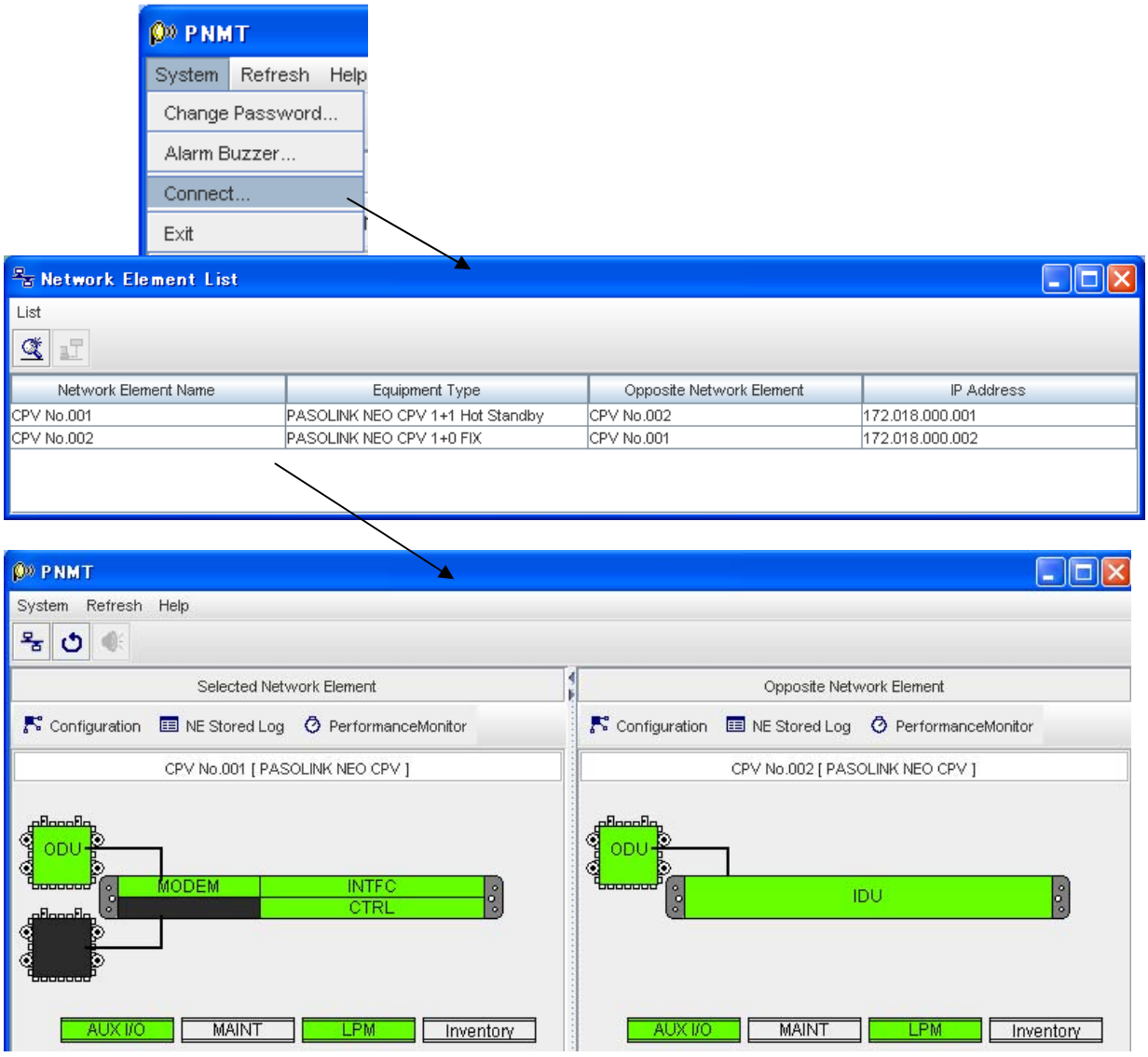
Click **Refresh** → **Refresh** in the menu bar or click on the refresh icon in the tool bar.





2.9 Remote Viewing using PNMT main window

You can view a target link underlying the one Root NE in the managed network by searching the connectable NEs and then connecting to the target NE. Please refer to **Section 2.5 Searching for Network Elements and Connecting to Selected NE**. This feature allows remote connection to any NE in the network.



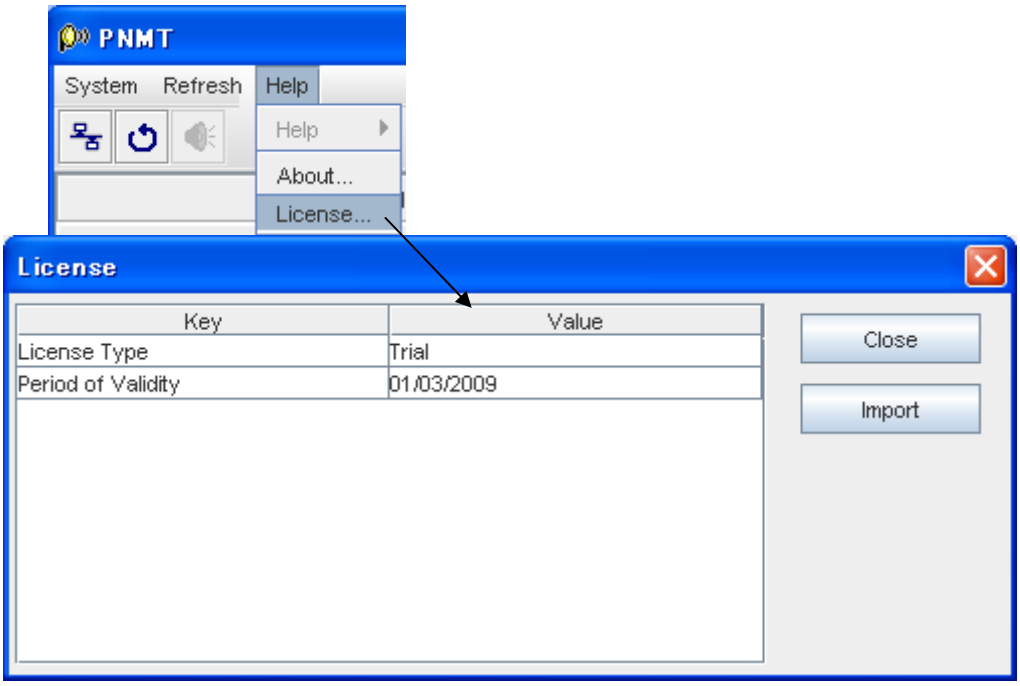
PNMT main window (1+0 configuration)

2.10 License

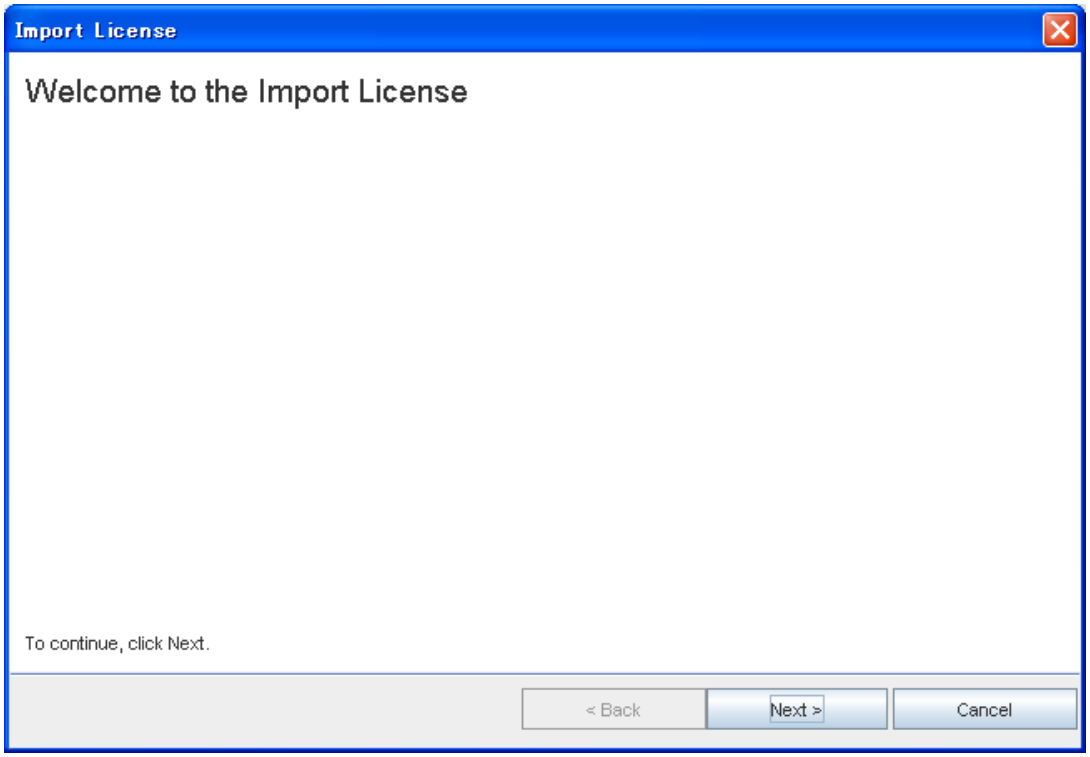
To protect PNMT functions, the PNMT application includes relevant license files.

To display the current license status:

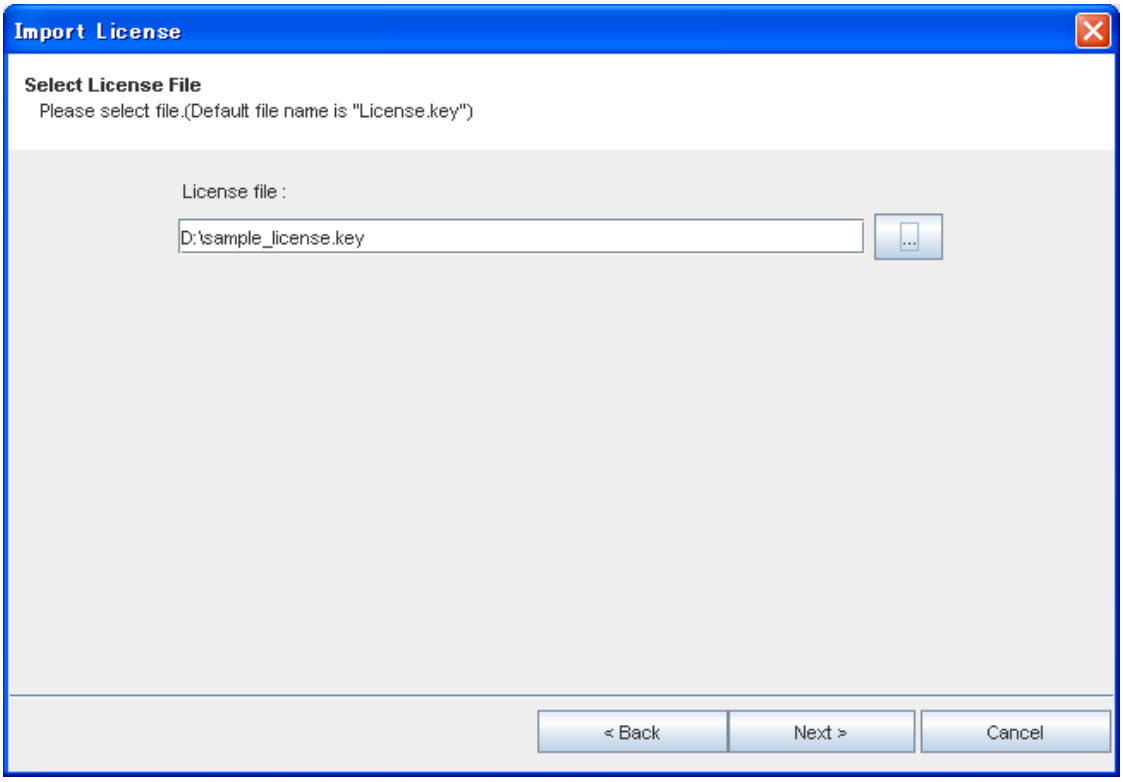
1. Click **Help → License in** the PNMT main window.



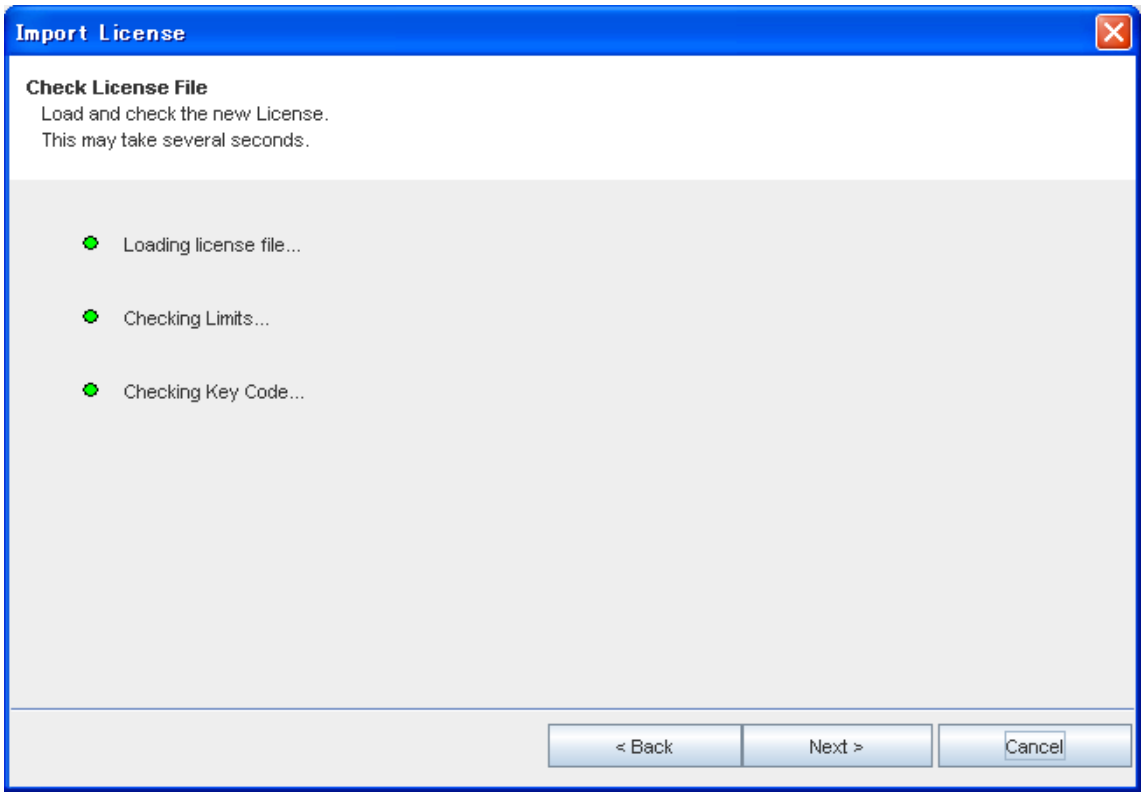
2. Click **[Close]** to exit this screen. To change the license file, click **[Import]**, and proceed as follows.
3. Click **[Next]** to continue.



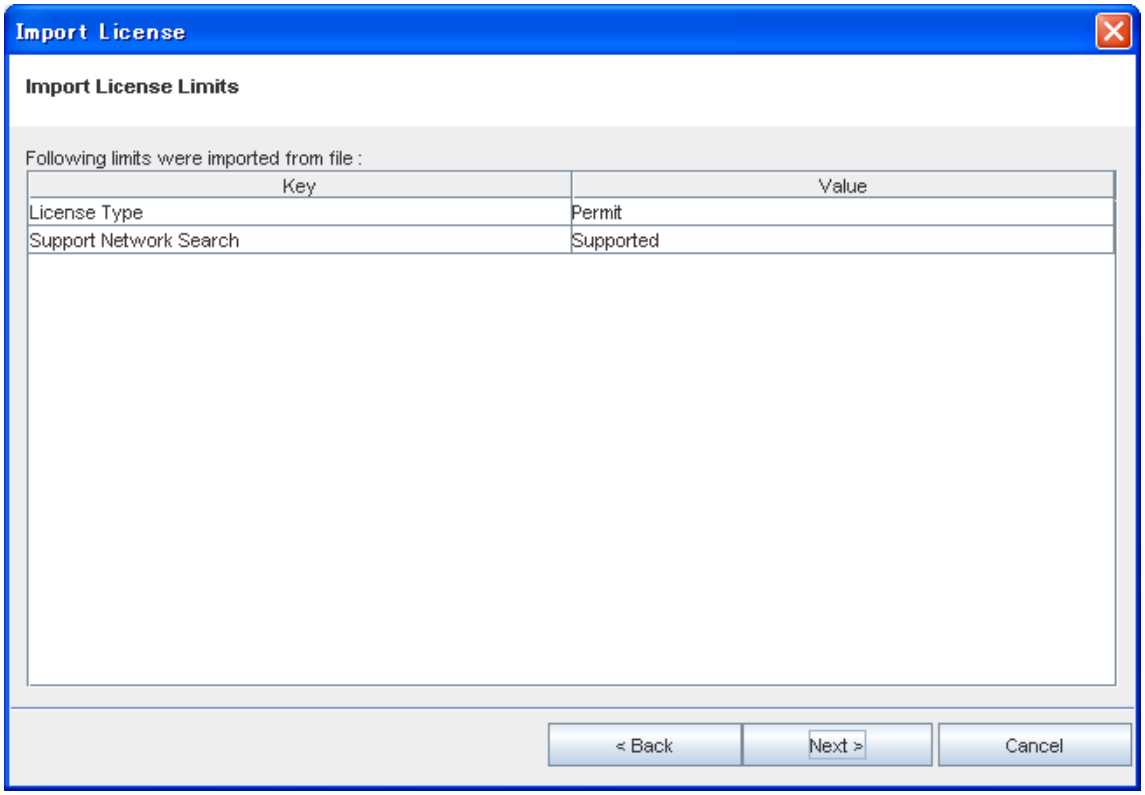
4. Specify the License.Key file if one is available. Click **[Next]**.



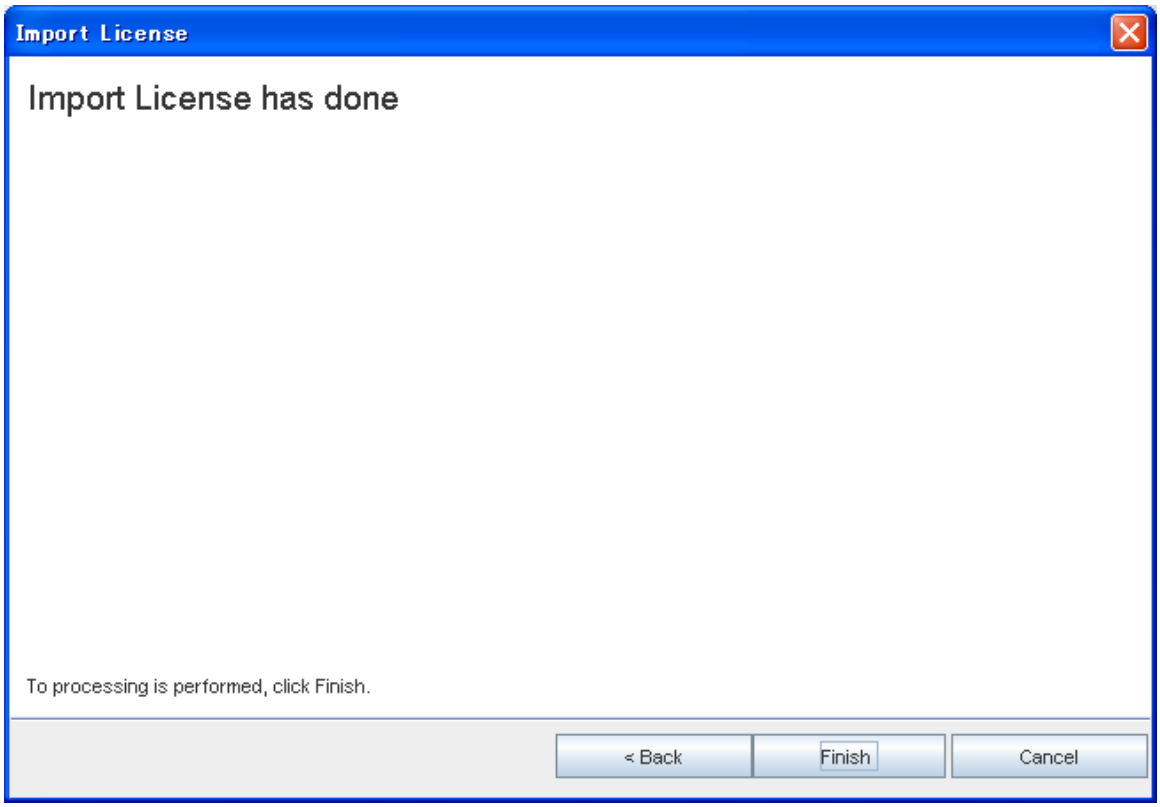
5. The progress of **Check License File** will be displayed. If no error is encountered when importing license file, click **[Next]** as soon as the button becomes available.



6. Confirm the type of license Imported, and click **[Next]**.



7. Click **[Finish]** in ensuing window to end **Import License Wizard.**



2.11 Overall Status Window

This window is displayed during startup. The Overall Status Window provides a snapshot of the most significant monitored items in the NE.

Overall Status Window

Category	Item	Status
Common	TX RF Frequency	13017.000[MHz]
Common	RX RF Frequency	12751.000[MHz]
Common	TX Power Control	MTPC
Common	MTPC TX Power	-30[dB]
Common	Frame ID	1
Common	INTFC	16xE1 Standard PKG(E/W LAN)
Common	Transmission Capacity	10[MB]
Common	Modulation Scheme	QPSK
Common	TX SW Status	No.1

The Overall Status Window shows a snapshot of all important parameters/settings for the NE. This window only displays current settings; control functions cannot be performed here.

The following items are displayed in this window:

- **TX RF Frequency** – the currently used transmission frequency *[1].
- **RX RF Frequency** – the currently used receiving frequency. *[1]
- **TX Power Control** – shows the power control mode currently used by the ODU. The TX Power Control is either Automatic Transmitter Power Control (ATPC) or Manual Transmitter Power Control (MTPC).
- **MTPC TX Power** – the value (in dB) of the Manual Transmitter Power Control attenuation currently set in the ODU. The MTPC Attenuation will only have valid data if the MTPC is enabled. *[1]
- **Frame ID** – the predefined value of the NE frame ID.*[1]
- **INTFC** – the interface setting.
- **Transmission Capacity** – the transmission capacity of the system.
- **Modulation scheme** – the currently used modulation type.
- **TX SW status (**for hot standby configuration only) – shows which modem-ODU configuration is currently used for transmitting signals.
- **RX SW status** (for 1+1 system only) – shows which modem-ODU configuration is currently used for receiving signals.

***1 For Twin path configuration both respective parameters (1, 2) are shown**

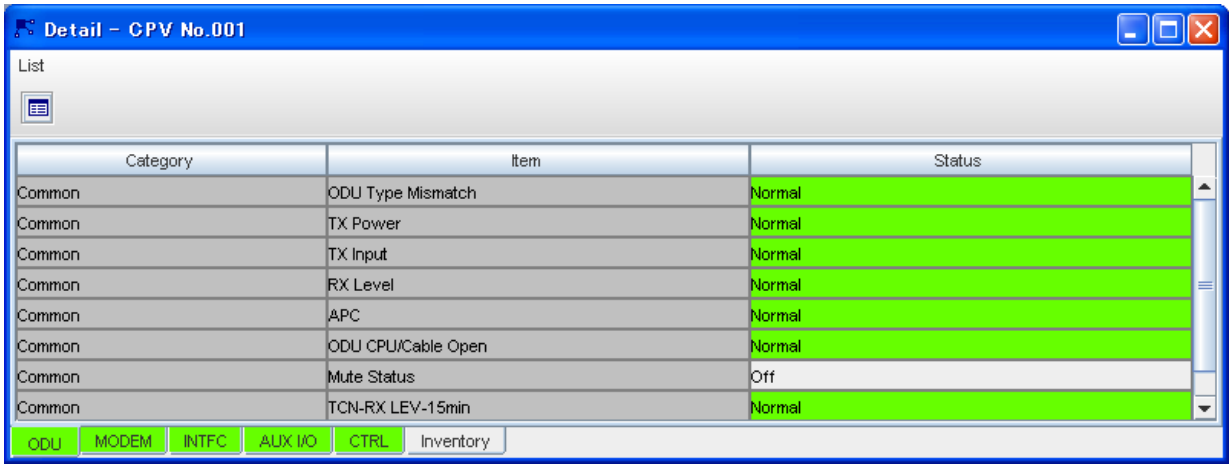
2.12 ODU Tab

The ODU tab displays the status of the monitored ODU items. This window only displays current settings and no control functions are available here.

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

To view the alarm/ status display of the ODU:

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



Overview and description of the Items monitored in the ODU.

