DBS3900 GSM

V300R008

Site Maintenance Terminal User Guide

Issue 04

Date 2008-09-05

Part Number

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About This Document

Purpose

This describes the procedures for installing the DBS3900 GSM site maintenance terminal. It also describes the functions and interfaces of the different parts of the DBS3900 GSM site maintenance terminal. In addition, it provides instructions for common DBS3900 GSM operations.

Product Version

The following table lists the product version related to this document.

Product Name	Product Version
DBS3900 GSM(referred to as DBS3900 in this manual)	V300R008

Intended Audience

This guide is intended for the engineers who maintain the BTS through the site maintenance terminal. The engineers should have the basic knowledge of radio communications, IP, windows operations, and BTS. This document is intended for:

- System engineers
- Field engineers
- Shift operators
- Network operators

Change History

For changes in the document, refer to **Changes in DBS3900 GSM Site Maintenance Terminal User Guide**.

Organization

1 Introduction to the Site Maintenance Terminal

This describes the definitions, functions, logical objects, and software window of the Site Maintenance Terminal. The Site Maintenance Terminal is used to commission, maintain, and troubleshoot a BTS.

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2 Installing the Site Maintenance Terminal

This describes how to install the Site Maintenance Terminal application on a Site Maintenance Terminal PC.

3 Getting Started with the Site Maintenance Terminal

This describes how to connect the Site Maintenance Terminal PC to the BTS, log in to the Site Maintenance Terminal System, and exit the Site Maintenance Terminal, after the Site Maintenance Terminal application is installed.

4 Using the Site Management Rights

The operations of the site management rights involve obtaining the site management rights and releasing the site management rights.

5 Managing Sites

The site management involves viewing site resources, querying the delay in reporting board alarms, resetting the BTS, testing whether the boards in a site operate normally and whether the connection of transmit links is normal, monitoring and managing the environment parameters in a site, viewing the board parameters of the BTS, testing the RF specifications, and viewing the settings of parameters in a ring network and the bar codes of a site.

6 Managing Cells

The cell management involves managing cell attributes and cell extended attributes, testing all the BTs and RCs of a cell so that they can be locked or unlocked, and checking whether the BTs and RCs are functional.

7 Managing BTs

The BT management involves locking or unlocking a BT, resetting a BT, performing the RC self-test, view the status of the channels on a specified BT, and enabling a specified RC to transmit signals at a predefined power level.

8 Managing RCs

The RC management involves setting the attributes and extended attributes of an RC, locking or unlocking an RC, resetting an RC, and adjusting power of an RC automatically.

9 Managing Channels

The channel management involves viewing and setting channel attributes, locking or unlocking a channel, and checking the quality of a channel by testing the parameters such as the bit error ratio (BER) and transmit power.

10 BBU Operations

The BBU operations involve the query, configuration, and test operations associated with the BBU. You can query the board settings, board information, board extended information, board alarms, and port attributes. You can also perform operations such as board reset, power-off reset, self-test, clock configuration, loopback test, and parameter management.

11 RRU Operations

The RRU operations involve the query, configuration, and test operations associated with the RRU. You can query the board information, board extended information, and board alarms. You can also perform operations such as the board reset, power-off reset, operation start, self-test, loopback test, parameter management, and antenna mode configuration.

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12 RRU Configurations

The RRU configurations involve adding or removing a ring, displaying in-position boards, detecting in-position boards, setting and canceling a breakpoint.

Conventions

1. Symbol Conventions

The following symbols may be found in this document. They are defined as follows

Symbol	Description
DANGER	Indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium or low level of risk which, if not avoided, could result in minor or moderate injury.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could cause equipment damage, data loss, and performance degradation, or unexpected results.
TIP	Indicates a tip that may help you solve a problem or save your time.
NOTE	Provides additional information to emphasize or supplement important points of the main text.

2. General Conventions

Convention	Description
Times New Roman	Normal paragraphs are in Times New Roman.
Boldface	Names of files,directories,folders,and users are in **boldface**. For example,log in as user **root** .
Italic	Book titles are in *italics*.
`Courier New`	Terminal display is in Courier New.

3. Command Conventions

Convention	Description
Boldface	The keywords of a command line are in **boldface**.
Italic	Command arguments are in *italic*.
[ ]	Items (keywords or arguments) in square brackets [ ] are optional.

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Convention	Description
{x | y | ...}	Alternative items are grouped in braces and separated by vertical bars.One is selected.
[x | y | ...]	Optional alternative items are grouped in square brackets and separated by vertical bars.One or none is selected.
{ x | y | ... } *	Alternative items are grouped in braces and separated by vertical bars.A minimum of one or a maximum of all can be selected.
[x | y | ...] *	Alternative items are grouped in braces and separated by vertical bars.A minimum of zero or a maximum of all can be selected.

4. GUI Conventions

Convention	Description
Boldface	Buttons,menus,parameters,tabs,window,and dialog titles are in **boldface**. For example,click **OK**.
>	Multi-level menus are in **boldface** and separated by the ">" signs. For example,choose **File** > **Create** > **Folder** .

5. Keyboard Operation

Convention	Description
Key	Press the key.For example,press **Enter** and press **Tab**.
Key1+Key2	Press the keys concurrently.For example,pressing **Ctrl+Alt+A** means the three keys should be pressed concurrently.
Key1,Key2	Press the keys in turn.For example,pressing Alt,A means the two keys should be pressed in turn.

6. Mouse Operation

Action	Description
Click	Select and release the primary mouse button without moving the pointer.
Double-click	Press the primary mouse button twice continuously and quickly without moving the pointer.
Drag	Press and hold the primary mouse button and move the pointer to a certain position.

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1 Introduction to the Site Maintenance Terminal

About This Chapter

This describes the definitions, functions, logical objects, and software window of the Site Maintenance Terminal. The Site Maintenance Terminal is used to commission, maintain, and troubleshoot a BTS.

The Site Maintenance Terminal provides a graphical user interface (GUI) for operation and maintenance.

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1.1 Definitions Related to the Site Maintenance Terminal

This describes the difference between the Site Maintenance Terminal, Site Maintenance Terminal PC, and Site Maintenance Terminal application.

Site Maintenance Terminal

The Site Maintenance Terminal is a logical concept. It refers to a maintenance terminal installed with the Site Maintenance Terminal software package and connected to the OM network of the BTSs. Through the Site Maintenance Terminal, you can operate and maintain the BTSs.

Site Maintenance Terminal PC

The Site Maintenance Terminal PC is a hardware concept. It refers to the computer on which the Site Maintenance Terminal software package is installed.

Site Maintenance Terminal Application

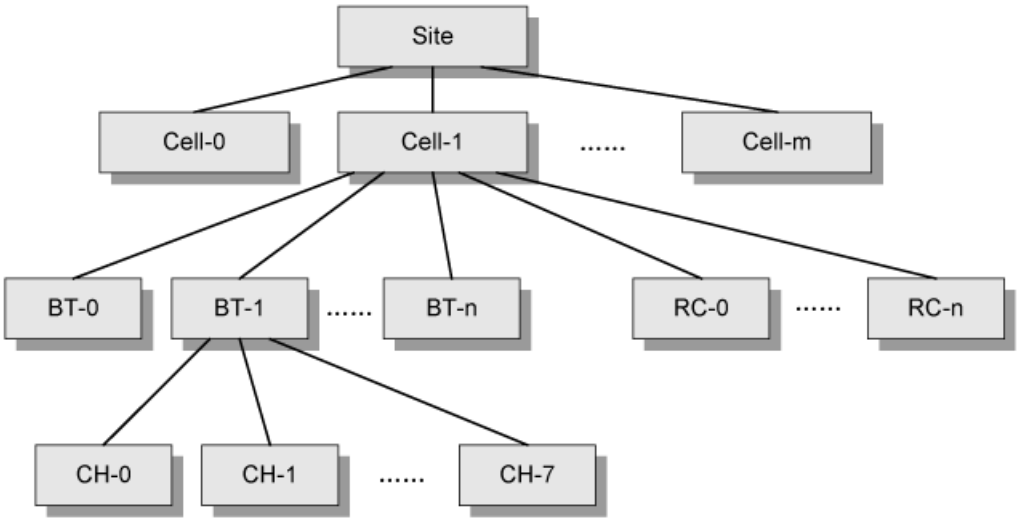
The Site Maintenance Terminal application is installed on a Site Maintenance Terminal PC. It refers to the Huawei Site Maintenance Terminal software package.

1.2 Logical Objects of the BTS

This describes the logical objects of the BTS. Different logical objects are maintained in different ways.

The logical objects consist of the sites, cells, baseband (BTs), channels (CHs), and TRXs (RCs), as shown in **Figure 1-1**.

Figure 1-1 Logical structure of a BTS



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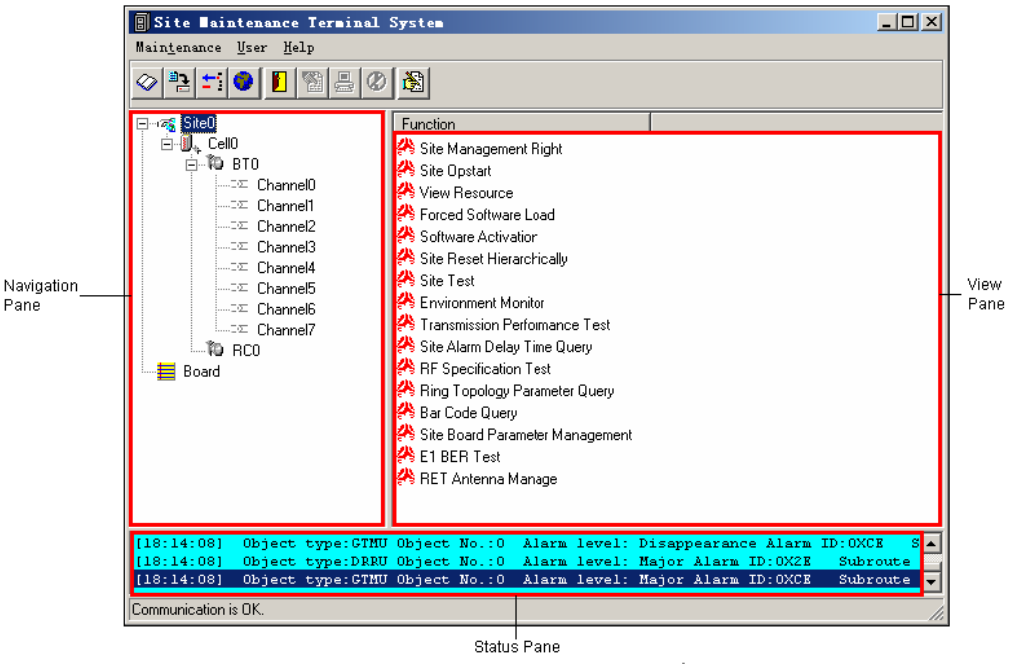
1.3 Software Window of the Site Maintenance Terminal System

The Site Maintenance Terminal System software window consists of the navigation pane, view pane, and status pane.

The Site Maintenance Terminal System software window consists of the navigation pane, view pane, and status pane, as shown in **Figure 1-2**.

Figure 1-2 Site Maintenance Terminal System Software Window



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2 Installing the Site Maintenance Terminal

About This Chapter

This describes how to install the Site Maintenance Terminal application on a Site Maintenance Terminal PC.

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2.1 Configuration Requirements for the Site Maintenance Terminal PC

The Site Maintenance Terminal PC should meet the requirements for the configuration of hardware and software and for the communication capability.

Hardware Requirements

Table 2-1 lists the hardware requirements for the installation of the Site Maintenance Terminal PC.

Table 2-1 Hardware requirements

Item	Quantity	Minimum Configuration
CPU	1	PIII 866
RAM	1	256 MB
Hard disk	1	20 GB
Display adapter resolution	1	800×600
Ethernet adapter	1	10&100Mbps
CD drive	-	-
Other devices	3×1	Keyboard, mouse, modem

Software Requirements

Table 2-2 lists the software requirements for the installation of the Site Maintenance Terminal PC.

Table 2-2 Software requirements

Item	Recommended Configuration
Operating system	Microsoft Windows 98/2000/XP
Default language of the operating system	English (United States)
Web browser	Microsoft Internet Explorer 5.5 or later versions

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Communications Capability Requirements

The Site Maintenance Terminal PC should support the TCP/IP protocol.

2.2 Installing the Site Maintenance Terminal (Local Maintenance)

The Site Maintenance Terminal is a component of the LMT software. The installation of the Site Maintenance Terminal is complete with the installation of the LMT software.

Prerequisite

- Huawei provides the setup disk and the instructions on the installation of the LMT software.
- You have obtained a valid serial number of the LMT software.
- The Site Maintenance Terminal PC meets the **requirements for the configuration of hardware and software and for the communication capability.**

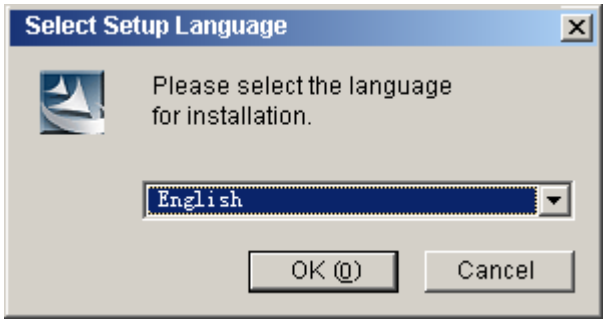
Procedure

Step 1 Use the administrator account to log in to the Windows XP operating system.

Step 2 Insert the setup disk into the CD-ROM drive.

- The setup program runs automatically. A dialog box is displayed, as shown in **Figure 2-1**.
- If the setup program fails to run automatically, double-click **setup.exe** in the directory of the setup disk. A dialog box is displayed, as shown in **Figure 2-1**.

Figure 2-1 Select Setup Language dialog box



Step 3 Select a language and click **OK**. A window is displayed, as shown in **Figure 2-2**.

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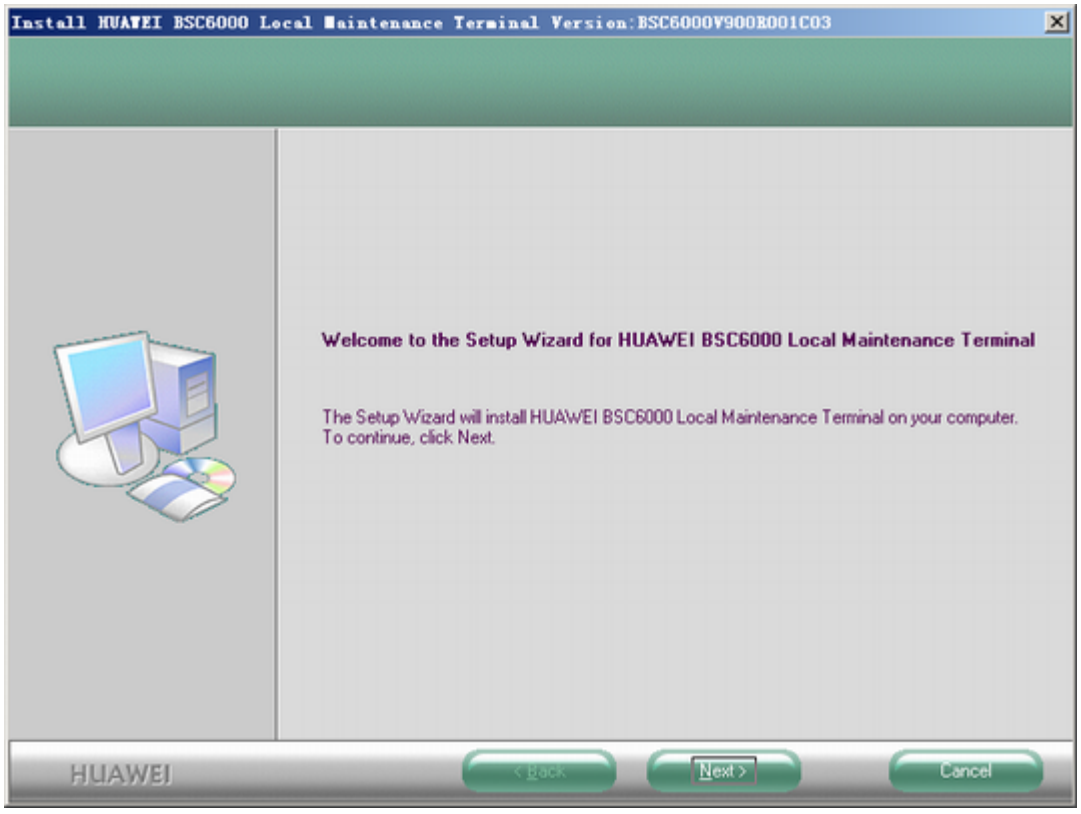
Figure 2-2 Welcome page



Step 4 Click **Next**. A dialog box is displayed, as shown in **Figure 2-3**.

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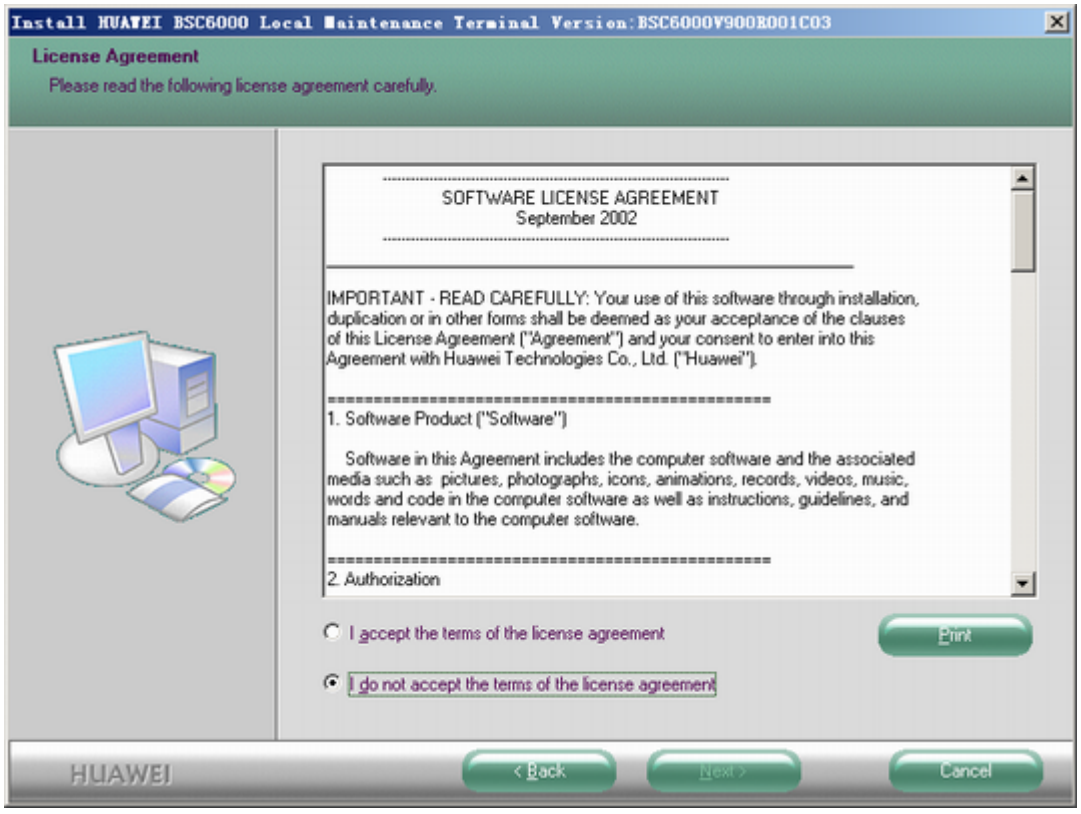
Figure 2-3 License agreement



Step 5 Read the license agreement carefully.

- If you accept the terms of the license agreement, select **I accept the terms of the license agreement**. and then click **Next**. A dialog box is displayed, as shown in **Figure 2-4**.
- If you do not accept the terms of the license agreement, select **I do not accept the terms of the license agreement**, and then click **Cancel** to quit the installation.

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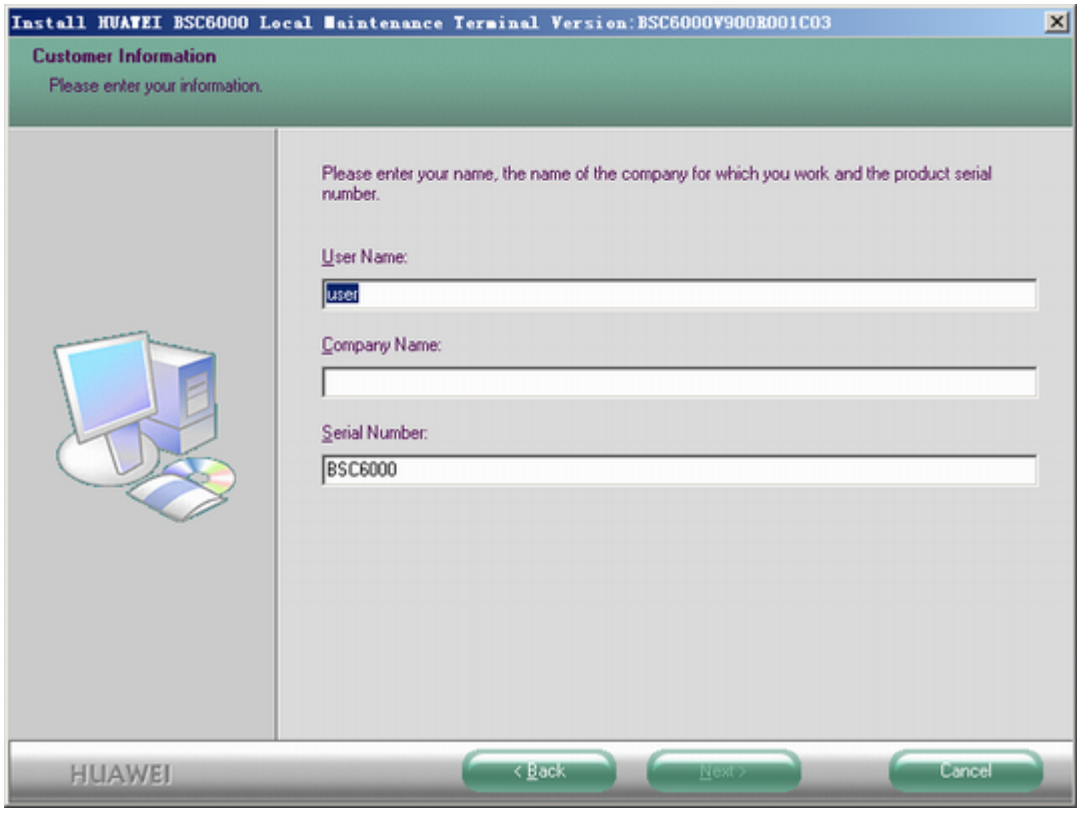
Figure 2-4 Customer information



Step 6 Set **User Name** and **Company Name**. Click **Next**. A dialog box is displayed, as shown in **Figure 2-5**.

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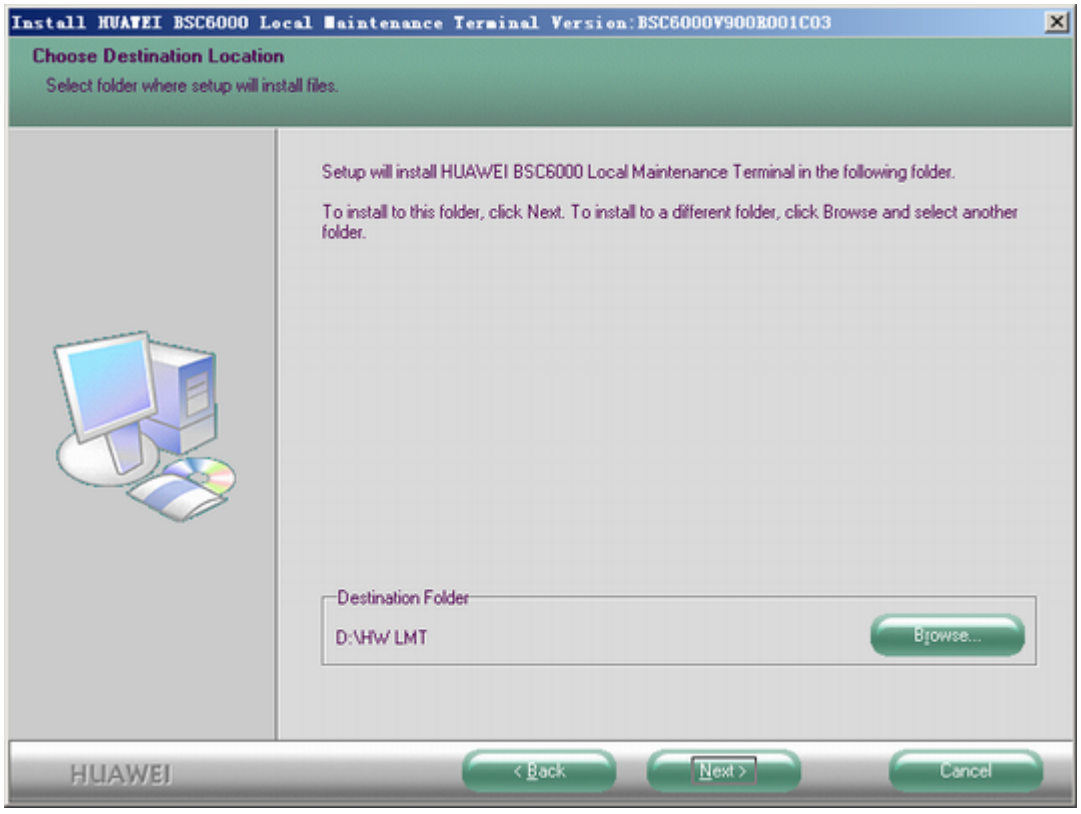
Figure 2-5 Selecting an installation directory



Step 7 Click **Browse** to select the installation directory.

NOTE

The default installation path is **D:\HW LMT**.

- If the LMT software of other versions has been installed, the installation path is the same as the earlier installation path by default. The path cannot be changed.
- If you want to change the installation path, you must uninstall the existing LMT software of other versions.

Step 8 Click **Next**. A dialog box is displayed, as shown in **Figure 2-6**.

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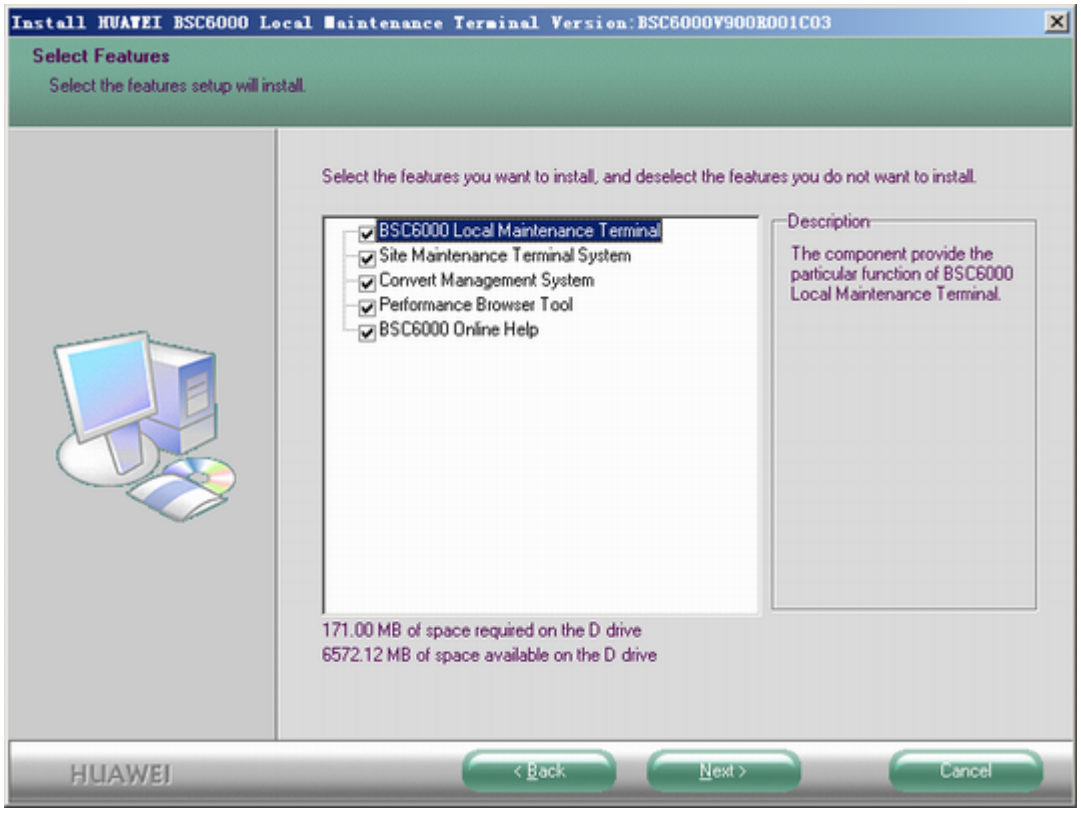
Figure 2-6 Selecting software components



Step 9 Select **Site Maintenance Terminal System** (and other software components if you want), and then click **Next**. A dialog box is displayed, as shown in **Figure 2-7**.

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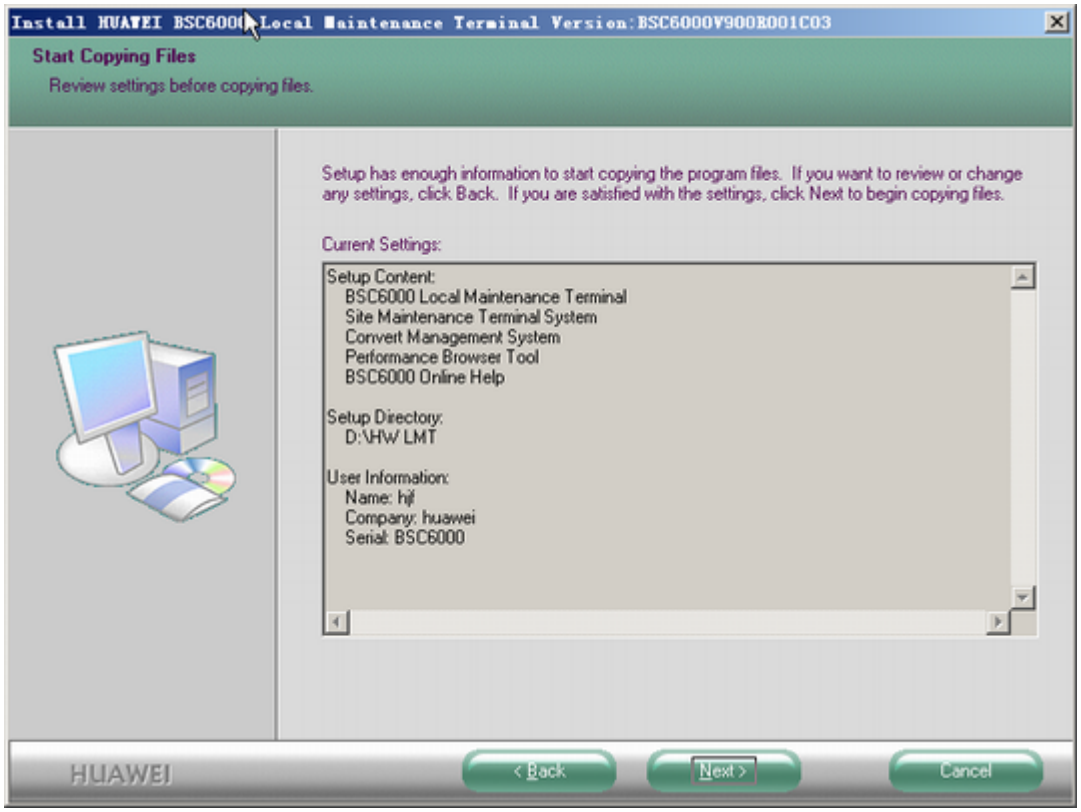
Figure 2-7 Confirming installation information



Step 10 Ensure that the settings are correct. Click **Next**. Copying files starts.

Step 11 After copying files is complete, a dialog box is displayed, as shown in **Figure 2-8**.

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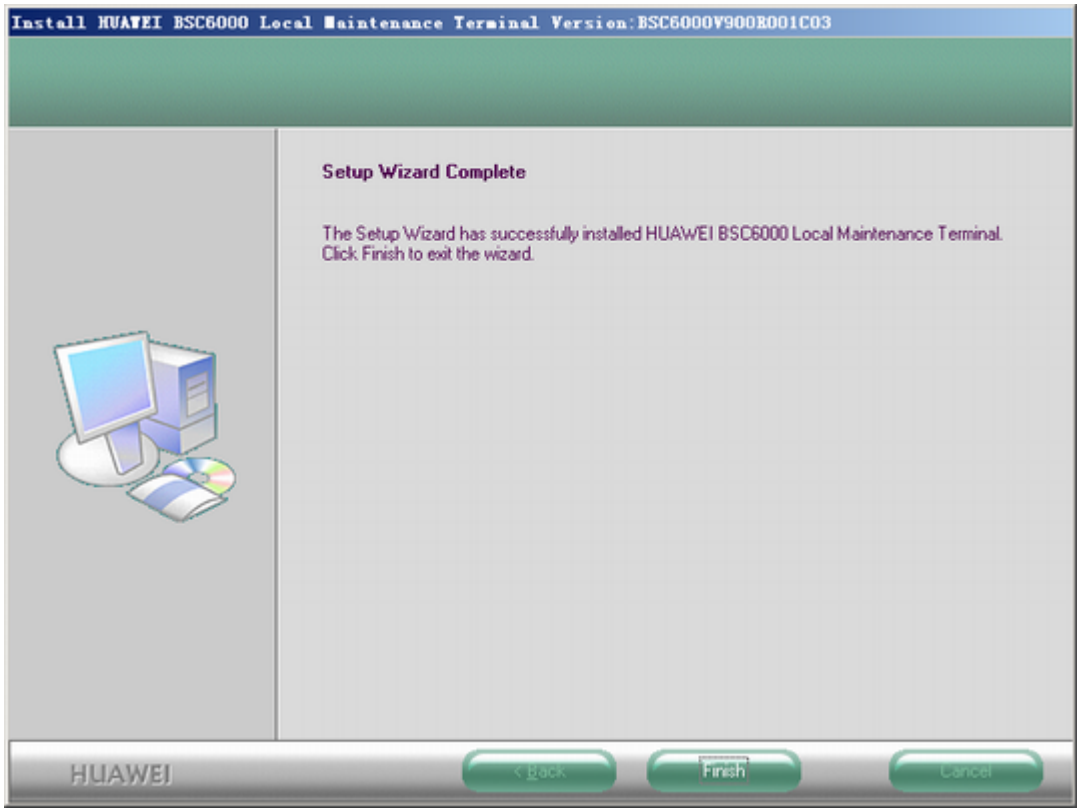
Figure 2-8 Installation completed



Step 12 Click **Finish**. The EasyInstall software is installed.

NOTE

A dialog shown in **Figure 2-8** may prompt, asking you whether to restart the computer. Huawei recommends that you select **Yes, I want to restart my computer now**.

----End

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3 Getting Started with the Site Maintenance Terminal

About This Chapter

This describes how to connect the Site Maintenance Terminal PC to the BTS, log in to the Site Maintenance Terminal System, and exit the Site Maintenance Terminal, after the Site Maintenance Terminal application is installed.

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3.1 Starting the Site Maintenance Terminal System

Before starting the Site Maintenance Terminal, firstly, set the IP address of the Site Maintenance Terminal PC; secondly, connect the Site Maintenance Terminal PC to the BTS; finally, log in to the Site Maintenance Terminal.

1. 3.1.1 Setting the IP Address of the Site Maintenance Terminal PC
   This describes how to set the IP address of the Site Maintenance Terminal PC to the same network segment as the IP address (192.168.0.72/255.255.255.0) of the BTS.
2. 3.1.2 Connecting the Site Maintenance Terminal PC to the BTS
   The Site Maintenance Terminal PC should be connected to the ETH port on the main control module of the BTS through the crossover cable. Then, you can operate and maintain the BTS on the Site Maintenance Terminal.
3. 3.1.3 Locally Logging In to the BTS
   You can run the Site Maintenance Terminal to directly log in to the BTS.

3.1.1 Setting the IP Address of the Site Maintenance Terminal PC

This describes how to set the IP address of the Site Maintenance Terminal PC to the same network segment as the IP address (192.168.0.72/255.255.255.0) of the BTS.

Prerequisite

The Site Maintenance Terminal PC is configured with the TCP/IP protocol.

Procedure

Step 1 Take the Windows XP operating system as an example. On the Windows XP operating system, choose **Start** > **Control Panel**.

Step 2 Select **Network Connections**. A dialog box is displayed. Right-click the **Local Area Connection** icon.

Step 3 Choose **Properties** on the shortcut menu,. The **Local Area Connection Properties** dialog box is displayed.

Step 4 Select **Internet Protocol (TCP/IP)**.

Step 5 Click **Properties**. The **Internet Protocol (TCP/IP) Properties** dialog box is displayed.

Step 6 Select **Use the following IP address**.

Step 7 Enter the correct IP address, subnet mask, and default gateway. Ensure that the IP address of the Site Maintenance Terminal PC and the IP address (192.168.0.72/255.255.255.0) of the BTS are located in the same network segment, so that a local maintenance path can be set up.

Step 8 Click **OK** to complete the setting.

----End

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3.1.2 Connecting the Site Maintenance Terminal PC to the BTS

The Site Maintenance Terminal PC should be connected to the ETH port on the main control module of the BTS through the crossover cable. Then, you can operate and maintain the BTS on the Site Maintenance Terminal.

Prerequisite

The IP address and the subnet mask of the Site Maintenance Terminal PC are set. The IP address of the Site Maintenance Terminal PC and the IP address (192.168.0.72/255.255.255.0) of the BTS are located in the same network segment.

Procedure

Step 1 Use the crossover cable to connect the Site Maintenance Terminal PC to the BTS. One end of the crossover cable is connected to the ETH port on the main control module (GTMU for the DBS3900) of the main cabinet. The other end of the crossover cable is connected to the Ethernet cable port on the Site Maintenance Terminal PC (usually a portable PC).

Step 2 Start the command window.

- If the operating system of the Site Maintenance Terminal PC is Windows 98, choose **Start** > **Program** > **MS-DOS Prompt**. The command window is displayed.
- If the operating system of the Site Maintenance Terminal PC is Windows 2000/XP, choose **Start** > **Run**. In the **Run** dialog box, run the **cmd** command. The command window is displayed.

Step 3 In the command window, run the **ping target_name** command to verify that the connection between the PC and the DBS3900 is established.

NOTE

target_name indicates the IP address of the BTS.

If the information similar to that in the following example is returned, the LMT PC and the GBAM communicate normally. In this example, the IP address of the external network is 192.168.0.72.

Pinging 192.168.0.72 with 32 bytes of data:

Reply from 192.168.0.72: bytes=32 time=1ms TTL=253

Reply from 192.168.0.72: bytes=32 time=1ms TTL=253

Reply from 192.168.0.72: bytes=32 time=1ms TTL=253

Reply from 192.168.0.72: bytes=32 time=1ms TTL=253

Ping statistics for 192.168.0.72:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 1ms, Average = 1ms

----End

3.1.3 Locally Logging In to the BTS

You can run the Site Maintenance Terminal to directly log in to the BTS.

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Prerequisite

- **The Site Maintenance Terminal PC is connected properly to the BTS.**
- The Site Maintenance Terminal PC is installed with the latest site maintenance terminal software.

Procedure

Step 1 Double-click **btsm.exe** to start the Site Maintenance Terminal System.

- If the communication between the Site Maintenance Terminal PC and the BTS is not set up, the **Communication failed** dialog box is displayed, as shown in **Figure 3-1**. Go to **Step 2**.
- If the communication between the Site Maintenance Terminal PC and the BTS is set up, a window is displayed, as shown in **Figure 3-2**. The Local Maintenance Terminal is successfully started.

Figure 3-1 Communication failed dialog box

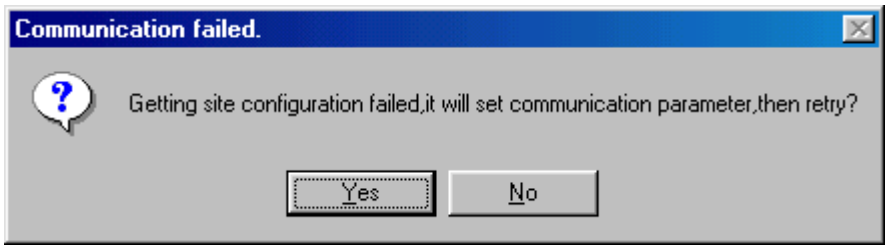
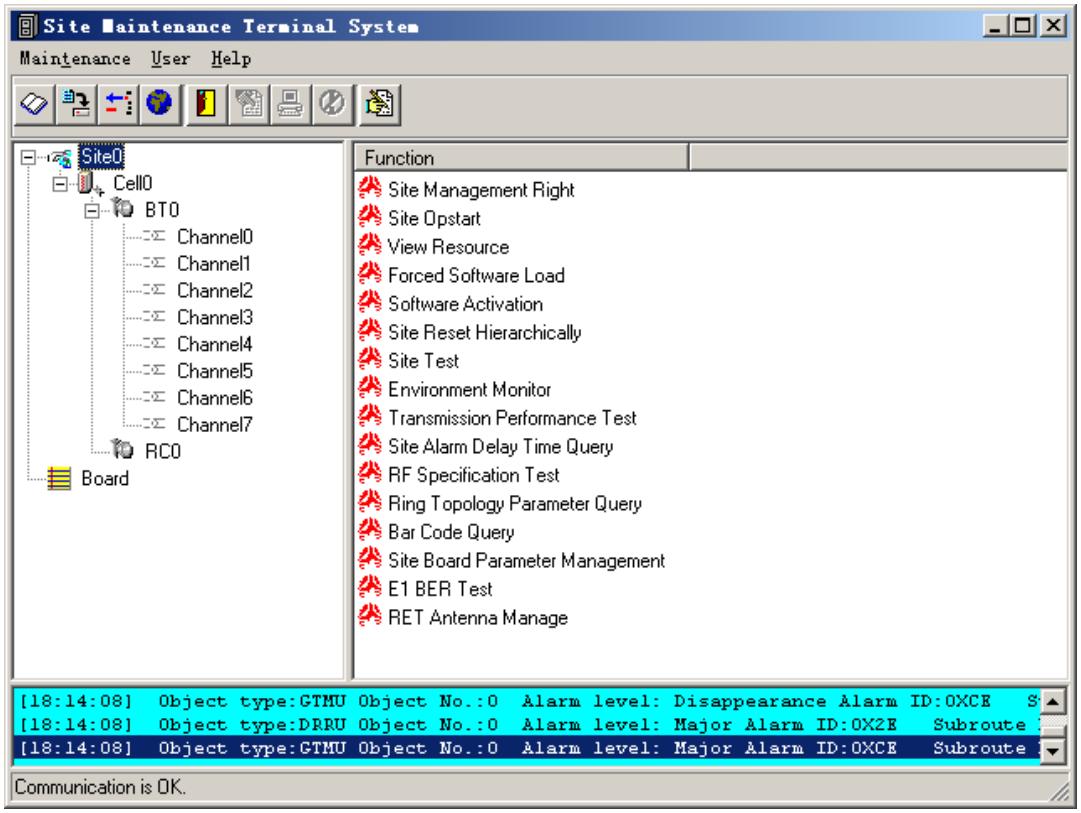


Figure 3-2 Site Maintenance Terminal System window



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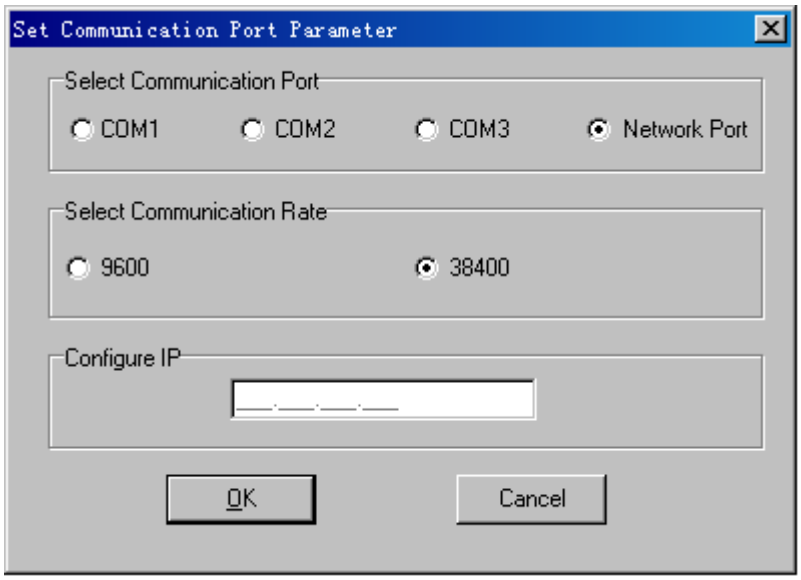
Step 2 Click **Yes**.

