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NodeB LMT User Guide

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NodeB LMT User Guide

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Notice

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Summary of Updates

This section provides the update history of this manual and introduces the contents of subsequent updates.

Update History

This manual is updated for a major product version to maintain consistency with system hardware or software versions and to incorporate customer suggestions.

Manual Version	Notes
T2-031640-20051230-C-1.60	Initial field trial release

About This Manual

Release Notes

The product version that corresponds to the manual is WCDMA NodeB V100R006.

Organization

The manual describes routine maintenance of WCDMA NodeB.

There are fourteen chapters and one appendix in the manual.

Chapter 1 About This Manual describes general information about this manual.

Chapter 2 Overview describes the local maintenance terminal (LMT) system and its elements.

Chapter 3 Installing LMT Application describes the installation of LMT software.

Chapter 4 Getting Started with LMT describes how to log into the NodeB through the LMT.

Chapter 5 Alarm Management describes how to manage the alarms on the NodeB though the LMT.

Chapter 6 Managing Files describes how to upload and browse files.

Chapter 7 Managing NodeB and Boards describes operations on the NodeB and the boards on the NodeB O&M system.

Chapter 8 Tracing NodeB Iub Interface Signaling describes how to create tracing tasks and how to browse traced messages.

Chapter 9 Monitoring NodeB Performance and State in Real Time describes how to monitor the NodeB performance and state in real time.

Chapter 10 Monitoring External Environment of NodeB describes how to monitor the NodeB external environment.

Chapter 11 141 Test describes the NodeB RF performance tests.

Chapter 12 Managing NodeB Clock describes routine maintenance of the clock management system.

Chapter 13 Managing NodeB Cells describes operations of the NodeB cell management system.

Chapter 14 NodeB Software Update and Data Configuration File Transfer describes the NodeB software upgrade and data configuration file transfer.

Appendix A Acronyms and Abbreviations lists all acronyms and abbreviations in this manual with their full names.

Intended Audience

The manual is intended for the following readers:

- Maintenance engineers and technicians

Conventions

This document uses the following conventions:

I. General conventions

Convention	Description
Arial	Normal paragraphs are in Arial.
Arial Narrow	Warnings, cautions, notes and tips are in Arial Narrow.

II. Symbols

Eye-catching symbols are also used in this document to highlight the points worthy of special attention during the operation. They are defined as follows:

⚠ **Caution**, **Warning**, **Danger**: Means reader be extremely careful during the operation.

🕮 **Note**, **Comment**, **Tip**, **Knowhow**, **Thought**: Means a complementary description.

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Chapter 1 About This Manual

1.1 Purpose of This Manual

This manual describes

- Installation of the NodeB local maintenance terminal (LMT)
- Functions and interfaces of each element in LMT
- Operation guide to NodeB routine operation and maintenance

The NodeB routine maintenance is mainly conducted through the iManager M2000 server. For O&M guide to the M2000 server, see *iManager M2000 Mobile Element Management System Operation Manual.*

1.2 Intended Audience

This manual is intended for those who operate and maintain the NodeB on the LMT system. They must have basic operation skills of MS Windows operating system and understandings of the NodeB.

1.3 Architecture of This Manual

There are 14 chapters and an appendix in this manual.

- Chapter 1: describes general information about this manual.
- Chapter 2: describes the local maintenance terminal (LMT) system and its elements.
- Chapter 3: describes the installation of LMT software.
- Chapter 4: describes how to log into the NodeB through the LMT.
- Chapter 5: describes how to manage the alarms on the NodeB though the LMT.
- Chapter 6: describes how to upload and browse files.
- Chapter 7: describes operations on the NodeB and the boards on the NodeB O&M system.
- Chapter 8: describes how to create tracing tasks and how to browse traced messages.
- Chapter 9: describes how to monitor the NodeB performance and state in real time.
- Chapter 10: describes how to monitor the NodeB external environment.
- Chapter 11: describes the NodeB RF performance tests.
- Chapter 12: describes routine maintenance of the clock management system.
- Chapter 13: describes operations of the NodeB cell management system.

- Chapter 14: describes the NodeB software upgrade and data configuration file transfer.

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Chapter 2 Overview

2.1 About This Chapter

This chapter describes the local maintenance terminal (LMT) system and its elements, including:

- Functions
- Configuration requirements
- Compositions
- Main interfaces

2.2 Introduction to LMT

2.2.1 Functions of LMT

The LMT of the NodeB series provides graphic user interface (GUI) for

- NodeB test
- Local maintenance
- Troubleshooting

2.2.2 LMT Configuration Requirements

The computer used to install the LMT software must meet the following requirements:

- Software
- Hardware
- Communications

I. Hardware Configuration Requirements

Table 2-1 shows the hardware configuration requirements to be met for the computer used to install the LMT software.

Table 2-1 Hardware configuration list

Item	Quantity	Recommended configuration	Minimum configuration
CPU	1	2.4 G	400 M
RAM	1	512 M	64 M

Item	Quantity	Recommended configuration	Minimum configuration
Hard disk	1	40 G	1 G (the minimum available space)
Display adapter resolution	--	1024 x 768	800 x 600
CD drive	1	--	--
Network adapter	1	10&100 M	10&100 M
Others	1 x 3	Modem, sound card and sound box	--

II. Software Configuration Requirements

Table 2-2 shows the software configuration requirements to be met for the computer used to install the LMT software.

Table 2-2 Software configuration list

Item	Standard configuration
Operating system	Windows 2000 Professional (SP4) or above of English
Default language of operating system	Western Europe and United States
Web browser	Microsoft Internet Explorer 5.5 or above

Note:

It is recommended that the LMT software be installed in a standard operating system. Otherwise, they might not be compatible.

III. Communications Requirements

The computer supports the TCP/IP protocol.

2.3 LMT System Composition

2.3.1 Overview

The LMT communicates with the NodeB through LAN or WAN. You can maintain a NodeB through the LMT computer.

The NodeB LMT consists of

- NodeB O&M system
- NodeB alarm management system
- TraceViewer

2.3.2 NodeB O&M System

I. Functions

The O&M system provides MML client and GUI access to maintain NodeB, including:

- Operating MML client: runs a single command on the platform of the MML Client.
- Tracing management: manages the tracing messages of Iub interface.
- Software management: downloads and backs up configuration files, and upgrades software.
- Realtime state monitoring: including CPU/DSP occupancy, board or cell service resource query, RTWP measurement, and clock test.
- Test management: supports 141 tests.
- Equipment maintenance: controls board reset and block/unblock, and helps retrieve board data.
- Clock maintenance: provides routine maintenance for the NodeB timing.
- Cell management: retrieves and modifies NodeB cells data, and blocks or unblocks NodeB cells.

II. Interface

The interface of the NodeB O&M system consists of:

- System menu
- Toolbar
- Navigation tree pane
- Object pane
- Output pane
- Status bar
- MML client

Figure 2-1 shows the **NodeB O&M System** window.

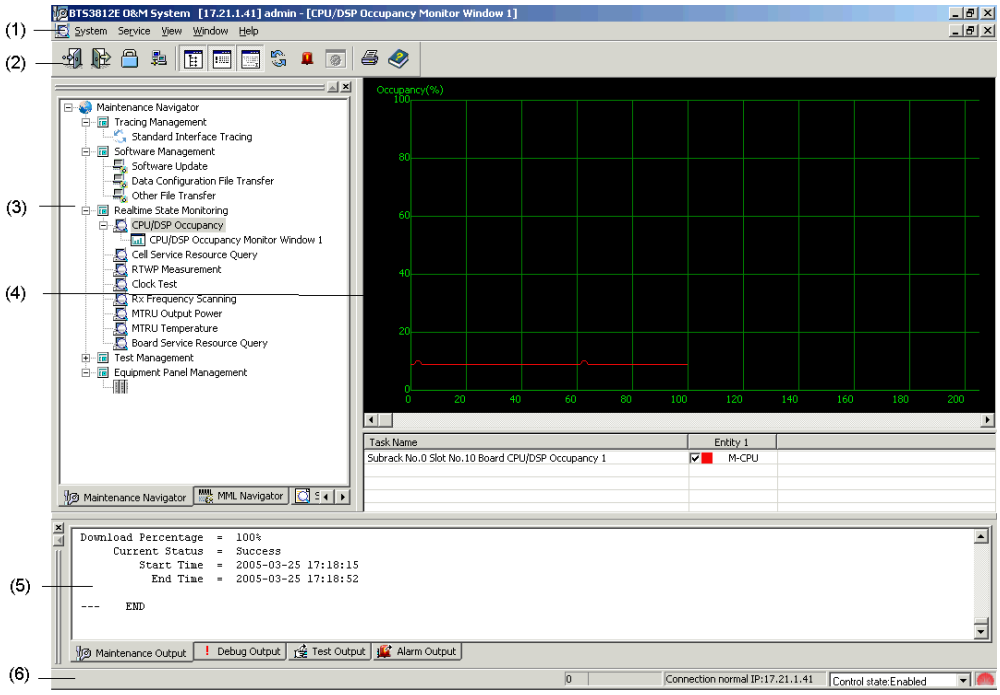


Figure 2-1 NodeB O&M System window

Table 2-3 describes the fields of the **NodeB O&M System** window.

Table 2-3 Filed description of O&M System window

No.	Field	Description
1	Menu bar	The menu bar includes **System**, **Service**, **View**, **Window** and **Help** menus. The **System** and **Service** menus provide access to logging into the operating system. The **View**, **Window** and **Help** menus are similar to those in other commonly used application programs.
2	Toolbar	The toolbar provides shortcut icons including: • **Re-login** • **Exit** • **Lock System** • **Office Management** • **Show/Hide other window**

No.	Field	Description
3	Navigation tree pane	There are three tabs at the bottom of the pane, including: • **Maintenance Navigator**: The navigator provides important routine operations through a GUI interface. • **MML Navigator**: The navigator provides all MML commands. • **Search**. In this tab, you can retrieve MML commands by command name or by command word. The system lists all the commands matching your input automatically to make the retrieval faster.
4	Object pane	This pane provides details about the object. You can maintain the NodeB through this pane. If you select **Maintenance Navigator** in the navigation tree pane, the pane contains an upper curve graph and a lower list of description. If you select **MML Navigator**, the pane contains the MML Client.
5	Output pane	The pane records detailed information of current operations and system feedback. At the bottom of the pane, there are four tabs as follows: • **Maintenance Output**: It displays results of operations and auto reported information. • **Debug Output**: It displays the contents in **Maintenance Output** in binary. • **Test Output**: It displays the result of 141 test. • **Alarm output**: It displays alarms reported by the NodeB.
6	Status bar	The bar is at the bottom of the interface. It displays • Connected office • IP address of the office • Connection status

III. Online Help

The NodeB O&M system provides two kinds of online help:

- NodeB O&M system help
- MML help

Table 2-4 shows the main contents and starting modes of these helps.

Table 2-4 Online helps of NodeB O&M system

Name	Main contents	Starting mode
NodeB O&M system help	It provides the following information about the NodeB O&M system: • Field meaning of the dialog box • Description of and operation guide to each O&M function • Detailed information about the board	There are three starting modes in the NodeB O&M window, • Press **F1** or select **Help** -> **Help topics** to display the **NodeB O&M System Help** window. • Click to display the help information. • Click **Help** in a dialog box to show the help information.
MML help	It provides the following information about each MML command: • Function • Note • Parameter • Example	1) Execute a command in the MML client of the NodeB O&M system. 2) The **Help** window displays information about this command.

Note:

This manual does not present detailed description of the MML commands involved. For more information about the MML commands, see *MML Command Help*.

2.3.3 NodeB Alarm Management System

I. Functions

The NodeB alarm management system serves as a major tool for routine alarm management. With this system, you can:

- Browse alarm information, including fault alarm information and event alarm information.
- Query alarm information, including active alarms, alarm log, alarm configuration, and alarm details.
- Maintain alarm information by modifying or restoring alarm configuration.
- Set attributes of fault alarm notification, including sound duration, fixed-line phone number and mobile phone number.
- Print and save alarm records, including browsed and reported alarm records.

For details, see Chapter 5 “Alarm Management”.

II. Interface

The interface of the NodeB alarm management system consists of

- System menu
- Toolbar
- Fault alarm browse window
- Event alarm browse window
- Status bar

Figure 2-2 shows the **BTS3812E Alarm Management System** window.

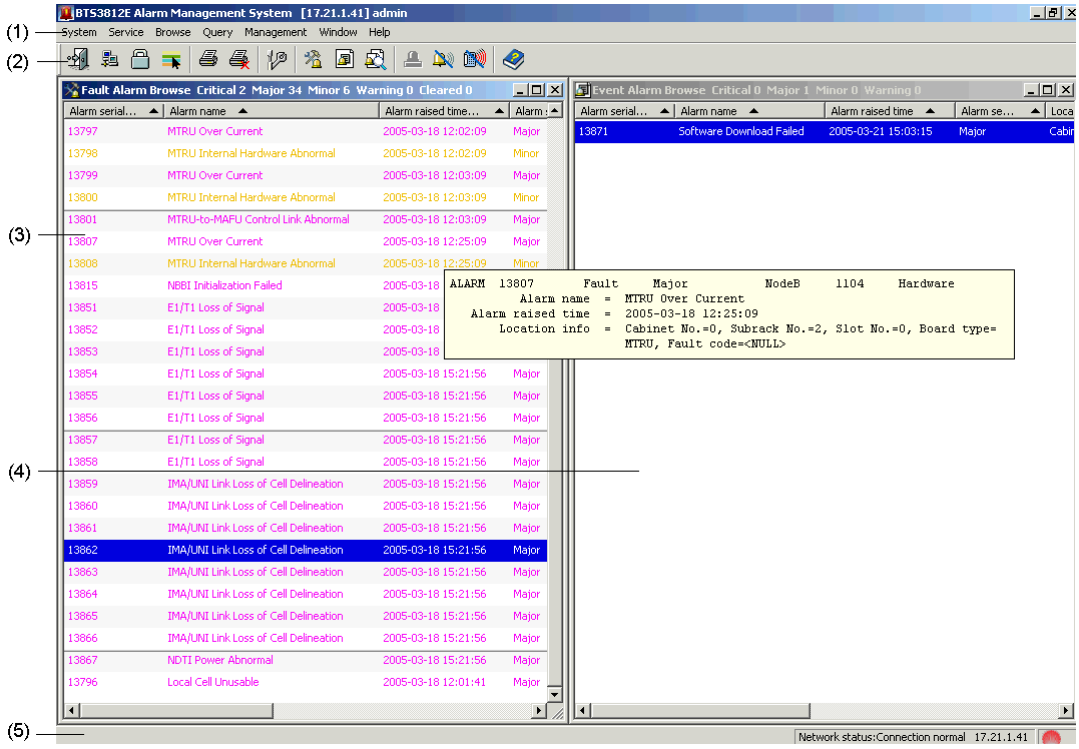


Figure 2-2 BTS3812E Alarm Management System window

Table 2-5 describes the elements of the **BTS3812E Alarm Management System** window.

Table 2-5 Elements of BTS3812E Alarm Management System window

No.	Field	Description
1	Menu bar	The menu bar provides access to most operations of the system.

No.	Field	Description
2	Toolbar	The toolbar provides shortcut icons for common operations, including • **Relogin** • **Office Management** • **Toggle Lock System** • **Display Color Setting** • **Fault Alarm Browse** • **Event Alarm Browse** • **Query Alarm Log**
3	Fault alarm browse window	The window displays the current fault alarm.
4	Event alarm browse window	The window displays the current event alarm.
5	Status bar	The bar is at the bottom of the interface. It displays • IP address of the connected office • Connection status • Messages between the system and the NodeB

III. Online Help

Table 2-6 shows the main contents and starting modes of the **NodeB Alarm Management System Help**.

Table 2-6 Online help of NodeB alarm management system

Name	Main contents	Starting mode
NodeB alarm management system help	It provides the following information about the NodeB alarm management system: • Field meaning of the dialog box • Description of and operation guide to each alarm management function	In the NodeB alarm management system window, • Press **F1** or select **Help -> Help topics** to display the **NodeB Alarm Management System Help.** • Click to display the **NodeB Alarm Management System Help.** • Click **Help** in a dialog box to display the help information.

2.3.4 TraceViewer

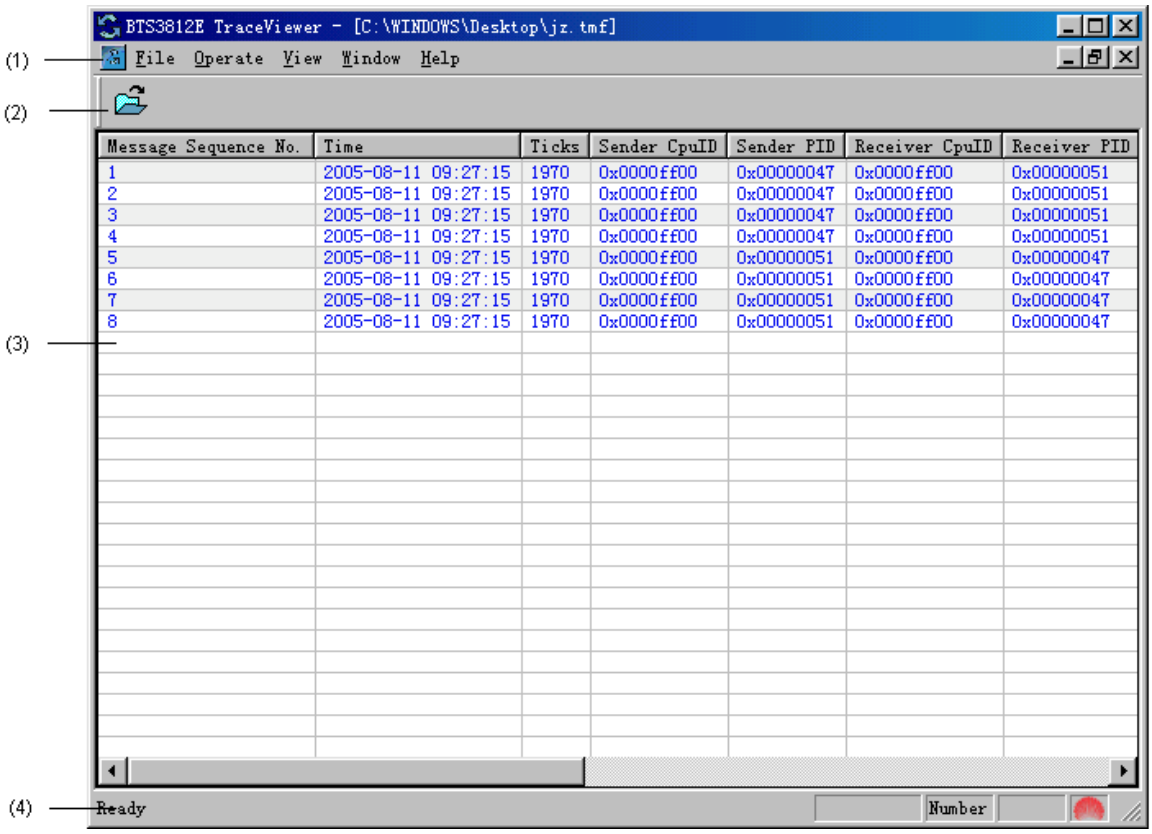
I. Function

The TraceViewer simulates the online environment and opens saved message files in the offline environment. It facilitates the browse of traced messages.

For details, see Chapter 8 “Viewing Traced Messages Offline”.

II. Interface

Figure 2-3 shows the **BTS3812E TraceViewer** window.



Message Sequence No.	Time	Ticks	Sender CpuID	Sender PID	Receiver CpuID	Receiver PID
1	2005-08-11 09:27:15	1970	0x0000ff00	0x00000047	0x0000ff00	0x00000051
2	2005-08-11 09:27:15	1970	0x0000ff00	0x00000047	0x0000ff00	0x00000051
3	2005-08-11 09:27:15	1970	0x0000ff00	0x00000047	0x0000ff00	0x00000051
4	2005-08-11 09:27:15	1970	0x0000ff00	0x00000047	0x0000ff00	0x00000051
5	2005-08-11 09:27:15	1970	0x0000ff00	0x00000051	0x0000ff00	0x00000047
6	2005-08-11 09:27:15	1970	0x0000ff00	0x00000051	0x0000ff00	0x00000047
7	2005-08-11 09:27:15	1970	0x0000ff00	0x00000051	0x0000ff00	0x00000047
8	2005-08-11 09:27:15	1970	0x0000ff00	0x00000051	0x0000ff00	0x00000047

Figure 2-3 BTS3812E TraceViewer window

Table 2-7 describes elements of the **BTS3812E TraceViewer** window.

Table 2-7 Elements of BTS3812E TraceViewer window

No.	Field	Description
1	Menu bar	Providing most of the functions of the TraceViewer.
2	Toolbar	Providing the **Open** shortcut icon.

3	Message browse pane	Displaying messages by tracing the Iub interface.
4	Status bar	Located at the bottom of the window, displaying • Connected office • IP address of the office • Network status

III. Online Help

Table 2-8 shows the main contents and starting mode of the **NodeB TraceViewer Help.**

Table 2-8 Online help of the NodeB TraceViewer

Name	Main contents	Starting mode
NodeB TraceViewer help	It describes the usage of each message browse function of the NodeB TraceViewer.	In the TraceViewer window, • Press **F1** or select **Help -> Help topics** to display the **NodeB TraceViewer Help.** • Click **Help** in a dialog box to display the help info-rmation.

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Chapter 3 Installing LMT Application

3.1 About This Chapter

This chapter describes

- Software installation preparation
- Installation process
- Confirmation after installation.

3.2 Installation Introduction

3.2.1 Preparing for Installation

Prepare as follows before installing the LMT software:

- Obtain the installation disk and instruction provided by Huawei.
- Obtain valid serial number of the LMT software.
- Log into the MS Windows 2000 or MS Windows XP operating system with the administrator authority.

3.2.2 Impact on System

Installing the LMT software shall have the following impact on the system:

- Creating a shortcut on the desktop
- Creating a program group of **Start** -> **Program** -> **Huawei Local Maintenance Terminal**. The **Huawei Local Maintenance Terminal** menu includes sub-menus of
  - **NodeB Operation & Maintenance System**
  - **Uninstall NodeB Operation & Maintenance System**
- Copying **NodeB LMT V1.5** to the selected directory of **NodeBV100R005ENG**

3.3 Installing LMT Software

Follow the steps below to install the NodeB LMT software.