Item/Feature	Description	Specific conditions for it to be displayed/configured
TX Power	Indicates the status of the transmitter in the ODU; it is issued when the transmission level decreases 3 dB or more from the preset minimum ATPC level.	None
TX INPUT	Indicates the status of the ODU input signal from the IDU; it is issued when the input signal from the IDU is disrupted.	None
ODU Linearizer	Indicates the status of the linearizer in the ODU; it is issued when an anomaly occurs in the linearizer.	Not displayed in NEO/c ODU(CPV) connection mode
RX LEVEL	Indicates the status of the received RF signal level of the ODU; it is issued when the RF signal drops below the RX threshold.	None
APC	Indicates the status of the synthesizer in the ODU; it is issued when an anomaly occurs in the synthesizer	None
ODU CPU/Cable Open	Indicates the status of the CPU in the ODU; it is issued when an anomaly occurs during CPU operation	None
Mute Status	On: transmitter output is muted (off) Off: transmitter output is normal (on)	None
ODU Type Mismatch	Indicates incompatibility of the connected ODU type. This alarm is issued when types other than NEO /c ODU (CPV) or NEO ODU(NHG) or NEO ODU(NHG2) are connected.	None
TX SW Lock-in Status	Indicates the status of TX SW Lock-in Status	Only when TX SW Lock-in Usage is "used"
TX SW Reverse Request	Indicates the status of TX SW Reverse Request	Only when TX SW Reverse Function is "used"
TCN-Rx LEV-15min	The (lower) Threshold Crossing Notice level for 15 min alarm	None
TCN-Rx LEV-1day	The (lower) Threshold Crossing Notice level for 1 day alarm	None

Item/Feature	Description	Specific conditions for it to be displayed/configured
Tx SW Status	Indicates the modem-ODU configuration currently used for transmitting signals	only for 1+1 hot standby
Rx SW Status	Indicates the modem-ODU configuration currently used for receiving signals	only for 1+1 hot standby or 1+1 twinpath

2.13 MODEM / IDU (MODEM) Tab*

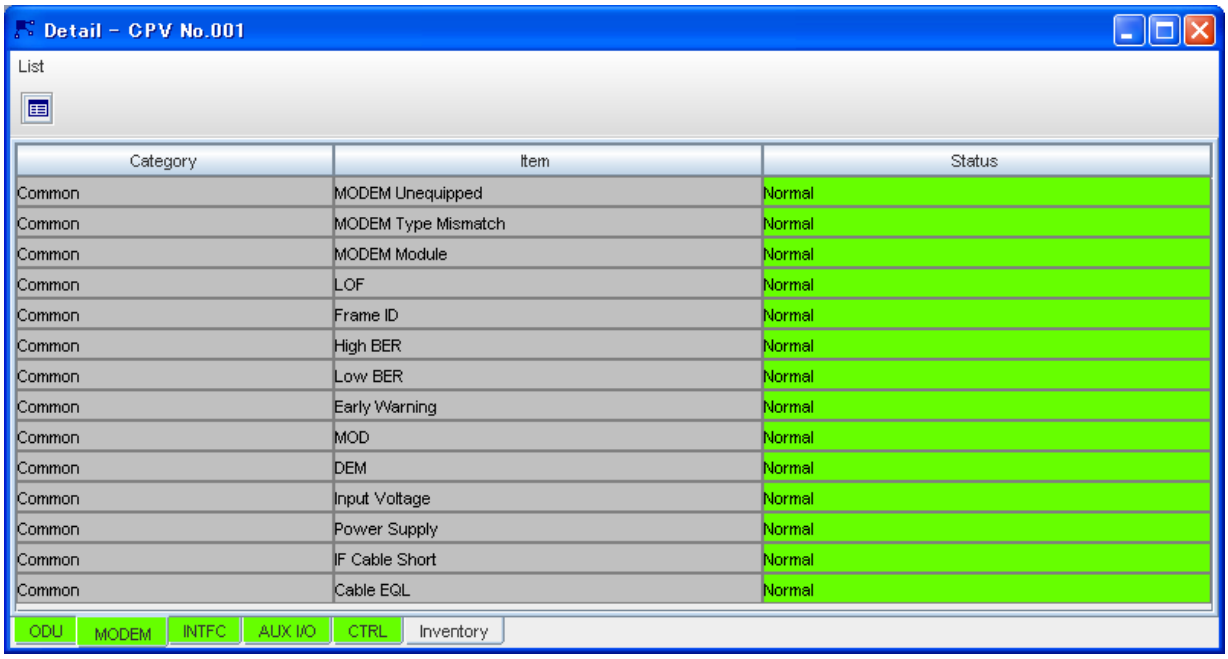
The MODEM tab displays the status of the monitored items of the modem. This window only displays current settings and no control functions are available here.

To set the modem parameters see the sections on *Equipment Setup* and *Provisioning*.

To view the alarms and status of the modem:

Select the MODEM tab in the PNMT main window of the target NE.

*The MODEM tab in the **Detail...** window is displayed as IDU (MODEM) for 1+0 Fix and 1+0 LAN configurations



Overview and description of the alarm and status items/features of the modem

Item/Feature	Description	Specific conditions for it to be displayed/configured
MODEM Module/MODEM	Indicates the status of the modulator-demodulator. This alarm is issued when an anomaly occurs in the modulator-demodulator.	”MODEM” displayed for 1+0 Fix and 1+0 LAN configurations
MODEM Unequipped	Indicates whether a MODEM is properly mounted. If the MODEM contact is unplugged or if none is mounted (in accordance with the “Equipment Setup”), this alarm is issued.	Only for 1+1
MODEM Type Mismatch	Indicates that an invalid modem (i.e. one whose code no. is not MP0-0H2940-C000) is in use.	Only for 1+1
LOF	Indicates the frame synchronization status. If the synchronization with DMR is disrupted, this alarm is issued.	None
Frame ID	Indicates that the frame ID numbers of an NE and its opposite are out of sync.	None
High BER	Indicates severe quality deterioration status. If the signal deteriorates below the preset threshold level, this alarm is issued and the RX-Hitless Switch is operated. The selectable threshold levels are 1E-3, 1E-4 and 1E-5.	None
Low BER	Indicates low to moderate quality deterioration status between radio sections. When the signal deteriorates below the present threshold value, this alarm is issued and the RX-Hitless Switch is activated. The selectable threshold values are: 1E-6, 1E-7, 1E-8 and 1E-9.	None
Early Warning	Indicates quality deterioration status. If the signal deteriorates beyond the present threshold level, this alarm is issued and the RX-Hitless Switch is activated. The present threshold is a BER of 1E-9.	None
MOD	Indicates the operating status of the MOD. If any anomaly occurs in the modulator, this alarm is issued.	None
DEM	Indicates the operating status of the DEM. If any anomaly occurs in the demodulator, this alarm is issued.	None
Power Supply	Indicates the operating status of the power supply. When there is an anomaly in the power supply, this alarm is issued.	Only for 1+1
IF Cable Short	Indicates the status of IF cable between IDU and ODU. If a short circuit is caused between ODU and the IDU, this alarm is issued.	None
Cable EQL	Indicates the status of the IF cable equalizer. This alarm is issued when the equalizer function does not kick in.	None
Linearizer Function	Indicates the status of linearizer function. OPR: When the linearizer function is used. NO OPR: When the linearizer function is not used. In this case, TX output power decreases approx. 4 dBm from a standard value. N/A: When the ODU is used without linearizer function.	Not available in QPSK Modulation Scheme Not displayed in NEO/c ODU(CPV) connection mode
Linearizer/ MODEM Linearizer	Indicates the linearizer operating status; this alarm is issued when the linearizer is not properly operating in the OPR state.	Not available in QPSK modulation Scheme Not displayed in NEO/c ODU(CPV) connection mode
ATPC Power Mode	Indicates the operating status of the ATPC. If the ATPC is not properly functioning, stop the control and maintain the TX output level at HOLD /MIN (selectable).	Only when ATPC is used
Input Voltage	Indicates the operating status of the input power voltage. When there is an anomaly in the input voltage, this alarm is issued.	None

2.14 INTFC / IDU (INTFC) Tab*

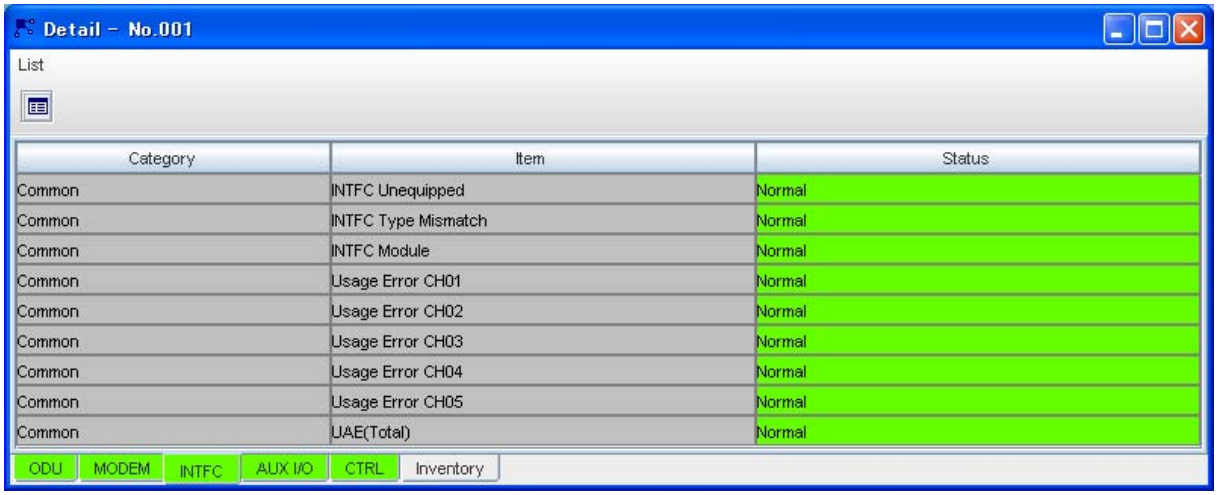
The INTFC tab displays the status of the monitored items for the interface. This window only displays current settings and no control functions are available here.

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

To view the alarms and status of the interface:

Select the INTFC tab in the PNMT main window of the target NE

* The INTFC tab in the **Detail...** window is displayed as IDU (INTFC) for 1+0 Fix and 1+0 LAN configurations



Overview and description of the monitored items for the interface

Item/Feature	Description	Specific conditions for it to be displayed/configured
INTFC Module / INTFC	Indicates the operating status of the Interface. If any anomaly occurs in the INTFC Module, this alarm is issued.	” INTFC” displayed for 1+0 Fix and 1+0 LAN configurations
INTFC Type Mismatch	When this alarm is issued, it indicates that INTFC does not correspond to the inventory list.	Only for 1+1
INTFC-Unequipped	This indicates whether if there is any Main Interface for 1+1 configurations. If not, this alarm is issued. Or for 1+0 LAN configurations, this indicates if there is any LAN INTFC. If not, this alarm is issued.	Only for 1+1 and 1+0 LAN
Input LOS CH (01 -16)	Indicates the input status of the input E1 signal from MUX. If the input is disconnected, this alarm is issued.	Only when CH USAGE is set as “used” For 5xE1 INTFC, 5 CH are displayed
AIS received CH (01 - 16)	Indicates the E1 signal transmitting status. If AIS is received from MUX, this alarm is issued.	AIS Received Report function must be enabled (set to “report”) and CH USAGE is set as “used”. Depending on whether the AIS Received Condition (Provisioning) is set to “Status” or “Alarm” For 5xE1 INTFC, 5 CH are displayed
AIS generated CH (01 - 16)	Indicates the E1 signal receiving status. If AIS is generated in the E1 INTFC, this alarm is issued.	AIS Generated Report function must be enabled (set to “report”) and CH USAGE is set as “used” For 5xE1 INTFC, 5 CH are displayed
Usage Error CH (01 - 16)	Indicates the status of the E1 signal interface. When E1 signal is applied to the input interface as long as it is set to “Not Used”, this alarm is generated. This parameter is indicated only when CH Usage Error Report has been selected	CH Usage Error Report function must be enabled (set to “report”) and CH USAGE is set as “not used” For 5xE1 INTFC, 5 CH are displayed
INTFC In-phase	Indicates the DADE status of the received No.1 and No.2 signal at E1 INTFC. If the received signal delay time is out of the permissible range, an “Out-of-phase” alarm is issued	Only for 1+1 hot standby or twinpath
UAE (Total)	Indicates whether any UAS were monitored (in any channel)	None
LAN Link Port (1-2)	Indicates the LAN Link Port status: an alarm occurs when the link fails for the respective ports.	The respective Port Usage must be set at “used”
LAN Collision Port (1-2)	Indicates the status of any collision for the respective ports	The respective Port Collision Report function must be enabled (set to “report”)
Link Loss Forwarding Port (1-2)	Indicates the status of Link Loss Forwarding status for the respective ports	The Link Loss Forwarding function must be “enabled”
Speed & Duplex Port (1-2)	Indicates the status of Speed & Duplex for the respective ports	The respective Port Usage must be set at “used”

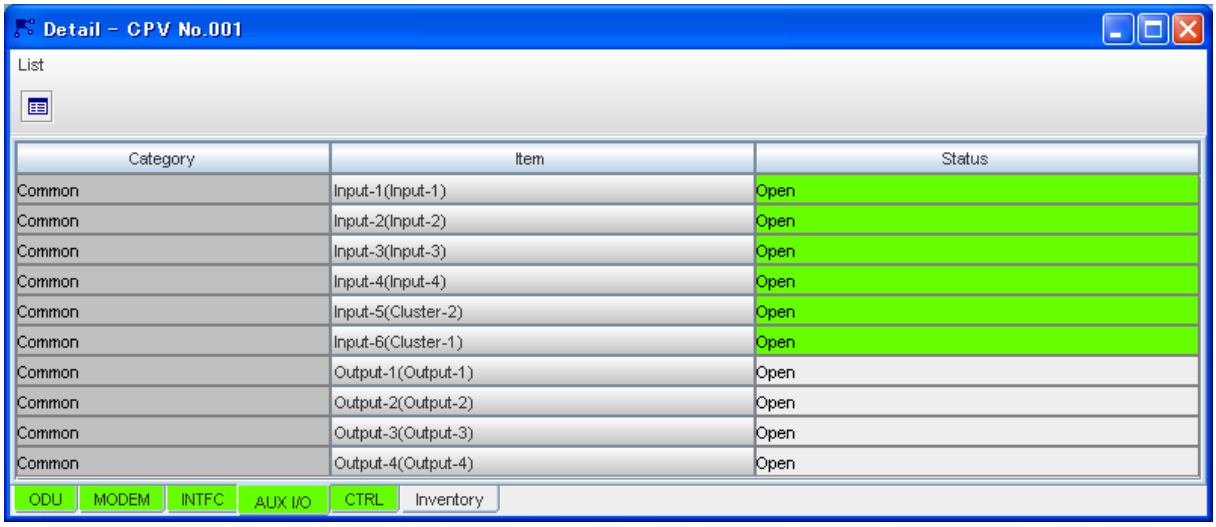
2.15 Auxiliary I/O Tab*

6 photocoupler input and 4-relay output settings can be selected in the IDU for external control and monitoring of alarms. The setting for each of the relay output/photocoupler inputs is available by clicking on the respective 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

* Auxiliary I/O tab and AUX I/O icon (in the Summary window) are not available only for 1+0 Fix configurations with no ALM INTFC.



AUX. I/O tab

2.15.1 Monitored Items

The following items are monitored via this tab:

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

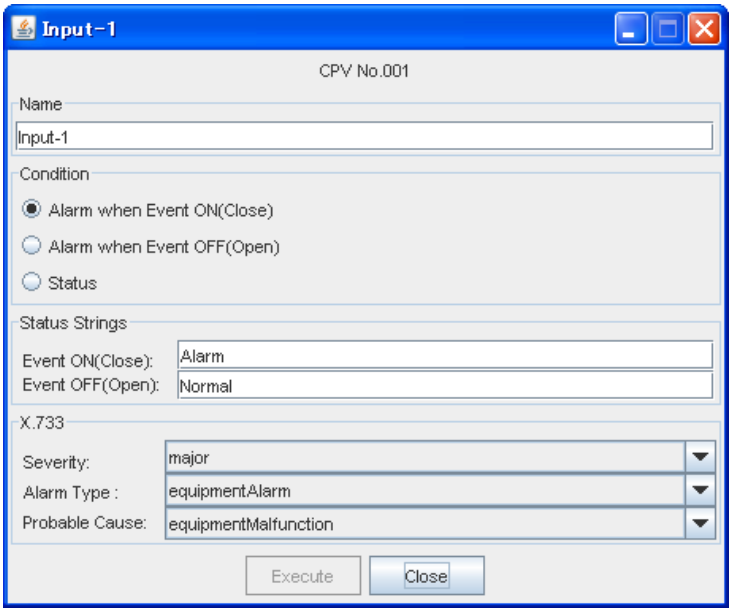
When Cluster ALM Setting (Input) is enabled, the following Input items can be used as Cluster ALM.

1. When Cluster1 Input is enabled, Input-6 item is used as Cluster ALM1.
2. When Cluster2 Input is enabled, Input-5 item is used as Cluster ALM2.
3. When Cluster3 Input is enabled, Input-4 item is used as Cluster ALM3.
4. When Cluster4 Input is enabled, Input-3 item is used as Cluster ALM4.

2.15.2 Photocoupler Input Setting

To set the photocoupler input:

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

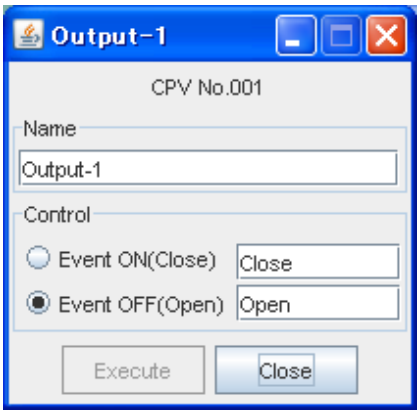


2.15.2.1 Setting the Selected Input to Alarm or Status

1. Enter the desired name of the selected input in the **Name** field. A maximum of 32 characters can be used.
2. Select the desired input condition in the **Condition** section. You can select from the following three (3) choices such as “the alarm is reported when **Event ON** (the selected input terminal is closed loop condition)” or “the alarm is reported when **Event OFF** (the selected input terminal is open condition)” or “the just **Status** information is reported instead of the alarm”.
3. Enter the status strings corresponding to the input condition in the **Event ON** and **Event OFF** field in the **Status Strings** section. A maximum of 32 characters can be used.
4. The alarm input severity is defined in the ITU-T X.733 Recommendation. Select the description of the **Severity**, **Alarm Type** and **Probable Cause** fields in the **X.733** section by clicking the pull-down arrow () on the right-hand side of the selection field.
5. Click **[Execute]** button to save the selected settings of the device.
6. Click **[Close]** button when finished.

2.15.3 Relay Output Setting

To set the relay output:

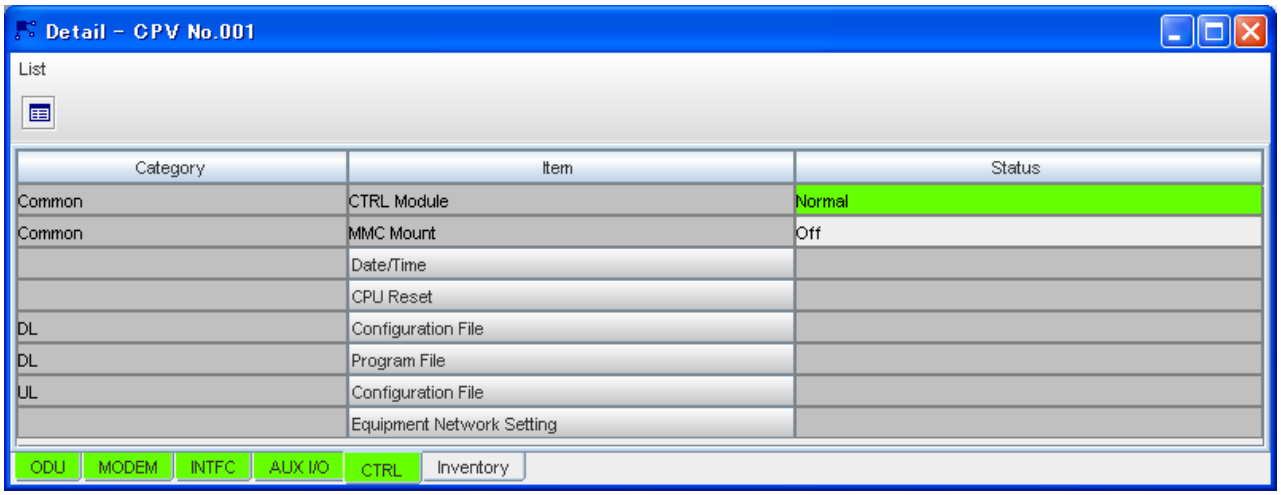


1. Click **[Output-*n*]** button in **AUX. I/O** window.
2. Enter the desired name of the selected output in the **Name** field. A maximum of 32 characters can be used.
3. To select the desired output condition of the selected relay output, select the **Event ON** (the output terminal will be in closed loop condition) or **Event OFF** button (the output terminal will be open) in the **Control** section.
4. Enter the desired status strings for the selected relay output in the appropriate **Event ON** (the output terminal will be in closed loop condition) and **Event OFF** fields (the output terminal will be open) with the **Control** section. A maximum of 32 characters can be used.
5. Click **[Execute]** button to implement the command.
6. Click **[Close]** button when finished.

2.16 CTRL/IDU (CTRL) Tab*

Various control parameters can be set via the CTRL tab.

* The INTFC tab in the **Detail...** window is displayed as IDU (CTRL) for 1+0 Fix and 1+0 LAN configurations



2.16.1 Control Module

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

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

- CTRL Module Alarm*1
- MMC Mount (Yes = On / No = Off)*2
- Date/Time
- CPU Reset
- Download: Configuration File
- Download: Program File
- Download: Equipment Configuration File
- Upload: Configuration File
- Upload: Equipment Configuration File
- Upload: OSPF Dump File
- Equipment Network Setting
- Equipment Network Setting(OSPF)

*1 displayed as CTRL for 1+0 Fix and 1+0 LAN configurations

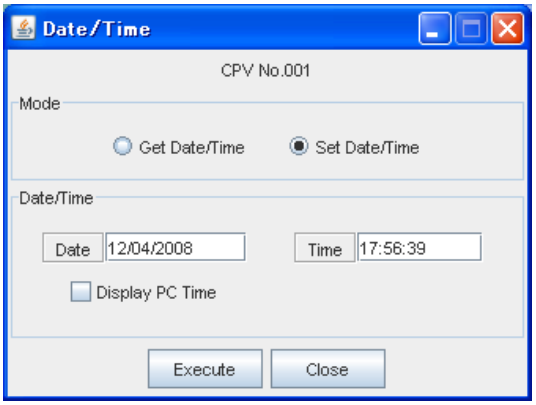
*2 displayed as MMC Mount for 1+1 configurations

2.16.2 Setting the Date/Time

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

To set the Date/Time:

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



NOTE

To synchronize the Date and Time field values with those of the PNMT computer, click the Display PC Time box (placing a checkmark in it).

2. To check the Date and Time Settings of the Control module:
   1) Select **Get Date/Time** in the Date/Time window.
   2) Click **[Execute]** button.
   3) The current date and time in the Control module will be displayed in the **Date** and **Time** field.
3. To set the Date and Time on the Control module:
   1) Select **Set Date/Time** in the Date/Time window.
   2) Click **[Execute]** button.
   3) Click **[Close]** button when done.

2.16.3 CPU Reset

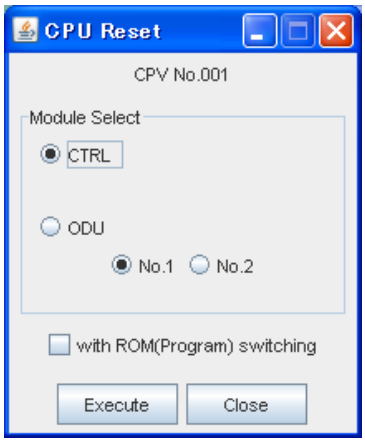
The Control module can be reset using this function

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

NOTE

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

To reset the Control module:



1. Click the **[CPU Reset]** button 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]** button to continue the Control module reset operation.

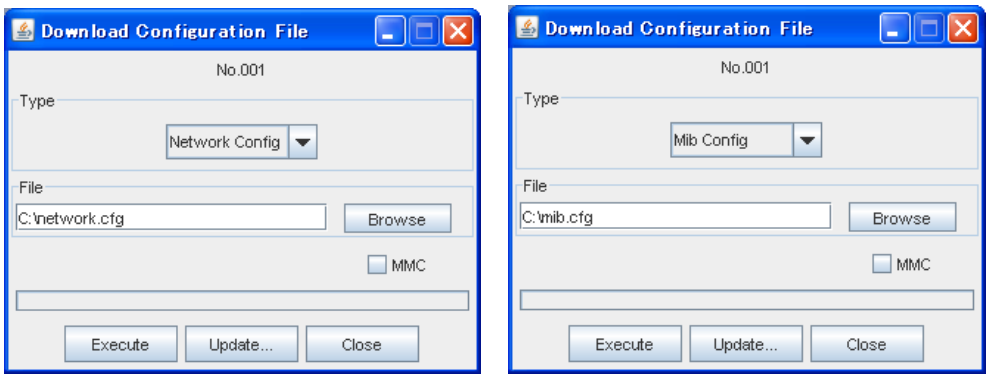
2.16.4 Downloading the Configuration Files to the Control Module

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

*This window is not available when MAINT is OFF.

To download the new configuration file to the CTRL:

1. Click **[DL Configuration File]** button in **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. To select a file within MMC, check-off MMC check box and click **[Browse]** button.

WARNING!!!

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

---

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

WARNING!!!

While data is being transmitted, do not remove the USB cable connecting the IDU with the PC. Also, do not remove MMC card when MMC is selected.

---

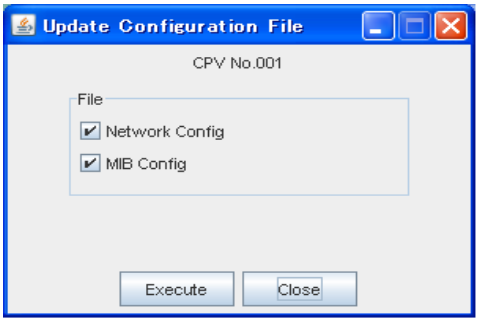
5. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING:

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

---

6. Click the **[Update]** button to activate and save the new configuration file (s).



7. Select the appropriate box for the type of configuration file to be updated. One or more configuration file (s) can be updated by checking the selection box of the configuration file name. Click **[Execute]** to start the operation. The "**with ROM (CTRL Program) Switching**" box is for switching to the ROM with the new CTRL Program and has the same function that was previously described in section *2.16.5 Downloading a new Program file to the Control Module*.

NOTE

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

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

2.16.5 Downloading a new Program File to the Control Module*

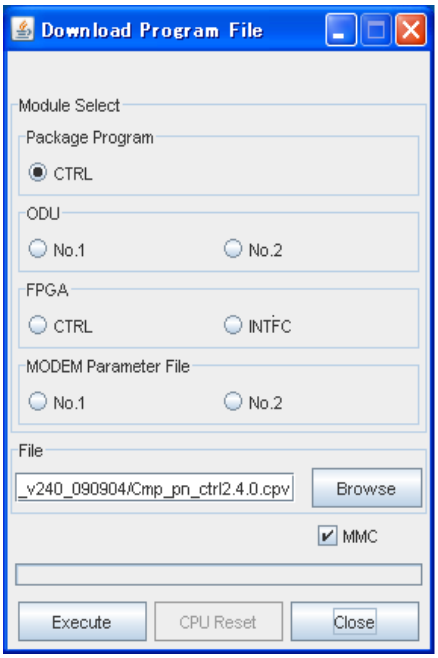
This function is used to update the application program on the Control module. This operation only affects the NMS communication but not the wireless link, and will not disrupt communication.

This window is not available when MAINT is OFF.

To download the program file to Control module:

1. Click the **[DL Program File]** button in **CTRL** window.
2. Select CTRL within Package Program box.
3. Enter the appropriate location of the program file (*.cpv) in the **File** field. Otherwise, click **[Browse]** to locate the file.

   To select a file within MMC, check-off MMC check box and click **[Browse]** button.



WARNING!!!