The **Set Communication Port Parameter** dialog box is displayed, as shown in **Figure 3-3**.

Figure 3-3 Set Communication Port Parameter dialog box



Step 3 In the **Select Communication Port** area, click **Network Port**. In the **Configure IP** area, set the IP address to **192.168.0.72**.

Step 4 Click **OK**.

The Site Maintenance Terminal System window is displayed, as shown in **Figure 3-2**.

----End

3.2 Exiting the Site Maintenance Terminal

If you exit the Site Maintenance Terminal, the connection between the Site Maintenance Terminal and the BTS is disrupted, and the Site Maintenance Terminal System window is closed.

Procedure

Exit the site maintenance terminal by choosing **Daily Maintenance** > **Exit** or clicking **Close** in the **Site Maintenance Terminal System** window.

----End

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4 Using the Site Management Rights

About This Chapter

The operations of the site management rights involve obtaining the site management rights and releasing the site management rights.

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4.1 Site Management Rights

The site management rights refer to the rights to set the parameters of a BTS. After a BTS is powered on, the remote Site Maintenance System obtains the site management rights by default. Before operating the BTS through the Site Maintenance Terminal System, you must obtain the site management rights first.

When operating a BTS through the Site Maintenance Terminal System, pay attention to the following:

- Obtain the site management rights before writing data; otherwise, you may not be able to write data, for example, load a software or activate a software. You can read data from the BTS without the site management rights.
- After a BTS is powered on, the remote Site Maintenance System obtains the site management rights by default and performs all operations directly. Before operating the BTS through the Site Maintenance Terminal System, you must obtain the site management rights first. You cannot operate the BTS through the Site Maintenance Terminal System and the remote Site Maintenance System at the same time.
- After completing the local maintenance, you must release the site management rights.

NOTE

- Remote Site Maintenance: maintaining the BTS through the LMT on the BSC side
- Site Maintenance Terminal: maintaining the BTS by directly connecting the Site Maintenance Terminal PC to the BBU of the base station through the Ethernet ports

4.2 Obtaining the Site Management Rights

This function is performed to obtain the rights for setting parameters of the BTS.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Site Management Right**.

The **Site Management Right** dialog box is displayed.

Step 2 Click **Get**. The result is displayed in the dialog box, as shown in **Figure 4-1**.

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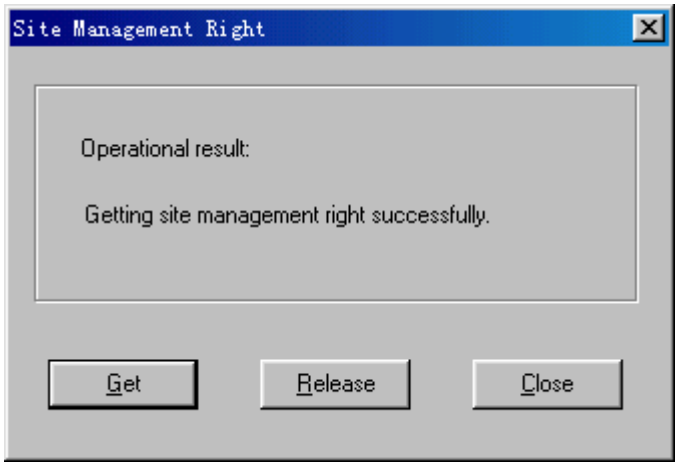
Figure 4-1 Site Management Right dialog box



----End

4.3 Releasing the Site Management Rights

This function is performed to release the rights for setting parameters of the BTS. After completing the local maintenance, you must release the site management rights.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

After completing the local maintenance, you should release the site management rights to facilitate remote maintenance. If you do not release the site management rights at the local end, the writing operation can be performed at the remote end.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Site Management Right**.

The **Site Management Right** dialog box is displayed.

Step 2 Click **Release**. The result is displayed in the dialog box, as shown in **Figure 4-2**.

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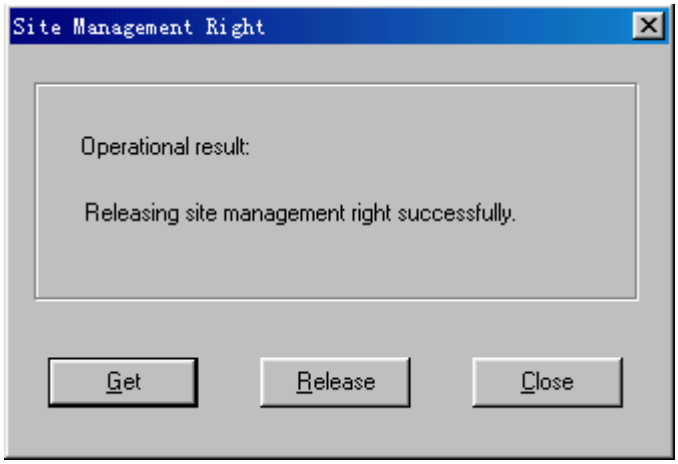
Figure 4-2 Site Management Right dialog box



----End

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5 Managing Sites

About This Chapter

The site management involves viewing site resources, querying the delay in reporting board alarms, resetting the BTS, testing whether the boards in a site operate normally and whether the connection of transmit links is normal, monitoring and managing the environment parameters in a site, viewing the board parameters of the BTS, testing the RF specifications, and viewing the settings of parameters in a ring network and the bar codes of a site.

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5.8 Testing the RF Specifications

This function is performed to test the RF specifications. The specifications associated with the receiver consist of the receiver sensitivity, GSM static L1 (first level) function, and the block test. The specifications associated with the transmitter consist of modulation spectrum, handover spectrum, modulation accuracy, and spurious emission.

5.9 Querying the Ring Topology Parameters

This function is performed to query the ring topology parameters, including the working direction of a site in the ring topology (Port 0 is forward link and port 1 is reverse link) and the indication of auto rotate in the ring topology. If automatic rotation is permitted, the result also involves the waiting time before rotation and the scheduled time for attempts before rotation.

5.10 Querying the Bar Codes

This describes how to query the bar codes of the boards configured in a site.

5.11 Managing the Site Board Parameters

This function is performed to view the parameters associated with the boards configured in a site.

5.12 Testing the E1 BER

You can get the information about the link transmission quality of the E1 port in real time by monitoring the E1 BER.

5.13 Managing the RET Antenna

This function is performed to query and set parameters of the Remote Electrical Tilt(RET) antenna connected to the BTS.

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5.1 Viewing Site Resources

This function is performed to view the following site resources: CPU usage, RAM usage, DC voltage, temperature in a cabinet, humidity in a cabinet, current of battery, temperature of battery, load current, AC voltage, and quantity of state. This function can also be performed to obtain the board temperature.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

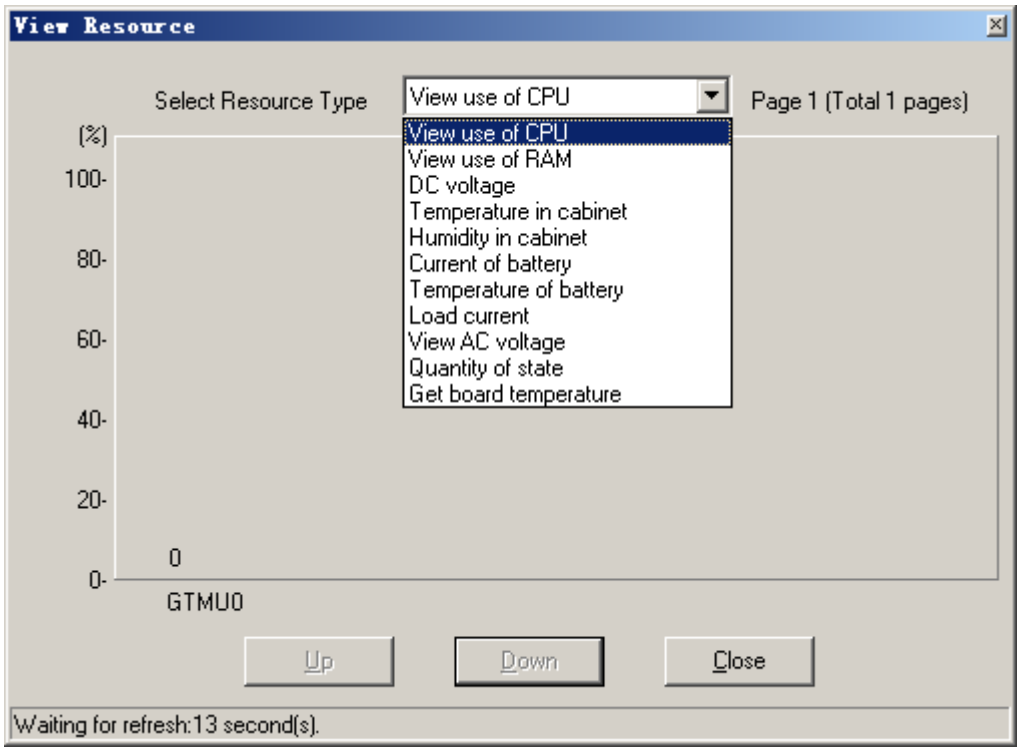
Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **View Resource**.

The **View Resource** dialog box is displayed.

Step 2 In the **Select Resource Type** list box, click the type of the source to be viewed, as shown in Figure 5-1. The result is displayed at the bottom of the **View Resource** dialog box.

Figure 5-1 View Resource dialog box



NOTE

One page may be insufficient to display the result (such as, in combined cabinets or cabinet group situations). Click **Next Page** to view more results. The resources to be viewed are the real-time messages.

----End

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5.2 Forcibly Loading Software

This function is performed to load software to the main control board.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

- The main control board of the base station is the GTMU.
- You need to load the software of the main control board prior to loading the software of other boards. There are no strict requirements for the sequence of loading the software of other boards.

Table 5-1 describes the parameters.

Table 5-1 Parameters available in the Software Download dialog box

Parameter	Meaning	Value Range
File Name	File name of the software to be downloaded, that is, the path in which the software is saved	Use the actual file name. Note that the file name is case sensitive.
Send Window Size	Size of the data packet when the software is loaded	1–49 (49 is recommended)
Version	Version of the software to be downloaded. It should be the same as the version of the downloaded file.	-
File ID	Type of a board whose software is to be loaded. It should be consistent with the type of the downloaded file.	-

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Forced Software Load**.

The **Software Download** dialog box is displayed.

Step 2 Set **File Name**. In the **Send Window Size** spin box, specify a size. In the **Version** area, enter a version number. In the **File ID** drop-down list box, select *DTMU_MAIN*, as shown in **Figure 5-2**.

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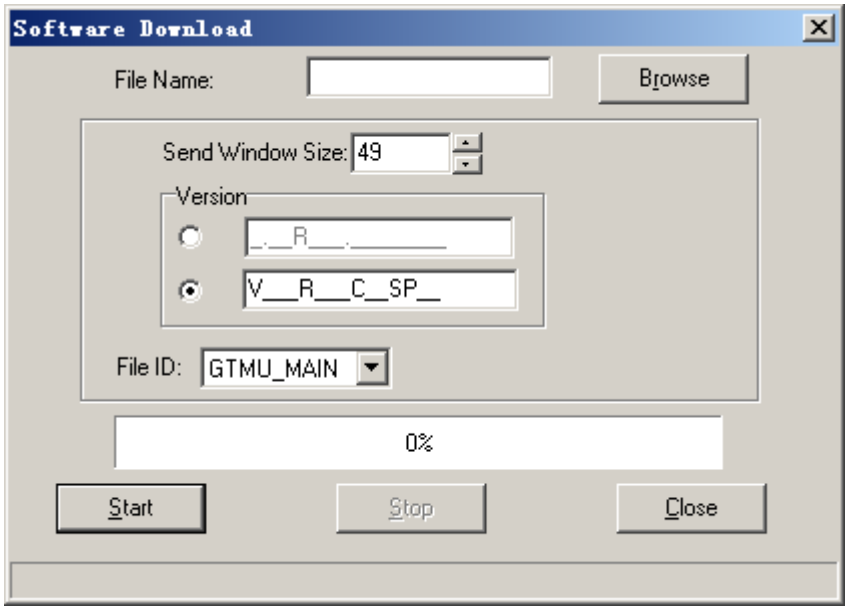
Figure 5-2 Software Download dialog box



Step 3 Click **Start**.

You can view the loading progress in the Site Maintenance Terminal System. If the software is loaded successfully, the **Loading software successfully** message is displayed on the status bar.

Step 4 Repeat **steps 2 through 3** to load the software of other boards.

----End

5.3 Activating Software

This function is performed to validate the software loaded onto the main control board, including the software of the main control board and the software of other boards.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- The software of the boards to be activated is loaded.

Context

- The main control board of the DBS3900 is the GTMU.
- You need to activate the software of the main control board prior to activating the software of other boards. There are no strict requirements for the sequence of activating the software of other boards.
- The loading of software does not affect the services. The activation of software validates the new version software on boards and affects the services. Huawei recommends that the software be downloaded in daytime and be activated at night.

Table 5-2 describes the parameters.

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Table 5-2 Parameters in the Software Activation dialog box

Parameter	Meaning	Value Range
Version	Version of the software to be downloaded.	Set this parameter based on the actual situation.
Board No.	Number of the board to be activated	Enter an integer that indicates a board number. You can use – to connect two digits. This indicates that multiple boards are activated. For example, 0–5 indicates that the boards to be activated are numbered from board 0 to board 5. If you do not enter any number, all the boards of the same type are activated.
File ID	Type of the board whose software is to be upgraded.	Set this parameter based on the actual situation.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Software Activation**.

The **Software Activation** dialog box is displayed.

Step 2 In the **Version** area, enter the version number of the main control board software. In the **File ID** drop-down list box, enter the file ID, as shown in **Figure 5-3**.

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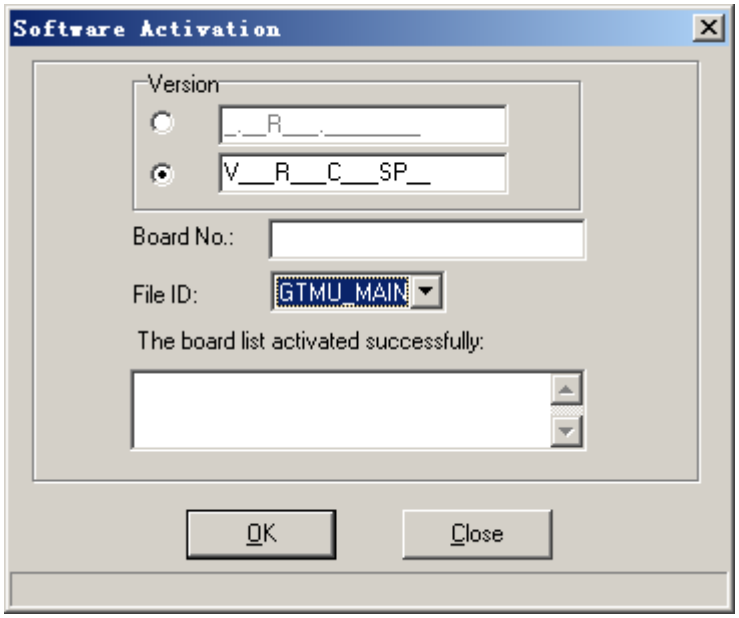
Figure 5-3 Software Activation dialog box

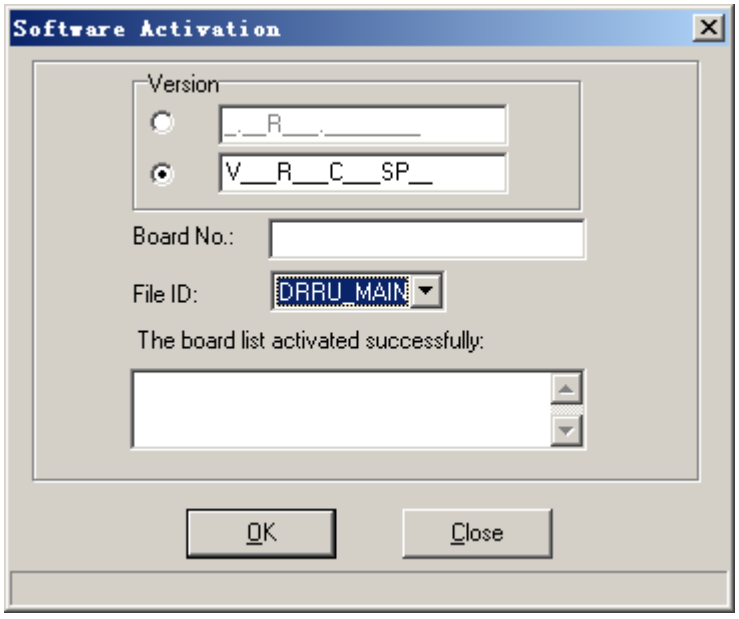


Step 3 Click **OK**.

The number of the board that is successfully activated is displayed in **The board list activated successfully:** area. The **Software activation successfully** message is displayed on the status bar at the bottom of the dialog box.

Step 4 Activate other board software. In the **Version** area, enter the version number of the software to be activated. In the **Board No.** area, enter the number of the board to be activated. In the **File ID** drop-down list box, enter the board software to be activated, as shown in **Figure 5-4**.

Figure 5-4 Software Activation dialog box



Step 5 Click **OK**.

The number of the board that is successfully activated is displayed in **The board list activated successfully:** area. The **Software activation successfully** message is displayed on the status bar at the bottom of the dialog box.

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NOTE

During the activation of the DRRU board software, if the Site Maintenance Terminal prompts that software activation failed, check whether the communication between the BBU and the RRU is normal. Then, rectify the fault by referring to **Checking the Transmission Between the BBU and the RRU**.

----End

5.4 Resetting a Site Hierarchically

Resetting a site involves third level reset and fourth level reset. The third level reset and the fourth level reset are used to reinitialize the base station, that is, to reset all the boards in the base station and load the configuration data of the base station from the BSC.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

Be careful when resetting a site as resetting a site disrupts all the services carried by all the cells under the site.

Table 5-3 describes the parameters.

Table 5-3 Parameters in the Site Reset Hierarchically dialog box

Parameter	Meaning	Value Range
Third level reset	Based on the configuration data of the BTS stored in the memory, the BSC configures the BTS again to reset it. In the ring topology, you can change the link direction. This requires you to choose a port.	-
Fourth level reset	Based on the data configuration stored in the database (DB), the BSC updates the data stored in the memory, and then configures the base station again to reset it. In the ring topology, you cannot choose a port.	-
Not Select	Non-ring topology	-
Port 0	Ring topology, forward link	-
Port 1	Ring topology, reverse link	-

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Site Reset Hierarchically**.

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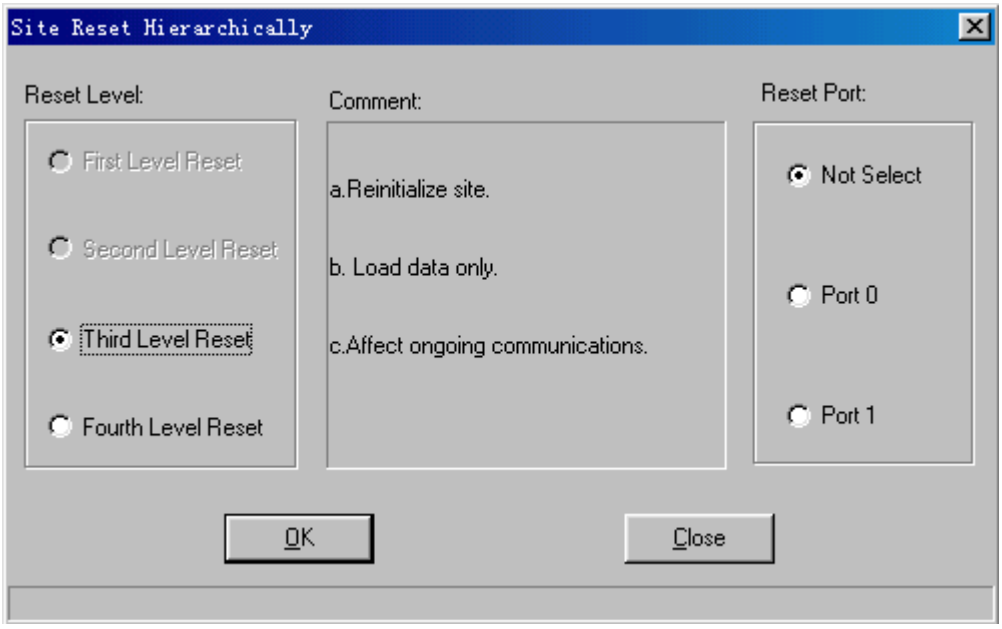
The **Site Reset Hierarchically** dialog box is displayed.

Step 2 In the **Reset Level** area, select a reset level. In the **Reset Port** area, select a port, as shown in Figure 5-5.

Figure 5-5 Site Reset Hierarchically dialog box



Step 3 Click **OK**.

----End

5.5 Monitoring Environment

This function is performed to monitor and manage the environment parameters in a site. By performing this function, you can view the current temperature and humidity and set the temperature and humidity thresholds. The BTS can run normally in a safe and suitable site environment. You can also clear a burglar alarm or a smoke alarm and disable an EAC alarm.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Table 5-4 describes the parameters.

Table 5-4 Parameters in the Environment Monitor dialog box

Parameter	Meaning	Value Range
Clear Robbery Alarm	Clearing the infrared alarm and the door status alarm	-

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Parameter	Meaning	Value Range
Set Temperature and Humidity Threshold	Set the upper and lower thresholds of temperature and humidity. Based on the thresholds, the alarm box reports a temperature alarm and a humidity alarm.	-
Relay Operation	Control the relay status. The relay is used to start or close the refrigeration device, heating device, dehumidifier, humidifier, fire extinguisher, and anti-burglar device. The default state is Close.	-
Disable the EAC Alarm	Disable the reporting of alarms in a short time. In the maintenance of equipment, the related personnel can select the option to disable the reporting of alarms for ten minutes. After ten minutes, the alarms can be reported. If the equipment is maintained for more than 10 minutes, restart the alarm shield.	-
Get Current Temperature and Humidity	View the temperature and humidity associated with the base station in operation. This parameter can be used for querying the status of the environment alarm.	-
Clear Smoke Alarm	Clearing the smoke alarm	-

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site** . In the right pane of the window, double-click **Environment Monitor**.

The **Environment Monitor** dialog box is displayed, as shown in **Figure 5-6**.

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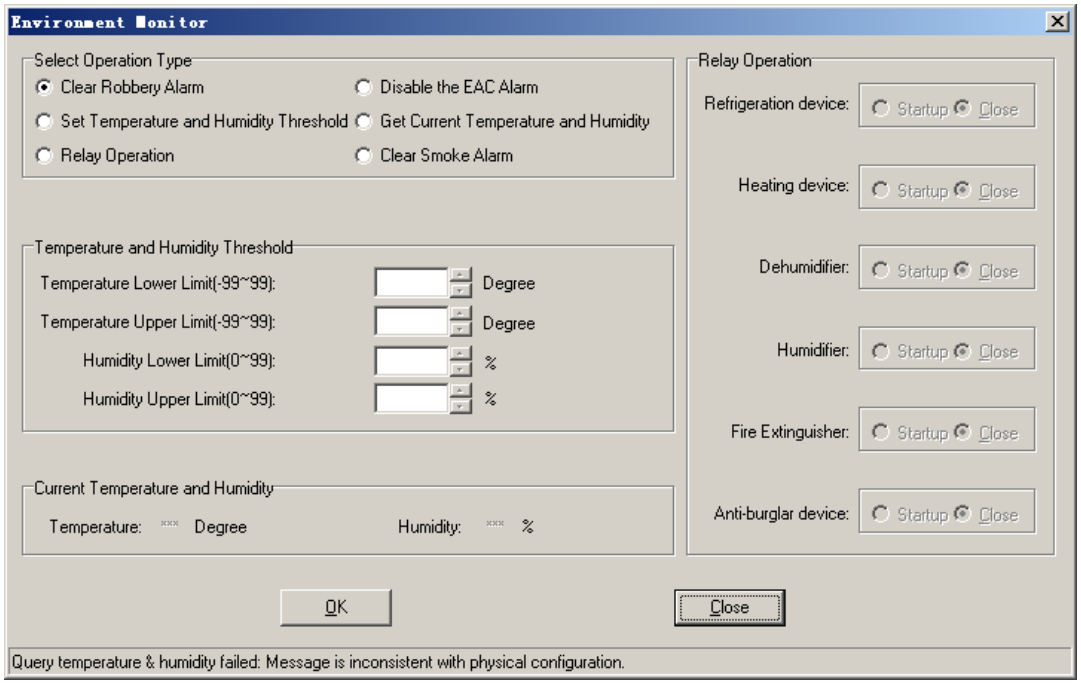
Figure 5-6 Environment Monitor dialog box



Step 2 Perform the following operations in the **Select Operation Type** area:

Select...	Then...
Clear Robbery Alarm	Go to **Step 3**.
Set Temperature and Humidity Threshold	In the **Temperature and Humidity Threshold** area, set the thresholds. Then, go to **Step 3**.
Relay Operation	In the **Relay Operation** area, set the related options to start or stop the equipment. Then, go to **Step 3**.
Disable the EAC Alarm	Go to **Step 3**.
Get Current Temperature and Humidity	Go to **Step 3**.
Clear Smoke Alarm	Go to **Step 3**.

Step 3 Click **OK**.

----End

5.6 Testing Transport Performance

This function is performed to check whether the transmission link is normal through an E1 loopback test and a timeslot loopback test.

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Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Table 5-5 describes the parameters.

Table 5-5 Parameters in the Transport Performance Test dialog box

Parameter	Meaning	Value Range
Select TMU	You can select a TMU based on a test object.	Active TMU, Master/Backup TMU, Slave TMU1, and Slave TMU2
Port No.	This specifies the port to which the E1 cable is connected.	Port 0-port 7
Test duration	This specify the duration of a specific loopback mode.	Recommended value: multiples of 10 minutes (default value: one minute)
E1 Loopback	During an E1 loopback test, the OML is broken. You can stop the loopback test ahead of time by resetting the BTS. After the test is complete, the system automatically releases the loop and resets the BTS.	All the 32 timeslots (0-31) are tested by default.
Timeslot Loopback	Only one timeslot can be tested once. The timeslot carrying the OML cannot be tested. In addition, only port 0 and port 1 on each DTMU can be tested. During a timeslot loopback test, the tested timeslot is unusable. After the test is complete, the BTS will not be reset. You can stop the loopback test ahead of time by clicking **Stop**. After the test is complete, the system automatically releases the loop and the tested timeslot becomes usable. You can click **Stop** to stop the test or wait for the completion of the test duration. The timeslot in the self-loop test is normal again.	-

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Transport Performance Test**.

The **Transport Performance Test** dialog box is displayed.

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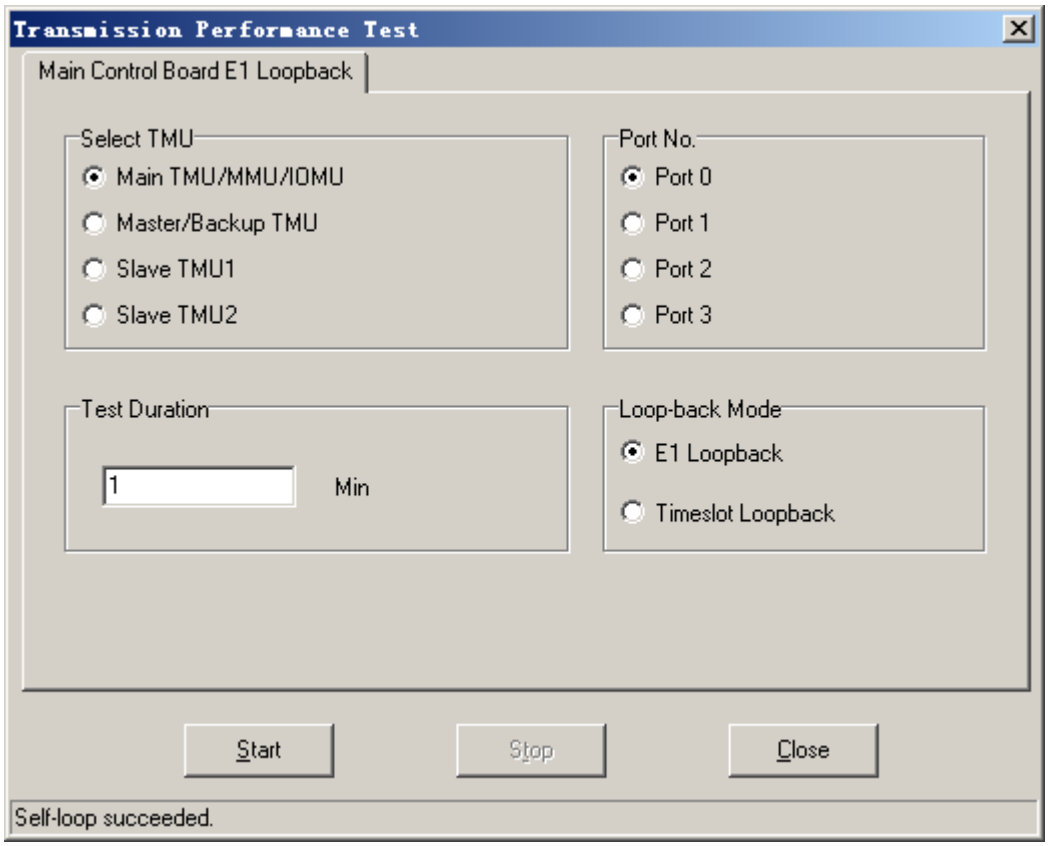
Step 2 In the **Select TMU** area, select a TMU. In the **Port No.** area, select a port number. In the **Loop-back Mode** area, select a loopback mode. In the **Test Duration** area, enter the test duration.

Step 3 Click **Start**.

The **Warning** dialog box is displayed.

Step 4 Click **OK**. The result is displayed on the status bar, as shown in **Figure 5-7**.

Figure 5-7 Transport Performance Test dialog box



----End

5.7 Querying Alarm Delay Time

This function is performed to query the alarm delay time of boards.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Some alarms that do not affect services are reported frequently in a short time, and then disappear quickly. Therefore, many alarms are generated while the fault alarms are not detected in time. By setting an appropriate alarm delay time, some alarms that are generated and cleared frequently in a short time can be prevented from being reported in a large quantity.

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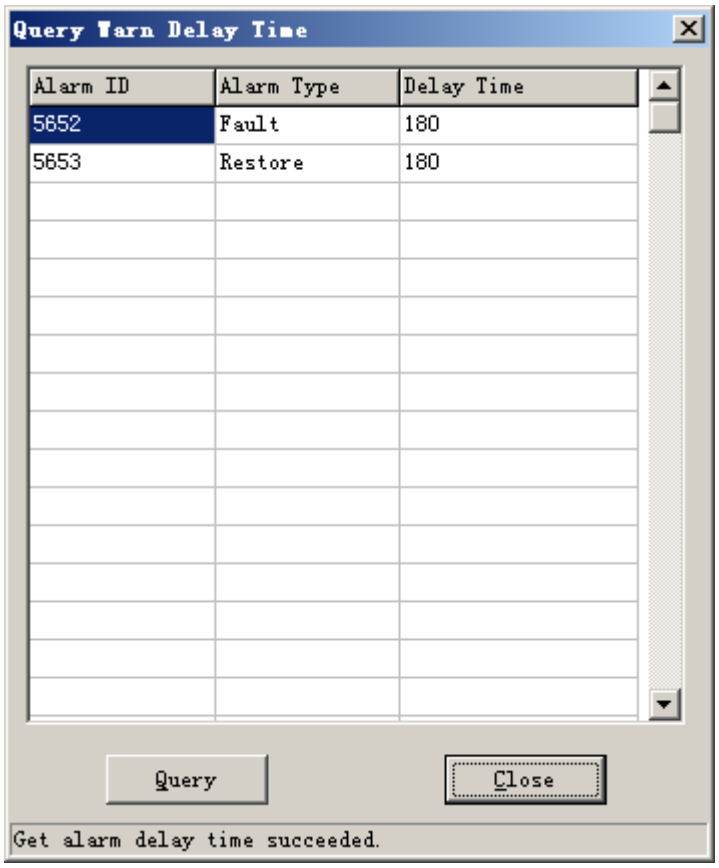
Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Site Alarm Delay Time Query**.

The **Query Warn Delay Time** dialog box is displayed.

Step 2 Click **Query**. The result is displayed in the **Query Warn Delay Time** dialog box, as shown in **Figure 5-8**.

Figure 5-8 Query Warn Delay Time dialog box



NOTE

You can set a specific alarm delay time through the LMT on the BSC side.

----End

5.8 Testing the RF Specifications

This function is performed to test the RF specifications. The specifications associated with the receiver consist of the receiver sensitivity, GSM static L1 (first level) function, and the block test. The specifications associated with the transmitter consist of modulation spectrum, handover spectrum, modulation accuracy, and spurious emission.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.

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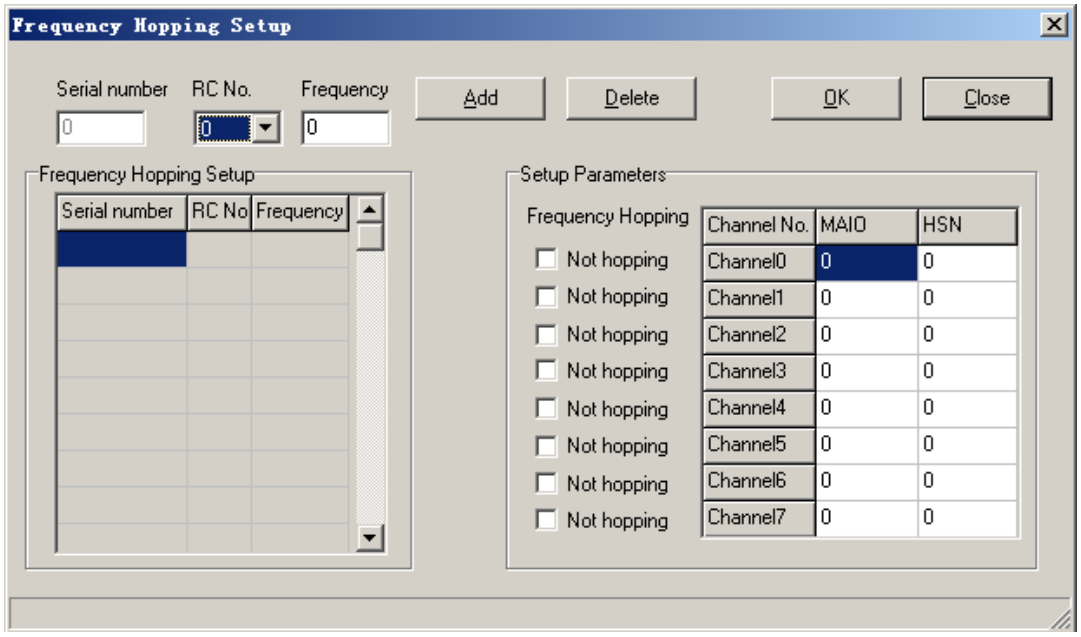
- The test device, such as a base station integrated tester, is connected to the TX port on the DRRU.

Context

A base station integrated tester is required to test the RF specifications. During the test, pay attention to the following:

- Before the test, you need to reset the configured RC by clicking **User-define Message**.
  - If the E1 cable is connected, after the configured RC is reset, you can observe the LEDs on the DRRU to check whether the DRRU runs normally. If the DRRU runs normally, you can perform the test.
  - If the E1 cable is not connected, after the configured RC is reset, when the LAPD alarm is displayed on the status bar, the RC runs normally. Then, you can perform the test.
- In the **Frequency Hopping Mode** list box, select **Baseband hopping** or **RF hopping**. Click **Frequency hopping setup** as shown in **Figure 5-9** to set the specific frequency hopping parameters.

Figure 5-9 Frequency hopping setup dialog box



- When testing the specifications of transmitter, you can select the modulation mode of the channel by clicking **Channel Modulation**as shown in **Figure 5-10**.

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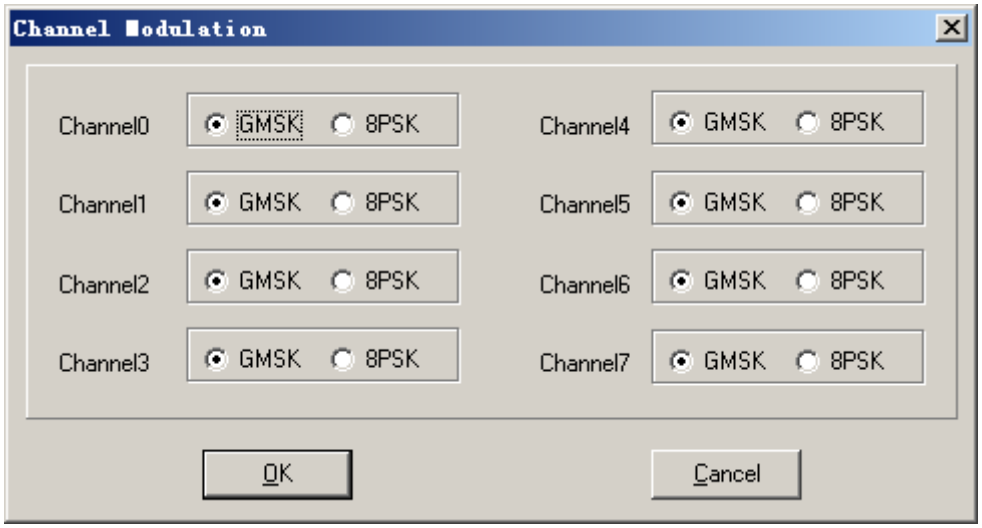
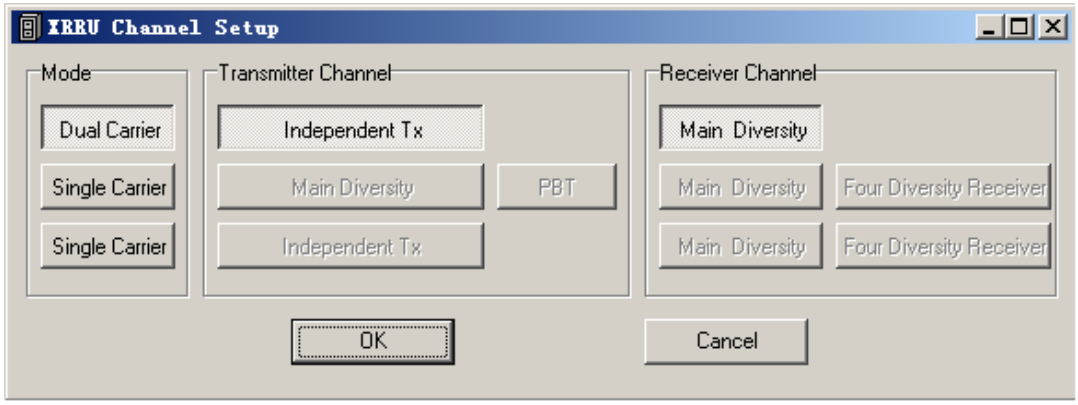
Figure 5-10 Channel Modulation dialog box



- According to the configuration mode of the DRRU on the BTS, in the **DRRU Channel Setup** dialog boxas shown in **Figure 5-11**, set **Mode**, **Transmitter Channel**, and **Receiver Channel**.

Figure 5-11 DRRU Channel Setup dialog box



Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site** . In the right pane of the window, double-click **RF Specification Test**.

The **Warning** dialog box is displayed.

Step 2 Click **OK**.

The **RF Specification Test** dialog box is displayed, as shown in **Figure 5-12**.

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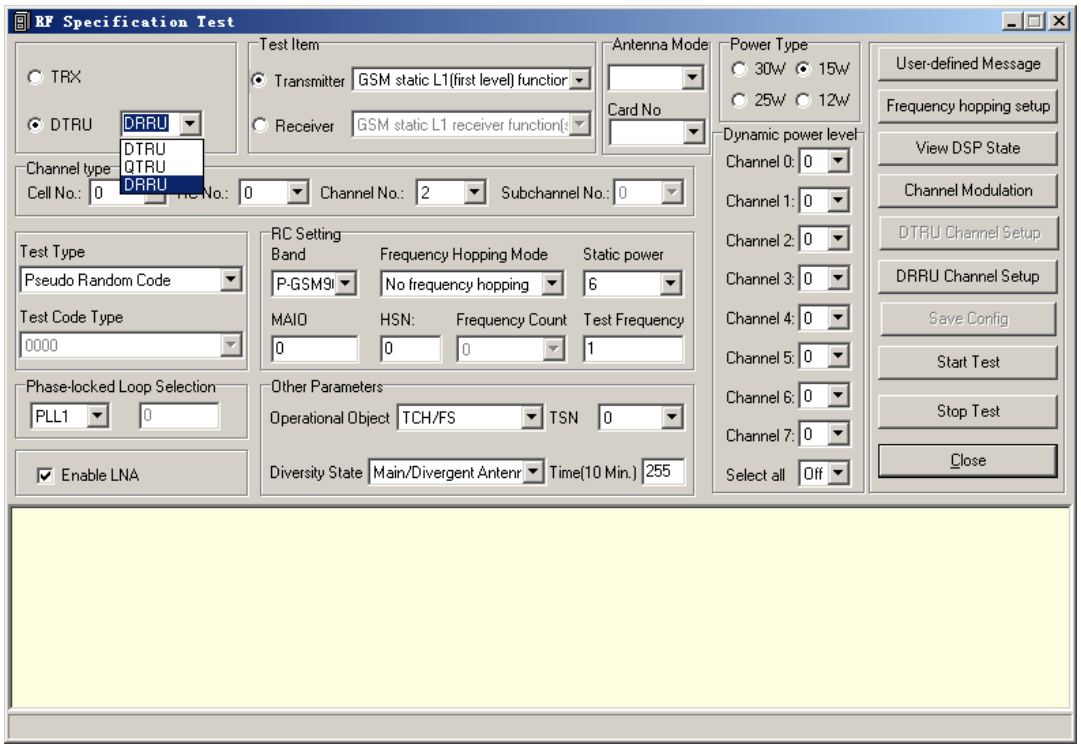
Figure 5-12 RF Specification Test dialog box



Step 3 Select **DRRU**. In the **Channel Type** area, select **Cell No.** and **RC No.**, and then click **User-define Message**.

- If the E1 cable is connected, you can observe the LEDs on the DRRU to check whether the DRRU runs normally. If the DRRU runs normally, it indicates that you can perform the test.
- If the E1 cable is not connected and if the LAPD alarm is displayed on the status bar, we can infer that the RC runs normally.

Step 4 In the **Test Item** area, select **Transmitter** or **Receiver**. Then, select the specific test items for the transmitter or receiver.

- If the **Transmitter** option is selected, you can select the modulation mode of the channel by clicking **Channel Modulation**.
- If the **Receiver** option is selected, you need not set **Channel Modulation**.

Step 5 Select other items to be tested.

- In the **Frequency Hopping Mode** list box, if you select **No frequency hopping**, you need not set **Frequency hopping setup**.
- In the **Frequency Hopping Mode** list box, select **Baseband hopping** or **RF hopping**. Click **Frequency hopping setup** to set the specific frequency hopping parameters.

Step 6 Click **Start Test**.

The result is displayed on the test device.

----End

5.9 Querying the Ring Topology Parameters

This function is performed to query the ring topology parameters, including the working direction of a site in the ring topology (Port 0 is forward link and port 1 is reverse link) and the

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indication of auto rotate in the ring topology. If automatic rotation is permitted, the result also involves the waiting time before rotation and the scheduled time for attempts before rotation.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

If the result is **Auto Rotate Permission**, the working direction of the site in ring topology can be automatically rotated. The system displays the **Waiting Time Before Rotate** area and the **Try Rotating Duration Time** area. The data is configured through the Data Configuration System on the BSC side.

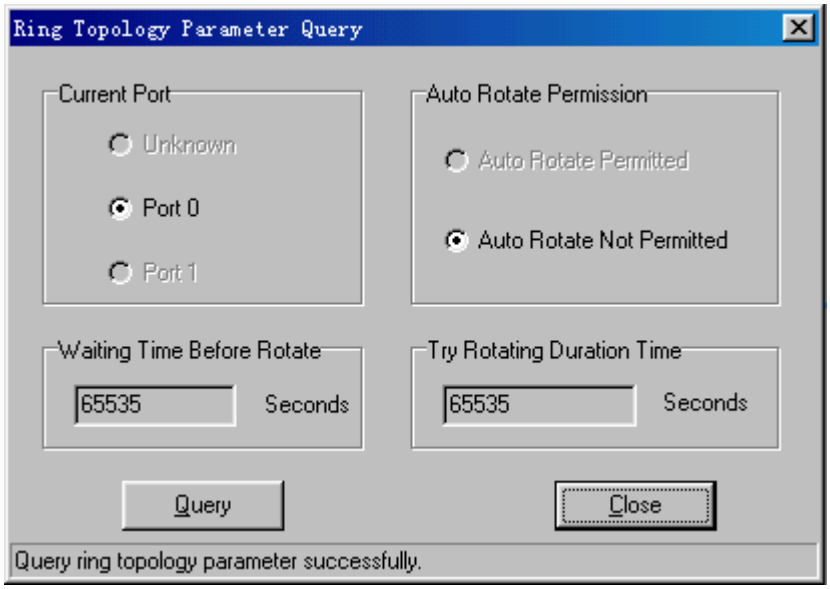
If the result is **Auto Rotate Not Permitted**, the working direction of the site in ring topology is unchanged. At this moment, the **Waiting Time Before Rotate** and the **Try Rotating Duration Time** are insignificant. The displayed time is 65535 seconds.