Note:

To install the LMT software, there are three modes:

- Initial installation of LMT software
- Modify installation of LMT software
- Repair installation of LMT software

This manual adopts the initial installation mode to introduce the LMT software installation.

I. Starting Installation Program

Follow the steps below to start the installation program:

1) Insert the installation disk into the disk drive.
2) The installation program automatically runs.

Or you may follow the steps below:

1) Copy the installation software package into the hard disk.
2) Open the file folder of **disk1**.
3) Double-click **Setup.exe**.

Then the installation program is started.

II. Choosing Setup Language

Follow the steps below to choose the setup language:

1) Start the installation program. The **Choose Setup Language** dialog box opens up as shown in Figure 3-1.

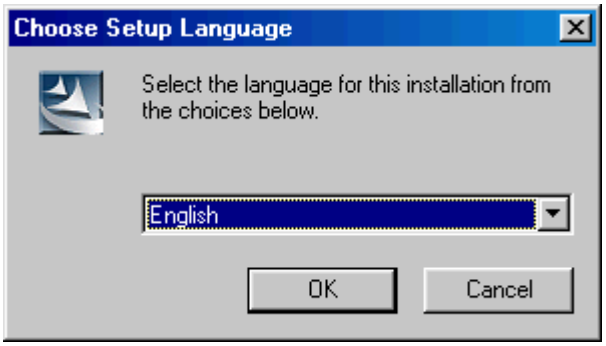

Figure 3-1 Choose Setup Language dialog box

2) Choose **English** in the list box and click **OK**.
3) Click **Next** in the **Welcome** dialog box after the installation program initialization completed.

Figure 3-2 shows the **Welcome** dialog box.

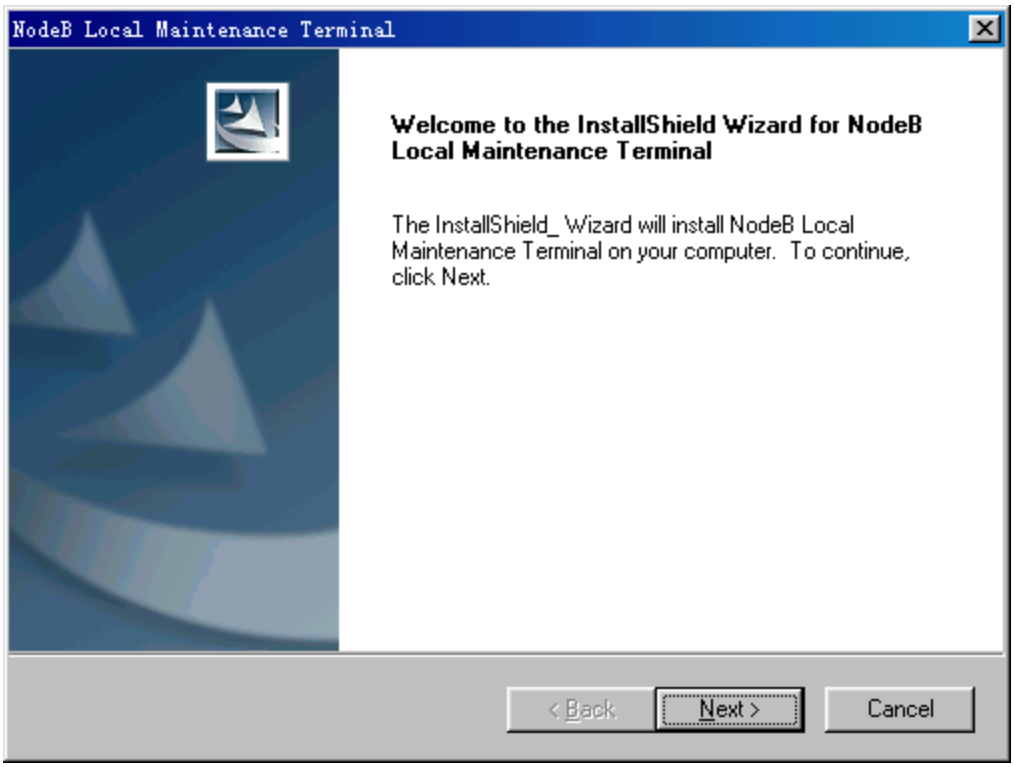

Figure 3-2 Welcome dialog box

Note:

- Click **Cancel** to display the quit installation interface. You may choose whether to quit or continue the installation.
- **Back** is not available in the first installation step. In later steps, **Back** is available to go back to the previous step.

III. Confirming License Agreement

To accept this agreement after reading it, click **Yes**. Otherwise, click **No** to quit the installation program.

Figure 3-3 shows the **License Agreement** dialog box.

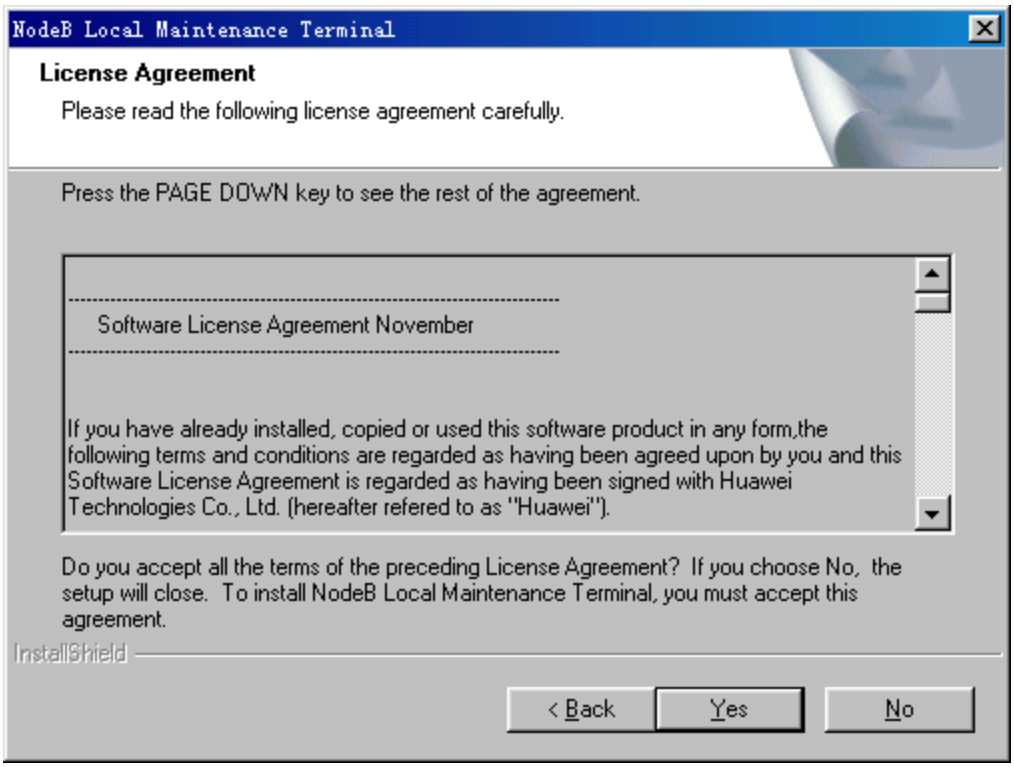

Figure 3-3 License Agreement dialog box

IV. LMT Software Installation Guide

Read the installation guide in the **Information** dialog box carefully and click **Next**.

Figure 3-4 shows the **Information** dialog box.

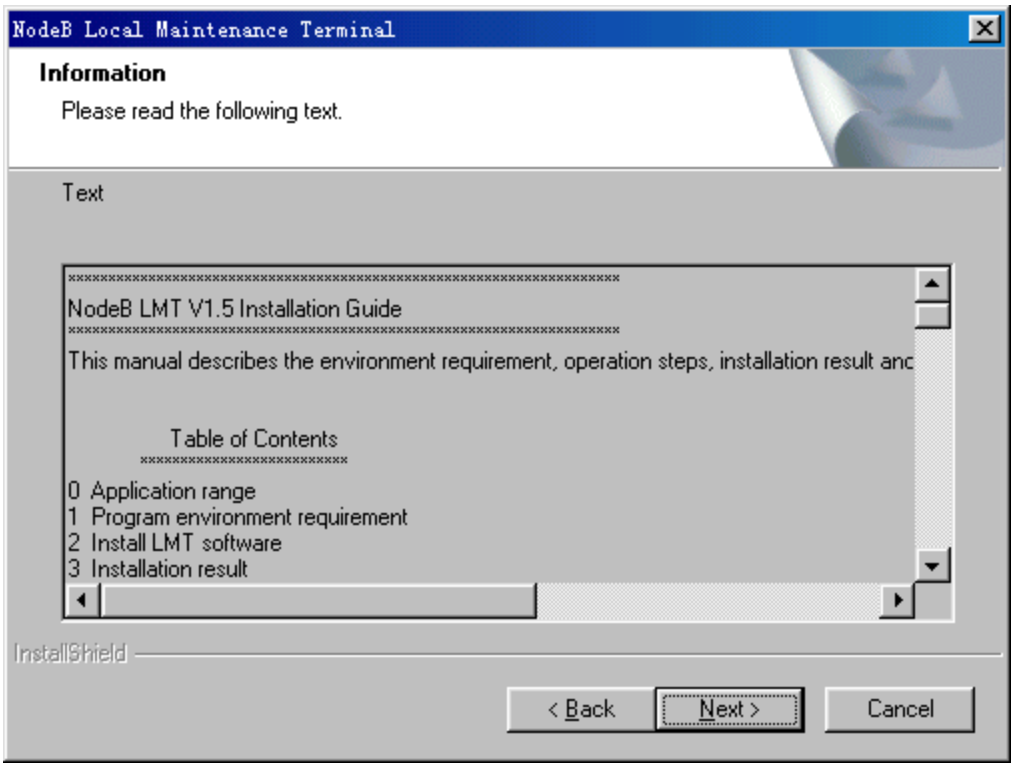

Figure 3-4 Information dialog box

V. Verifying Serial Number

Enter the customer information and valid serial number in the **Customer Information** dialog box, and then click **Next**.

Figure 3-5 shows the **Customer Information** dialog box.

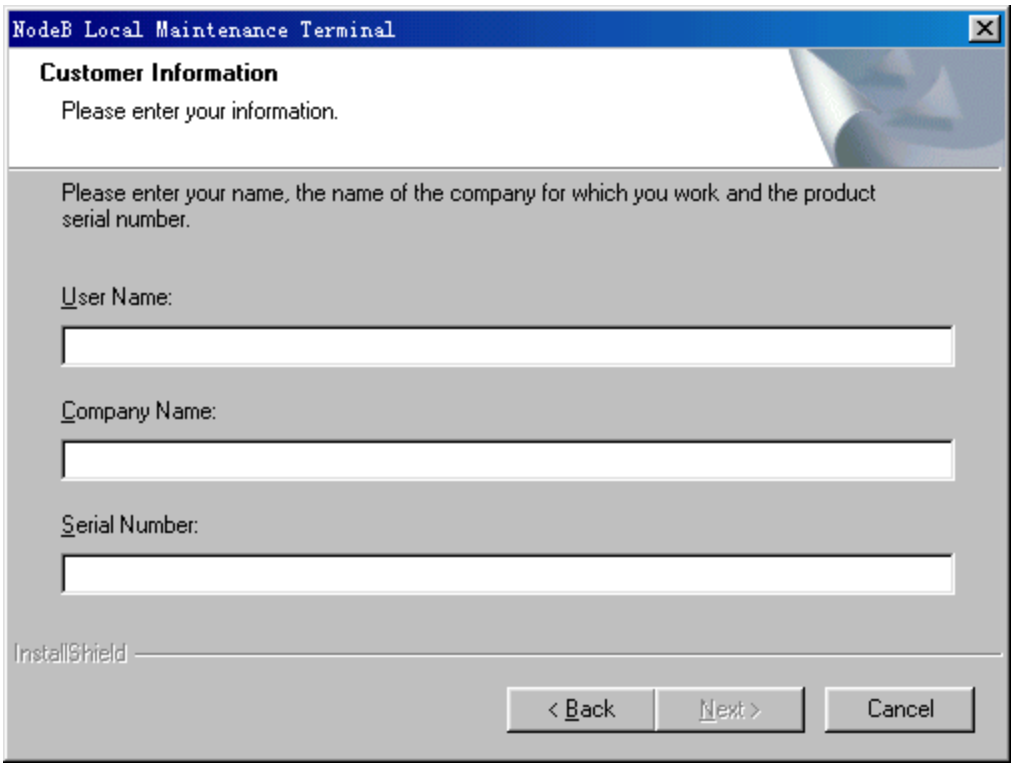

Figure 3-5 Customer Information dialog box

Note:

- The serial number is provided with the installation disk and contained in the **Serial. txt** file of the software package.
- **Next** is available only after you enter the user name, company name and serial number.
- Enter the valid serial number. Note that the serial number is case sensitive.
- If the serial number is invalid for three times, the installation program shall automatically quit from the present installation program.

VI. Choosing Destination Location

Click **Browse** to select the folder where **Setup** will install files. Or click **Next** to install files under **C:\HWLMT** by default.

Figure 3-6 shows the **Choose Destination Location** dialog box.

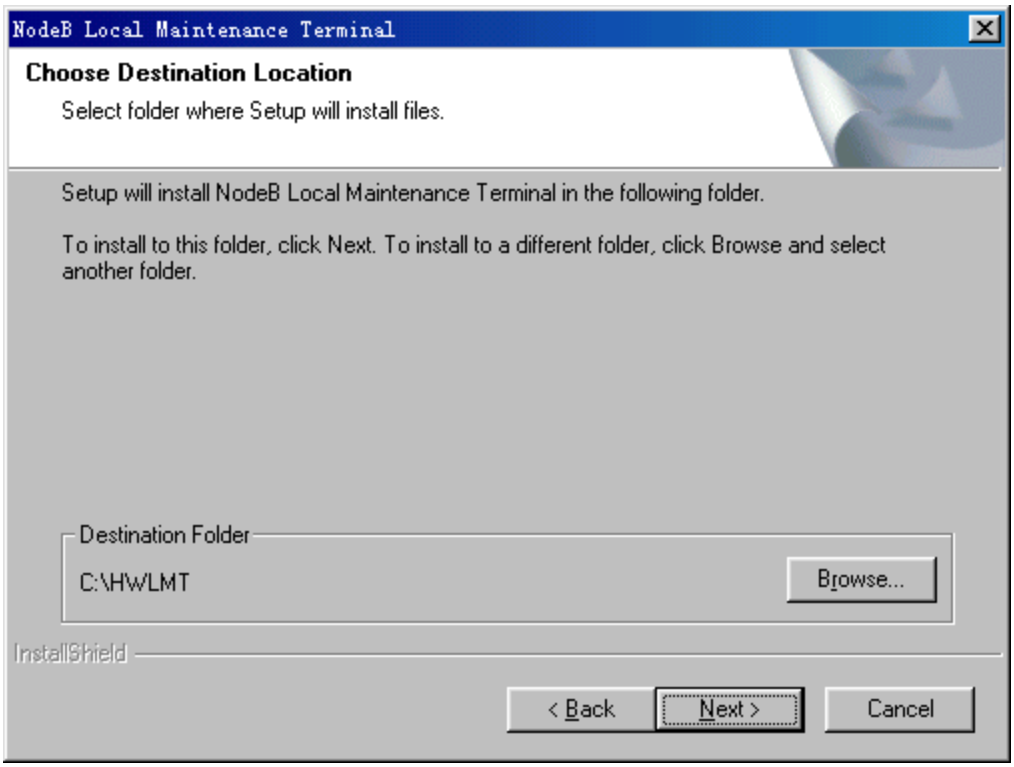

Figure 3-6 Choose Destination Location dialog box

VII. Selecting Setup Type

Figure 3-7 shows the **Setup Type** dialog box.

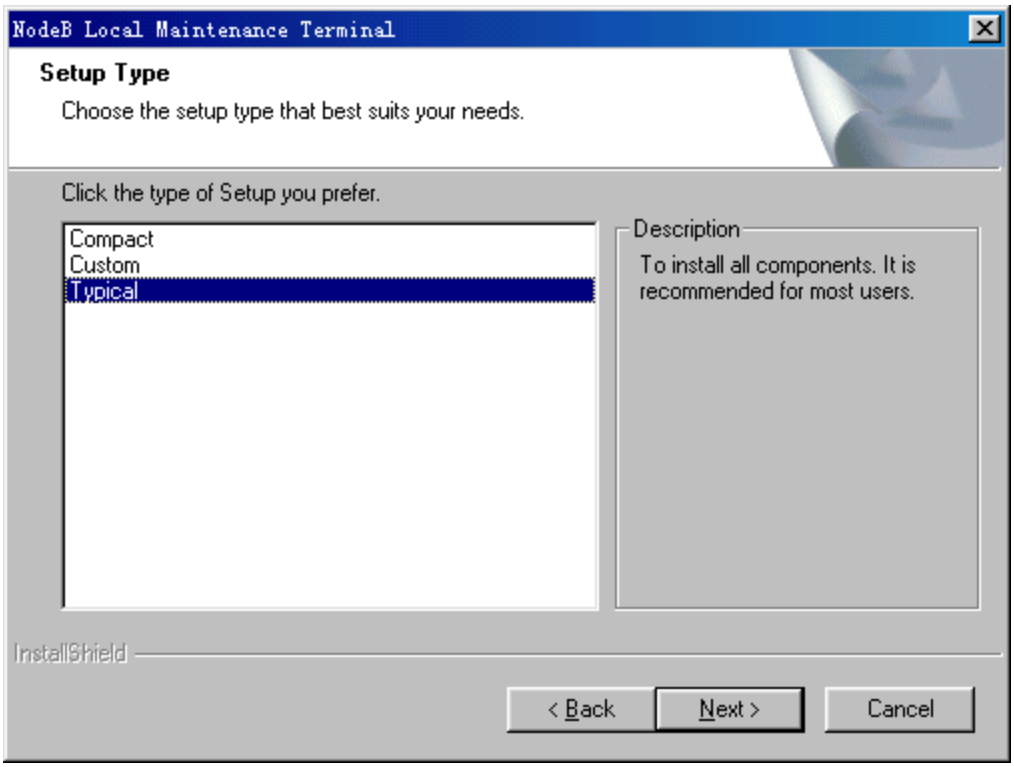

Figure 3-7 Setup Type dialog box

There are three setup types:

- Typical: The program installs all the components to maintain all the NodeB models and versions supported by the LMT software. Most users are recommended to install the software with this type.
- Compact: The program installs part of the components only to maintain the latest version of the NodeB supported by the LMT software of that model.
- Custom: the program installs the selected components. It is recommended for advanced users.

Select the needed setup type and then click **Next**. It is recommended for most users to select **Typical**.

If you select **Custom**,

1) Click **Next**.
2) Tick the needed components in **Select Components** dialog box as shown in Figure 3-8.

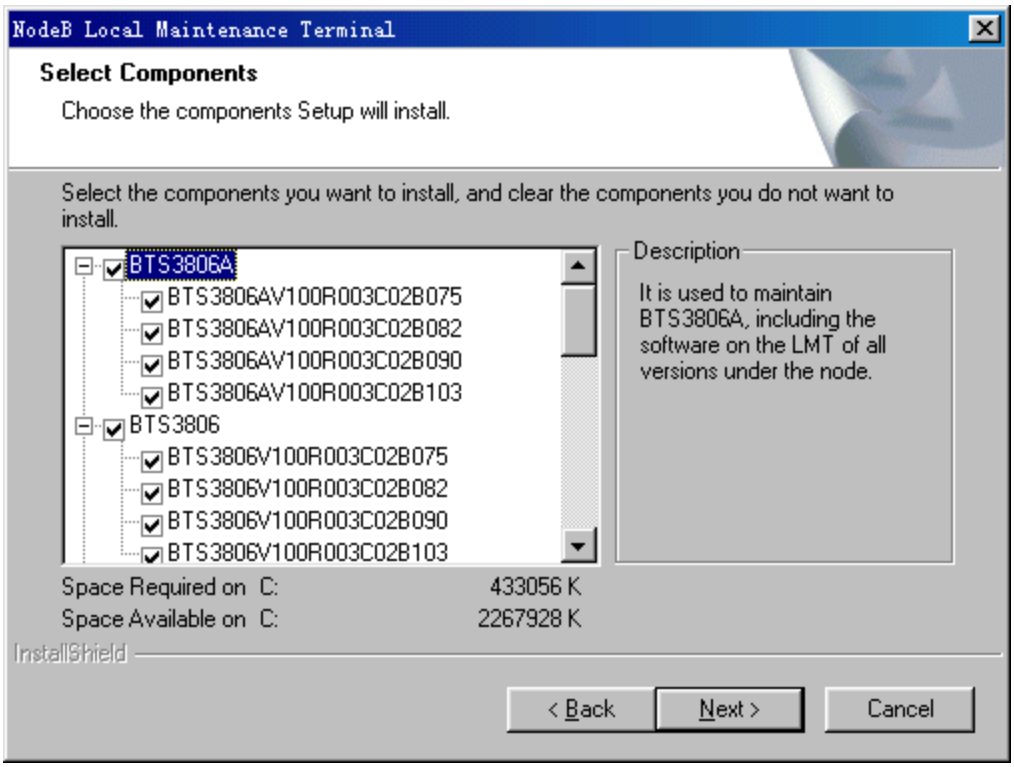

Figure 3-8 Select Components dialog box

3) Click **Next** in the **Select Components** dialog box.

VIII. Selecting Program Folder

Figure 3-9 shows the **Select Program Folder** dialog box.

