Alarm Box
User Manual

Version V5.0

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Preface

About This Manual

This manual introduces the components of an alarm system and guides the readers in installing, configuring, operating, and upgrading the alarm box. Moreover, it provides several networking scenarios of the alarm box.

What Is in This Manual

This manual contains the following chapters:

Chapter	Summary
Chapter 1 Overview	Introduces the components of an alarm system and the functions of the alarm box.
Chapter 2 Alarm Box Installation	Introduces how to install the alarm box and how to connect the power cable and network cable.
Chapter 3 Typographical Conversions	Introduces how to perform initial configurations on the alarm box.
Chapter 4 Common Operations	Introduces the alarm box menu and some common operations.
Chapter 5 Telnet Commands	Introduces how to telnet the alarm box from a PC to configure the alarm box.
Chapter 6 Alarm Box Networking Scenarios	Introduces the typical networking scenarios of the alarm box, including the remote deployment, multi-office-in-one, and cross-VLAN networking.
Appendix A Alarm Box Upgrade	Introduces how to upgrade the alarm box by using the HyperTerminal through FTP.
Appendix B Acronyms and Abbreviations	Lists the acronyms and abbreviations.

Conventions

1. Typographical Conversions

Typeface	Meaning
Bold	Menus, menu options, function names, input parameters, option button names, check boxes, drop-down lists, dialog box names, window names.
Italic	Variables for you supply values
	Note: Provides additional information about a certain topic.
	Caution: Provides alerts about a certain topic. In this situation, improper operations may result in equipment damage or loss of data.

2. Mouse Operation Conversions

Action	Meaning
Click	Refers to clicking the primary mouse button (usually the left mouse button) once.
Double-click	Refers to quickly clicking the primary mouse button (usually the left mouse button) twice.
Right-click	Refers to clicking the secondary mouse button (usually the right mouse button) once.
Drag	Refers to pressing and holding a mouse button and moving the mouse.
Click	Refers to clicking the primary mouse button (usually the left mouse button) once.

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Chapter 1 Overview

1.1 Introduction

Description

This chapter introduces the components of an alarm system and the functions of the alarm box that can prompt alarms by sounds or lights or forward them to appropriate personnel through short messages.

Contents

1.2 Alarm System Components

Description

The alarm system enables users to learn the faults occurring to devices at any time. If a device is faulty or runs improperly, it sends alarm information to the alarm server that not only presents current or history alarms but also forwards alarms to the alarm box in real time. The alarm box generates sounds or lights to prompt the received alarms of different severities and forwards alarm information to pre-set mobile phone number if necessary.

Components

The alarm system consists of two components, namely the alarm server (generally it is an OMC server) and the alarm box, as shown in Figure 1.2-1.

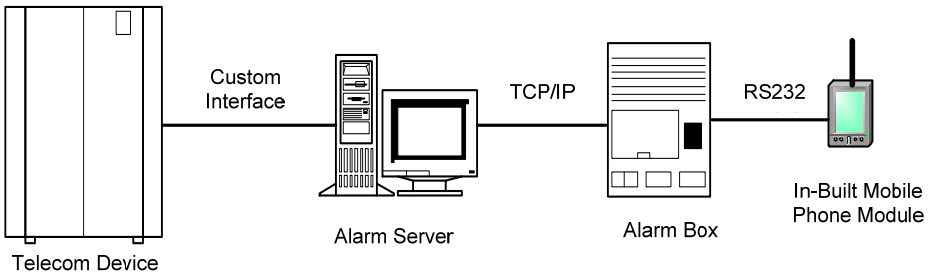


Figure 1.2-1 Alarm System

- The alarm server allows users to determine the severities of alarms to be forwarded to the alarm box as well as the mobile phone number to which the alarm box sends alarm short messages.
- The alarm server transfers alarm messages to the alarm box through TCP/IP. The mobile phone module of the alarm box sends alarms to the specified mobile number through short messages.
- Alarms are not only presented on the LCD screen of the alarm box but also prompted by the alarm indicator, alarm server indicator, and sounds.

1.3 Alarm Box Functions

Description

The alarm box is connected with an alarm server through HUB or a layer-2 switch. The alarm box presents different severities of alarm data sent from the server in various ways, for example, on the LCD screen, through indicators, and by generating sounds.

Functions

- Alarm short message sending: The alarm server can be configured to interact with the in-built mobile phone module of the alarm box, enabling the alarm box to send alarm short messages to the specified mobile number of a maintainer. The alarm box sends alarm short messages based on the severities to CDMA or GSM subscribers (however, CDMA and GSM cannot be supported simultaneously).
- Sound prompt: The in-built speaker produces voice or buzzer alarms to

prompt the received alarms and the alarm severities.

- Alarm indicator: The four alarm severities are represented by different colors, namely yellow, orange, blue, and red (listed from high to low).
- Alarm server indicator: The alarm box panel provides 10 alarm server indicators representing 10 group of alarm servers (generally it is recommended that one indicator represent one server). Each indicator shows the link status and the alarm status for a specific group of server servers.
- LCD display: The alarm information sent from the alarm server is displayed on the LCD screen of the alarm box. Moreover, the alarm box menu and keys on the panel are available to configure the working parameters, for example, the IP address, UDP port, key tone control, and backlight control.
- Remote deployment: An alarm server can be connected to both local and remote alarm boxes. In the case of remote alarm boxes, routing information should be configured in the alarm box. Remote deployment allows more flexible usages of alarm boxes. For example, the alarm box can be deployed in the office rather than in the equipment room.
- Multi-office-in-one: Up to 128 alarm servers can be configured on an alarm box, and up to 10 groups of alarm servers can be simultaneously connected to an alarm box. The alarm servers may reside in different network segments, and therefore the multi-office-in-one function is employed together with the remote access function.
- Cross-VLAN alarming: The alarm box can be simultaneously connected to alarm servers from different VLANs. In this scenario, a layer-2 switch rather than a layer-3 device is deployed to achieve VLAN isolation, reducing the networking cost.
- Broadcast storm detection and alarming: Thresholds can be configured to detect the network status and avoid network congestion caused by data broadcasting.
- Group-based alarm acknowledgement: Alarms can be acknowledged on a per-group basis as alarm servers can be classified into groups, and

each group of alarm servers is represented by an alarm server indicator.

- Alarm statistics query: The alarm box can show the statistics of alarms reported by each alarm server on the LCD screen.
- Permanent mute: Alarm prompts can be muted based on the alarm severity.
- Remote access: The alarm box supports Telnet-based remote access. Users can telnet the alarm box to configure relevant parameters by using man-machine commands. The alarm box supports the configurations concerning alarm servers, routing, VLAN, short message transfer, system time, and so on.

1.4 Technical Specifications

Dimensions: 323mm×220mm×58mm (LxWxD)

Power supply: -48 V DC or 90 V - 264 V AC (an power adapter is required for AC power)

Power: 40W

Interface: one RJ-45 network interface

Environmental temperature: 0℃ - 45℃

Chapter 2 Alarm Box Installation

2.1 Introduction

Description

This chapter briefly introduces how to install the alarm box and how to connect the power cable and the network cable. The alarm box should be placed in a distinctive location for maintainers' convenience.

The alarm box supports both AC and DC power supplies.

Contents

2.2 Installing the Alarm Box

Purpose

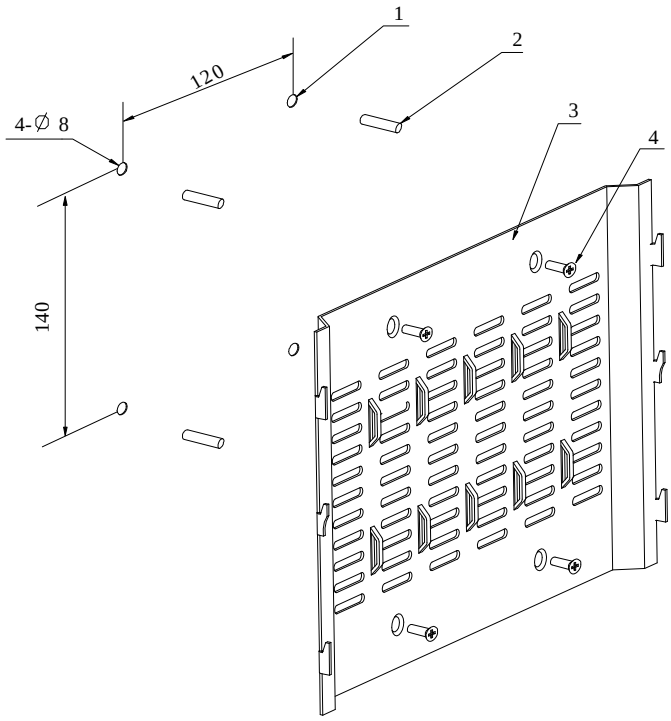
The alarm box is installed in the control room or in the office. It presents maintainers with alarms of different severities. The alarm box should be placed in a distinctive location so that maintainers can easily notice the alarm prompts or hear the alarm sounds. The following aspects should be taken into considerations so as to install the alarm box at an appropriate height: the actual situation of the project site, the length of the power cable, the location of the AC adaptor, and the location of any other alarm box.

Prerequisites

- Tools and instruments are ready.
- The installation location of the alarm box is determined.
- The hanging board is already uninstalled from the back of the alarm box.