Make sure that the correct program file is downloaded to the Control module. Incorrect program files are likely to cause malfunction

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

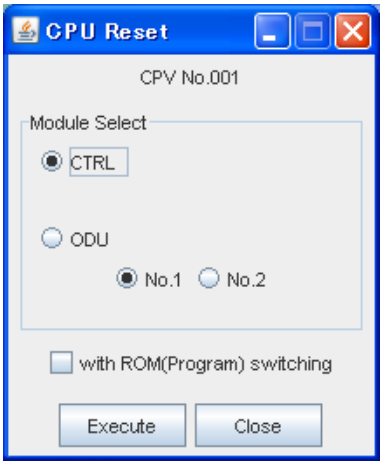
WARNING!!!

While data is being transmitted, do not remove the USB cable connecting the IDU with the PC. Also, do not remove MMC card when MMC is selected.

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

NOTE

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



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

NOTE

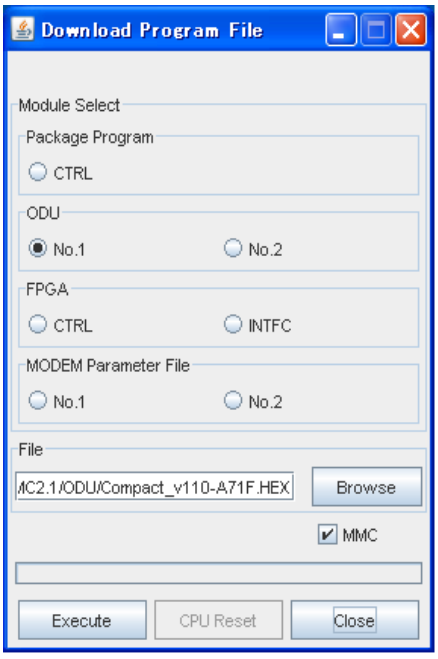
The connection to the selected NE will be disrupted for a few minutes, but will be automatically restored shortly.

2.16.6 Downloading a new Program File to ODU

This function is used to update the application program on ODU.

*This window is not available when MAINT is OFF.

To download the program file to ODU:



1. Click the **[DL Program File]** button in **CTRL** window.
2. Select No.1 or No.2 button in ODU box.
3. Enter the appropriate location of the program file (*.hex) in the **File** field. Otherwise, click **[Browse]** to locate the file.

   To select a file within MMC, check-off MMC check box and click **[Browse]** button.

WARNING!!!

Make sure that the correct program file is downloaded to ODU. Incorrect program files are likely to cause malfunction.

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

WARNING!!!

While data is being transmitted, do not remove the USB cable connecting the IDU with the PC. Also, do not remove MMC card when MMC is selected.

5. While downloading, progress bar will be displayed. Upon completion of the download, updated a new program will be deployed automatically.

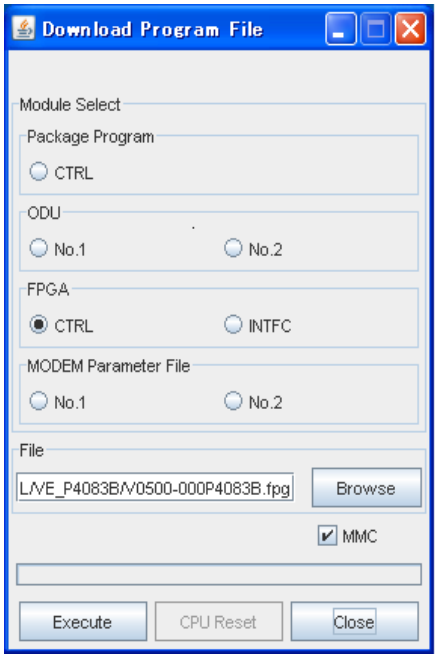
NOTE

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

2.16.7 Downloading a new FPGA File to Module

This function is used when updating FPGA of each module.

*This window is not available when MAINT is OFF.



To download the FPGA file to module:

1. Click the **[DL Program File]** button in **CTRL** window.
2. Select the module of which the FPGA file is to be updated.
3. Enter the full path name of FPGA file (*.fpg) in file field. This file selection can also be done by clicking **[Browse]** and selecting out of file selection box.

   In order to select a file within MMC, check-off MMC check box and click **[Browse]** button.

WARNING!!!

Make sure that the correct FPGA file is downloaded to module. Incorrect FPGA files are likely to cause malfunction.

Since uniquely own FPGA File name is predetermined for each module, please do not change the file name.

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

WARNING!!!

While data is being transmitted, do not remove the USB cable connecting the IDU with the PC. Also, do not remove MMC card when MMC is selected.

5. While downloading, progress bar will be displayed. Upon completion of the download, updated FPGA File will be deployed automatically.

NOTE

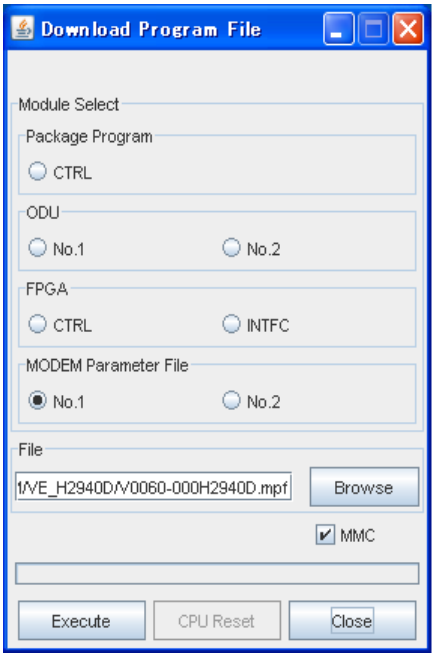
This operation may take several minutes depending on the FPGA file size.

2.16.8 Downloading a new MODEM Parameter File to Module

This function is used when updating MODEM Parameter.

*This window is not available when MAINT is OFF.

To download the MODEM Parameter file to module:



1. Click the **[DL Program File]** button in **CTRL** window.
2. Select MODEM No.1 or No.2 button.
3. Enter full path name of MODEM Parameter file (*.mpf) in file field. This file selection can also be done by clicking **[Browse]** and selecting out of file selection box.

   In order to select a file within MMC, check-off MMC check box and click **[Browse]** button.

WARNING!!!

Make sure that the correct MODEM Parameter file is downloaded to module. Incorrect MODEM Parameter files are likely to cause malfunction.

Since uniquely own MODEM Parameter File name is predetermined for each module, please do not change the file name.

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

WARNING!!!

While data is being transmitted, do not remove the USB cable connecting the IDU with the PC. Also, do not remove MMC card when MMC is selected.

5. Progress bar will be displayed while downloading.

NOTE

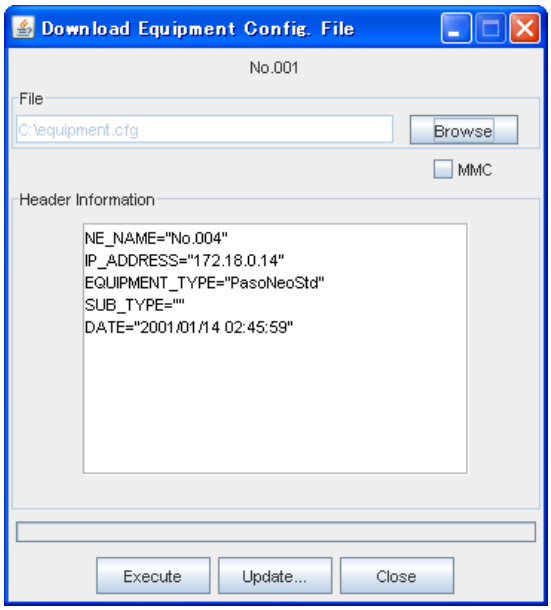
This operation may take several minutes depending on the MODEM Parameter file size.

6. By restarting device by following directions displayed in the window, updated MODEM Parameter files will be deployed.

2.16.9 Downloading the Equipment Configuration Files to the Control Module

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

*This window is not available when MAINT is OFF.



To download new configuration file to the NE:

1. Click the **[DL Equipment Config. File]** button in CTRL window.
2. Click the **[Browse]** button to locate the file on the local hard disk or diskette.

   To select a file within MMC, check-off MMC check box and click **[Browse]** button.

   When a file within MMC is selected, no information will be displayed in Header Information box.

WARNING!!!

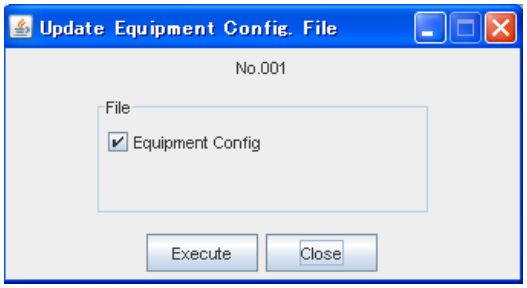
Make sure that the correct equipment configuration file is downloaded to the correct Control module. Incorrect configuration file is liable to cause Control module or network malfunction/failure.

3. Click the **[Execute]** button to start the operation.
4. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING:

Make sure that you have successfully downloaded the configuration file before executing Update. Otherwise the Control module will switch to an empty ROM that is liable to cause Control module malfunction/failure.

5. Click the **[Update]** button to activate the new equipment configuration file. Click the **[Execute]** button to start the ***update*** operation.



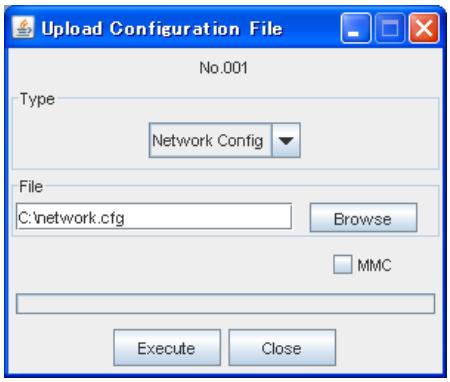
6. Click the **[Close]** button when done.

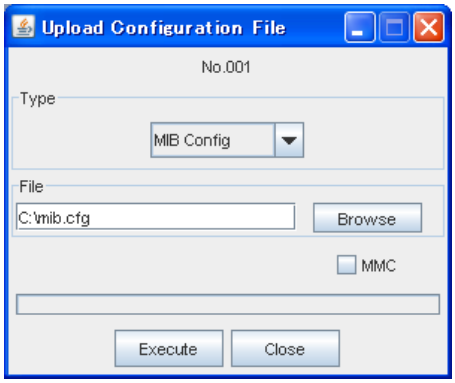
2.16.10 Uploading Configuration File to PNMT PC

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 the **[UL Configuration File]** button in **CTRL** window.





2. Select the type of file to be uploaded onto the **Type** field.
3. Enter the desired file name for the uploaded file. And select and the directory where the uploaded file is to be saved. To save a file inside of MMC, check-off MMC check box and click **[Browse]** button.
4. Click the **[Execute]** button 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 the **[Close]** button.
7. Verify that the file was uploaded to the specified directory.

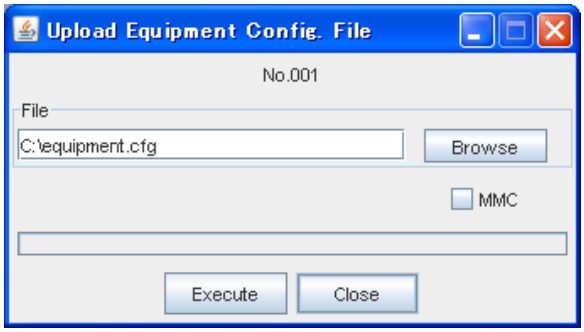
2.16.11 Uploading Equipment Configuration File to PNMT PC

This feature 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 the **[UD Equipment Config. File]** button in CTRL window.
2. Enter the desired name for the uploaded file and select the directory where the uploaded file is to be saved.

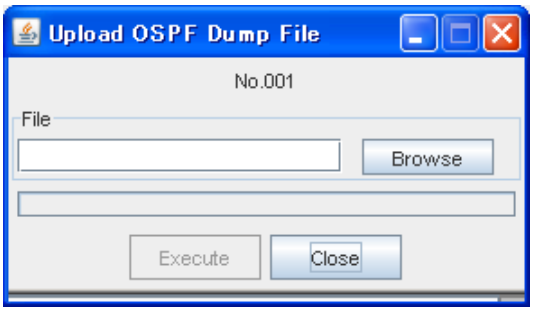
   To save a file inside of MMC, check-off MMC check box and click **[Browse]** button.



3. Click the **[Execute]** button to start the operation.
4. After the upload is finished, click the **[Close]** button.
5. Verify that the file was uploaded on the specified directory.

2.16.12 Uploading OSPF Dump File to PNMT PC

This feature is used to upload the OSPF dump file from the Control module of the selected NE to the PNMT PC.



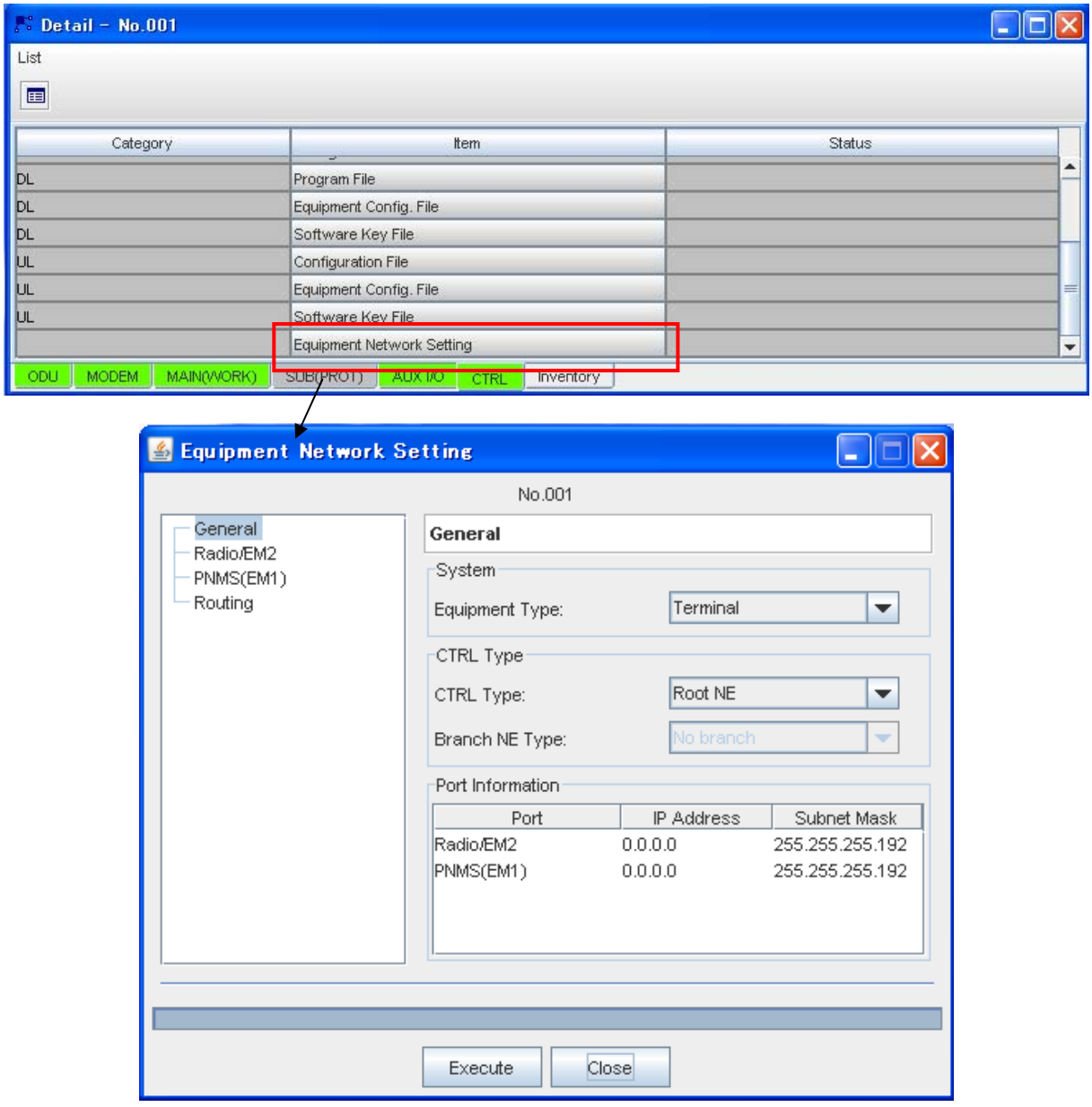
To upload the OSPF dump file from the Control module to the PNMT:

1. Click the **[UL OSPF Dump File]** button in CTRL window.
2. Enter the desired name for the uploaded file and select the directory where the uploaded file is to be saved.
3. Click the **[Execute]** button to start the operation.
4. After the upload is finished, click the **[Close]** button.
5. Verify that the file was uploaded on the specified directory.

2.16.13 Configuring the Equipment Network Settings

In order to operate *Auto Discovery* and Network function respectively to PNMS and PNMT it is necessary to first, connect PNMT to all equipment to configure Network data.

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



For details, refer to **Appendix A**.

2.16.14 Configuring the Equipment Network Settings (OSPF)

In order to operate *Auto Discovery* and Network function respectively to PNMS and PNMT it is necessary to first, connect PNMT to all equipment to configure Network data.

This function is used to configure the equipment network settings using the tags in the lefthand field of the Equipment Network Settings window of the selected NE for the PNMT PC.

OSPF Setup

The OSPF functionality is supported by PASOLINK NEO CTRL FW v3.14.x or later. It is possible to establish the connection and interoperation between the existing PASOLINK NEO (versions prior to CTRL FW v3.14.x) and OSPF-compatible PASOLINK NEO using NSSA.

RFC Support

The OSPF for PASOLINK NEO conforms to following RFCs within the limitations noted below:

- RFC 2328, “OSPF Version 2”

  Backbone area, Transit area and Authentication are unsupported.

- RFC 1587, “The OSPF NSSA Option”

  There are no restrictions.

- RFC 2370, “The OSPF Opaque LSA Option”

  PASOLINK OSPF can propagate opaque LSAs but cannot originate them.

- RFC 1765, “OSPF Database Overflow”

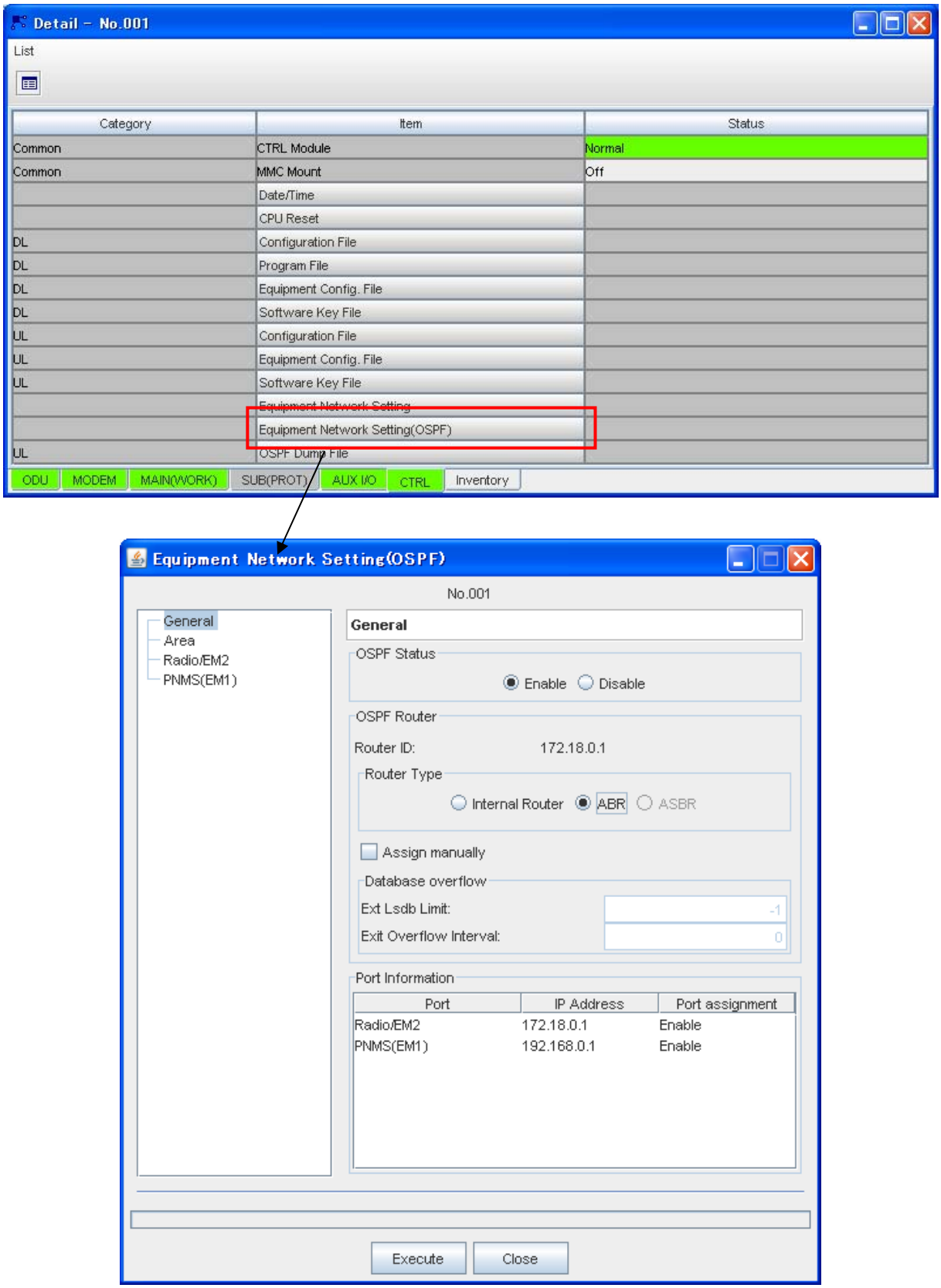
  Type-5 and Type-7[1)] non-default LSAs are available.

  1) Based on RFC 1765, Type-7 non-default LSAs are supported by NEC proprietary specification.

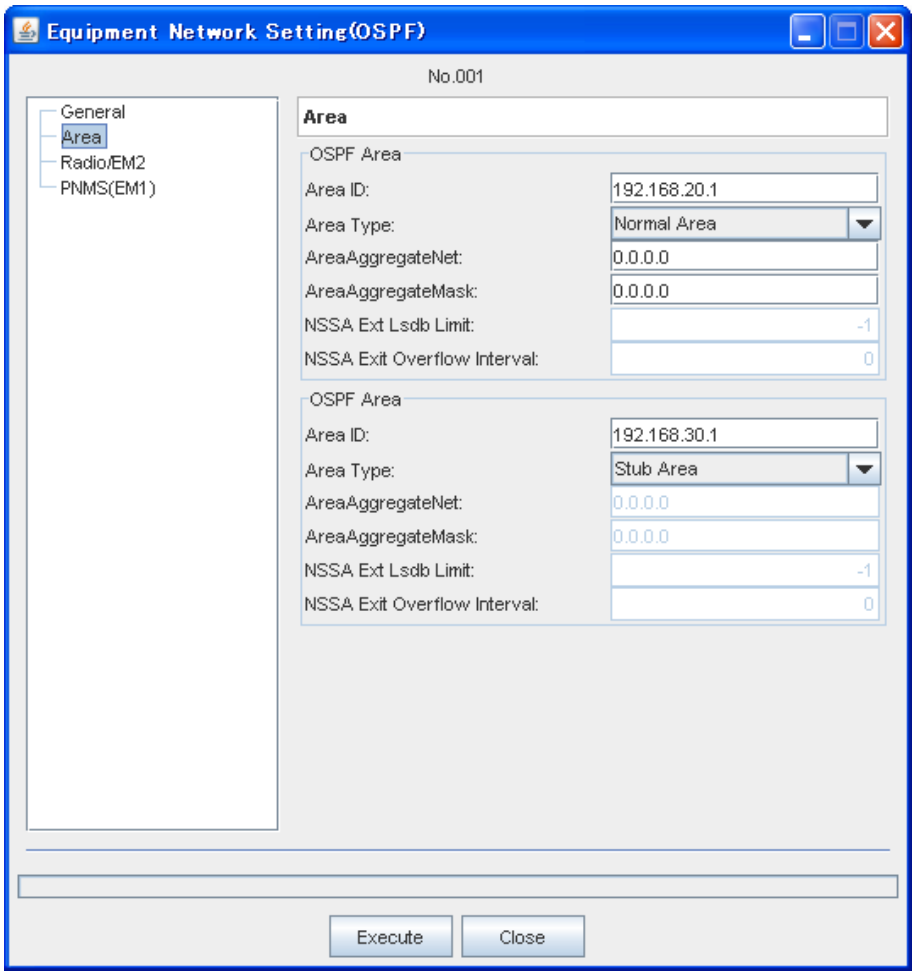
NOTE

PASOLINK OSPF does not currently support a ring topology and the V.11 NMS interface to a router. See Appendix C for details.

It is necessary to configure the Static Routing Table and Default Gateway as preventive measures against the OSPF failure. See Appendix A and B for details.



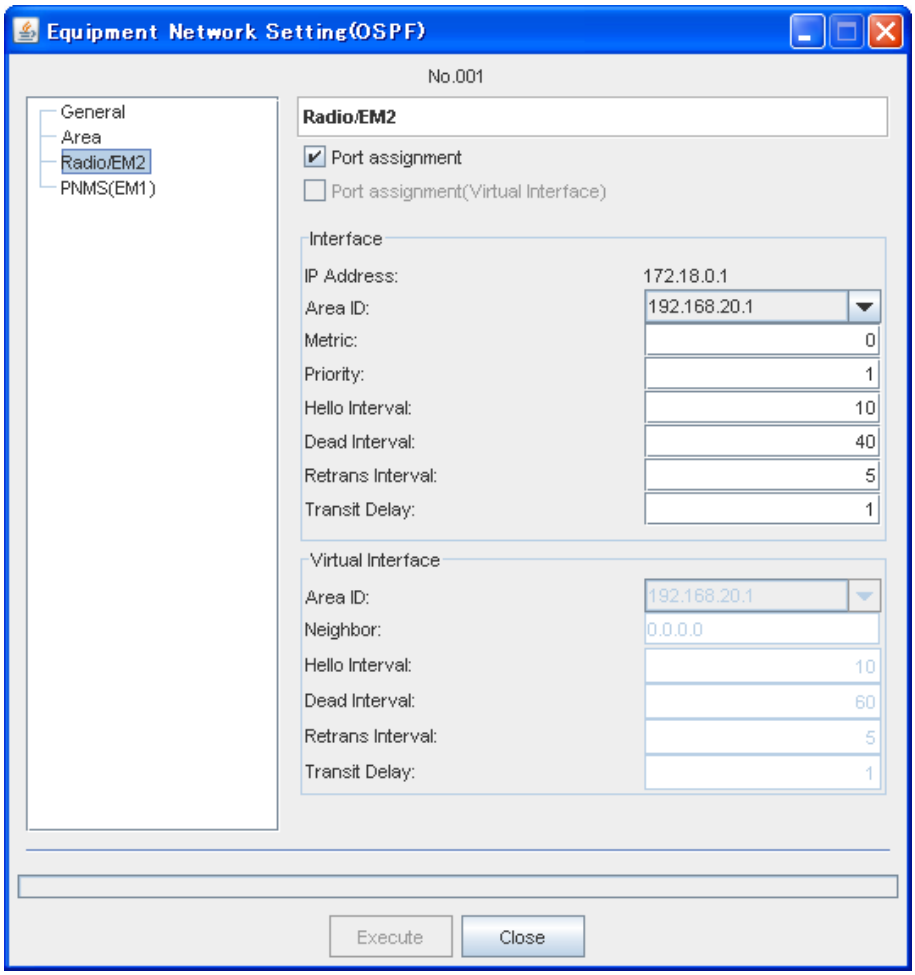
OSPF General Setting



OSPF Area Setting

NOTE

In the case of ABR setting to connect PASOLINK network to the OSPF backbone, the Area ID must be set as "0.0.0.0" in the upper OSPF Area field.