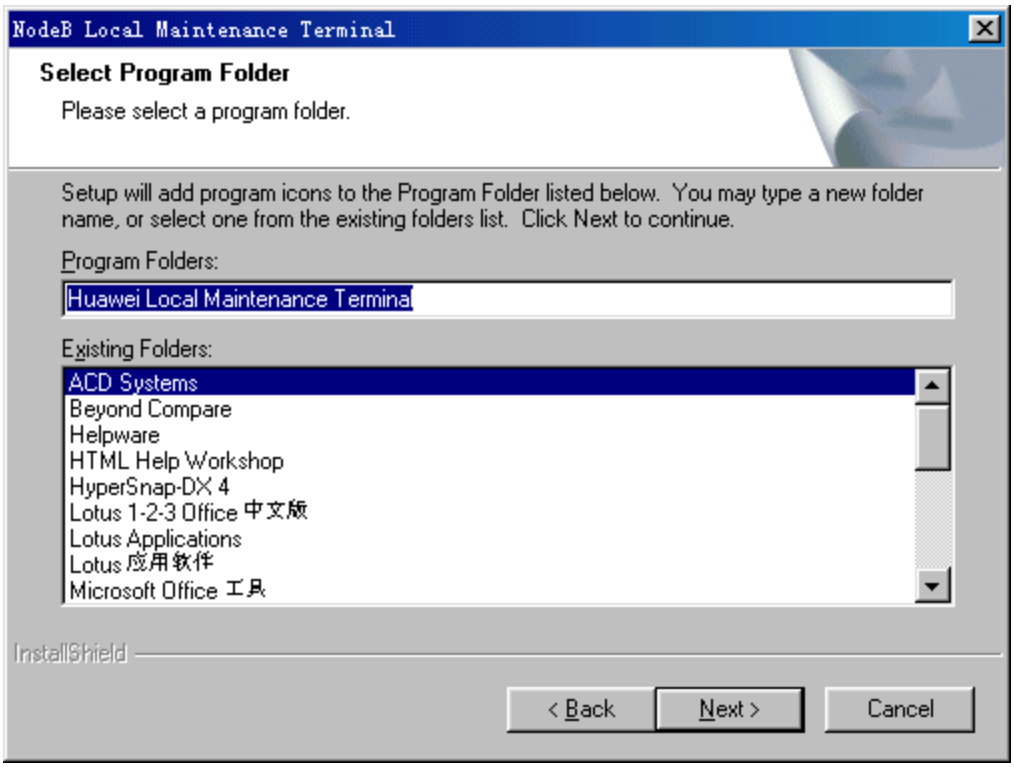

Figure 3-9 Select Program Folder dialog box

You can rename the program folder or use the default name. It is recommended that you use the default program folder name and click **Next**.

IX. Copying Files

Figure 3-10 shows the **Start Copying Files** dialog box.

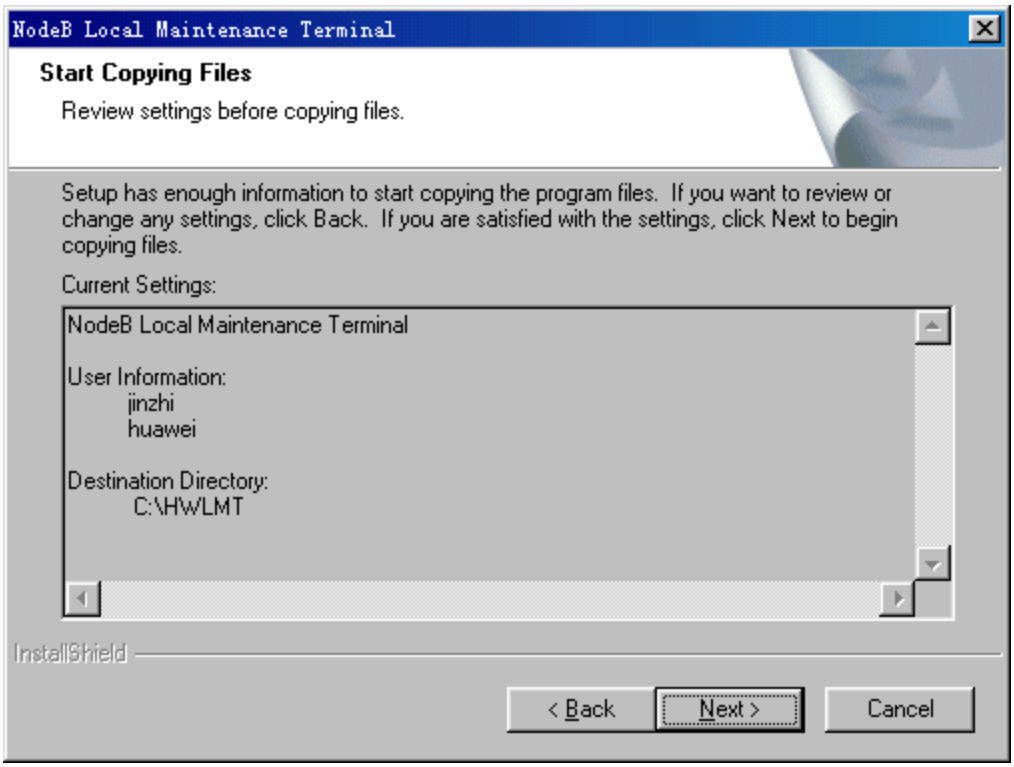

Figure 3-10 Start Copying Files dialog box

Confirm all the information. Then Click **Next** to create a folder **C:\HWLMT** and copy files into it.

When copying files, a progress indicator indicates the setup progress, file types and file setup path as shown in Figure 3-11.

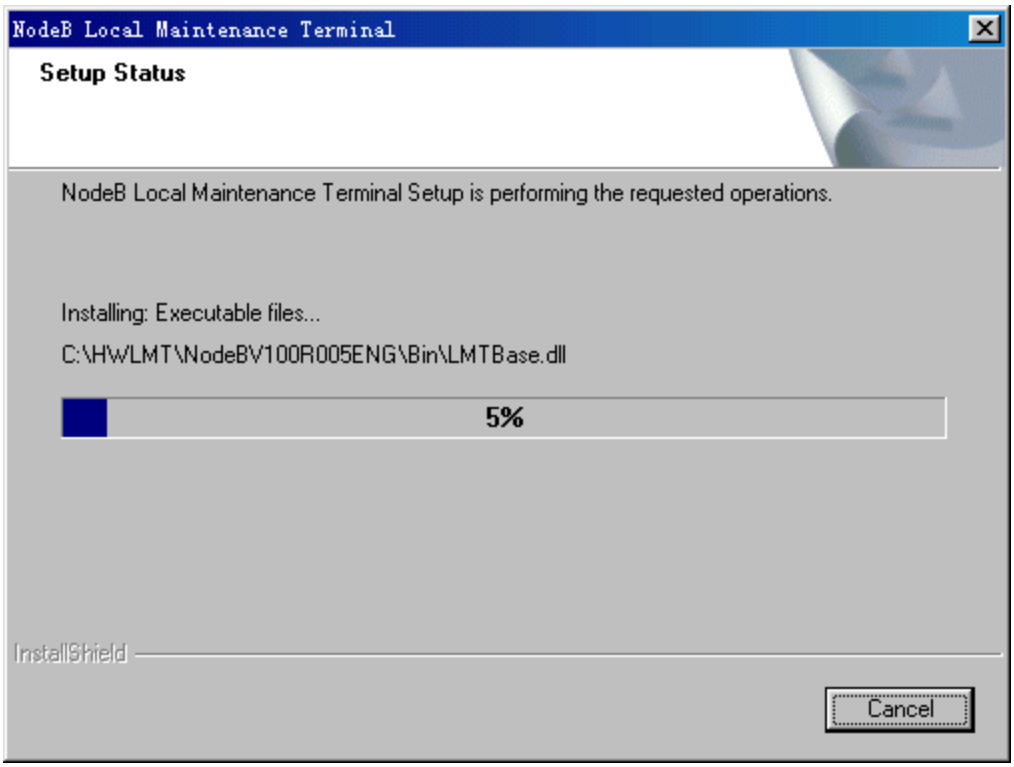

Figure 3-11 Setup Status dialog box

X. Finishing Installation

Figure 3-12 shows the **Installation Completed** dialog box.

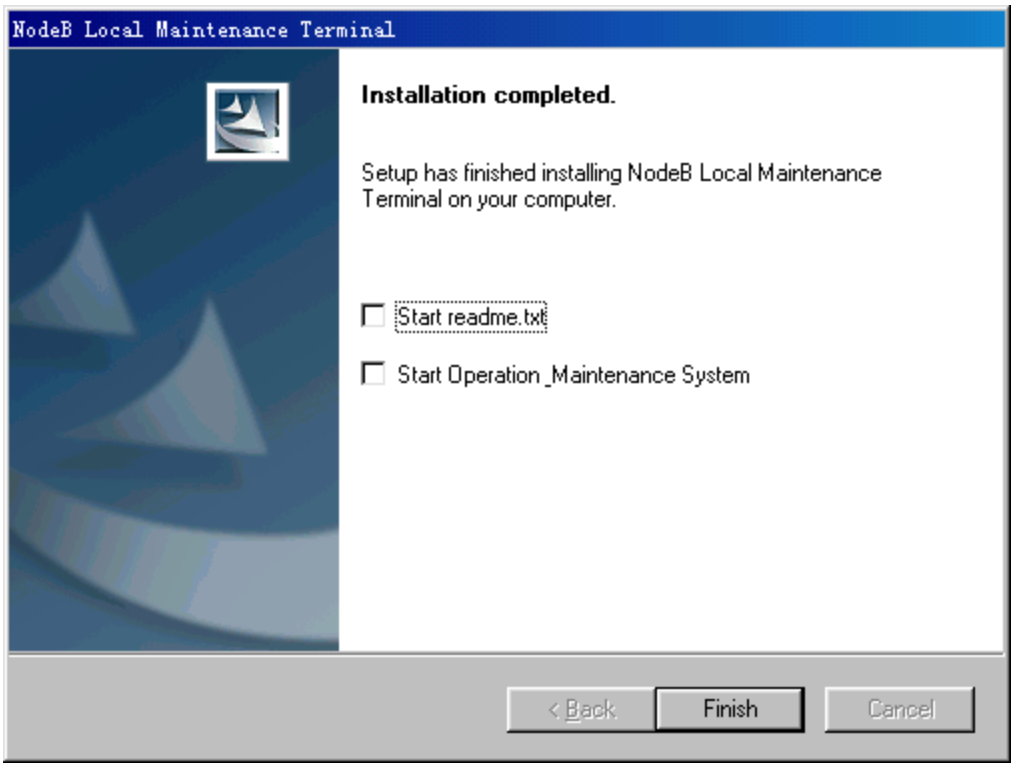

Figure 3-12 Installation Completed dialog box

Follow the steps below to finish the installation of the LMT software, update the system setup, open the readme.txt, and start O&M system for login interface:

1) Tick **Start readme.txt** and **Start Operation_Maintenance System**.
2) Click **Finish**.

If you click **Finish** without ticking **Start readme.txt** and **Start Operation_Maintenance System**, you can finish the LMT software installation and update the system setup.

Note:

If the system finds locked files or files under share during the installation, an **InstallShield Wizard Complete** dialog box shall prompt you to restart the computer, as shown in Figure 3-13. If so, choose **Yes, I want to restart my computer now.** and click **Finish**.

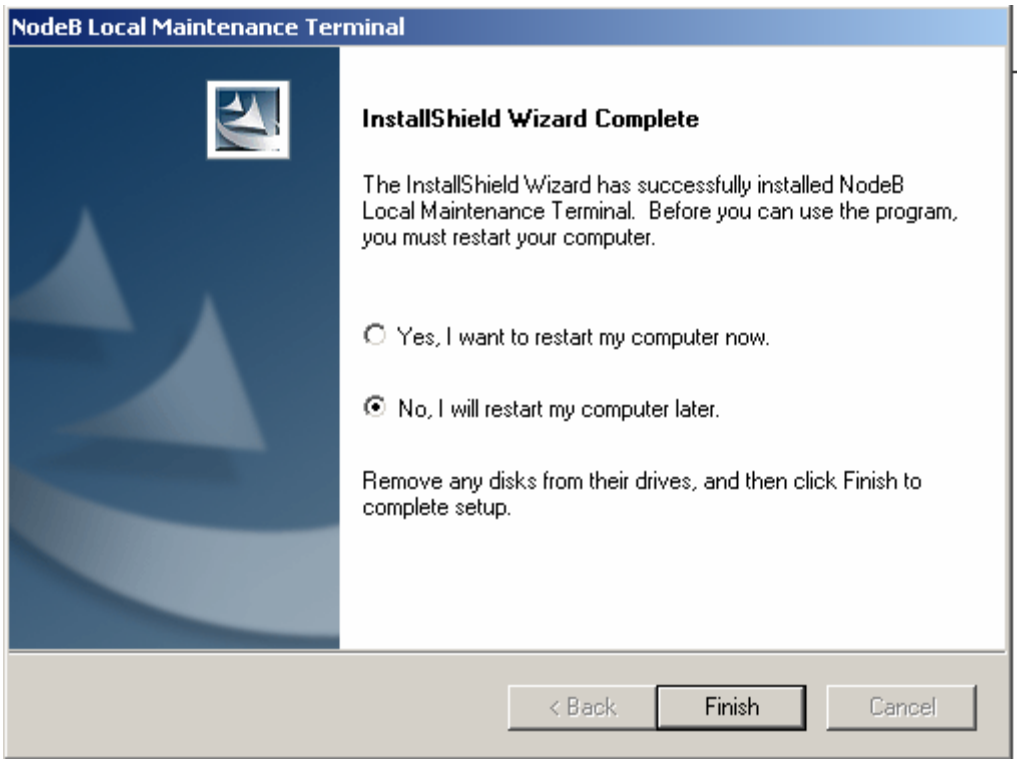

Figure 3-13 InstallShield Wizard Complete dialog box

3.4 Verifying Installation

After the LMT software installation, the program copies the WCDMA NodeB LMT programs into the file folder under the selected path. If you use the default installation directory, the entire file package of LMT software is copied to **C:\Hwlmt**.

Figure 3-14 shows the directory architecture of the LMT software.

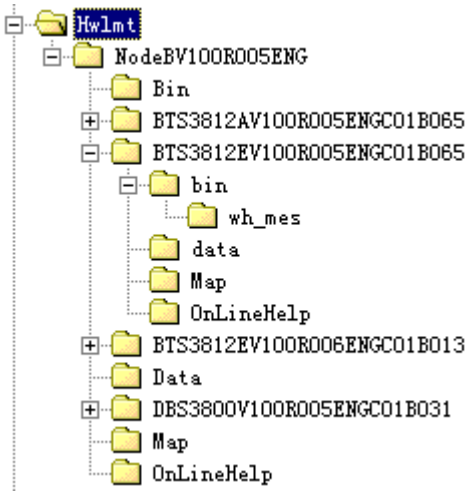

Figure 3-14 Directory architecture of the LMT software

Table 3-1 describes the directory at different levels.

Table 3-1 Description of the directory at different levels

Directory	Description
Bin	Storing public files, such as *.dll files which assist operation control.
BBU3806V100R005C01B030… BTS3812AV100R005C01B065… BTS3812EV100R006C01B013…	Storing files related to this NodeB version. Each folder has the same architecture including the following sub-folders: **bin**: storing execution files related to this version **wh_mes**: storing interface tracing resolution files related to this version data: storing data files related to this version **Map**: storing .map files related to this version for the purpose to find problems in case of exceptional conditions **OnLineHelp**: storing online help files related to version
Data	Storing data files unrelated to this version
Map	Storing *.map files to locate problems in case of exceptional conditions
OnLineHelp	Storing online help files unrelated to this version

Note:

When you use the LMT software, the system creates new file folders under **NodeB V100R005**:

- **Output**: default folder for file output
- **Trace**: to save traced files
- **Log**: to save **LMTFrame.log** files and **LMTFTool.log** files

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Chapter 4 Getting Started with LMT

4.1 About This Chapter

This chapter describes how to login to the NodeB through the LMT, including

- Starting LMT
- Configuring LMT
- Managing Office
- Locking LMT
- Executing MML Commands
- Exiting LMT

4.2 Starting LMT

4.2.1 Overview

Before starting the LMT, complete the following operations:

- Set IP address of the LMT computer
- Connect the LMT computer to the NodeB

4.2.2 Setting IP Address for LMT Computer

I. Introduction

⚠ **Caution:**

Make sure the IP address of the LMT compter does not confict with another IP address of a computer within the same local area network.

You have two ways to maintain the NodeB on the LMT:

- Local maintenance
- Remote maintenance

When you conduct the local maintenance, set the IP address for the LMT computer as follows:

- For the macro NodeB, IP addresses of the LMT computer and the NMPT network port need to be in the same network segment.
- For the DBS3800, IP addresses of the LMT computer and the BBU need to be in the same network segment.

II. Prerequisite

The LMT computer has configured the TCP/IP protocol.

III. Procedure

Note:

Microsoft® Windows 2000 (SP4) is the product of Microsoft. For details, refer to the technical documents of Microsoft® Windows 2000 (SP4).
All the Microsoft-related corporate names, trademarks and technical documents are properties of Microsoft Corporation.

Follow the steps below to set the IP address of the LMT computer with the MS Windows 2000 (SP4) operating system as an example:

1) Choose **Start** -> **Settings** -> **Control Panel**.
   The **Network and Dial-up Connection** window opens up.
2) Right-click the icon of **Local Area Connection**.
   The **Local Area Connection Status** dialog box opens up.
3) Select **Properties** on the shortcut menu.
   The **Local Area Connection Properties** dialog box opens up.
4) Select **Internet Protocol (TCP/IP).**
5) Click **Properties**.
   The **Internet Protocol (TCP/IP) Properties** dialog box open up.
6) Select **Use the following IP address**.
7) Enter the correct IP address, subnet mask and default gateway.

Note:

- In near end O&M mode, the default IP address of all debugging Ethernet ports of the NodeB for local maintenance is 17.21.2.15.
- The subnet mask is 255.255.0.0.
- If there is no gateway, you can keep the field **Default Gateway** blank or enter the IP address of the LMT. If there is a gateway, enter the IP address of the gateway.

---

8) Click **OK**.

The setting is completed.

4.2.3 Connecting LMT Computer to NodeB

I. Introduction

There are two ways to maintain the NodeB through the LMT. Correspondingly, there are two ways to connect the LMT computer to the NodeB.

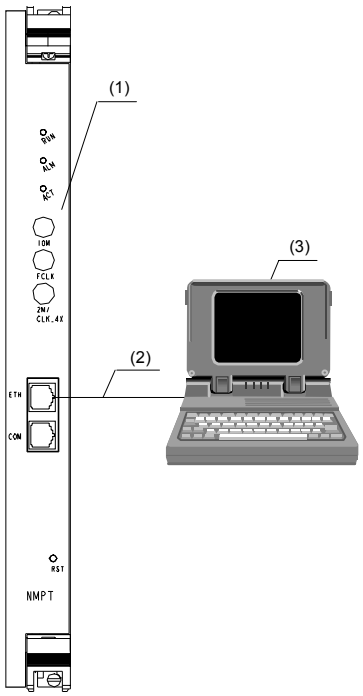
II. Prerequisite

None.

III. Procedure

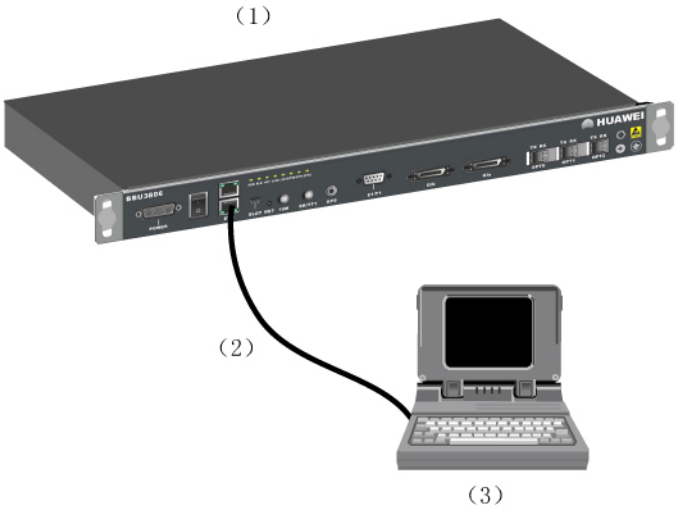
Under the local maintenance mode:

- For the macro NodeB, connect the Ethernet port of the LMT computer to that of the NodeB NMPT through crossover network cables, as shown in Figure 4-1. Or you can connect the LMT computer to the NodeB NMPT through a HUB by using straight-thru cables.
- For the DBS3800, connect the Ethernet port of the LMT computer to the upper ETH port of the BBU front plate with crossover network cables, as shown in Figure 4-2. Or you can connect the LMT computer to the BBU through a HUB by using straight-thru cables.



(1) NMPT (2) Network cable (3) LMT computer

Figure 4-1 Connecting LMT computer and NMPT under local maintenance mode



(1) BBU3806 (2) Crossover cable (3) LMT computer

Figure 4-2 Connecting LMT computer and BBU3806 under local maintenance mode

Under the remote maintenance mode:

- You can connect the Ethernet port of the LMT computer to that of the back administration module (BAM) on the RNC directly.
- You can connect the Ethernet port of the LMT computer to that of the RNC BAM through a gateway.
- No matter how the LMT computer and the NodeB are connected, you can check the connection with a **ping** command.

4.2.4 Logging into NodeB Through LMT

I. Introduction

You may operate and maintain a NodeB by starting the LMT and logging into the NodeB.

II. Prerequisite

Physical connection between the LMT computer and the NodeB is good under the local maintenance mode.

III. Porcedure

Follow the steps below to login to the NodeB through the LMT:

1) Choose **Start** -> **Program** -> **Huawei Local Maintenance Terminal** -> **NodeB V100R005** -> **NodeB Operation & Maintenance System**.

If the NodeB O&M system has started, select **System** -> **Login**, or click the shortcut icon to display the **Login** dialog box as shown in Figure 4-3.