Procedure

In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Ring Topology Parameter Query**.

The **Ring Topology Parameter Query** dialog box is displayed, as shown in **Figure 5-13**.

Figure 5-13 Ring Topology Parameter Query dialog box



NOTE

If the dialog box is open for some time, click **Query** to refresh the querying result.

----End

5.10 Querying the Bar Codes

This describes how to query the bar codes of the boards configured in a site.

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Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

The bar code is the basic information of a board and identifies the manufacturing information of the board. When multiple boards are faulty, you can learn the states of the boards in batch production by querying the bar codes. Through the Remote Maintenance Terminal System, you can query the bar codes concerning all the sites under a BSC. Through the Site Maintenance Terminal System, you can query the bar codes concerning the connected site.

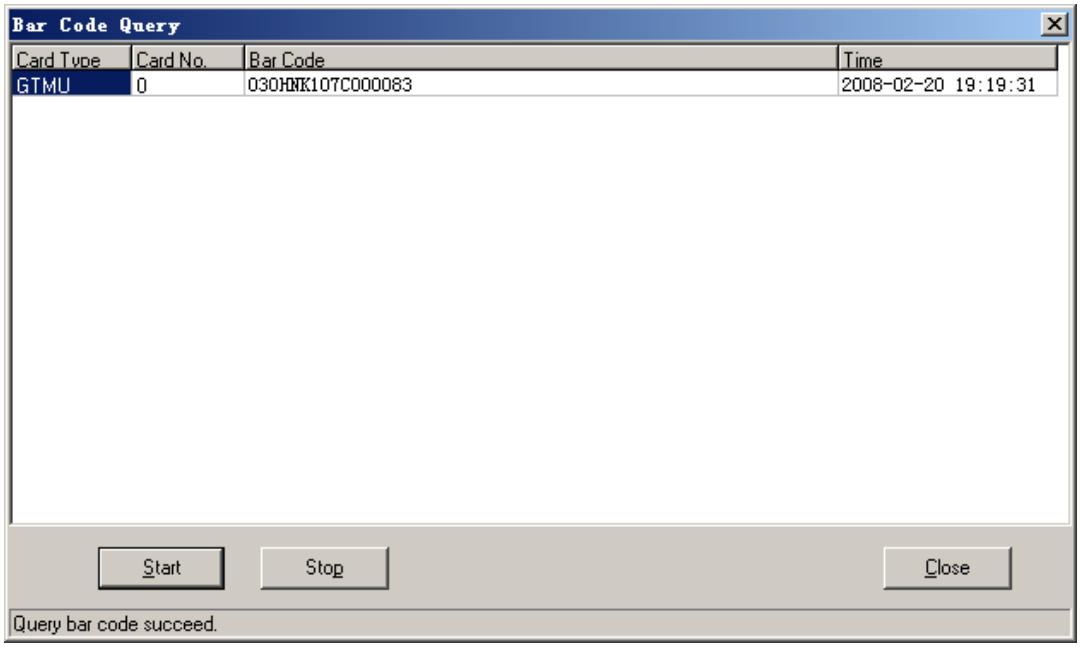
- The bar code is the ASCII code.
- The bar codes of only the configured boards can be queried.
- The boards that support the reporting of bar codes are the GTMU, DRRU, BFU, PEU, and DEMU.

Procedure

In the left pane of the **Site Maintenance Terminal System** window, click **Site** . In the right pane of the window, double-click **Bar Code Query**.

The **Bar Code Query** dialog box is displayed, as shown in **Figure 5-14**.

Figure 5-14 Bar Code Query dialog box



NOTE

If the dialog box is open for a period of time, click **Start** to refresh the dialog box.

----End

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5.11 Managing the Site Board Parameters

This function is performed to view the parameters associated with the boards configured in a site.

Prerequisite

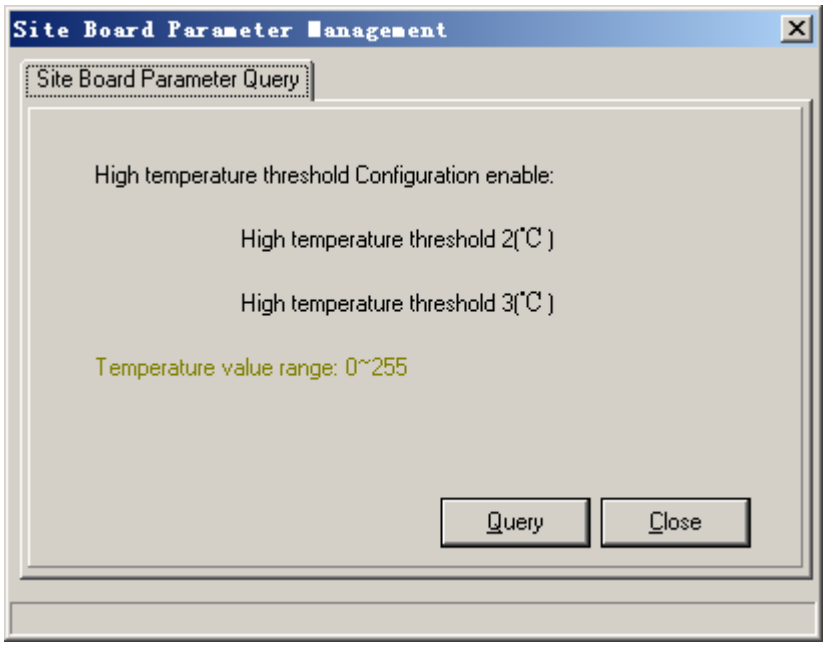
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **Site Board Parameter Management**.

The **Site Board Parameter Management** dialog box is displayed, as shown in **Figure 5-15**.

Figure 5-15 Site Board Parameter Management dialog box



Step 2 Click **Query** to query the board parameters of the BTS.

The result is displayed in the parameter area, as shown in **Figure 5-16**.

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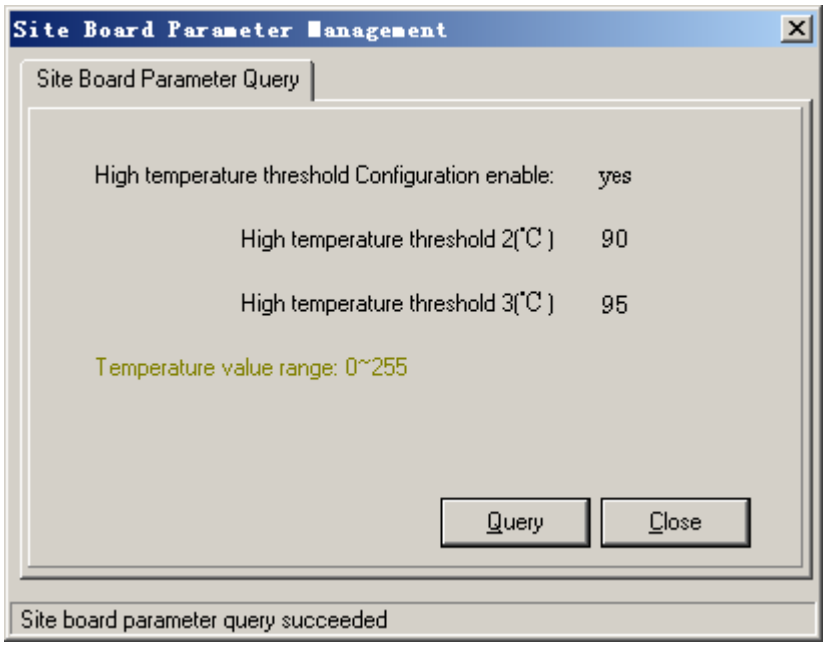
Figure 5-16 Site Board Parameter Management dialog box



----End

5.12 Testing the E1 BER

You can get the information about the link transmission quality of the E1 port in real time by monitoring the E1 BER.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- On the Local Maintenance Terminal, the BTS attribute is set to Support CRC4 Check.

Context

The bit error rate is defined as follows:

- Bit Error Rate (BER): number of error bits per unit time
- Unit Time: interval that the interface board samples the error bits
- Remain Time: remaining time of the bit error rate test. When the remaining time is 0, the test ends.
- Total Error: total number of error bits
- Unit Error: number of error bits detected in a unit time
- Total Error Overflow: The number of error bits exceeds a predefined threshold.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site** . In the right pane of the window, double-click **E1 BER Test**.

The **E1 BER Test** dialog box is displayed.

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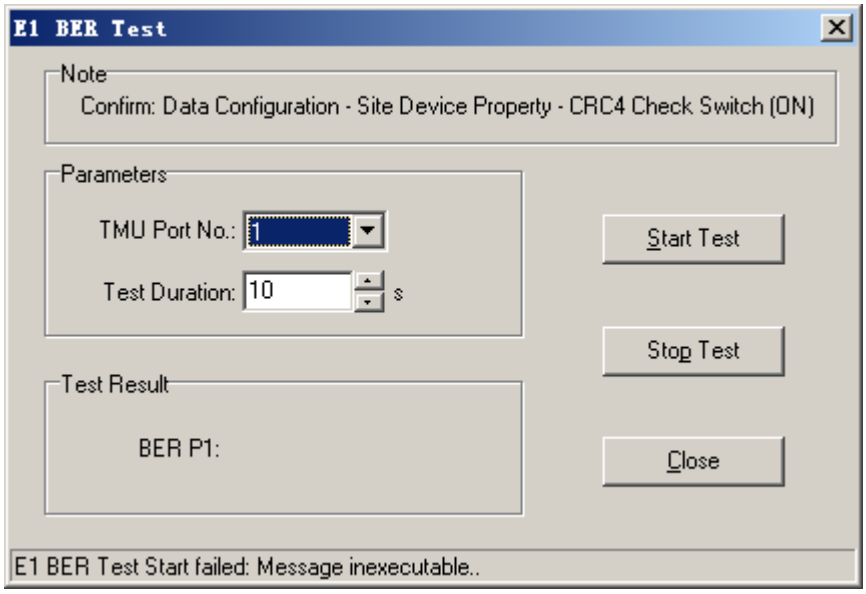
Step 2 In the **Parameters** area, set **TMU Port No.** and **Test Duration**, and then click **Start Test**. The test result is displayed in the **Test Result** area, as shown in **Figure 5-17**.

Figure 5-17 E1 BER Test dialog box



Step 3 Click **Stop Test** to end the E1 BER test.

----End

5.13 Managing the RET Antenna

This function is performed to query and set parameters of the Remote Electrical Tilt(RET) antenna connected to the BTS.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- The RF unit is connected to the RET antenna.

Context

NOTE

This function is not supported currently.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site** . In the right pane of the window, double-click **RET Antenna Manage**.

The **RET Antenna Manage** dialog box is displayed, as shown in **Figure 5-18**.

Step 2 Click **Query**. The query result is displayed in the **RET Antenna Information** area.

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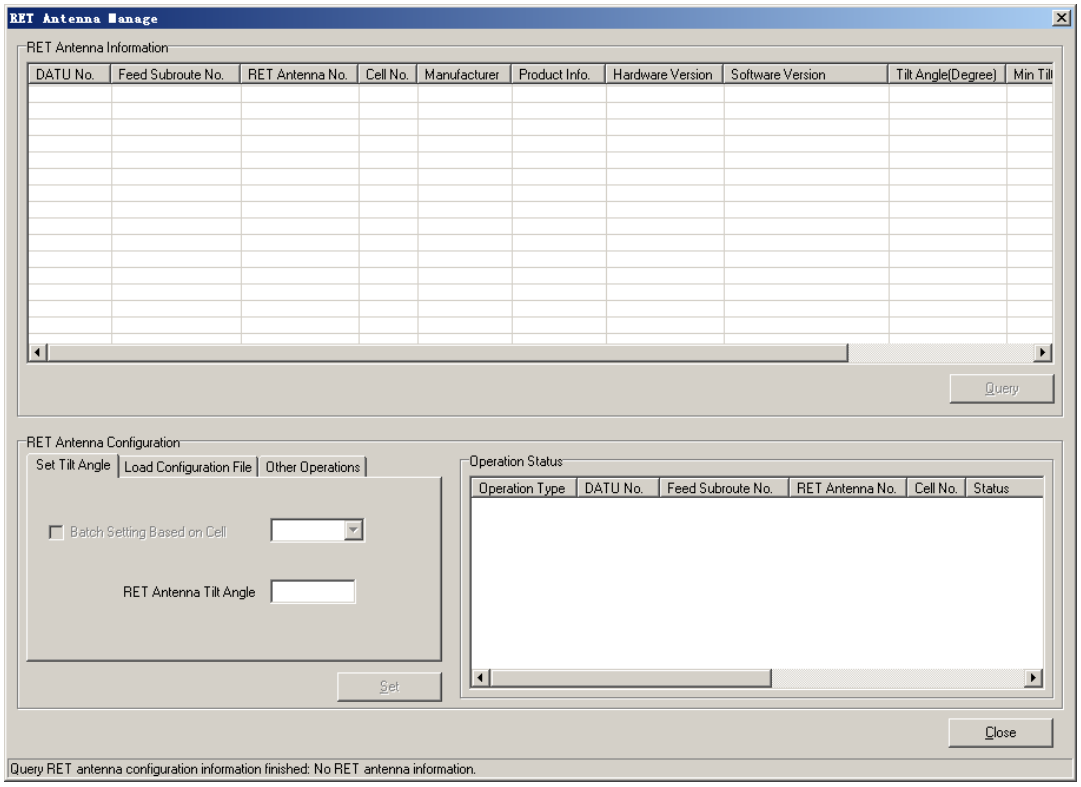
Figure 5-18 RET Antenna Manage dialog box



Step 3 In the **RET Antenna Configuration** area, click the **Set Tilt Angle** tab, set **RET Antenna Tilt Angle**, and then click **Set**. The result is displayed in the **Operation Status** area.

NOTE

The tilt angle must be in the range displayed in the **RET Antenna Information** area. Otherwise, the setting does not take effect.

Step 4 In the **RET Antenna Setting** area, click the **Load Configuration File** tab. In the **Select File** area, click **Browse** and select the configuration file to be loaded. Then, click **Set**. The result is displayed in the **Operation Status** area.

Step 5 In the **RET Antenna Setting** area, click the **Other Operations** tab. Select the antenna to be operated in the **Select Antenna Operation** area, and then click **Set**. The result is displayed in the **Operation Status** area.

----End

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6 Managing Cells

About This Chapter

The cell management involves managing cell attributes and cell extended attributes, testing all the BTs and RCs of a cell so that they can be locked or unlocked, and checking whether the BTs and RCs are functional.

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6.1 Managing Cell Attributes

This function is performed to view or set the interference level boundary, interference average parameter, connection failure threshold, T200, overload period, starting frame No., CCCH load threshold, CCCH load indicating period, RACH busy determination threshold, RACH load averaging slots, BTS air timer, NY1, BSIC, BCCH ARFCN, and Max. time advance.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Table 6-1 describes the parameters.

Table 6-1 Parameters in the Cell Attributes Management dialog box

Parameter	Meaning	Value Range
Interference level boundary	There are six interference levels. The BTS calculates the interference value of a channel based on the measurement report (MR) sent from an MS, and then determines its level by comparing the calculated value with the six levels.	The six parameters must be listed in an ascending order. The six parameters must be within this range (115-85).
Interference average parameter	Determines the number of measurement reports that the BTS receives before an interference value is calculated.	1-31 (14 is recommended.)
Connection failure threshold	Compares the measurement report and the value of the bit error rate that are reported by an MS with the receive power level to judge whether the connection fails.	0–127 (15 is recommended.)

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Parameter	Meaning	Value Range
T200	Determines the timer duration for responses after messages are sent in the related channels.	0-1275 (SDCCH, full rate FACCH, half rate FACCH, SDCCH/ SAPI3) and 0–2550 (for SACCH/ TCH/SPAI0, SACCH/ SDCCH, SACCH/ TCH/SAPI3)
Max. time advance	Time advance for the farthest point of the area that the cell covers	0–127 (63 is recommended.)
Overload period	The BTS calculates the channel usage at a fixed interval to check whether the channel is overloaded. The interval is determined by the overloading period.	-
CCCH load threshold	Ratio of times of successful random access to total collision times within the time.	0-100% (80% is recommended.)
CCCH load indicating period	Determines the duration within which the BTS must report the load on the CCCH to the MSC.	0-255 (15 is recommended.)
RACH busy determination threshold	Determines the level threshold of random access.	-255 dBm through 0 dBm
RACH load averaging slots	Measuring the average loading timeslot number for random access channel.	-
Cell air-interface timer	Determines the timing length.	0-2550
NY1	The maximum number of times physical information can be resent. It is related to handover.	0-255 (6 or 4 is recommended.)

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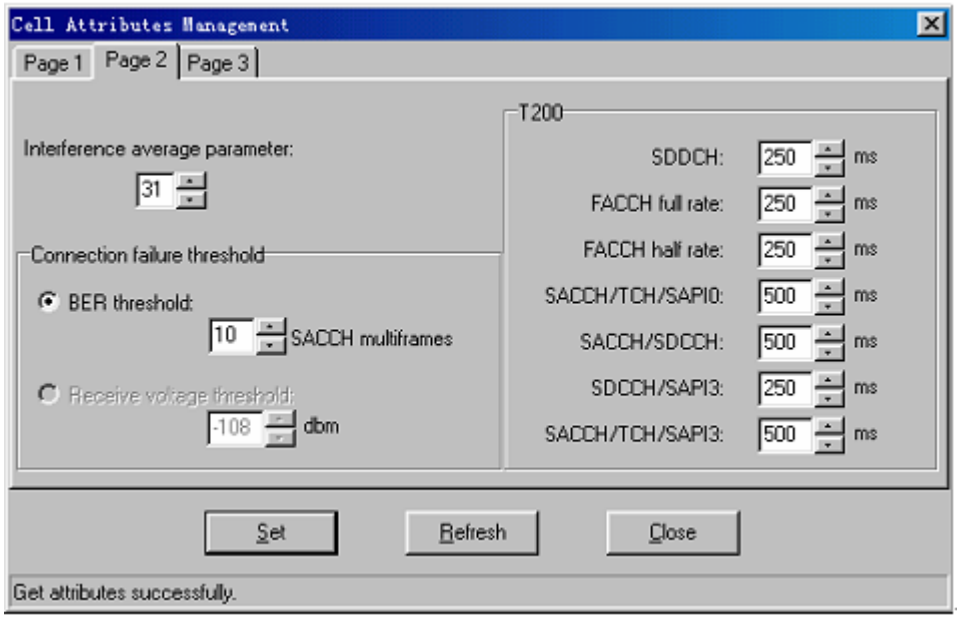
Parameter	Meaning	Value Range
BCCH ARFCN	Determines the number of the BCCH frequency. There are 124, 193, 374, and 299 frequencies on the 850 MHz, 900 MHz, 1800 MHz, and 1900 MHz bands respectively.	128-251 (850 MHz); 0–124 955–1023 (900 MHz); 512–885 (1800 MHz); 512–810 (1900 MHz)
BSIC	The base station identity code (Base station identity code = network color code + base station color code)	0-63
Starting frame No.	This parameter determines the frame from which the setting takes effect.	0-42431
Frame offset	The variance in the number of configured frames for different cells under one BTS.	0-7

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Cell** . In the right pane of the window, double-click **Cell Attributes Management**.

The **Cell Attributes Management** dialog box is displayed, as shown in **Figure 6-1**.

Figure 6-1 Cell Attributes Management dialog box



Step 2 Enter different values for each attribute.

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NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **Set**.

The attributes are set successfully. The result is displayed on the status bar at the bottom of the **Cell Attributes Management** dialog box.

Step 4 Click **Refresh**.

The attributes are obtained successfully. The result is displayed on the status bar at the bottom of the **Cell Attributes Management** dialog box, as shown in **Figure 6-1**.

NOTE

The configure operation enables the site maintenance terminal to activate the parameters on the BTS. The refresh operation enables the site maintenance terminal to obtain the latest data from the BTS. You can perform the refresh operation to confirm the accuracy of data.

----End

6.2 Managing Cell Extended Attributes

This function is performed to view or set the RF resource indication period, paging times, and access error threshold.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Table 6-2 describes the parameters.

Table 6-2 Parameters in the Cell Extended Attributes Management dialog box

Parameter	Meaning	Value Range
RF resource indication period	Interval at which the BTS reports the RF resources to the MSC	1-31
Paging times	This parameter is used for the BTS to determine whether a paging message is resent. The paging times configured in the BTS and that configured in the MSC together control the retransmission times of the paging message. The total paging times is approximately equivalent to the multiplication of the configuration in the BTS with the configuration in the MSC.	0-4

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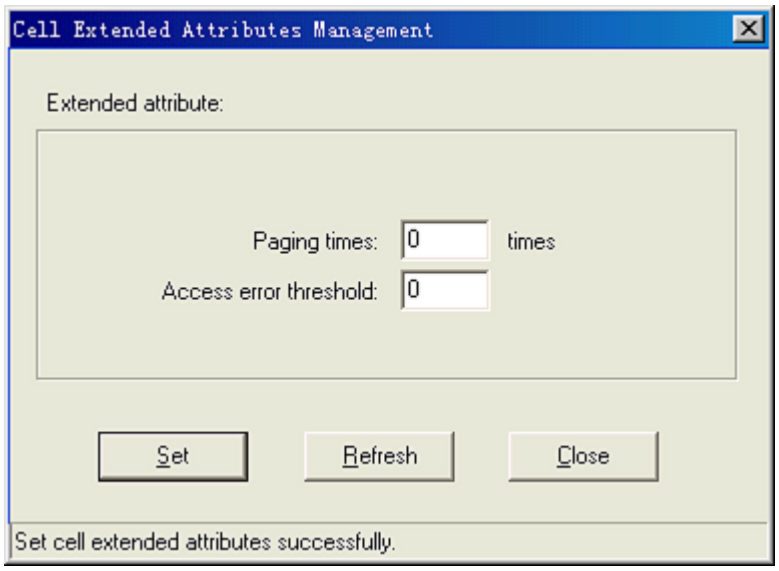
Parameter	Meaning	Value Range
Access error threshold	Defines the dependency of the training sequences. If the parameter is set to an oversmall value, the allowable error for the random access signal is high and the random access of the MS is easy. But the error report rate is high. If the parameter is set to an overgreat value, the error report rate of the MS is low but the normal access is difficult to be reported.	0-255

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Cell**. In the right pane of the window, double-click **Cell Extended Attributes Management**.

The **Cell Extended Attributes Management** dialog box is displayed, as shown in **Figure 6-2**.

Figure 6-2 Cell Extended Attributes Management dialog box



Step 2 Change the parameters of the cell extended attributes based on the actual situation.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **Set**.

The extended attributes are set successfully. The result is displayed on the status bar in the **Cell Extended Attributes Management** dialog box, as shown in **Figure 6-2**.

NOTE

The Site Maintenance Terminal System sends the configured data to the BTS and the data takes effect. The configured cell extended attributes cannot be refreshed.

----End

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6.3 Changing the Cell Management State

This function is performed to lock or unlock the BTs and RCs of a cell.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

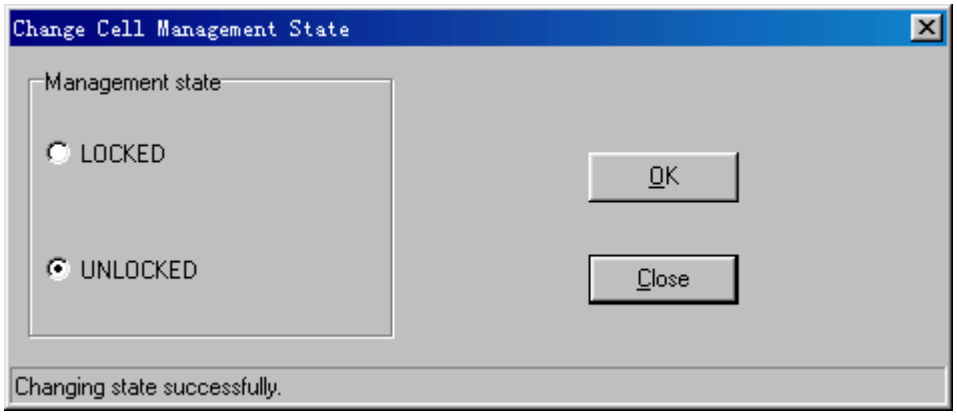
When the cell management state is changed to Locked, all the channels in the cell are in the Out of Service state. That is, the cell cannot provide any service when it is locked. Therefore, you should perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Cell**. In the right pane of the window, double-click **Change Cell Management State**.

The **Change Cell Management State** dialog box is displayed, as shown in **Figure 6-3**.

Figure 6-3 Change Cell Management State dialog box



Step 2 Select the management state you need.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **OK**.

The cell management state is changed successfully. The result is displayed on the status bar at the bottom of the **Change Cell Management State** dialog box, as shown in **Figure 6-3**.

----End

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6.4 Performing the Cell Performance Test

This function is performed to test all the RCs of a cell and to check whether they are functional.

Prerequisite

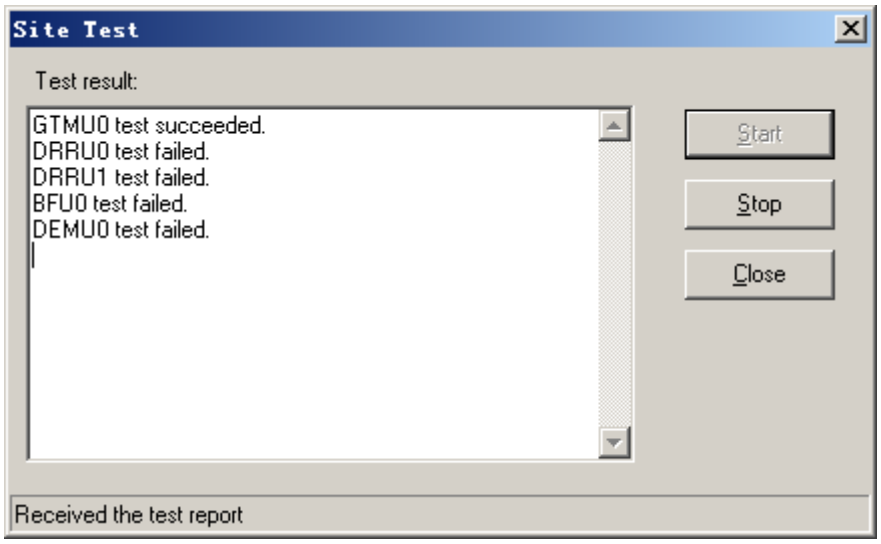
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Cell**. In the right pane of the window, double-click **Cell Performance Test**.

The **Site Test** dialog box is displayed, as shown in **Figure 6-4**.

Figure 6-4 Cell Test dialog box



Step 2 Click **Start**.

The test report is obtained. The result is displayed in the **Cell Test** dialog box. If the test is successful, you can infer that the BTs and the RCs are functional, as shown in **Figure 6-4**.

NOTE

During the test, you can click **Stop** to end the test. The result is displayed in the **Cell Test** dialog box.

----End

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7 Managing BTs

About This Chapter

The BT management involves locking or unlocking a BT, resetting a BT, performing the RC self-test, view the status of the channels on a specified BT, and enabling a specified RC to transmit signals at a predefined power level.

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7.1 Changing the BT Management State

This function is performed to lock or unlock a BT.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

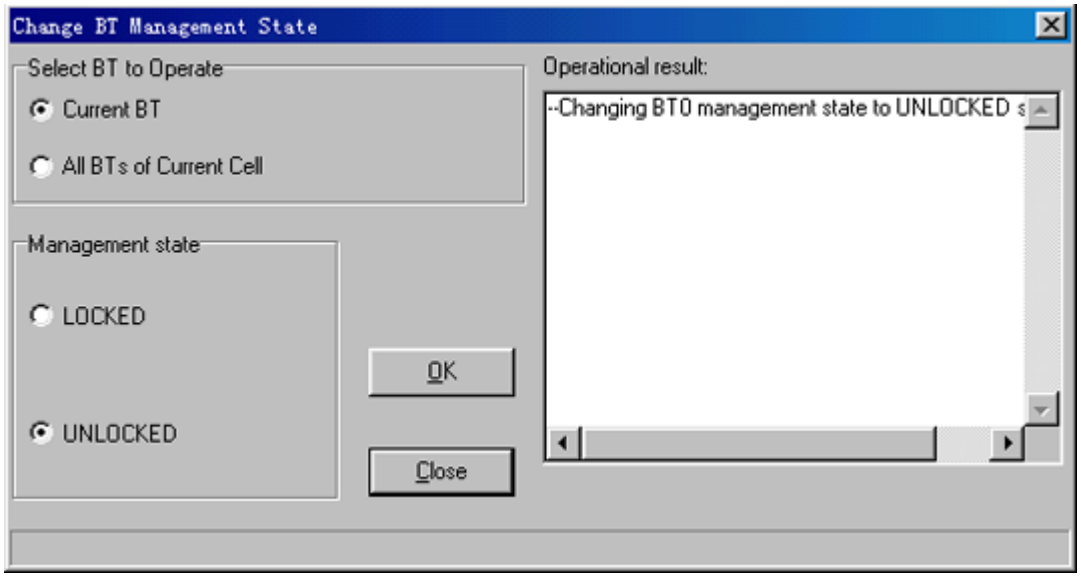
When you set the BT management state to Locked, all the channels of the baseband are in the Out of Service state. That is, the baseband cannot provide any service. Therefore, you should perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **BT**. In the right pane of the window, double-click **Change BT Management State**.

The **Change BT Management State** dialog box is displayed, as shown in **Figure 7-1**.

Figure 7-1 Change BT Management State dialog box



Step 2 Choose a BT and a management state.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **OK**.

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The BT management state is changed successfully. The result is displayed in the **Operational result** pane, as shown in **Figure 7-1**.

NOTE

You can click the **Operational result** pane to have it enlarged. The detailed information can be displayed in the pane. You can click in the enlarged pane to have the pane return to the original state.

----End

7.2 Re-Initializing a BT

This function is performed to reset a BT and to reload the configuration data of the BT.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

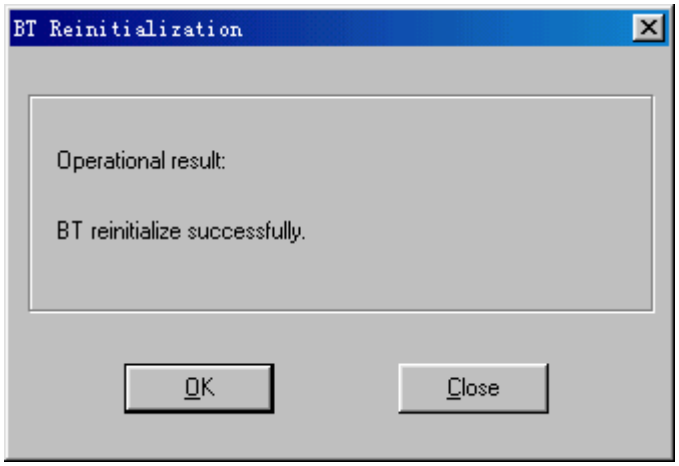
Re-initializing BT is actually the hard reset of the BT. All the services of the BT are interrupted during the hard reset. Therefore, you should perform this function carefully.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **BT**. In the right pane of the window, double-click **BT Reinitialization**.

The **BT Reinitialization** dialog box is displayed, as shown in **Figure 7-2**.

Figure 7-2 BT Reinitialization dialog box



Step 2 Click **OK**.

The result is displayed in the **BT Reinitialization** dialog box, as shown in **Figure 7-2**.

----End

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7.3 Performing BT Tests

The BT tests involve the BIU loopback test and the TRX self-test. The BIU loopback test is performed to check the connection between the BT of the specified TRX and the physical links of the Abis signaling channel. The TRX self-test is performed to check RCs and report the test result.

Prerequisite

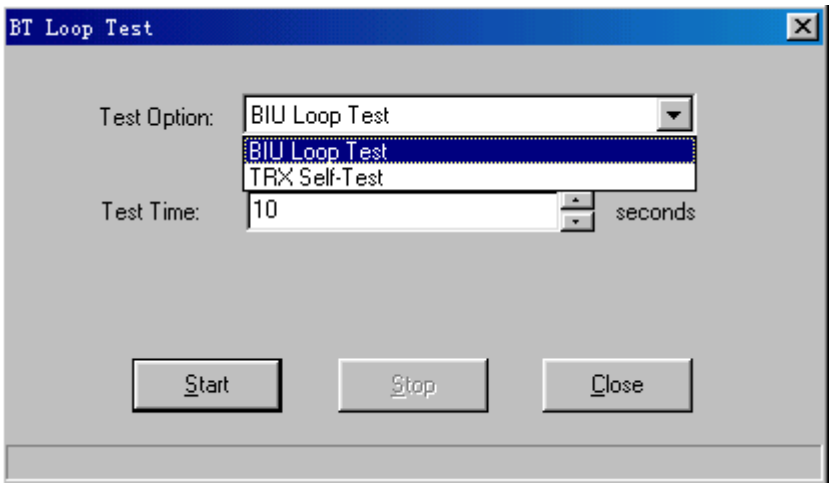
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **BT**. In the right pane of the window, double-click **BT Loop Test**.

The **BT Loop Test** dialog box is displayed, as shown in **Figure 7-3**.

Figure 7-3 BT Loop Test dialog box



Step 2 Set the test option and the test time, as shown in **Figure 7-3**.

NOTE

The test time is dependent on the test option. Generally, a long-duration test produces a stable test result.

Step 3 Click **Start**.

After the test is complete, a bit error ratio report is received. The result is displayed on the status bar in the **BT Loop Test** dialog box.

NOTE

During the test, you can click **Stop** to end the test. In this case, the **Stopping test successfully.** message is displayed on the status bar at the bottom of the **BT Loop Test** dialog box.

----End

7.4 Viewing the Channel Status

This function is performed to query the status of all the channels on a BT.

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Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

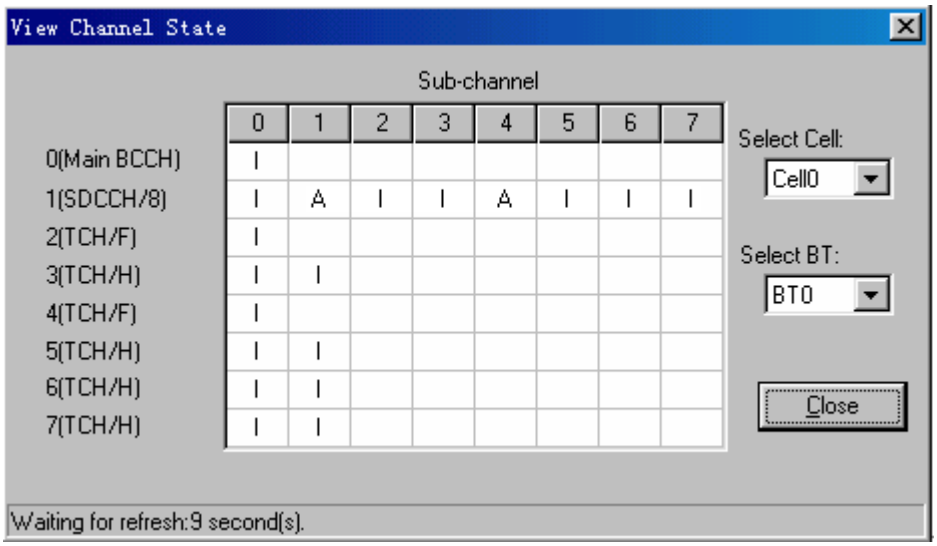
A channel can be in any of the following states: A (Active), I (Idle), O (Out of Service), B (Blocked), and U (Unavailable). A channel in the O, B, or U state cannot be seized by a call.

Procedure

In the left pane of the **Site Maintenance Terminal System** window, click **BT**. In the right pane of the window, double-click **View Channel State**.

The **View Channel State** dialog box is displayed, as shown in **Figure 7-4**.

Figure 7-4 View Channel State dialog box



----End

7.5 Setting the TRX Full Power Emission

This function is performed to enable a specified TRX to perform the full power emission and to test the transmit power level of signals. Based on this level, the software and hardware parameters can be adjusted accordingly during network planning. Therefore, the coverage of the BTS can be optimized.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- The power test devices are prepared.

Context

The static power level ranges from 0-10 dBm in steps of 2 dBm.

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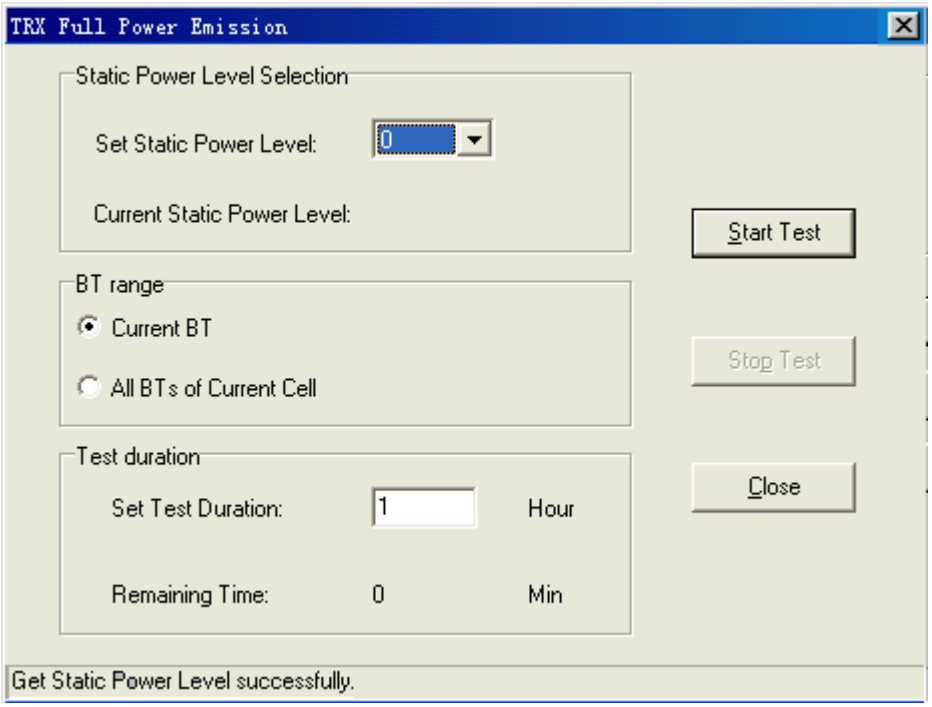
Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Site**. In the right pane of the window, double-click **TRX Full Power Emission**.

The **TRX Full Power Emission** dialog box is displayed, as shown in **Figure 7-5**.

Figure 7-5 TRX Full Power Emission dialog box



Step 2 Select a static power level and a BT, and set the test duration, as shown in **Figure 7-5**.

NOTE

The parameter **Set Static Power Level** specifies the power level of the TRX during the test. **Current Static Power Level** is the current power level of the TRX before a test.

Generally, the longer the duration of the test, the more stable the test result.

Step 3 Click **Start Test**.

After the test is complete, the result is displayed on the status bar of the **TRX Full Power Emission** dialog box.

NOTE

You can click **Stop** to end the test in progress. In addition, on the status bar of the **TRX Full Power Emission** dialog box, the **Get Static Power Level Successfully.** message is displayed.

----End

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8 Managing RCs

About This Chapter

The RC management involves setting the attributes and extended attributes of an RC, locking or unlocking an RC, resetting an RC, and adjusting power of an RC automatically.

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8.1 Managing RC Attributes

This function is performed to view and set the Absolute Radio Frequency Channel Number (ARFCN), that is, the frequency number of the current RC.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal

Context

Table 8-1 describes the parameters.

Table 8-1 Parameters in the RC Attributes Management dialog box

Parameter	Meaning	Value Range
ARFCN	This parameter specifies the frequency number of an RC.	• 850 MHz: 124 frequencies numbered from 128 to 251 • 900 MHz: 193 frequencies numbered from 0 to 124 and 955 to 1023 • 1800 MHz: 374 frequencies numbered from 512 to 885 • 1900 MHz: 299 frequencies numbered from 512 to 810

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **RC** . In the right pane of the window, double-click **RC Attributes Management**.

The **RC Attributes Management** dialog box is displayed, as shown in Figure 8-1.

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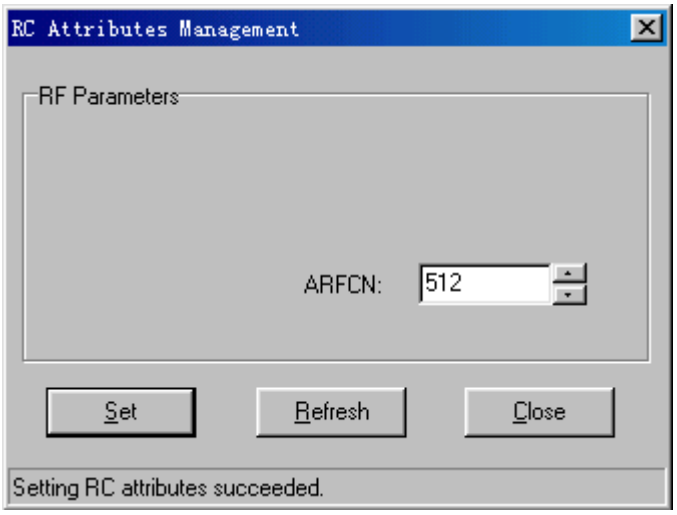
Figure 8-1 RC Attributes Management dialog box



Step 2 Set **ARFCN**.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **Set**.

The RC attributes are set successfully. The result is displayed on the status bar in the **RC Attributes Management** dialog box.

Step 4 Click **Refresh**.

The RC attributes are obtained successfully. The result is displayed on the status bar in the **RC Attributes Management** dialog box, as shown in **Figure 8-1**.

NOTE

The configure operation enables the site maintenance terminal to activate the parameters on the BTS. The refresh operation enables the site maintenance terminal to obtain the latest data from the BTS. You can perform the refresh operation to confirm the accuracy of data.

----End

8.2 Managing RC Extended Attributes

This function is performed to view or set the extended RC attributes, including the static power level, saturation threshold, saturation voltage threshold, and power mode.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

Table 8-2 describes the parameters.

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Table 8-2 Parameters in the RC Extended Attribute Management dialog box

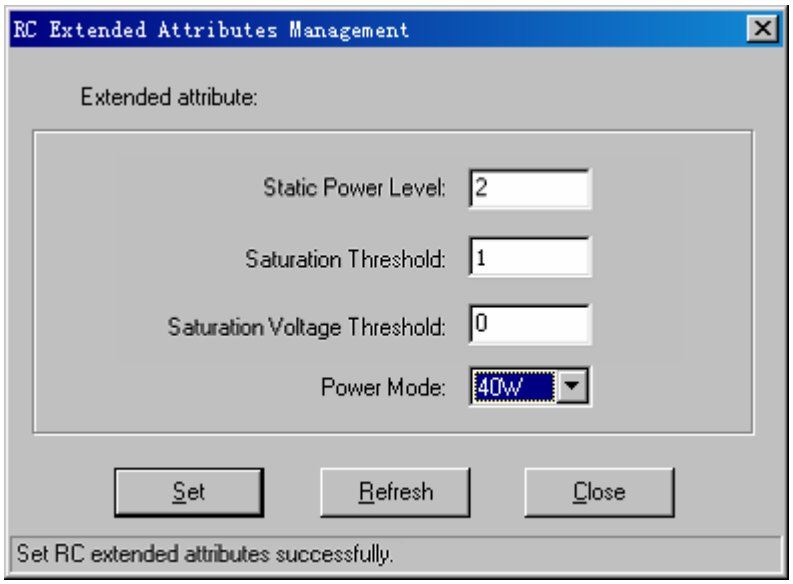
Parameter	Meaning	Value Range
Static power level	Based on the coverage of the local network, you can change the power and coverage by changing the static power level.	0-10
RACH Min Access Level	This parameter determines the minimum access level of the MS on the RACH. If the received level of a timeslot bearing a random access burst is higher than RACH Min Access Level, the BTS thinks that the timeslot has an access request. This parameter and **Random Access Error Threshold** determine whether the RACH access is valid. This parameter should be set on the basis of the actual receiver sensitivity of the BTS and the minimum access level of the MS to avoid the situation where a call cannot be made even through there are signals detected.	0–5 (default value: 1)
Saturation Voltage Threshold	This parameter determines the maximum access level. If the access level exceeds this threshold, the access is invalid.	0-255
Power Mode	Current work mode, that is, power type of an RC.	30W, 25W, 15W, 12W

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **RC**. In the right pane of the window, double-click **RC Extended Attributes Management**.

The **RC Extended Attributes Management** dialog box is displayed, as shown in **Figure 8-2**.