OSPF Port Setting

OSPF items

Category	Item	Description
General	OSPF Status	The administrative status of OSPF in the router. The value 'enabled' denotes that the OSPF Process is active on at least one interface; 'disabled' disables it on all interfaces.
	Internal Router	A router with all directly connected networks belonging to the same area. These routers run a single copy of the basic routing algorithm.
	ABR	A router that attaches to multiple areas. Area border routers run multiple copies of the basic algorithm, one copy for each attached area. Area border routers condense the topological information of their attached areas for distribution to the backbone. The backbone in turn distributes the information to the other areas.
	ASBR	A router that exchanges routing information with routers belonging to other Autonomous Systems. Such a router advertises AS external routing information throughout the Autonomous System. The paths to each AS boundary router are known by every router in the AS. This classification is completely independent of the previous classifications: AS boundary routers may be internal or area border routers, and may or may not participate in the backbone.

Category	Item	Description
	Ext Lsdb Limit	The maximum number of non-default AS-external-LSAs entries that can be stored in the link-state database. If the value is -1, then there is no limit. When the number of non-default AS-external-LSAs in a router's link-state database reaches ospfExtLsdbLimit, the router enters Overflow-State. The router never holds more than ospfExtLsdbLimit non-default AS-external-LSAs in its database. OspfExtLsdbLimit MUST be set identically in all routers attached to the OSPF backbone and/or any regular OSPF area. (i.e., OSPF stub areas and NSSAs are excluded).
	Exit Overflow Interval	The number of seconds that, after entering OverflowState, a router will attempt to leave OverflowState. This allows the router to again originate non-default AS-external-LSAs. When set to 0, the router will not leave Overflow-State until restarted.
Area	Area ID	A 32-bit integer uniquely identifying an area. Area ID 0.0.0.0 is used for the OSPF backbone.
	Area Type	The area's support for importing AS external link- state advertisements.
	AreaAggregateNet	The IP Address of the Net or Subnet indicated by the range.
	AreaAggregateMask	The Subnet Mask that pertains to the Net or Subnet.
	NSSA Ext Lsdb Limit	The maximum number of non-default NSSA-external-LSAs entries that can be stored in the link-state database. If the value is -1, then there is no limit. When the number of non-default NSSA-external-LSAs in a router's link-state database reaches ospfNSSAExtLsdbLimit, the router enters Overflow-State. The router never holds more than ospfNSSAExtLsdbLimit non-default NSSA-external-LSAs in its database. OspfNSSAExtLsdbLimit MUST be set identically in all routers attached to the OSPF not-so-stubby area (NSSA).
	NSSA Exit Overflow Interval	The number of seconds that, after entering OverflowState, a router will attempt to leave OverflowState. This allows the router to again originate non-default NSSA-external-LSAs. When set to 0, the router will not leave Overflow-State until restarted.
Port Interface	Area ID	A 32-bit integer uniquely identifying the area to which the interface connects. Area ID 0.0.0.0 is used for the OSPF backbone.
	Metric	The metric of using this type of service on this interface. The default value of the TOS 0 Metric is 10^8 / ifSpeed.
	Priority	The priority of this interface. Used in multi-access networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. In the event of a tie in this value, routers will use their Router ID as a tie breaker.
	Hello Interval	The length of time, in seconds, between the Hello packets that the router sends on the interface. This value must be the same for all routers attached to a common network.
	Dead Interval	The number of seconds that a router's Hello packets have not been seen before it's neighbors declare the router down. This should be some multiple of the Hello interval. This value must be the same for all routers attached to a common network.
	Retrans Interval	The number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets.
	Transit Delay	The estimated number of seconds it takes to transmit a link state update packet over this interface.
Port Virtual Interface	Area ID	The Transit Area that the Virtual Link traverses. By definition, this is not 0.0.0.0
	Neighbor	The Router ID of the Virtual Neighbor.

Category	Item	Description
	Hello Interval	The length of time, in seconds, between the Hello packets that the router sends on the interface. This value must be the same for the virtual neighbor.
	Dead Interval	The number of seconds that a router's Hello packets have not been seen before it's neighbors declare the router down. This should be some multiple of the Hello interval. This value must be the same for the virtual neighbor.
	Retrans Interval	The number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. This value should be well over the expected roundtrip time.
	Transit Delay	The estimated number of seconds it takes to transmit a link state update packet over this interface.

2.17 Maintenance

There are several maintenance control items that can be set during *Maintenance Mode*.

The function of each control is as follows. (These windows are not available when MAINT is OFF. “Switch to Maintenance mode first” is displayed).

Maintenance:	To switch Maintenance mode to ON
TX SW Manual Control:	To control the TX switch manually (Only during hot-standby)
RX SW Manual Control:	To control the RX switch manually (Only for 1+1 systems)
ATPC Manual Control:	Allows optional transmitting power when ATPC is in operation
TX Mute Control:	To set TX Mute Control
CW Control[*1]:	To turn on the Carrier Wave for measurements
DADE Adjust	Select the DADE for Hot-Standby / Twinpath configuration to bring INTFC status back in phase (Not available for 1+0 Fix and 1+0 LAN)
LAN Device Reset:	Resets LAN INTFC ports (when LAN Port setting is “used”)
Linearizer Control[*2]:	To manually disable the Linearizer function
RF Setting[*1]	To change the ODU sub band for the wireless link according to the RF frequency allocation
Antenna Alignment Mode[1]:	To turn on Antenna Alignment Mode (only available for specific ODU type)

***1 - Only possible for NE directly connected to PNMT**

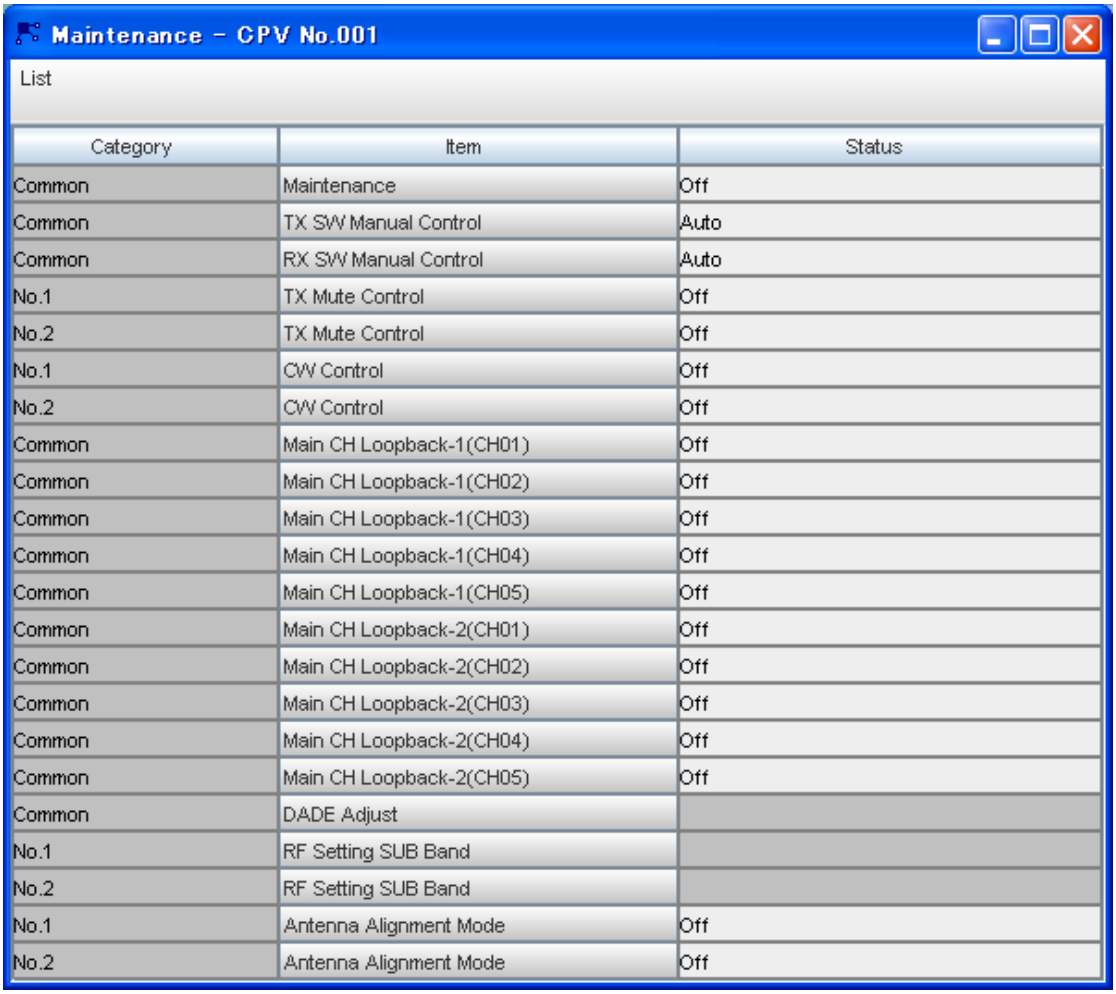
***2 – Only possible when Modulation scheme is 16 QAM and Linearizer Function setting is NON OPR or OPR. Not available if NEO/c ODU (CPV) connected.**

Main CH Loopback-1 (CH01-16)	Allows the pinpointing of faulty sections causing signal interruption (CH01-05 displayed for 5xE1 interface)
Main CH Loopback-2 (CH01-16)	Same as above (CH01-05 displayed for 5xE1 interface)

2.17.1 Selecting Maintenance

To open the Maintenance window:

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

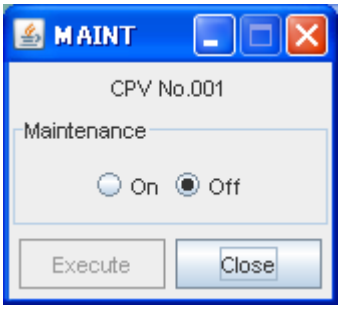


This window contains the setup information for MAINT and several maintenance control items that need to be set during *Maintenance Mode*. The **Maintenance** window is shown below.

2.17.2 Mode

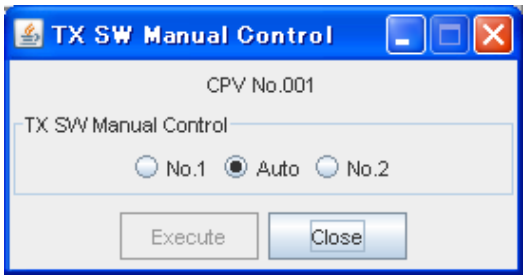
To switch the NE to maintenance mode:

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

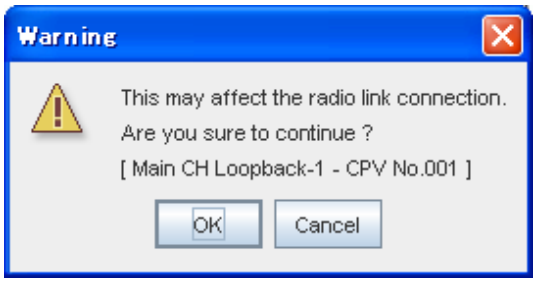


2.17.3 TX SW Manual Control (for Hot Stand-by system only)

To control the TX switch manually:



1. Click **[TX SW Manual Control]** button in **Maintenance** window.
2. Select the TX system that you want to use. The default setting is Auto
3. Click the **[Execute]** button to switch to the selected TX system.



CAUTION:

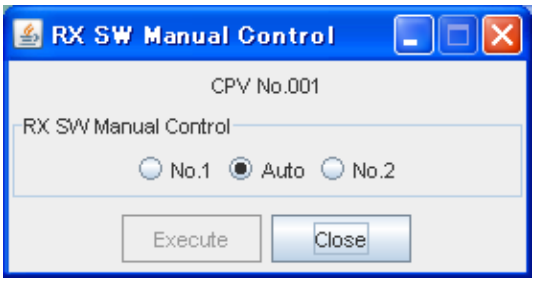
When TX SW Manual Control is changed from the default setting (Auto) to either No.1 or No.2, this confirmation message appears.

If the TX SW Manual Control 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.

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

2.17.4 RX SW Manual Control (for 1+1 system only)

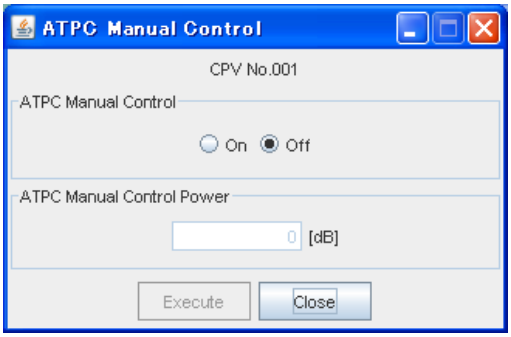
To control the RX switch manually:



1. Click the **[RX SW Manual Control]** button in **Maintenance** window.
2. Select the desired RX wireless system. The default setting is Auto.
3. Click the **[Execute]** button to switch to the RX selected system.
4. Click the **[Close]** button when finished.

2.17.5 ATPC Manual Control

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

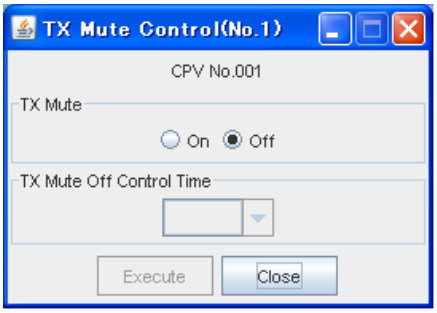


1. Click **[ATPC Manual]** button in **Maintenance** window.
2. Select whether to manually turn ON (or OFF) ATPC manual power and the desired decibel value.
3. Click the **[Execute]** button to activate the new setting.
4. Click the **[Close]** button when finished.

2.17.6 TX Mute Control

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:

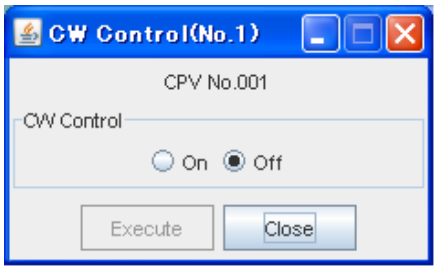


1. Click **[TX Mute Control]** button in **Maintenance** window.
2. Select **ON/OFF** depending on the desired state.
3. When setting the opposite NE, also select **TX Release Time** in the **TX Mute Release Time** list.
4. Click the **[Execute]** button to implement the command.
5. Click the **[Close]**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

2.17.7 CW Control

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

To change the CW (MOD Carrier) status:

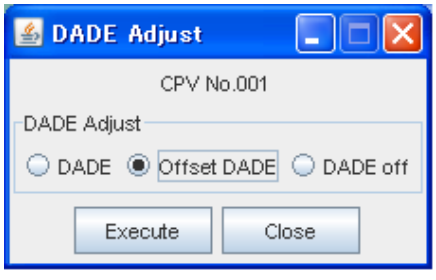


1. Click **[CW Control]** button in **Maintenance** window.
2. Select **ON/OFF** button depending on desired state.
3. Click the **[Execute]** button to implement the operation.
4. Click the **[Close]** button when finished.

2.17.8 DADE Adjust (for 1+1 systems only)

DADE adjustment is necessary when the IF cable is to be replaced. (At initial start-up the offset memory can be used to minimize the delay, but it may interrupt traffic when the delay is substantial).

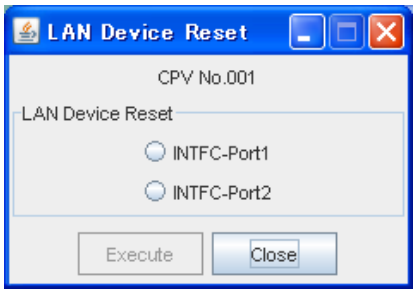
To conduct DADE adjustment:



1. Click **[DADE Adjust]** button in **Maintenance** window.
2. Select (click) the desired state: “DADE, “Offset DADE”, or “DADE off”
3. Click the **[Execute]** button to activate the command.
4. Click the **[Close]** button when finished.

2.17.9 LAN Device Reset

To reset Ports of LAN INTFC interface:



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

2.17.10 Linearizer Control

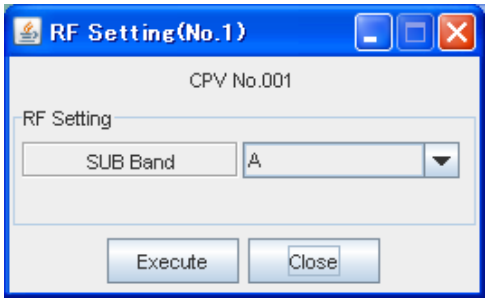
The Linearizer function is used to remove the distortion from the main amplifier in the ODU. This feature is set to “Auto” by default. If you need to turn it off during maintenance:

1. Click **[Linearizer Control]** button in **Maintenance** window.
2. Click Forced Reset.
3. Click the **[Execute]** button to activate this command.
4. Click the **[Close]** button when finished

2.17.11 RF Setting

Sub Band of ODU can be selected

To select Sub Band:



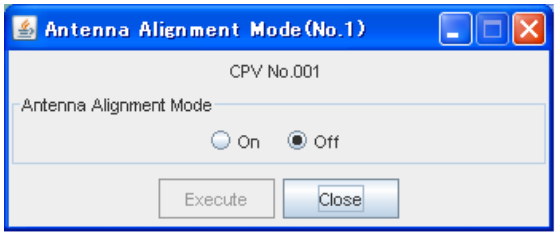
1. Click **[RF Setting SUB Band]** button in **Maintenance** window.
2. Select the type of Sub Band in the Sub Band list.
3. Click the **[Execute]** button to implement the command.
4. Click the **[Close]** button when finished.

2.17.12 Antenna Alignment Mode (only available for specific ODU type)

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

To set Antenna Alignment Mode:

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

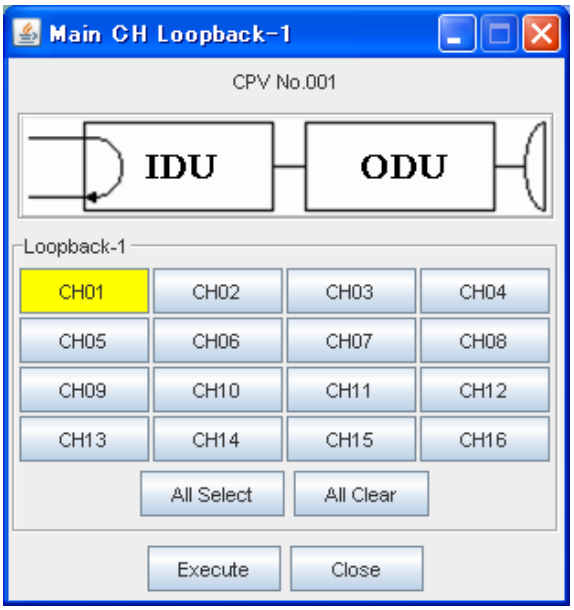


2.17.13 Main CH Loopback-1 (CH01- 16)

This allows the signal sent from your selected NE to be looped back (to that NE) via the INTFC.

To set the loopback:

1. Click the **[Main CH Loopback-1]** button in the **Maintenance** window.
2. Select the channel (01 – 16).
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.

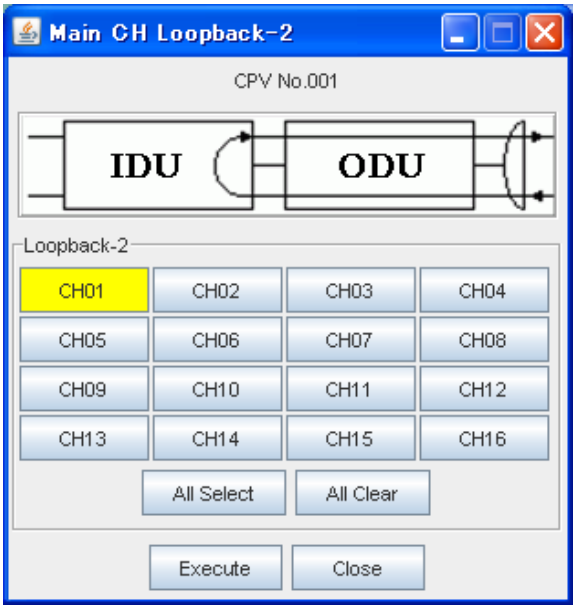


2.17.14 Main CH Loopback-2 (CH01- 16)

This allows the signal sent from the opposite NE to be looped back (to that NE) from your selected NE via the INTFC.

To set the loopback:

1. Click the **[Main CH Loopback-2]** button in the **Maintenance** window.
2. Select the channel (01 – 16).
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.



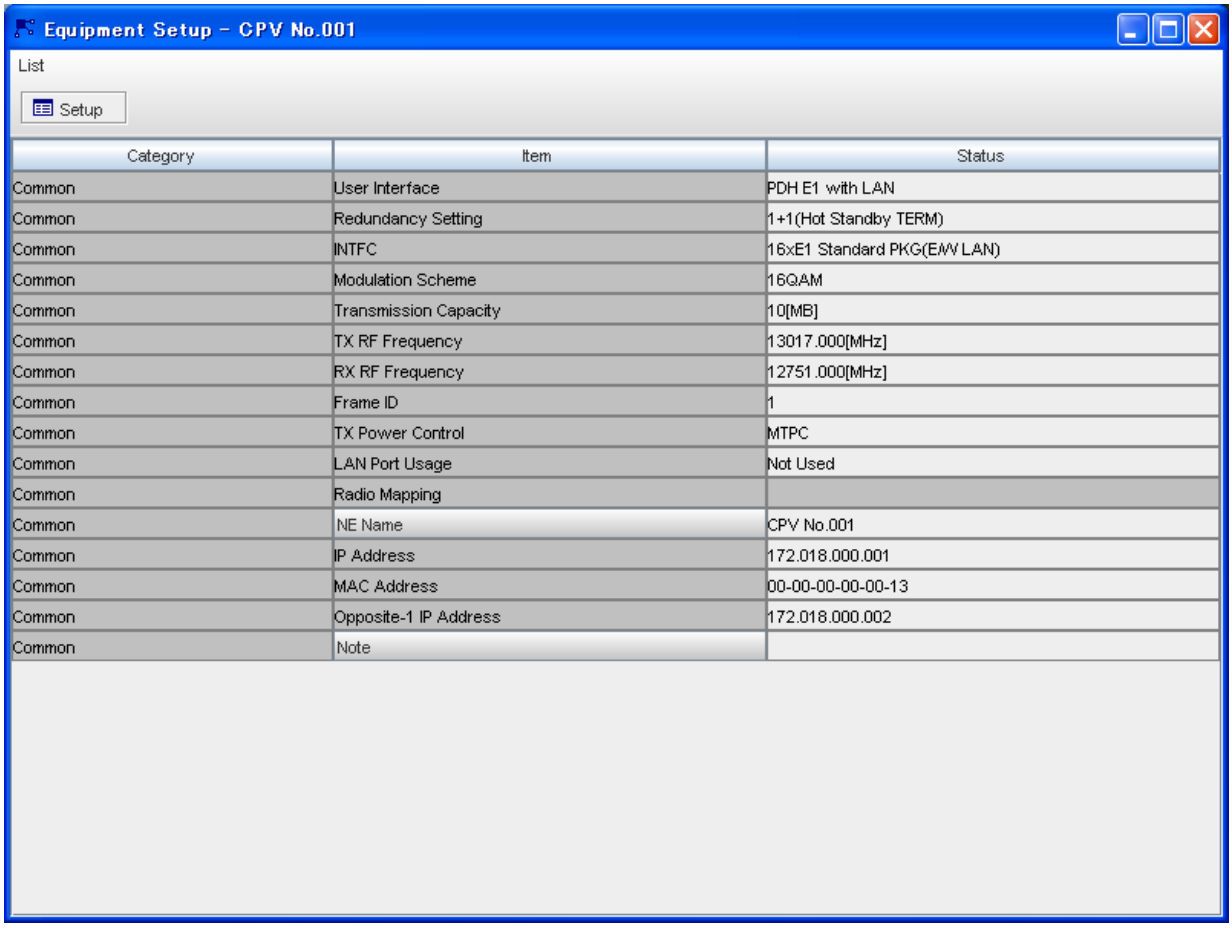
2.18 Equipment Setup

Main and Service signal, ODU and CTRL settings can be monitored as well as controlled via this window.

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

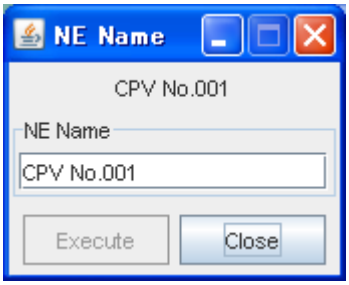


Category	Item	Status
Common	User Interface	PDH E1 with LAN
Common	Redundancy Setting	1+1(Hot Standby TERM)
Common	INTFC	16xE1 Standard PKG(E/W LAN)
Common	Modulation Scheme	16QAM
Common	Transmission Capacity	10[MB]
Common	TX RF Frequency	13017.000[MHz]
Common	RX RF Frequency	12751.000[MHz]
Common	Frame ID	1
Common	TX Power Control	MTPC
Common	LAN Port Usage	Not Used
Common	Radio Mapping	
Common	NE Name	CPV No.001
Common	IP Address	172.018.000.001
Common	MAC Address	00-00-00-00-00-13
Common	Opposite-1 IP Address	172.018.000.002
Common	Note	

Equipment Setup window (example shows 1+1 Hot Stand-by Configuration)

To edit the NE name:

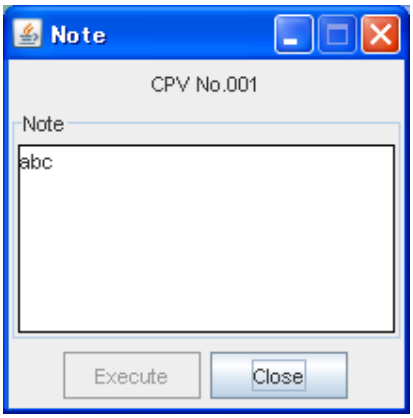
1. Click **[NE Name]** button in **Equipment Setup** window.
2. Enter new NE name in the **NE Name** dialog box. A maximum of 32 characters can be used.
3. Click the **[Execute]** button to change to new name.
4. Click the **[Close]** button when finished.