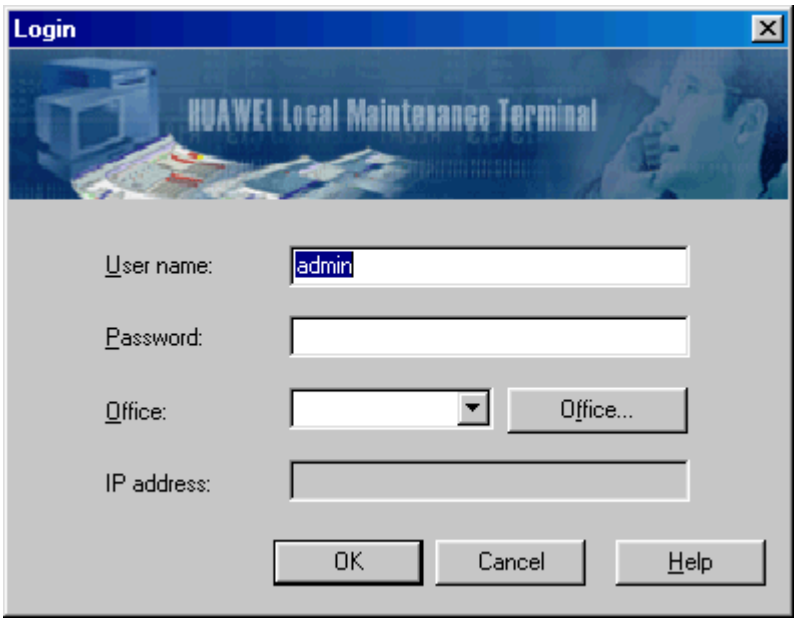


Figure 4-3 Login dialog box

Table 4-1 describes the fields in the **Login** dialog box.

Table 4-1 Field description of Login dialog box

Field	Description
User name	It is the name used to log into NodeB. It is case sensitive and cannot be omitted. The default name is **admin**.
Password	It is used to log in to NodeB. It starts with letter, and is case sensitive. It is a string of up to 16 characters and contains only letters and numbers.
Office	It is the name of the NodeB to which the O&M system is connected. Click **Office Management** to edit the office information. For details, see 4.4 “Managing Office”.
IP address	This is the IP address of NodeB to which the LMT system is connected. It is unique to the office name.

Note:

If there is no office in the **Office Management** dialog box as shown in Figure 4-5, set the parameters in the dialog box with reference to 4.4 "Managing Office".

2) Set parameters in the **Office Management** dialog box.
3) Set the user information and IP address in the **Login** dialog box.
4) Click **OK**.

Then you log into the NodeB.

4.2.5 Logging into NodeB Through M2000 Server

I. Introduction

You may conduct centralized maintenance to NodeBs by logging into the M2000 server.

II. Prerequisites

None.

III. Procedure

Follow the steps below to log into the NodeB through the M2000 server:

1) Choose **Start** -> **Program** -> **Huawei Local Maintenance Terminal** -> **NodeB V100R005** -> **NodeB Operation & Maintenance System**.
   If the NodeB O&M system has started, select **System** -> **Login**, or click the shortcut icon to display the **Login** dialog box as shown in Figure 4-3.
2) Set IP address, user name, and password in the **Login** dialog box. This enables you to log into the M2000 server.
3) Click **OK**.
   The **NodeB List** dialog box opens up.
4) Select the NodeB to be maintained in the dialog box.
5) Click **OK** and enter your user name and password.

Then you log into the NodeB.

4.3 Configuring LMT

4.3.1 Configuring LMT Attributes

I. Introduction

Configurations of the LMT attributes include:

- Setting the office
- Setting the time-out time of MML commands
- Setting the system lock time

- Executing batch commands

II. Prerequisites

None.

III. Procedure

Table 4-2 shows configurations of the LMT attributes.

Table 4-2 Configurations of the LMT attributes

LMT attribute	Menu	Remarks
Office management	**System -> Office Management**	See 4.4 “Managing Office”.
Setting time-out time of MML commands	**System -> System Configuration**	See 4.6.3 "Executing Batch MML Commands"
Setting system lock time	**System -> System Configuration**	See 4.5 "Locking LMT"
Executing batch MML commands	**System -> Execute Batch Commands**	See 4.6.3 "Executing Batch MML Commands"

4.3.2 Changing Login Password

I. Introduction

Changing the login password refers to changing the password for logging into the NodeB. You can log into the NodeB only when you provide the correct password.

II. Prerequisite

None.

III. Procedure

Caution:

- New password takes effects for new users to log into the NodeB. If you have logged in to the NodeB, it does not affect your current state.
- The M2000 server user and the NodeB O&M user have the authority to change the login password. The NodeB alarm management user has no authority to change the login password.

Follow the steps below to modify the login password:

1) Choose **System** -> **Change Password**. The **Change Password** dialog box opens up, as shown in Figure 4-4.

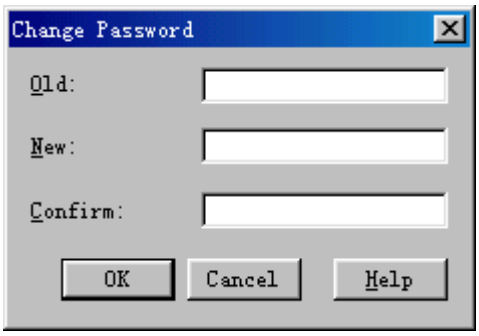


Figure 4-4 Change Password dialog box

2) Enter the old and new passwords in the dialog box.
3) Click **OK**.

Then the password is changed.

4.4 Managing Office

I. Introduction

Managing office refers to setting IP address of the M2000 server or NodeB that the LMT connects.

Generally, one office uses one name to identify different IP addresses. A NodeB O&M system may have different office information to connect to a specified M2000 server or NodeB.

II. Prerequisites

None.

III. Procedure

Follow the steps below to manage the office:

1) Choose **System** -> **Office Management**, or click the shortcut icon .
   The **Office Management** dialog box opens up, as shown in Figure 4-5.

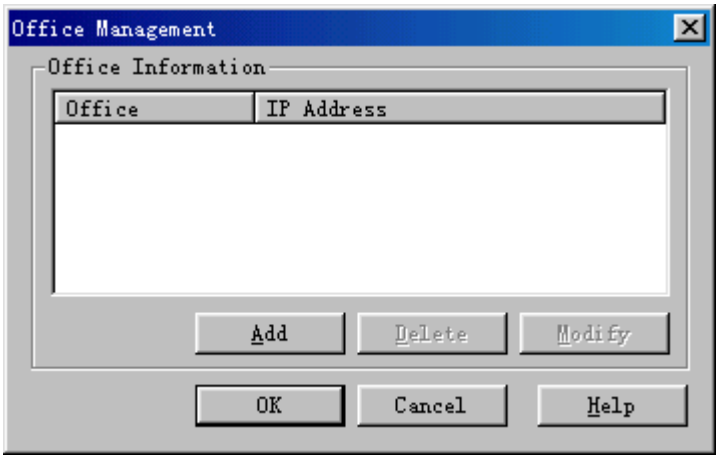


Figure 4-5 Office Management dialog box

Table 4-3 describes the fields in the **Office Management** dialog box.

Table 4-3 Field description of the Office Management dialog box

Filed	Description
Office	It is the name of M2000 server or the NodeB to which the NodeB O&M system connects. It is a string of up to 80 characters or 40 Chinese characters defined by you.
IP address	It is the M2000/NodeB IP address. It is unique to the “office”.
Add	You can add other M2000 server or NodeB office information by clicking **Add** to display the **Office Information** dialog box.
Delete	You can delete an office by selecting that office and click **Delete**.
Modify	You can modify office information by selecting an office and clicking **Modify**.

2) Set the office information in the dialog box.
3) Click **OK**.

The setting is completed.

4.5 Locking LMT

I. Introduction

The NodeB O&M system provides lock function to ensure its safe operation. You can set system lock when you do not use the system so as to prevent illegal operation from others. Once the system is locked, you need to enter the correct password before further operation.

The NodeB O&M system has two lock modes:

- Lock by schedule
- Lock Now

Note:

The lock function locks the interface of the NodeB O&M system only. It is similar to the screen saver of the MS Windows operating system.

II. Prerequisite

None.

III. Procedure

Follow the steps below to conduct **Lock Now** of the NodeB O&M system:

1) In the NodeB O&M system, to lock the system interface immediately, there are three ways:

- Choose **System** -> **System Lock**
- Press the shortcut key **F12**
- Click the shortcut icon .

Then the **Please Input Your Password** dialog box opens up after the system is locked.

2) Enter your password and click **OK** to remove the lock.

Follow the steps below to conduct **Lock by schedule** of the NodeB O&M system:

3) Choose **System** -> **System Configuration**. The **System Configuration** dialog box opens up as shown in Figure 4-6.

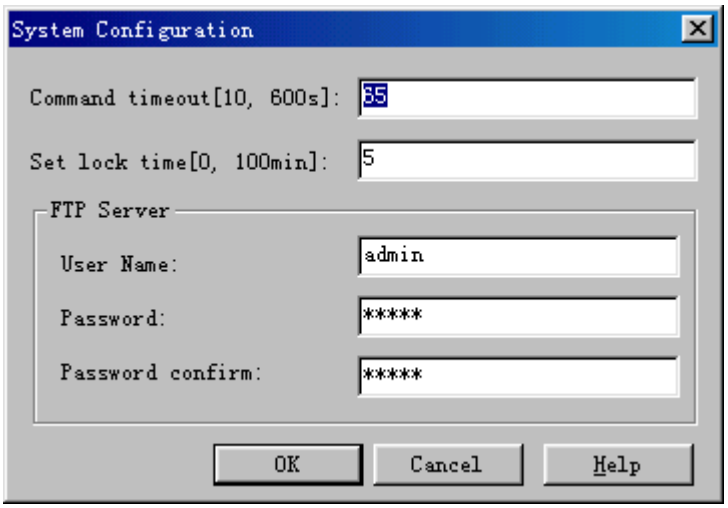


Figure 4-6 System Configuration dialog box

Table 4-4 describes the fields in the **System Configuration** dialog box.

Table 4-4 Field description of System Configuration dialog box

Field	Description
Command timeout	It is the name used to set command time-out time. The value range is from 10 seconds to 600 seconds and the default value is 65 seconds. The command fails to execute when it exceeds the time-out limitation.
Set lock time	It is the name used to set the system lock time. The value range is from 0 to 100 minutes and the default value is 5 minutes. 0 is not to lock the time. After you set the system lock time and have no operation within that period, the system auto locks till you type in the correct password.
FTP Server	The FTP server is used to transfer the software package and data files to the NodeB. You can set the user name and password of the FTP server built in the LMT computer. The system has initial default values for use. You need not to change them. The user name and password are both a string of up to 16 characters including letters, numbers and underlines.

4) Set the lock time in **Set lock time** of the dialog box.
5) Click **OK**.

The setting is completed.

4.6 Executing MML Commands

4.6.1 Introduction to MML Commands

I. Functions of MML Commands

The NodeB MML command helps to maintain the entire NodeB. The functions are:

- System management
- Equipment maintenance
- Iub Interface management
- Local cell management
- Alarm management

II. MML Command Format

All MML commands are in the format of **Command: Parameter Name=Value;**.

The command is mandatory while the parameter name and value are not.

- An example of an MML command with a command and parameters: **SET ALMSHLD: AID=10015, SHLDFLG=UNSHIELDED;**
- An example of an MML command with a command only: **LST VER:;**

III. MML Command Parameter

The MML client distinguishes parameters of different attributes by different colors. For details, see Table 4-5.

Table 4-5 Colors for different parameter attributes

Color of parameter name	Meaning	Details
Red	Mandatory	You must set the red parameters. Otherwise, the system returns failure.
Black	Optional	For commands starting with **LST** and **DSP**, if you fail to set an optional parameter, the system returns all the data.
		For commands starting with **ADD**, if you fail to set an optional parameter, the system takes its default value if any or takes it as null.
		For commands starting with **MOD** and **SET**, if you fail to set an optional parameter, the parameter value remains unchanged.

IV. MML Command Types

The MML command format is **Action + Object**. For details, see Table 4-6.

Table 4-6 MML command types

Action	Meaning
ACT	To activate
ADD	To add
BKP	To back up
BLK	To block
DLD	To download
DSP	To display dynamic information
SET	To set
LST	To list static data
MOD	To modify
RMV	To remove
RST	To reset
STR	To start
STP	To stop
UBL	To unblock
ULD	To upload

4.6.2 Executing a Single MML Command

I. Introduction

Troubleshooting requires executing a single MML command.

II. Prerequisite

None.

III. Procedure

Follow the steps below to execute a single MML command:

1) Click **MML Command Navigation Tree** in the navigation tree pane.

2) Select an MML command and double click on it to start the MML Client. The command is shown in the **Command Input** box and the parameter input area is displayed.

Note:

If you start the MML Client by selecting **View** -> **Command Window** on the menu of the O&M system, or by clicking the shortcut icon , there is no MML command in the **Command Input** field. You need to enter a command manually, and then click to display the parameter input area.

---

3) Set the parameters.

Note:

For deails, see the **Online Help** page.

---

4) Click the icon to execute the command. View the results in **Common Maintenance** page.

4.6.3 Executing Batch MML Commands

I. Introduction

Executing batch MML commands refers to compiling a series of commands into a batch file and then run the file to perform a function or an operation.

There are two modes to execute batch MML commands:

- Execute batch MML commands by schedule
- Execute batch MML commands now

II. Prerequisites

- Batch MML command files have already been created.

The batch file (also referred to as the data script file) is a plain text file (*.txt). It stores a group of commands that can perform a common function or a specific task in a *.txt file. Therefore, you can simply run the file instead of entering the commands one by one.

There are three ways to create batch MML command files:

- Create a *.txt file and write the commands into the file. Be sure to write one command in a line.
- Copy the information in **History Command** drop-down box in the output pane and save it in a blank *.txt file.
- Choose **System** -> **Save Command** -> **Start Save Input Command…** to save the used commands.

III. Procedure

Follow the steps below to execute the batch MML command by schedule:

1) Choose **System** -> **Execute Batch Commands**, or press **Ctrl+R**. The **Execute Batch Commands** dialog box opens up, as shown in Figure 4-7.

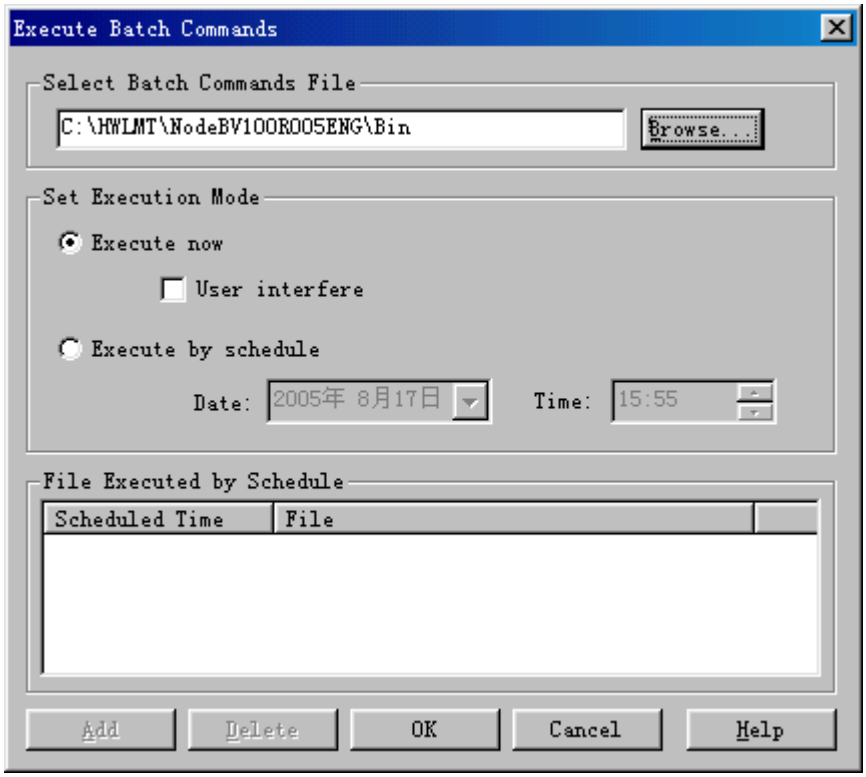


Figure 4-7 Execute Batch Commands dialog box

Table 4-7 describes the fields of the **Execute Batch Commands** dialog box.

Table 4-7 Field description of the Execute Batch Commands dialog box

Field	Description
Select Batch Command File	To specify the batch file to run The default file directory is Bin under the installation directory. Note that the file must be a *.txt file edited by following correct MML command syntax with one MML command in a line.
Set Execution Mode	To select the execution mode **Execute now** or **Execute by schedule** for batch processing If you select **Execute by schedule**, you will have to set the specified **Date** and Time. If you select **Execute now**, you may also select **User interface**.
File Executed by Schedule	It lists the information of all the files and their Scheduled Time set in the **Execute by schedule** mode.
Add	You can click **Add** to add a batch file to the **File Executed by Schedule** list, after selecting the batch file and setting the time to run it.
Delete	You can select a scheduled task from the **File Executed by Schedule** list and click **Delete** to delete it.

2) Select **Execute by schedule** under **Set Execution Mode**.
3) Set the execution date and time in **Date** and **Time** under the **Execute by schedule** mode.
4) Click **Browse** to select the batch file.
5) Click **Add** to add the batch file into the **File Executed by Schedule** list.
6) Repeat steps 3) to 5) to add all the needed batch files into the list.
7) Click **OK**.

The setting is completed and the **Maintenance Output** tab in the window displays the results.

Follow the steps below to execute the batch MML commands now:

1) Choose **System** -> **Execute Batch Commands,** or press **Ctrl+R**. The **Execute Batch Commands** dialog box opens up, as shown in Figure 4-7.
2) Click **Browse** to select the batch file.
3) Select **Execute now** and **User interfere** under **Set Execution Mode**.
4) Click **OK**. The **Execute now** dialog box opens up, as shown in Figure 4-8.

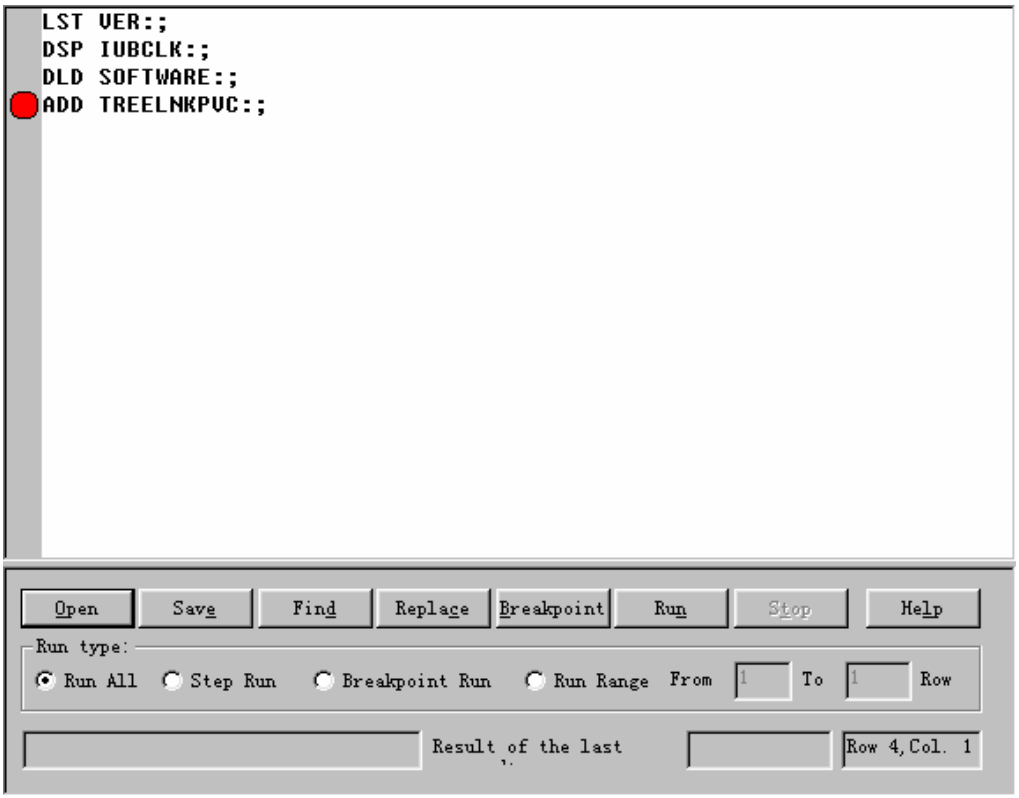


Figure 4-8 Execute now dialog box

Table 4-8 describes the fields of the **Execute now** dialog box.

Table 4-8 Field description of the Execute now dialog box

Field	Description
Run All	The system runs in turn all the commands in the batch command file. Method: Select **Run All** and then click **Run**. Note: During the process, the icon points to the command being executed.
Step Run	The system runs one command in the batch command file at a time. Method: Select **Step Run** and then click **Run**. Note: During the process, the icon points to the command being executed. You can click **Stop** to stop the running.
Breakpoint Run	The system runs the commands in the batch command file in turn until a breakpoint. Method: Select **Breakpoint Run**. Click on a command and click **Breakpoint** to set a breakpoint. Click **Run** to start running from the beginning. Click **Stop** to stop running during the process. The icon points to the command being executed. The icon points to the specified breakpoint.

Run Range	To specify a range in the batch file to run Method: Select **Run Range**, enter the start row and end row, and then click **Run**.

Note:

If you select **Execute now** without selecting **User interfere** and click **OK**, the system will run the file immediately without displaying the **Execute now** dialog box. The process is the same as **Execute by schedule**.

5) Set the information as needed and execute the command.

The **Maintenance Output** tab in the window displays the results.

Note:

- When running the batch file, you cannot modify the MML commands in the file.
- When running the batch file, the **Maintenance Output** tab does not display results. When execution of batch MML commands is stopped, **Maintenance Output** tab and **History Command** drop-down box are empty.

4.7 Exiting LMT

I. Introduction

If you exit the LMT, you will disconnect the LMT to the NodeB and M2000 server (if you log into the NodeB through the M2000 server), and close the Node O&M system.

II. Prerequisite

None.

III. Procedure

Follow the steps below to exit the LMT system:

1) Choose **System** -> **Exit**, or click the shortcut icon .
   The **Sure to exit the system?** dialog box opens up.
2) Click **OK**.

Then you exit the LMT.

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Chapter 5 Alarm Management

5.1 About This Chapter

This chapter describes how to manage the alarms on the NodeB though the LMT.

5.2 Overview

5.2.1 Alarm Types

I. Fault Alarm and Event Alarm

Alarms can be classified into fault alarms and event alarms by nature.