Steps

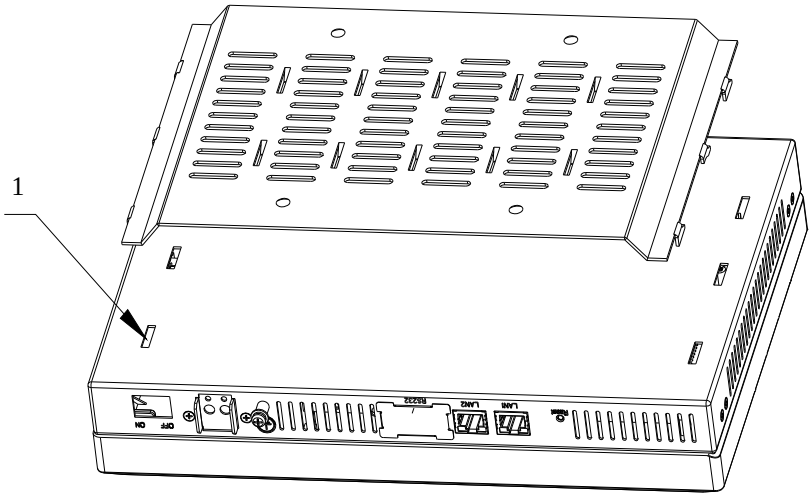
1. Hold the hanging board up against the wall and mark the positions of installation holes. Alternatively, you can draw lines according to the size shown in Figure 2.2-1.
2. Drill 4 holes of φ8 at the marked positions, and each hole is 40mm deep.
3. Hammer lightly the plastic expansion tubes into the holes. Make sure that the expansion tubes are completely fastened in the holes.
4. Fix the hanging board on the wall with 4 M5 countersunk head wood screws, as shown in Figure 2.2-1.



1. Φ8 hole 2. Plastic expansion tube 3. Hanging board 4. M5 countersunk head wood screw

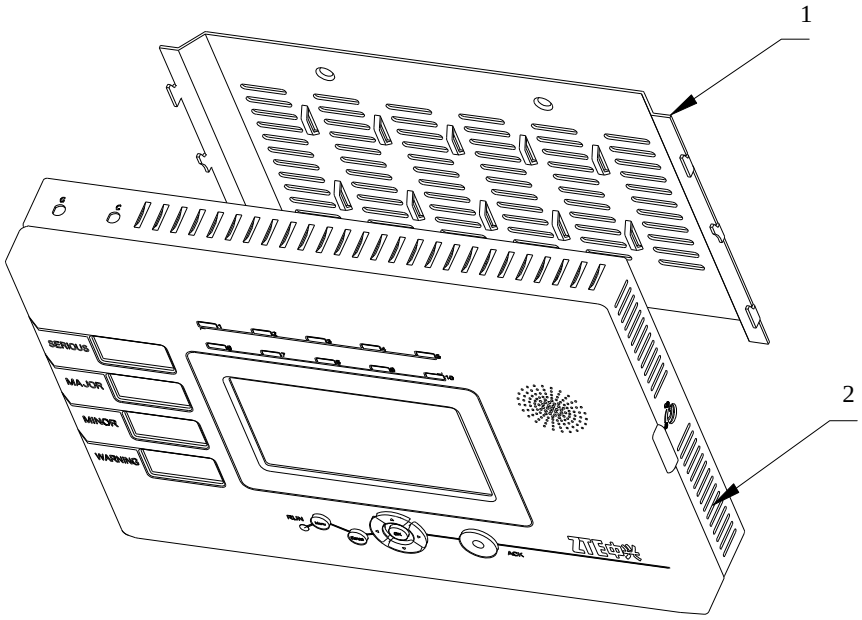
Figure 2.2-1 Hanging Board

5. Hook the alarm box on to the hanging board, with the hanging holes exactly matching the hooks of the board. as shown in Figure 2.2-2 and Figure 2.2-3.



1. Hanging hole

Figure 2.2-2 Alarm Box Installation 1



1. Hanging board .2. Alarm box

Figure 2.2-3 Alarm Box Installation 2

6. Lock the alarm box. A locked alarm box cannot be separated from the hanging board.

2.3 Connecting Cables (AC Power Cable and Network Cable)

Purpose

In the case of AC power supply, the AC adaptor should be used and there should be an AC power supply socket near the alarm box. The AC adaptor delivered with the alarm box provides a 2-meter-long DC power cable, and the AC power cable is also 2 meter long. The location of AC adaptor and the length of the power cables should be considered when the alarm box is installed.

The power cables and network cable should be fixed on the wall after they are covered by jackets. Cabling should be done with smooth bends. The cables may be damaged if the ends of the cables are tightened.

Prerequisites

- The alarm box is installed.
- The power cable and network cable are prepared and laid well.
- Tools and instruments are ready.

Steps

1. Connect the straight-through cable (RJ-45 connector) to the network interface of the alarm box, and then connect the other end to the port of the hub or to the layer-2 switch that resides in the same LAN with the alarm server.
2. Connect the three-pole plug of the AC power cable to the AC power supply socket, and then connect the any end of the power cable to the AC adaptor. Make sure that the AC power supply socket is switched off before you connect cables to it.

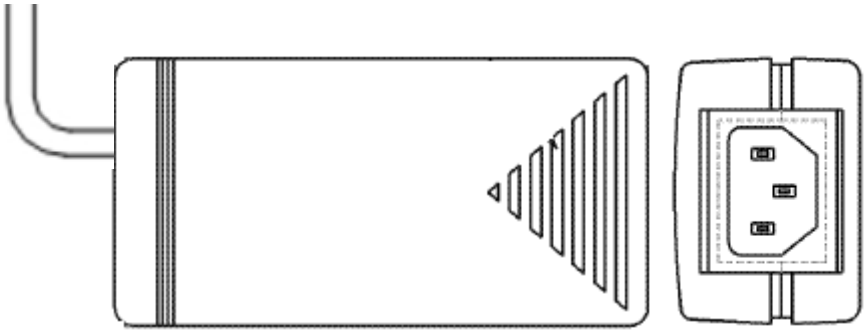


Figure 2.3-1 Top View (Left) and Side View (Right) of the AC Adaptor

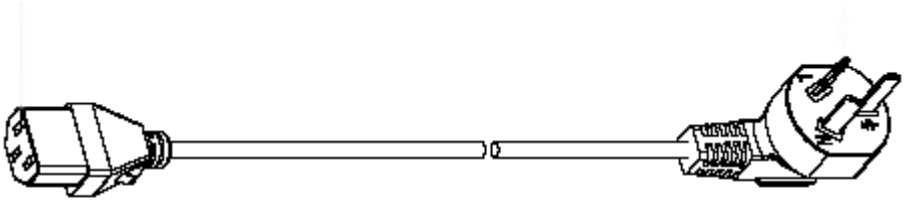


Figure 2.3-2 AC Power Cable

Caution:

The three-pole plug actually used may differ from that in the preceding figure due to the different standards adapted by countries. Appropriate power cables will be delivered with the alarm box; otherwise a junction board can be used.

3. Connect the DC power cable of the adaptor to the power supply terminal that is in the right part of the bottom panel of the alarm box. Connect the bare wire marked with GND to the -48VRTN terminal block of the power supply terminal. Connect the other bare wire to the -48V terminal block. Then fix the bare wires with in-built bolts.
4. According to the installation location of the alarm box and the layout of the cables, install the PVC cable tray on the wall.

- If the other ends of the cables need to be placed at the same place (for example, inside the cabinet). Lay the PVC cable tray along the wall to the wiring ladder and then to the cabinet (upper cabling method).

Otherwise, lay the PVC cable tray along the wall to the floor, and then lay the cables along the cable rack under the floor to the cabinet (down cabling method where the cable tray may not be used in cabling under the floor).

- If the other ends of the cables need to be placed at the same place, separate the cables in proper position. Moreover, put them into narrow PVC cable trays, and lay them along the wall or along the cable racks under the floor to the proper positions.

5. Put the power cables and the network cable into a bigger PVC cable tray. After cabling is complete, close the top cover of the PVC cable tray.

 Caution:

It may be unable to hide the AC adaptor somewhere. However, you can put it in a safe place in the project site.

2.4 Connecting Cables (DC Power Cable and Network Cable)

Purpose

The alarm box can be connected to the DC power supply available by using the 3-meter-long DC power cable delivered with the alarm box or a self-made cable. The parameters of the self-made cable should comply with or be higher than those of the delivered cable, as shown in Table 2.4-1.

Table 2.4-1 DC Power Cable Parameters

Parameter	Value	Parameter	Value
Nominal cross-sectional area	1mm^2	Jacket thickness	0.87mm
Outer diameter	1.3mm	Outer diameter of the jacket	6.94mm
Isolation thickness	0.65mm	Rated voltage	300/500V
Outer insulation diameter	2.6mm	Critical temperature	70℃
The maximum DC resistance at 20℃	20Ω/km	N/A	N/A

The power cable and network cable should be fixed on the wall after they are covered by jackets. Cabling should be done with smooth bends. The cables may be damaged if the ends of the cables are tightened.

Prerequisites

- The alarm box is installed.
- The power cable and network cable are prepared and laid well.
- Tools and instruments are ready.

Steps

1. Connect the straight-through cable (RJ-45 connector) to the network interface of the alarm box, and then connect the other end to the port of the hub or the layer-2 switch that resides in the same LAN with the alarm server.
2. Connect the DC power cable to the power supply terminal that is in the right part of the bottom panel of the alarm box. Connect a wire (generally it is a black wire) to the -48VRTN terminal block of the power supply terminal. Connect the other wire (generally it is a blue one) to the -48V terminal block. Then fix the wires with in-built bolts. Make sure that the other end of the power cable is connected to the DC power supply correctly.
3. According to the installation location of the alarm box and the layout of the cables, install the PVC cable tray on the wall.