Figure 8-2 RC Extended Attributes Management dialog box



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Step 2 Set the RC extended attributes.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **Set**.

The extended attributes are set successfully. The result is displayed on the status bar in the **RC Extended Attributes Management** dialog box, as shown in **Figure 8-2**.

NOTE

The configure operation enables the site maintenance terminal to activate the parameters on the BTS. The refresh operation enables the site maintenance terminal to obtain the latest data from the BTS. You can perform the refresh operation to confirm the accuracy of data.

----End

8.3 Changing the RC Management State

This function is performed to lock or unlock an RC.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

When the RC management state is set to Locked, all the channels on the RC are in the out of service state, which means that the RC cannot provide any service. Therefore, you should perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **RC**. In the right pane of the window, double-click **Change RC Management State**.

The **Change RC Management State** dialog box is displayed, as shown in **Figure 8-3**.

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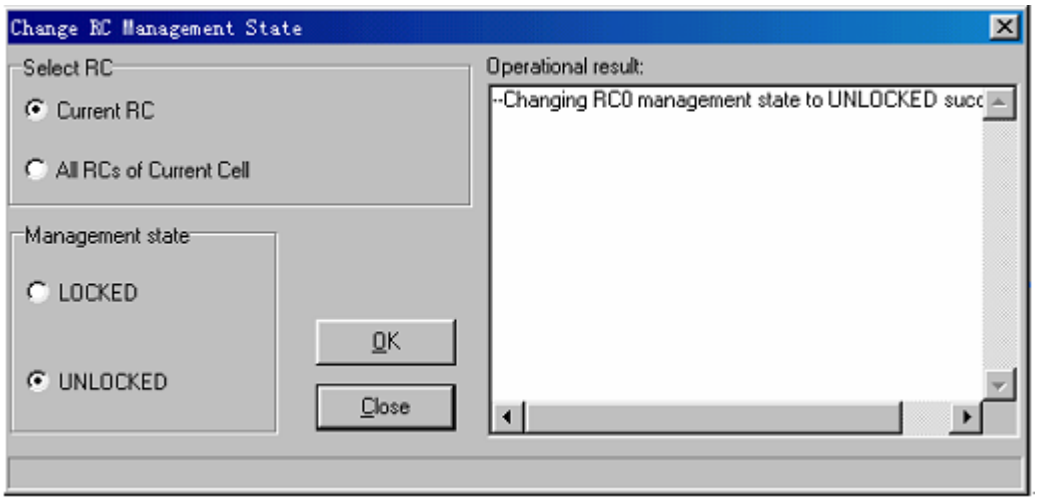
Figure 8-3 Change RC Management State dialog box



Step 2 Select the current RC or all the RCs, and select a management state.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **OK**.

The RC management state is changed successfully. In the **Change RC Management State** dialog box, the result is displayed in the **Operational result** list box, as shown in **Figure 8-3**.

----End

8.4 Re-Initializing an RC

This function is performed to reset an RC. After the RC is reset, the GTMU sends the stored configuration data to the RC again, and the configuration data takes effect on the RC.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

Re-initializing RC is actually the hardware reset of the RC. All the services of the RC are interrupted during the hardware reset. Therefore, you should perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **RC**. In the right pane of the window, double-click **RC Reinitialization**.

The **RC Reinitialization** dialog box is displayed.

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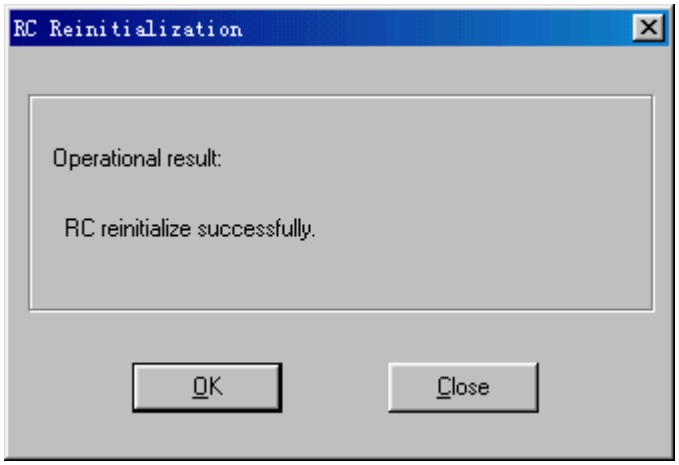
Step 2 Click **OK**.

The RC is reinitialized successfully. The result is displayed in the **RC Reinitialization** dialog box, as shown in **Figure 8-4**.

Figure 8-4 RC Reinitialization dialog box



----End

8.5 Obtaining the RC Power Mode

This function is performed to view the power type and the current work mode of an RC.

Prerequisite

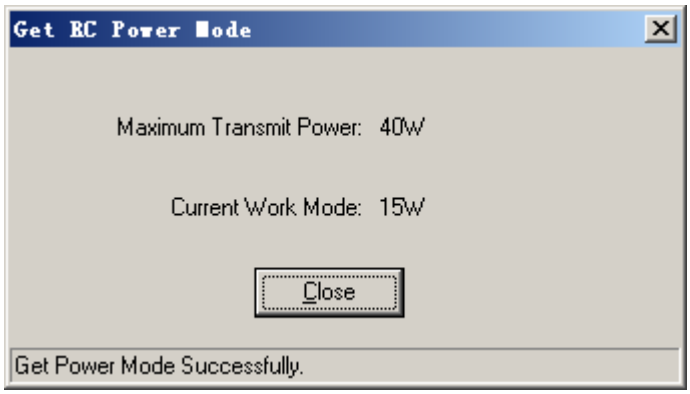
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

In the left pane of the **Site Maintenance Terminal System** window, click **RC**. In the right pane of the window, double-click **Get RC Power Mode**.

The **Get RC Power Mode** dialog box is displayed, as shown in **Figure 8-5**.

Figure 8-5 Get RC Power Mode dialog box



----End

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8.6 Obtaining the Auto Power Adjustment Type

This function is performed to obtain the information about the frequency band of an RC and whether the RC supports the automatic power control function.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

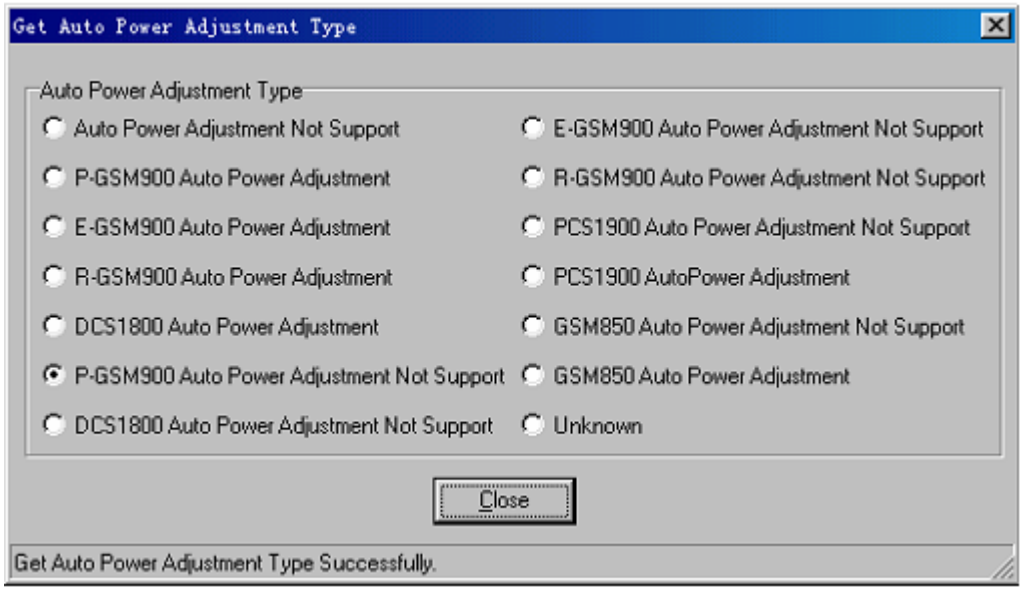
The automatic power control function can keep the frequency of the RC within a fixed range.

Procedure

In the left pane of the **Site Maintenance Terminal System** window, click **RC**. In the right pane of the window, double-click **Get Auto Power Adjustment Type**.

The auto power adjustment type is obtained successfully. The result is displayed on the status bar in the **Get Auto Power Adjustment Type** dialog box, as shown in **Figure 8-6**.

Figure 8-6 Get Auto Power Adjustment Type dialog box



NOTE

This function is for query purpose only.

----End

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9 Managing Channels

About This Chapter

The channel management involves viewing and setting channel attributes, locking or unlocking a channel, and checking the quality of a channel by testing the parameters such as the bit error ratio (BER) and transmit power.

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9.1 Managing Channel Attributes

This function is performed to view or set the channel parameters, including channel combination, TSC selection, and starting frame number.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

The channel configuration in the BTS must be consistent with that in the BSC. **Table 9-1** describes the parameters.

Table 9-1 Parameters in the Channel Attributes Management dialog box

Parameter	Meaning	Value Range
Channel combination	Combination type of logical channels that are carried on the physical channel	• TCHFULL • TCHHALF • TCHHALF2 • SDCCH • MAINBCCH • BCCHCOMBINED • BCH • BCCHWITHCBCH • SDCCHWITHCBCH • PBCCH+PCCCH +PDTCH+PACCH +PTCCH • PDTCH+PACCH +PTCCH
Training Sequence Code (TSC)	The TSC helps the demodulation module of the BT evaluate the channel characteristics so that the valid information can be decoded correctly. In cell frequency hopping, the TSC should be consistent with the BCC of the cell. Otherwise, the TCHs of the cell cannot be occupied normally.	0-7
Starting frame No.	This parameter determines the frame from which the setting takes effect.	0-42431

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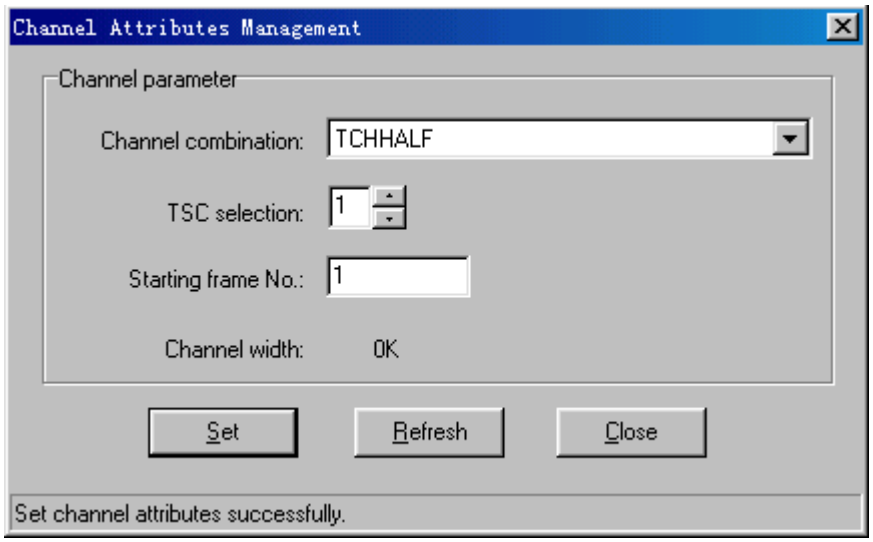
Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Channel**. In the right pane of the window, double-click **Channel Attributes Management**.

The **Channel Attributes Management** dialog box is displayed, as shown in **Figure 9-1**.

Figure 9-1 Channel Attributes Management dialog box



Step 2 Set the parameters.

NOTE

The parameters displayed on the terminal are the activated parameters on the BTS. You can adjust their values.

Step 3 Click **Set**.

The attributes are set successfully. The result is displayed on the status bar in the **Channel Attributes Management** dialog box.

Step 4 Click **Refresh**.

The attributes are obtained successfully. The result is displayed on the status bar in the **Channel Attributes Management** dialog box, as shown in **Figure 9-1**.

NOTE

The configure operation enables the site maintenance terminal to activate the parameters on the BTS. The refresh operation enables the site maintenance terminal to obtain the latest data from the BTS. You can perform the refresh operation to confirm the accuracy of data.

----End

9.2 Changing the Channel Management State

This function is performed to lock or unlock a channel.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

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Context

CAUTION

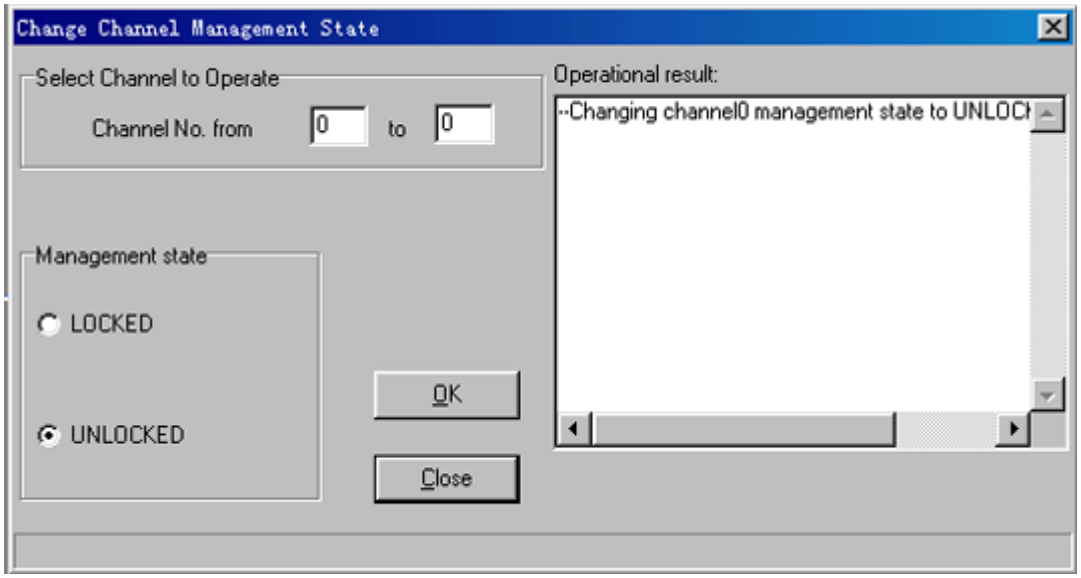
When the channel management state is set to Locked, the channel is in the out of service state, which means that the channel cannot provide any service. Therefore, you should perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Channel**. In the right pane of the window, double-click **Change Channel Management State**.

The **Change Channel Management State** dialog box is displayed, as shown in **Figure 9-2**.

Figure 9-2 Change Channel Management State dialog box



Step 2 In the **Select Channel to Operate** area, enter the target channel. In the **Management state** area, select a management state.

Step 3 Click **OK**.

The management state of the channel is successfully changed, as shown in **Figure 9-2**. The result is displayed in the **Operational result** pane.

----End

9.3 Performing the Loopback Test

This function is performed to check the quality of a channel by testing the parameters such as the bit error ratio (BER) and transmit power of the channel.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

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Context

Table 9-2 describes the parameters.

Table 9-2 Parameters in the Cell Extended Attributes Management dialog box

Parameter	Meaning	Value Range
TRX RF self-loop test	This test is used to check the performance of the TX and RX channels on the Um interface.	-
BIU loop test	The GTMU provides a loop path for the TRX to perform the loopback test. This test is used to check the performance of the DBUS.	-
BTS sound loop test	This test is used to check whether the connection of the TCH between the Um interface and the DBUS is normal.	-
TRX sound loop test	This test is used to check whether the connection of the TCH between the Um interface and the Digital Signal Processor (DSP) is normal.	-
Test time	-	• TRX RF self-loop test: 5-65535 seconds • BIU loop test: 10-65535 seconds • BTS sound loop test: 10-600 seconds • TRX sound loop test: 10-600 seconds
Power Level	The selection of a power level is unavailable when you perform a BIU loopback test.	0-31
Sub Channel	The selection of a sub-channel is unavailable when you perform a TRX RF loopback test or a BIU loopback test.	• This parameter determines the sub-channel to be tested in half-rate configuration. • In full-rate configuration, this parameter is set to 0xff.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Channel**. In the right pane of the window, double-click **Channel Loop Test**.

The **Channel Loop Test** dialog box is displayed, as shown in Figure 9-3.

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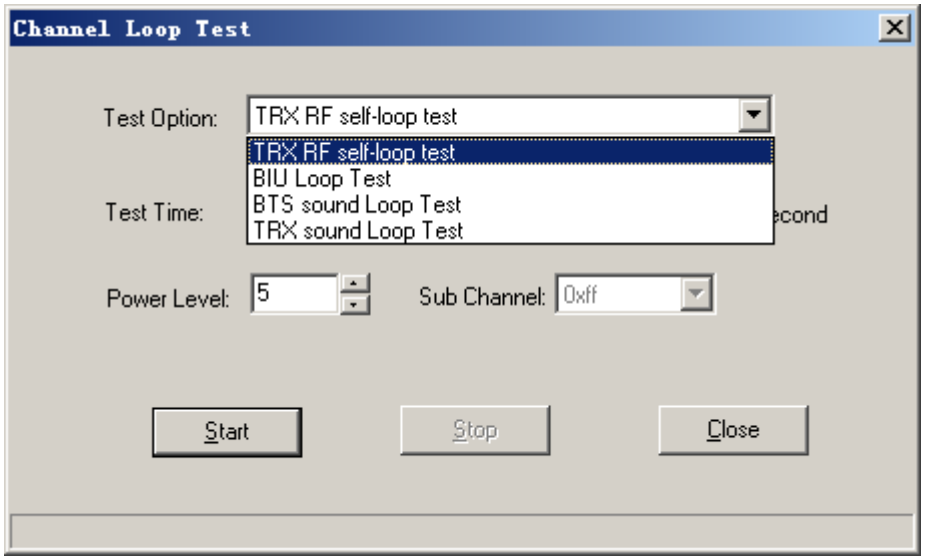
Figure 9-3 Channel Loop Test dialog box



Step 2 Specify the test option, test time, power level, and sub-channel, as shown in **Figure 9-3**.

NOTE

The test time is dependent on the test option. Generally, a long-duration test produces a stable test result.

Step 3 Click **Start**.

After the test is complete, you can obtain a BER report. The result is displayed on the status bar in the **Channel Loop Test** dialog box.

NOTE

During the test, if you click **Stop**, the test is stopped. In addition, the **Stopping test successfully.** message is displayed on the status bar of the **Channel Loop Test** dialog box.

----End

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10 BBU Operations

About This Chapter

The BBU operations involve the query, configuration, and test operations associated with the BBU. You can query the board settings, board information, board extended information, board alarms, and port attributes. You can also perform operations such as board reset, power-off reset, self-test, clock configuration, loopback test, and parameter management.

Prerequisite

NOTE

Obtain the site management rights before writing data; otherwise, you may not be able to write data, for example, Starting a BoardConfiguring a Board. You can read data from the BTS without the site management rights.

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This function is performed to check whether the GTMU communicates with the Site Maintenance Terminal normally.

10.9 Querying Board Alarms

This function is performed to query board alarm information. The information involves the object type, object number, alarm level, alarm name, detailed explanation, and recover suggestion.

10.10 Querying Board Parameters

This function is performed to query the operating parameters of the boards. The parameters are the board temperature, E1/T1 capacity, fan speed, inlet temperature.

10.11 Querying Port Attributes

This function is performed to query the availability status, management status, active/standby status, and physical property of ports.

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10.1 Configuring a Board

This describes how to configure a BTS board. After a board is configured, the configuration information of the board is sent to the BTS through the Site Maintenance Terminal System.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board**. In the right pane of the window, double-click **Board Configuration**.

The **Board Configuration** window is displayed.

Step 2 Right-click a slot, and select a board from the shortcut menu.

The configured board is shown in green on the device panel at first. Then, the system compares the board configured on the device panel with the board actually installed in the BTS, and refreshes the displayed result on the device panel.

NOTE

If the board still shows green after the displayed result on the device panel is refreshed, you can infer that the configured board runs normally.

If the board shows red after the displayed result on the device panel is refreshed, the causes are as follows:

- The board is configured on the device panel while the board is not actually installed in the BTS.
- The board is configured on the device panel and installed in the BTS. However, the communication between the board and the GTMU cannot be established.

Step 3 Click **Refresh**.

The system refreshes the result displayed on the device panel. The **Configuring board successfully.** message is displayed on the status bar at the bottom of the interface, as shown in **Figure 10-1**.

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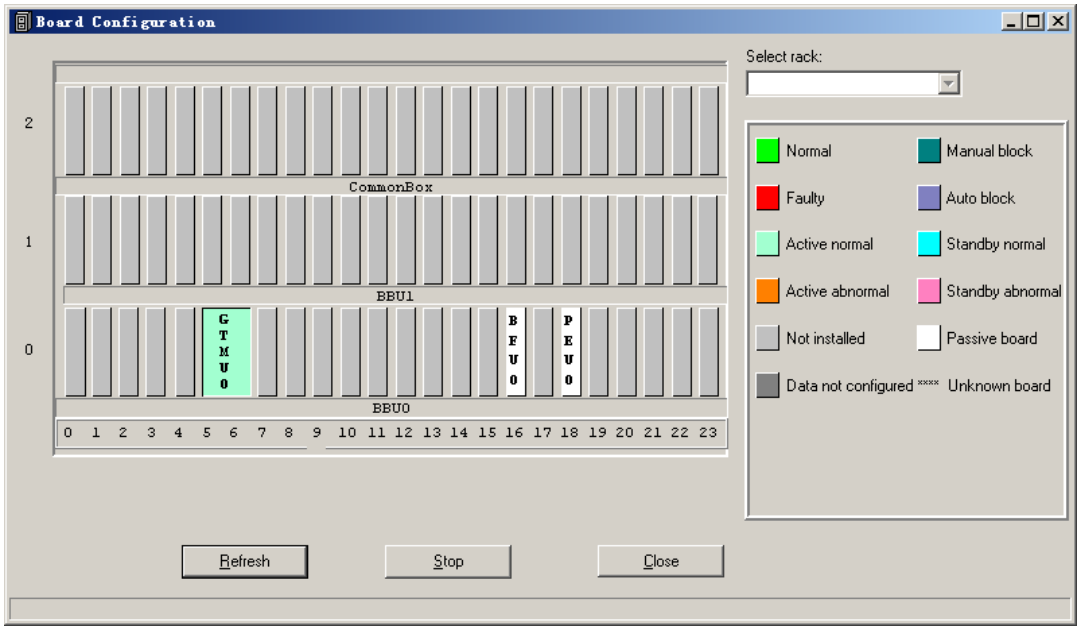
Figure 10-1 Board Configuration window



----End

10.2 Querying Board Information

This describes how to query the board running state, software version, board alarm count, current clock state, board in-position information, and clock master/backup state.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

The querying of the clock master/backup is applicable only to the GTMU.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-2**.

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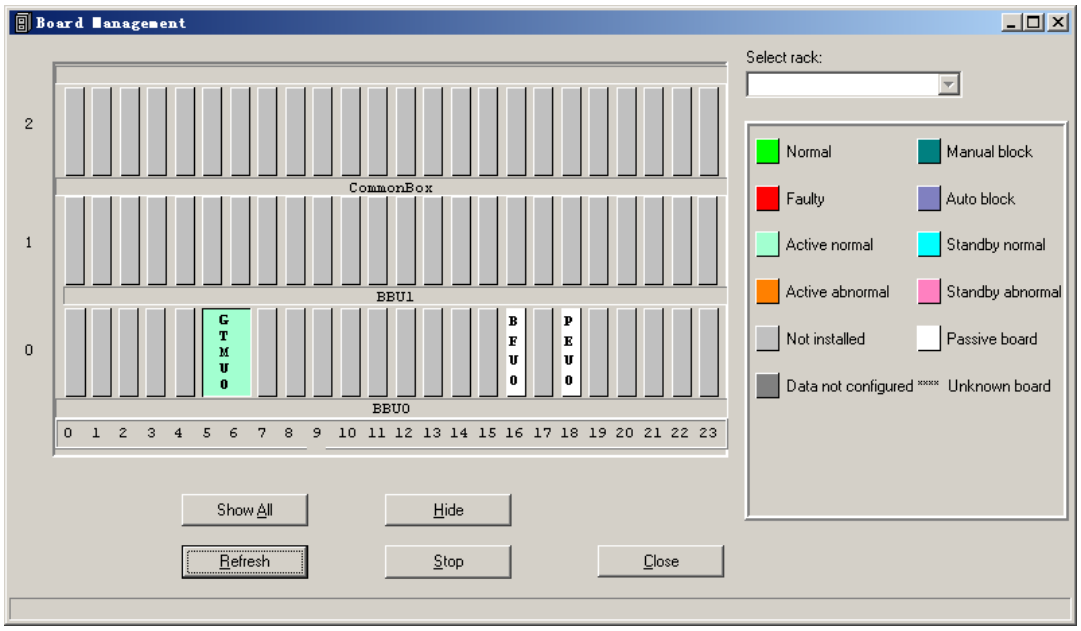
Figure 10-2 Board Management window



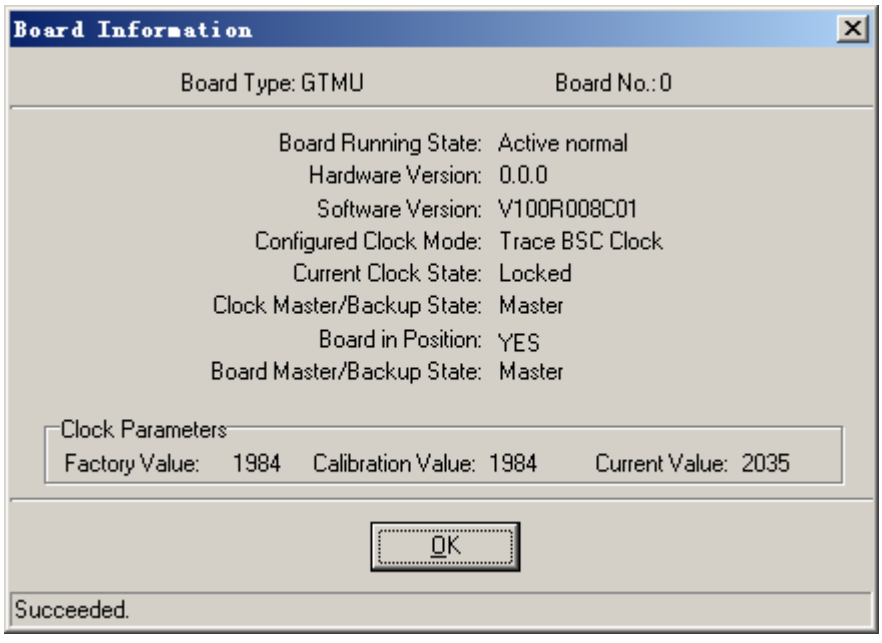
Step 2 Right-click the board to be queried.

A shortcut menu is displayed.

Step 3 Select **Board Information** from the shortcut menu.

The result is displayed in the **Board Information** dialog box, as shown in **Figure 10-3**.

Figure 10-3 Board Information dialog box



----End

10.3 Querying Board Extended Information

This describes how to query the E1 port capacity of a board.

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Prerequisite

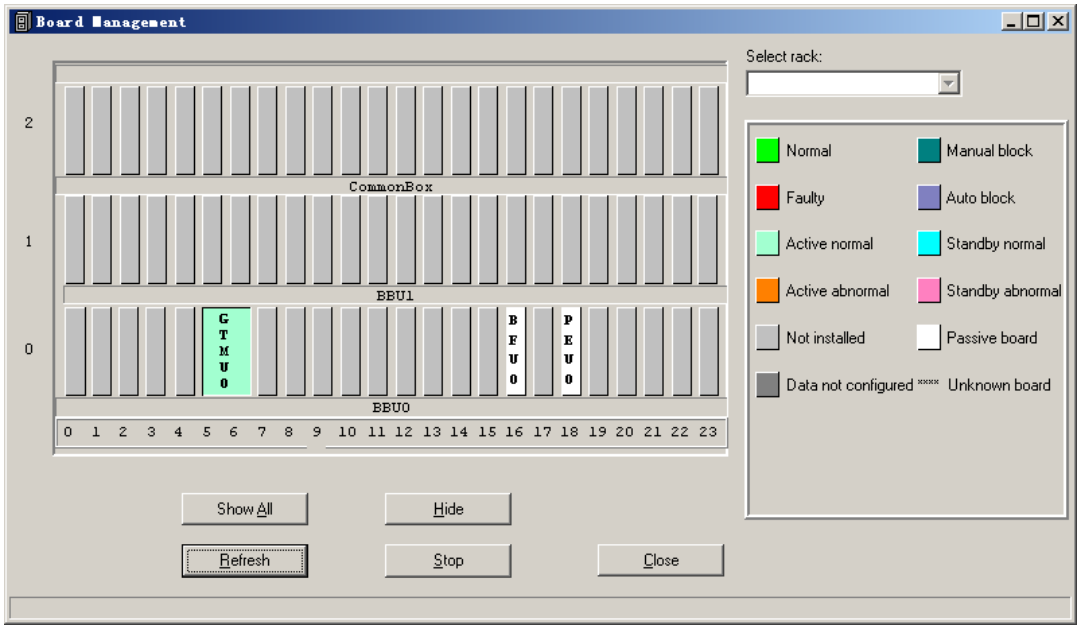
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-4**.

Figure 10-4 Board Management window



Step 2 Right-click the board to be queried.

A shortcut menu is displayed.

Step 3 Select **Board Extended Information** from the shortcut menu.

The result is displayed in the **Board Extended Information** dialog box, as shown in **Figure 10-5**.

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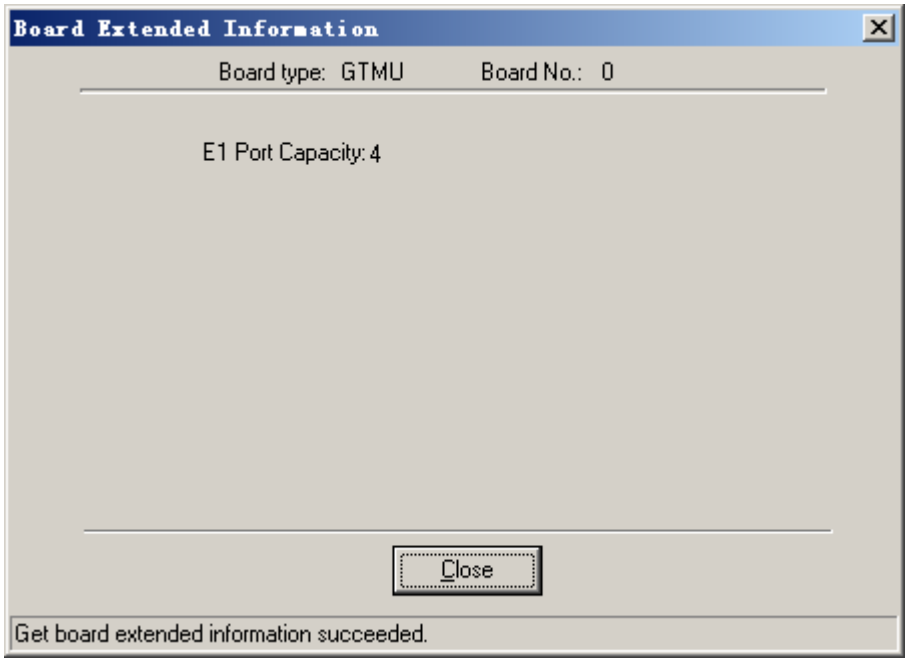
Figure 10-5 Board Extended Information dialog box



----End

10.4 Resetting a board

This function is performed to initialize the parameters associated with a board.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

The board reset interrupts the BTS services. Therefore, perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board** . In the right pane of the window, double-click **Board Management**.

The **Board Management** window is displayed, as shown in **Figure 10-6**.

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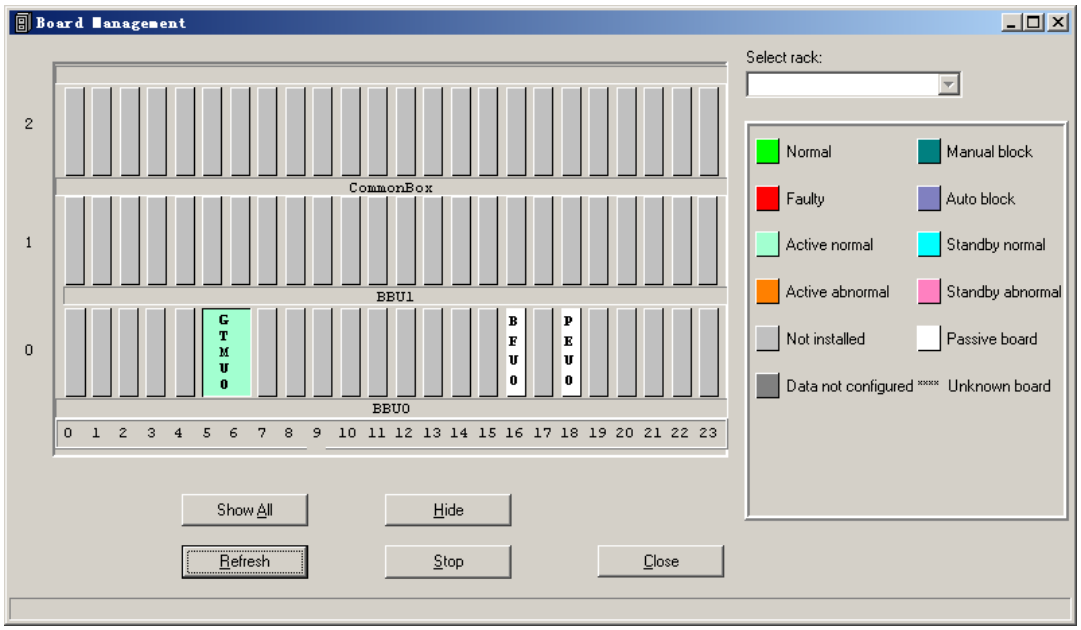
Figure 10-6 Board Management window



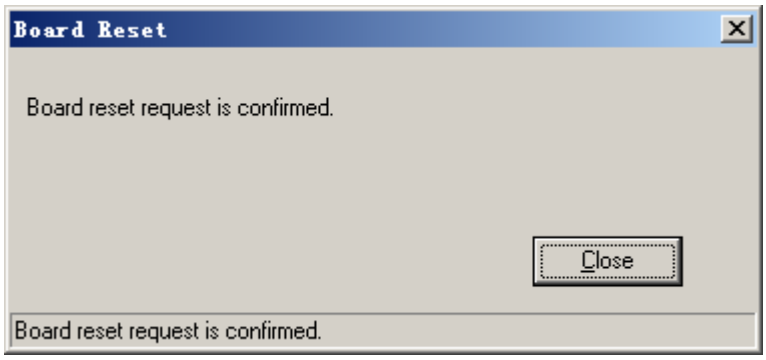
Step 2 Right-click the target board or module, such as **GTMU**.

A shortcut menu is displayed.

Step 3 Select **Board Reset** from the shortcut menu.

The result is displayed in the **Board Reset** window, as shown in **Figure 10-7**.

Figure 10-7 Board Reset window



----End

10.5 Resetting a Board in Power-Off Mode

This function is performed to restore the software and hardware parameters of a board to the initial values.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

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Context

CAUTION

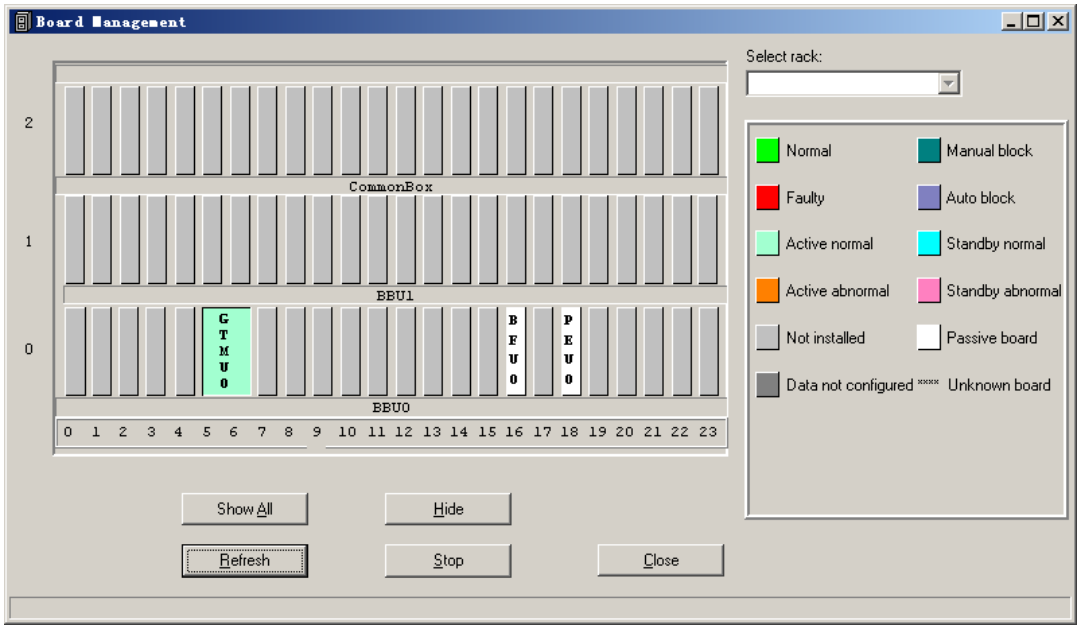
The power-off reset of a board interrupts the BTS services. Therefore, perform this function with care.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board**. In the right pane of the window, double-click **Board Management**.

The **Board Management** window is displayed, as shown in **Figure 10-8**.

Figure 10-8 Board Management window



Step 2 Right-click the board to be reset, such as the **GTMU**.

A shortcut menu is displayed.

Step 3 Select **Power Off Reset** from the shortcut menu.

The result is displayed in the **Board Reset** window, as shown in **Figure 10-9**.

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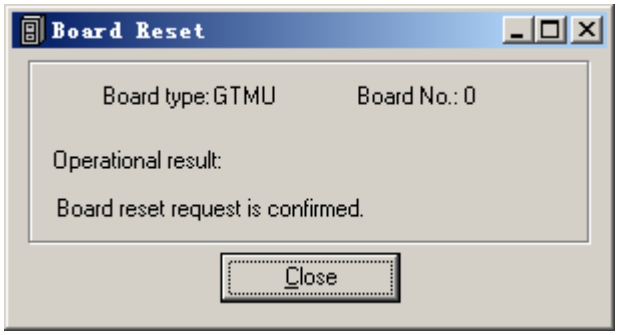
Figure 10-9 Board Reset window



----End

10.6 Testing a Board

This function is performed to check whether the hardware of the board is damaged.

Prerequisite

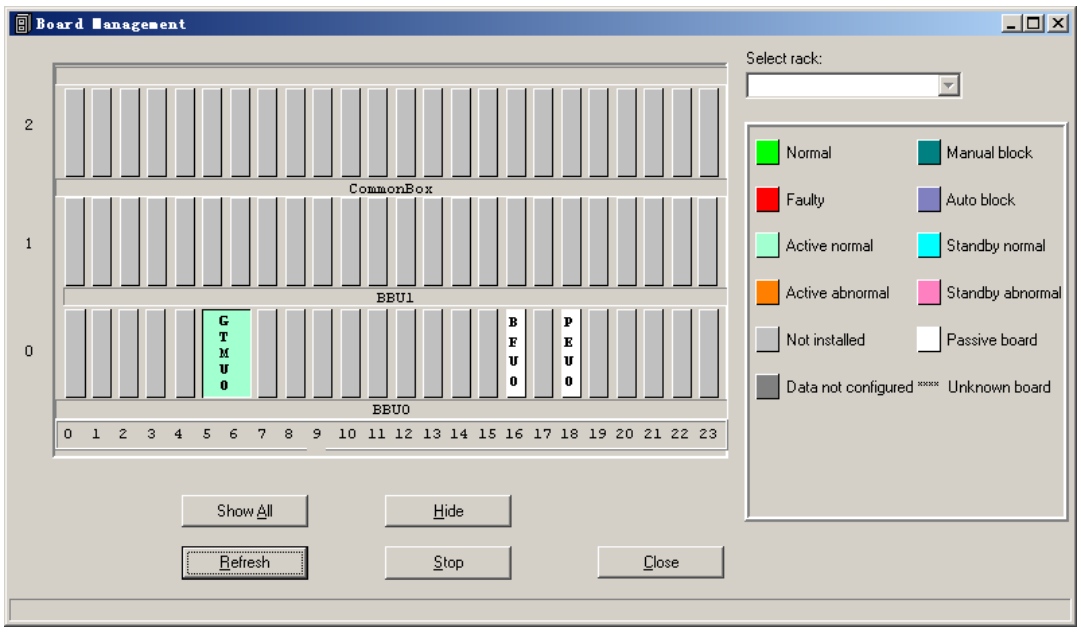
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-10**.

Figure 10-10 Board Management window



Step 2 Right-click the board to be tested, such as the **GTMU**.

A shortcut menu is displayed.

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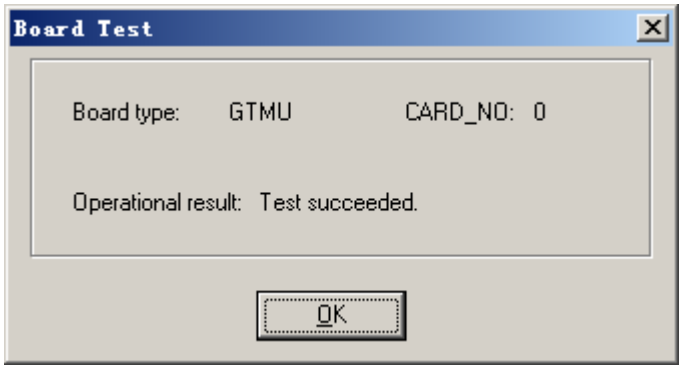
Step 3 Select **Test** from the shortcut menu.

The **Board Test** dialog box is displayed, as shown in **Figure 10-11**.

Figure 10-11 Board Test dialog box



NOTE

If the test succeeds, you can infer that that no hardware of the board is damaged.

----End

10.7 Setting the BTS Clock

This describes how to set the working mode of the BTS clock.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

This operation applies only to the GTMU. **Table 10-1** describes the parameters.

Table 10-1 Parameters in the Clock Setup dialog box

Parameter	Meaning	Value Range
Internal clock	The clock unit of the BTS works in free oscillation mode. It is not always synchronous with the network clock.	-
Trace BSC clock	The clock unit works in phase-locked mode. It is synchronous with the 2 Mbit/s clock abstracted from the Abis interface.	-
External Sync. clock	The clock unit of the BTS works in phase-locked mode. It is synchronous with the external 2 MHz reference clock.	-
Clock Calibration	It is used to adjust the frequency of the crystal oscillator.	0-4095

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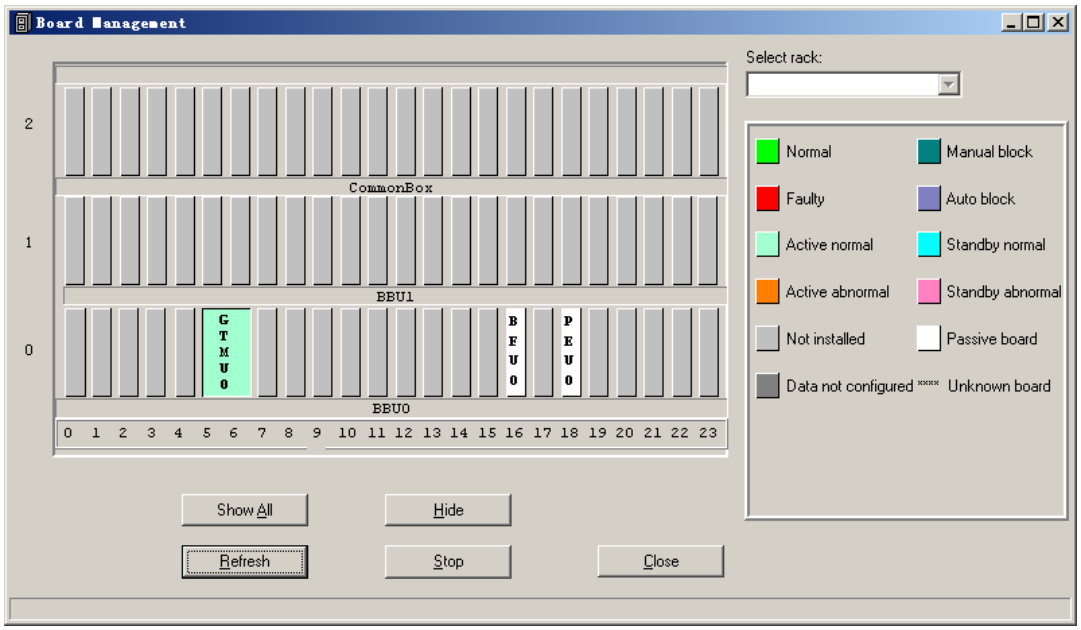
Parameter	Meaning	Value Range
Enable Trace Range Limit	When the BSC clock is offset from the specified range of frequency, the BTS is not synchronous with the BSC clock.	-
Disable Trace Range Limit	The BTS clock is synchronous with the BSC, irrespective of the BSC clock frequency.	-

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-12**.