2.18.2 Editing the Note for CTRL

To put an optional description on the current NE:

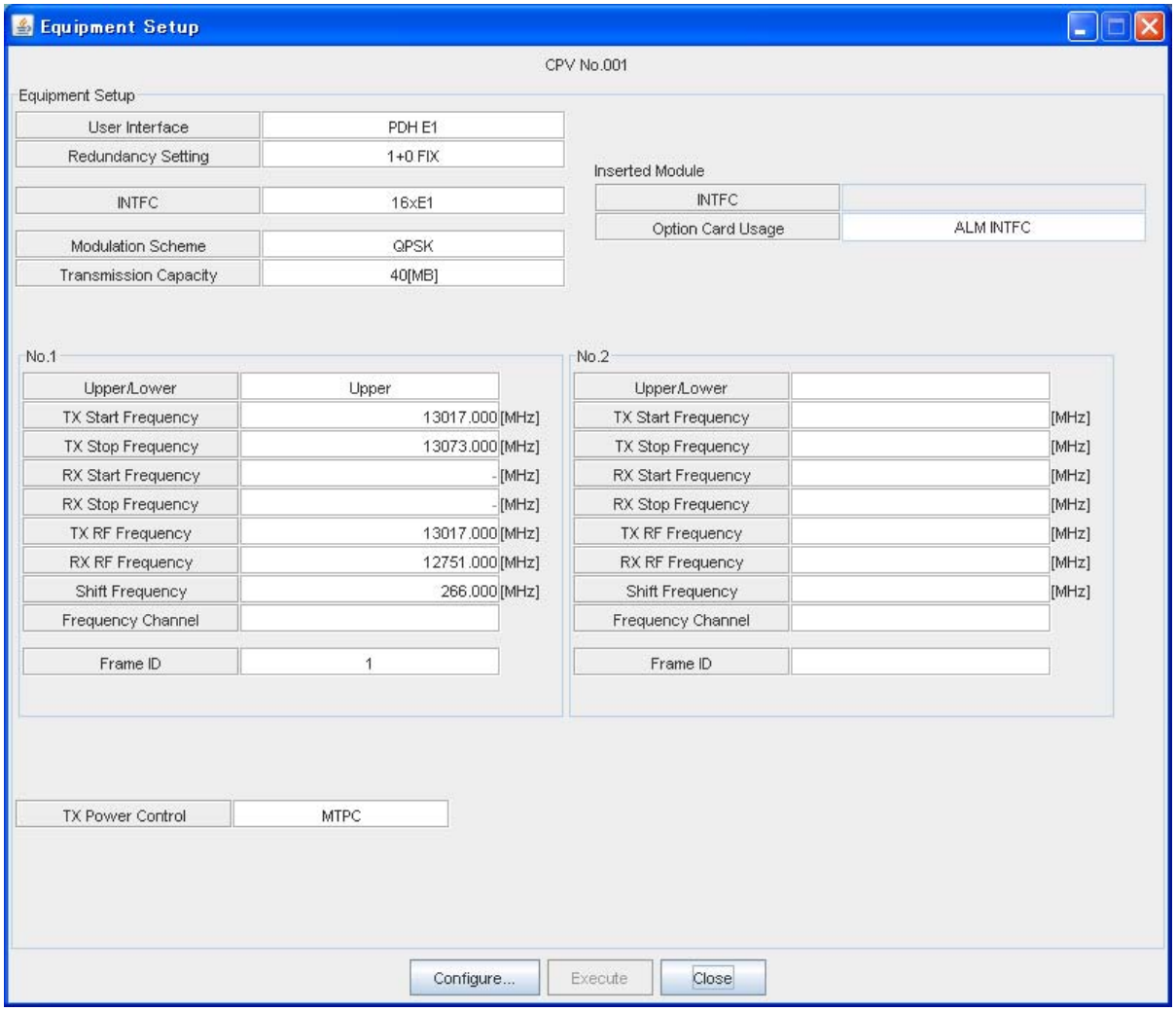
1. Click **[Note]** button in **Equipment Setup** window.
2. Enter the optional description for the specific NE in the **Note** dialog box. A maximum of 100 characters can be used in this field
3. Click the **[Execute]** button when finished.
4. Click the **[Close]** button when finished.



2.18.3 Setup

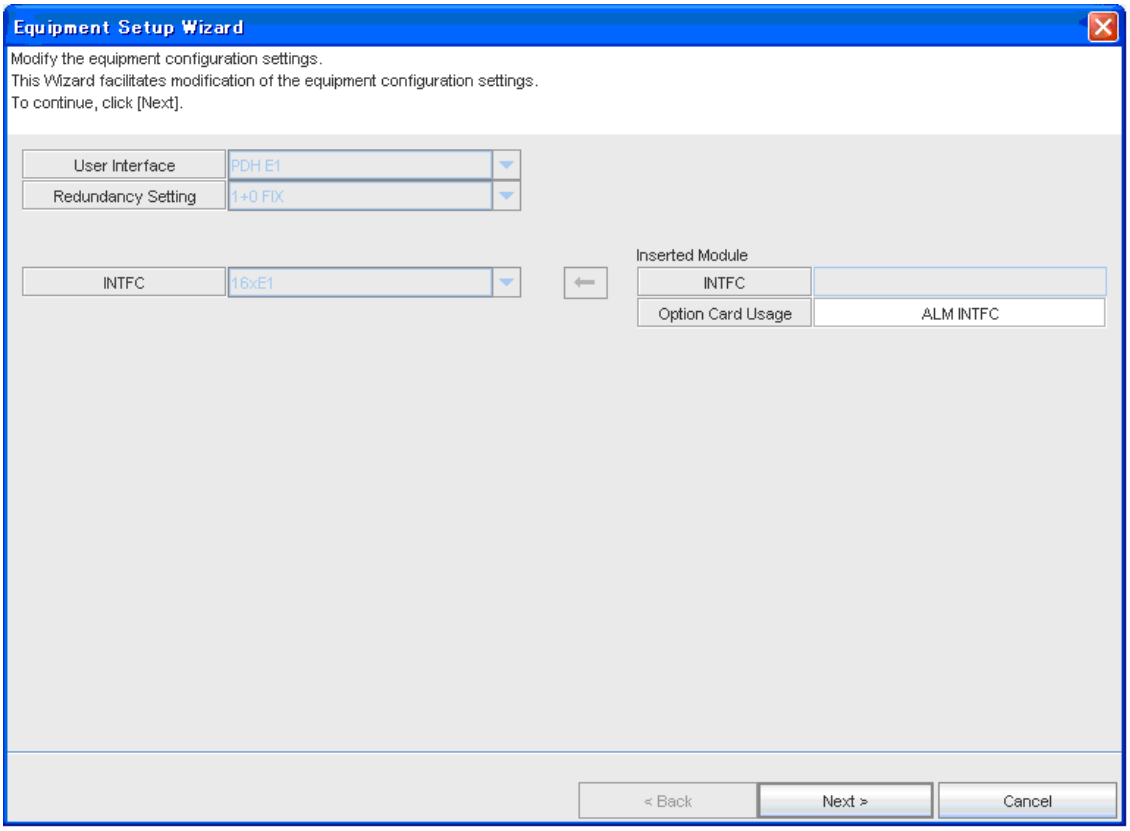
Setting the ODU and IDU parameters:

1. Click the **[Setup]** button in the **Equipment Setup** window and another **Equipment Setup** window (for verifying the settings) opens.



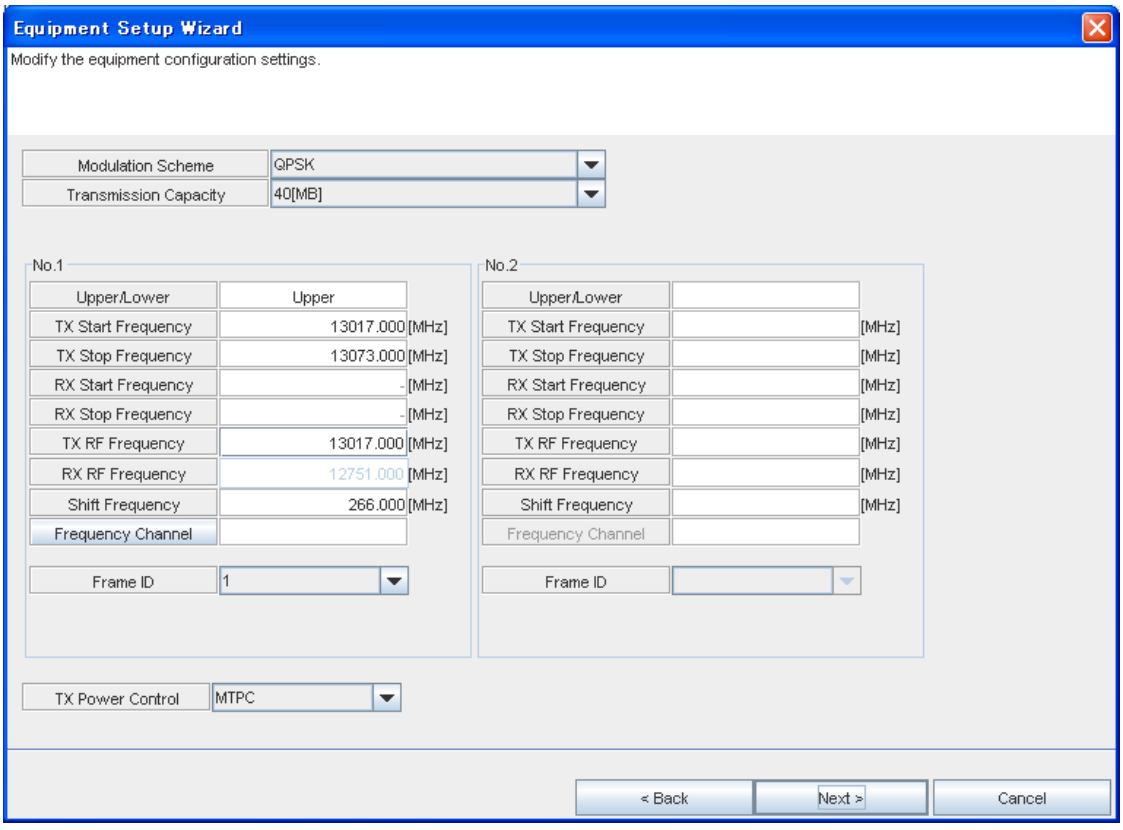
Equipment Setup Window (to verify settings)

2. Clicking **Configure** opens the **Setup Wizard**.



Setup Wizard

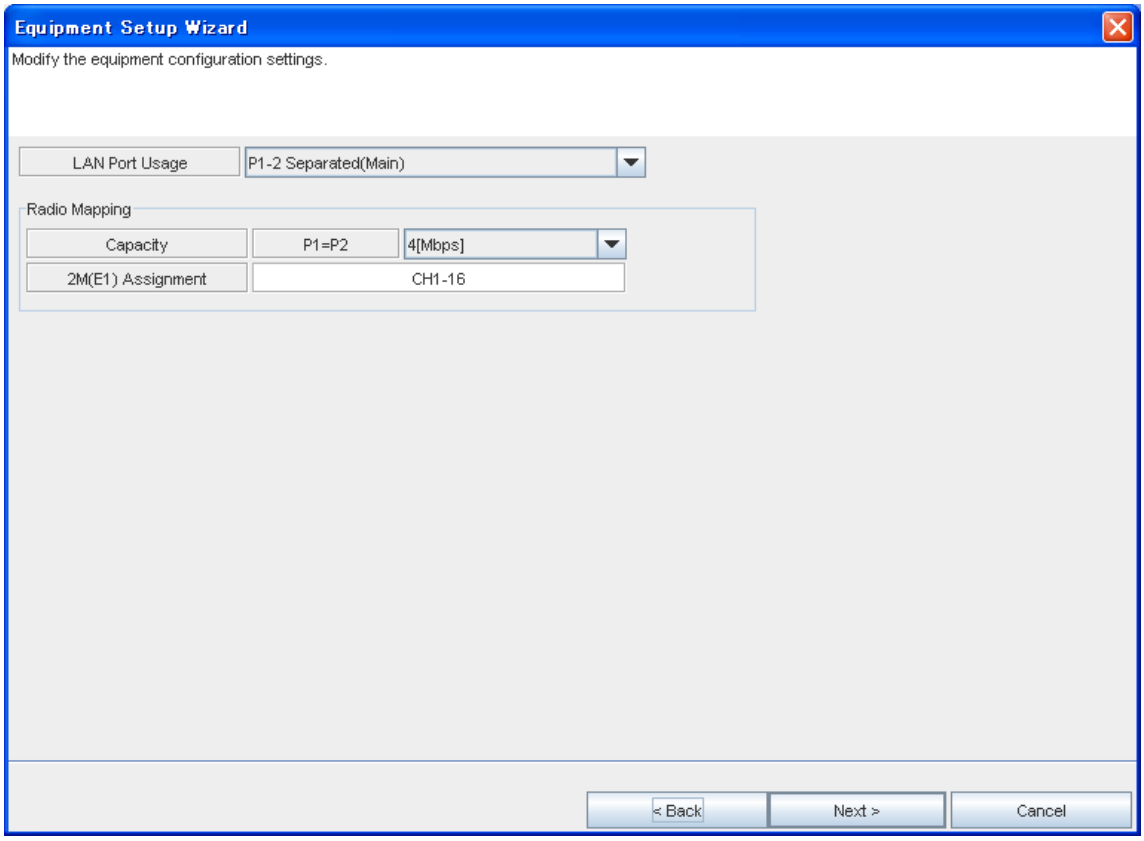
3. The settings in the window can now be configured. To continue click **[Next]**.



4. To complete the configuration procedure, click **[Next]** and in the ensuing window click **[Finish]**.

5. If LAN parameters need to be set, the following window will open.

   After setting the LAN parameters, click **[Next]** and in the ensuing window click **[Finish]**.



6. This will take you back to the **Equipment Setup** window (for verifying the settings). Carefully confirm that the settings are correct and click **[Execute]** to activate them.

The following is an overview of the configurable items/parameters:

User Interface:	To select the desired user interface manually
Redundancy setting:	To select the desired redundancy setting
INTFC:	To select the desired work interface (the available options depend on the selected User Interface)
Inserted module:	This function is only enabled when the interface setting and the actually inserted module do not match. It allows the setting to be updated to match the inserted module
Option Card Usage:	In 1+0 Fix configurations, displays whether (or not) ALM INTFC is mounted. Or in 1+0 LAN configurations, displays whether (or not) LAN INTFC is mounted.
Modulation scheme:	The type of modulation is set here.
Transmission capacity:	This value denotes the transmission capacity (in MB) of the selected interface and modulation type

TX RF Frequency:	The transmission frequency can be set within the range designated by the **TX Start** and **TX Stop** frequencies
Frequency Channel:	Enables the TX and RX frequencies for the channels to be set (as described below).
Frame ID:	Identification code for the transmission frames
TX Power Control:	The type of power control is set here.
LAN Port Usage	To select the LAN Port Usage (not available for 1+0 Fix; options depend on the selected User Interface).

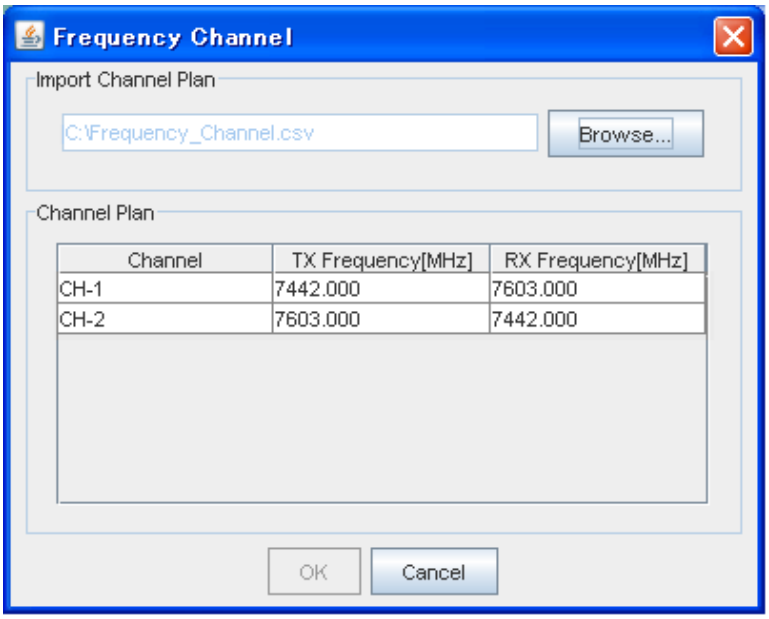
2.18.4 Frequency Channel

1. Click the **[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



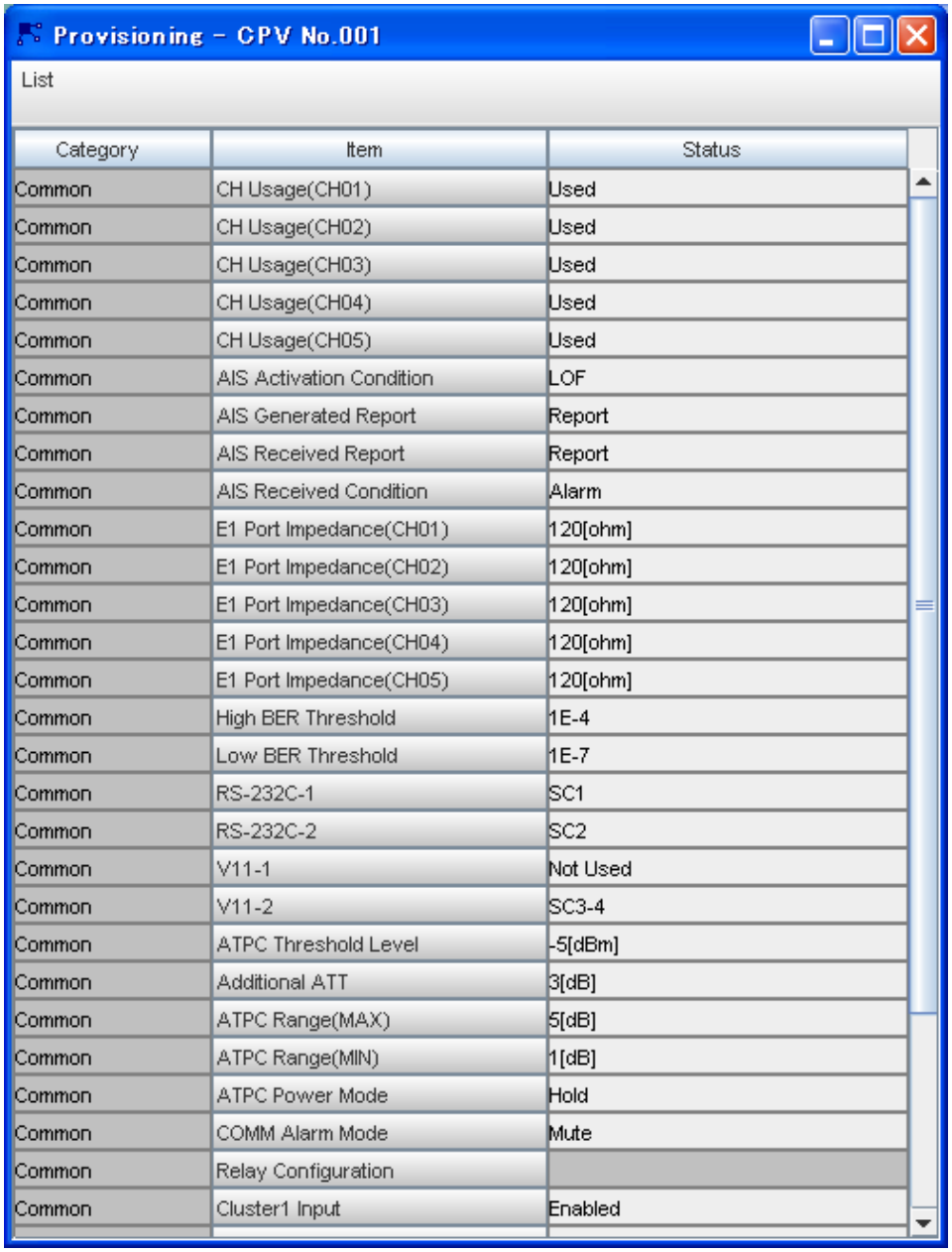
2.19 Provisioning

This window enables the INTFC, SC Assignment, MTPC / ATPC parameters, as well as error rate and other thresholds to be set.

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 and Assignment. The **Provisioning** window is shown below.



Provisioning window

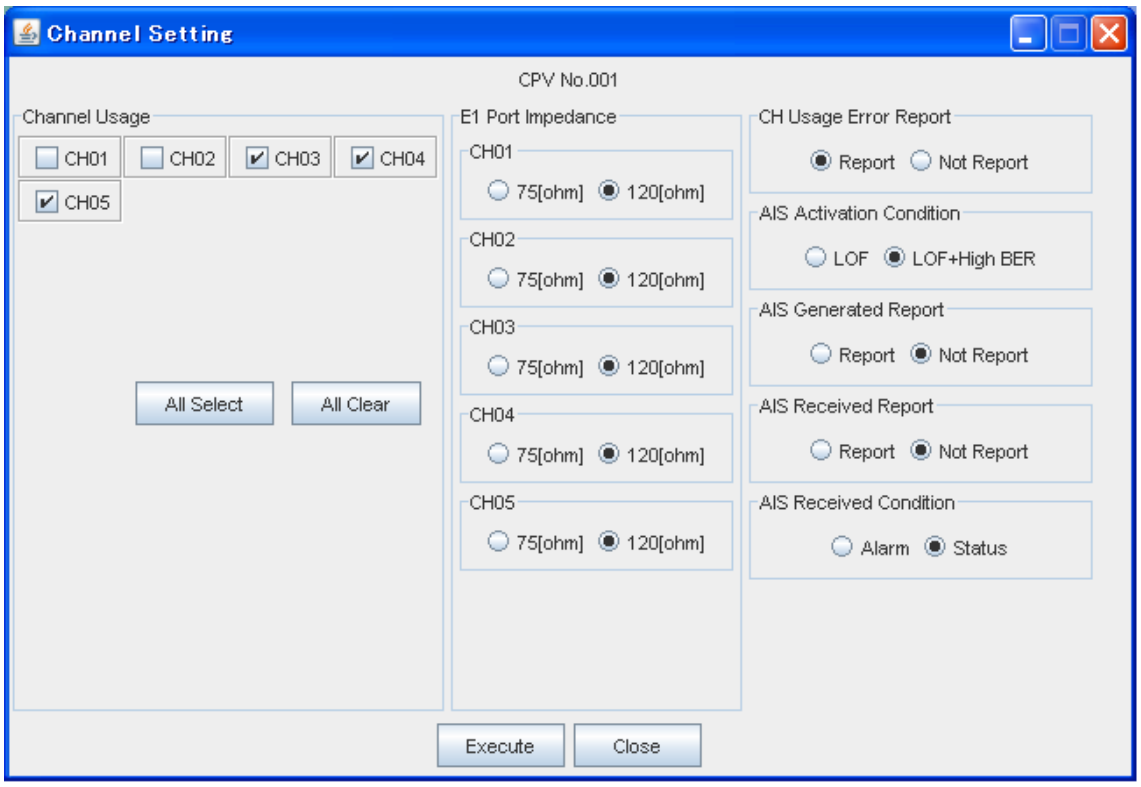
Common items

Item/feature	Description	Specific conditions for it to be displayed/configured
High/Low BER Threshold	Allows the setting of the BER value that will trigger the alarm	None
RS-232C-1 / 2, V-11-1 / V-11-2	Assigns the respective SC to an interface	None
V-11-1 Direction Setting	Enables the V-11-1 service channel clocking to be set (i.e. co-directional or contra-directional)	Only if SC have been assigned (without SC assignment it is inactive)
MTPC TX Power	Allows the transmission power (dB) to be set for MTPC operation.	Displayed for MTPC
ATPC Threshold Level	Allows the transmission power (dB) thresholds to be set for ATPC operation.	Displayed for ATPC
Additional ATT	For setting the additional attenuation parameters (dB)	None
ATPC Range (Max / Min)	For setting the minimum and maximum ATPC transmission power (dB).	Displayed for ATPC
ATPC Power Mode	For setting the power mode (Hold: maintaining present status, MIN: minimum level).	Displayed for ATPC
COMM Alarm Mode	Select ODU output powermode when the communication failes between IDU and ODU due to some problems.	When Mute is set,the ODU output power will be muted. (Default) When Hold is set,the ODU output power will be hold. (Should consider neighboring system)
TX / RX SW Priority	Enables the respective priority to be set (pre-alarm TX / RX route or No. 1)	Only for 1+1 hot standby
TX SW Lock-in Usage	For setting the TX SW Lock-in Usage	Only when TX SW Priority is “Priority No.1”
TX SW Reverse Function	For setting the TX SW Reverse Function	Only when TX SW Priority is “Non Priority”
TX SW Sensitivity	For setting the TX SW Sensitivity	Only for 1+1 hot standby
RX SW Maintenance Mode	Has two settings: “manual” for disabling the RX switch and “forced” for overriding the disabled switch.	Only for 1+1 hot standby / twinpath
RX SW Condition-Early Warning	For setting whether the EW (Early Warning) feature is to be included in the parameters.	Only for 1+1 hot standby / twinpath
Relay Configuration	The six relays in the IDU are each associated with a parallel alarm.	For 1+0 Fix configurations with no ALM INTFC, only RL01, 02 become active/available
Cluster 1 - 4 Input	Allows the cluster alarm input to be enabled/ disabled.	Not displayed for 1+0 Fix configurations with no ALM INTFC
EOW2 External Setting	Enables appropriate EOW2 calling system signal polarity to be set: “normal” when the NEO IDU is connected to another NEO IDU or a PASOLINK IDU; “invert (ed)” when connected to PASOLINK+ IDU or Mx IDU	None
RX Level TCN Threshold	For setting the threshold at which the TCN is displayed	None
SES Activation Condition	Enables setting of the low threshold (%) that activates SES	None
Alarm Correlation Capability	Allows the suppression of secondary (downstream) alarms to be turned on/off	None
CH Usage (CH01-CH16)	For setting the respective usage of the 16 available channels	CH01-05 are displayed for 5xE1

Item/feature	Description	Specific conditions for it to be displayed/configured
CH Usage Error Report	For enabling/disabling the CH Usage Error reporting function.	At least one channel (CH01-CH16) must be set as Not Used
AIS Activation Condition	For setting whether the AIS signal is activated by LOF, High BER or both alarm parameters	At least one channel (CH01-CH16) must be set as *Used*
AIS Generated Report	For enabling/disabling the **AIS Generated Report**	At least one channel (CH01-CH16) must be set as *Used*
AIS Received Report	For enabling/disabling the **AIS Received Report**	At least one channel (CH01-CH16) must be set as *Used*
AIS Received Condition	For setting the type of **AIS Received Condition** parameters	At least one channel (CH01-CH16) must be set as *Used*
E1 Port Impedance	For setting the impedance of the E1 interface port	The designated channel (s) must have been selected for use
LAN Port 1-2 Usage	For setting the usage of the LAN interface ports (1, 2)	Only for ***PDH with LAN*** interface
LAN Switching Function	Allows the port switching function to be “enabled” / “disabled”	When 2-Port LAN interface is used in following configuration: Port1-2 Shared/1Port Only (Main), or Port1-2 Shared/1Port Only (SC)
LAN Speed & Duplex Port 1-2	For setting the speed and duplex parameters of the LAN interface ports (1, 2)	When LAN Port1 (or 2) has been selected for use
LAN Flow Control Port 1-2	For setting the flow control parameters of the LAN interface ports (1, 2)	When LAN Port1 (or 2) has been selected for use
LAN Collision Report Port 1-2	For setting whether collision status is reported (or not) for the interface ports (1, 2)	Only when **Speed & Duplex Port 1-2** = *AUTONEG* or *HALF-DUPLEX*
LAN Link Loss Forwarding Port 1-2	For enabling/disabling the **Link Loss Forwarding** function for LAN interface ports (1, 2)	Only when LAN Port1 (or 2) has been selected for use. Not available when LAN Switching Function is “enabled”
LAN 2M Framing	For setting the type of 2M framing of the LAN interface ports (1, 2)	Only during the following conditions: 2-Port LAN >> Radio Mapping = Port1-2 Shared / 1 Port Only (Main) and 2Port LAN = 2Mbps in Equipment Setup window

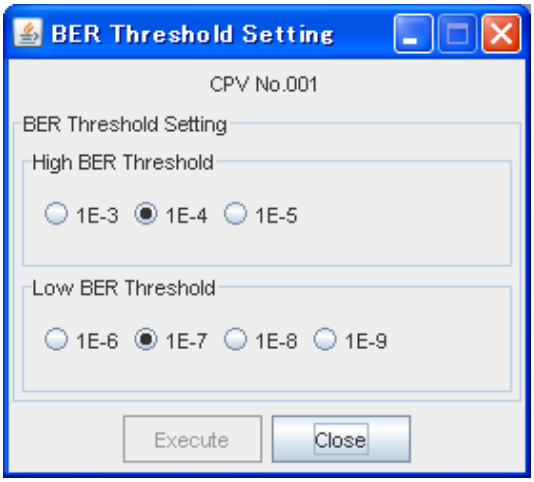
Channel Setting

To set the necessary channels (for the above parameters) simply click anywhere in the **Provisioning** window to open the following window in which you can then select/activate the various channels.