- If the other ends of the cables need to be placed at the same place (for example, inside the cabinet). Lay the PVC cable tray along the wall to the wiring ladder and then to the cabinet (upper cabling method). Otherwise, lay the PVC cable tray along the wall to the floor, and then lay the cables along the cable rack under the floor to the cabinet (down cabling method where the cable tray may not be used in cabling under the floor)..
- If the other ends of the cables need to be placed at the same place, separate the cables in proper position. Moreover, put them into narrow PVC cable trays, and lay them along the wall or along the cable racks under the floor to the proper positions.

4. Put the power cables and the network cable into a bigger PVC cable tray. After cabling is complete, close the top cover of the PVC cable tray.

Chapter 3 Initial Configuration

3.1 Introduction

Description

This chapter introduces the initial settings of the alarm box and alarm servers. For example, the alarm box allows users to configure its IP address and port as well as IP addresses of alarm servers through its LCD screen; users can set the alarm forwarding parameters on alarm servers.

Contents

3.2 Keys, Alarm Indicators, and Alarm Server Indicators

Keys

Users can press keys on the alarm box to view alarm information or configure settings on the LCD screen. Table 3.2-1 describes the functions provided by the keys.

Table 3.2-1 Key Functions

Key	Function
Cancel	Returns to the previous menu.
OK	Confirms the operation result.
Menu	Opens the main menu.
ACK	Acknowledges the alarms reported by alarm servers.
▲▼	Moves the cursor up or down on the menu or modify the parameter values, such as the IP address and UDP port.
◄ ►	Moves the cursor left or right.
Reset	Resets the alarm box.

Alarm Indicators

The alarm box panel provides 4 alarm indicators representing 4 different severities of alarm information. Table 3.2-2 and Table 3.2-3 lists the meanings and statuses of the indicators respectively.

Table 3.2-2 Alarm Indicator Meanings

Alarm Indicator	Description
SERIOUS	Red Indicates the critical alarms (Severity 1).
MAJOR	Blue Indicates the major alarms (Severity 2).
MINOR	Orange Indicates the minor alarms (Severity 3).
WARNING	Yellow Indicates the warning alarms (Severity 4).

Table 3.2-3 Alarm Indicator Statuses

Status	Description
Blink	Indicates alarms are generated but not acknowledged yet.
Light on	Indicates alarms are generated and acknowledged.
Light off	Indicates no alarm.

Alarm Server Indicators

The alarm box panel provides 10 alarm server indicators representing 10 groups of alarm servers connected to the alarm box. Each indicator shows the link status and alarm status. Table 3.2-4 lists the meanings, the link statuses, and alarm statues represented by the indicators.

Table 3.2-4 Alarm Server Indicator Meanings, Link Statues, and Alarm Statuses

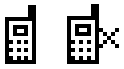
Indicator	Status	Description
Red	Blink	Indicates new alarms are generated but not acknowledged yet.
	Light on	Indicates new alarms are generated and acknowledged.
Yellow	Blink	Indicates no alarm is generated recently and

Indicator	Status	Description
		the alarm server interacts with the alarm box properly.
	Light on	Indicates the alarm server is disconnected from the alarm box.
Note: If the indicator lights off, it indicates that the alarm server is not configured yet.		

3.3 Icons on the LCD Screen

Icons on the LCD screen allow users to operate and configure the alarm box. Table 3.3-1 lists the icons available on the LCD screen.

Table 3.3-1 Icon Description

Name	Icon	Meaning
Alarm sound		Indicates whether the alarm box generates sounds when it receives alarms.
Mobile phone		Indicates the working status of the mobile phone module.
Network connection		Indicates whether the alarm box is connected to alarm servers.
Short message		Indicates whether the short messages are sent successfully.
Key		Indicates the direction keys “Up”, “Down”, “Left”, and “Right”.
		Indicates the **Cancel** key.
		Indicates the **Menu** key.
		Indicates the **OK** Key.
Mobile signal		Indicates the mobile signal strength. The first icon consisting of all solid lines indicates the strongest mobile signal while the last one indicates the weakest signal. This icon is displayed only after the mobile card is inserted into the alarm box.

3.4 Configuring the Alarm Box

The IP address, subnet mask, and UDP port of the alarm box can be configured on the LCD screen. If the alarm box interacts with the alarm server through TCP, the TCP port should be configured on the alarm server.

3.4.1 Setting the IP Address

Purpose

The default IP address of the alarm box is 128.0.0.127. The alarm box and the alarm server should reside in the same network segment (for example, the server IP address is 192.176.120.129, and thus the alarm box IP address is 192.176.120.254). Otherwise, a router needs to be deployed between them and routing information should be configured in the alarm box. For details, see 6.2 and 6.3.

Prerequisites

- The IP address of the alarm server is already known and network planning is made accordingly.
- The alarm box is connected to the alarm server through the network cable.

Steps

1. On the alarm box panel, press **Menu.** The main menu appears on the LCD screen.
2. Select **Parameter Set** by pressing ▲ or ▼, as shown in Figure 3.4-1.

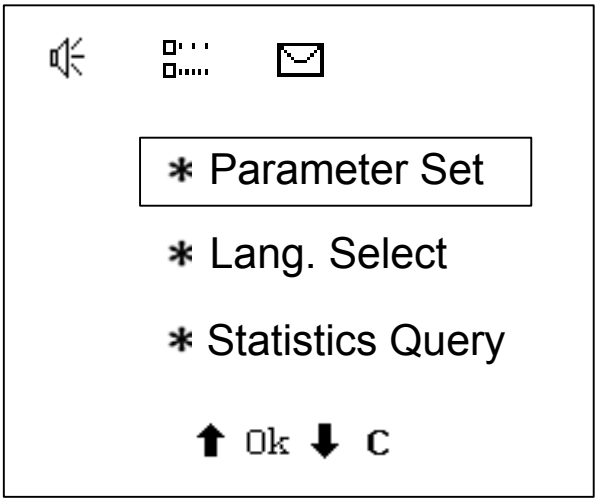


Figure 3.4-1 Alarm Box Main Menu

3. Press **OK**. The parameter setting sub-menu appears, as shown in Figure 3.4-2.

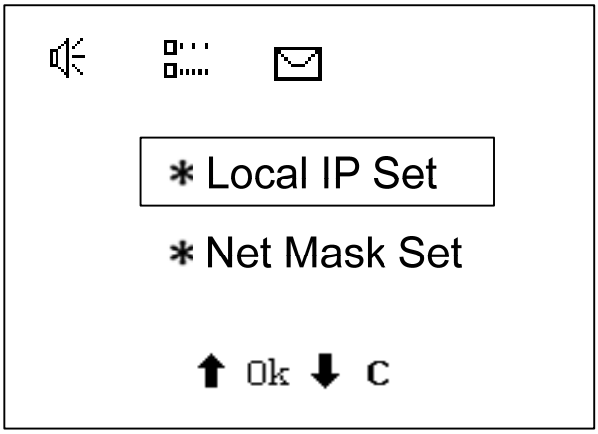


Figure 3.4-2 Parameter Setting Sub-Menu

4. Select **Local IP Set** and press **OK**. The IP address setting page appears.

Use the existing IP address	Step 5
Set a new IP address	Step 6

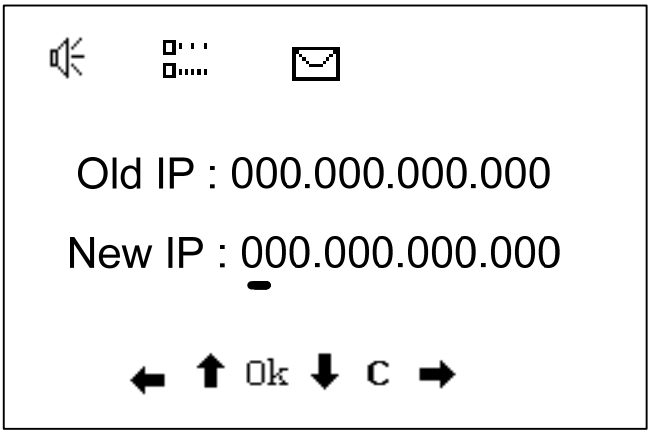


Figure 3.4-3 Setting the IP Address

5. To use the existing IP address, press **Cancel** to return to the previous menu.
6. To set a new IP, follow the steps below:
   1) Move the cursor to the IP address field to be modified by pressing ◄ or ►.
   2) Press ▲ or ▼ to modify the field.

3) Press **OK** to validate the new settings.

3.4.2 Setting the Subnet Mask

Purpose

The subnet mask of the alarm box needs to be configured. The default value is 255.0.0.0.

Prerequisites

- The alarm box is connected to the alarm server through the network cable.

Steps

1. On the alarm box panel, press **Menu**. The main menu appears on the LCD screen.
2. Select **Parameter Set > Net Mask Set**. The subnet mask setting page appears.

   By default, the subnet mask is 5000.

Use the existing subnet mask	Step 3
Set a new subnet mask	Step 4

3. To use the existing subnet mask, press **Cancel** to return to the previous menu.
4. To set a new subnet mask, follow the steps below:
   1) Move the cursor to the subnet mask field to be modified by pressing ◄ or ►.
   2) Press ▲ or ▼ to modify the field.
   3) Press **OK** to validate the new settings.

3.4.3 Setting the UDP Port

Purpose

The UDP port needs to be configured on the alarm box if the alarm box interacts with the alarm server through UDP. The default UDP port is 5000.

Prerequisites

- The alarm box is connected to the alarm server through the network cable.