Figure 10-12 Board Management window



Step 2 Right-click **GTMU**.

A shortcut menu is displayed.

Step 3 Select **Clock Setup** from the shortcut menu.

The **Clock Setup** dialog box is displayed.

Step 4 In the **Clock Mode** area, select a clock mode.

Step 5 Click **OK**.

The result is displayed on the status bar at the bottom of the dialog box, as shown in **Figure 10-13**.

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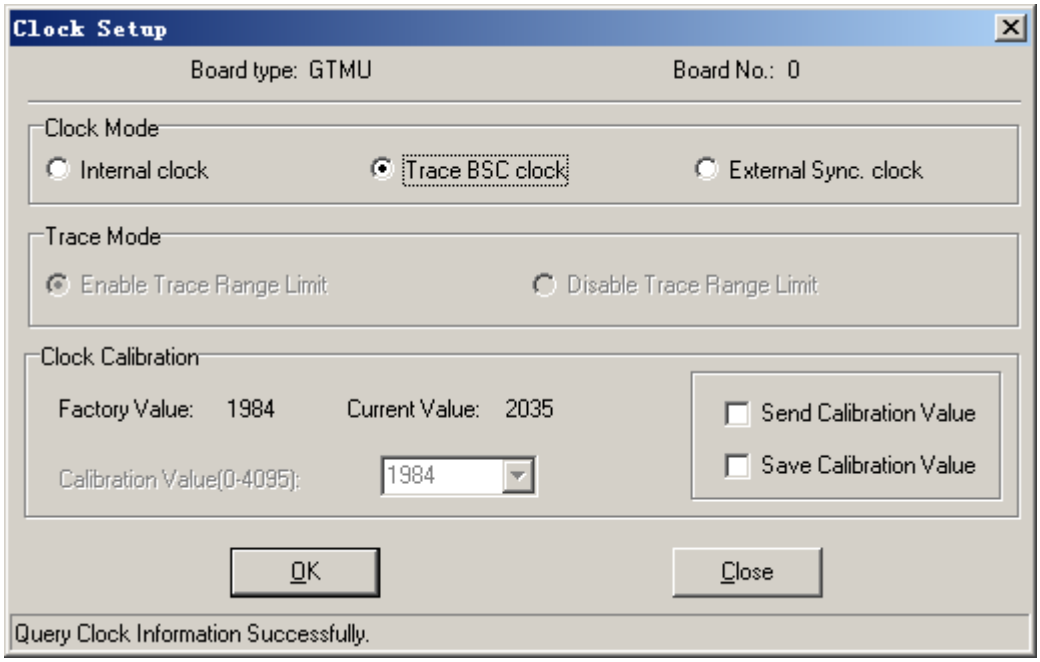
Figure 10-13 Clock Setup dialog box



Step 6 If you need to change the current clock frequency, specify a value in the **Calibration Value(0–4095)** drop-down list box in the **Clock Calibration** area, and then select **Send Calibration Value**. Click **OK**.

Calibrate the current clock frequency.

Step 7 Select **Save Calibration Value**. Click **OK**. The specified clock frequency is saved in the system.

NOTE

In the **Clock Mode** area, only when you select **Trace BSC clock**, the **Trace Mode** can be selected.

----End

10.8 Performing Loopback Test of Board Communication Links

This function is performed to check whether the GTMU communicates with the Site Maintenance Terminal normally.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- The GTMU to be operated is configured properly and is functional.

Context

This operation applies only to the GTMU. **Table 10-2** describes the parameters.

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Table 10-2 Parameters in the Loopback Test dialog box

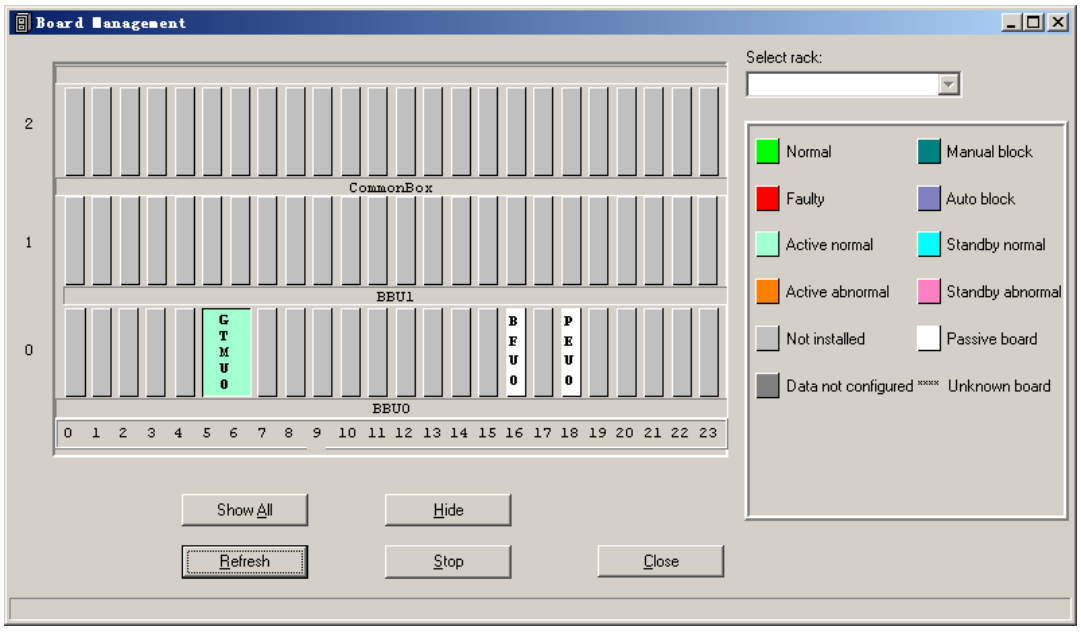
Parameter	Meaning	Value Range
Data length	The valid data length of a single frame in the loop test command issued by the GTMU.	1-220
Initial data	The initial value of the valid data of the loop test command issued by the GTMU.	0-255
Data step length	The incremental step length of the valid data of the loop test command issued by the GTMU.	0-255

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-14**.

Figure 10-14 Board Management window



Step 2 Right-click the GTMU.

A shortcut menu is displayed.

Step 3 Select **Loop Test** from the shortcut menu.

The **Loop Test** dialog box is displayed, as shown in **Figure 10-15**.

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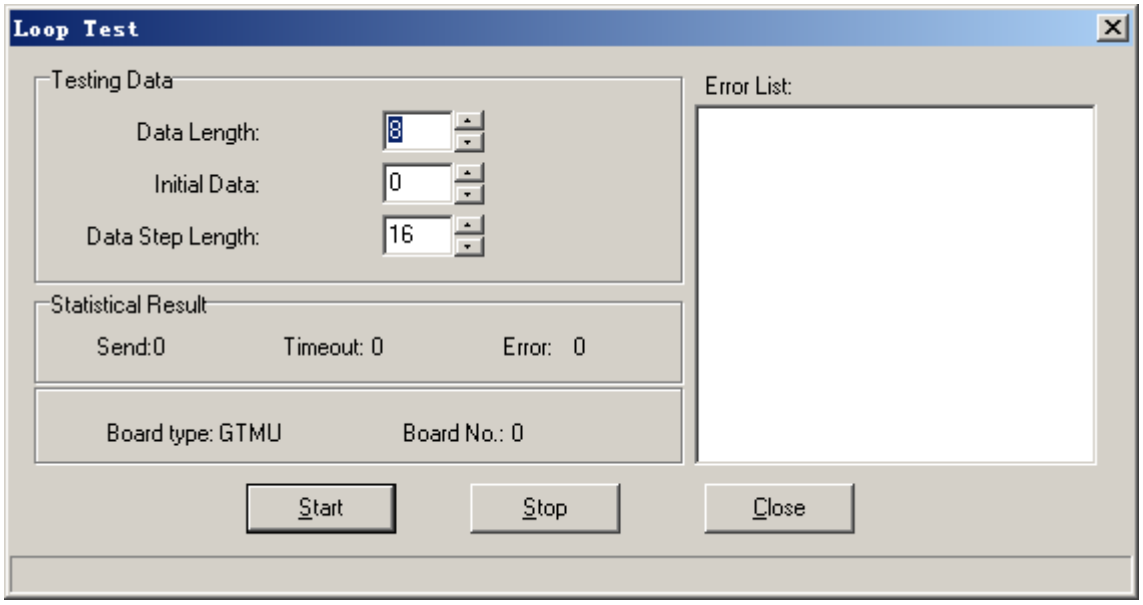
Figure 10-15 Loop Test dialog box



Step 4 Click **Start**.

After the test is complete, the result is displayed on the status bar at the bottom of the dialog box.

----End

10.9 Querying Board Alarms

This function is performed to query board alarm information. The information involves the object type, object number, alarm level, alarm name, detailed explanation, and recover suggestion.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-16**.

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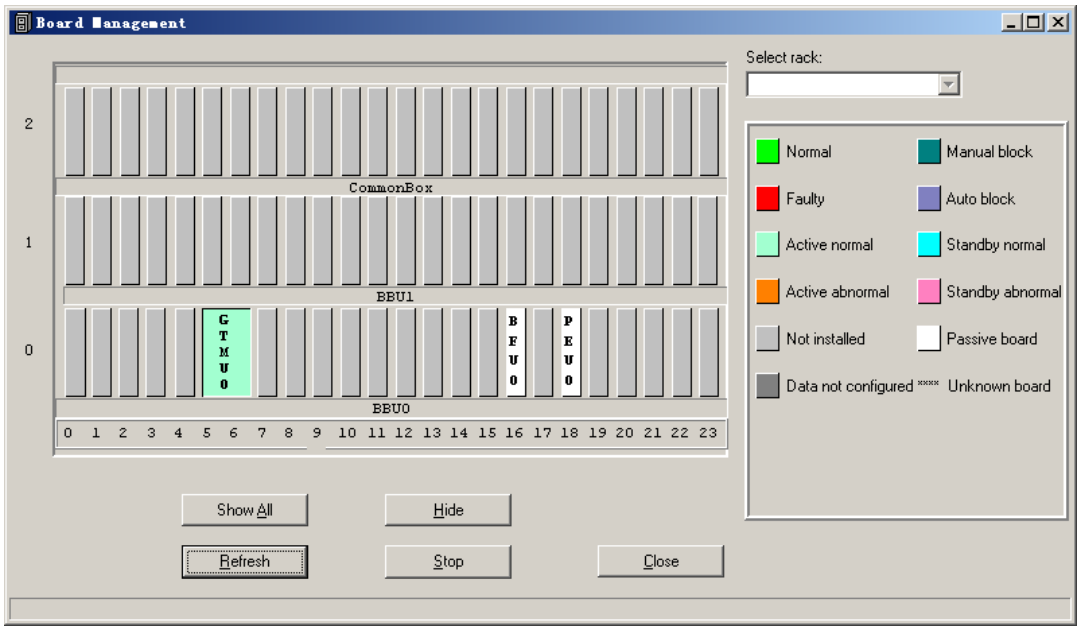
Figure 10-16 Board Management window



Step 2 Right-click the board to be queried.

A shortcut menu is displayed.

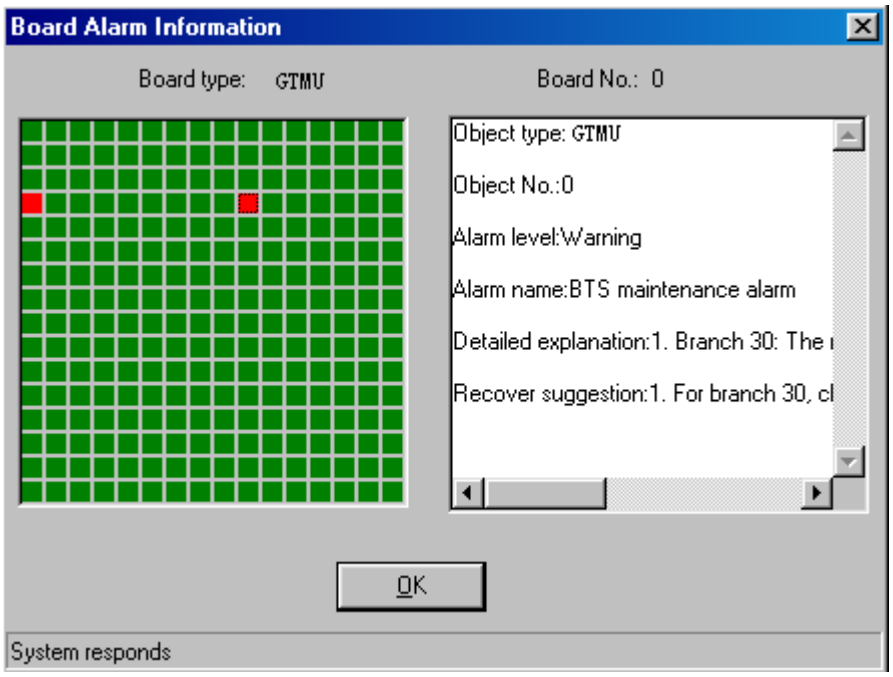
Step 3 Select **Board Alarm** from the shortcut menu.

The **Board Alarm Information** dialog box is displayed.

Step 4 Click a red grid.

The description of a specific alarm is displayed in the right pane, as shown in **Figure 10-17**.

Figure 10-17 Board Alarm Information dialog box



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NOTE

Each red grid represents an alarm.

----End

10.10 Querying Board Parameters

This function is performed to query the operating parameters of the boards. The parameters are the board temperature, E1/T1 capacity, fan speed, inlet temperature.

Prerequisite

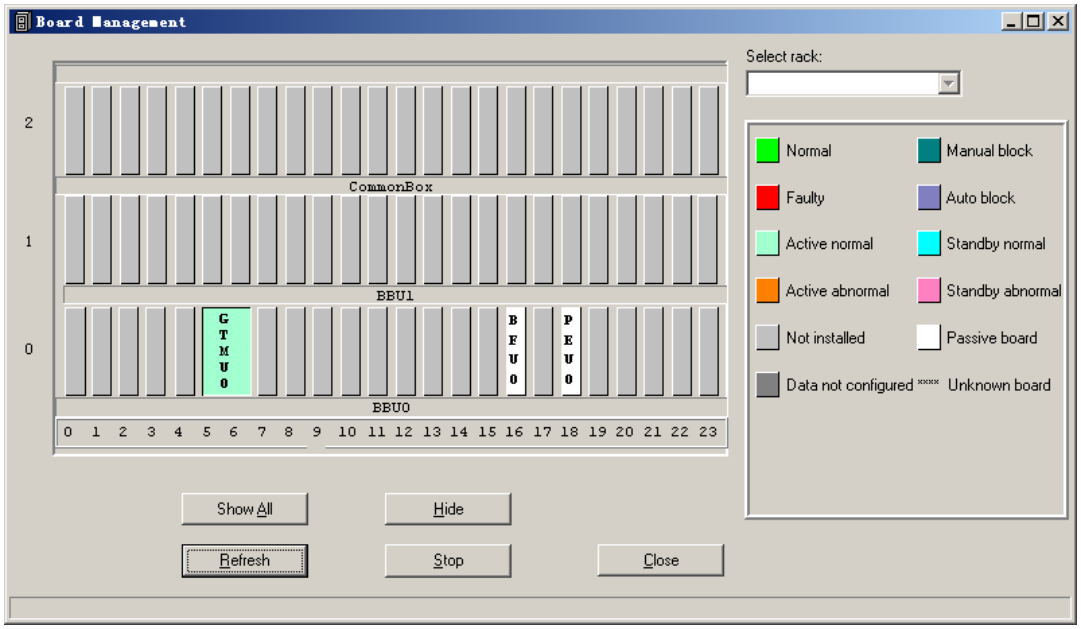
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-18**.

Figure 10-18 Board Management window



Step 2 Right-click the board to be viewed.

A shortcut menu is displayed. Select **Parameter Management** from the shortcut menu.

Step 3 In the **Parameter Management** window, click the **Running Parameter** tab, and query the running parameters of boards.

The result is displayed on the **Parameter Management** dialog box, as shown in **Figure 10-19**.

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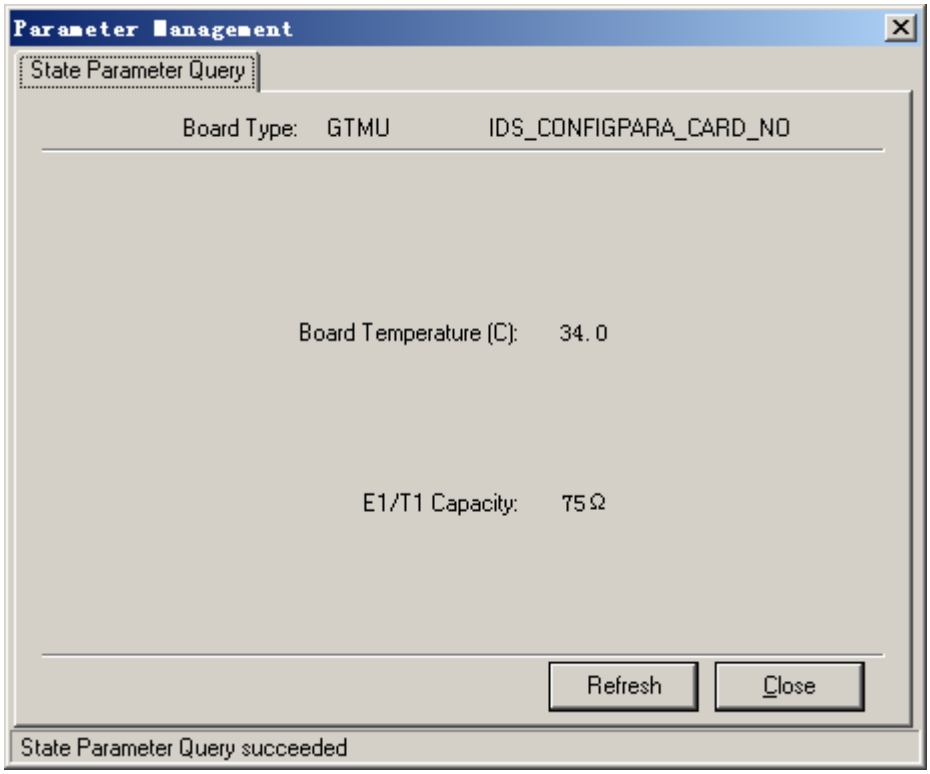
Figure 10-19 Parameter Management dialog box



----End

10.11 Querying Port Attributes

This function is performed to query the availability status, management status, active/standby status, and physical property of ports.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 10-20**.

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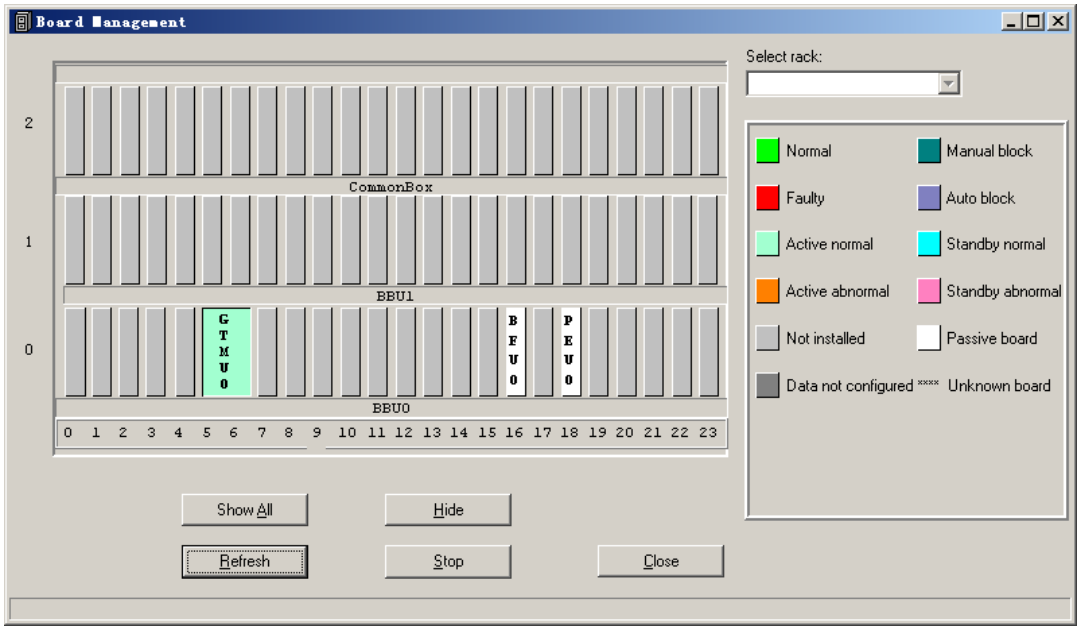
Figure 10-20 Board Management window



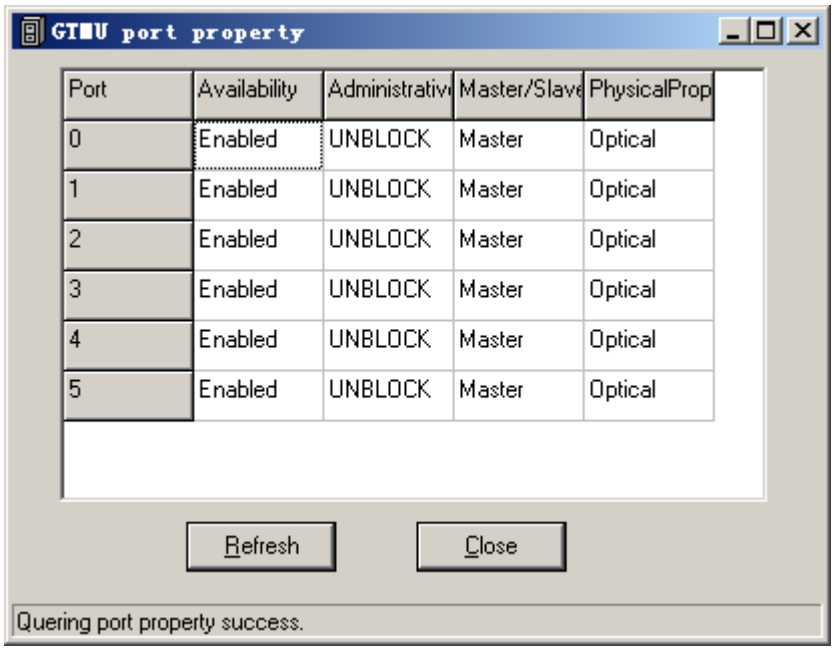
Step 2 Right-click the target board or module, such as **GTMU**.

A shortcut menu is displayed.

Step 3 Select **Query CRPI Property**.

The result is displayed in the **GTMU port property** window, as shown in **Figure 10-21**.

Figure 10-21 GTMU port property window



----End

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11 RRU Operations

About This Chapter

The RRU operations involve the query, configuration, and test operations associated with the RRU. You can query the board information, board extended information, and board alarms. You can also perform operations such as the board reset, power-off reset, operation start, self-test, loopback test, parameter management, and antenna mode configuration.

Prerequisite

NOTE

Obtain the site management rights before writing data; otherwise, you may not be able to write data, for example,Configuring a Board. You can read data from the BTS without the site management rights.

Context

NOTE

On the Site Maintenance Terminal System, operating the RRU3004 is similar to operating the RRU3008. This node takes the RRU3004 as an example.

11.1 Querying Board Information
This function is performed to query the operating status, hardware version, software version, supported services, and in-position information of a board.

11.2 Querying Board Extended Information
This function is performed to query the board extended information, such as the board type, frequency band, and support capacity.

11.3 Resetting a Board in Power-Off Mode
This function is performed to initialize the hardware and software parameters of a board.

11.4 Resetting a board
This function is performed to initialize the parameters of a board or path.

11.5 Starting a Board
This function is performed to start an RC on the RRU module.

11.6 Testing a Board
This function is performed to test the path of an RRU board.

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11.7 Changing the Board Management State

This function is performed to lock and unlock an RRU module, and to lock and unlock channels on the RRU.

11.8 Performing Loopback Test of Board Communication Links

This function is performed to check whether the communication links between the Site Maintenance Terminal and the RRU module is normal.

11.9 Querying Board Alarms

This function is performed to query board alarm information. The information involves the object type, object number, alarm level, alarm name, detailed explanation, and recover suggestion.

11.10 Querying Board Parameters

This function is performed to query the running parameters and configuration parameters of the RRU module, and to query the running parameters of path A and path B.

11.11 Setting the Antenna Mode

This operation is performed to set the send and receive mode of the antenna based on the RRU configuration.

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11.1 Querying Board Information

This function is performed to query the operating status, hardware version, software version, supported services, and in-position information of a board.

Prerequisite

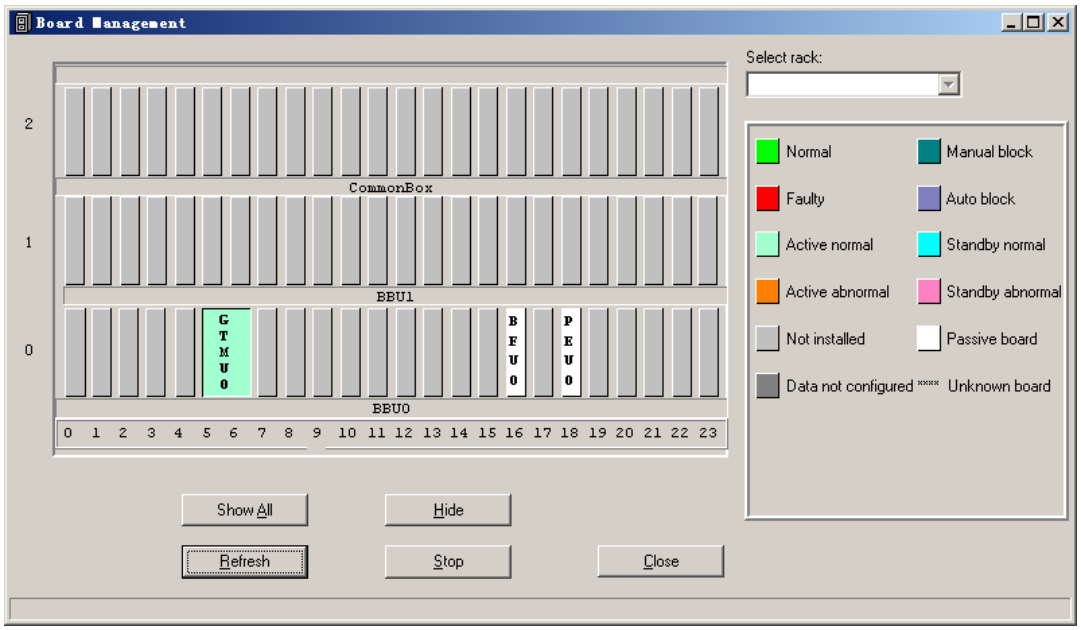
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, select **Board**. In the right pane of the window, double-click **Board Management**.

The **Board Management** window is displayed, as shown in **Figure 11-1**.

Figure 11-1 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-2**.

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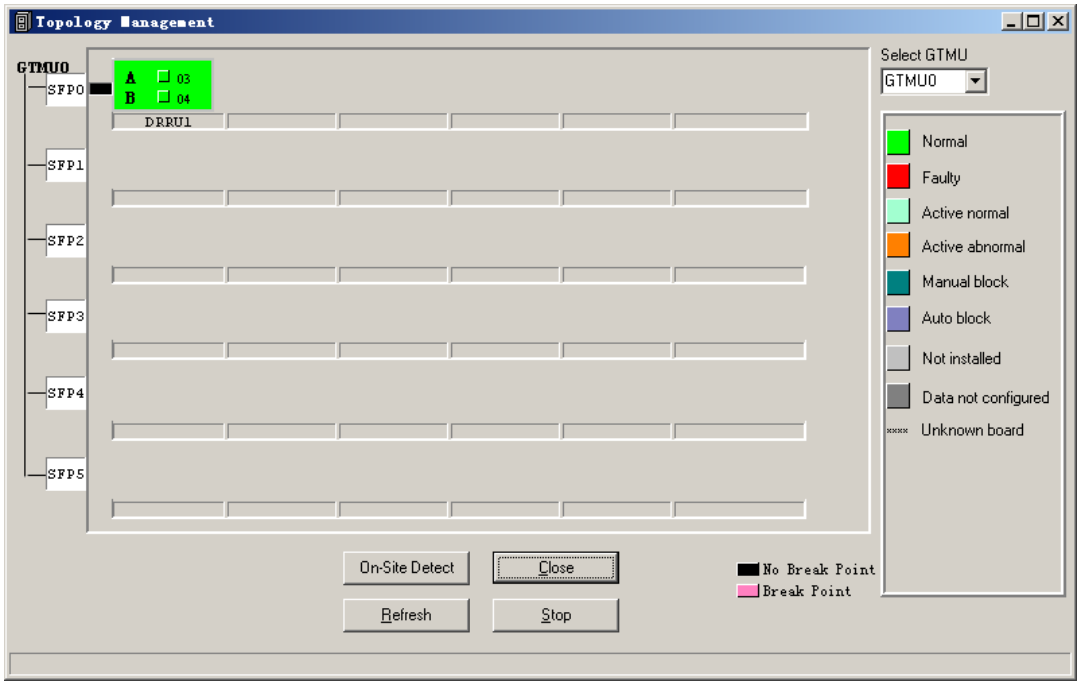
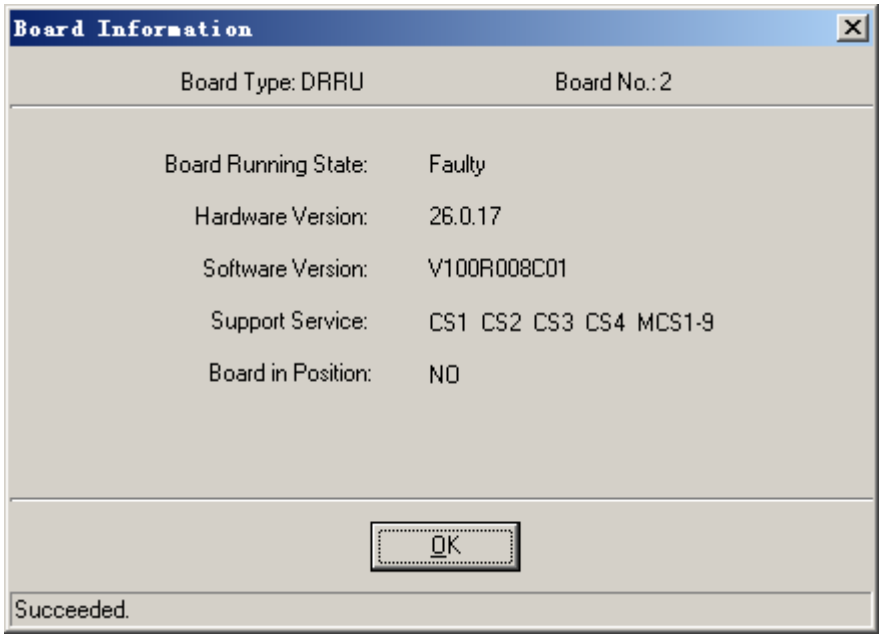
Figure 11-2 Topology Management window



Step 3 Right-click the RRU module to be queried and select **Board Information** from the shortcut menu.

The result is displayed in the **Board Information** dialog box, as shown in **Figure 11-3**.

Figure 11-3 Board Information dialog box



----End

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11.2 Querying Board Extended Information

This function is performed to query the board extended information, such as the board type, frequency band, and support capacity.

Prerequisite

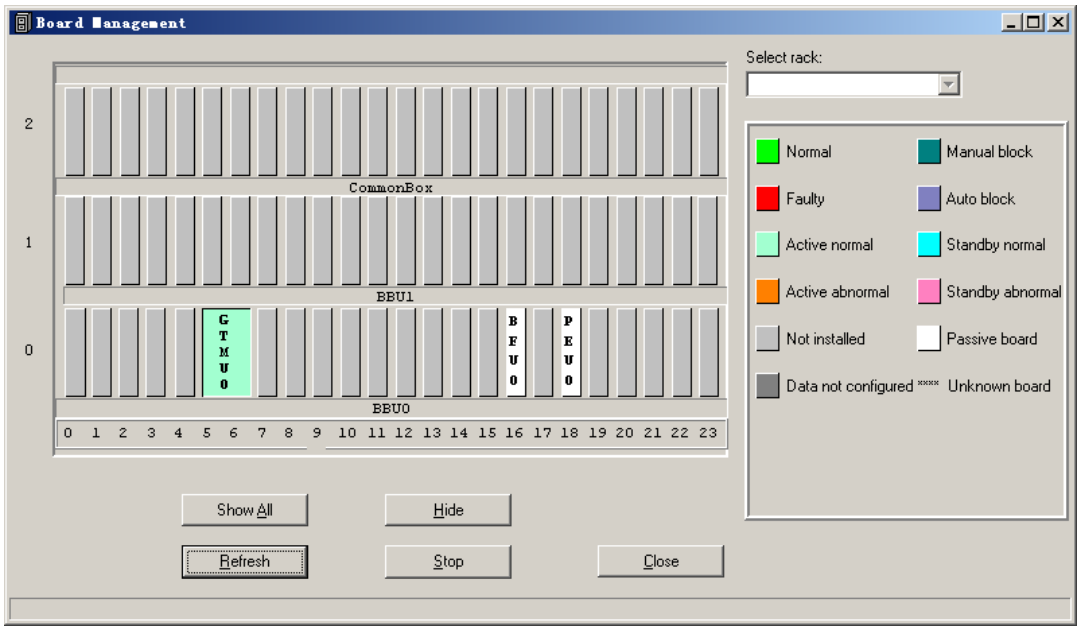
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-4**.

Figure 11-4 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-5**.

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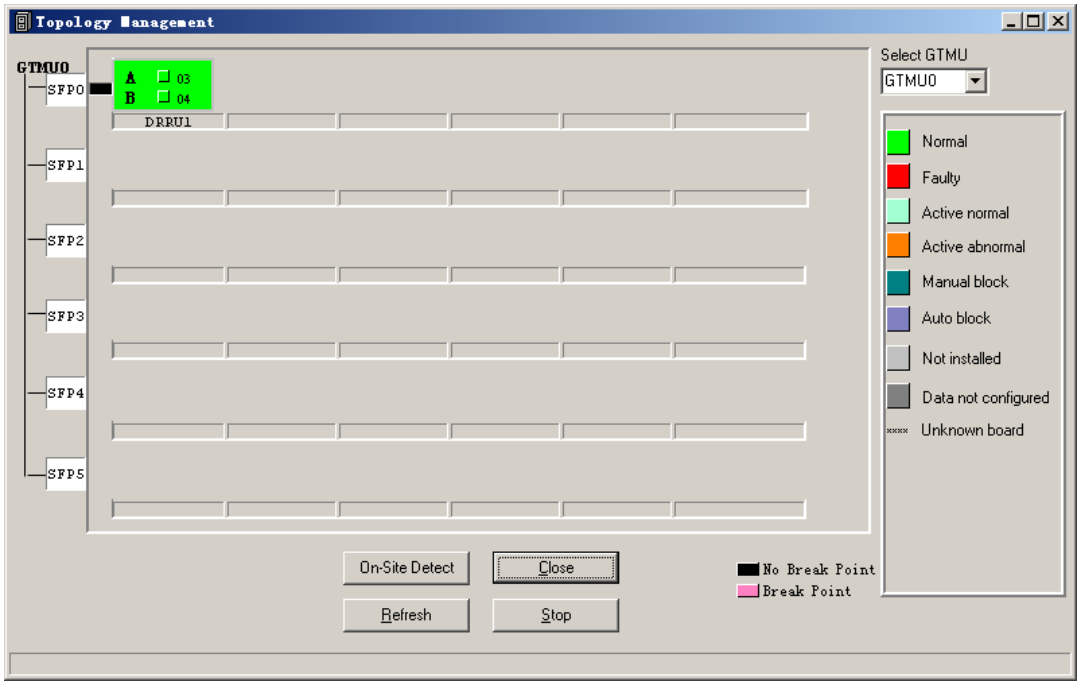
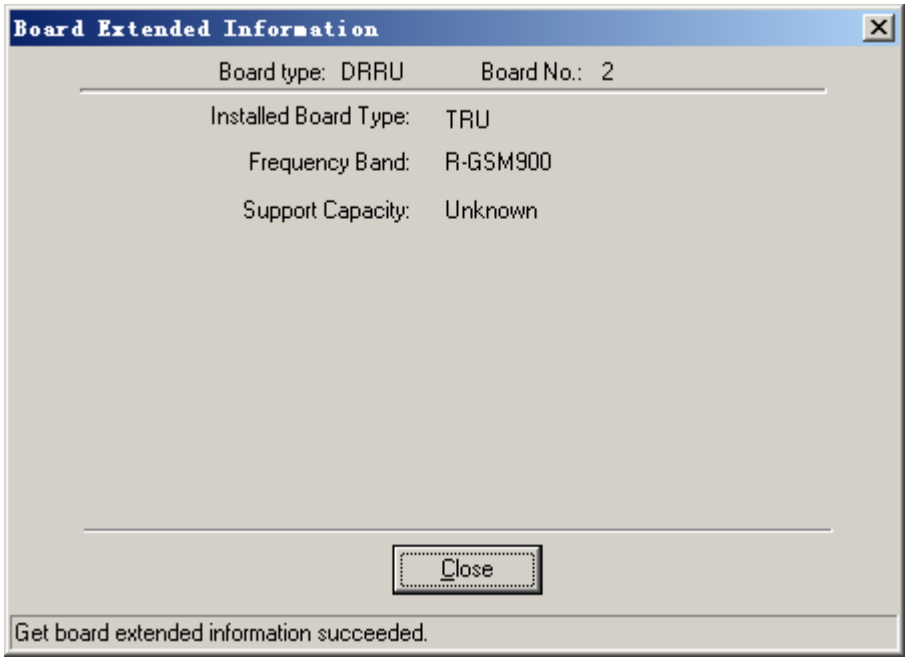
Figure 11-5 Topology Management window



Step 3 Right-click the RRU module to be queried. Select **Board Extended Information** from the shortcut menu.

The result is displayed on the **Board Extended Information** dialog box, as shown in **Figure 11-6**.

Figure 11-6 Board Extended Information dialog box



----End

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11.3 Resetting a Board in Power-Off Mode

This function is performed to initialize the hardware and software parameters of a board.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

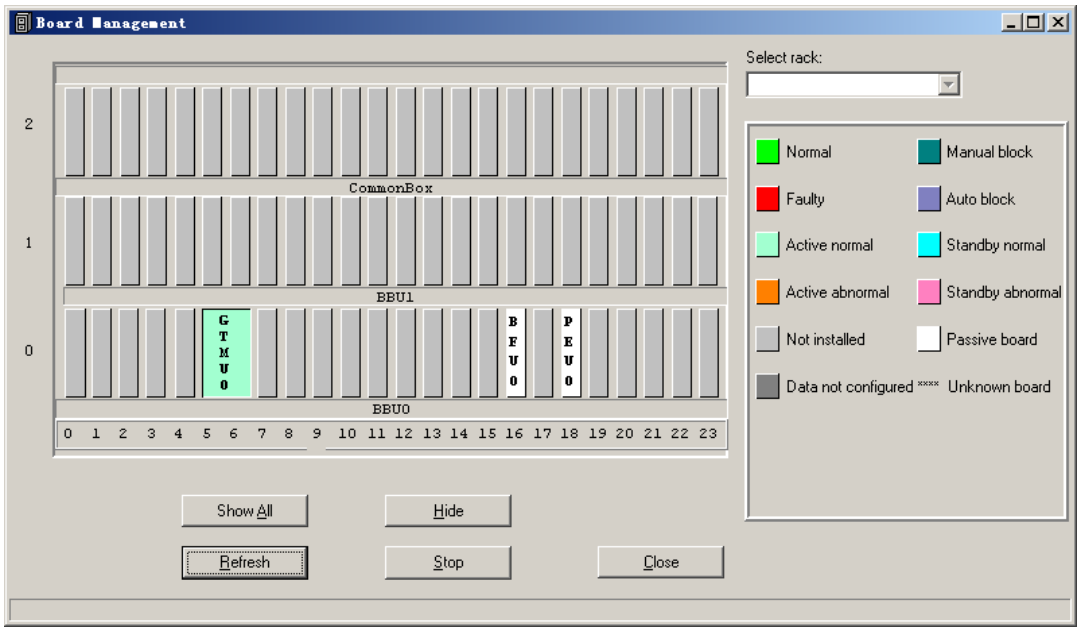
The power-off reset of a board interrupts the BTS services. Therefore, perform this function with care.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-7**.

Figure 11-7 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-8**.

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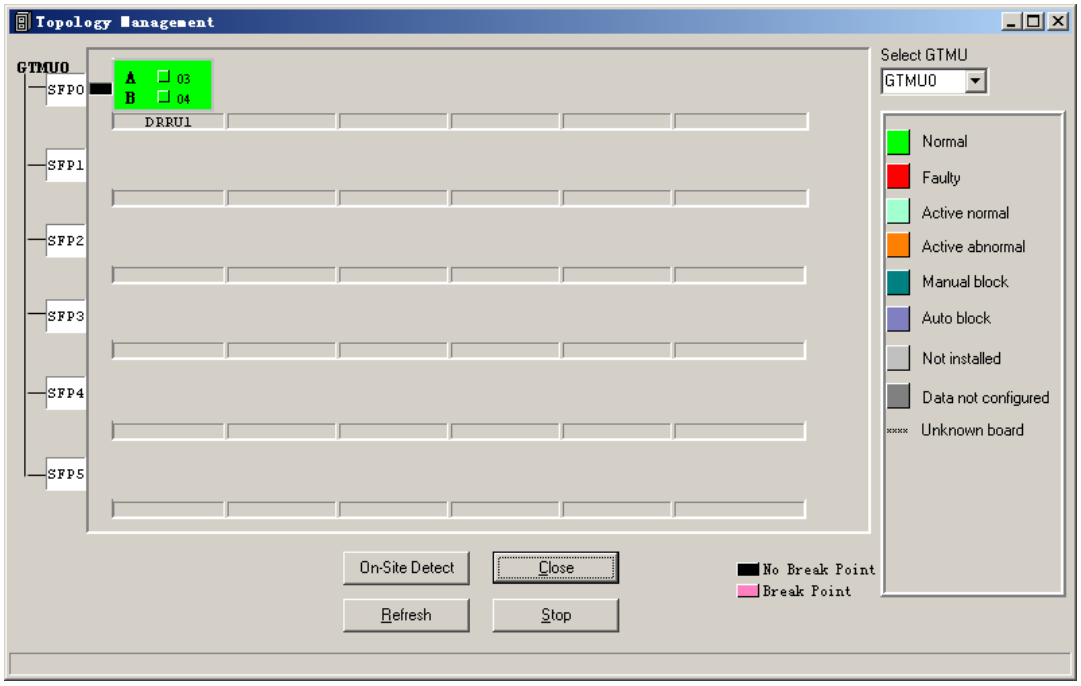
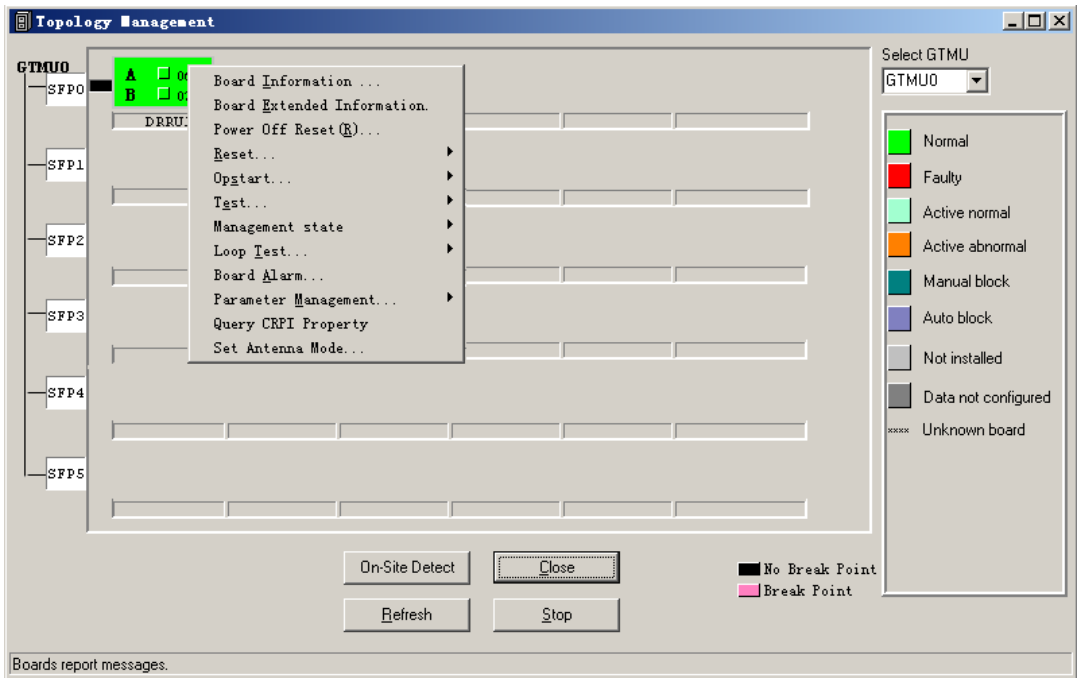
Figure 11-8 Topology Management window



Step 3 In the **Topology Management** window, right-click the target RRU module.