2.19.1 BER Threshold Setting

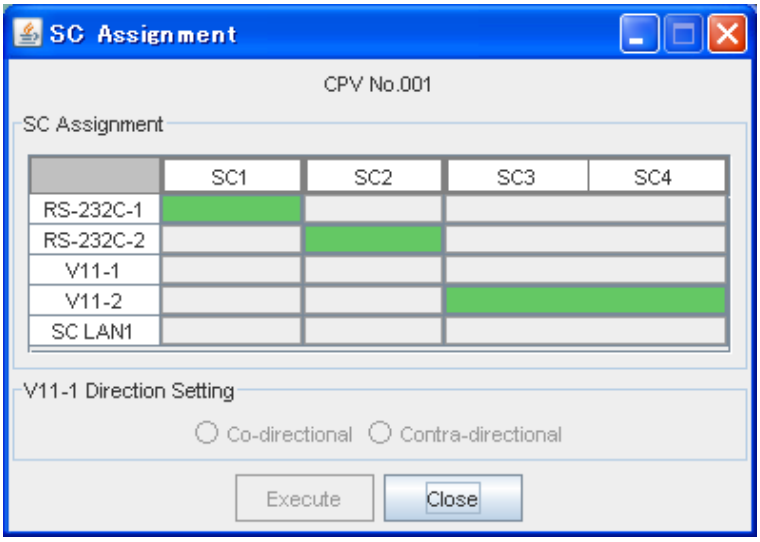
The BER thresholds throughout the system can be set in this window.



2.19.2 SC Assignment

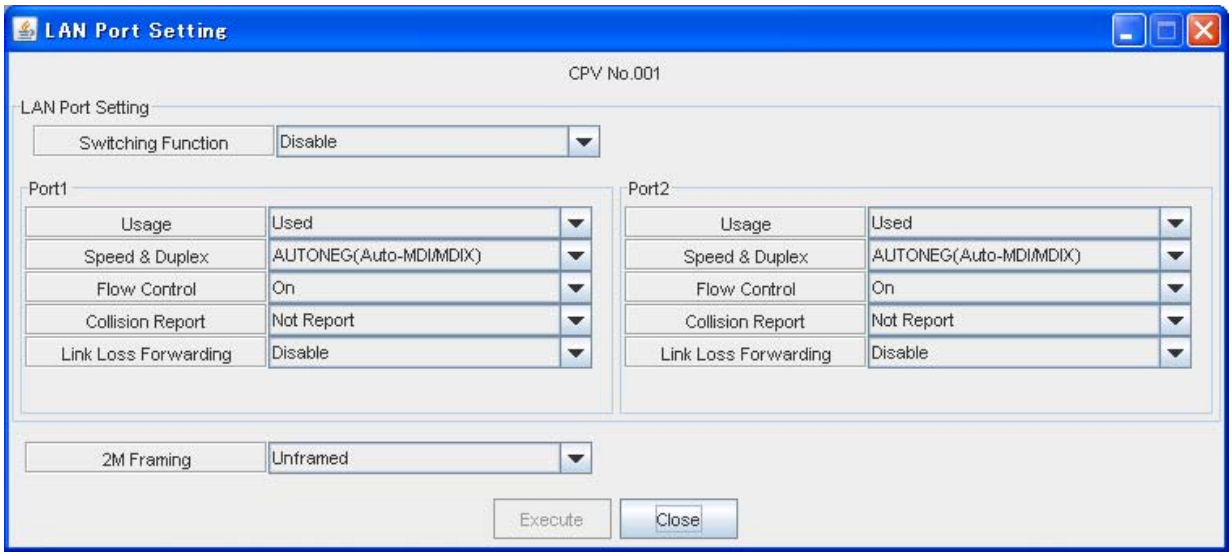
In this window, the interface type (e.g. LAN, RS-232C, V11) that is available for user channels (DSC) can be assigned and displayed. Direction Setting for V11-1 is also possible. (If V11-1 is assigned to SC-1, then V-11-1 Direction Setting is enabled).

(SC LAN1 is only displayed for 1+1 and 1+0 LAN configurations)



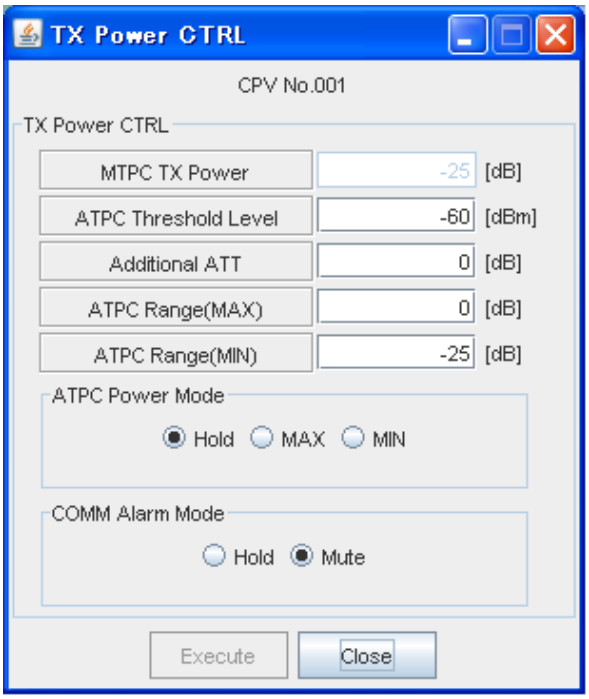
2.19.3 LAN Port Setting

Allows the LAN Port settings to be input or changed.



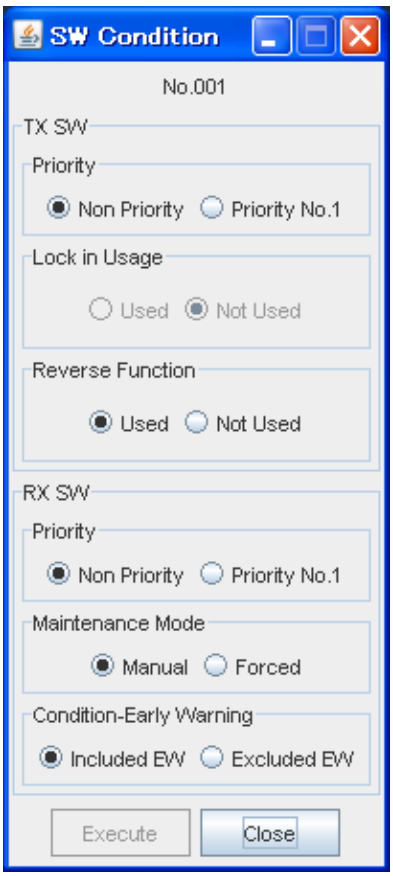
2.19.4 TX Power CTRL

The MTPC TX Power, ATPC Threshold Level, Additional ATT, ATPC Range as well as Power mode can be set in this window.



2.19.5 SW Condition

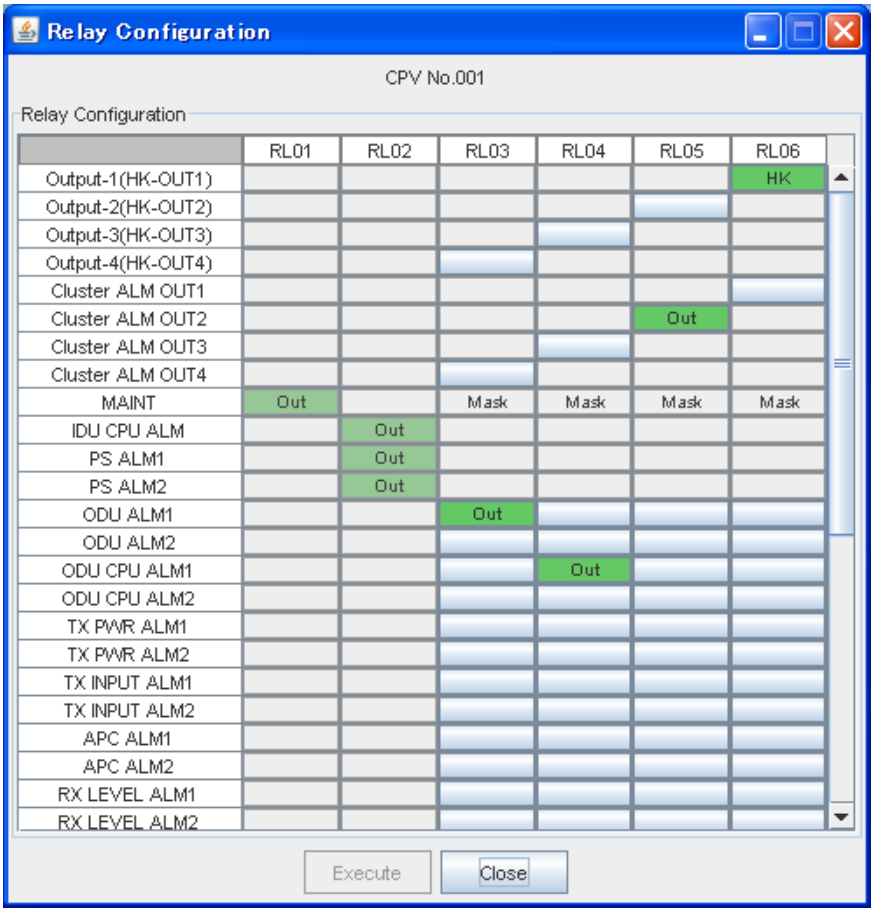
In this window, the switching (SW) parameters can be set.



2.19.6 Relay Configuration

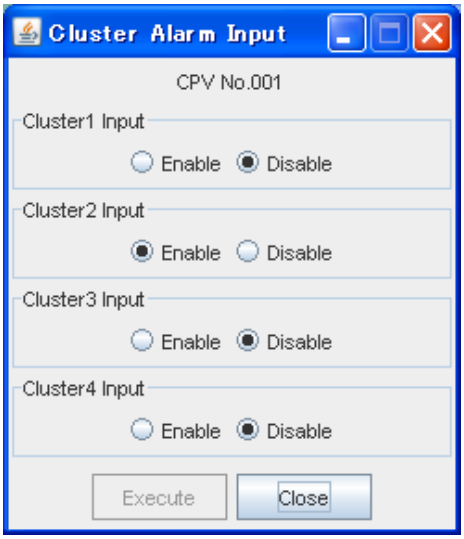
This window shows the six relays in the IDU (that are each associated with a parallel alarm). Four can be configured and the other two (RL01 and RL02) have fixed alarms.

For 1+0 Fix configurations with no ALM INTFC, only RL01, 02 become active/available. (Moreover, HK-OUT and Cluster ALM OUT are not displayed).



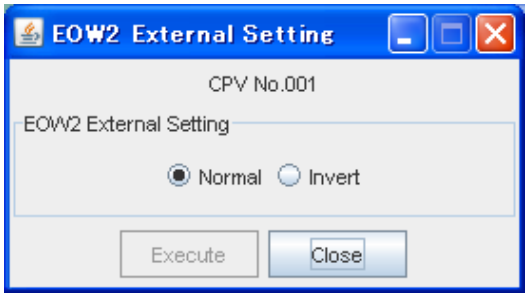
2.19.7 Cluster Alarm Input

Cluster alarms can be enabled/disabled with this window. (Not displayed for 1+0 Fix configurations with no ALM INTFC).



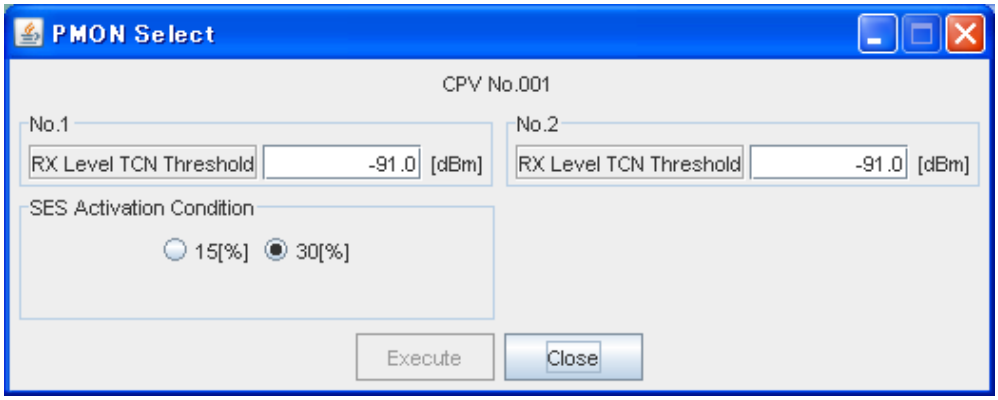
2.19.8 EOW2 External Setting

The EOW2 calling system signal polarity can be set here: “normal” when the NEO IDU is connected to another NEO IDU or a PASOLINK IDU; “invert (ed)” when connected to PASOLINK+ IDU or Mx IDU



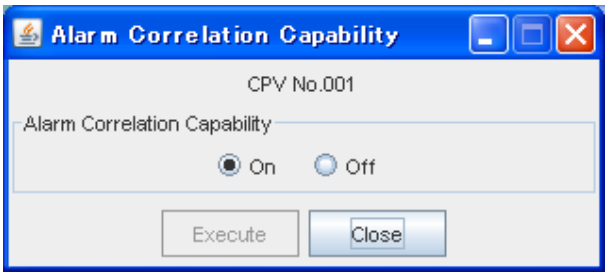
2.19.9 PMON Select

The RX Level TCN Threshold and SES Activation percentage can be set.



2.19.10 Alarm Correlation Capability

In this window the suppression of secondary (downstream) alarms can be turned **on/off**



2.20 Link Performance Monitor

The following performance-related items can be monitored according to 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)
- **Severely Errored Period (SEP)** – the cumulative time in which the BER of a one-second period exceeded 10E-3.
- **Background Block Error (BBE)** - the sum of the B1 background block error
- **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 a one-second period exceeded a set percentage (15% or 30%).
- **Unavailable Second (UAS)** –the cumulative time in which the unit remained inoperative
- **RX Level monitors** –the minimum and maximum reception level (when there are two routes it does so for No. 1 and 2 respectively

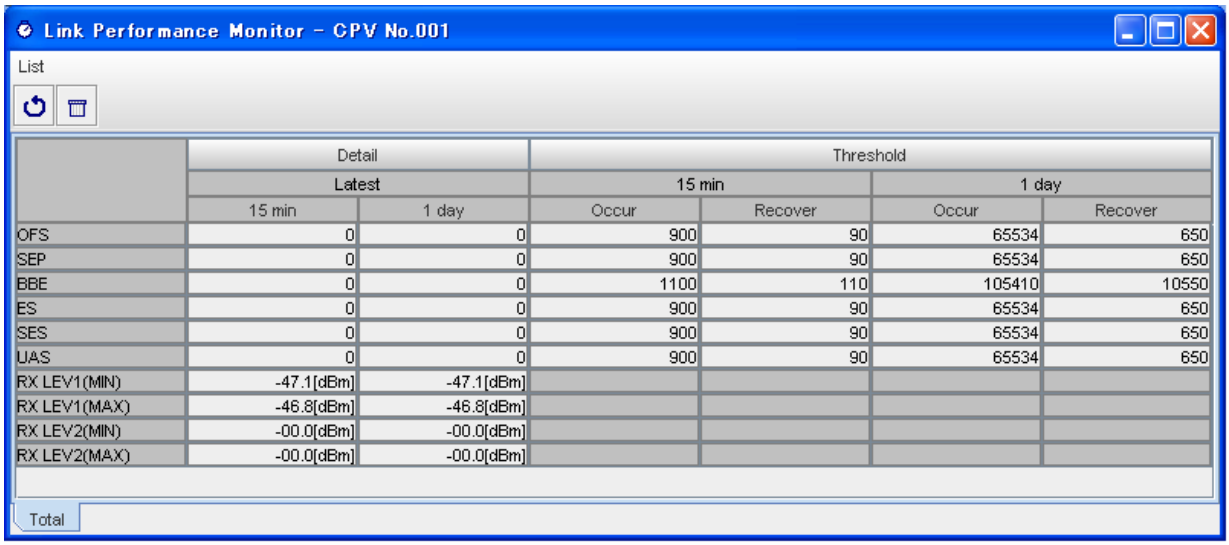
Pink color in Performance Monitor window indicates that the threshold value has been exceeded. The threshold values can be set in Threshold window. The detailed daily performance data for the last seven days can be viewed by clicking the **[Detail]** button.

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 (or alternatively **PNMT window→ LPM)**.

You can delete the target NE’s PMON/RMON data by selecting the **[All Data Clear]** and clicking **[Execute]**.



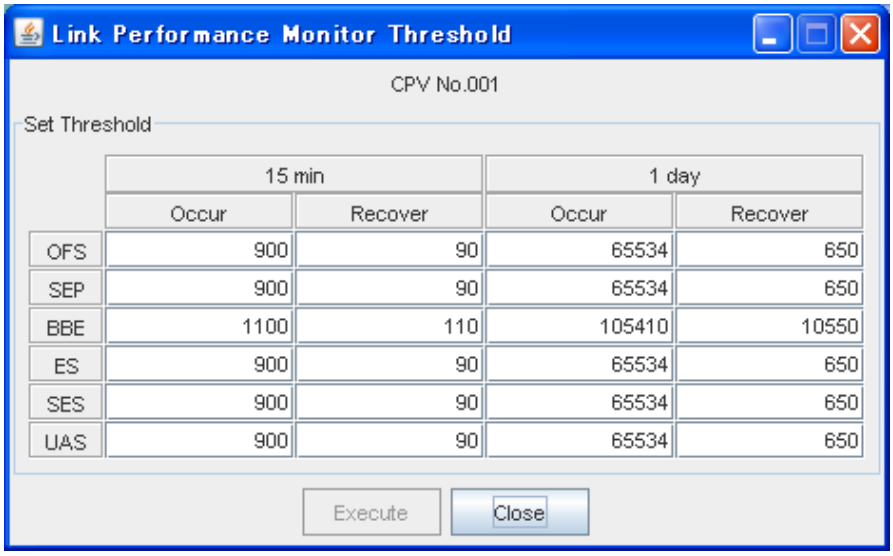
	Detail		Threshold			
	Latest		15 min		1 day	
	15 min	1 day	Occur	Recover	Occur	Recover
OFS	0	0	900	90	65534	650
SEP	0	0	900	90	65534	650
BBE	0	0	1100	110	105410	10550
ES	0	0	900	90	65534	650
SES	0	0	900	90	65534	650
UAS	0	0	900	90	65534	650
RX LEV1(MIN)	-47.1[dBm]	-47.1[dBm]				
RX LEV1(MAX)	-46.8[dBm]	-46.8[dBm]				
RX LEV2(MIN)	-00.0[dBm]	-00.0[dBm]				
RX LEV2(MAX)	-00.0[dBm]	-00.0[dBm]				

Summary Link Performance Monitor window

2.20.2 Threshold Setting

To set the threshold values:

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



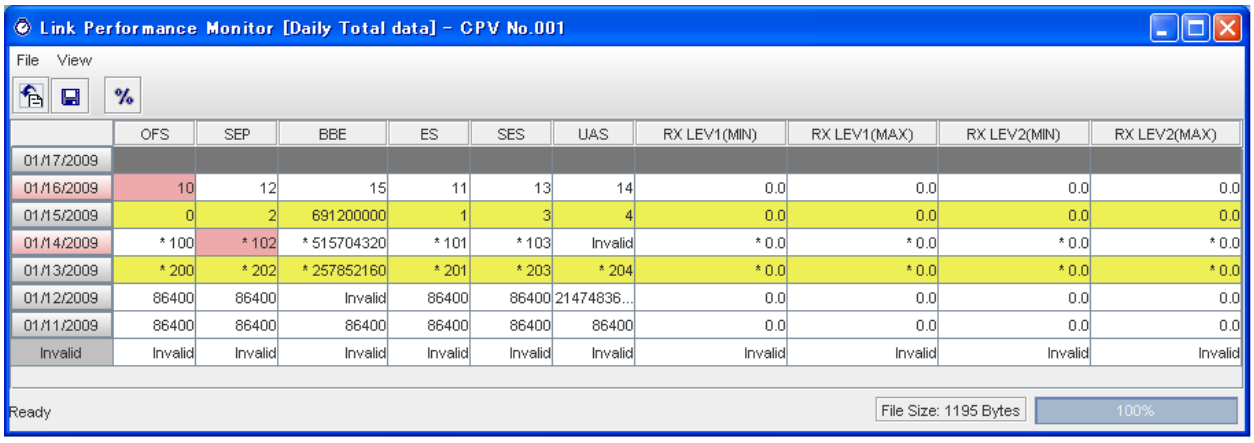
Summary Link Performance Monitor Threshold

2. Select the performance-related items that are to be configured in the table shown above. The G.826 measure becomes available for setting when selected.
3. Set the monitoring values (the alarm **Occur** and **Recover**) in the appropriate field. The alarm status will be monitored when it reaches the ***alarm occur*** value and issue an ***alarm clear status*** when the ***recover value*** set in the threshold table is reached.
4. Click **[Execute]** button to activate the new settings.
5. Click **[Close]** button when finished.

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

To view the 1day Data:

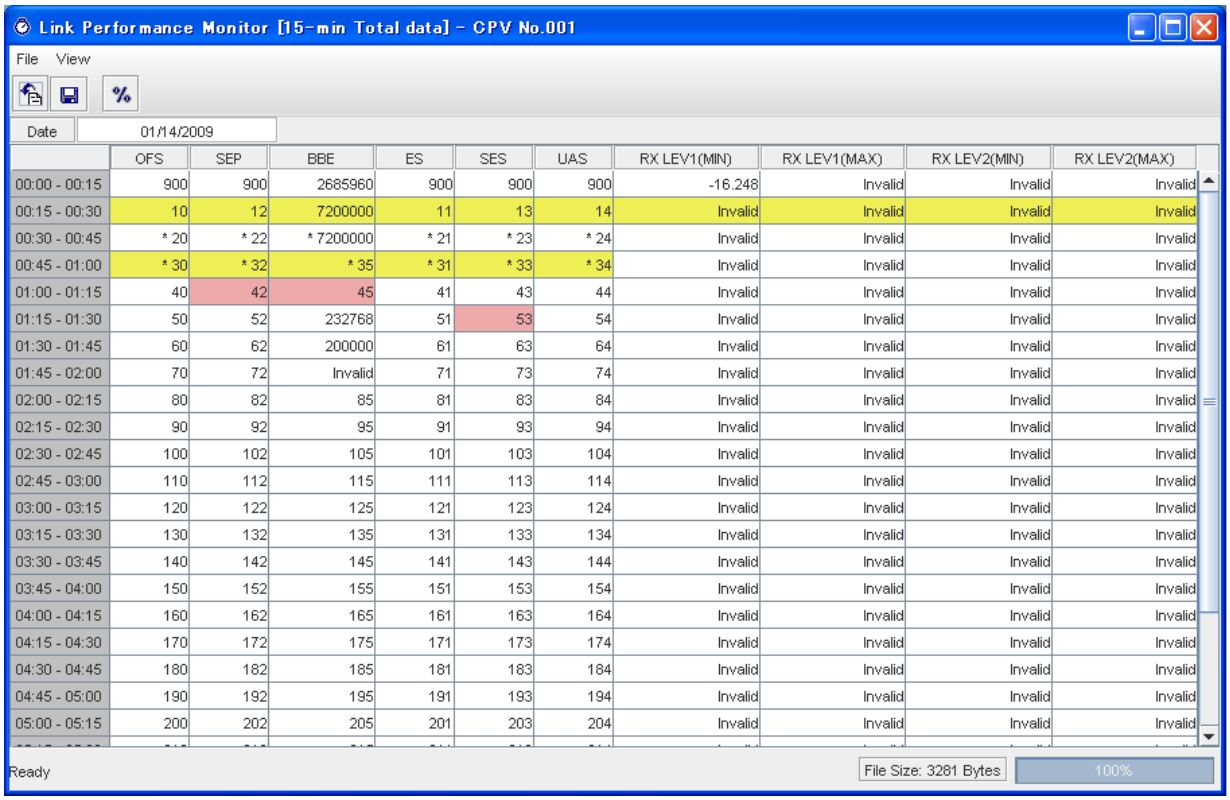
1. Click **[Detail]** button in Summary **Link Performance Monitor** window.