- Fault alarm: refers to the alarm generated in case of hardware equipment fault or major function failure. When the fault is removed, the system reports a cleared alarm. One cleared alarm corresponds to one fault alarm. The severity of a fault alarm is higher than that of an event alarm in most cases.
- Event alarm: refers to the accidental alarm indicating that the system is in alarm state for a while. There is no cleared alarm for the event alarm. Some event alarms are generated periodically.

II. Active Alarm and Recovery Alarm

When there are alarms, the alarms can be classified into active alarms and recovery alarms according to the alarm state.

- If an alarm has recovered, the alarm is in a “recovery” state and is called “recovery alarm”.
- If an alarm has not recovered, the alarm is in an “active” state and is call “active alarm”.

For example, when a fault occurs in the interior hardware of a tower mounted amplifier (TMA), the system will report a TMA fault alarm.

- Before the fault in the interior hardware of the TMA is cleared, the alarm is an active alarm.
- After the fault in the interior hardware of the TMA is cleared, the alarm is a recovery alarm.

Note:

A recovery alarm indicates the alarm has recovered. The alarm records are still stored in the alarm log and can be queried. See 5.4.4 "Querying Alarm Log".

5.2.2 Alarm Log

The alarm log keeps all the alarm records. You can obtain NodeB alarm information or collect alarm statistics by querying the alarm log.

5.2.3 Alarm Severity

The alarm severity shows the level of urgency and severity of an alarm.

The alarm severities of fault alarms and event alarms in descending order are as follows:

- Critical alarm
- Major alarm
- Minor alarm
- Warning

Table 5-1 describes definitions and handling of alarms at different severities.

Table 5-1 Definitions and handling of alarms at different severities

Alarm severity	Definition	Handling
Critical alarm	The critical alarm has an impact on the service provided by the system and needs timely handling even when it occurs in after-work time. For example, a device or resource is not available.	It requires timely handling. Otherwise, the system may collapse.
Major alarm	The major alarm affects the quality of service (QoS) and needs resolving within work time to avoid impact on some major functions. For example, the QoS of a device or resource is impaired and needs recovery.	It requires timely handling. Otherwise, some major functions may be affected.
Minor alarm	The minor alarm does not affect QoS. It needs handling at a proper time against potential faults.	The purpose of this alarm is to remind maintenance technicians of alarm reasons and eliminate potential faults.
Warning	The warning shows a potential error that may affect service and needs handling in some cases.	It requires understanding of the system running state.

5.2.4 Alarms Classified by Network Management

Alarms can also be classified by network management as follows:

- Power system: Alarms of the power system (for example, DC 48 V)
- Environment system: Alarms of equipment room environment (for example, temperature, humidity and door control)
- Signaling system: Alarms of channel associated signaling and SS7
- Trunk system: Alarms of trunk circuit and trunk board
- Hardware system: Alarms of board parts (for example clock and CPU)
- Software system: Alarms of software
- Running system: Alarms of system running
- Communication system: Alarms of communication system
- QoS: Alarms of QoS
- Processing error: Other alarms

5.3 Configuring Alarm System Attributes

5.3.1 Overview

Configurations of alarm system attributes consist of:

- Configuring Attributes of Alarm Query Window
- Setting Fault Alarm Blinking Prompt
- Setting Sound Duration for Fault Alarm
- Setting Dial Notify for Fault Alarms
- Setting SMS Notify for Fault Alarms
- Sorting Alarms

5.3.2 Configuring Attributes of Alarm Query Window

I. Introduction

Configuring attributes of the alarm query window consists of:

- Alarm colors
- Column width
- Showing/Hiding tip
- Clearing current alarm records
- Dynamic addition
- Querying active alarm when login successfully
- Refreshing the window

II. Prerequisite

None.

III. Procedure

Alarm query window attribute	Menu	Remarks
Displaying color setting	**System** -> **Display Color Setting…**	This function is applicable to all the alarm browse windows.
Displaying column width	**System** -> **Display Column Setting…**	This function is applicable to all active alarm browse windows.
Showing/hiding tip	**System** -> **Tip**	Tip function: When the cursor moves to an alarm in a browse window, a Tip showing the alarm information is displayed. The information is the same as that in **Browse Alarm Information** widow. However, the use of tips facilitates browsing. This function is applicable to all the alarm browse windows.
Clearing current alarm records	Right click in an alarm browse window and select **Clear all the alarms from the window**.	This function is applicable to **Fault Alarm Browse** and **Event Alarm Browse** windows only.
Dynamic addition	Right click in an alarm browse window and select **Dynamic Addition** from the shortcut menu.	This function is applicable to the **Fault Alarm Browse**, **Event Alarm Browse** and **Alarm log query result** windows.
Querying active alarm when login successfully	**System** -> **System Configuration**	This function applies to **Fault Alarm Browse** window only.
Refreshing the window	Right click in an alarm browse window and select **Refresh Window** from the shortcut menu.	• For **Event Alarm Browse** window, refreshing means clearing the window. • For windows of **Fault Alarm Browse**, **Alarm Log Query Result** and **Active alarm query result**, refreshing means querying alarms by original conditions.

5.3.3 Setting Fault Alarm Blinking Prompt

I. Introduction

When you log into the NodeB alarm management system, an icon displays in the status area of the LMT taskbar.

The blinking prompt function means when the system reports a fault alarm, the tray blinks alternately between and .

Note:

- This function is applicable to fault alarms only.
- When an alarm is reported, the icon blinks. When the alarm is cleared, the icon does not stop blinking automatically. You need to stop it manually.
- When you disable the blinking prompt when the icon is blinking, the icon stops blinking.

II. Prerequisite

None.

III. Procedure

In the NodeB alarm management system, select **Management** -> **Fault Alarm Prompt** to enable or disable this function. If there is a symbol √ in front of the menu, the function is enabled. Otherwise, this function is disabled. The default setting is "enabled".

- If you enable this function, the icon blinks when the system reports a fault alarm. Double click the icon to stop blinking and to maximize the window of the alarm management system. This facilitates you to handle the fault alarm.
- If you disable this function, the icon does not change when the system reports a fault alarm.

5.3.4 Setting Sound Duration for Fault Alarms

I. Introduction

If the alarm sound function is enabled, the system prompts you with sound of different duration when there are fault alarms at different severity levels.

II. Prerequisite

None.

III. Procedure

Follow the steps below to set the sound duration for fault alarms in the NodeB alarm management system:

1) Select **Management** -> **Fault Alarm Sound** to display the **Fault Alarm Sound** dialog box as shown in Figure 5-1.

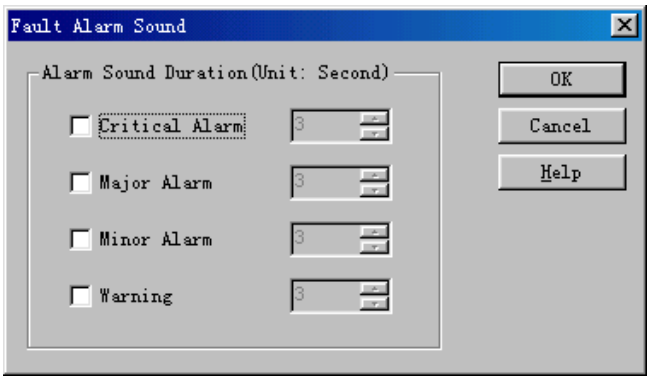

Figure 5-1 Fault Alarm Sound dialog box

Table 5-2 describes the fields in the **Fault Alarm Sound** dialog box

Table 5-2 Description of fields in Fault Alarm Sound dialog box

Field	Description
Critical Alarm	It is used to set the sound duration for critical alarms. Selecting **Critical Alarm** means starting the fault alarm sound at this severity level.
Major Alarm	It is used to set the sound duration for major alarms. Selecting **Major Alarm** means starting the fault alarm sound at this severity level.
Minor Alarm	It is used to set the sound duration for minor alarms. Selecting **Minor Alarm** means starting the fault alarm sound at this severity level
Warning	It is used to set the sound duration for warning. Selecting **Warning** means starting the fault alarm sound at this severity level

2) Set sound duration for fault alarms and decide whether to start the alarm sound at each severity level in the dialog box.
3) Click **OK** to complete the settings.

5.3.5 Setting Dial Notify for Fault Alarms

I. Introduction

The function of setting dial notify for fault alarms indicates that the system notifies you in case of fault alarms with the pre-set fixed-line phone number or the mobile phone number.

II. Prerequisite

None.

III. Procedure

Follow the steps below to set dial and SMS notify for fault alarms in the NodeB alarm management system:

1) Select **Management** -> **Fault Alarm Notify** to display the **Fault Alarm Notify** dialog box as shown in Figure 5-2.

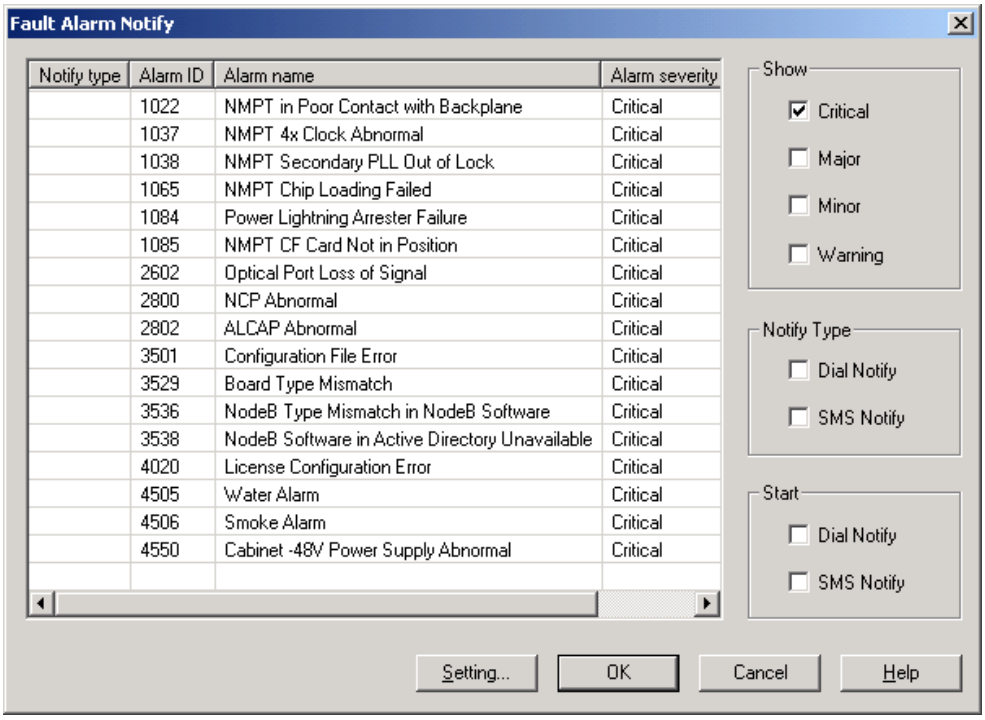

Figure 5-2 Fault Alarm Notify dialog box

Table 5-3 describes the fields in the **Fault Alarm Notify** dialog box

Table 5-3 Field description of Fault Alarm Notify dialog box

Field	Description
Show	After checking an alarm severity level, alarm records at that level automatically shown in the left list.
Notify Type	You can select alarms in the left list by pressing **Shift** or **Ctrl** and then select **Dial Notify** and/or **SMS Notify**. These settings enable you to receive notification of the selected alarms through the preset fixed-line phone number and/or the mobile phone number. The SMS notify includes • alarm ID • alarm severity • alarm rising time
Start	You can start the alarm notification type by selecting **Dial Notify** and/or **SMS Notify**. If you select alarm report of a notify type, the system starts reporting the selected alarms through the preset phone number and/or SMS.
Setting	You can set the fixed-line phone and/or mobile phone numbers in the **Set Notification Mode** dialog box by clicking **Setting**.

2) Select an alarm severity in the dialog box to display alarm records at that level in the left list.
3) Select alarms to be set in the left list.
4) Select **Dial Notify** under **Notify Type**.
5) Select **Dial Notify** under **Start.**
6) Click **Setting** to display the **Set Notify Type** dialog box as shown in Figure 5-3.

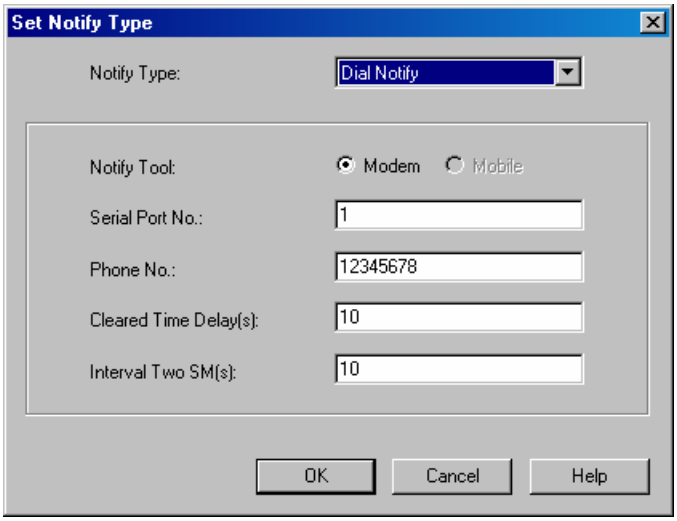

Figure 5-3 Set Notify Type dialog box

Table 5-4 describes the fields in the **Set Notify Type** dialog box

Table 5-4 Field description of Set Notify Type dialog box

Field	Description
Notify Type	You can choose the notify type from **Dial Notify** or **SMS Notify**.
Notify Tool	• If the notify type is **Dial Notify**, **Modem** is enabled. • If the notify type is **SMS Notify**, **Mobile** is enabled. • Note that the system automatically sets **Notify Tool** according to the notify type setting.
Serial Port No.	You can select the Modem port number connected with the NodeB alarm management system for alarm notification.
Phone No.	• If the notify type is **SMS Notify**, enter a mobile phone number. • If the notify type is **Dial Notify**, enter a fixed-line phone number or a mobile phone number.
Cleared Time Delay(s)	A fault alarm will be notified if the time between the occurrences of the fault alarm and its corresponding cleared alarm is over **Cleared Time Delay**.
Interval Two SMS (s)	The system reports fault alarms one by one at intervals of **Interval Two SMS**. An alarm is reported for one time only.

7) Select **Dial Notify** in the **Notify Type** drop box.
8) Set the following parameters in the **Set Notify Type** dialog box
- Serial port No.
- Phone No.
- Cleared time delay(s)
- Interval two SMS(s)

9) Click **OK** to close **Set Notify Type** dialog box.
10) Click **OK** to close **Fault Alarm Notify** dialog box.

5.3.6 Setting SMS Notify for Fault Alarms

I. Introduction

The function of setting SMS notify for fault alarms indicates that the system notifies you in case of fault alarms with the pre-set mobile phone number.

II. Prerequisite

None.

III. Procedure

Follow the steps below to set the SMS notify for fault alarms in the NodeB alarm management system:

1) Select **Management** -> **Fault Alarm Notify** to display the **Fault Alarm Notify** dialog box as shown in Figure 5-2.
2) Select an alarm severity in the dialog box to display alarm records at that level in the left list.
3) Select alarms to be set in the left list.
4) Click **SMS Notify** under **Notify Type**.
5) Click **SMS Notify** under **Start**.
6) Click **Setting** to display the **Set Notify Type** dialog box as shown in Figure 5-3.
7) Select **SMS Notify** in the **Notify Type** drop box.
8) Set the following parameters in the **Set Notify Type** dialog box

- Serial port No.
- Phone No.
- Cleared time delay(s)
- Interval two SMS (s)

9) Click **OK** to close **Set Notify Type** dialog box.
10) Click **OK** to close **Fault Alarm Notify** dialog box.

5.3.7 Sorting Alarms

I. Introduction

Alarm records can be sorted by any column. If an alarm is reported after sorting, it is added to the list end.

Note:

Alarm records can be sorted only by one column each time.

II. Prerequisite

None.

III. Procedure

To sort alarm records in an alarm browse window by a column, click the caption of the column.

5.4 Monitoring NodeB Alarms

5.4.1 Overview

Monitoring the NodeB alarms includes

- Browsing alarms
- Querying active alarms
- Querying alarm log
- Querying alarm details
- Realtime print alarms

5.4.2 Browsing Alarms

I. Introduction

The NodeB alarm management system dynamically displays the latest records of fault alarms and event alarms in the **Fault Alarm Browse** and **Event Alarm Browse** windows. You can view the alarm records to know the current operation of the NodeB.

This function includes:

- Browsing fault alarms
- Browsing event alarms

II. Prerequisite

None.

III. Procedure

Follow the steps below to browse current fault alarms:

1) Start the NodeB alarm management system. Then the **Fault Alarm Browse** window opens up as shown in Figure 5-4. If the **Fault Alarm Browse** window is closed, select **Browse** -> **Fault Alarm Browse** or click the shortcut icon to open it again.

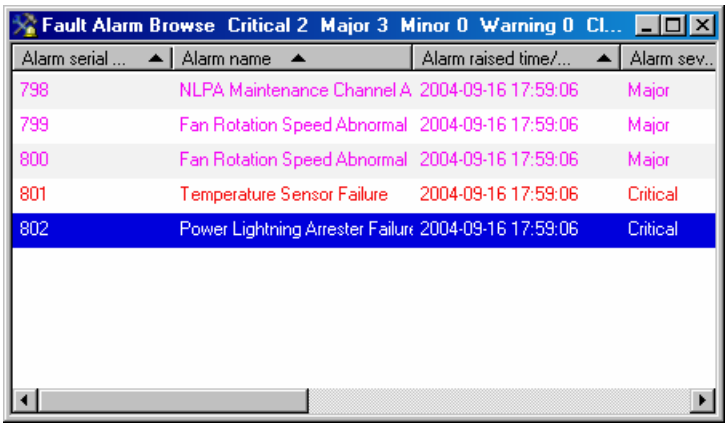

Figure 5-4 Fault Alarm Browse window

Table 5-5 describes the fields in the **Fault Alarm Browse** window

Table 5-5 Field description of Fault Alarm Browse window

Field	Description
Alarm serial No.	It is a number given to an alarm by the raised time.
Cleared state	It shows whether the alarm is cleared.
Alarm name	It is preset in the NodeB.
Alarm raised time/cleared time	It shows the time when the alarm is generated. If the alarm is cleared, it also shows the time when it is cleared.
Alarm severity	It is preset in the NodeB and changes with the fault code dynamically.
Location info	It refers to the fault code of the alarm and the fault location in the NodeB. Details include: • The cabinet number • The subrack number • The slot number • The link number
Alarm source	It shows the net element from which the alarm is reported. For the NodeB alarm management system, the alarm source is the NodeB itself.
Alarm ID	These items are preset in the NodeB.
Event type	
Alarm type	

2) Browse the active fault alarms with. The system adds new fault alarms to the list end in real time.

Note:

- Select **System** -> **System Setting** to display the **System Setting** dialog box. If **Query active alarm when login successfully** in the dialog box is not ticked, the fault alarms reported before login are not displayed in the **Fault Alarm Browse** window. The window only displays the fault alarms reported after login.
- If **Query active alarm when login successfully** in the dialog box is ticked, all the active fault alarms are displayed in the **Fault Alarm Browse** window and new fault alarms are added to the list end in real time.

Follow the steps below to browse the current event alarms:

3) Start the NodeB alarm management system. Then the **Event Alarm Browse** window opens up as shown in Figure 5-5. If the **Event Alarm Browse** window is closed, select **Browse** -> **Event Alarm Browse** or click the shortcut icon to open it again.

Figure 5-5 Event Alarm Browse window

Table 5-6 describes the fields in the **Event Alarm Browse** window.

Table 5-6 Field description of **Event Alarm Browse** window

Field	Description
Alarm serial No.	It is a number given to an alarm by the raised time.
Alarm name	It is preset in the NodeB.
Alarm raised time	It shows the time when the alarm is generated.

Alarm severity	It is preset in the NodeB and changes with the fault code dynamically.
Location info	It refers to the fault code of the alarm and the fault location in the NodeB. Details include: • The cabinet number • The subrack number • The slot number • The link number
Alarm source	It shows the net element from which the alarm is reported. For the NodeB alarm management system, the alarm source is the NodeB itself.
Alarm ID	These items are preset in the NodeB.
Event type	
Alarm type	

4) Browse the active event alarms. The system adds new event alarms to the list end in real time.

5.4.3 Querying Active Alarms

I. Introduction

Querying active alarms refers to querying current uncleared fault alarms of the NodeB according to specified conditions.

Note:

All the active alarms will disappear after resetting the NodeB. In that case, those alarms can only be queried by querying alarm log.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query active alarms:

1) In the NodeB alarm management system, select **Query** -> **Query Active Alarm**. The **Query Active Alarm** dialog box opens up as shown in Figure 5-6.

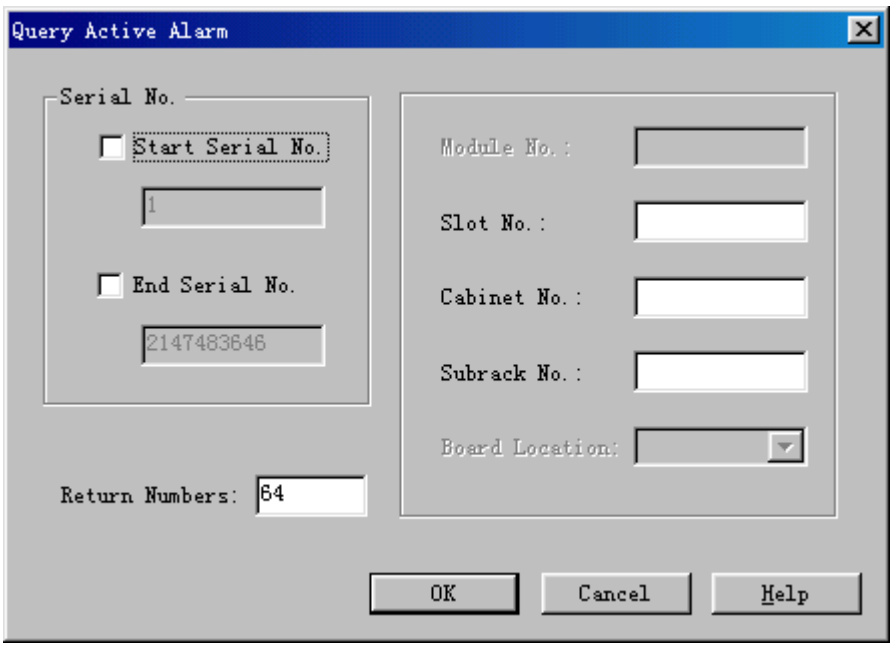

Figure 5-6 Query Active Alarm dialog box

Table 5-7 describes the fields in the **Query Active Alarm** dialog box.