A shortcut menu is displayed, as shown in **Figure 11-9**.

Figure 11-9 Selecting Power Off Reset



Step 4 Select **Power Off Reset** from the shortcut menu.

The result is displayed in the **Board Reset** window, as shown in **Figure 11-10**.

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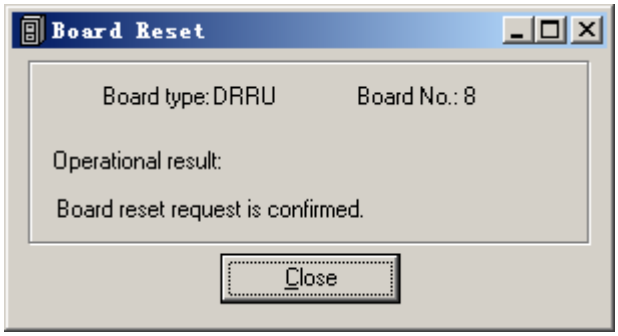
Figure 11-10 Board Reset window



----End

11.4 Resetting a board

This function is performed to initialize the parameters of a board or path.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Context

CAUTION

The board reset interrupts the BTS services. Therefore, perform this function with care.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-11**.

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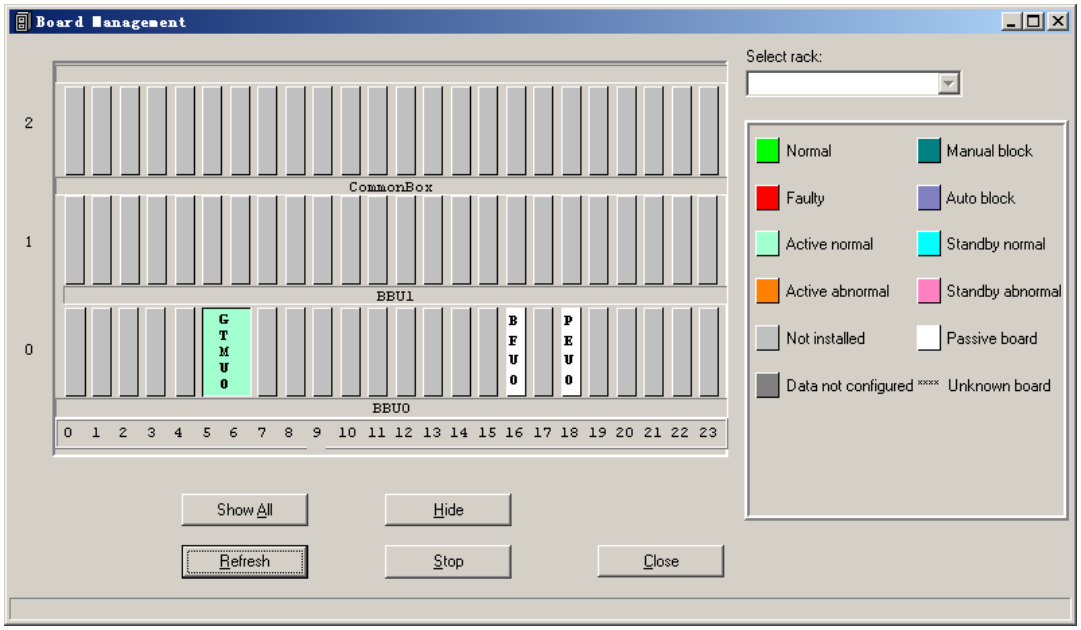
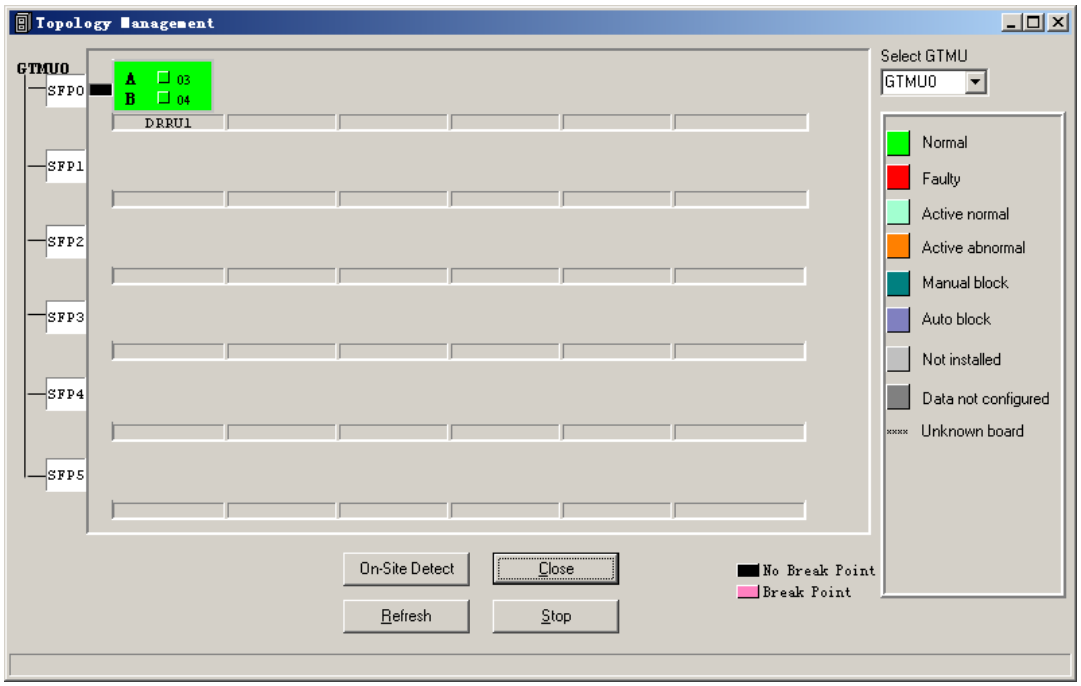
Figure 11-11 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-12**.

Figure 11-12 Topology Management window



Step 3 In the **Topology Management** window, right-click the RRU module to be reset.

A shortcut menu is displayed, as shown in **Figure 11-13**.

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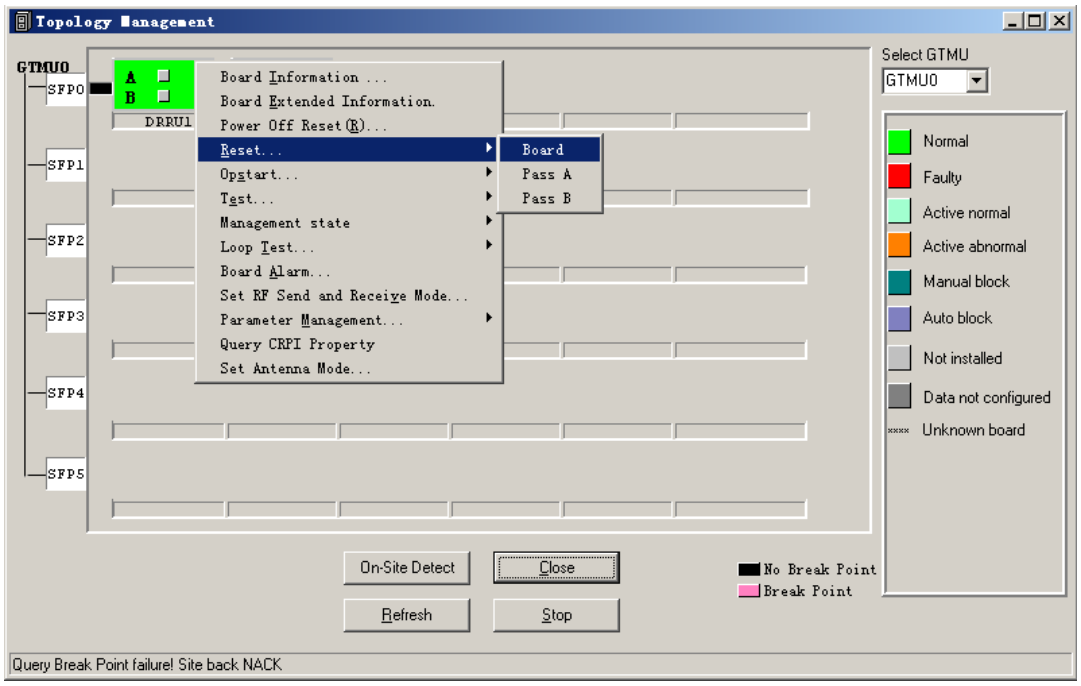
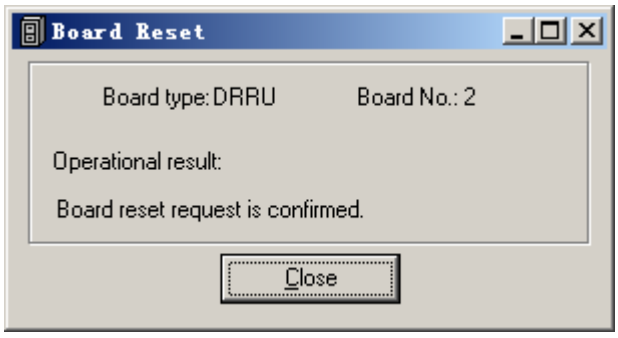
Figure 11-13 Selecting Reset



Step 4 Select **Board** from the shortcut menu if you want to reset the board.

The result is displayed in the **Board Reset** window, as shown in **Figure 11-14**.

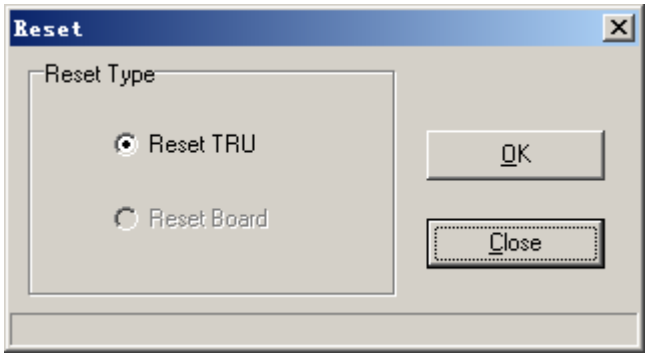
Figure 11-14 Board Reset window



Step 5 If you want to reset the path, select **Path A** or **Path B**.

The **Reset** dialog box is displayed, as shown in **Figure 11-15**.

Figure 11-15 Reset dialog box



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Click **OK**. The path reset is complete.

----End

11.5 Starting a Board

This function is performed to start an RC on the RRU module.

Prerequisite

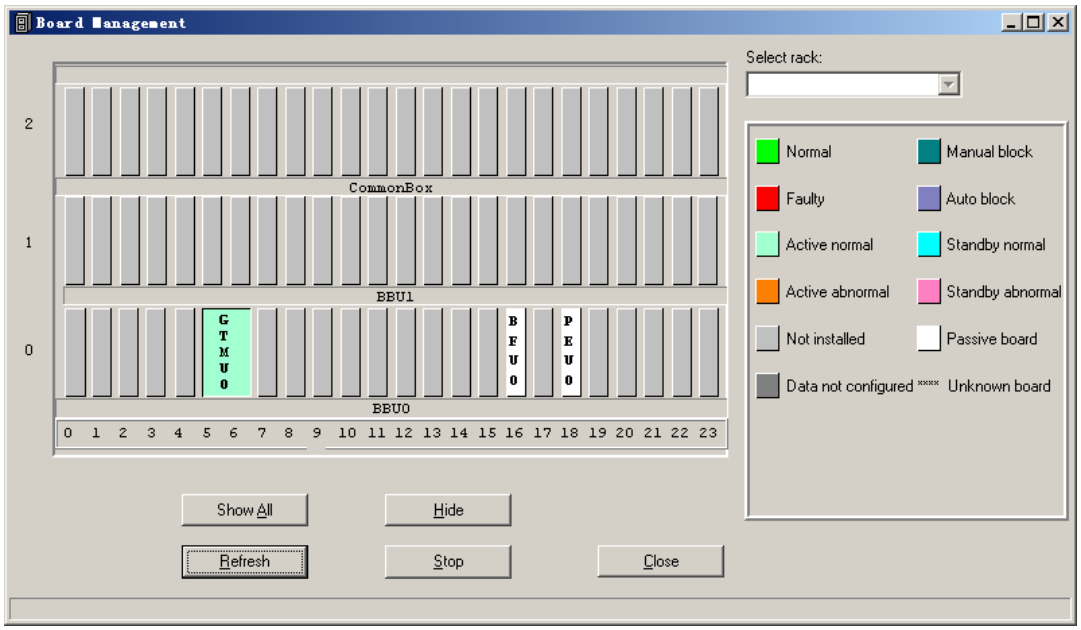
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-16**.

Figure 11-16 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-17**.

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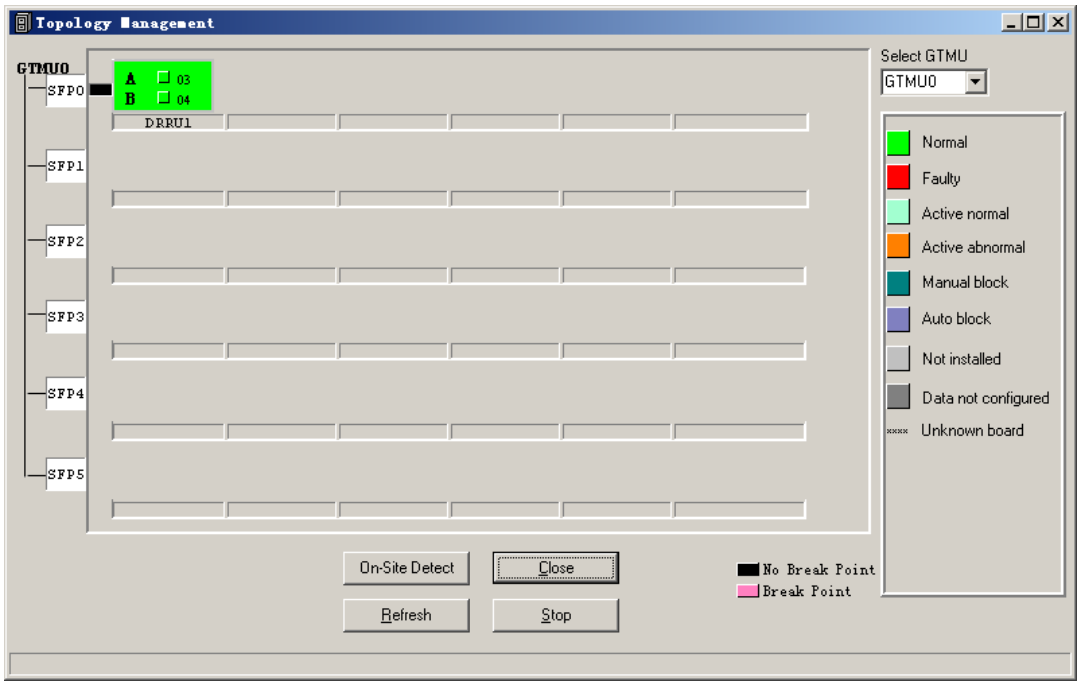
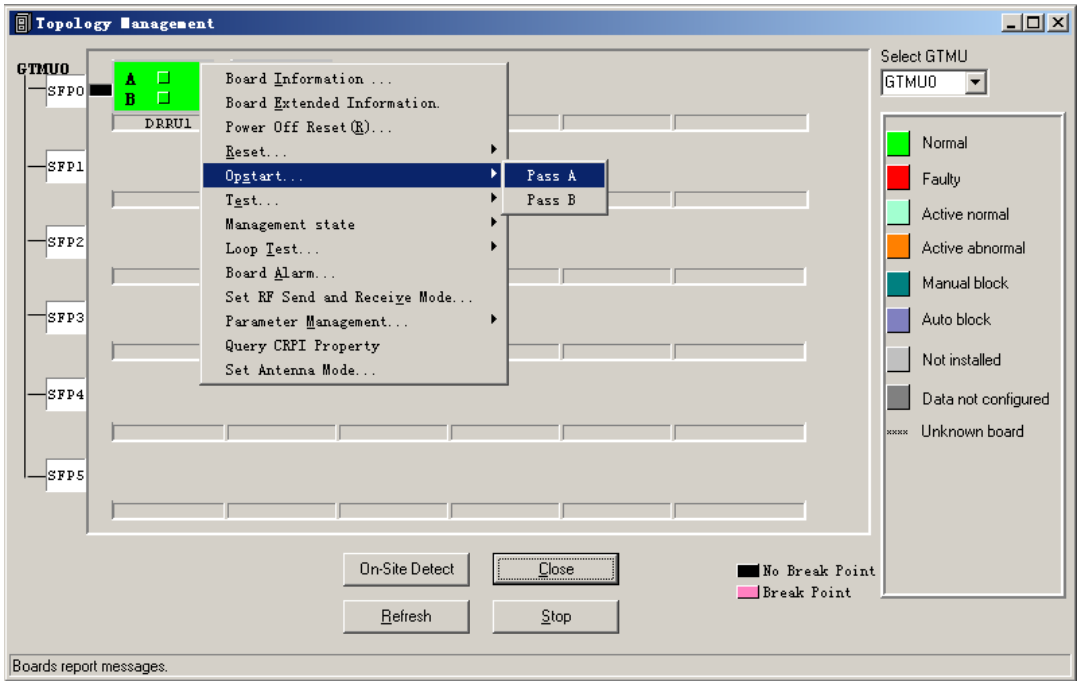
Figure 11-17 Topology Management window



Step 3 In the **Topology Management** dialog box, right-click the target RRU module, as shown in **Figure 11-18**.

Figure 11-18 Choosing Opstart



Step 4 Select the path to be started, such as **Path A**.

The result is displayed in the **Opstart** dialog box, as shown in **Figure 11-19**.

NOTE

Path A and Path B are two RCs on the RRU.

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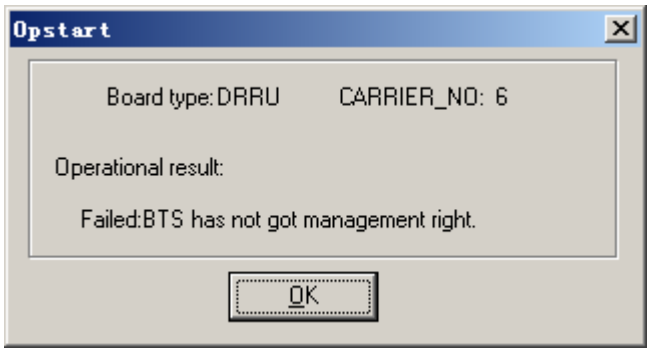
Figure 11-19 Opstart dialog box



----End

11.6 Testing a Board

This function is performed to test the path of an RRU board.

Prerequisite

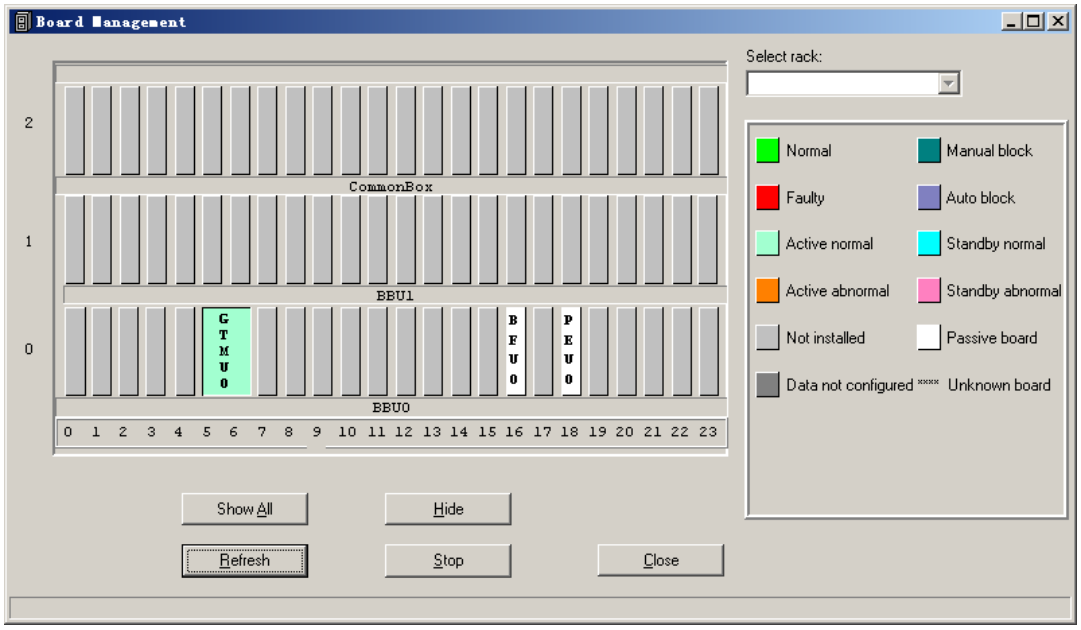
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-20**.

Figure 11-20 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-21**.

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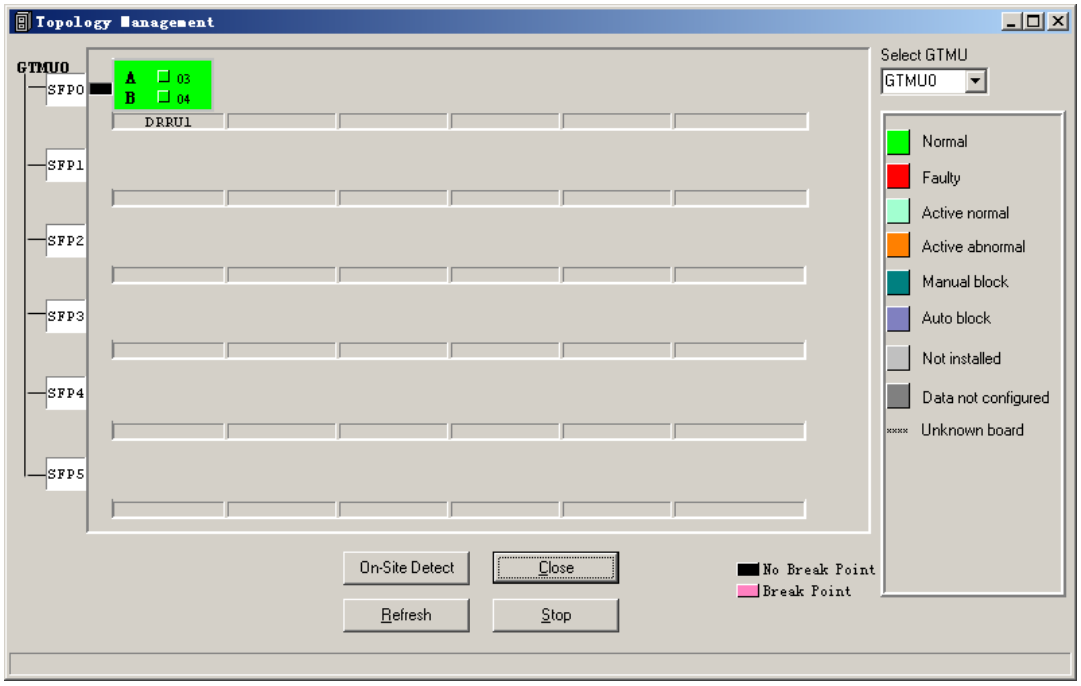
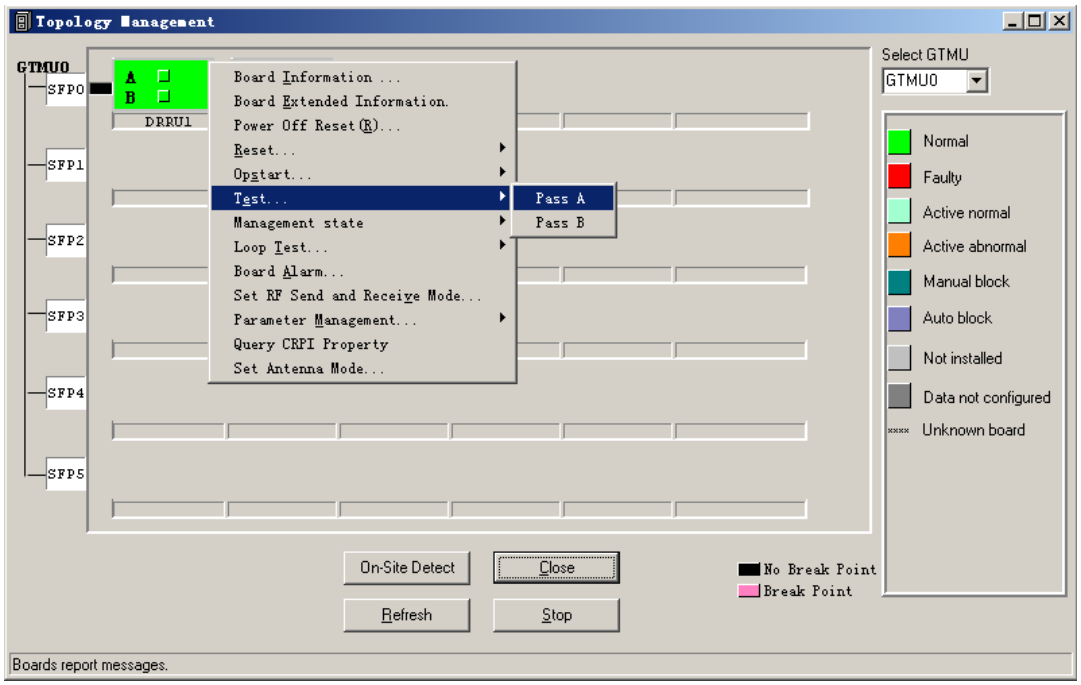
Figure 11-21 Topology Management window



Step 3 In the **Topology Management** window, right-click the target RRU module.

A shortcut menu is displayed, as shown in **Figure 11-22**.

Figure 11-22 Choosing Test



Step 4 Select the path to be tested, such as **Path A**.

The result is displayed in the **Board Test** dialog box, as shown in **Figure 11-23**.

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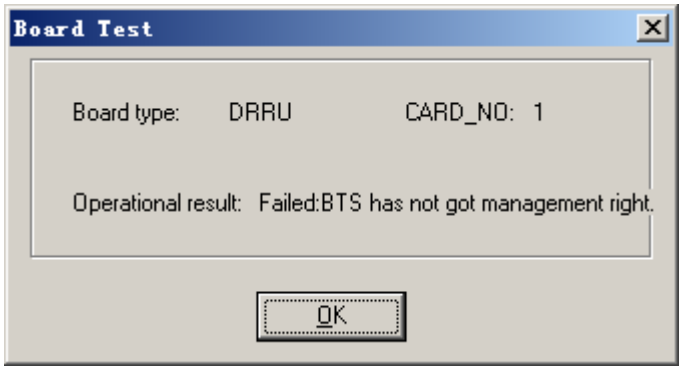
Figure 11-23 Board Test dialog box



NOTE

If the test succeeds, you can infer that the path is functional.

----End

11.7 Changing the Board Management State

This function is performed to lock and unlock an RRU module, and to lock and unlock channels on the RRU.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-24**.

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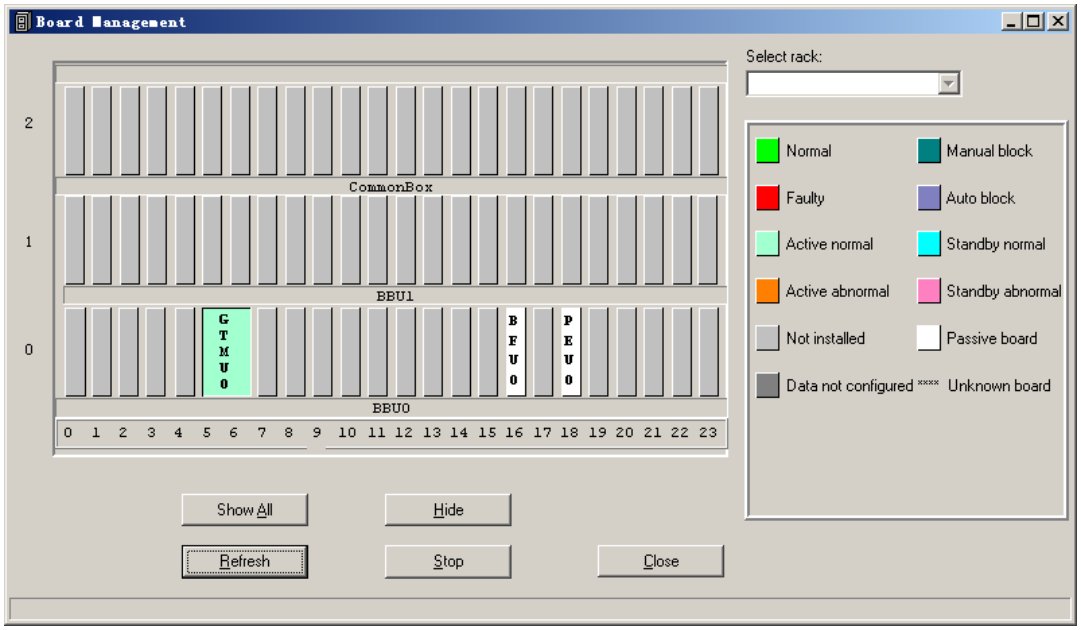
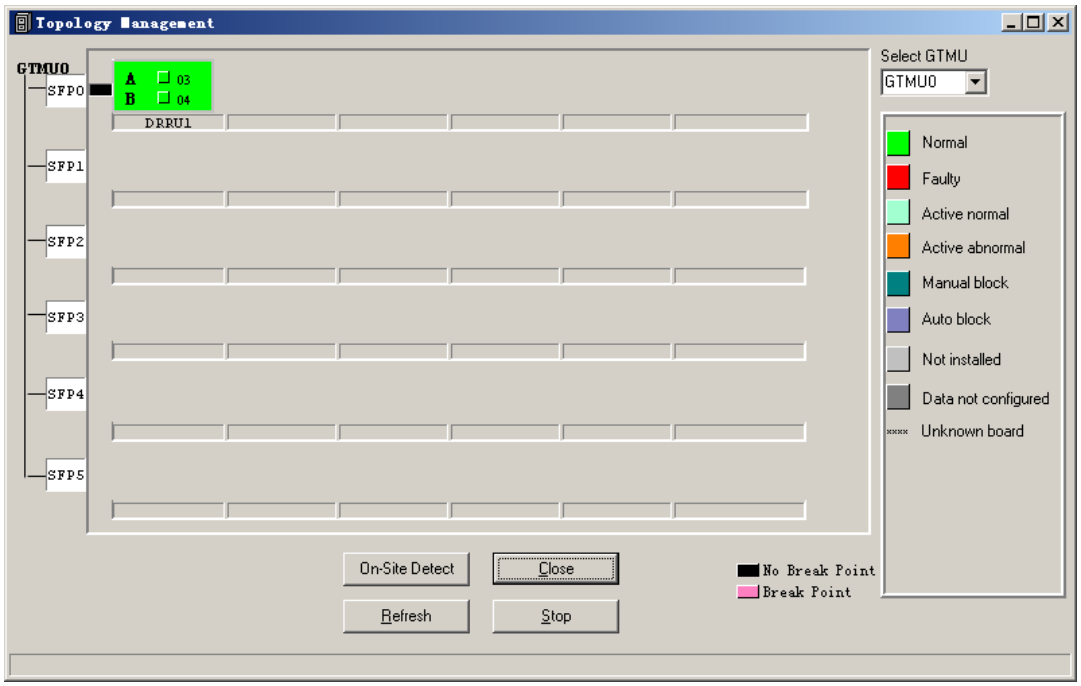
Figure 11-24 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-25**.

Figure 11-25 Topology Management window



Step 3 In the **Topology Management** window, right-click the target RRU module and select **Management state** > **Locked**, as shown in **Figure 11-26**.

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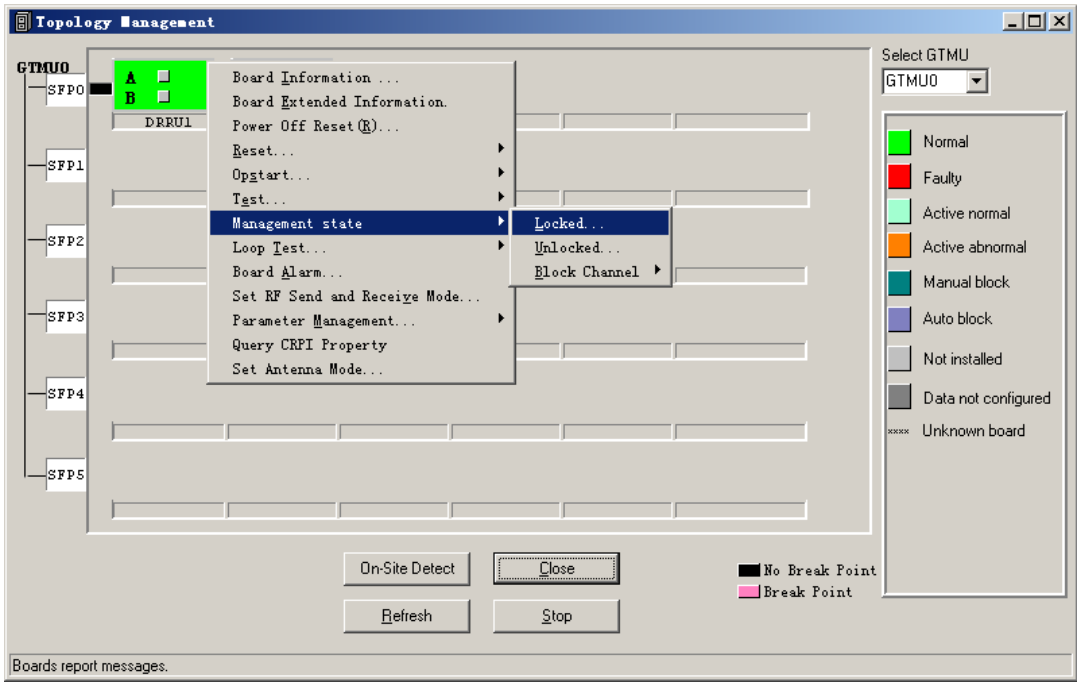
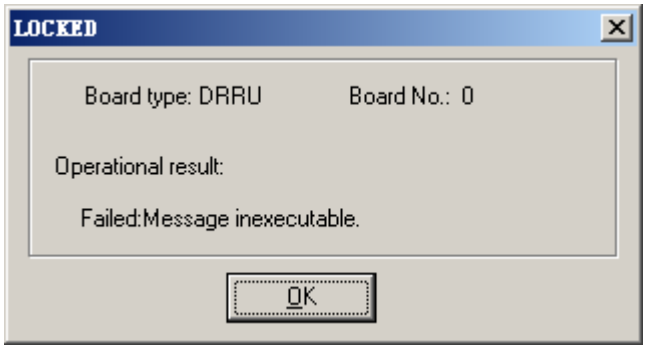
Figure 11-26 Selecting Management state



Step 4 Choose **Locked** .

The result is displayed in the **LOCKED** dialog box, as shown in**Figure 11-27**.

Figure 11-27 LOCKED dialog box



Step 5 Choose **Unlocked** .

The result is displayed on the **UNLOCKED** dialog box, as shown in**Figure 11-28**.

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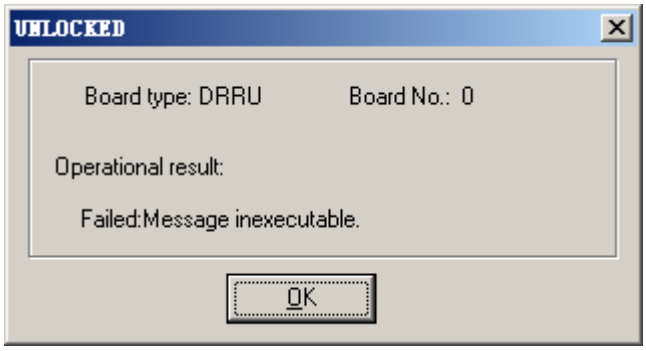
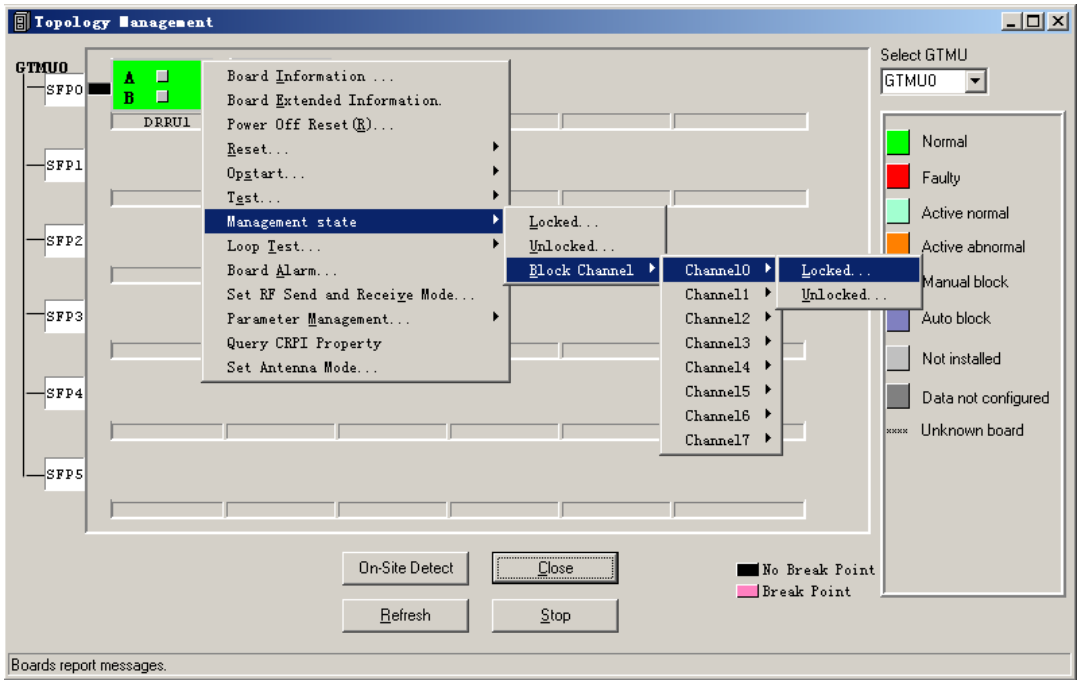
Figure 11-28 UNLOCKED dialog box



Step 6 To lock or unlock the channels on the TRX, select **Block Channel** in the **Management state** shortcut menu.

The dialog box shown in **Figure 11-29** is displayed.

Figure 11-29 Selecting Management state



Step 7 Select **Locked** or **Unlocked** .

The result is displayed in the **Channel0LOCKED** dialog box, as shown in**Figure 11-30**.

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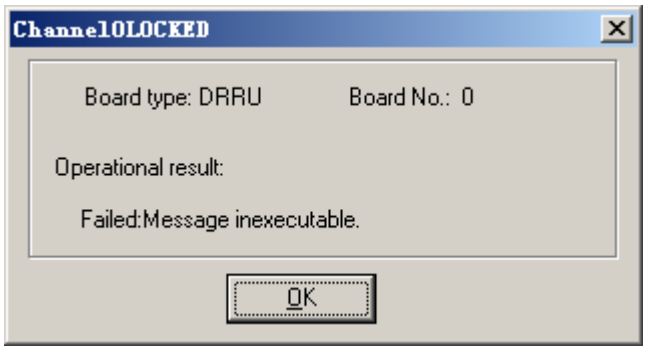
Figure 11-30 Channel0LOCKED dialog box



----End

11.8 Performing Loopback Test of Board Communication Links

This function is performed to check whether the communication links between the Site Maintenance Terminal and the RRU module is normal.

Prerequisite

- You have logged in to the BTS through the Site Maintenance Terminal.
- The RRU module to be operated are configured properly and is functional.

Context

Table 11-1 describes the parameters.

Table 11-1 Parameters in the Loopback Test dialog box

Parameter	Meaning	Value Range
Data length	The valid data length of a single frame of the loop test command issued by the DRRU.	1-220
Initial data	The initial value of the valid data of the loop test command issued by the DRRU.	0-255
Data step length	The incremental step length of the valid data of the loop test command issued by the DRRU.	0-255

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in Figure 11-31.

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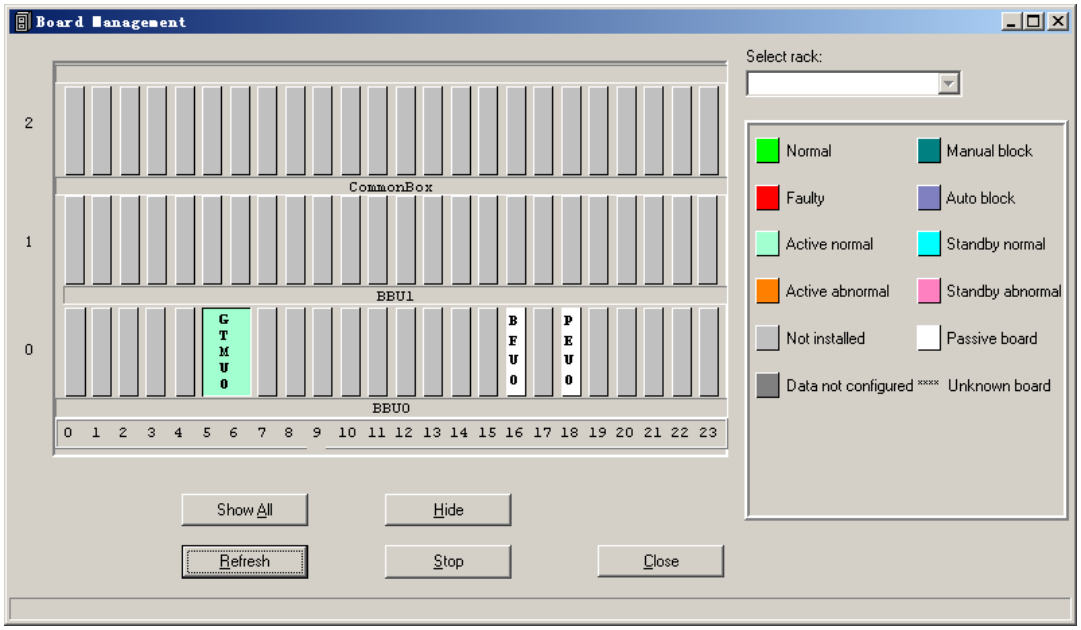
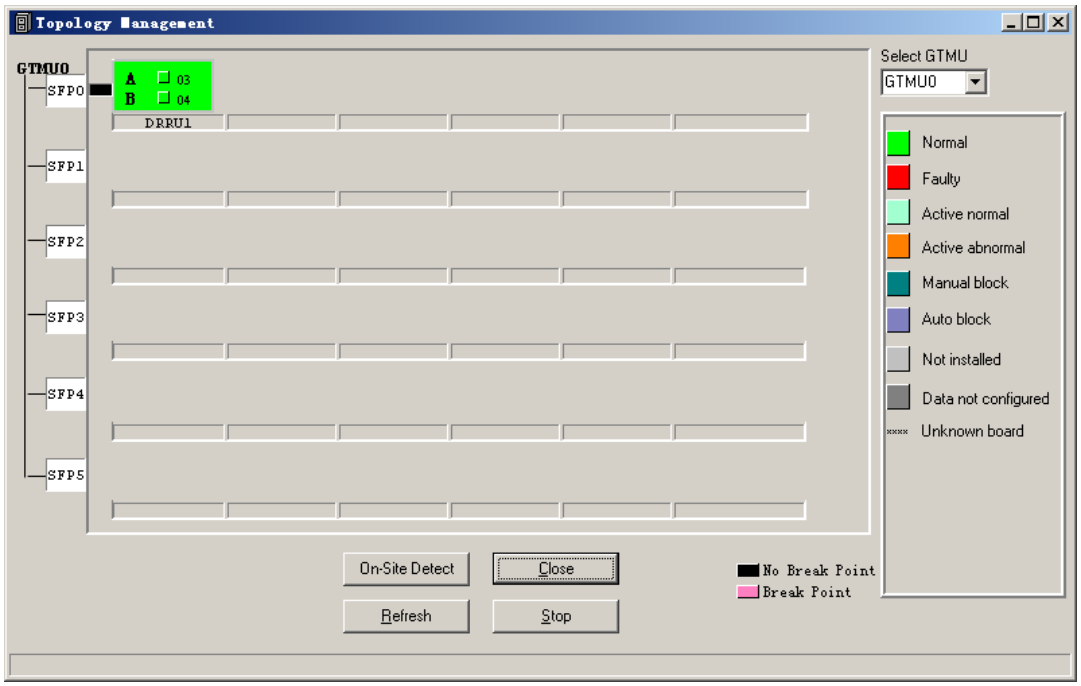
Figure 11-31 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-32**.

Figure 11-32 Topology Management window



Step 3 In the **Topology Management** window, right-click the target RRU module, as shown in **Figure 11-33**.