Steps

1. In the alarm box panel, press **Menu**. The main menu appears on the LCD screen.
2. Select **Parameter Set** > **UDP link Port**. The UDP setting page appears.

   By default, the UDP port is 5000.

Use the existing UDP port	Step 3
Set a new UDP port	Step 4

3. To use the existing UDP port, press **Cancel** to return to the previous menu.
4. To set a new UDP port, follow the steps below:
   1) Move the cursor to the UDP port field to be modified by pressing ◄ or ►.
   2) Press ▲ or ▼ to modify the field.
   3) Press **OK** to validate the new settings.

Chapter 4 Common Operations

4.1 Introduction

Description

This chapter introduces what operations a user can perform on the LCD screen of the alarm box.

Contents

4.2 Setting Alarm Box Functions

Purpose

The alarm box prompts faults or other information of the current network in different ways such as sound, light, LCD display, and short messages.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. On the alarm box panel, press **Menu**. The main menu appears on the LCD screen.

   Figure 4.2-1 shows the structure of the alarm box menu.

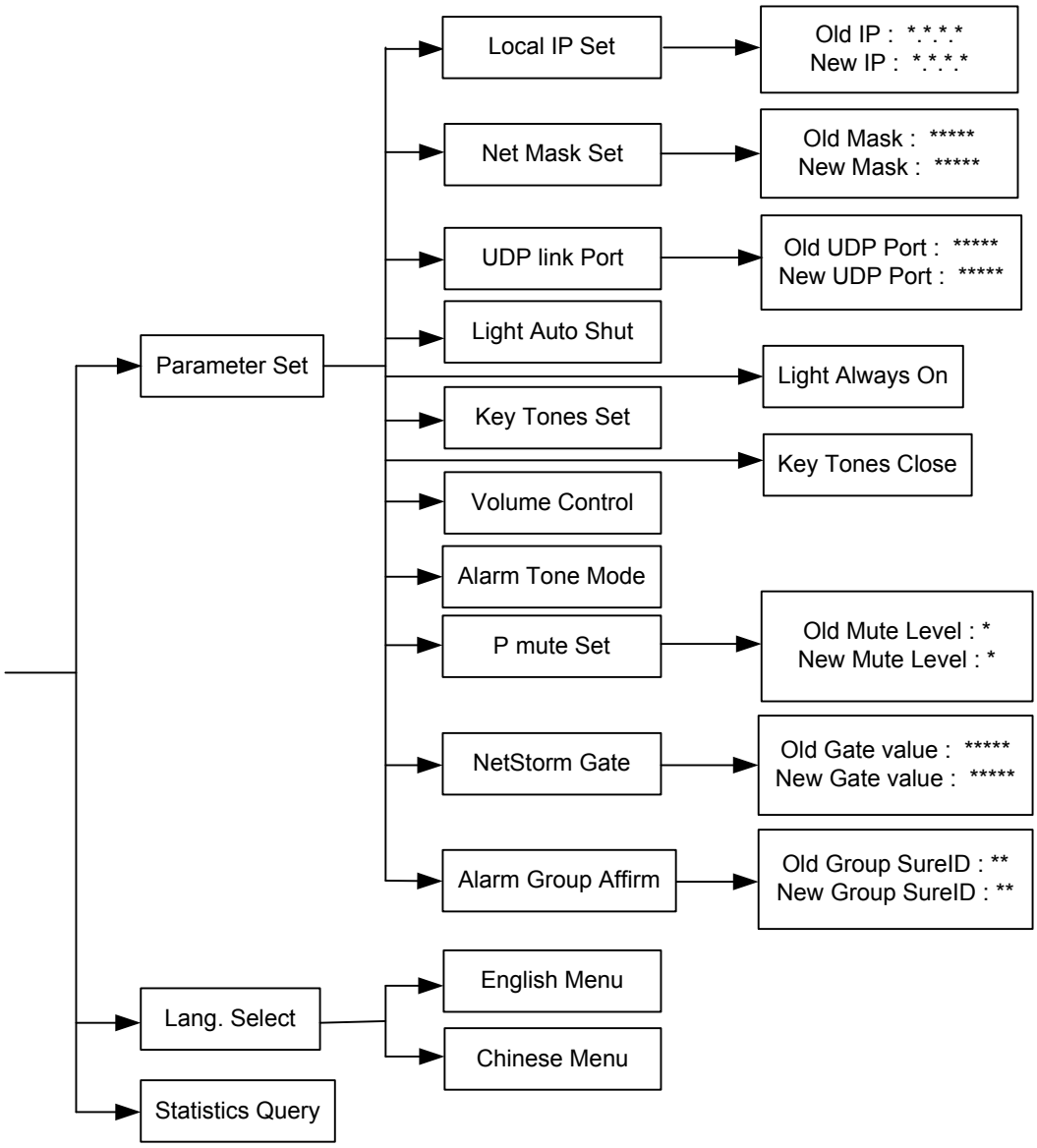


Figure 4.2-1 Alarm Box Menu

2. Navigate to the alarm box parameters that you need to modify according the preceding menu.

   The common operations are listed as follows:

- Viewing alarm statistics. For details, see 4.3.
- Setting the broadcast storm threshold. For details, see 4.4.
- Setting the sound volume. For details, see 4.5.
- Setting permanent mute. For details, see 4.6.

- Acknowledging alarms on a per-group basis. For details, see 4.7.

3. Press **OK** to validate the new settings.

4.3 Viewing Alarm Statistics

Purpose

The alarm box can make statistics of received alarms and display the statistics on the LCD screen.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. On the alarm box panel, press **Menu**. The main menu appears on the LCD screen.
2. Select **Statistics Query** and press **OK** to view the latest alarm statistics. If no statistics is generated, the system prompts “No Statistics Data! Push C to Return!” Figure 4.3-1 shows an example of the alarm statistics.

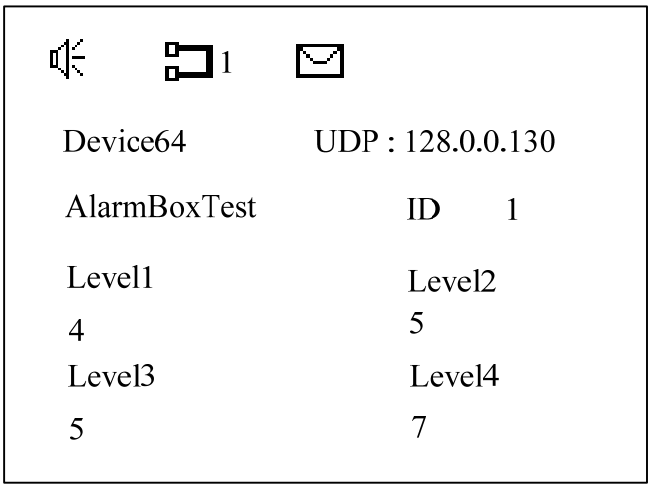


Figure 4.3-1 Alarm Statistics Example

Note:

The number besides the  icon denotes how many alarm servers are now connected to the alarm box.

3. Press ▲ or ▼ to view the alarm statistics of different alarm servers.

4.4 Setting the Broadcast Storm Threshold

Purpose

Broadcast storm detection judges whether the received broadcast packets exceed the threshold. The sampling value is generated per second. If five consecutive sampling values exceed the specified threshold, the alarm box considers that a broadcast storm occurs in the network. In the case of a broadcast storm, the alarm box generates a sound or light alarm and stops receiving broadcast packets accordingly. After a period of time, the alarm box resumes receiving the broadcast packets. If 30 consecutive sampling values are all lower than the threshold, the alarm box considers that the network operates properly.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. On the alarm box panel, press **Menu**. The main menu appears on the LCD screen.
2. Select Parameter **Set > NetStorm Gate**. The broadcast storm threshold page appears, showing the default threshold 200.
3. Set the broadcast storm threshold according to the actual situation.
   1) Move the cursor to the threshold field to be modified by pressing ◄ or ►.
   2) Press ▲ or ▼ to modify the field.
4. Press **OK** to validate the new settings.

4.5 Setting the Sound Volume

Purpose

The alarm box can generate voice prompts or buzzer sounds to alert users to handle received alarms. The alarm severities requiring sound prompts can be specified on the alarm server.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. On the alarm box panel, press **Menu.** The main menu appears on the LCD screen.
2. Select Parameter **Set > Volume Control**. The sound volume control page appears, showing the current volume.
3. Press ▲ or ▼ to increase or decrease the sound volume.
4. Press **OK** to validate the new settings.

4.6 Setting Permanent Mute

Purpose

The alarm box supports alarm-severity-based permanent mute. Alarms are classified into four severities, namely SERIOUS, MAJOR, MINOR, and WARNING (from Severity 1 to Severity 4). If an alarm severity is specified, alarms of this severity and lower severities are all muted. For example, if Severity 3 is specified, the alarm box mutes the alarms of Severity 3 and 4.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. In the alarm box panel, press **Menu**. The main menu appears on the LCD screen.

2. Select Parameter **Set > P mute Set**. The permanent mute setting page appears, showing the current muted alarm severity. 0 indicates no settings.
3. Press ▲ or ▼ to modify the alarm severity.
4. Press **OK** to validate the new settings.

Note:

If you specify Severity 1, the alarm box will not generate any sound for alarms of any severity and the alarm sound icon on the LCD screen will be changed into .

4.7 Acknowledging Alarms on a per-Group Basis

Purpose

The alarm box supports alarm acknowledgement on a per-group basis. Alarms from the alarm servers of the same group can be acknowledged in batches. The alarm box can be connected to 10 groups of alarm servers, and each group consists of one or more alarm servers that share the same alarm server indicator.