Table 5-7 Field description of Query Active Alarm dialog box

Field	Description
Serial No.	To specify a serial No. range Default value: all serial Nos.
Return Numbers	To specify the number of records Default value: 64 Maximum value: 1000
Module No.	Unavailable
Slot No.	To specify a slot
Cabinet No.	To specify a cabinet
Subrack No.	To specify a subrack
Board Location	Unavailable

2) Set the query conditions in the dialog box.
3) Click **OK** to display the **Active Alarm Query Result** window for the query result.

Note:

You can query active alarms by the MML command of **LST ALMAF**.

5.4.4 Querying Alarm Log

I. Introduction

Querying the alarm log refers to querying the alarm log records by query conditions. The aim is to get knowledge to the NodeB alarms or collect alarm statistics.

Note:

When an alarm is generated, NodeB record the alarm in the alarm log. The alarm log keeps the information of all the fault and event alarms.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query

1) In the NodeB alarm management system, select **Query** -> **Query Alarm Log** or click the shortcut icon to display the **Query Alarm Log** dialog box, as shown in Figure 5-7.

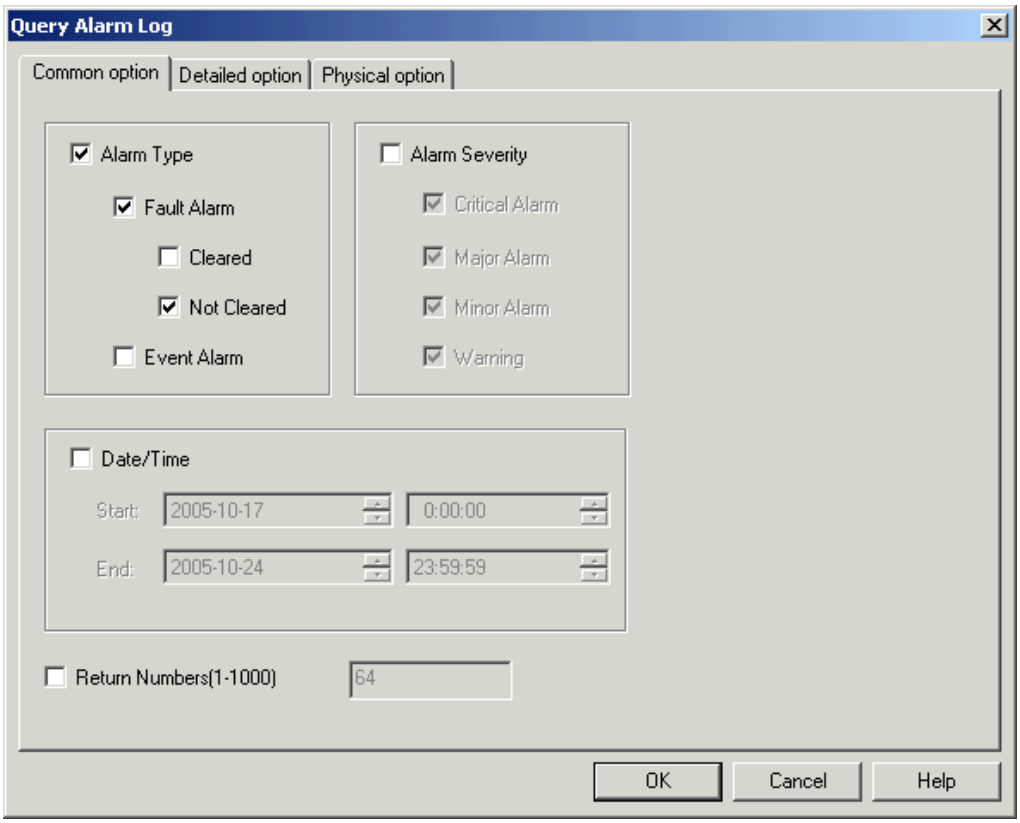

Figure 5-7 Query Alarm Log dialog box

You can set general conditions for alarm query in **Common option** tab page. The conditions may include

- Alarm type
- Alarm severity
- Date/Time

Table 5-8 describes the fields in the tab page.

Table 5-8 Field description of **Common option** tab page

Field	Description
Alarm Type	To specify alarm types Default value: Fault alarm not Cleared
Alarm Severity	To specify alarm severities Default value: critical, major, minor, warning

Field	Description
Date/Time	To specify a time range to query alarms within that period • If you specify start time without start date, the system takes the seventh day before the current day as the start date. • If you specify end time without end date, the system takes the current date as the end date. • If you specify start date without start time, the system takes 0:0:0 as the start time. • If you specify end date without end time, the system takes 23:59:59 as the end time.
Return Numbers	To specify the number of records to returned Default value: 64 Maximum value: 1000

You can set detailed conditions for alarm query in the **Detailed option** tab page as shown in Figure 5-8. The conditions may include:

- Serial number
- Alarm ID
- Event type

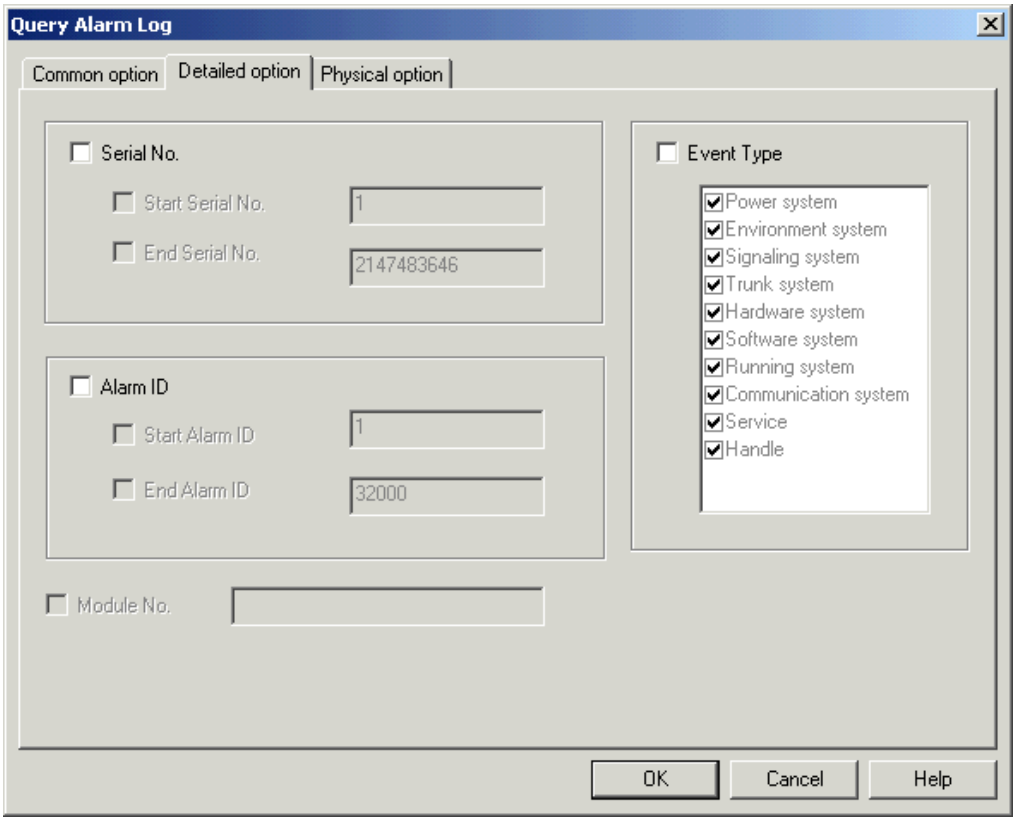

Figure 5-8 Detailed option tab page

Table 5-9 Field description of Detailed option tab page

Field	Description
Serial No.	To specify a serial No. range Default value: all serial Nos.
Alarm ID	To specify an alarm ID range Default value: all alarm IDs
Module No.	Unavailable
Event Type	To specify event types Default value: all types

You can set location conditions for alarm query in the **Physical option** tab page as shown in Figure 5-9. The conditions may include:

- Subrack No.
- Slot No.
- Board location

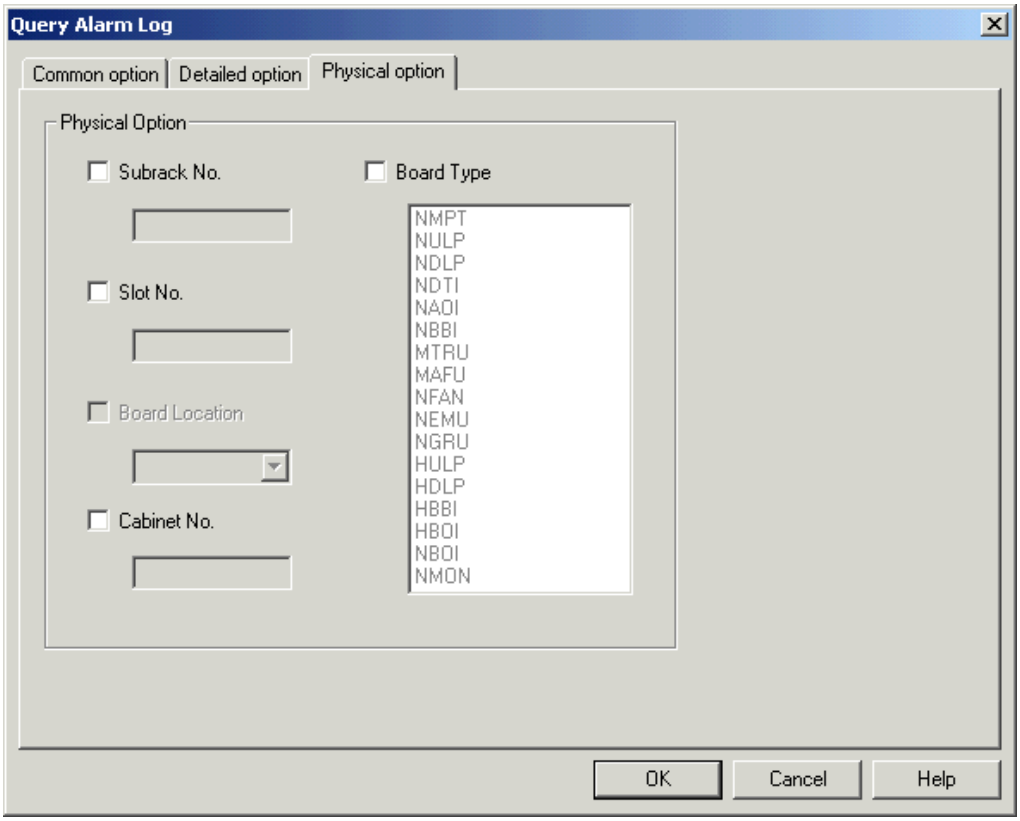

Figure 5-9 Physical option tab page

Table 5-10 describes the fields in the **Physical option** tab page.

Table 5-10 Field description of **Physical option** tab page

Field	Description
Subrack No.	To specify a subrack
Slot No.	To specify a slot
Board Location	Unavailable
Cabinet No.	To specify a cabinet
Board Type	To specify a board type

2) Set query conditions in the dialog box.
3) Click **OK**. The **Query Alarm Log** window for the query result opens up.

5.4.5 Querying Alarm Details

I. Introduction

Querying the alarm details refers to querying the details of an alarm, including:

- Alarm serial No.
- Alarm name
- Alarm raised time
- Alarm severity
- Location information
- Alarm source

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the detailed alarms:

1) Double click an alarm record in the alarm browse window.
2) The **Alarm Details** dialog box opens up as shown in Figure 5-10.

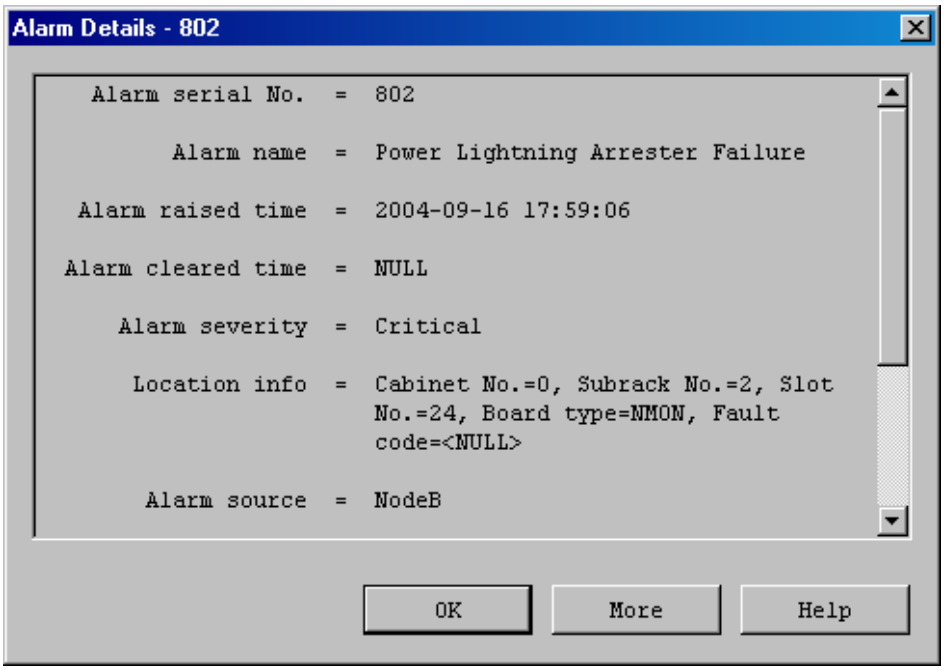

Figure 5-10 Alarm Details dialog box

5.4.6 Realtime Printing Alarms

I. Introduction

Realtime printing alarms indicate that the system automatically prints the reported alarm records according to the conditions.

II. Prerequisite

None.

III. Procedure

Follow the steps below to set the realtime print conditions in the NodeB alarm management system:

1) Select **System** -> **Realtime Print Setup**. The **Realtime Print Setup** dialog box opens up as shown as Figure 5-11.

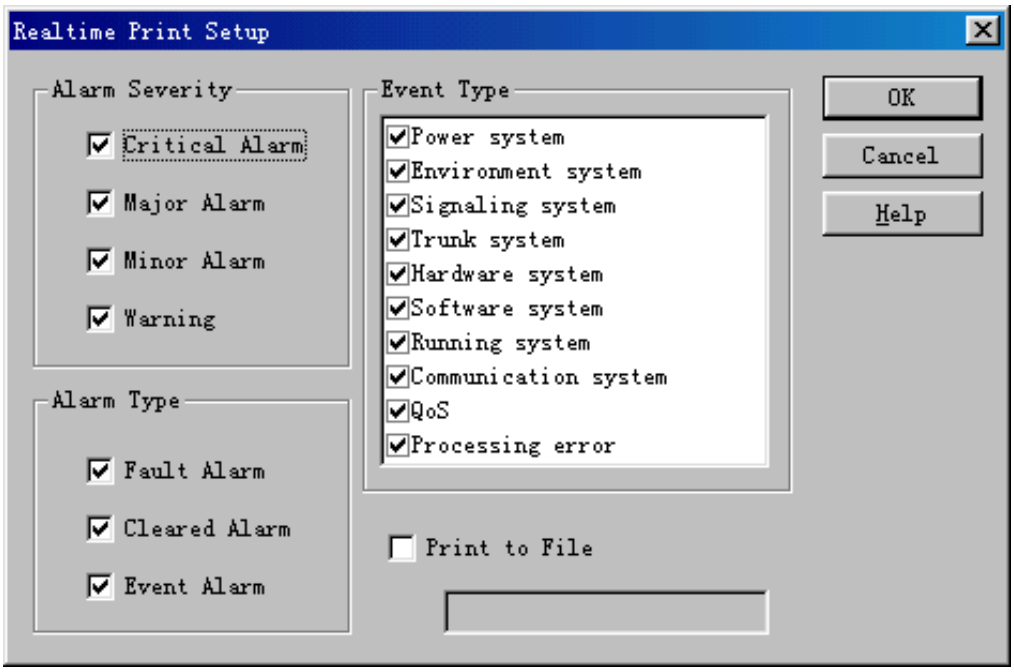

Figure 5-11 Realtime Print Setup dialog box

Table 5-11 describes the fields in the **Realtime Print Setup** dialog box.

Table 5-11 Field description of Realtime Print Setup dialog box

Field	Description
Alarm severity	To select a severity of alarms to print
Alarm type	To select a report type of alarms to print
Event alarm	To select an event type of alarms to print
Print to File	If you tick this box, you need to specify a file path. In this case, the system prints the selected alarm records to a file. If you do not tick it, the system prints the selected alarm records in real time.

2) Set the conditions for saving alarm records in the dialog box.
3) Tick **Print to File** to display the **Save as…** dialog box.
4) Select an existing file or enter a file name to create a new file in the dialog box.
5) Click **Save as…**. You are presented with the **Realtime Print Setup** dialog box.
6) Click **OK** in the dialog box.

The system starts to print the reported alarm records.

5.5 Handling NodeB Alarms

5.5.1 Overview

Handling NodeB alarms refers to querying NodeB alarm handling suggestions and shielded alarms.

5.5.2 Querying Alarm Handling Suggestions

I. Introduction

Querying alarm handling suggestions refers to querying alarm handling suggestions for the relevant alarms, including:

- Alarm meaning
- Impacting on system
- System actions
- Alarm handling

II. Prerequisite

None.

III. Procedure

There are two ways to query alarm handling suggestions.

Method One:

1) Select an alarm record in an alarm browse window.
2) Right click on that alarm to display the shortcut menu.
3) Select **More** in the menu to display the online help.

Method Two:

4) Double click an alarm record in an alarm browse window. The **Alarm Details** dialog box opens up as shown in Figure 5-10.
5) Click **More** to display the online help.

5.5.3 Shielded Alarms

I. Introduction

A shielded alarm indicates that the NodeB neither saves this alarm nor reports it to the alarm management system. In that case, you can not query the shielded alarm.

An unshielded alarm indicates that the NodeB saves this alarm and reports it to the NodeB management system. In that case, you can query the unshielded alarm.

Note:

If you set shielding conditions, those conditions take effect when next alarm occurs. Those uncleared alarms shall remain what they are.

II. Prerequisite

None.

III. Procedure

Follow the steps below to modify alarm configurations in the NodeB alarm management system:

1) Select **Management** -> **Alarm Configuration**. The **Query Alarm Configuration** dialog box opens up, as shown in Figure 5-12.

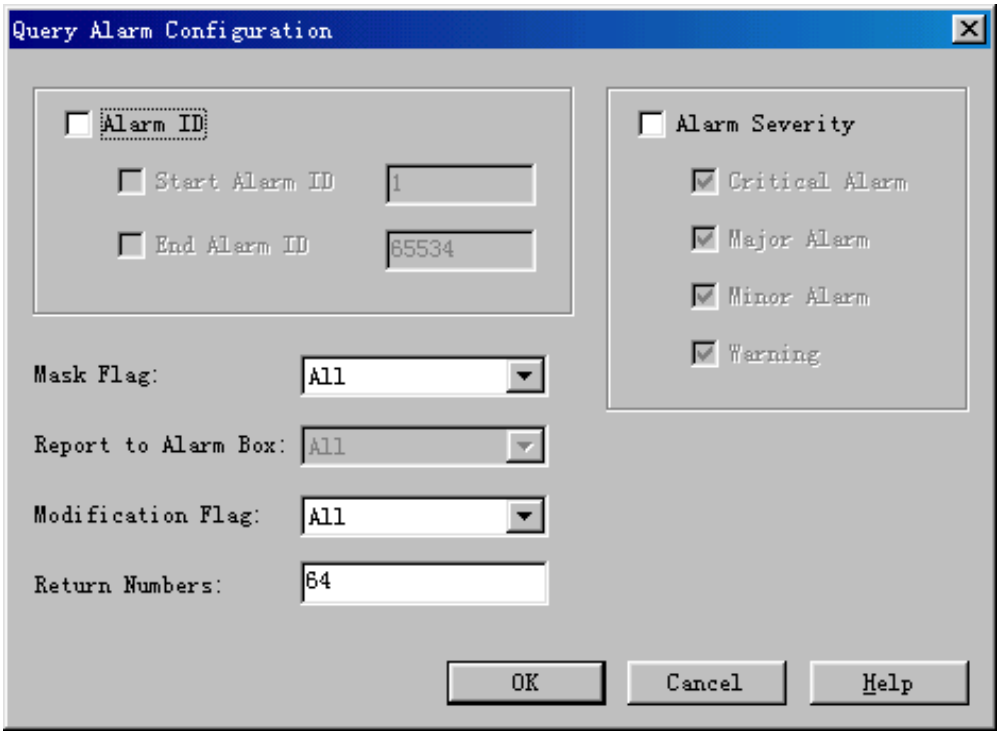

Figure 5-12 Query Alarm Configuration dialog box

Table 5-12 describes the fields in the **Query Alarm Configuration** dialog box.

Table 5-12 Field description of Query Alarm Configuration dialog box

Field	Description
Alarm ID	To specify an alarm ID range
Alarm Severity	To specify one or multiple alarm severities Default value: all severities
Mask Flag	Options: **Shielded**, **Unshielded** and **All** Default value: **All** If an alarm is shielded, the NodeB neither saves it nor reports it to the NodeB alarm management system. In this case, you can not query this alarm. If an alarm is not shielded, the NodeB saves the alarm and reports it to the alarm management system. In this case, you can query this alarm.
Report to Alarm Box	Unavailable
Modification Flag	Value: Modified, Unmodified, All Default value: All If the alarm severity, report-to-alarm-box flag, and mask flag of an alarm are modified, its modification flag is **Modified**. For the NodeB, the alarm severity and report-to-alarm-box flag can not be modified. Therefore, if the mask flag of an alarm is modified, its modification flag is **Modified**.
Return Numbers	To specify the number of records returned Default value: 64 Maximum value: 1000

2) Set query conditions in the dialog box.
3) Click **OK** to display the **Alarm Configuration Query Result** window for the query result.
4) Select an alarm record to be modified in the window. You can select one record only each time. Then click **Modify** to display the **Modify Alarm Configuration** dialog box as shown in Figure 5-13.