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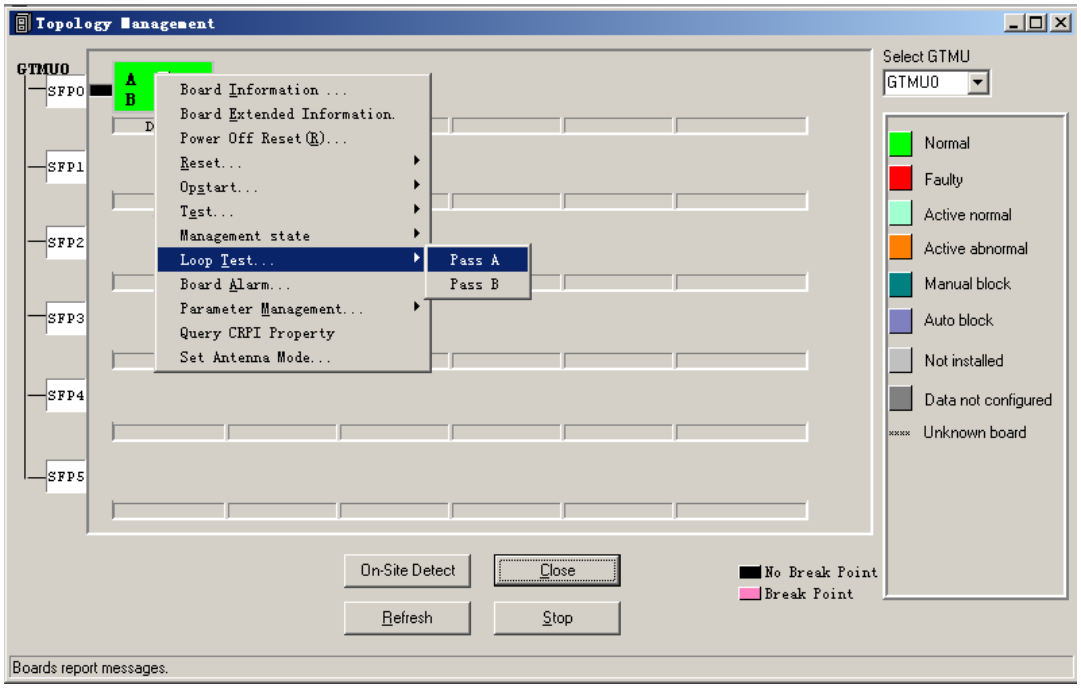
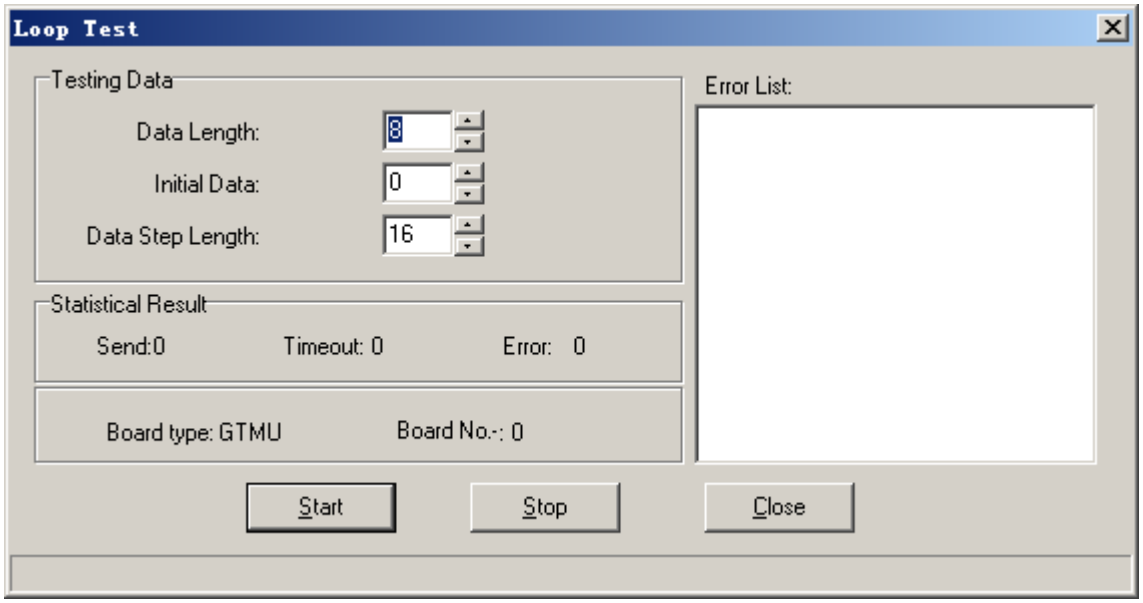
Figure 11-33 Selecting Loop Test



Step 4 Select the path to be tested, such as **Path A** or **Path B**.

The **Loop Test** dialog box is displayed, as shown in **Figure 11-34**.

Figure 11-34 Loop Test dialog box



Step 5 Click **Start**.

After the test is complete, the result is displayed on the status bar at the bottom of the dialog box.

----End

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11.9 Querying Board Alarms

This function is performed to query board alarm information. The information involves the object type, object number, alarm level, alarm name, detailed explanation, and recover suggestion.

Prerequisite

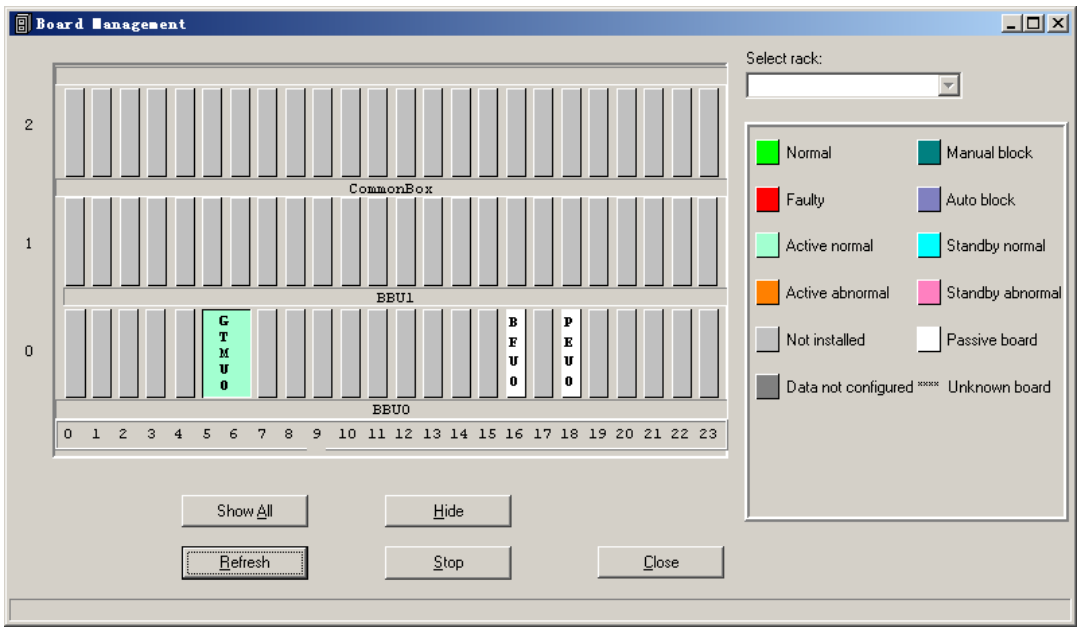
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-35**.

Figure 11-35 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-36**.

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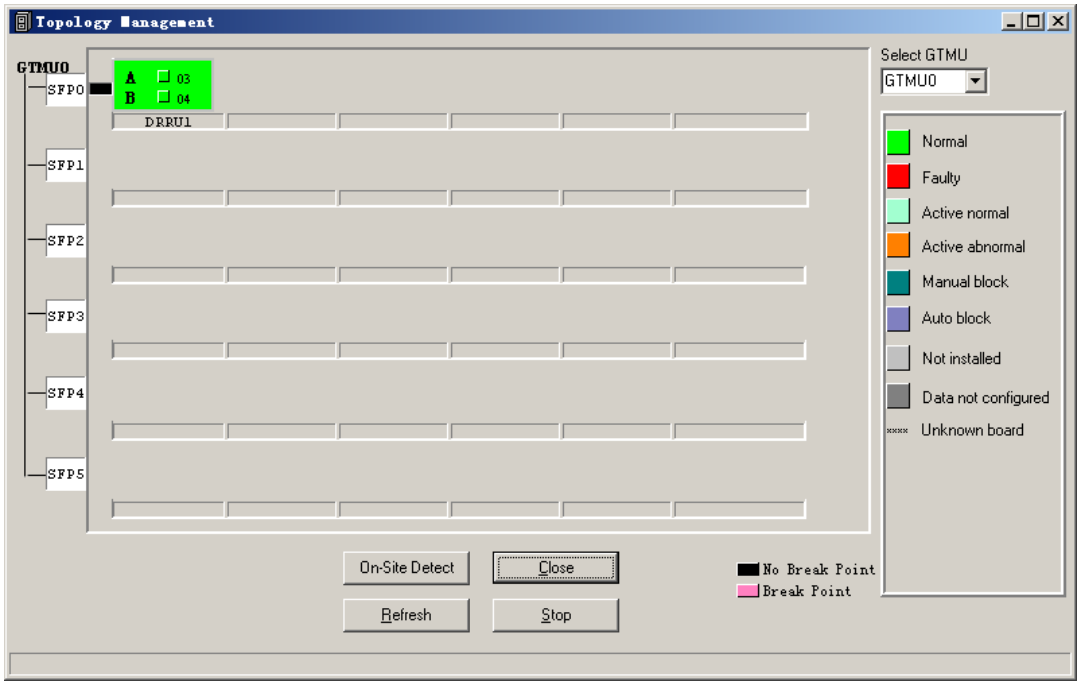
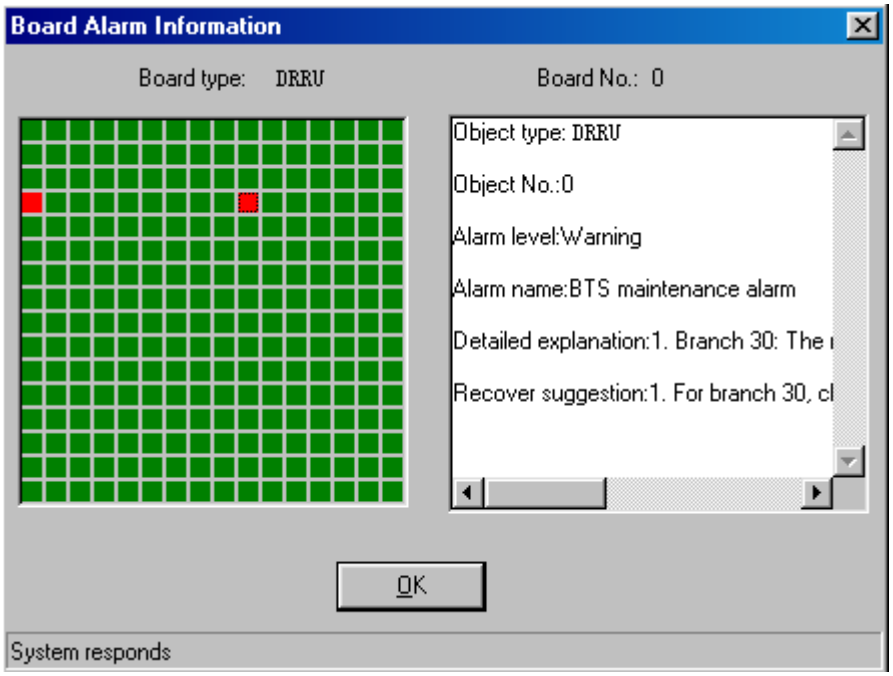
Figure 11-36 Topology Management window



Step 3 Right-click the RRU module to be queried. Select **Board Alarm** from the shortcut menu. The result is displayed in the **Board Alarm Information** dialog box, as shown in **Figure 11-37**.

Figure 11-37 Board Alarm Information dialog box



----End

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11.10 Querying Board Parameters

This function is performed to query the running parameters and configuration parameters of the RRU module, and to query the running parameters of path A and path B.

Prerequisite

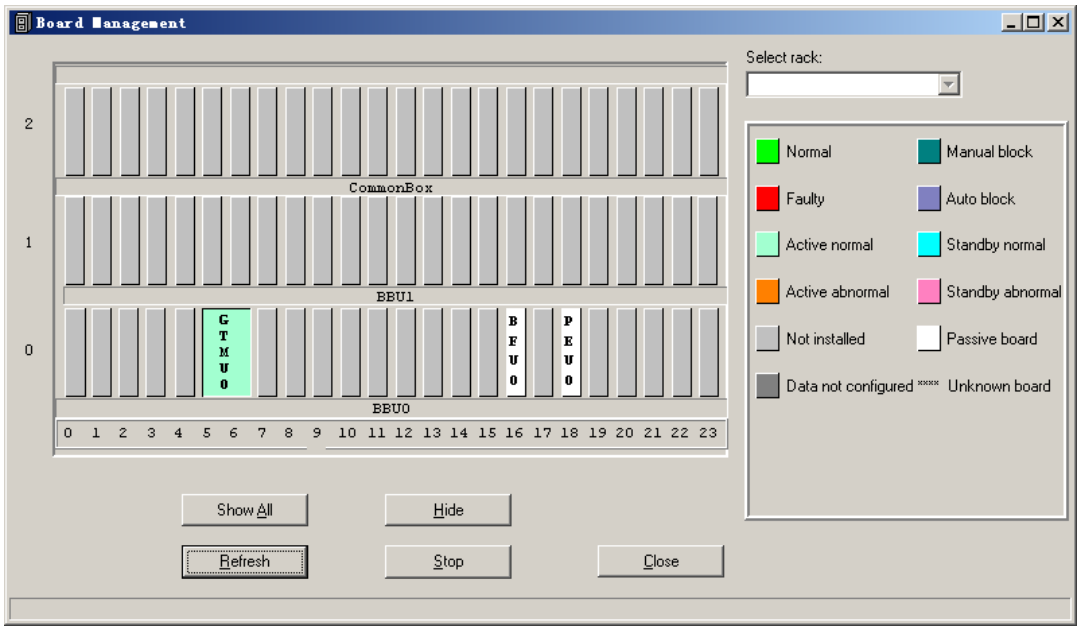
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-38**.

Figure 11-38 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-39**.

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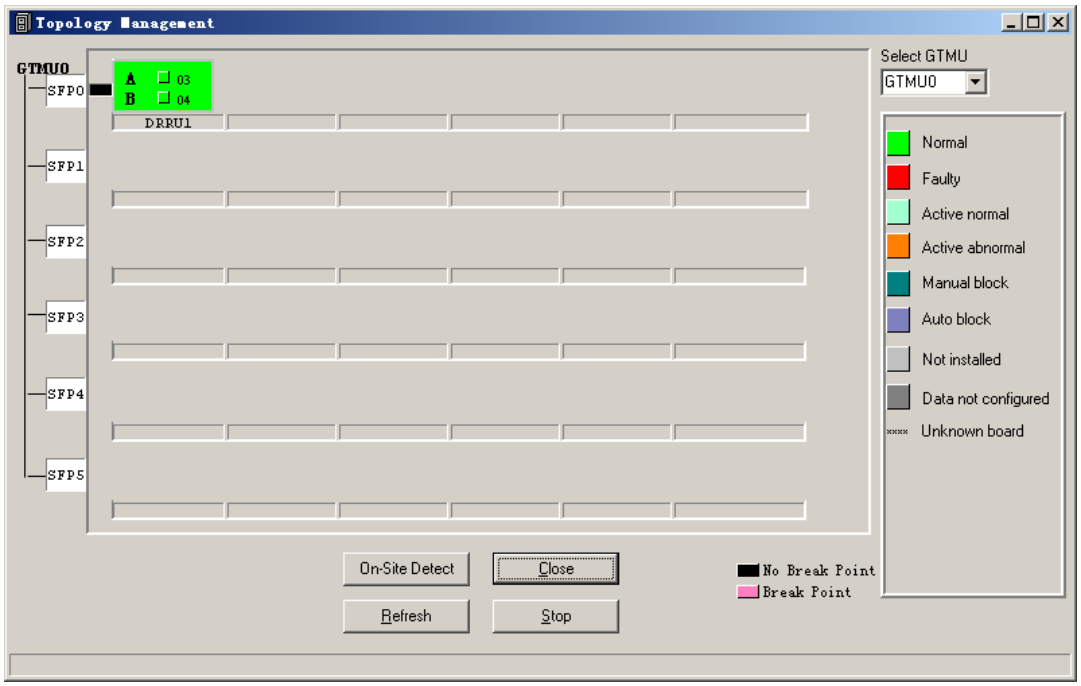
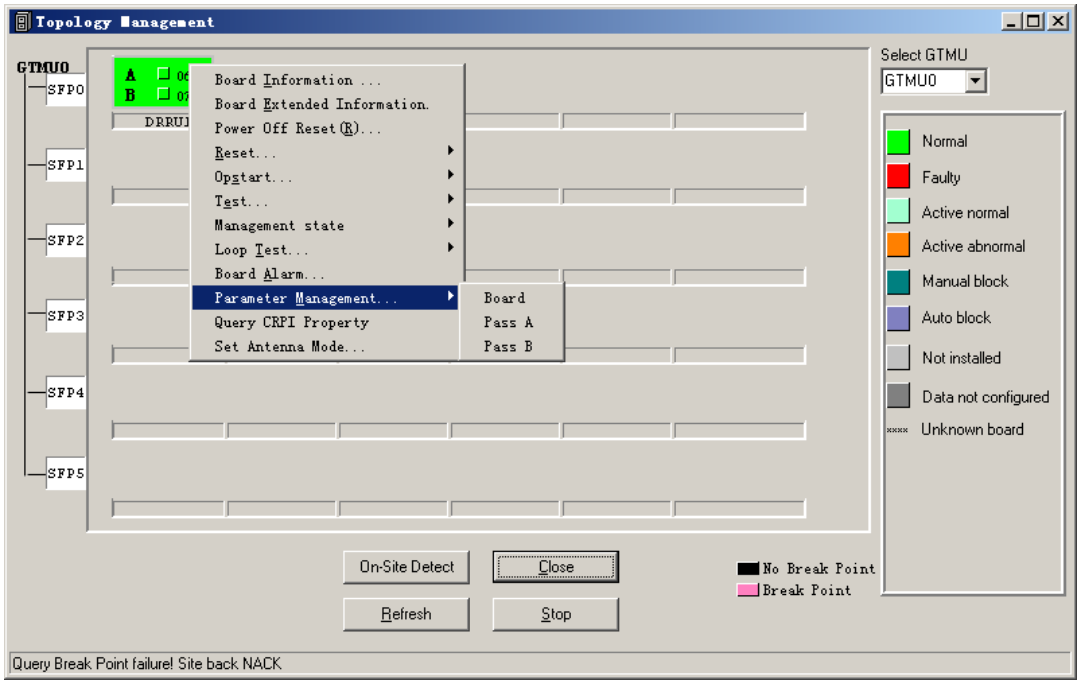
Figure 11-39 Topology Management window



Step 3 Right-click the RRU module to be queried. Choose **Parameter Management**, as shown in **Figure 11-40**.

Figure 11-40 Selecting parameter management window



Step 4 If you want to query the running and configuration parameters associated with a board, choose **Board**.

The **Parameter Management** dialog box is displayed, as shown in **Figure 11-41** and **Figure 11-42**.

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Figure 11-41 Querying the running parameters of a board

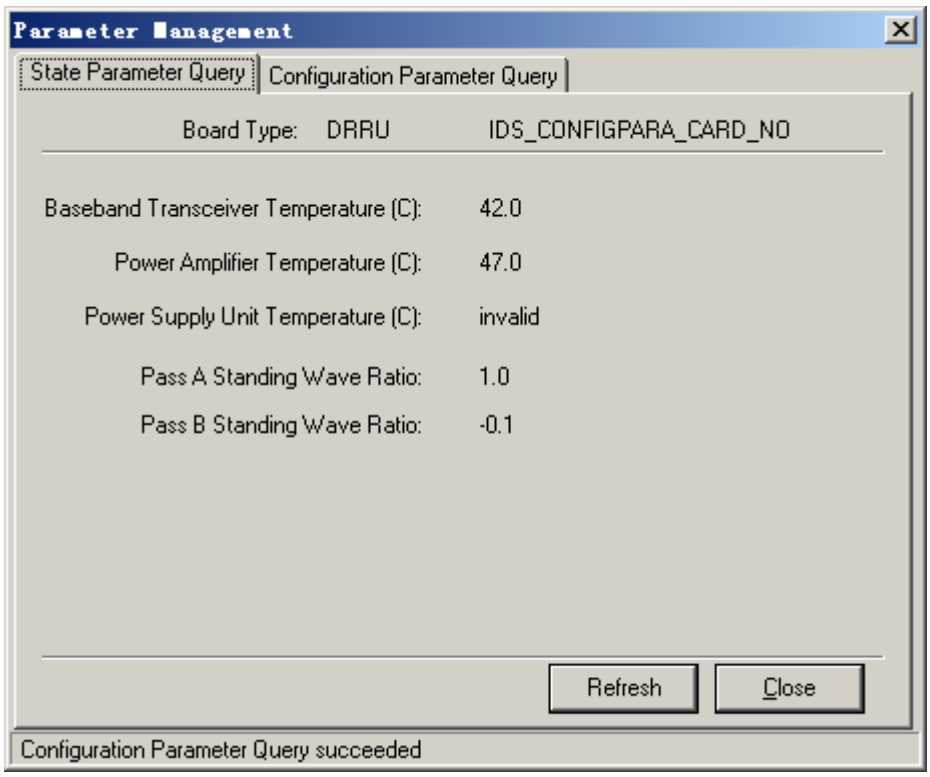
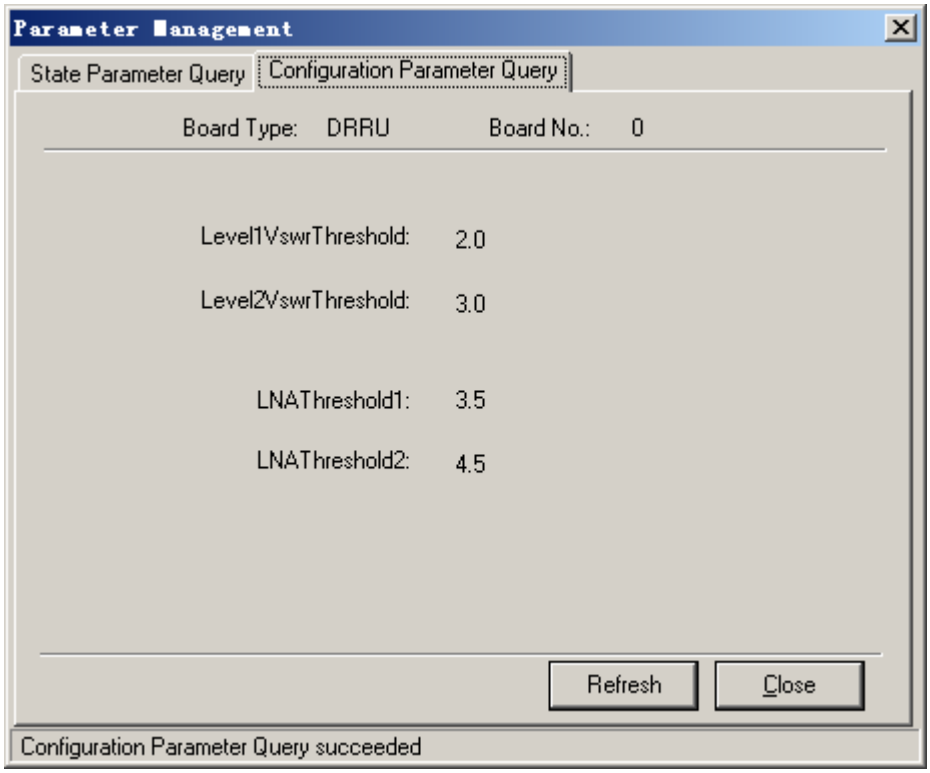


Figure 11-42 Querying the configuration parameters of a board



Step 5 If you want to query the running parameters of a channel, choose **Path A** or **Path B**.

The **Parameter Management** dialog box associated with path A or B is displayed, as shown in **Figure 11-43**.

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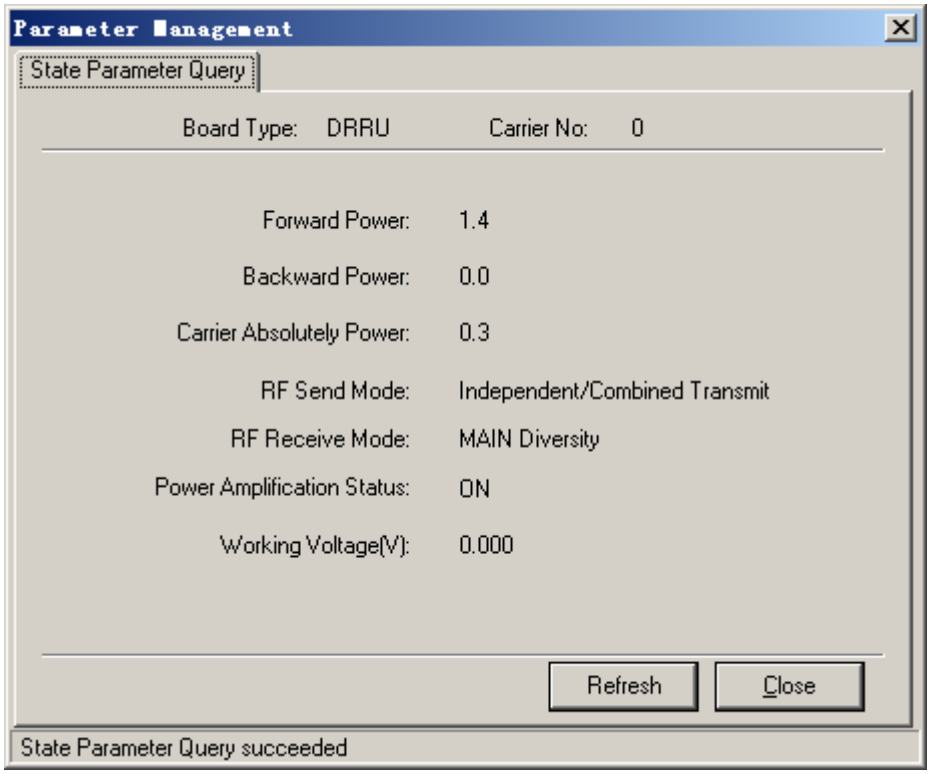
Figure 11-43 Querying the running parameters of a path



----End

11.11 Setting the Antenna Mode

This operation is performed to set the send and receive mode of the antenna based on the RRU configuration.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 11-44**.

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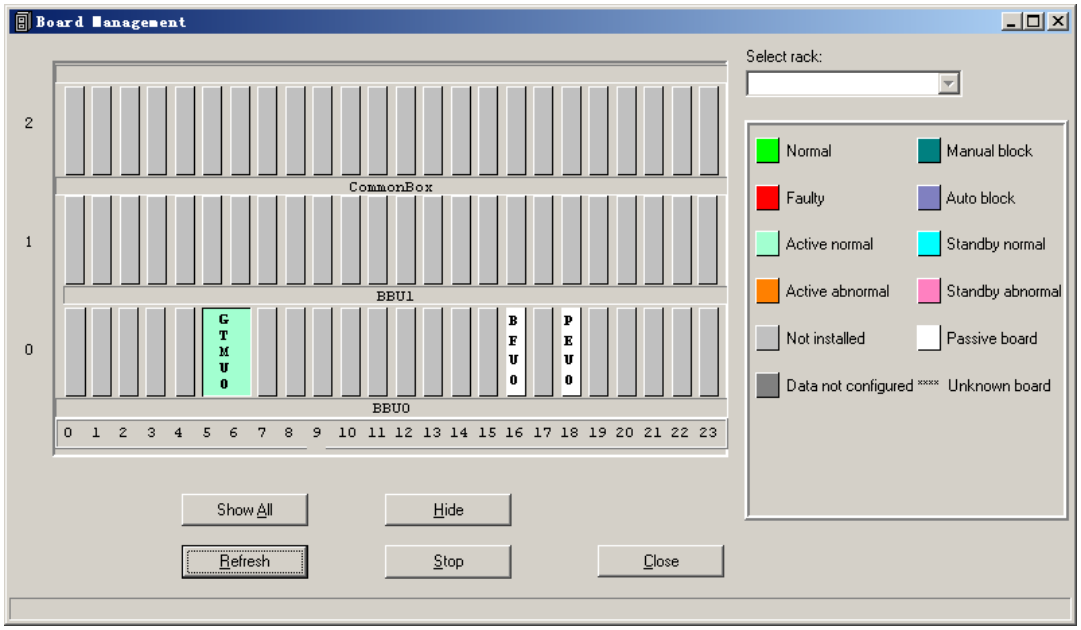
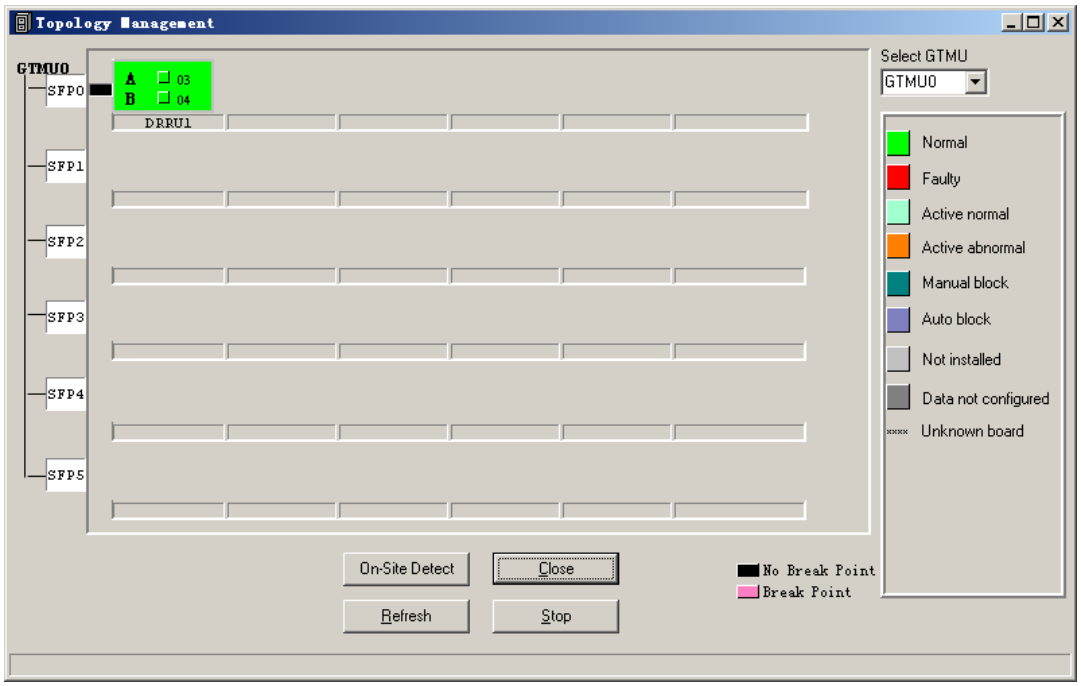
Figure 11-44 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 11-45**.

Figure 11-45 Topology Management window



Step 3 In the **Topology Management** window, right-click the RRU module to be operated, as shown in **Figure 11-46**.

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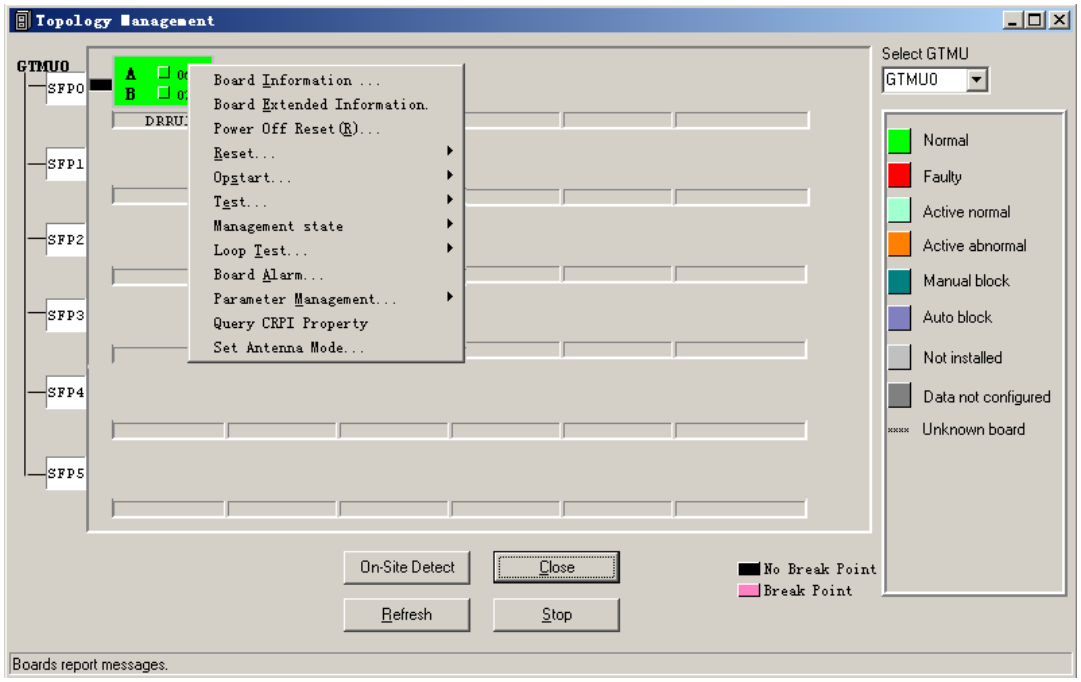
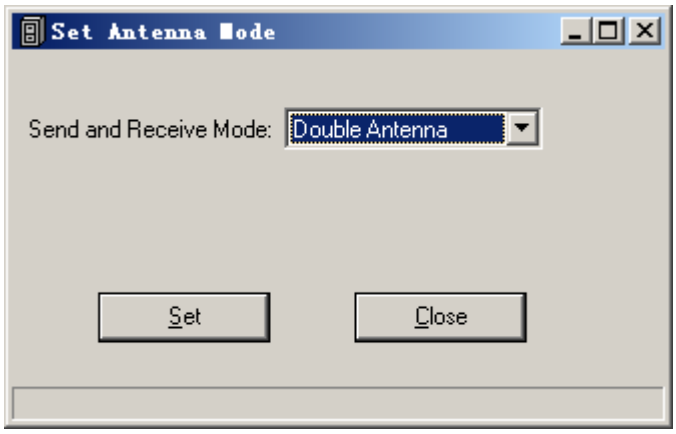
Figure 11-46 Selecting Set Antenna Mode window



Step 4 Select **Set Antenna Mode** from the shortcut menu.

The **Set Antenna Mode** window is displayed, as shown in **Figure 11-47**.

Figure 11-47 Set Antenna Mode window



You can select Single Antenna, Single Antenna Double Receiver, Double Antenna, or Double Antenna Quad Receiver. When the Single Antenna Double Receiver or Double Antenna Quad Receiver mode is selected, the board number of the relevant DRRU should be in the range 0–35.

----End

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12 RRU Configurations

About This Chapter

The RRU configurations involve adding or removing a ring, displaying in-position boards, detecting in-position boards, setting and canceling a breakpoint.

Prerequisite

NOTE

Obtain the site management rights before writing data; otherwise, you may not be able to write data, for example,Adding an RRU. You can read data from the BTS without the site management rights.

Context

NOTE

On the Site Maintenance Terminal System, the configuration operations for the RRU3004 are similar to the configuration operations for the RRU3008. This node takes the RRU3004 as an example.

12.1 Adding an RRU
This function is performed to add an RRU and configure its board number, SFP number, and hop number.

12.2 Deleting an RRU
This function is performed to delete an RRU with a specified SFP number and hop number.

12.3 Adding a Ring
This function is performed to form a DRRU ring by using two independent DRRU chains.

12.4 Removing a Ring
This function is performed to split a DRRU ring into two independent DRRU chains.

12.5 Displaying Not Configured Boards
This function is performed to check whether there are boards whose data is not configured. These boards are installed in the BTS cabinet but their data is not configured.

12.6 Checking Board Position Information
This function is performed to check the position information of a board.

12.7 Setting a Breakpoint
This function is performed to set a breakpoint on a RRU chain or ring. One RRU chain can be configured with only one breakpoint. After a breakpoint is configured, the RRU chain is divided

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into two parts. One RRU ring can be configured with two breakpoints. After two breakpoints are configured, the RRU ring is divided into three parts.

12.8 Canceling a Breakpoint

This function is performed to cancel a breakpoint on a RRU chain or ring.

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12.1 Adding an RRU

This function is performed to add an RRU and configure its board number, SFP number, and hop number.

Prerequisite

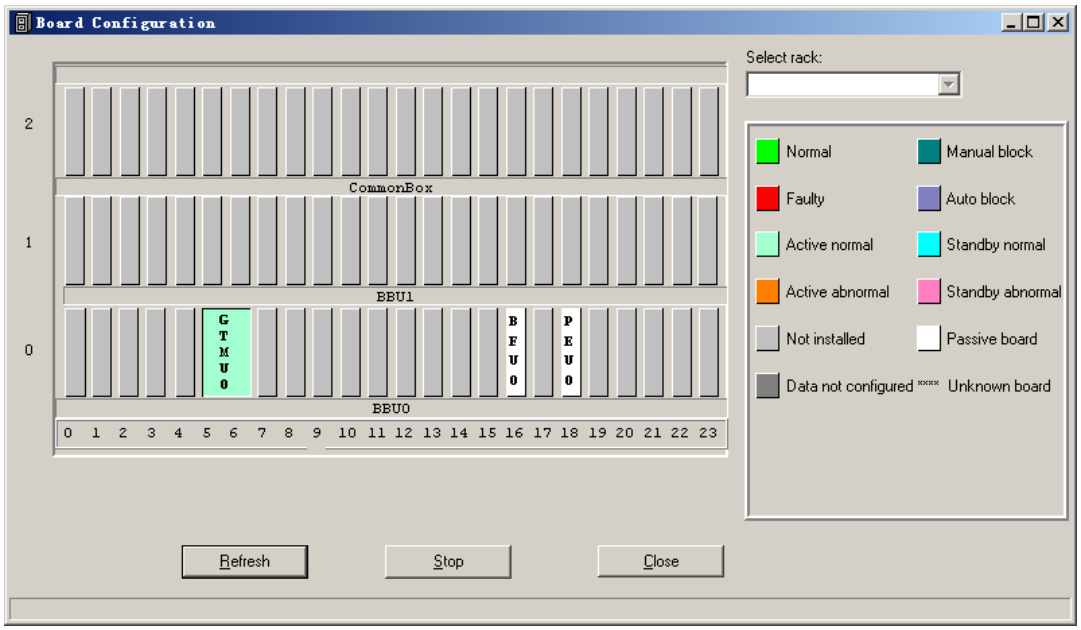
You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board**. In the right pane of the window, double-click **Board Configuration**.

The **Board Configuration** window is displayed, as shown in **Figure 12-1**.

Figure 12-1 Board Configuration window



Step 2 In the **Board Configuration** window, double-click **GTMU**.

The **Topology Configuration** window is displayed, as shown in **Figure 12-2**.

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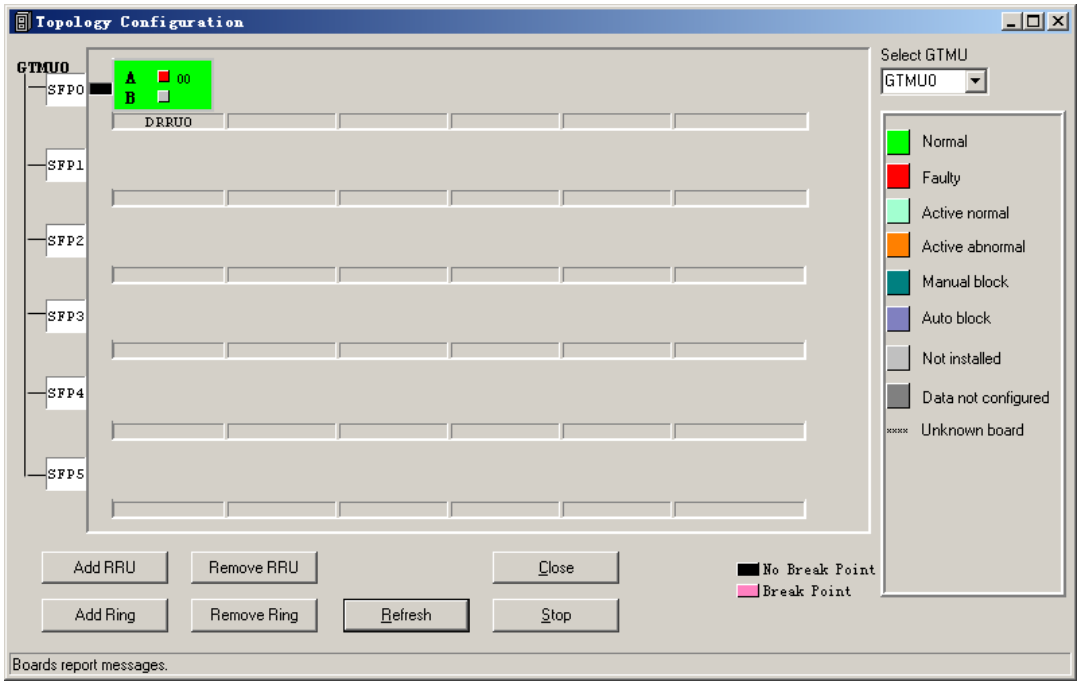
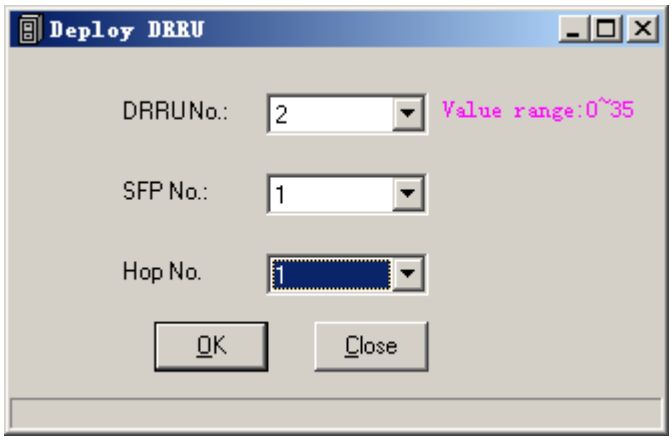
Figure 12-2 Topology Configuration window



Step 3 In the **Topology Configuration** window, click **Add RRU**.

The **Deploy DRRU** window is displayed, as shown in **Figure 12-3**.

Figure 12-3 Deploy DRRU window



NOTE

The SFP number ranges from 0 to 5. The hop number ranges from 1 to 6.

Step 4 In the **Deploy DRRU** window, select a DRRU number, an SFP number, and a hop number, as shown in **Figure 12-4**.

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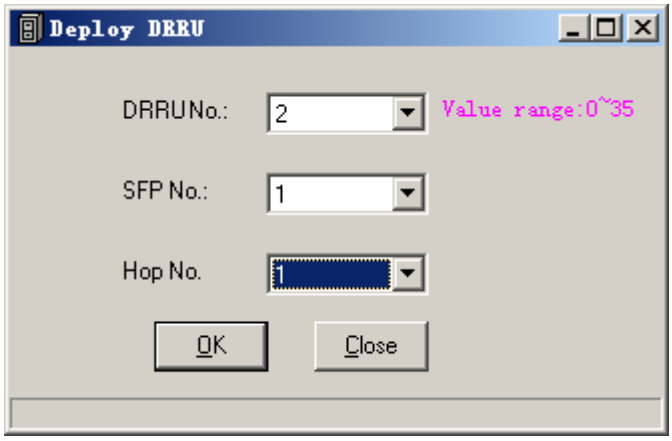
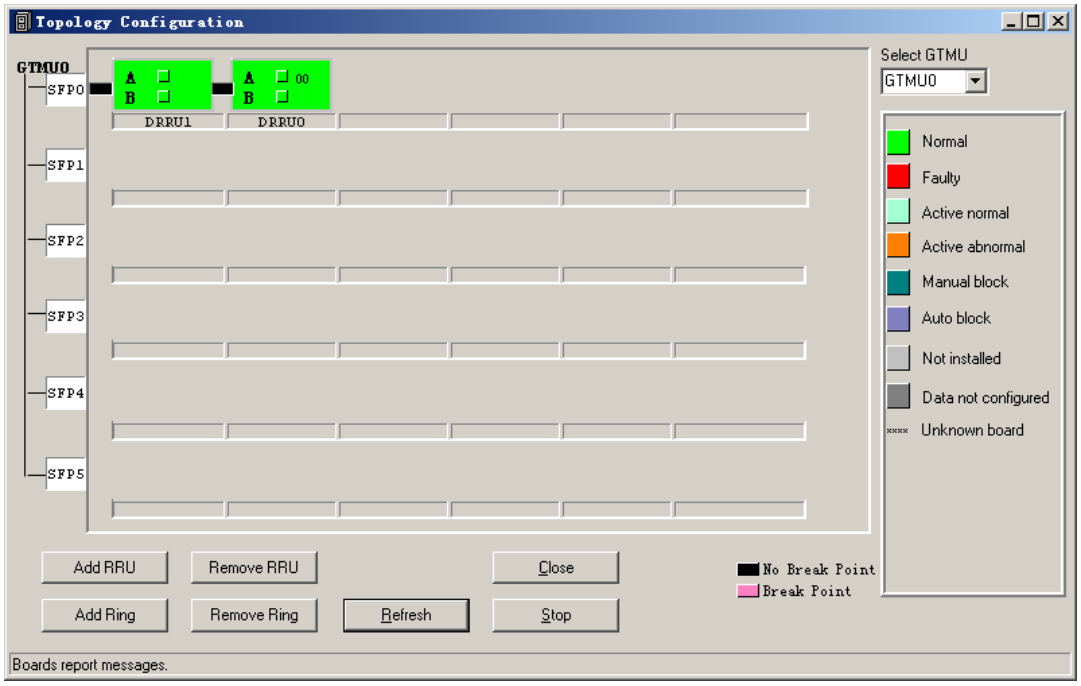
Figure 12-4 Deploy DRRU window



Step 5 In the **Deploy DRRU** window, click **OK**.