Prerequisites

- The alarm box is connected to the alarm server and basic configurations are already performed on the alarm box. For details, see Chapter 3.

Steps

1. On the alarm box panel, press **Menu**. The main menu appears on the LCD screen.
2. Select **Parameter Set > Alarm Group Affirm**. The group-based alarm acknowledgement page appears, showing the current group ID.
3. Press ▲ or ▼ to modify the group ID.
4. Press **OK** to acknowledge the alarms reported by the servers of the specified group.

Note:

When you see indicators blinking or hear the alarm sounds, you can also press the **ACK** key on alarm box panel to acknowledge the alarms.

Chapter 5 Telnet Commands

5.1 Introduction

Description

This chapter introduces how to configure the alarm box through Telnet, including the common commands, their usages, and some examples.

Contents

5.2 Getting Started

Purpose

The alarm box supports the Telnet access method that allows users to perform configurations flexibly and conveniently from a local PC or a remote location. Users need to telnet the alarm box (port 601) before running any commands.

Prerequisites

- The PC is connected to the alarm box through the network cable.
- The IP address of the alarm box is already known.

Steps

1. Configure the IP address of the PC. Make sure that the PC and the alarm box reside in the same network segment.
2. In the command line interface (CLI) of the operating system, run the **telnet** *ip-address* **601** command. Here, *ip-address* indicates the IP address of the alarm box. (To enter the Windows CLI, click **Start > Run** to open the **Run** dialog box. Then enter **cmd** and press **Enter**.)
3. Enter the correct password. By default, it is **alarmpro**.

4. To view the command list, enter **?** and press **Enter**. Table 5.2-1 lists the commonly used commands.

Table 5.2-1 Command Description

Command	Description
Basic Commands	
?	Lists available commands provided by the alarm box.
exit	Enables users to log off.
ping [Dest] [numpackets]	Sends the ping packets.
Clock [Year] [Mon] [Day] [Week] [Hour] [Min] [Sec]	Sets the current time.
tcpCfgShow	Displays the TCP connection-related information.
cfgTcpComm [Sequence] [Server IP] [Port] [Group ID]	Sets up a TCP connection with the alarm server.
udpCfgShow	Displays the UDP connection-related information.
cfgUdpComm [Sequence] [Server IP] [Group ID]	Sets up a UDP connection with the alarm server.
cfgBureauNo [Bureau No]	Sets the bureau number of the alarm box.
bureaNoCfgShow [Module No]	Displays the bureau number of the alarm box.
cfgModuleNo	Sets the module number of the alarm box.
moduleNoCfgShow	Displays the module number of the alarm box.
CfgSmsXmit	Set the parameters for sending short messages.
Routing-Related Commands	
routeshow	Displays the current routing table.
routeadd [Dest] [Gateway]	Adds routing information to the routing table.
routedelete [Dest] [Gateway]	Deletes routing information from the routing table.
routeFlashShow	Displays the routing information saved in the flash.
routeSave [Dest] [Gateway]	Saves routing information in the flash.
routeErase [Sequence]	Erases routing information from the flash.
VLAN-Related Commands	
VlanCfgShow	Displays all the VLAN configurations of the alarm box.
VlanCfgAdd [Server IP] [VLAN ID]	Adds VLAN configurations.

Command	Description
VlanCfgDel [Sequence]	Deletes VLAN configurations based on the sequence number of the configuration item.
VlanCfgBatDel [VLAN ID]	Deletes the VLAN configurations in batches based on the VLAN ID.
MultiIpCfgShow	Displays the IP addresses of the alarm box.
MultiIpCfgAdd [IP Address]	Adds an IP address to the alarm box.
MultiIpCfgDel [Sequence]	Deletes IP addresses of the alarm box based on the sequence number.

Caution:

The commands are case sensitive.

5. Configure the alarm box parameters by referring to the command descriptions.

5.3 Man-Machine Command Format

The command format is as follows:

Com-mand name	Sub-co-mand name	Parame-ter name 1	Para-meter 1	Parame-ter name 2	Para-meter 2		Parame-ter name n	Para-meter n

The items are separated by space.

The command help information describes how to use the commands. Table 5.3-1 lists the conventions of the command format.

Table 5.3-1 Command Format Conventions

Conversions	Description
/* */	Indicates the note information that does need to be entered.
Bold	Indicates the commands or keywords.
<*Italic*>	Indicates the parameters to be configured.
|	Separates options and indicates to select one option from two or more options.
[ ]	Indicates keywords or parameters in it are optional.
{ }	Indicates keywords or parameters in it are mandatory.
{x|y|z}	Indicates one of x, y, and z should be selected.

Conversions	Description
[x{y|z}]	Indicates the contents in the square brackets are optional. Moreover, if the contents in the square brackets are selected, either y or z should be used.

5.4 Command Description

Description

This section introduces the Telnet commands and their usages. These commands are mainly classified into three categories, namely basic commands, routing-related commands, and VLAN-related commands.

Contents

5.4.1 Basic Commands

5.4.1.1 ping

Command

ping

Function

This command is used to check the connectivity and reachability. You can specify the number of the ping packets.

Format

ping [Dest] [numpackets]

Parameter Description

Parameter	Description
Dest	Indicates the destination IP address. The ping command checks the connectivity between the local host and the destination.
Numpackets	Indicates the number of packets to be sent. By default, it is 3.

Example

601>**ping** *10.41.32.28*

5.4.1.2 clock

Command

clock

Function

This command is used to set the current system time.

Format

clock [Year] [Mon] [Day] [Week] [Hour] [Min] [Sec]

Example

601>**clock** *2005 9 7 3 12 20 34*

clock is adjust to 2005-9-7 Wed. 12.20.34

5.4.1.3 tcpCfgShow

Command

tcpCfgShow

Function

This command is used to view the TCP connection-related information, including the TCP port, the link status, the IP addresses of the alarm box and server, group ID, and so on.

Format

tcpCfgShow

Example

601>**tcpCfgShow**

****

LocalIp = 10.42.20.254 (IP address of the alarm box)

LocalMask = 255.255.255.0 (Subnet mask of the alarm box)

**********Sequence 0 :**********

Port0 = 5000 (TCP Port)

ServerIp0 = 195.152.115.129 (IP address of the alarm server)

Groupid0=1 (Group that the server belongs to)

Link0State:Active (Link status)

****

5.4.1.4 cfgTcpComm

Command

cfgTcpComm

Function

The alarm box can be simultaneously connected to 10 groups of alarm servers. If the alarm box interacts with an alarm server through TCP, you need to set up a TCP connection between the alarm box and the server by using the **cfgTcpComm** command.

Format

cfgTcpComm [Sequence] [Server IP] [Port] [Group ID]

Parameter Description

Parameter	Description
Sequence	Indicates the sequence number of the alarm number. The value ranges from 0 to 63.
Server IP	Indicates the IP address of the alarm server.
Port	Indicates the TCP port configured on the alarm server.
Group ID	Indicates the ID of the group that the alarm server belongs to. The value ranges from 1 to 10.

Example

601> **cfgTcpComm** *1 195.152.115.129 5000 1*

****

TcpServer1 Set succeed !!!

****

5.4.1.5 udpCfgShow

Command

udpCfgShow

Function

This command is used to view the UDP connection-related information, including the UDP port, the link status, the IP address of the alarm server, group ID, and so on.

Format

udpCfgShow

Example

601>**udpCfgShow**

```
************************************************************
***********Sequence 64 :****************
Port        = 5000                    (UDP port)
ServerIp64 = 195.152.115.129          (IP address of the alarm server)
Groupid64=0                           (Group that the server belongs to)
Link64State:Active                    (Link status)
************************************************************
```

5.4.1.6 cfgUdpComm

Command

cfgUdpComm

Function

The alarm box can be simultaneously connected to 10 groups of alarm servers. If the alarm box interacts with an alarm server through UDP, you need to set up a UDP connection between the alarm box and the server by using the **cfgUdpComm** command.

Format

udpTcpComm [Sequence] [Server IP] [Group ID]

Parameter Description

Parameter	Description
Sequence	Indicates the sequence number of the alarm number. The value ranges from 64 to 127.
Server IP	Indicates the IP address of the alarm server.
Group ID	Indicates the ID of the group that the alarm server belongs to. The value ranges from 1 to 10.

Example

601>**cfgUdpComm** *64 195.152.115.128 1*

****

UdpServer1 Set succeed !!!

****

5.4.1.7 cfgBureauNo

Command

cfgBureauNo

Function

This command is used to assign a bureau number to the alarm box. In the case that an alarm server is connected to more than one alarm box, the server distinguishes them by their bureau numbers and module numbers.

Format

cfgBureauNo [Bureau No]

Parameter Description

Parameter	Description
Bureau No	Indicates the bureau number assigned to the alarm box.

Example

601> **cfgBureauNo** *1*

****

Config BureauNo Sucessfully !!!

****

5.4.1.8 bureauNoCfgShow

Command

bureauNoCfgShow

Function

This command is used to view the bureau number assigned to the alarm box. In the case that an alarm server is connected to more than one alarm box, the server distinguishes them by their bureau numbers and module numbers.

Format

bureauNoCfgShow

Example

601> **bureauNoCfgShow**

****

BureauNo=1

****

5.4.1.9 cfgModuleNo

Command

cfgModuleNo

Function

This command is used to assign a module number to the alarm box. In the case that an alarm server is connected to more than one alarm box, the server distinguishes them by their bureau numbers and module numbers.

Format

cfgModuleNo [Module No]

Parameter Description

Parameter	Description
Module No	Indicates the module number assigned to the alarm box.