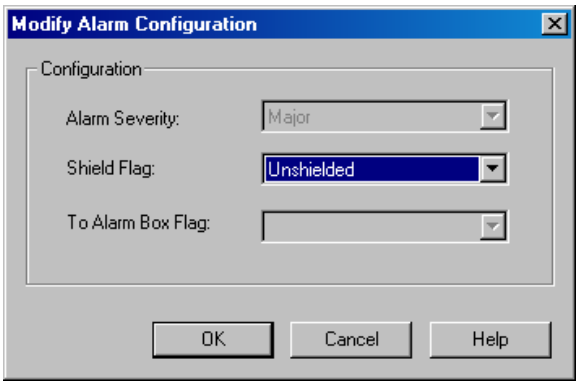

Figure 5-13 Modify Alarm Configuration dialog box

Table 5-13 describes the fields in the **Modify Alarm Configuration** dialog box.

Table 5-13 Field description of Modify Alarm Configuration dialog box

Field	Description
Alarm Severity	Unavailable
Shield Flag	Options: **Shielded** and **Unshielded**
To Alarm Box Flag	Unavailable

5) Modify **Shield Flag** in the dialog box.
6) Click **OK** to complete the modification.

Note:

Execute the MML command of **SET ALMSHLD** to modify the shield flag.

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Chapter 6 Managing Files

6.1 About This Chapter

This chapter describes how to manage the files, including

- Overview of File Management
- Uploading Files
- Browsing Files

6.2 Overview of File Management

6.2.1 File Types

Table 6-1 describes types of the NodeB LMT files.

Table 6-1 File types of NodeB LMT

File type	Function	Format	Remarks
Operation Log	To record the NodeB operation and maintenance information	In *.txt format	The operation log can be uploaded to the FTP server.
Equipment Archives	To record information of the boards on a NodeB, such as the manufacturing information and running duration of the boards	In *.xml format	The equipment archives can be uploaded to the FTP server.
Main Board Log Files	To record all the logs on the NMPT	In binary format	The main board log file can be uploaded to the FTP server.
Board Log Files	To record logs on other boards	In binary format	• The board log files can be uploaded to the FTP server. • Board log files may vary because some boards have no slave CPUs while some other boards have no DSPs.
RTWP Routine Test Log	To record and store related RTWP information in the routine test log after the RTWP routine test is started	In binary format	The RTWP routine test log can be uploaded to the FTP server.

6.2.2 Browsing Files

There are two ways to obtain and browse the files as follows:

- Browse files by logging into the FTP server after uploading the files to the server
- Browse the operation log through the M2000 server

6.3 Uploading Files

6.3.1 Uploading Operation Log

I. Introduction

Uploading the operation log refers to uploading the operation log to the FTP server.

This enables you to save and view the operation log.

II. Prerequisites

The prerequisites to upload the operation log are as follows:

- The FTP server works well and connects to the NodeB well within the same intranet.
- There is no firewall between the FTP server and the NodeB.
- The user name and password for the specified FTP Server are correct. Ensure that you have the authority to read (when downloading) and write (when uploading) data in the specified directory.

III. Procedure

Follow the steps below to upload the operation log:

1) Choose **Maintenance Navigator** -> **Software Management**. Then double-click the **Other File Transfer** subnode.
   The **Other File Transfer** dialog box opens up, as shown in Figure 6-1.

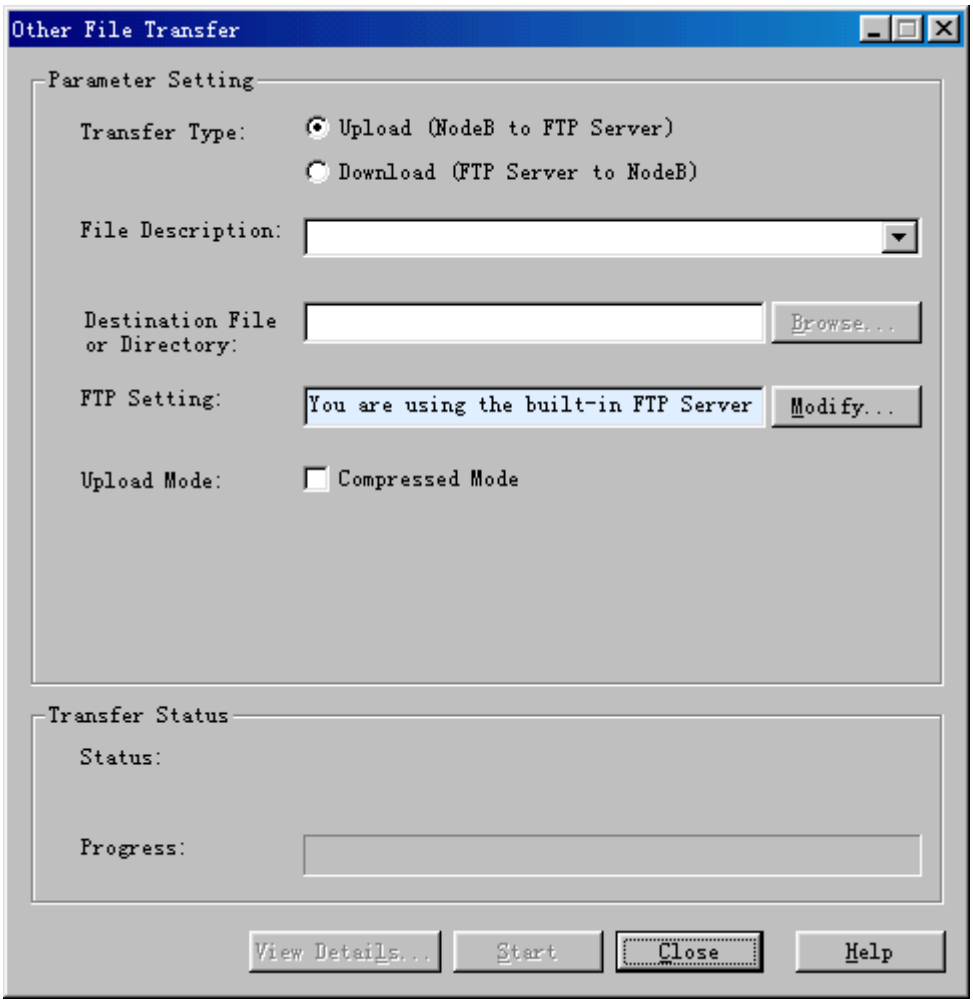

Figure 6-1 Other File Transfer dialog box

Table 6-2 describes the fields in the **Other File Transfer** dialog box.

Table 6-2 Field description of Other File Transfer dialog box

Field	Description
Transfer Type	If you select **Upload (NodeB to FTP Server)**, you may upload data files from the NodeB to the FTP Server. This enables you to view, modify and save the file.
File Description	The files include • **Operation log** • **Equipment archives** • **Main Board Log Files** • **Board Log Files** • **RTWP Routine Test Log File**

Field	Description
Destination File or Directory	• The directory or file in the FTP server in which data files are saved You may specify the directory or the name of a data file. • If you select **Upload (NodeB to FTP Server)**, it refers to the destination file or directory. • If you select **Download (FTP Server to NodeB)**, it refers to the source file.
FTP Setting	• To set the FTP server that saves data files to be uploaded or downloaded • The FTP server in use shall be listed in the **FTP Setting** box. • To set parameters for the FTP server, click **Modify**.
Upload Mode	• To decide whether to use the compressed mode • This mode is available only when you select **Upload (NodeB to FTP Server)**.

2) Click **Modify**.

The **FTP Settings** dialog box opens up, as shown in Figure 6-2.

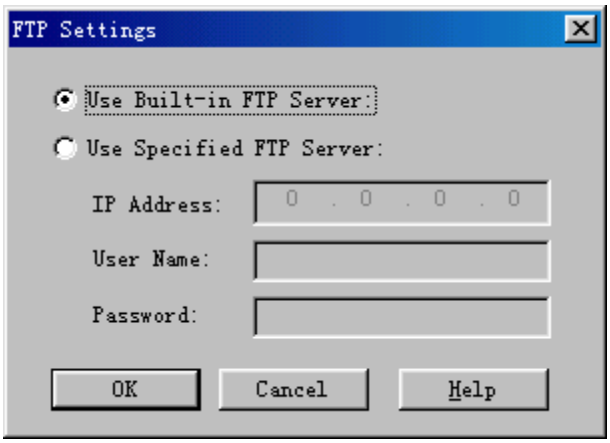

Figure 6-2 FTP Settings dialog box

Table 6-3 describes the fields of the **FTP Settings** dialog box.

Table 6-3 Field description of FTP Settings dialog box

Field	Description
Use Built-in FTP Server	• The FTP server built in the LMT • The built-in FTP server is started by default. • To stop the FTP server, select **System** -> **Stop FTP Server**. • To start the FTP server, select **System** -> **Start FTP Server**. • Select **System** -> **System Configuration**. You can set the user name and password for the built-in FTP server in the **System Configuration** dialog box.

Field	Description	
Use Specified FTP Server	IP Address	• To set the IP address for the computer where this FTP server is located • The FTP server can be the one started from the local computer installed with LMT or from another computer.
	User Name	• To set the user name for logging into the FTP server
	Password	• To set the password for logging into the FTP server

3) Set parameters in the dialog box.
4) Click **OK**.
   The **FTP Settings** dialog box is closed. You are presented with the **Other File Transfer** dialog box.
5) Choose **Upload (NodeB to FTP Server)** in **Transfer Type**.
6) Choose **Operation Log** in **File Description**.
7) Complete other settings in the dialog box.
8) Click **Start**.

The system starts to upload the operation log.

Note:

Execute the MML command of **ULD FILE** to upload operation log.

6.3.2 Uploading Equipment Archives

I. Introduction

Uploading equipment archives refers to uploading the equipment archives to the FTP server.

This enables you to view and save the equipment archives.

II. Prerequisites

- The MML command of **EXP DEVFILE** must be executed to generate equipment archives.
- Other prerequisites are the same to those for uploading the operation log. See 6.3.1 "Uploading Operation Log".

III. Procedure

Follow the steps below to upload the equipment archives:

1) Choose **Maintenance Navigator** -> **Software Management**. Then double-click the **Other File Transfer** subnode.
   The **Other File Transfer** dialog box opens up, as shown in Figure 6-1.
2) Click **Modify**.
   The **FTP Settings** dialog box opens up, as shown in Figure 6-2.
3) Set parameters in the dialog box.
4) Click **OK**.
   The **FTP Settings** dialog box is closed. You are presented with the **Other File Transfer** dialog box.
5) Choose **Upload (NodeB to FTP Server)** in **Transfer Type**.
6) Choose **Equipment Archives** in **File Description**.
7) Complete other settings in the dialog box.
8) Click **Start**.

The system starts to upload the equipment archives.

Note:

Execute the MML command of **ULD DEVFILE** to upload the equipment archives.

6.3.3 Uploading Main Board Log Files

I. Introduction

Uploading the main board log files refers to uploading the main board log files to the FTP server.

This enables you to view and save the files.

II. Prerequisites

- The prerequisites are the same to those for uploading the operation log. See 6.3.1 "Uploading Operation Log".

III. Procedure

Follow the steps below to upload the main board log files:

1) Choose **Maintenance Navigator** -> **Software Management**. Then double-click the **Other File Transfer** subnode.
   The **Other File Transfer** dialog box opens up, as shown in Figure 6-1.
2) Click **Modify**.
   The **FTP Settings** dialog box opens up, as shown in Figure 6-2.
3) Set parameters in the dialog box.
4) Click **OK**.
   The **FTP Settings** dialog box is closed. You are presented with the **Other File Transfer** dialog box.
5) Select **Upload (NodeB to FTP Server)** in **Transfer Type**.
6) Select **Main Board Log Files** in **File Description**.
7) Complete other settings in the dialog box.
8) Click **Start**.

The system starts to upload the main board log files.

Note:

Execute the MML command of **ULD FILE** to upload the main board log files.

6.3.4 Uploading Board Log Files

I. Introduction

Uploading the board log files refers to uploading the board log files to the FTP server.

This enables you to view and save the board log files.

II. Prerequisites

- The prerequisites are the same to those for uploading the operation log. See 6.3.1 "Uploading Operation Log".

III. Procedure

Follow the steps below to upload the board log files:

1) Choose **Maintenance Navigator** -> **Software Management**. Then double-click the **Other File Transfer** subnode.
   The **Other File Transfer** dialog box opens up, as shown in Figure 6-1.
2) Click **Modify**.
   The **FTP Settings** dialog box opens up, as shown in Figure 6-2.
3) Set parameters in the dialog box.

4) Click **OK**.
   The **FTP Settings** dialog box is closed. You are presented with the **Other File Transfer** dialog box.
5) Select **Upload (NodeB to FTP Server)** in **Transfer Type**.
6) Select **Board Log Files** in **File Description**.
7) Complete other settings in the dialog box.
8) Click **Start**.

The system starts to upload the board log files.

Note:

Execute the MML command of **ULD FILE** to upload the board log files.

6.3.5 Uploading RTWP Routine Test Log

I. Introduction

Uploading the RTWP routine test log refers to uploading the RTWP routine test log to the FTP server.

This enables you to view and save the RTWP routine test log.

II. Prerequisites

- The prerequisites are the same to those for uploading the operation log. See 6.3.1 "Uploading Operation Log".

III. Procedure

Follow the steps below to upload the board log files:

1) Choose **Maintenance Navigator** -> **Software Management**. Then double-click the **Other File Transfer** subnode.
   The **Other File Transfer** dialog box opens up, as shown in Figure 6-1.
2) Click **Modify**.
   The **FTP Settings** dialog box opens up, as shown in Figure 6-2.
3) Set parameters in the dialog box.
4) Click **OK**.
   The **FTP Settings** dialog box is closed. You are presented with the **Other File Transfer** dialog box.
5) Select **Upload (NodeB to FTP Server)** in **Transfer Type**.
6) Select **RTWP Routine Test Log** in **File Description**.
7) Complete other settings in the dialog box.
8) Click **Start**.

The system starts to upload the RTWP routine test log.

6.4 Browsing Files

6.4.1 Browsing Files on FTP Server

I. Introduction

Browsing files refers to browsing the uploaded files by logging into the FTP server.

II. Prerequisite

The files have been uploaded to the FTP server.

III. Procedure

Follow the steps below to browse the uploaded files on the FTP server:

1) Upload the files to the FTP server. For details, see 6.3 "Uploading Files".
2) Browse the uploaded files by logging into the FTP server.

6.4.2 Browsing Operation Log on M2000 Server

I. Introduction

You can query the NodeB operation log on the M2000 server

II. Prerequisite

You have authority to query the NodeB operation log.

III. Procedure

For details, see *iManager M2000 Mobile Element Management System Operation Manual.*

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Chapter 7 Managing NodeB and Boards

7.1 About This Chapter

This chapter describes how to manage the NodeB and the boards on the NodeB O&M system, including

- Basic Equipment Panel Operation
- NodeB-level Operation
- Board-level Operation

The NodeB O&M system provides an equipment panel for users to make the operations more visual and convenient. All the operations conducted through the equipment panel can also be realized by MML commands.

7.2 Basic Equipment Panel Operation

7.2.1 Introduction to Equipment Panel

The NodeB provides multiple maintenance means. Besides the MML command, the NodeB O&M system provides a GUI equipment panel. This makes the equipment maintenance more visual and convenient.

7.2.2 Functions of Equipment Panel

Select a board and then right-click on it to display a shortcut menu on the equipment panel. You can perform the following operations by selecting different menus:

- Querying board status
- Querying board version
- Resetting board

Note:

For detailed operations on boards, see section 7.4 "Board-level Operation".

7.2.3 Interface of Equipment Panel

Figure 7-1 shows the interfaces of equipment panel. The panel automatically refreshes to query the board status in real time.

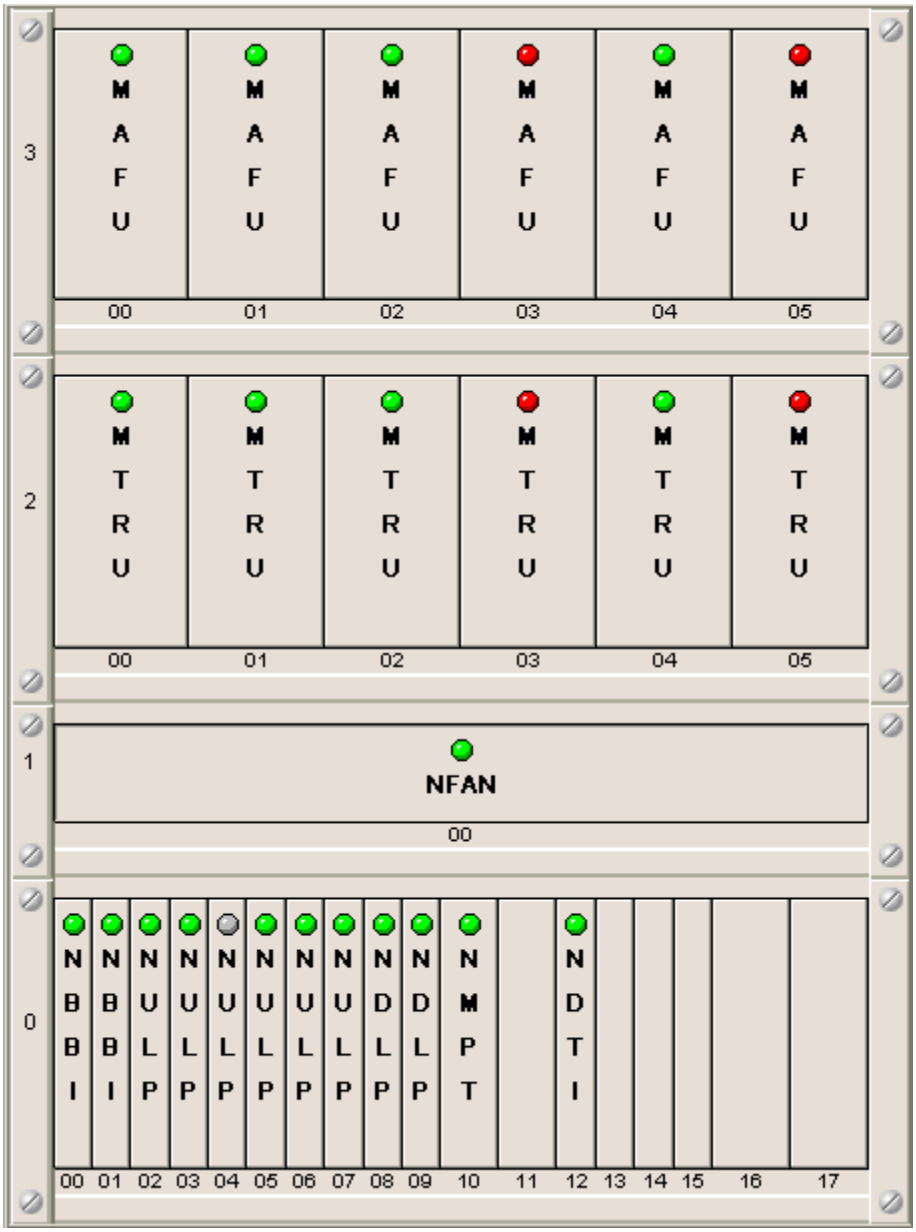


Figure 7-1 Interface of equipment panel

II. Board Indicators

In Figure 7-1, there is an indicator on each board, indicating the present board status.

Figure 7-2 illustrates the meaning of board indicators.

	Normal
	Active Normal
	Standby Normal
	Faulty
	Absent
	Blocked Normal
	Not Configured
	Blocked Faulty
	Inconsistent

Figure 7-2 Meaning of board indicators

III. Fault Bar

The fault bar is used to display active alarms on the board in real time.

For example, the fault bar message **0-0-3-NULP-Fault** indicates the NULP board in slot No. 3, subrack No. 0 and cabinet No. 0 is faulty.

Symbol **||** is used to divide two alarms from each other. When all the alarms are displayed, the fault bar starts rolling to display the alarms from the beginning.

7.2.4 Starting Equipment Panel

I. Introduction

The LMT provides a GUI equipment panel. This makes the equipment management more visual and convenient.

II. Prerequisite

None.

III. Procedure

Follow the steps below to start the equipment panel:

1) Choose **Maintenance Navigator** -> **Rack Node**.
2) Double-click **Master Cabinet** subnode.

The system displays the equipment panel of the cabinet in the right pane.

7.2.5 Showing or Hiding Board Indicators

I. Introduction

You can make preliminary decision of the board status by observing the color of each board indicator.

II. Prerequisite

None.

III. Procedure

To show or hide the indicators as shown in Figure 7-2, follow either way below:

- Click on the upper right of the equipment panel,
- Press **Ctrl + L**.

7.2.6 Showing or Hiding Fault Bar

I. Introduction

The fault bar displays active alarms in real time.

II. Prerequisite

None.

III. Procedure

Follow the steps below to show or hide the fault bar:

1) To display the fault bar, click on the upper right of the equipment panel, or press **Ctrl+F**.

Note:

The system displays the fault bar by default.
There are three ways to close the fault bar as follows:

- Click on the upper right of the equipment panel
- Press **Ctrl + F**
- Close it directly

2) To start the equipment panel, see 7.2.4 "Starting Equipment Panel". If there is an active alarm on the device, it is displayed by rolling the fault bar.

7.3 NodeB-level Operation

7.3.1 Overview

Operations on the NodeB include:

- Querying NodeB Running Version
- Querying NodeB Software Version
- Modifying NodeB Time
- Modifying NodeB Password
- Resetting NodeB

7.3.2 Querying NodeB Running Version

I. Introduction

You can query the information of the NodeB running version.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the NodeB running version:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select the active NMPT of the master cabinet on the panel.

Note:

For the DBS3800, select MBBU on the panel.