The **Topology Configuration** window is displayed, as shown in **Figure 12-5**.

Figure 12-5 Topology Configuration window



----End

12.2 Deleting an RRU

This function is performed to delete an RRU with a specified SFP number and hop number.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

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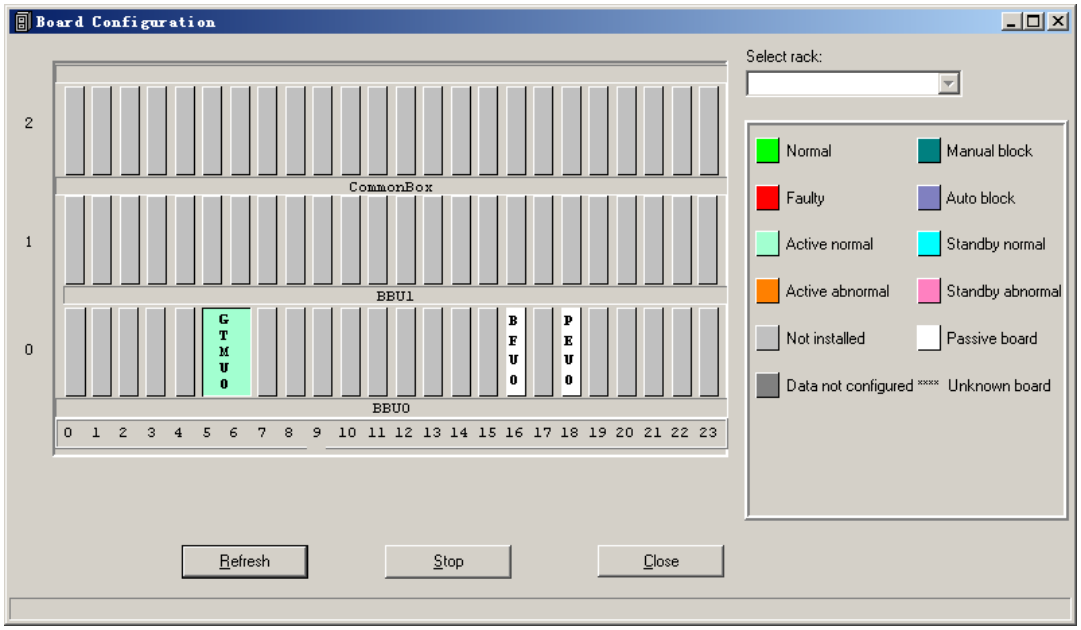
Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board**. In the right pane of the window, double-click **Board Configuration**.

The **Board Configuration** window is displayed, as shown in **Figure 12-6**.

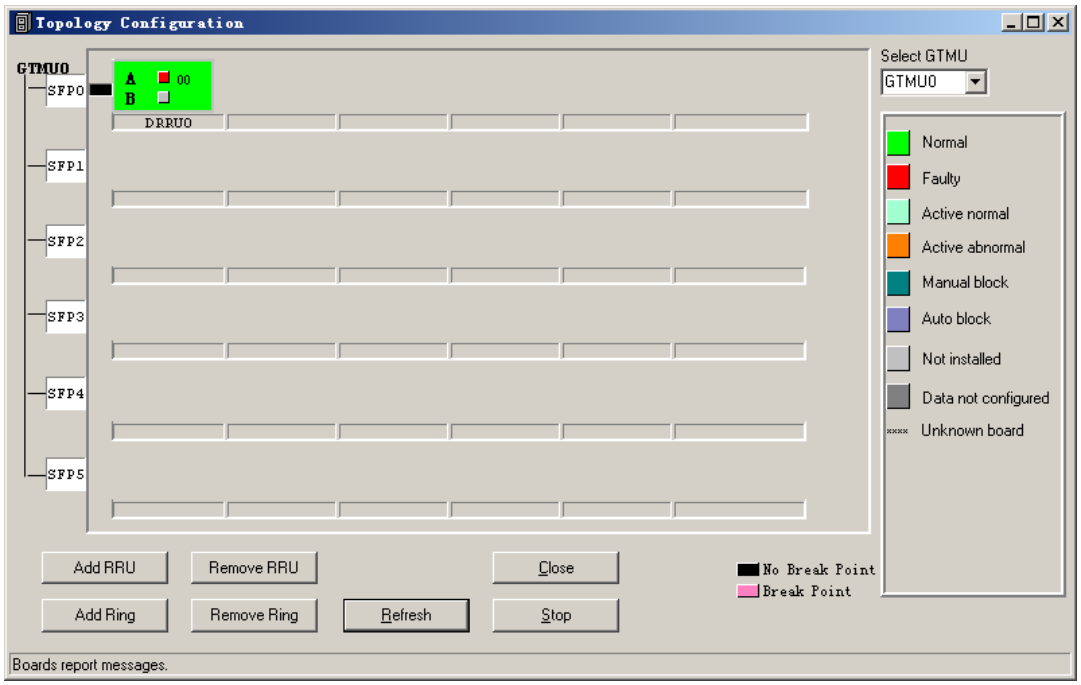
Figure 12-6 Board Configuration window



Step 2 In the **Board Configuration** window, double-click **GTMU**.

The **Topology Configuration** window is displayed, as shown in **Figure 12-7**.

Figure 12-7 Topology Configuration window



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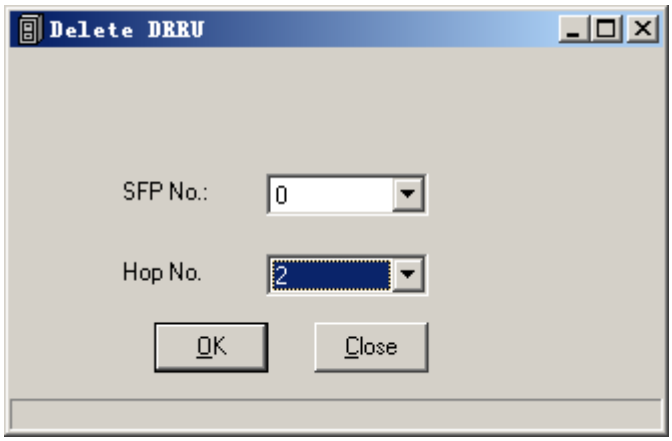
Step 3 In the **Topology Configuration** window, click **Remove RRU**.

The **Delete DRRU** window is displayed, as shown in **Figure 12-8**.

Figure 12-8 Delete DRRU window



NOTE

The SFP number ranges from 0 to 5. The hop number ranges from 1 to 6.

Step 4 In the **Delete DRRU** window, specify the SFP number and the hop number, and then click **OK**.

----End

12.3 Adding a Ring

This function is performed to form a DRRU ring by using two independent DRRU chains.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board** . In the right pane of the window, double-click **Board Configuration**.

The **Board Configuration** window is displayed, as shown in **Figure 12-9**.

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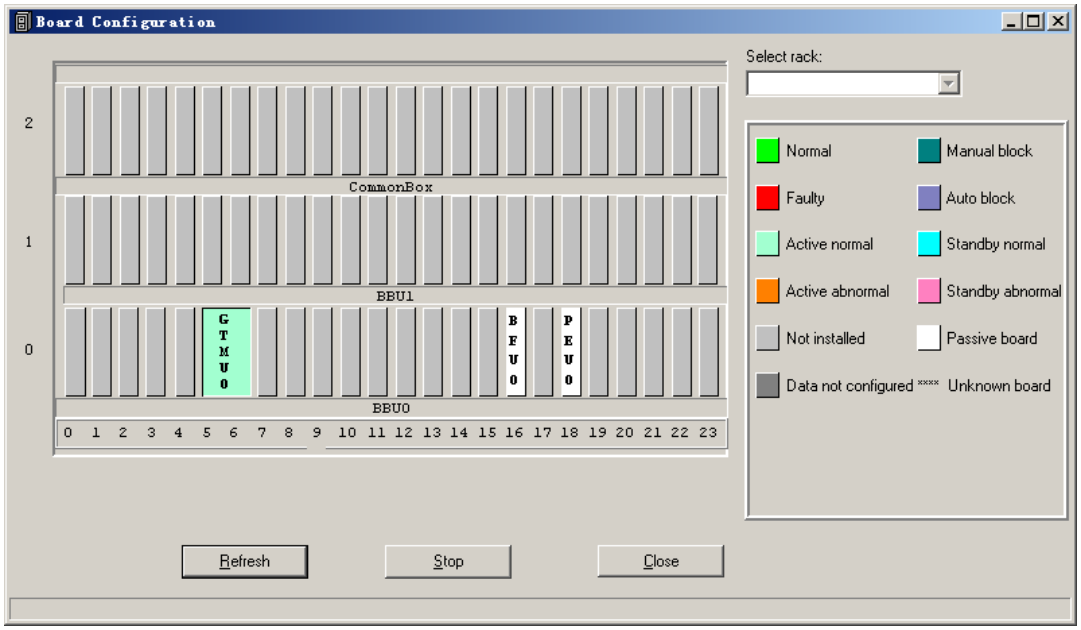
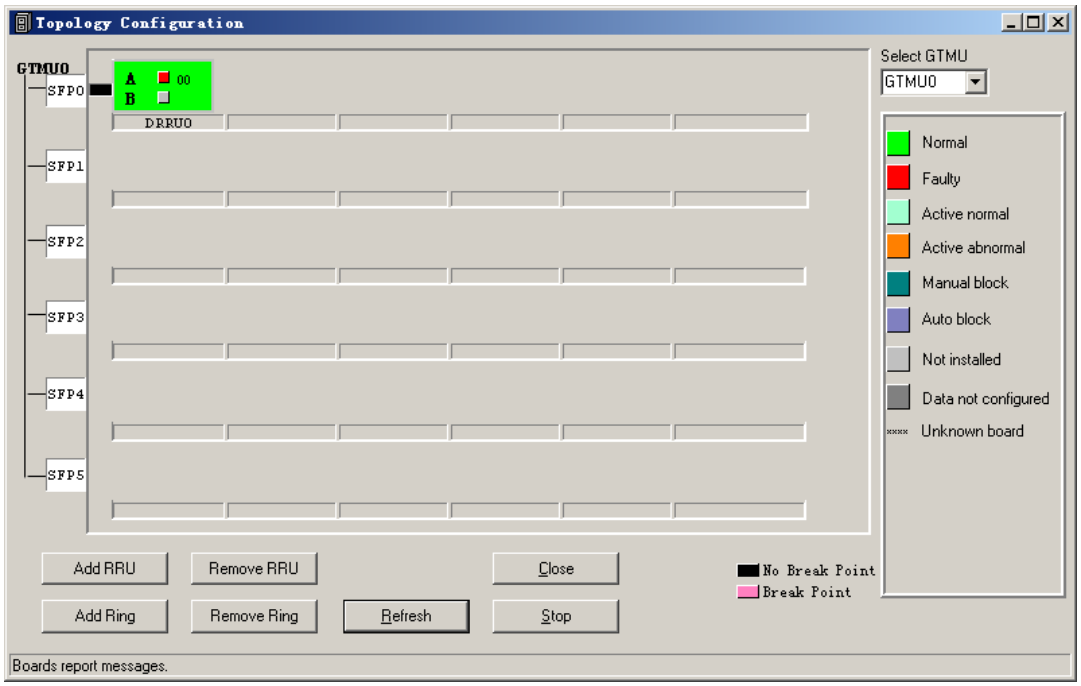
Figure 12-9 Board Configuration window



Step 2 In the **Board Configuration** window, double-click **GTMU**.

The **Topology Configuration** window is displayed, as shown in **Figure 12-10**.

Figure 12-10 Topology Configuration window



Step 3 In the **Topology Configuration** window, click **Add Ring**.

The **Add Ring** window is displayed, as shown in **Figure 12-11**.

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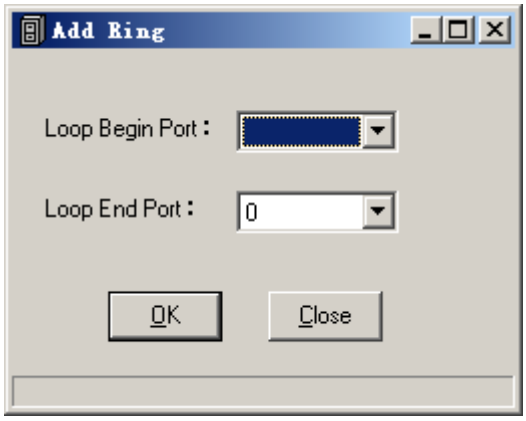
Figure 12-11 Add Ring window



Step 4 In the **Add Ring** window, specify a **Loop Begin Port** and a **Loop End Port**, and then click **OK**.

----End

12.4 Removing a Ring

This function is performed to split a DRRU ring into two independent DRRU chains.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 In the left pane of the **Site Maintenance Terminal System** window, click **Board** . In the right pane of the window, double-click **Board Configuration**.

The **Board Configuration** window is displayed, as shown in **Figure 12-12**.

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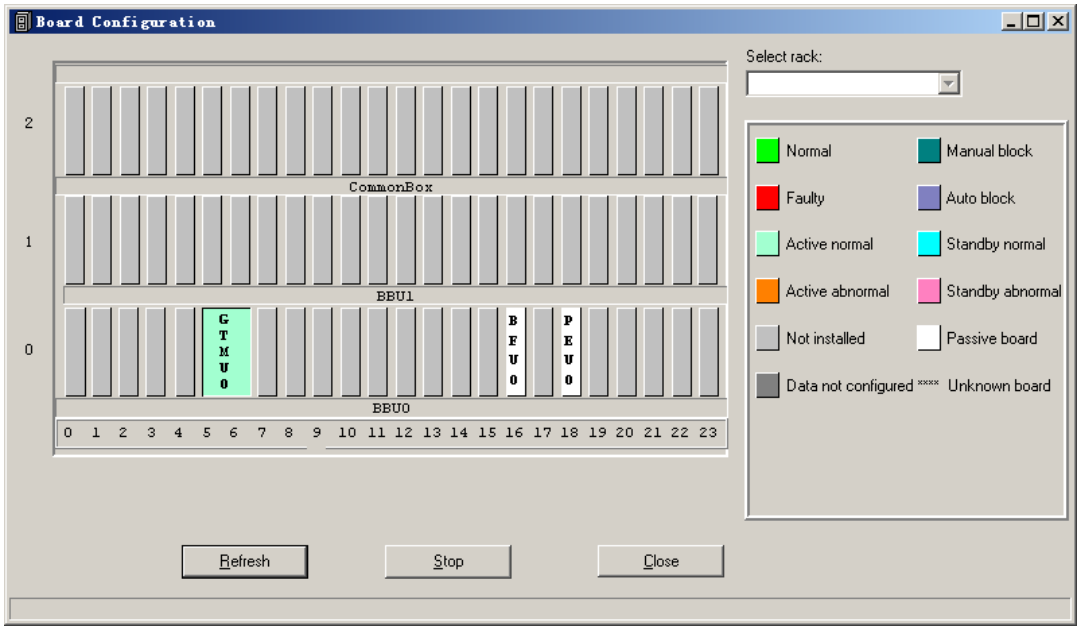
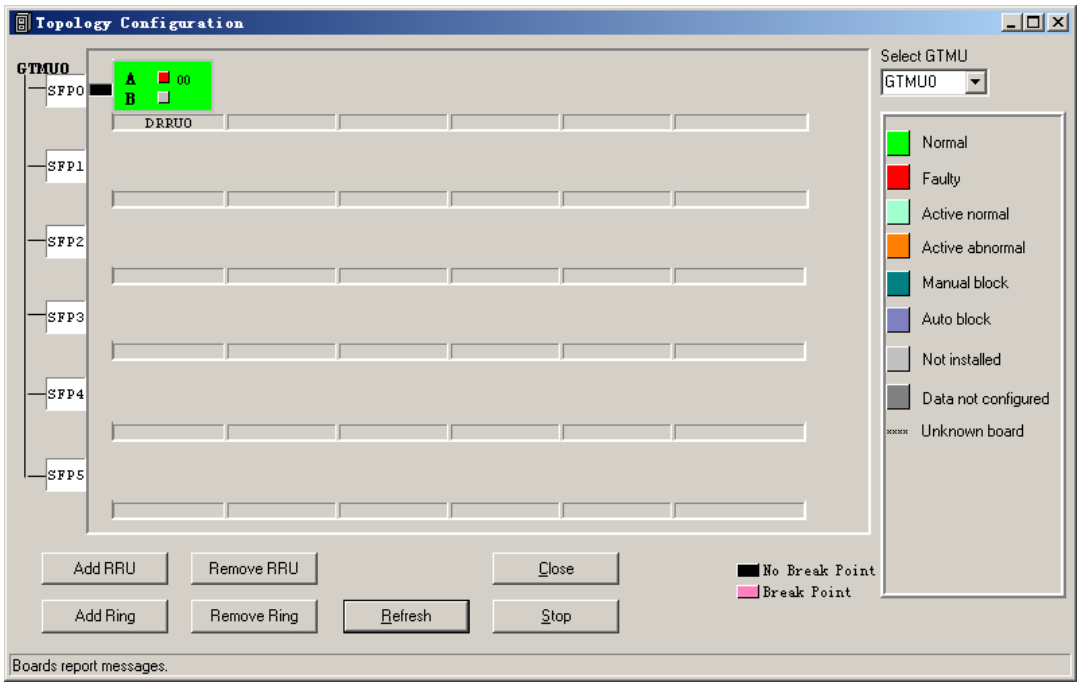
Figure 12-12 Board Configuration window



Step 2 In the **Board Configuration** window, double-click **GTMU**.

The **Topology Configuration** window is displayed, as shown in **Figure 12-13**.

Figure 12-13 Topology Configuration window



Step 3 In the **Topology Configuration** window, click **Remove Ring**.

The **Divide Ring** window is displayed, as shown in **Figure 12-14**.

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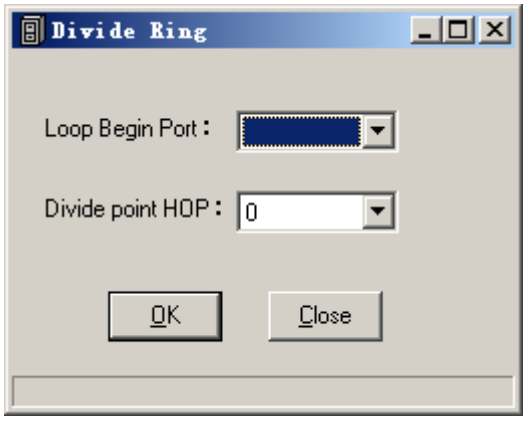
Figure 12-14 Divide Ring window



Step 4 In the **Divide Ring** window, select a **Loop Begin Port**and a **Divide point HOP**, and then click **OK**.

----End

12.5 Displaying Not Configured Boards

This function is performed to check whether there are boards whose data is not configured. These boards are installed in the BTS cabinet but their data is not configured.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 12-15**.

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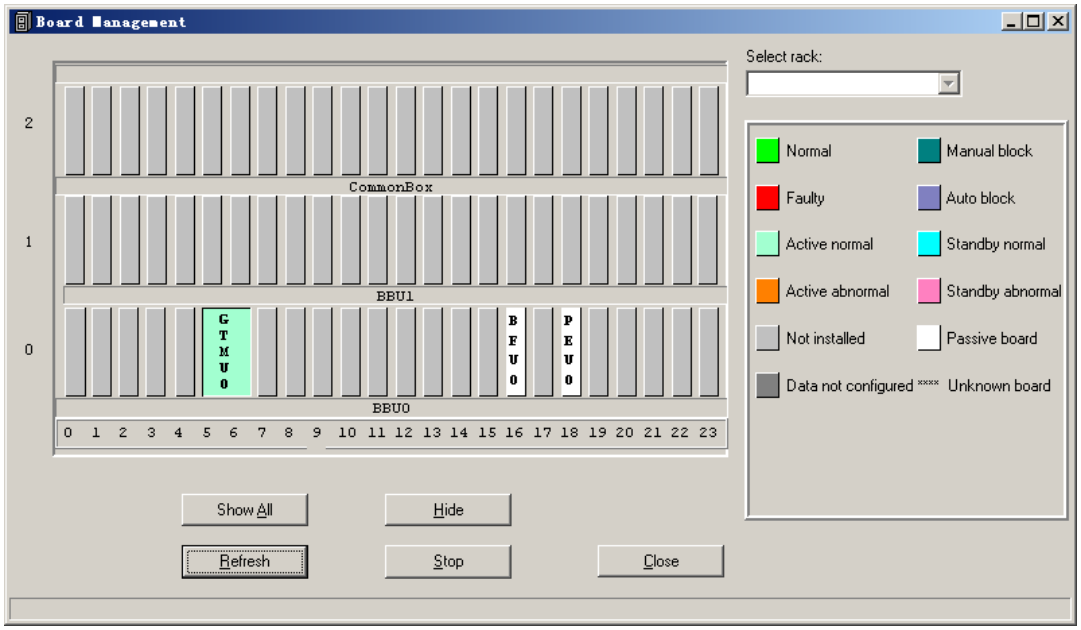
Figure 12-15 Board Management window



Step 2 In the **Board Management** window, click **Show All**.

All the in-position boards are displayed.

NOTE

By default, the boards whose data is not configured are shown in dark gray.

----End

12.6 Checking Board Position Information

This function is performed to check the position information of a board.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 12-16**.

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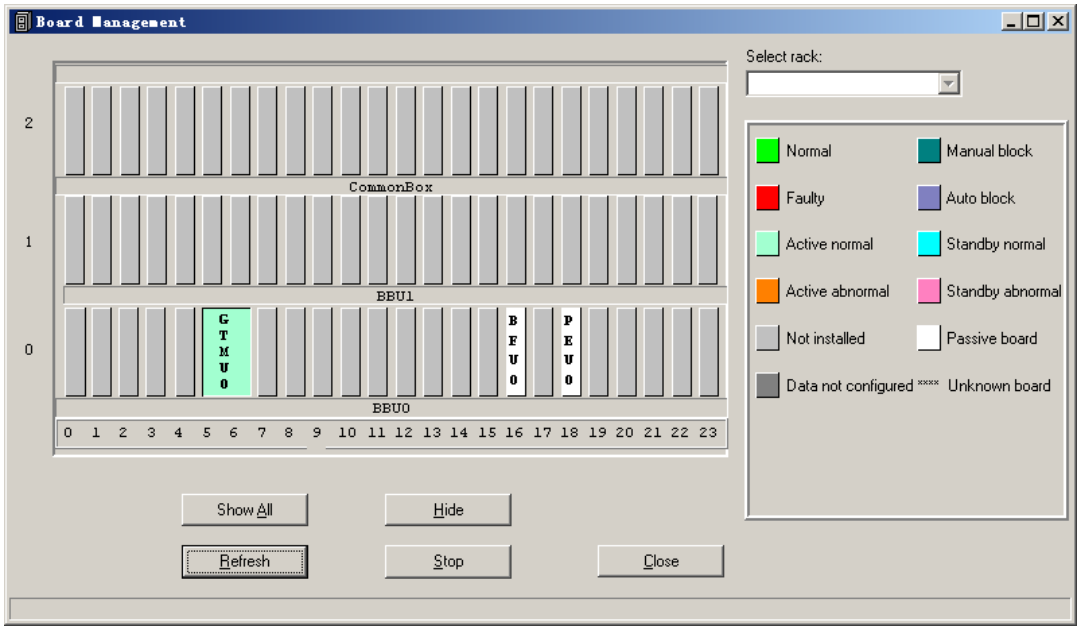
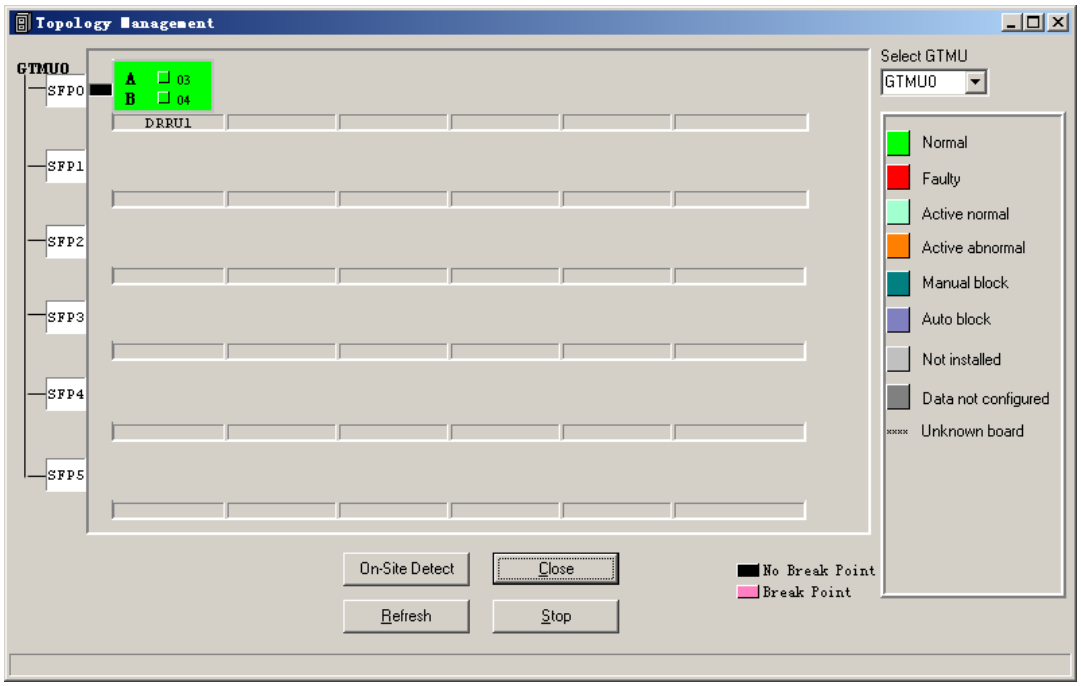
Figure 12-16 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 12-17**.

Figure 12-17 Topology Management window



Step 3 In the **Topology Management** window, click **On-Site Detect**.

The **On-Site Topology Management** window is displayed, as shown in **Figure 12-18**.

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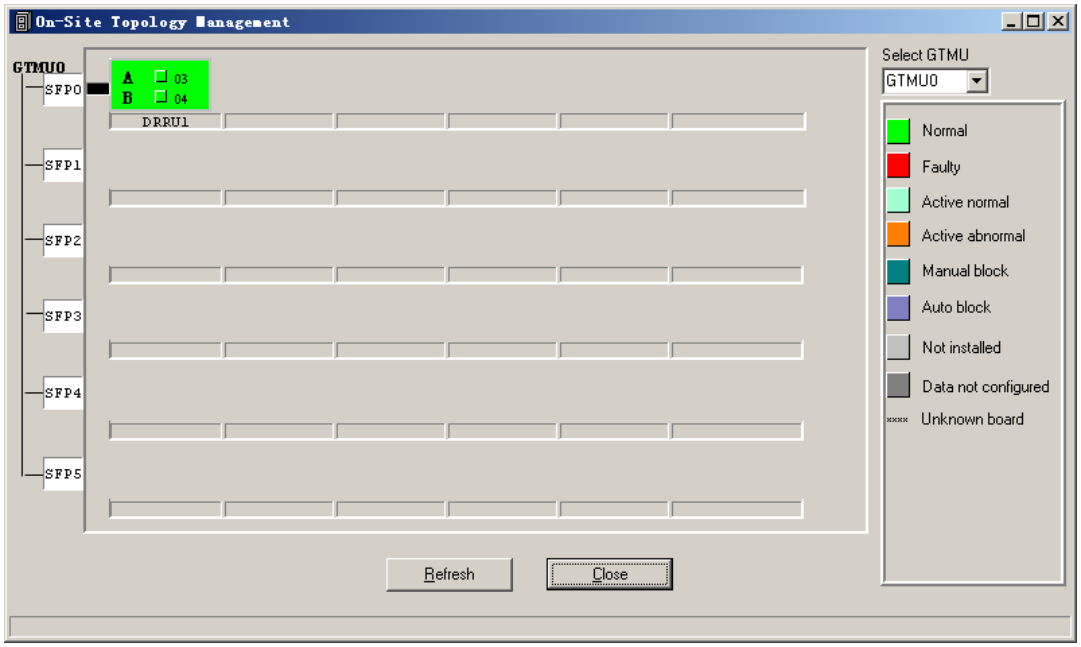
Figure 12-18 On-Site Topology Management window



----End

12.7 Setting a Breakpoint

This function is performed to set a breakpoint on a RRU chain or ring. One RRU chain can be configured with only one breakpoint. After a breakpoint is configured, the RRU chain is divided into two parts. One RRU ring can be configured with two breakpoints. After two breakpoints are configured, the RRU ring is divided into three parts.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 12-19**.

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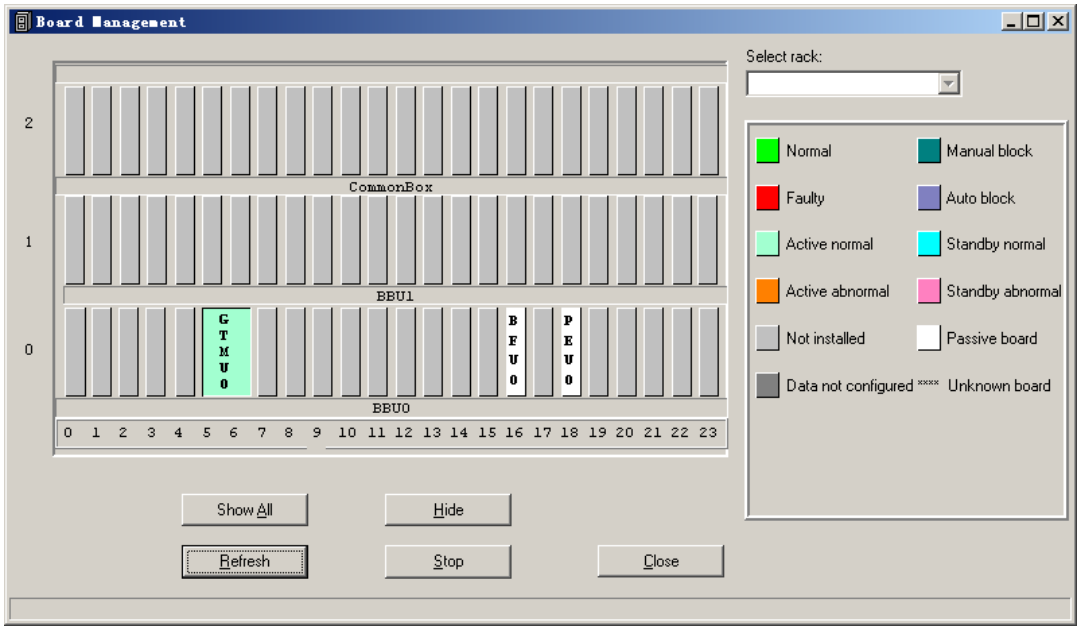
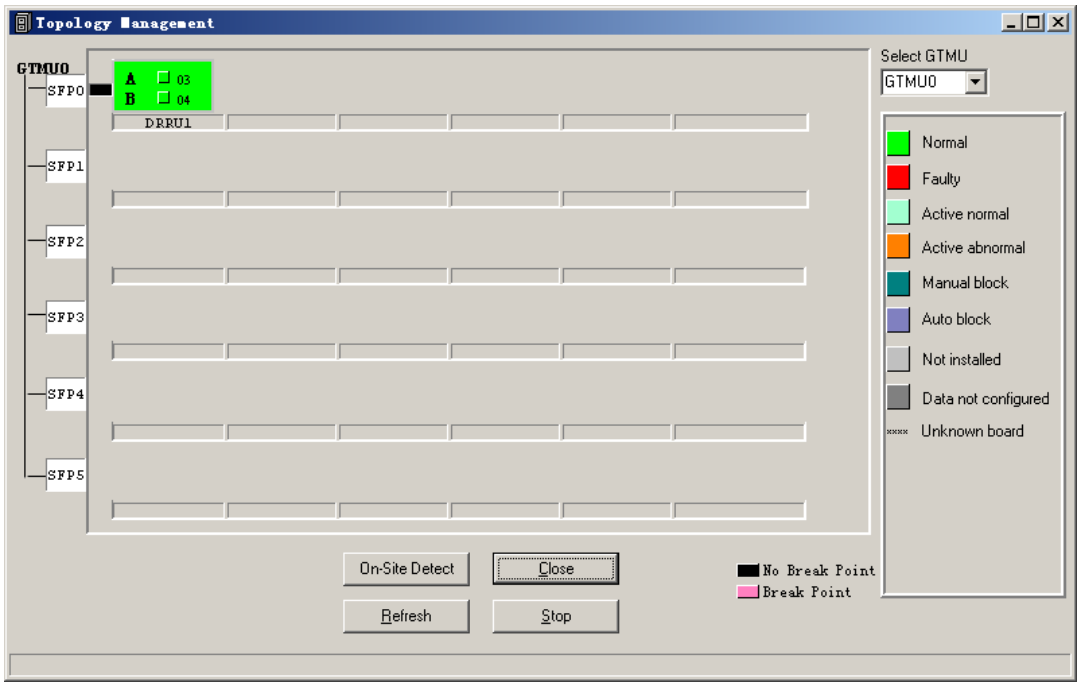
Figure 12-19 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 12-20**.

Figure 12-20 Topology Management window



Step 3 Right-click the target chain or ring.

A shortcut menu is displayed, as shown in **Figure 12-21**.

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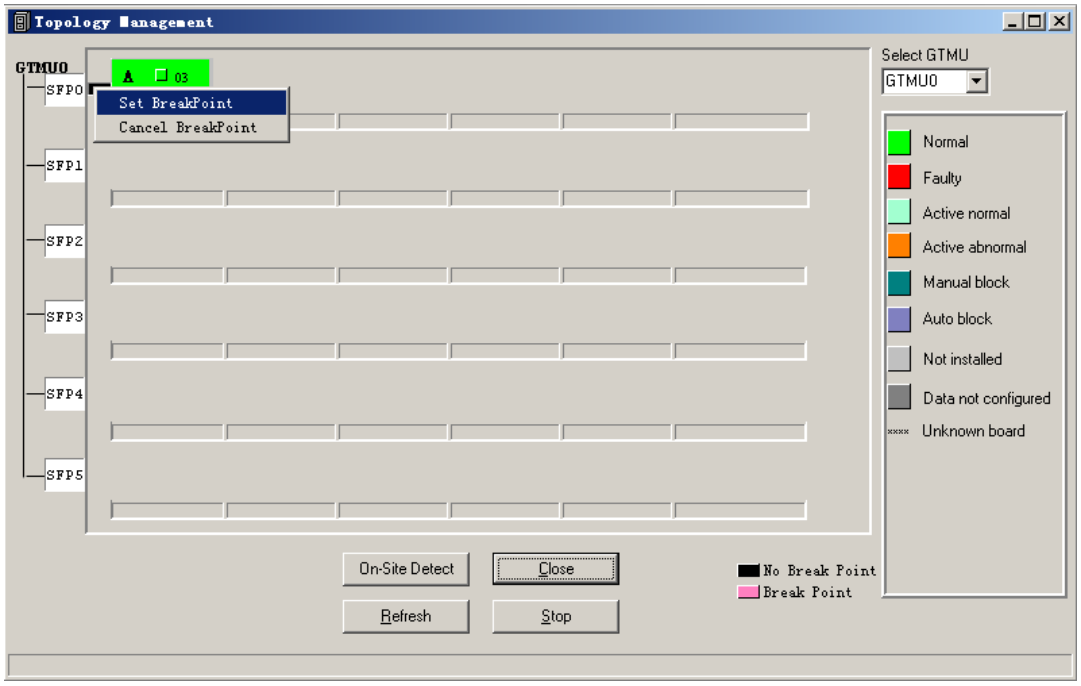
Figure 12-21 Shortcut menu for set BreakPoint



NOTE

No Break Point (shown in black by default) refers to the connection where a breakpoint cannot be set.
Break Point (shown in pink by default) refers to the connection where a breakpoint can be set.

Step 4 Choose **Set BreakPoint**.

A breakpoint is configured.

----End

12.8 Canceling a Breakpoint

This function is performed to cancel a breakpoint on a RRU chain or ring.

Prerequisite

You have logged in to the BTS through the Site Maintenance Terminal.

Procedure

Step 1 Click **Board** in the left pane of the **Site Maintenance Terminal System** window, and then double-click **Board Management** in the right pane of the window.

The **Board Management** window is displayed, as shown in **Figure 12-22**.

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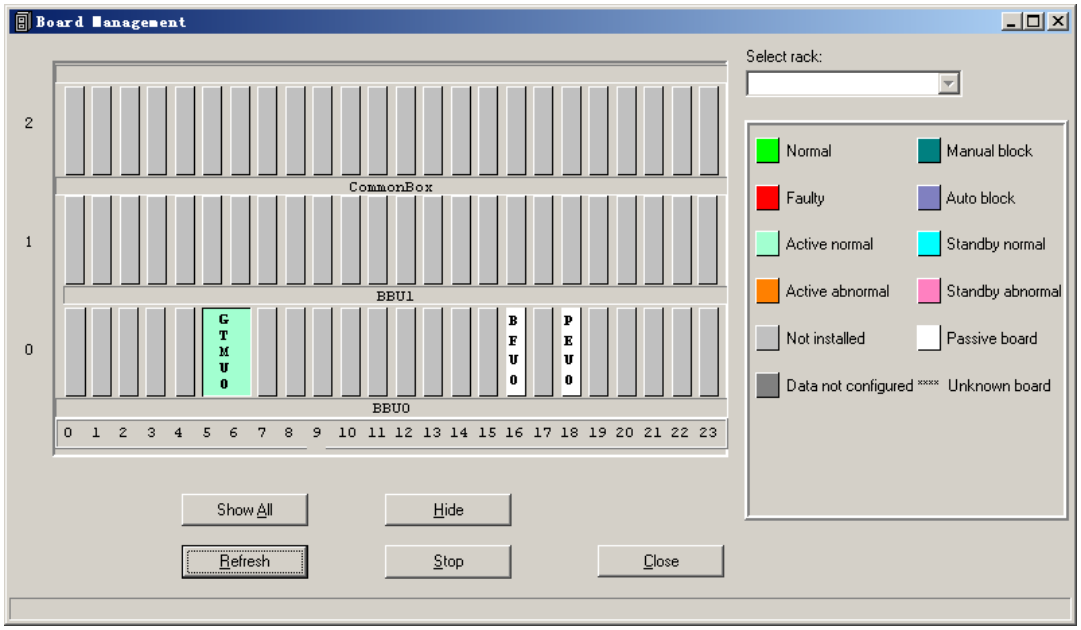
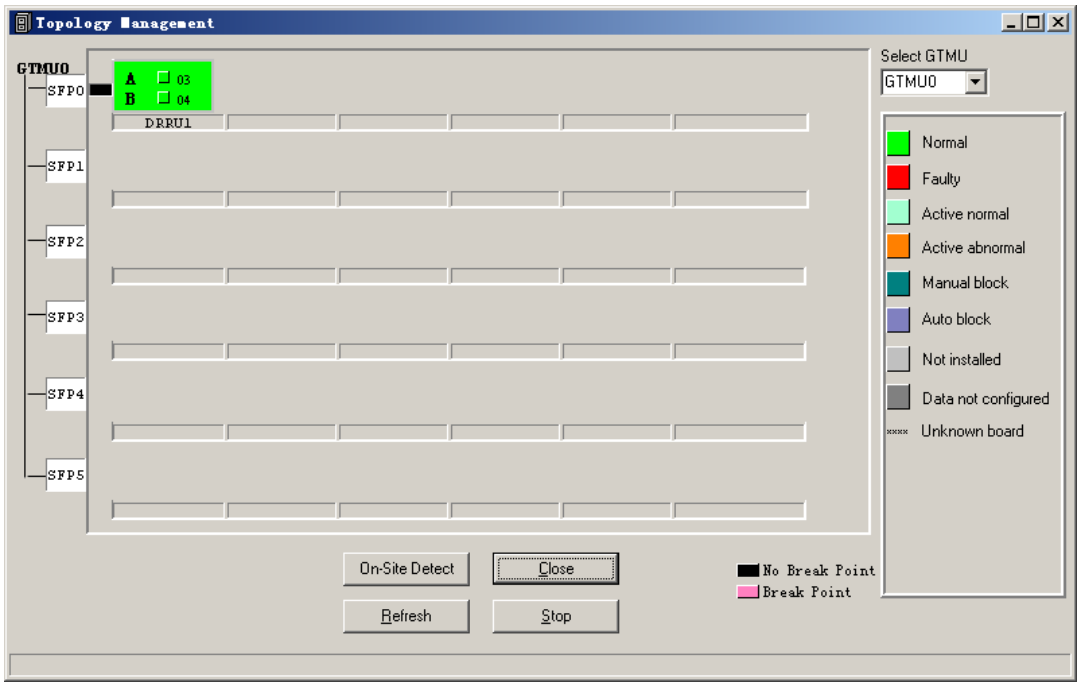
Figure 12-22 Board Management window



Step 2 In the **Board Management** window, double-click **GTMU**.

The **Topology Management** window is displayed, as shown in **Figure 12-23**.

Figure 12-23 Topology Management window



Step 3 Right-click the target chain or ring.

A shortcut menu is displayed, as shown in **Figure 12-24**.

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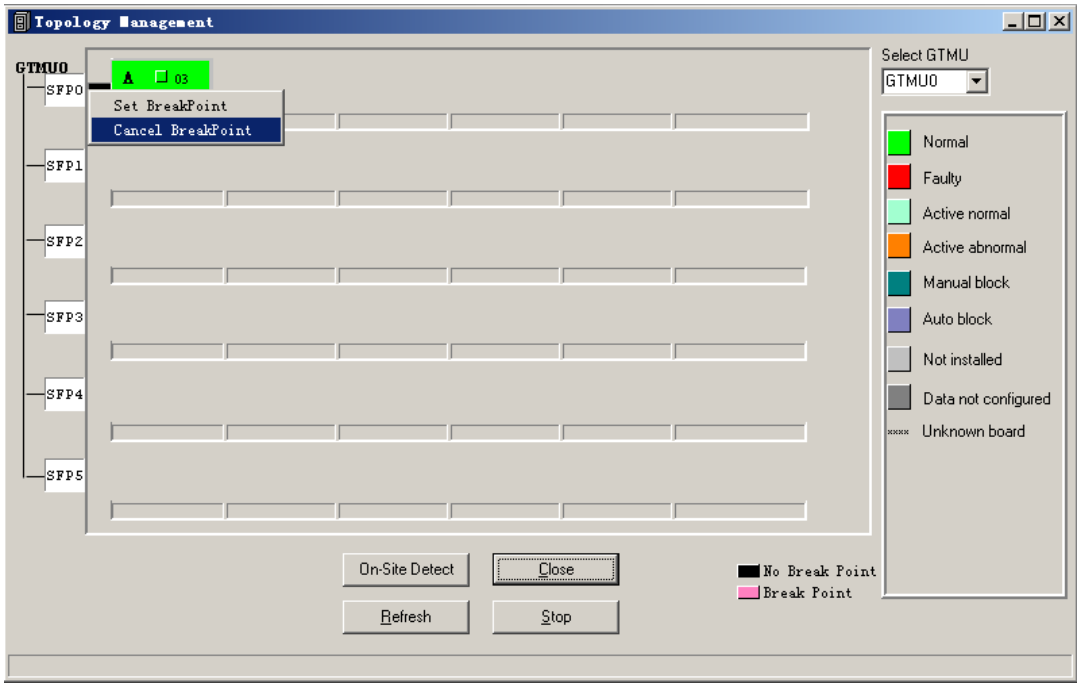
Figure 12-24 Shortcut menu for canceling the breakpoint



Step 4 Select **Cancel BreakPoint**.

The breakpoint is canceled.

----End

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