Example

601> **cfgModuleNo** *254*

****

Config ModuleNo Sucessfully !!!

****

5.4.1.10 moduleNoCfgShow

Command

moduleNoCfgShow

Function

This command is used to view the module number assigned to the alarm box. In the case that an alarm server is connected to more than one alarm box, the server distinguishes them by their bureau numbers and module numbers.

Format

moduleNoCfgShow

Example

601> **moduleNoCfgShow**

****

ModuleNo = 254

****

5.4.1.11 CfgSmsXmit

Command

CfgSmsXmit

Function

This command is used to set the parameters for sending short messages.

The country code and prefix need to be configured for the mobile number delivered by the alarm box, and the short messages are sent by ACSII. If the alarm box is used in China and needs to send short messages to a Chinese

mobile phone, then the country code and prefix need not be configured and the short messages are sent by Unicode.

Run the **CfgSmsXmit** command at the command prompt of **601>** to display the parameters of current configuration.

601> **CfgSmsXmit**

This command displays the parameters of current configuration and shows “Change Parameters? [<CR> to cancel ,'y' or 'Y' to continue]” at the end of the list.

1. Follow the steps below to modify parameters:

- Enter **Y** or **y** and press **Enter**. Follow the prompt to modify each parameter. Enter the new value directly.
- If the current parameter needs no modification, press **Enter**.

2. Save the modifications

After parameters are modified, the system displays the latest parameter list and shows “Save to flash? type 'y' or 'Y' to continue, other to quit!” at the end of the parameter list.

- Enter **Y** or **y** and press **Enter**. The settings of parameters are saved in the flash.
- Enter **q** to quit the current configuration process.

Format

CfgSmsXmit

Parameter Description

Parameter	Description	Parameter configuration recommended for commissioning		
		Type 1*	Type 2*	Type 3*
Sms Content Xmit Type	Short message sending format	Unicode	Unicode or ASCII	ASCII
Sms Country Code	Country code before the mobile number	NULL	NULL	Country code

Sms International Word	International prefix of mobile number	NULL	NULL	International prefix

- Type 1: is applicable to Chinese short messages that can meet the following requirements: They are generally sent by alarm boxes that are deployed and used in China; the mobile number consists of 11 or less digits and is configured in the alarm server of Chinese version.
- Type 2: is applicable to English short messages that can meet the following requirements: They are generally sent by alarm boxes that are deployed and used outside China; when short messages are sent over the home network, the mobile number consists of 11 or less digits and it is configured on the alarm server of English version.
- Type 3: is applicable to English short messages that can meet the following requirements: They are generally sent by alarm boxes that are deployed and used outside China; when short messages are sent in the home network, the mobile number consists of more than 11 digits. In this case, the unchanged part of the number is configured in the country code, and the other part of the number consists of 11 or less digits and can be configured in the alarm server of English version.

For example, the mobile number is 012345678901. You can change the country code into 0, and then configure the 11-digit number 12345678901 in the alarm server. The alarm box will add the country code 0 to the 11-digit number delivered from the alarm server and send short messages to the 12-digit number 012345678901.

Example

601>**CfgSmsXmit**

Parameters read from flash:

********** Config Parameters Display**********

Sms International Word : NULL

Sms Country Code : NULL

Sms Content Xmit Type : Unicode

********** end **********

Change Parameters? [<CR> to cancel ,'y' or 'Y' to continue]

Y

Input SMS International word? [<CR> to cancel,'c' to clear]

+

Input SMS Country Code? [<CR> to cancel,'c' to clear]

86

Change Sms Send Type? [<CR> to cancel,'0'--Unicode,'1'--ASCII]

0

Save to flash? type 'y'or 'Y' to continue,other to quit!

Y

5.4.2 Routing-Related Commands

5.4.2.1 routeshow

Command

routeshow

Function

This command is used to view the current routing table. After you delete or add a route, it is recommended to run this command to view the routing table and check the modifications.

Format

routeshow

Example

601>**routeshow**

ROUTE NET TABLE

destination gateway flags Refcnt Use Interface

```
------------------------------------------------------------------------
10.0.0.0          10.41.32.254        101      0        0        cpm0
195.152.115.0     195.152.115.254     101      0        0        cpm0
------------------------------------------------------------------------
ROUTE HOST TABLE
destination       gateway             flags    Refcnt   Use      Interface
------------------------------------------------------------------------
10.41.32.254      10.41.32.28          7       0        0        cpm0
127.0.0.1         127.0.0.1            5       1        0        lo0
------------------------------------------------------------------------
```

5.4.2.2 routeadd

Command

routeadd

Function

This command is used to add a route. The added route, however, is not stored in the flash and is cleared upon restart of the alarm box.

Format

routeadd [Dest] [Gateway]

Parameter Description

Parameter	Description
Dest	Indicates the destination IP address for which a route needs to be added.
Gateway	Indicates the gateway IP address.

Example

601>**routeadd** *10.41.32.254 10.41.32.28*

are sure add route 10.41.32.28 for 10.41.32.254 ...? [y] y

add route 10.41.32.28 for 10.41.32.254 success !!!

Follow-Up

Run the **routeshow** command to view the routing table after you add a route.

5.4.2.3 routedelete

Command

routedelete

Function

This command is used to delete a route from the current routing table.

Format

routedelete [Dest] [Gateway]

Parameter Description

Parameter	Description
Dest	Indicates the destination IP address for which the route needs to be deleted.
Gateway	Indicates the gateway IP address.

Example

601>**routedelete** *10.41.32.254 10.41.32.28*

are sure delete route 10.41.32.28 for 10.41.32.254 ...? [y] y

delete route 10.41.32.28 for 10.41.32.254 success !!!

Follow-Up

Run the **routeshow** command to view the routing table after you delete a route.

5.4.2.4 routeFlashShow

Command

routeFlashShow

Function

This command is used to view the routing information saved in the flash. After the alarm box is powered on, it automatically loads the routing information.

Format

routeFlashShow

Example

601>**routeFlashShow**

No.******destination*************gateway************

1 10.41.32.254 10.41.32.28

****

5.4.2.5 routeSave

Command

routeSave

Function

This command is used to save routing information in the flash. After the alarm box is powered on, the saved routing information can be loaded from the flash to the alarm box. To add routing information to the flash, you can run the **routeadd** command.

Format

routeSave [Dest] [Gateway]

Parameter Description

Parameter	Description
Dest	Indicates the destination IP address for which the route needs to be saved in the flash.
Gateway	Indicates the gateway IP address.

Example

601>**routeSave** *10.41.32.254 10.41.32.28*

route saved success!

Follow-Up

Run the **routeFlashShow** command to view the routing information saved in the flash.

5.4.2.6 routeErase

Command

routeErase

Function

This command is used to erase the routing information from the flash.

Format

routeErase [Sequence]

Parameter Description

Parameter	Description
Sequence	Indicates the sequence number of the route saved in the flash.

Example

601>**routeErase** *1*

route erase success!

Follow-Up

Run the **routeFlashShow** command to view the routing information saved in the flash after you erase the routing information from the flash.

5.4.3 VLAN-Related Commands

5.4.3.1 VlanCfgShow

Command

VlanCfgShow

Function

This command is used to view all the VLAN configurations in the alarm box.

Format

VlanCfgShow

Example

601>**VlanCfgShow**

sequence.****IpAddress**********VlanId**********

1 10.44.120.2 2

2	10.44.120.3	3
3	10.44.120.4	4
4	10.44.120.12	2
5	10.44.120.13	4094

****

5.4.3.2 VlanCfgAdd

Command

VlanCfgAdd

Function

This command is used to add VLAN configurations of alarm servers.

Format

VlanCfgAdd [Server IP] [VLAN ID]

Parameter Description

Parameter	Description
Server IP	Indicates the IP address of the alarm server.
VLAN ID	Indicates the ID of the VLAN that the alarm server belongs to. The value cannot be 0 or 0xfff and cannot be greater than 0xfff.

Example

601>**VlanCfgAdd** *10.44.120.2 2*

vlancfg add success!

Caution:

Each IP address can be configured with one VLAN ID only. If multiple VLAN IDs are assigned to an IP address, the system prompts that adding VLAN IDs fails.

Follow-Up

Run the **VlanCfgShow** command to view current VLAN configurations after you configure VLAN IDs of the alarm servers.

5.4.3.3 VlanCfgDel

Command

VlanCfgDel

Function

This command is used to delete VLAN configurations of alarm servers according to the sequence number. Each VLAN configuration item in the alarm box is assigned a sequence number automatically when it is added to the alarm box.

Format

VlanCfgDel [Sequence]

Parameter Description

Parameter	Description
Sequence	Indicates the sequence number of the VLAN configuration.

Example

601>**VlanCfgDel** *2*

VlanCfg delete Success!

Follow-Up

Run the **VlanCfgShow** command to view current VLAN configurations after you delete the VLAN configuration that has the specified sequence number.

5.4.3.4 VlanCfgBatDel

Command

VlanCfgBatDel

Function

This command is used to delete VLAN configurations of alarm servers in batches according to the VLAN ID.

Format

VlanCfgBatDel [VLAN ID]

Parameter Description

Parameter	Description
VLAN ID	Indicates the ID of the VLAN that alarm servers belongs to. All the alarm servers belonging to the specified VLAN will be deleted.

Example

601>**VlanCfgBatDel** *2*

VlanCfg delete Success!

Follow-Up

Run the **VlanCfgShow** command to view current VLAN configurations after you delete the VLAN configurations that have the specified VLAN ID.