Link Performance Monitor (1 day Data) window

To view the 15-min. Data:

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



	OFS	SEP	BBE	ES	SES	UAS	RX LEV1(MIN)	RX LEV1(MAX)	RX LEV2(MIN)	RX LEV2(MAX)
00:00 - 00:15	900	900	2685960	900	900	900	-16.248	Invalid	Invalid	Invalid
00:15 - 00:30	10	12	7200000	11	13	14	Invalid	Invalid	Invalid	Invalid
00:30 - 00:45	* 20	* 22	* 7200000	* 21	* 23	* 24	Invalid	Invalid	Invalid	Invalid
00:45 - 01:00	* 30	* 32	* 35	* 31	* 33	* 34	Invalid	Invalid	Invalid	Invalid
01:00 - 01:15	40	42	45	41	43	44	Invalid	Invalid	Invalid	Invalid
01:15 - 01:30	50	52	232768	51	53	54	Invalid	Invalid	Invalid	Invalid
01:30 - 01:45	60	62	200000	61	63	64	Invalid	Invalid	Invalid	Invalid
01:45 - 02:00	70	72	Invalid	71	73	74	Invalid	Invalid	Invalid	Invalid
02:00 - 02:15	80	82	85	81	83	84	Invalid	Invalid	Invalid	Invalid
02:15 - 02:30	90	92	95	91	93	94	Invalid	Invalid	Invalid	Invalid
02:30 - 02:45	100	102	105	101	103	104	Invalid	Invalid	Invalid	Invalid
02:45 - 03:00	110	112	115	111	113	114	Invalid	Invalid	Invalid	Invalid
03:00 - 03:15	120	122	125	121	123	124	Invalid	Invalid	Invalid	Invalid
03:15 - 03:30	130	132	135	131	133	134	Invalid	Invalid	Invalid	Invalid
03:30 - 03:45	140	142	145	141	143	144	Invalid	Invalid	Invalid	Invalid
03:45 - 04:00	150	152	155	151	153	154	Invalid	Invalid	Invalid	Invalid
04:00 - 04:15	160	162	165	161	163	164	Invalid	Invalid	Invalid	Invalid
04:15 - 04:30	170	172	175	171	173	174	Invalid	Invalid	Invalid	Invalid
04:30 - 04:45	180	182	185	181	183	184	Invalid	Invalid	Invalid	Invalid
04:45 - 05:00	190	192	195	191	193	194	Invalid	Invalid	Invalid	Invalid
05:00 - 05:15	200	202	205	201	203	204	Invalid	Invalid	Invalid	Invalid

Link Performance Monitor (15-min. Data) window

2. The data can be saved in text format by clicking on the save icon. Or it can be refreshed by clicking on the reload (refresh) icon.

WARNING!!!

While data is being updated, do not remove the USB cable connecting the IDU with the PC.

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 1024-1522 – the total number of packets (Including bad packets) received that were between 1024 and 1522 octets in length.
	RX Pkts 1537-MAX – the total number of good packets received that were between 1537 and 1916 octets in length.
	RX Pkts 1523-MAX – the total number of good packets received that were between 1523 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 incomplete, it will be shown as invalid.

During maintenance mode, an item will be highlighted in the maintenance color (yellow as default).

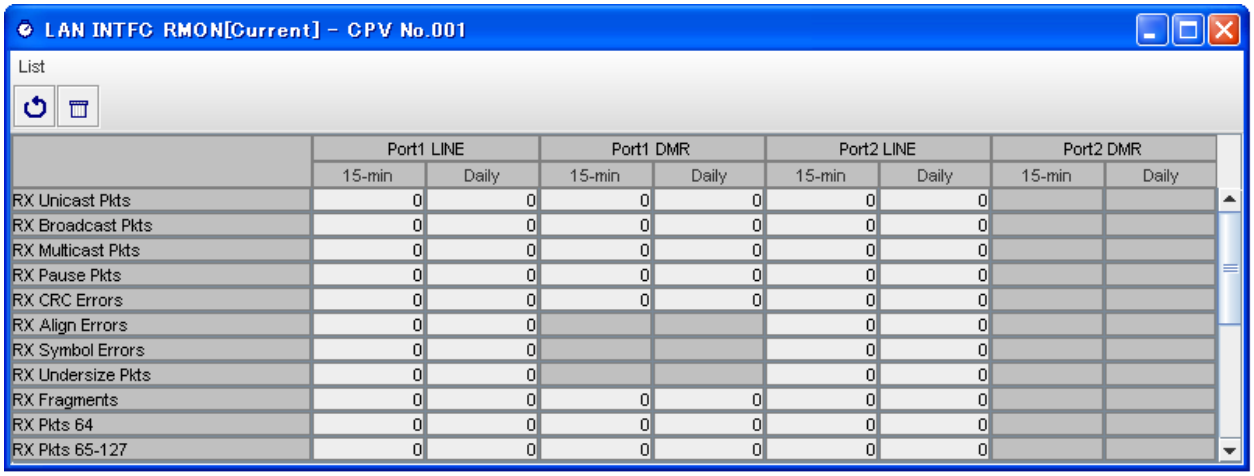
2.21.1 Viewing LAN INTFC RMON [Current]

This window contains the latest 15-minute data (15-min) and to the current day's total data (Daily) for all RMON items. (Not available for 1+0 Fix configurations).

To view LAN INTFC RMON [Current] Monitor:

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

You can delete the target NE's PMON/RMON data by selecting the **[All Data Clear]** and clicking **[Execute]**.



	Port1 LINE		Port1 DMR		Port2 LINE		Port2 DMR	
	15-min	Daily	15-min	Daily	15-min	Daily	15-min	Daily
RX Unicast Pkts	0	0	0	0	0	0		
RX Broadcast Pkts	0	0	0	0	0	0		
RX Multicast Pkts	0	0	0	0	0	0		
RX Pause Pkts	0	0	0	0	0	0		
RX CRC Errors	0	0	0	0	0	0		
RX Align Errors	0	0			0	0		
RX Symbol Errors	0	0			0	0		
RX Undersize Pkts	0	0			0	0		
RX Fragments	0	0	0	0	0	0		
RX Pkts 64	0	0	0	0	0	0		
RX Pkts 65-127	0	0	0	0	0	0		

LAN INTFC RMON [Current] window

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

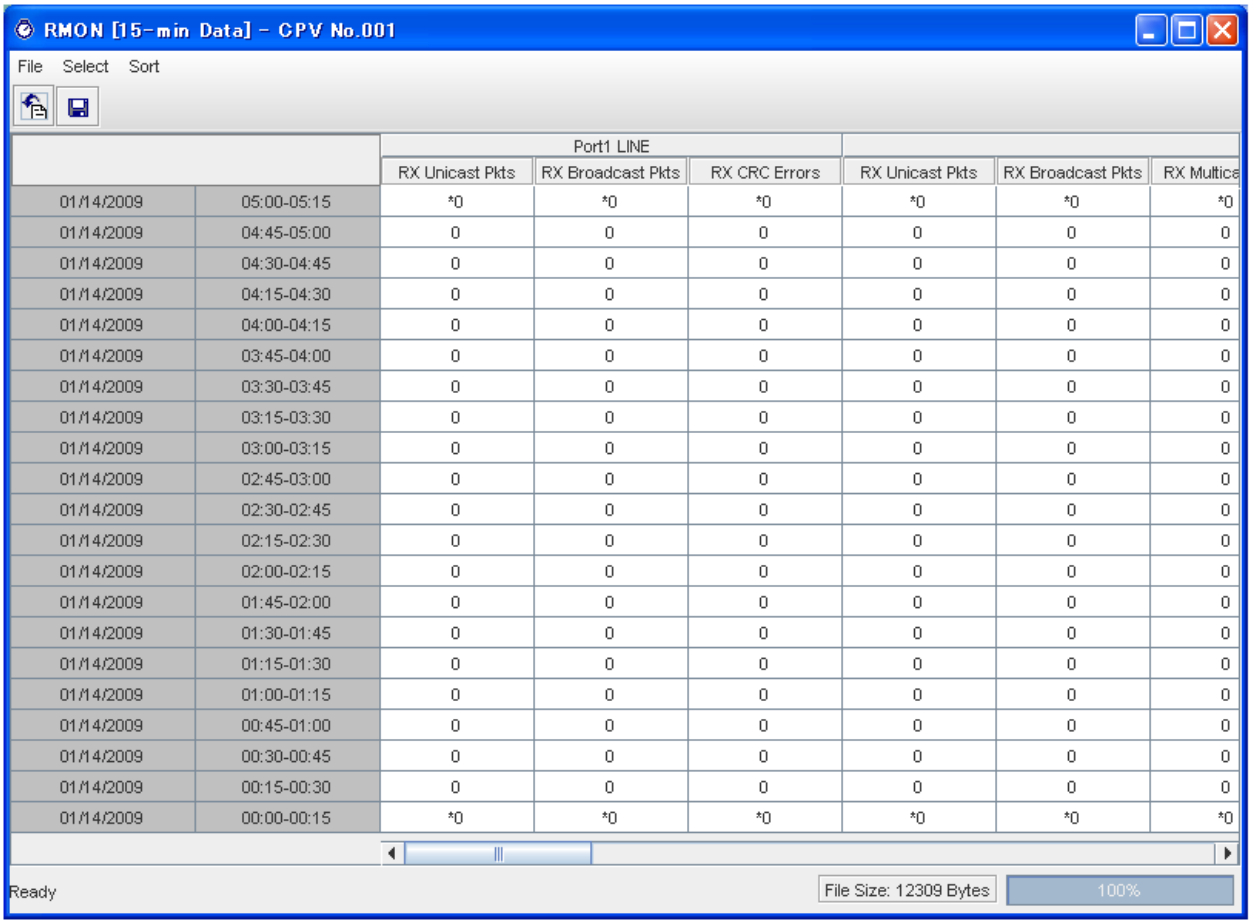
2.21.2 Viewing LAN INTFC RMON [15-min]*

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

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

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

* Not displayed for 1+0 Fix configurations



LAN INTFC RMON [15-min] window

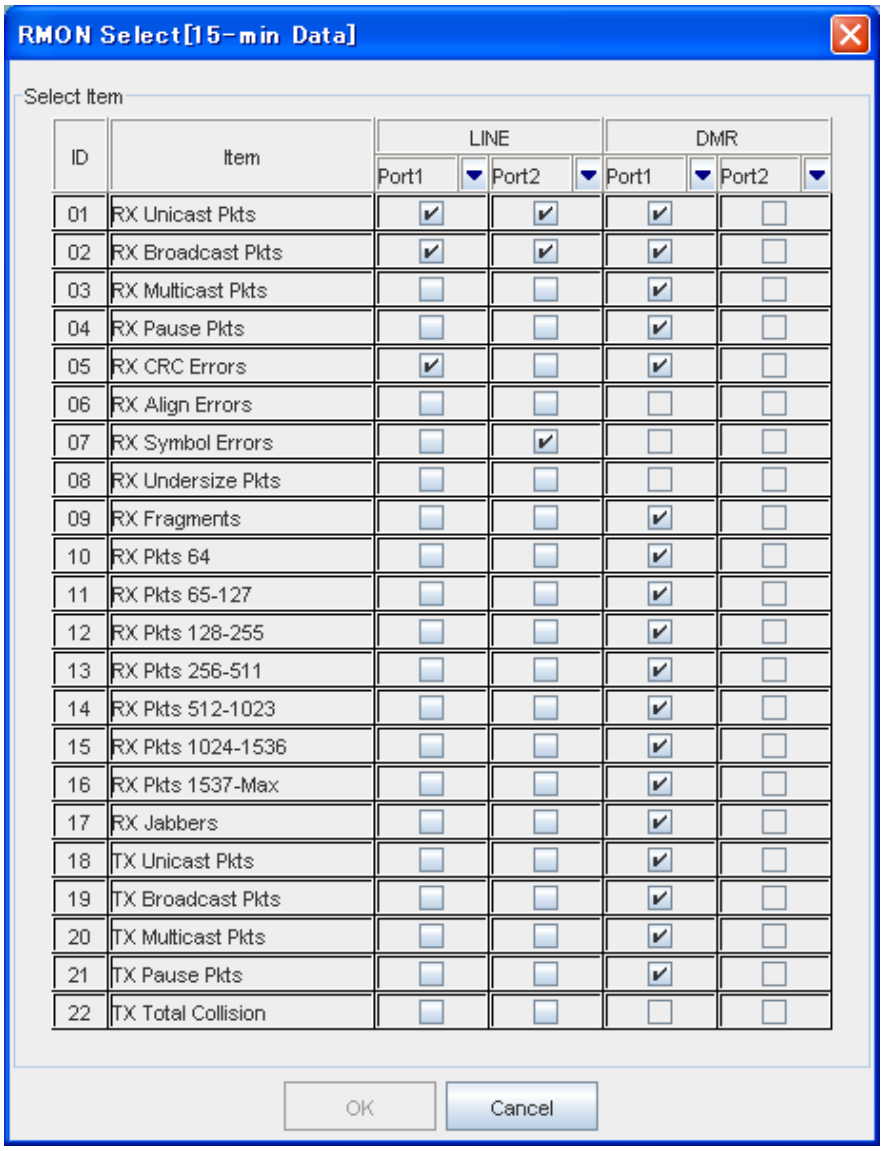
2. This data can be saved by selecting **File → Save All Data** menu or clicking on Save All Data  icon. The default file name that it will be saved to is **"15min.rmon"**.
3. This data can be refreshed by selecting **File → Reload** menu or clicking on Reload  icon.
4. This data can be sorted by port or Item by selecting **Sort → Port Sort** or **Item Sort** menu.
5. The viewing RMON items can be selected with the **Select window**.

WARNING!!!

While data is being updated, do not remove the USB cable connecting the IDU with the PC.

To view the Select window:

1. Choose **Select → Select** menu.



LAN INTFC RMON [15-min] Select window

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

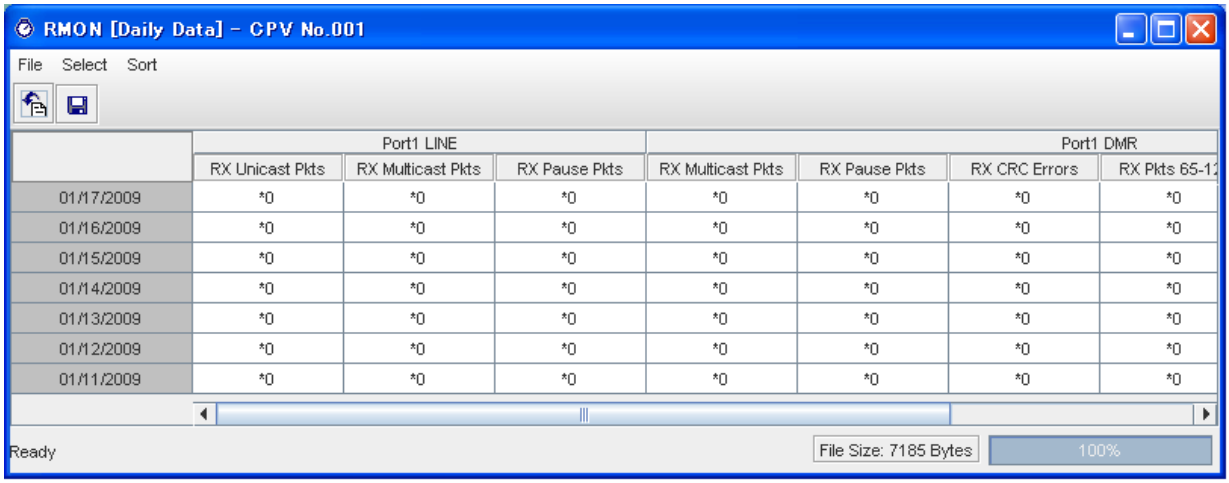
2.21.3 Viewing LAN INTFC RMON [Daily]

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

To view LAN INTFC RMON [Daily] Monitor:

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

* Not displayed for 1+0 Fix configurations

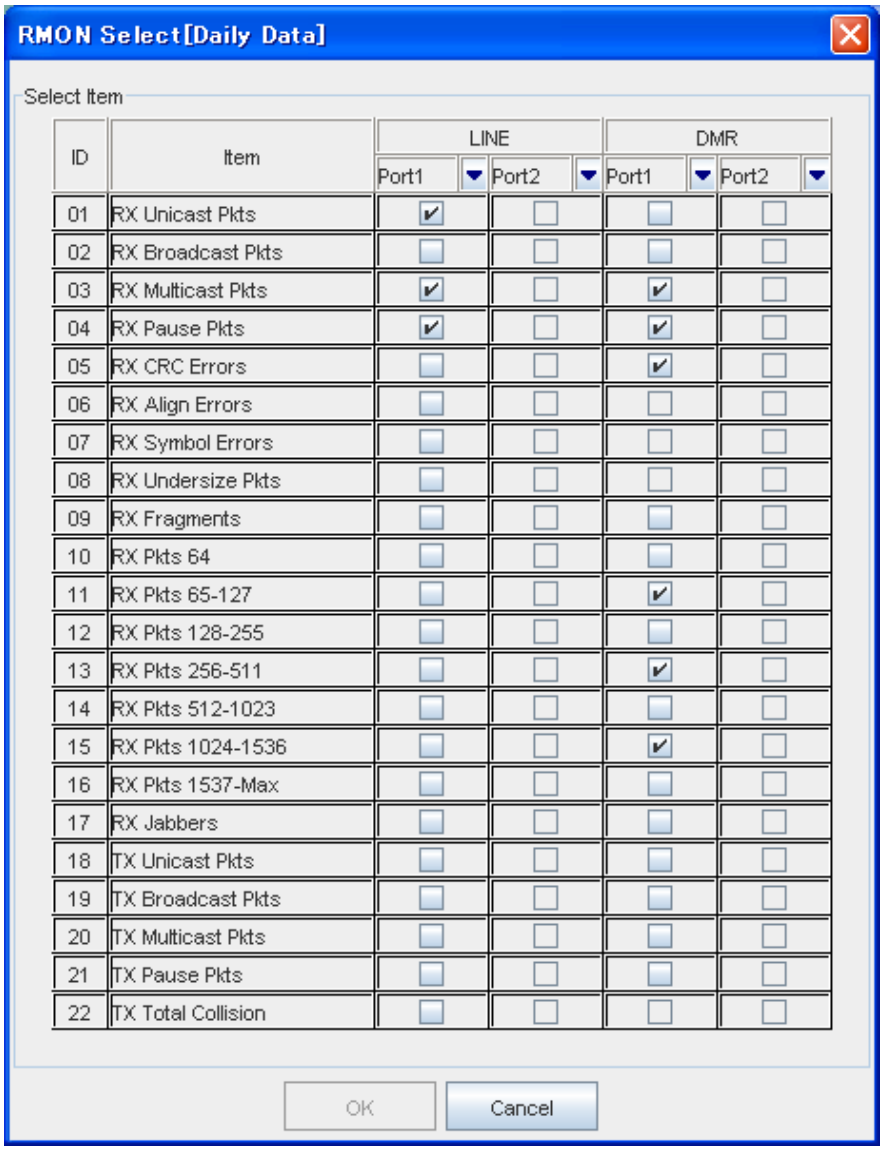


LAN INTFC RMON [Daily] window

2. 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.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:

Go to **Select → Select** menu.



LAN INTFC RMON [Daily] Select window

You can select/deselect 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 items can be carried out for individual Port.

2.22 Event Log

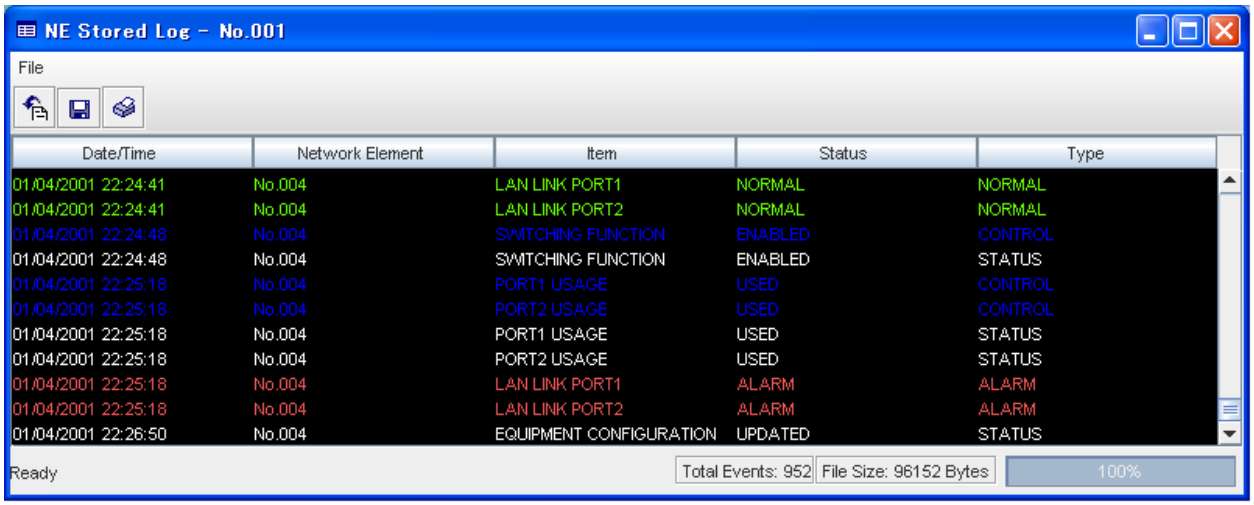
The **Event Log** window displays the date/time when the event data was received, item, and status.

2.22.1 Event Log monitor

1. Click **[Event 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 Event Log data will appear on the screen. Wait until the PNMT finishes the uploading of the data. The progress window will automatically close once the uploading is completed.
3. The **Event Log View** will be displayed. The event log is presented in a table form showing the date of the event, the item that triggered the event and the status change.
4. Sorting is possible for every column in the **Event Log** window.
5. The date shown in the **Event Log** window will be in the format of the OS.
6. The data can be refreshed by clicking on the upload (refresh) icon.

WARNING!!!

While data is being updated, do not remove the USB cable connecting the IDU with the PC.



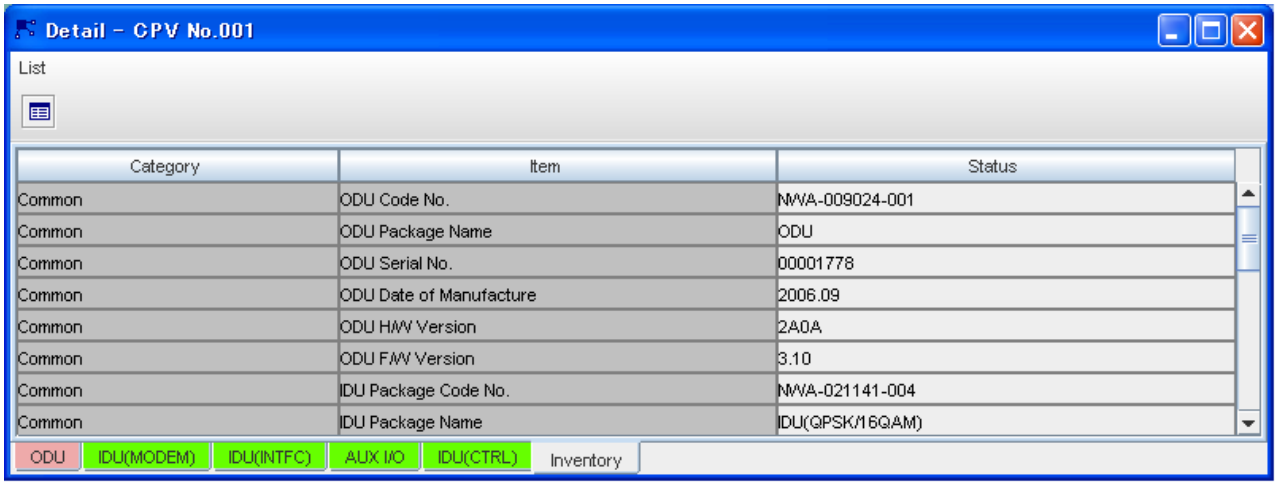
2.23 Inventory Tab

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

2.23.1 Inventory Monitor

To display the equipment version:

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



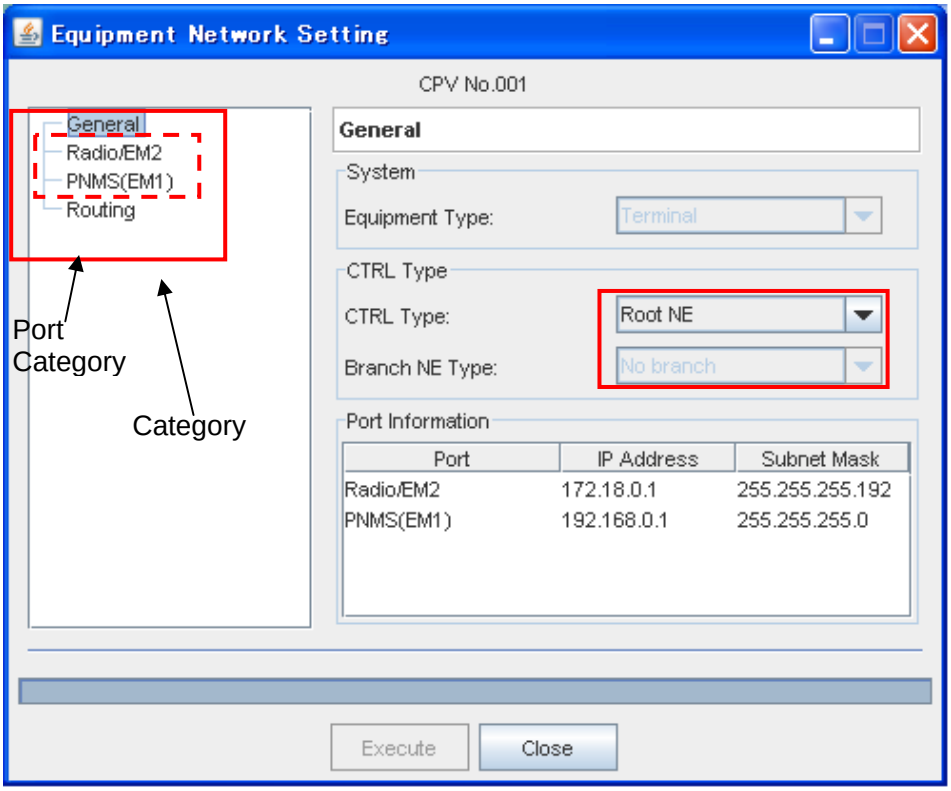
Appendix A: Equipment Network Settings

In *Equipment Network Setting*, a variety of items can be set individually for each NE. Depending on NE, CTRL Type can also be selected (*CTRL* or *Branch NE*).