3) Right-click on the NMPT and select **List NodeB Running Version** on the shortcut menu.
The system displays the **Query Result** pane as shown in Figure 7-3, listing the NodeB version information.

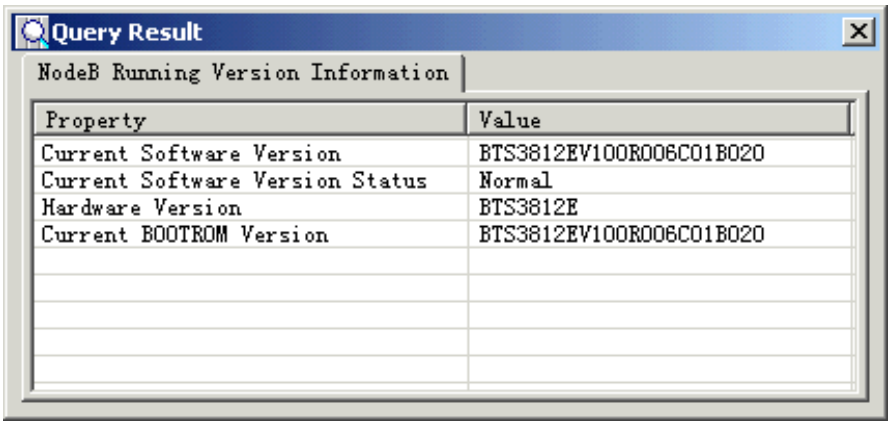


Figure 7-3 Query Result pane

Note:

You can also query the NodeB running version by the MML command of **LST VER**.

7.3.3 Querying NodeB Software Version

I. Introduction

You can check whether the NodeB is upgraded by querying the NodeB software version.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the NodeB software version:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
The system displays the equipment panel of the cabinet in the right pane.
2) Select the active NMPT of the master cabinet on the panel.

Note:

For the DBS3800, select the MBBU on the panel.

3) Right-click on the NMPT and select **List NodeB Software Version** on the shortcut menu.

   The system displays the **Query Result** pane as shown in Figure 7-4 and Figure 7-5, listing the NodeB software version information and NodeB BOOTROM version information.

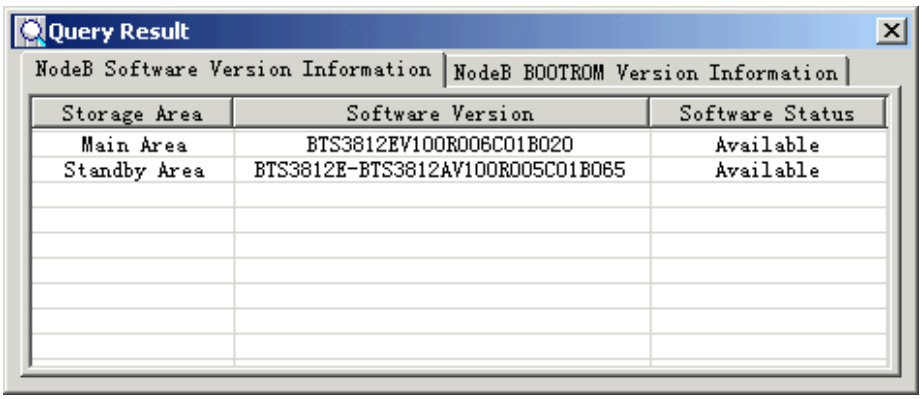


Figure 7-4 NodeB Software Version Information pane

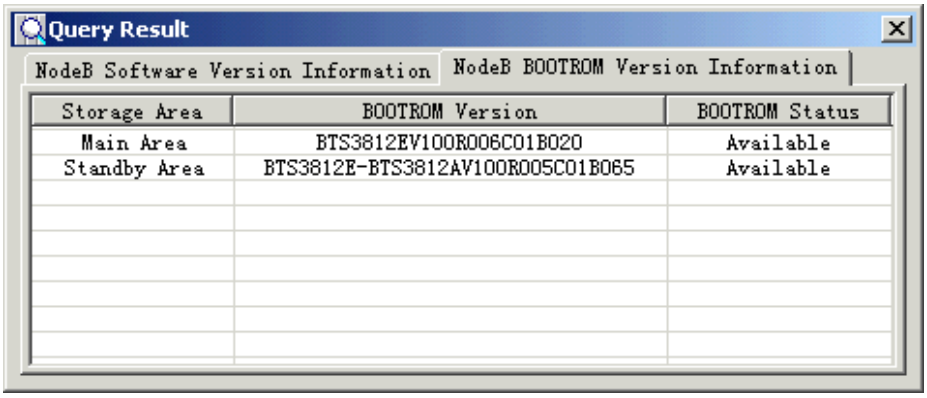


Figure 7-5 NodeB BOOTROM Version Information pane

Note:

You can also query the NodeB running software version by the MML command of **LST SOFTWARE**.

7.3.4 Modifying NodeB Time

I. Introduction

Caution:

The NodeB time is very important for alarm logs, operation logs and services records. Modify the NodeB time with caution.

You can maintain NodeBs of different versions through the same LMT. But at the same time, you can maintain only one NodeB on that LMT. The NodeB and the LMT must be synchronized to avoid time inconsistency in alarm logs and operation logs.

II. Prerequisite

None.

III. Procedure

If the time difference between LMT and NodeB is greater than five minutes, the system displays a **Time Synchronization Check** dialog box, listing the LMT time and NodeB time and prompting whether to synchronize the LMT time with the NodeB time.

- If the NodeB time is precise, click **Modify** to synchronize the LMT time with the NodeB time.
- If the NodeB time is not precise, click **Cancel** and log into the NodeB to modify the NodeB time by the MML command of **MOD TM**.

Note:

- You may query the NodeB time by the MML command of **DSP TM** before the modification to decide whether to modify the time.
- You may query the NodeB time by the MML command of **DSP TM** after the modification to check whether the modification is valid.
- If the SNTP function is enabled, the NodeB time shall be synchronized with the SNTP server time periodically. Even if NodeB time is modified, it will still be synchronized in next synchronization. If the SNTP function is not enabled, the modified NodeB time will remain valid.
- Relevant MML commands: **SET SNTPCLTPARA** (to set SNTP client parameters) and **LST SNTPCLTPARA** (to list SNTP client parameters).

7.3.5 Modifying NodeB Password

I. Introduction

This function is to modify the password for logging into the NodeB. You can log into the NodeB only when you enter the correct password.

II. Prerequisite

None.

III. Procedure

Caution:

- The setting takes effect upon completion for users who log into the NodeB after the modification. However, the new password does not affect your normal operation if you have logged into the NodeB before the modification.
- Users who have authority to modify the NodeB password have to be either an M2000 server user or an O&M system user. Alarm management users have no authority to modify the NodeB password.

Follow the steps below to modify the NodeB password:

1) In the NodeB O&M system, select **System** -> **Change Password** to display the **Change Password** dialog box as shown in Figure 7-6.

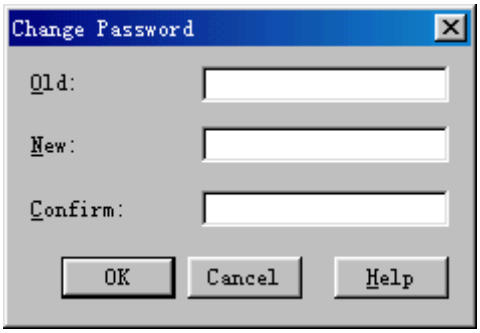


Figure 7-6 Change Password dialog box

2) Enter the old and new passwords.
3) Click **OK** to complete the password modification.

7.3.6 Resetting NodeB

I. Introduction

Caution:

Resetting the NodeB shall interrupt services on the NodeB.

You need to reset the NodeB upon a NodeB failure or after the configuration update.

II. Prerequisite

None.

III. Procedure

Follow the steps below to reset the NodeB:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select the active NMPT of the master cabinet on the panel.

Note:

For the DBS3800, select the MBBU on the panel.

3) Right-click on the NMPT and select **Reset Board** on the shortcut menu.
4) Click **Yes** in the dialog box to reset the board.
   The system displays the result and automatically refreshes the status of board indicators in accordance with the result.

Note:

You can also reset the NodeB by the MML command of **RST SYS**.

7.4 Board-level Operation

7.4.1 Overview

Operations of board management vary from different types of boards. Table 7-1 describes the actions related to boards.

Table 7-1 Actions related to boards

NodeB type	Board	Action
Macro NodeB	All boards	Reset board (Except MAFU)
		Display board status
		Query active alarms
		Display board version
	HDLP (NDLP)/HULP (NULP)/HBBI/MTRU/ MAFU	Block/Unblock board
	NMPT	List NodeB software version (Valid for active NMPT only)
		List NodeB running version (Valid for active NMPT only)
		Display current clock status For details, see section 12.3.3 "Displaying Current Clock Status".
	NAOI/NDTI	Display E1/T1 status
		Display E1/T1 work mode
		Display Iub optical port status (Valid for NAOI only)
		Display Iub optical port work mode (valid for NAOI only)
DBS3800	All NodeBs	Reset board
		Display board status
		Query active alarms
		Display board version
		Block/Unblock board
	MBBU	List NodeB software version
		List NodeB running version
		Display current clock status

NodeB type	Board	Action
		Display E1/T1 status
		Display E1/T1 work mode

7.4.2 Querying Board Status

I. Introduction

You can display the running status of a board to monitor the running status of a NodeB. Table 7-2 describes the detailed board status.

Table 7-2 Board status description

Type	Board status	Description
Active/Standby status		• It indicates the board is active or standby. • For a macro NodeB, it applies to the NMPT only.
	Active	The board is active.
	Standby	The board is standby.
	None	Not applicable
Availability status		Physical availability of the board
	Normal	The board works normally.
	Faulty	There is an alarm on the board.
	Uninstall	The board is configured but not inserted.
	Not configured	The board is inserted but not configured.
	Not consistent	The configured board is not consistent with the inserted board in type.
Operation status		Whether the board supports services establishment
	Usable	The board supports services establishment.
	Unusable	The board does not support services establishment.
Admin status		• Whether the board needs to support service establishment • For a macro NodeB, this status is only applicable to the HULP/NULP, HDLP/NDLP, HBBI, MTRU and MAFU. • For all the other boards, this status shall be set to Null.
	Usable	The board needs to support services establishment
	Unusable	The board does not need to support services establishment

Type	Board status	Description
	None	The board is not manageable.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the board status:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select a board on the equipment panel.
3) Right-click and select **Display Board Status** on the shortcut menu.
   The system displays a dialog box, showing the running status of that board.

Note:

Follow either way below to query the board status:

- Execute the MML command of **DSP BRD**
- Check the board indicators

For details, see sections 7.2.3 II. "Board Indicators" and 7.2.5 "Showing or Hiding Board Indicators".

7.4.3 Querying Active Alarms on Board

I. Introduction

Listing active alarms enables you to locate and remove the fault on a board in time.

II. Prerequisite

None.

III. Procedure

Follow the steps below to list active alarms:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select a board on the panel.
3) Right-click on the board and select **Query Active Alarms** on the shortcut menu.
   The system displays a dialog box, showing the uncleared fault alarms of that board.

Note:

You can also query the active alarms of a specified board by the MML command of **LST ALMAF**.

7.4.4 Querying Board Version

I. Introduction

You can check whether the board versions are consistent with the NodeB version by querying the running versions of all the boards, including

- CPU number
- Board software version
- Board hardware version
- Board BOOTROM version

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the board version:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select a board on the panel.
3) Right-click on the board and select **Display Board Version** on the shortcut menu.

The system displays a dialog box showing the version information of that board.

Note:

You can also query the version information of a specified board by the MML command of **DSP BRDVER**.

7.4.5 Querying E1/T1 Status

I. Introduction

You can check the status of all E1/T1 links of an NDTI/NAOI.

The result shows the current status of all E1/T1 links of the board.

- For NAOI, the links are E1/T1 links 0 to 3.
- For NDTI, the links are E1/T1 links 0 to 7.

Note:

For the DBS3800, you can check the status of E1/T1 links by checking the MBBU on the equipment panel.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the status of E1/T1 links:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select an NDTI/NAOI on the equipment panel.

Note:

For the DBS3800, select the MBBU on the equipment panel.

3) Right-click on the board and select **Display E1/T1 State** on the shortcut menu.
   The system displays the **Display E1/T1 State** dialog box as shown in Figure 7-7.

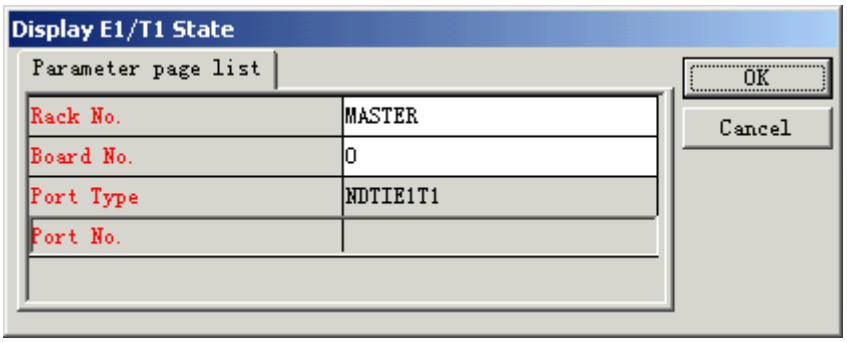


Figure 7-7 Display E1/T1 State dialog box

4) Set parameter for **Port No.** in the dialog box and click **OK**.

The system displays a **Query Result** dialog box as shown in Figure 7-8, listing the query result.

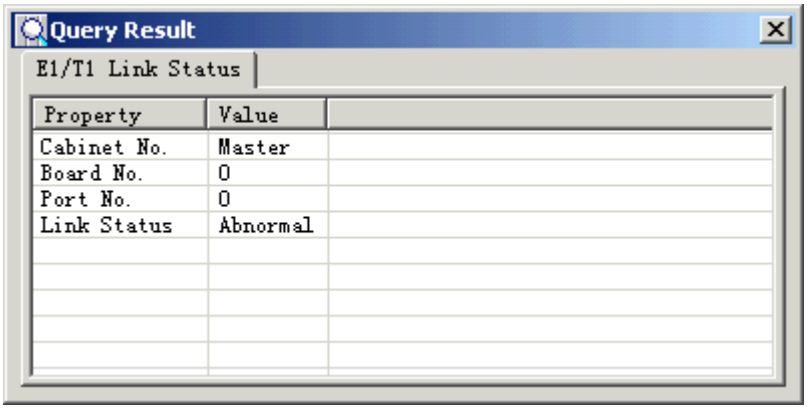


Figure 7-8 Query Result dialog box

Note:

You can also query the status of E1/T1 links by the MML command of **DSP E1T1**.

7.4.6 Querying E1/T1 Work Mode

I. Introduction

You can query the work mode of the E1/T1 links of an NDTI/NAOI.

The result shows the work mode of all E1/T1 links of the board.

- For NAOI, the links are E1/T1 links 0 to 3.
- For NDTI, the links are E1/T1 links 0 to 7.

Note:

For the DBS3800, you can check the work mode of E1/T1 links through the MBBU on the equipment panel.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the E1/T1 work mode:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select an NDTI/NAOI on the equipment panel.

Note:

For the DBS3800, select MBBU on the equipment panel.

3) Right-click on the board and select **Display E1/T1 Work Mode** on the shortcut menu.
   The system displays the **Display E1/T1 Work Mode** dialog box as shown in Figure 7-9.

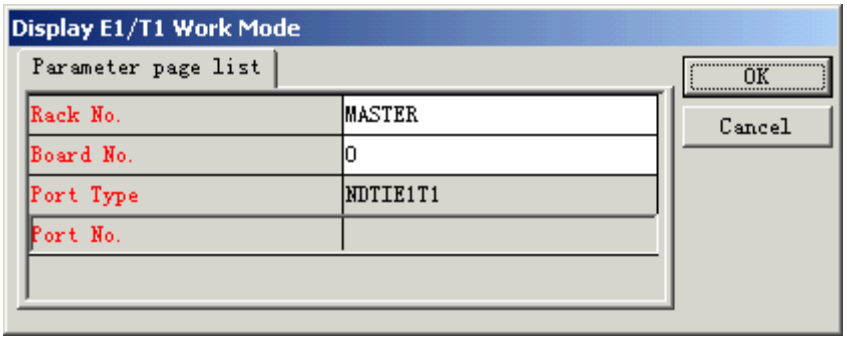
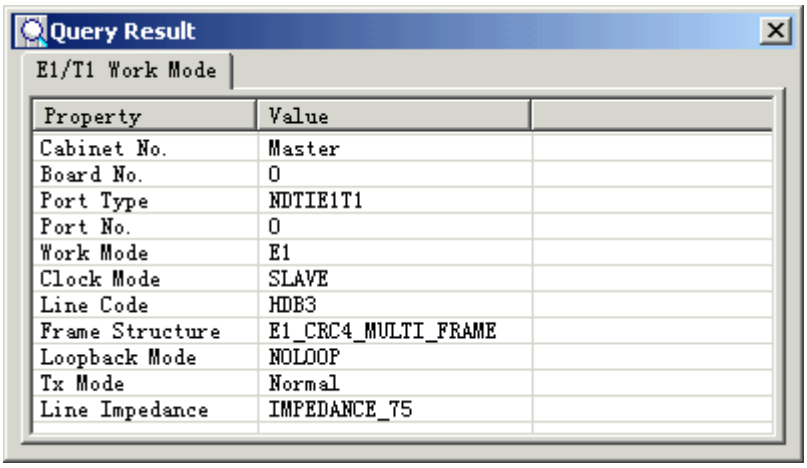


Figure 7-9 Display E1/T1 Work Mode dialog box

4) Set parameter for **Port No.** in the dialog box and click **OK**.

The system displays a **Query Result** dialog box as shown in Figure 7-10, listing the query result.



Property	Value
Cabinet No.	Master
Board No.	0
Port Type	NDTIE1T1
Port No.	0
Work Mode	E1
Clock Mode	SLAVE
Line Code	HDB3
Frame Structure	E1_CRC4_MULTI_FRAME
Loopback Mode	NOLOOP
Tx Mode	Normal
Line Impedance	IMPEDANCE_75

Figure 7-10 Query Result dialog box

Note:

You can query the E1/T1 work mode only when the NAOI/NDTI works well or in alarm status.

Note:

You can also query the E1/T1 work mode of a specified board by the MML command of **DSP E1T1WORKMODE**.

7.4.7 Querying STM-1 Status

I. Introduction

You can query the STM-1 status of an NAOI. The result shows the current status of Iub optical interface links 0 and 1 of the NAOI.

Note:

This command is valid for macro NodeBs only.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the STM-1 status:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select an NAOI on the equipment panel.
3) Right-click on the NAOI and select **Display STM-1 State** on the shortcut menu.
   The system displays the **Display STM-1 State d**ialog box.
4) Set the parameter for **STM1 No.** in the dialog box and click **OK**.

The system displays a dialog box listing the query result.

Note:

You can query the Iub optical interface status only when the NAOI/NDTI works well or in alarm status.

Note:

You can also query the Iub optical interface status of a specified board by the MML command of **DSP STM1**.

7.4.8 Querying STM-1 Work Mode

I. Introduction

You can query the STM-1 work mode of an NAOI. The result shows the work mode of Iub optical interface links 0 and 1 of the NAOI.

Note:

This command is valid for macro NodeBs only.

II. Prerequisite

None.

III. Procedure

Follow the steps below to query the Iub optical interface work mode:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select an NAOI on the equipment panel.
3) Right-click on the board and select **Display STM-1 Work Mode** on the shortcut menu.
   The system displays the **Display STM-1 Work Mode** dialog box.
4) Set the parameter for **STM1 No.** in the dialog box and click **OK**.

The system displays a dialog box listing the query result.

Note:

You can query the STM-1 work mode only when the NAOI/NDTI works well or in alarm status.

Note:

You can also query the STM-1 work mode of a designated board by the MML command of **DSP STM1WORKMODE**.

7.4.9 Blocking/Unblocking Board

I. Introduction

You may block or unblock an HULP/NULP, HDLP/NDLP, HBBI, MTRU, MTRU or MAFU on a macro NodeB to locate faults without interrupting the system services.

If a board is blocked, the board is available but cannot process services. Services on that board shall be cleared and those accessed afterwards shall be shifted to other boards.

II. Prerequsite

None.

III. Procedure

Follow the steps below to block a board:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select a board on the equipment panel.
3) Right-click on the board and select **Block Board** on the shortcut menu. The system displays a dialog box.
4) Click **Yes** in the dialog box.

The system displays the result and refreshes the board indicator.

Note:

- You can block an HULP/NULP, HDLP/NDLP, HBBI, MTRU, MTRU or MAFU only when it is in normal or faulty state.
- You can unblock a board only when it is blocked.
- You can block or unblock the above boards repeatedly.
- The procedure of unblocking a board is similar to that of blocking a board. You can unblock a board by right-clicking on a blocked board and then selecting **Unblock Board**.

Note:

- You can also block a board by the MML command of **BLK BRD**.
- You can also unblock a board by the MML command of **UBL BRD**.

7.4.10 Resetting Board

I. Introduction

Caution:

Resetting a board may interrupt the services on the board.

You can reset a board when it is faulty. The operation initializes and recovers the board.

II. Prerequisite

None.

III. Procedure

Follow the steps below to reset the board:

1) Choose **Maintenance Navigator** -> **Rack Node**. Then double-click **Master Cabinet** subnode.
   The system displays the equipment panel of the cabinet in the right pane.
2) Select a board on the equipment panel.
3) Right-click on the board and select **Reset Board** on the shortcut menu. The system displays a dialog box.
4) Click **Yes** in the dialog box.

The system displays the result and refreshes the board indicator.

Note:

You can also reset a board by the MML command of **RST BRD**.

7.4.11 Adding/Removing Board

I. Introduction

Caution:

The operation modifies the data configuration file of the NodeB.

You can add or remove a board. This action changes the NodeB capacity.

Note:

This command is valid for a macro NodeB only .

II. Prerequisite

None.

III. Procedure

You can add or remove a board by an MML command:

- Add a board by the MML command of **ADD BRD**.
- Remove a board by the MML command of **RMV BRD**.

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