5.4.3.5 MultiIpCfgShow

Command

MultiIpCfgShow

Function

This command is used to view the IP configuration of the alarm box.

Format

MultiIpCfgShow

Example

601>**MultiIpCfgShow**

```
***sequence.******IpAddr**********NetMask***********
      1              10.44.10.254          255.0.0.0
      2              128.16.11.254         255.0.0.0
      3              192.168.1.254         255.0.0.0
**************************************************
```

5.4.3.6 MultiIpCfgAdd

Command

MultiIpCfgAdd

Function

This command is used to configure the IP address of the alarm box that can simultaneously have multiple IP addresses that belong to different network segments but share the same subnet mask.

Format

MultiIpCfgAdd [IP Address]

Parameter Description

Parameter	Description
IP Address	Indicates the IP address of the alarm box.

Example

601>**MultiIpCfgAdd** *10.44.10.254*

IpAddr add success!

601>**MultiIpCfgAdd** *128.16.11.254*

IpAddr add success!

601>**MultiIpCfgAdd** *192.168.1.254*

IpAddr add success!

 Caution:

An IP address cannot be added repeatedly. If an IP address added using this command is the same with that configured on the LCD screen, the system prompts that adding the IP address fails.

Follow-Up

Run the **MultiIpCfgShow** command to view current IP configurations of the alarm box after you configure the IP address of the alarm box.

5.4.3.7 MultiIpCfgDel

Command

MultiIpCfgDel

Function

This command is used to delete the IP configurations of the alarm box according to the sequence number. Each IP address is assigned a sequence number when it is added to the alarm box.

Format

MultiIpCfgDel [Sequence]

Parameter Description

Parameter	Description
Sequence	Indicates the sequence number of the IP address of the alarm box.

Example

601>**MultiIpCfgDel** *1*

MultiIpCfg delete success!

Caution:

Assume that the local IP address of the alarm box is changed through the LCD screen and the new local IP address is the same with the one added using the **MultiIpCfgAdd** command. In this case, the **MultiIpCfgDel** command can delete the IP address from the multi-IP configurations and from the flash but will not delete the local IP address that you can view on the LCD screen.

Follow-Up

Run the **MultiIpCfgShow** command to view current IP configurations of the alarm box after you delete the IP address of the specified sequence number.

Chapter 6 Alarm Box Networking Scenarios

6.1 Introduction

Description

This chapter introduces the networking scenarios of the alarm box, including the remote deployment, multi-office-in-one, and cross-VLAN alarming. An alarm box can be simultaneously connected to more than on alarm server, and vice versa. The alarm box and the alarm server can reside in the same network segment or different ones. Moreover, an alarm box can be connected to alarm servers from different VLANs.

Contents

6.2 Remote Deployment Networking Scenario

Purpose

In remote deployment, the alarm box and the alarm server reside in different network segments. Remote deployment enables an alarm server to connect to not only local alarm boxes (the server and alarm boxes reside in the same network segment) but also remote ones. In the case of a remote alarm box, routing information needs to be configured on the alarm box.

For example, the alarm server 193.232.54.129 resides in the 193.232.54.* segment. The remote alarm box resides in the 192.168.60.* segment. Both segments are connected to each other through Router, as shown in Figure 6.2-1.

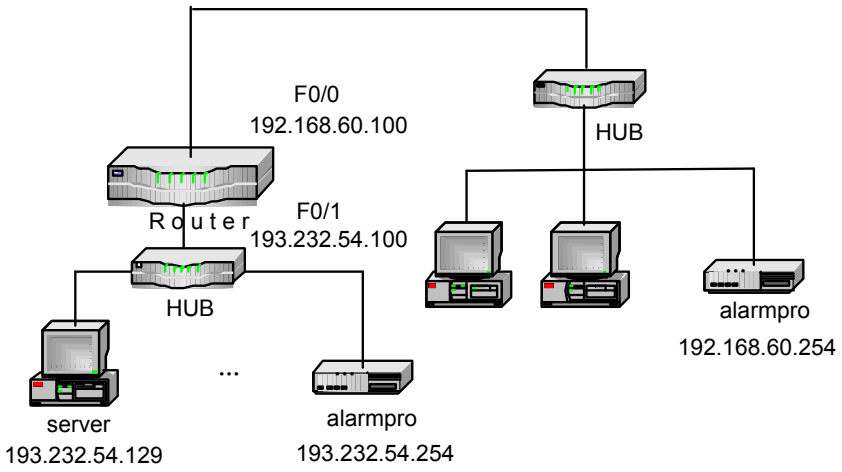


Figure 6.2-1 Remote Deployment Networking Diagram

Prerequisites

- Network planning is made as required.

Procedure

1. In the case of TCP, configure the local alarm box to set up a TCP connection between the alarm box and the alarm server. For details, see 6.2.1.
2. In the case of UDP, configure the local alarm box to set up a UDP connection between the alarm box and the alarm server. For details, see 6.2.2.
3. Set up the TCP/UDP connection between the remote alarm box and the alarm server, and configure the routing information on the remote alarm box. For details, see 6.2.3.

6.2.1 Configuring the Local Alarm Box (TCP)

Purpose

The local alarm box and the alarm server reside in the same network segment. If they interact with each other through TCP, you need to configure the TCP connection on the local alarm box through Telnet, including the TCP port, IP address of the alarm server, and group ID of the alarm server.

Prerequisites

- The local alarm box is connected to the alarm server or the hub.
- TCP port 6700 is configured on the alarm server.
- You have telneted the local alarm box from the alarm server. For details, see 5.2.

Steps

1. Configure the alarm server 193.232.54.129 in the local alarm box.

   601> **cfgTcpComm** *1 193.232.54.129 6700 1*

   ****

   TcpServer1 Set succeed !!!

   ****

2. View the configurations of the current alarm server.

   601>**tcpCfgShow**

   ****

   LocalIp = 193.232.54.254 (IP address of the alarm box)

   LocalMask = 255.255.255.0 (Subnet mask of the alarm box)

   **********Sequence 1 :**********

   Port1 = 6700

   ServerIp1 = 193.232.54.129

   GroupId1 = 1

   link1 state: Active (The alarm box is connected to the alarm server)

3. Run the **ping** command to check the connectivity between the alarm box and the server.

Follow-Up

Generally, the remote alarm box and the alarm server reside in different network segments. For how to configure the remote alarm box, see 6.2.3.

6.2.2 Configuring the Local Alarm Box (UDP)

Purpose

The local alarm box and the alarm server reside in the same network segment. If they interact with each other through UDP, you need to configure the UDP port on the LCD screen. Then configure the UDP connection on the local alarm box through Telnet, including the IP address of the alarm server and group ID of the alarm server.

Prerequisites

- The local alarm box is connected to the alarm server or the hub.
- UDP port is configured on the alarm server (The default port 5000 is used in this example). For details, see 3.4.3.
- You have telneted the local alarm box from the alarm server. For details, 5.2.

Steps

1. Configure the alarm server 193.232.54.129 in the local alarm box.

   601>**cfgUdpComm** *64 193.232.54.129 1*

   ****

   UdpServer1 Set succeed !!!

   ****

2. View the configurations of the current alarm server.

   601>**udpCfgShow**

   ****

   **********Sequence 64 :**********

   Port = 5000 (UDP Port)

   ServerIp64 = 193.232.54.129 (IP address of the alarm server)

   Groupid64=1 (IP address of the alarm server)

   Link64State:Active (Link status)

   ****

3. Run the **ping** command to check the connectivity between the alarm box and the server.

Follow-Up

Generally, the remote alarm box and the alarm server reside in different network segments. For how to configure the remote alarm box, see 6.2.3.

6.2.3 Configuring the Remote Alarm Box

Purpose

You need to telnet the alarm box from a PC that resides in the same network segment with the alarm box. Then configure the TCP or UDP connection on the alarm box. Moreover, routing information should be configured on the alarm server. The routing information can be saved in the flash so that it will not be cleared upon restart of the alarm box.

Prerequisites

- The IP address of the PC connected to the alarm box is already configured.
- TCP port 6700 is configured on the alarm server if the alarm server interacts with the alarm box through TCP.
- UPD port is configured on the alarm box if the alarm server interacts with the alarm box through UDP. The default port 5000 is used in this example.
- You have telneted the alarm box from the PC. For details, see 5.2.

Steps

1. Configure the alarm server 193.232.54.129 in the alarm box.

- In the case of TCP, run the following command:

  601> **cfgTcpComm** 3 *193.232.54.129 6700 3*

  ****

  TcpServer1 Set succeed !!!

  ****

- In the case of UDP, run the following command:

601>**cfgUdpComm** *66 193.232.54.129 3*

****

UdpServer1 Set succeed !!!

****

2. Check the routing information saved in the flash.

   601>**routeFlashShow**

3. Add the necessary route from the alarm box to the router.

   601>**routeSave** *193.232.54.129 192.168.60.100*

4. Check if the routing information is added to the flash successfully.

   601>**routeFlashShow**

   No.******destination*************gateway*****

   1 193.232.54.129 192.168.60.100

   ****

5. Restart the alarm box. The routing information takes effect.
6. Telnet the alarm box from the alarm server, and then run the **ping** command to check the connectivity between the alarm box and the server.

Follow-Up

To delete the routing information, run the **routeErase** [*Sequence*] command. Here, *sequence* indicates the sequence number of the routing information saved in the flash.

6.3 Multi-Office-in-One Networking

Purpose

Multi-office-in-one means that up to 10 groups of alarm servers can be connected to an alarm box. The alarm servers may be located in different network segments. Therefore, remote deployment should be employed in the multi-office-in-one networking.