CTRL Type (General)		Category	Input Item
CTRL Type	**Branch NE Type**		
Root NE	Not selectable	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio/EM2	IP Address
			Subnet Mask
		PNMS (EM1)	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
Root NE (Bridge)	Not selectable	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio/EM2/EM1	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
Branch NE	No Branch (Not used)	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio/EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
	2 Branch	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio	IP Address
			Subnet Mask
		EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
	3 Branch	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio	IP Address
			Subnet Mask
		EM1	IP Address
			Subnet Mask
		EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
Normal NE	Not selectable	General	Equipment Type
			CTRL Type
			Branch NE Type
		Radio/EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table

Note: Here **EM1 / EM2** indicate IDUs front interface **NMS/ NE** ports respectively.

1. In *Category* → **General** and select **CTRL Type (CTRL Type** and **Branch NE Type**)



The NE will appear as follows according to configuration.

- Root NE

  The nearest NE to PNMS configure as Root NE

- Root NE(Bridge)

  The nearest NE to PNMS configure as Root NE(Bridge)
  (One IP Address is assigned to Root NE(Bridge), and Subnet is not divided.)

- Branch NE (No Branch)

  Not used

- Branch NE (2 Branch)

  Subnet diverges in two ways

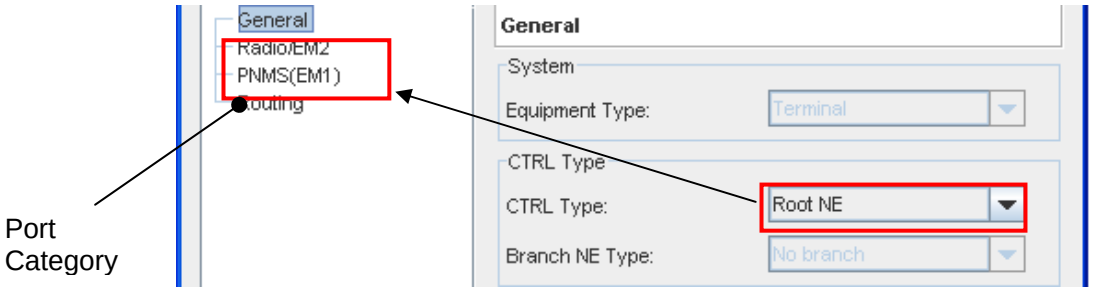
- Branch NE (3 Branch)

  Subnet diverges in three ways

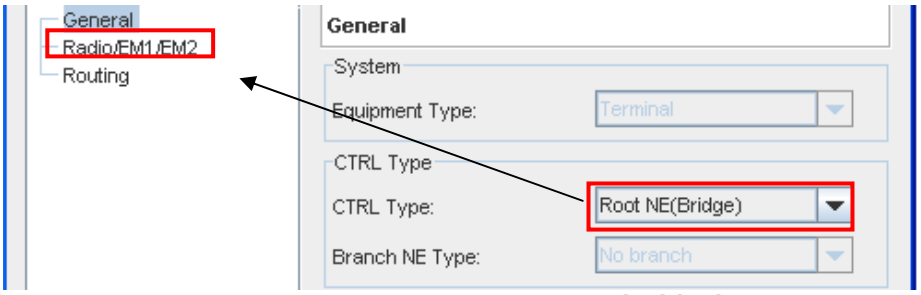
- Normal NE

  All other NEs (except the above-mentioned) are simply referred to as ***Normal* NEs**.

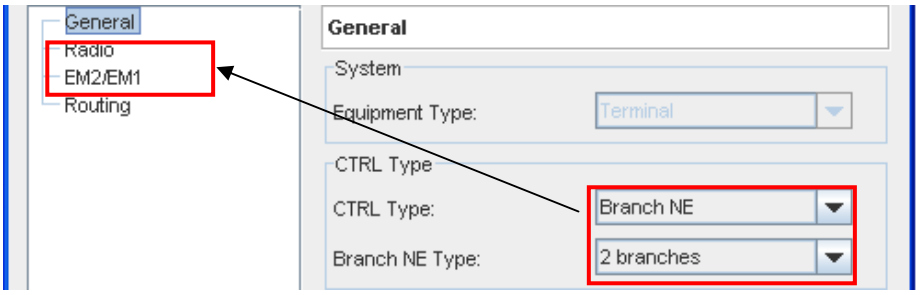
2. The **Port Category** item changes according to **CTRL Type** (**CTRL Type** and **Branch NE Type**).



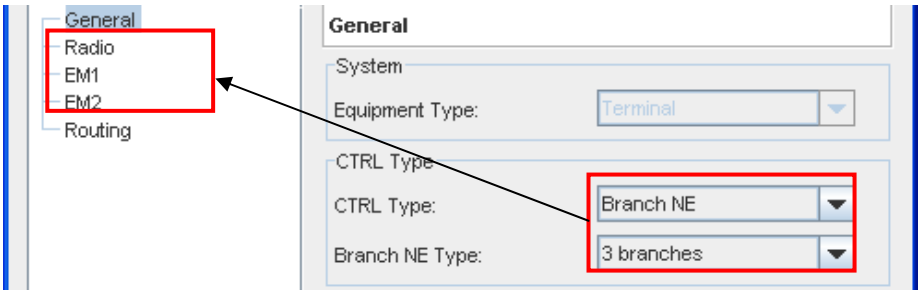
CTRL Type = Root NE



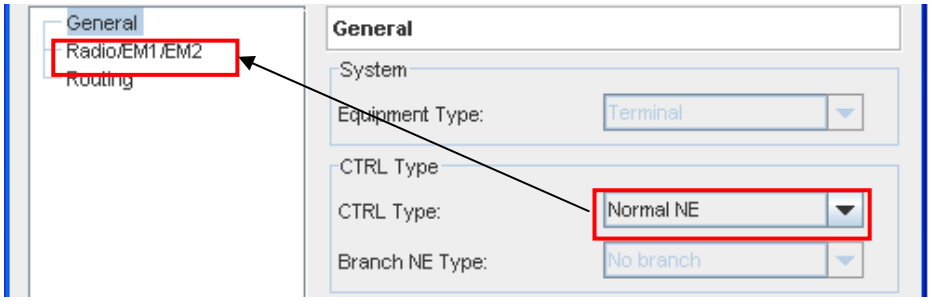
CTRL Type = Root NE (Bridge)



CTRL Type = Branch NE or Branch NE Type = 2 branches



CTRL Type = Branch NE or Branch NE Type = 3 branches



CTRL Type = Normal NE

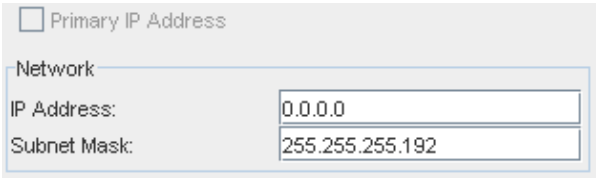
3. Set and select **Port category** and **Routing**. The right hand screen will change according to the selected item in **Category**.

- Primary IP Address

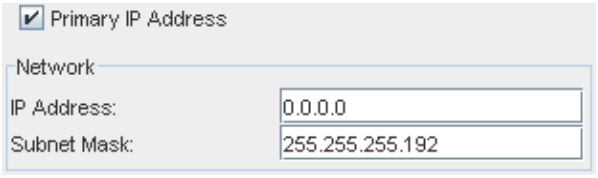
  PNMS identify a NE with using the IP address in NE. The check can be applied only to 1**port category** of several **Port categories** that exists in **CTRL Type** when **Branch NE** is selected.

- IP Address & Subnet Mask

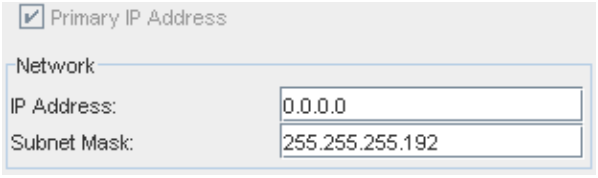
  The following items are set to each Port



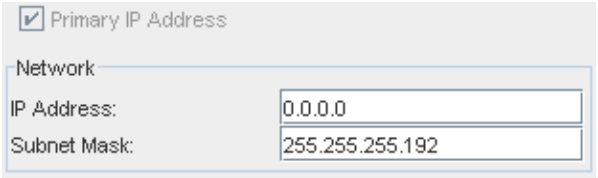
PNMS (E1)



Radio or EM1 or EM2 or EM1/EM2



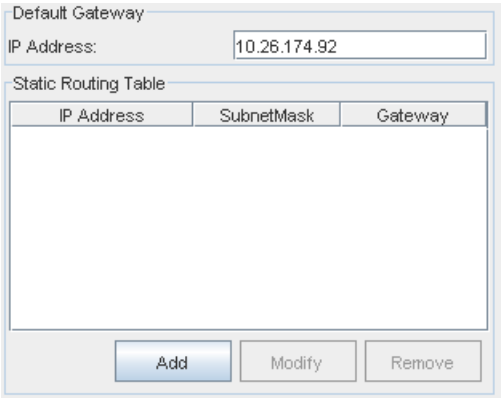
Radio/EM2



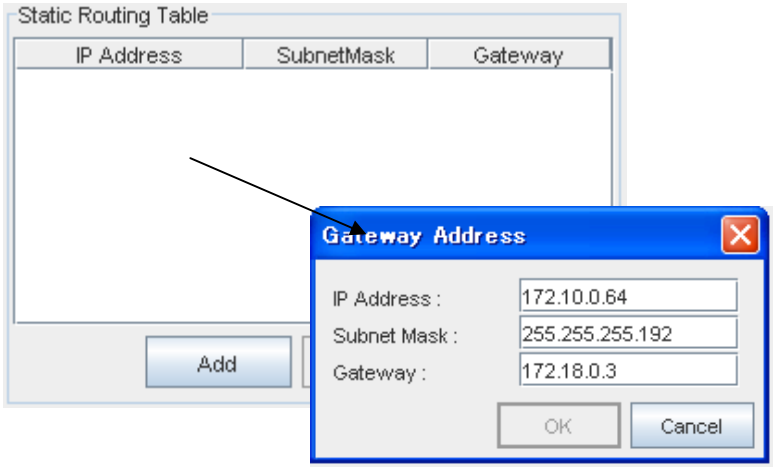
Radio/EM1/EM2

4. Select and set **Routing**.

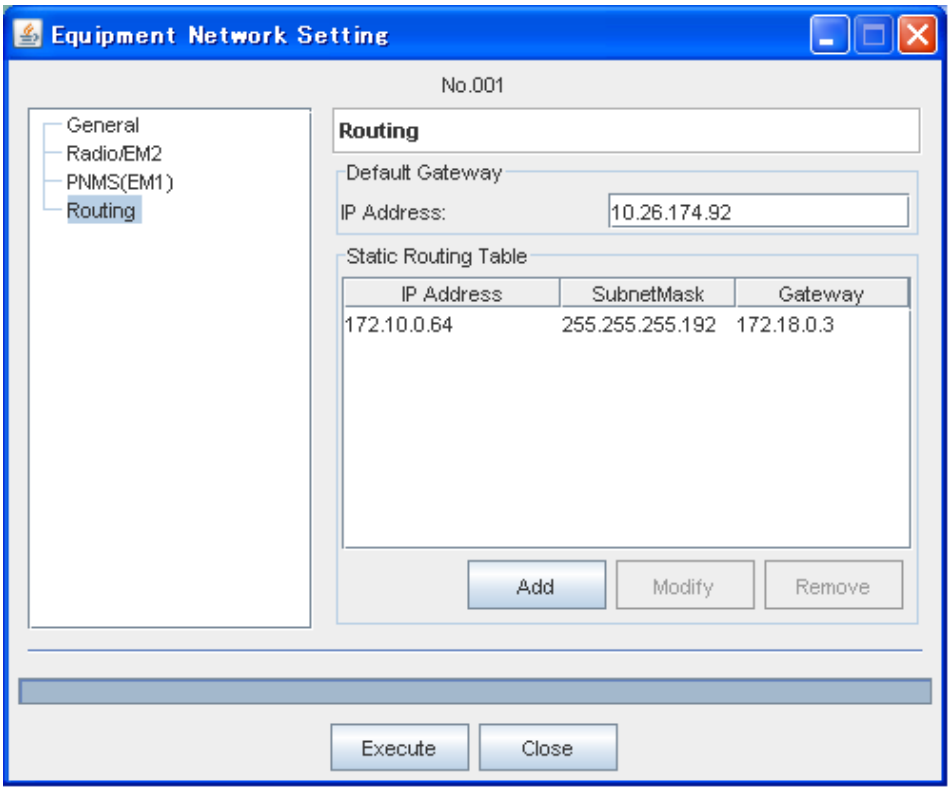
4-1 If there is not subnet in the network, **Static Routing table** will not show any entries.



4-2 In case of several subnet in the Network click **[Add]** to entry the required value in **Static Routing Table**



5. Click **[OK]** button to activate the address setting.



[Modify] is clicked to correct the registered value in **Static Routing table.**

[Remove] is clicked to delete the registered value in **Static Routing table.**

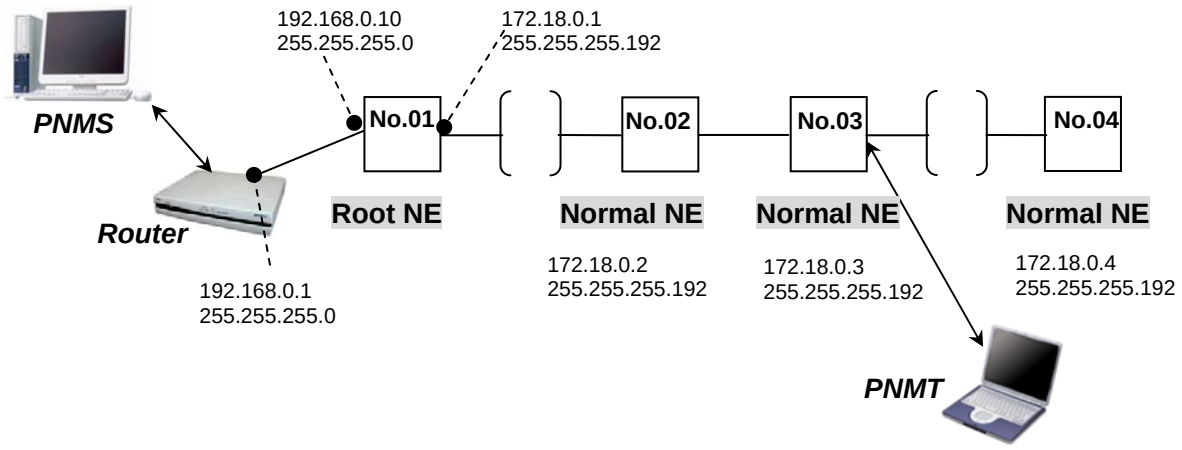
6. Click **[Execute]** button to activate the Equipment Networking setting.

NOTE:

When configuring Equipment Network Setting, communication will be disrupted when the Control module reinitializes to the new system configuration. This WILL NOT affect the wireless link. During this time PNMT connection to the NE will be disrupted but will automatically be restored after the Control module resets.

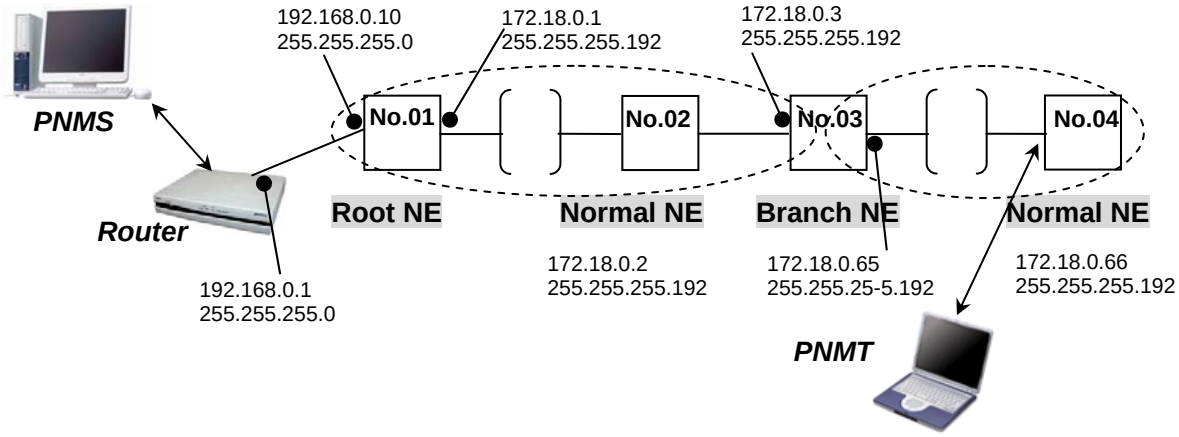
< Sample Network Configuration >

1. The Network Configuration when subnet is connected.



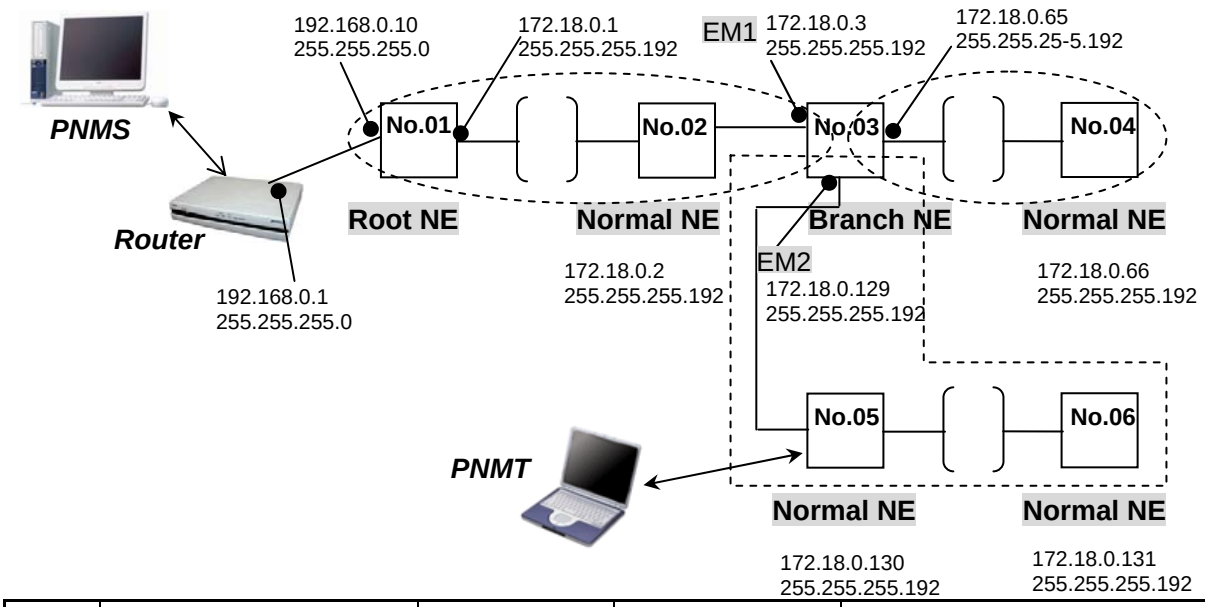
NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS (EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	-
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.03	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.4
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-

2. The Network configuration in case of several subnets
(**Branch NE Type** = **2 Branches**)



NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS (EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	IP Address 172.18.0.64 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.03	Branch NE	2 Branches	Radio	IP Address	172.18.0.65
				Subnet Mask	255.255.255.192
			EM1/EM2	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.66
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.65
				Static Routing Table	-

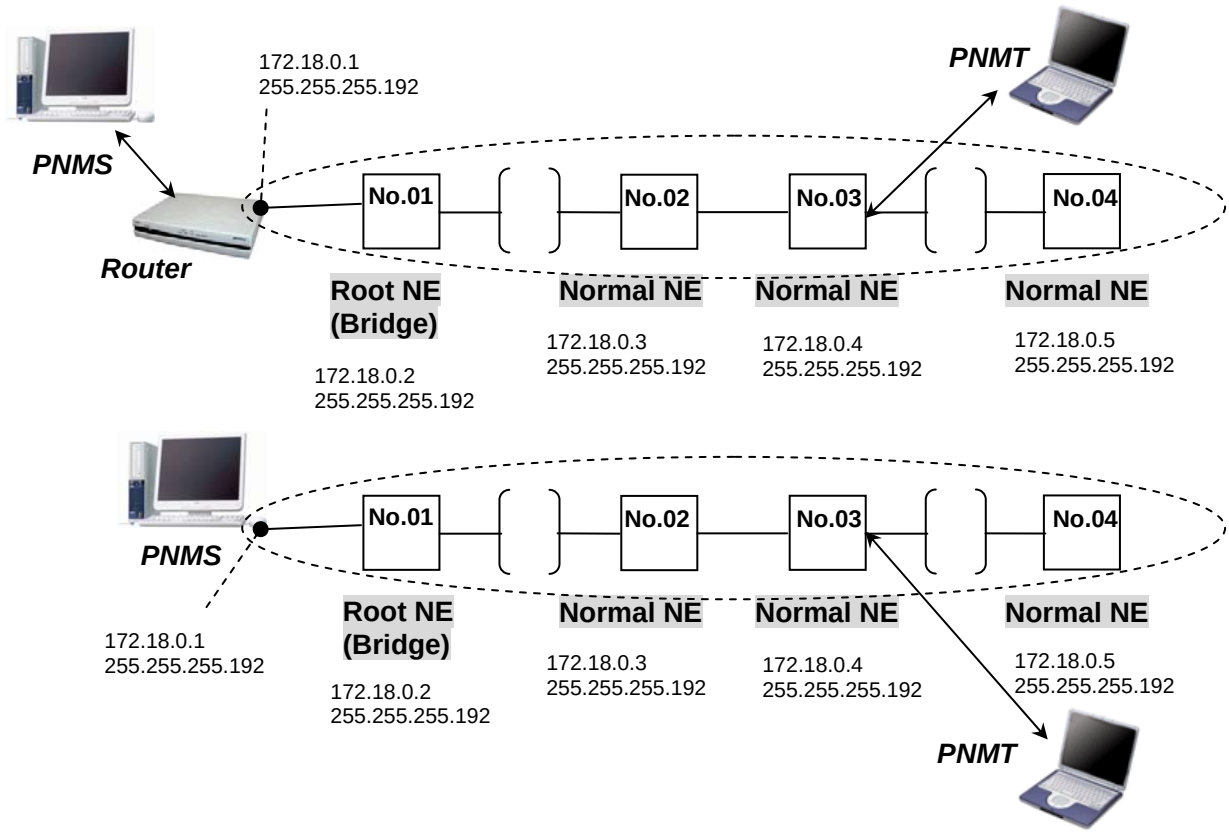
3. The Network configuration in case of several subnets
(**Branch NE Type** = **3 Branches**)



NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS (EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	IP Address 172.18.0.64 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
					IP Address 172.18.0.128 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.03	Branch NE	3 Branches	Radio	IP Address	172.18.0.65
				Subnet Mask	255.255.255.192
			EM1	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			EM2	IP Address	172.18.0.129
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.66
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.65
				Static Routing Table	-

NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.05	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.130
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.129
				Static Routing Table	-
No.06	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.131
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0. 129
				Static Routing Table	-

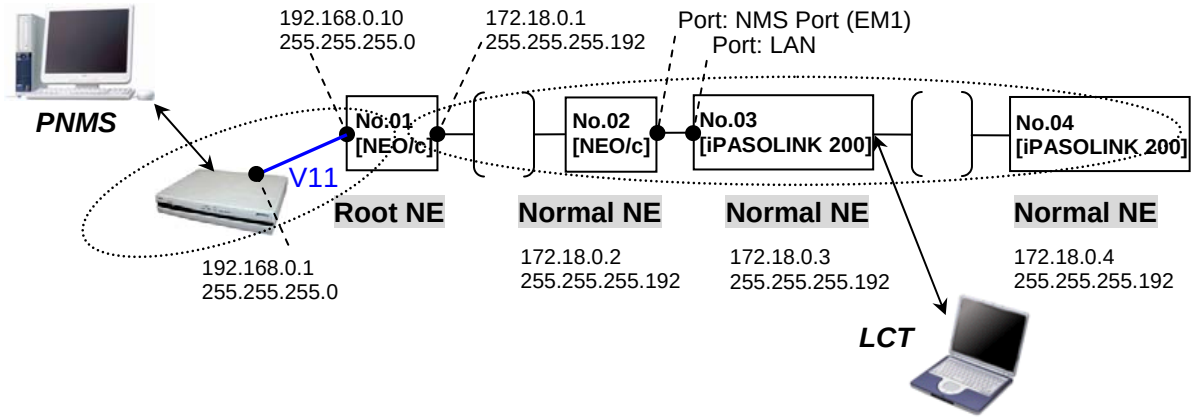
4. The Network Configuration when subnet is connected.
(**CTRL Type** = **Root NE(Bridge)**)



NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE (Bridge)	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.03	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.4
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.5
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-

5. Using AutoDiscovery on NEO/c & iPASOLINK 200 Mixed Network.

Ether EM1 or EM2 of boundary equipment with NEO/c / iPASOLINK 200 can be set. NEO/c and iPASOLINK 200 are connected with each other through LAN.



NE	TYPE	General (Category)		Category	Item Name		Input data
		CTRL Type	Branch NE Type				
No.01	NEO/c	Root NE	Not selectable	Radio/EM1/EM2	IP Address		172.18.0.1
					Subnet Mask		255.255.255.192
					LLDP	NE Port(EM2)	Disable
						NMS Port(EM1)	Disable
				PNMS (V11)	IP Address		192.168.0.10
					Subnet Mask		255.255.255.0
					Speed		19200
				Routing	Default Gateway		192.168.0.1
					Static Routing Table		-
No.02	NEO/c	Normal NE	Not selectable	Radio/EM1/EM2	IP Address		172.18.0.2
					Subnet Mask		255.255.255.192
					LLDP	NE Port(EM2)	Disable
						NMS Port(EM1)	Enable
				Routing	Default Gateway		172.18.0.1
					Static Routing Table		-
No.03	iPASOLINK 200	Normal NE	Not selectable	General Setting	IP Address		172.18.0.3
					Subnet Mask		255.255.255.192
					Default Gateway		172.18.0.1
				Routing Setting	Static Routing Table		-
No.04	iPASOLINK 200	Normal NE	Not selectable	General Setting	IP Address		172.18.0.4
					Subnet Mask		255.255.255.192
					Default Gateway		172.18.0.1
				Routing Setting	Static Routing Table		-