Assume that five alarm servers are connected to the alarm box. Only one of the servers resides in the network segment 192.168.60.* where the alarm box is located, as shown in Figure 6.3-1.

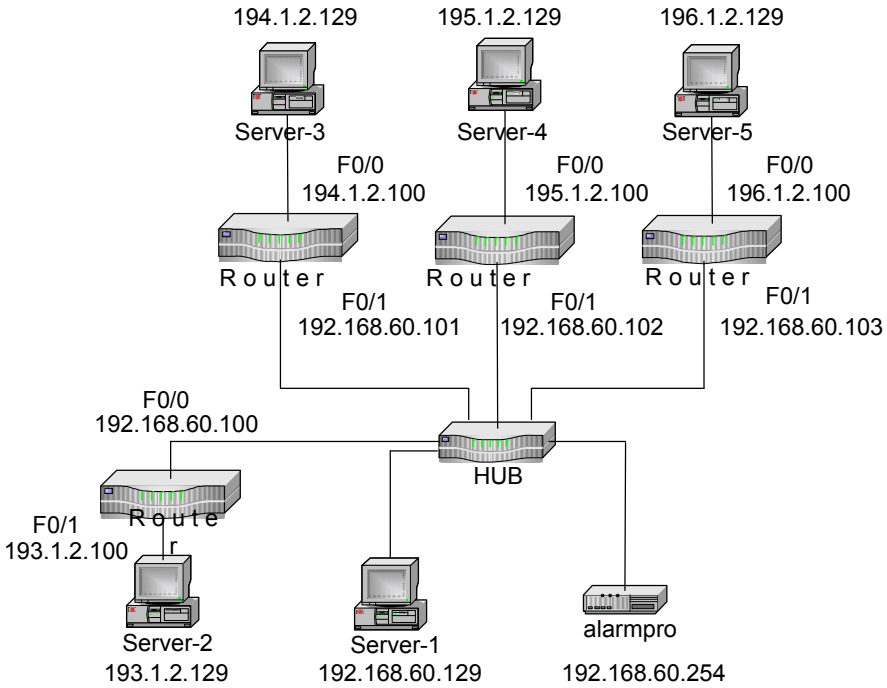


Figure 6.3-1 Multi-Office-in-One Networking Diagram

Prerequisites

- TCP port 5000 is already configured on each of the alarm servers.
- The IP address of the PC connected to the alarm box is already configured.
- You have telneted the local alarm box from the PC. For details, see 5.2.

Steps

1. Configure the IP address, port number, and group ID of each alarm server.

   601>**cfgTcpComm** *1 192.168.60.129 5000 1*

   601>**cfgTcpComm** *1 193.1.2.129 5000 2*

   601>**cfgTcpComm** *2 194.1.2.129 5000 3*

601>**cfgTcpComm** *3 195.1.2.129 5000 4*

601>**cfgTcpComm** *4 196.1.2.129 5000 5*

Note:

If the alarm box interacts with alarm servers through UDP, run the **cfgUdpComm** command to configure the UDP connection. For details, see 5.4.1.6.

2. View the configurations of the alarm servers.

601>**tcpCfgShow**

****

LocalIp = 192.168.60.254 (IP address of the alarm box)

LocalMask = 255.255.255.0 (Subnet mask of the alarm box)

**********Sequence 1 :**********

Port1 = 5000

ServerIp1 = 192.168.60.129

GroupId1 = 1

link1 state: Active (The alarm box is connected to the first alarm box)

**********Sequence2 :**********

Port2 = 5000

ServerIp2 = 193.1.2.129

GroupId2 = 2

link2 state: Break (The alarm box cannot interact with the second alarm server as the route to the server is not configured yet)

**********Sequence 3 :**********

Port3 = 5000

ServerIp3 = 194.1.2.129

GroupId3 = 3

link3 state: Break

**********Sequence 4 :**********

Port4 = 5000

ServerIp4 = 195.1.2.129

GroupId4 = 4

link4 state: Break

**********Sequence 5 :**********

Port5 = 5000

ServerIp5 = 196.1.2.129

GroupId5 = 5

link5 state: Break

****

3. Configure the routing information for the second to fifth servers.

601>**routeSave** *193.1.2.129 192.168.60.100*

601>**routeSave** *194.1.2.129 192.168.60.101*

601>**routeSave** *195.1.2.129 192.168.60.102*

601>**routeSave** *196.1.2.129 192.168.60.103*

4. Check if the routing information is saved successfully in the flash.

601>**routeFlashShow**

sequence.***destination**********gateway**********

1	193.1.2.129	192.168.60.100
2	194.1.2.129	192.168.60.101
3	195.1.2.129	192.168.60.102
4	196.1.2.129	192.168.60.103

****

5. Restart the alarm box. The routing information takes effect.
6. Telnet the alarm box from the alarm server, and then run the **ping** command to check the connectivity between the alarm box and the server.

6.4 Cross-VLAN Networking

Purpose

The alarm box can interact with alarm servers in different VLANs through a layer-2 switch, isolating the servers from each other.

Assume that the following three alarm servers are connected to the alarm box:

- Server 192.168.1.1
- Server 10.44.40.7
- Server 126.11.152.6

Moreover, the local IP of the alarm box is configured to 10.44.40.254 and the alarm box is connected to the trunk interface of the layer-2 switch, as shown in Figure 6.4-1.

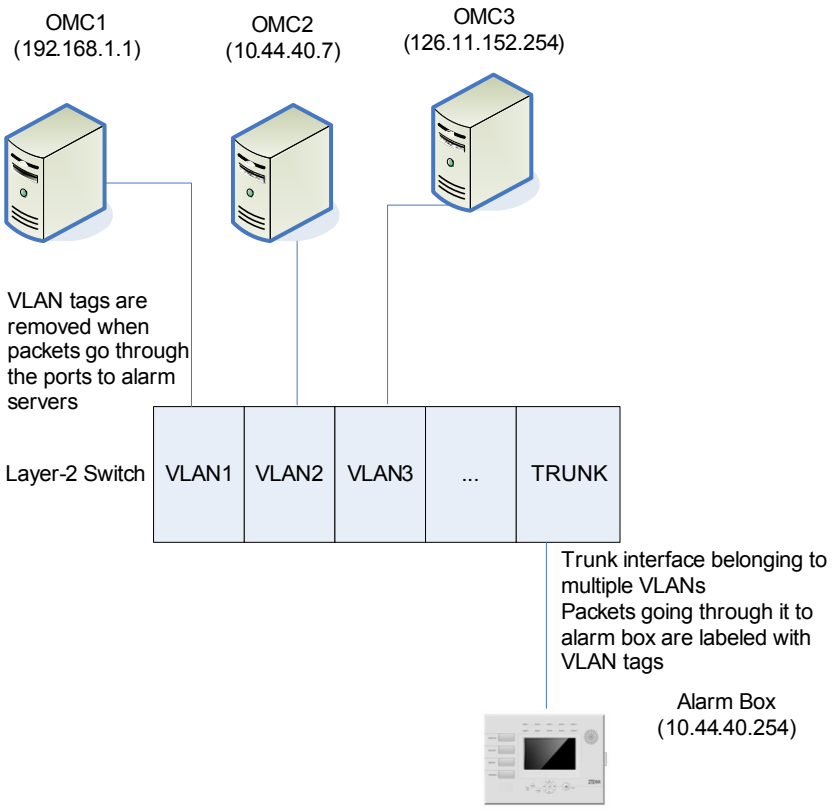


Figure 6.4-1 Cross-VLAN Networking Diagram

Prerequisites

- The IP address of the PC connected to the alarm box is already configured.
- You have telneted the alarm box from the PC. For details, see 5.2.

Steps

1. Perform the VLAN configurations on the alarm box: Configure the VLAN ID of each alarm server.

   601> **VlanCfgAdd** *192.168.1.1 1*

   vlancfg add success!

   601> **VlanCfgAdd** *10.44.40.7 2*

   vlancfg add success!

601> **VlanCfgAdd** *126.11.152.254 3*

vlancfg add success!

601>**VlanCfgShow**

sequence.****IpAddress**********VlanId**********

1 192.168.1.1 1

2 10.44.40.7 2

3 126.11.152.254 3

****

2. Configure the IP address of the alarm box. As OMC1, OMC3, and the alarm box reside in different network segments, you need to configure two IP addresses for the alarm box so that the alarm box can interact with the two servers. Configure the IP addresses to 192.168.1.254 and 10.44.40.253 respectively.

601>**MultiIpCfgAdd** *126.11.152.253*

IpAddr add success!

601>**MultiIpCfgAdd** *192.168.1.254*

IpAddr add success!

601>**MultiIpCfgShow**

sequence.***IpAddr**********NetMask**********

1 126.11.152.253 255.255.0.0

2 192.168.1.254 255.255.0.0

****

601>**routeshow**

ROUTE NET TABLE

destination gateway flags Refcnt Use Interface

10.40.0.0 40.120.254 101 0 0 cpm0

126.11.0.0 126.11.152.253 101 0 0 cpm0

192.168.0.0 192.168.1.254 101 0 0 cpm0

ROUTE HOST TABLE

destination gateway flags Refcnt Use Interface

10.44.120.2 23.3.3.3 7 0 0 cpm0

127.0.0.1 127.0.0.1 5 1 0 lo0

---

3. Modify the subnet mask on the LCD screen of the alarm box. Ensure the subnet mask can support communications between the alarm box and each of the alarm servers. In this example, configure the subnet mask to 255.255.255.0.
4. Run the **cfgTcpComm** or **cfgUdpComm** command to set up a TCP or UDP connection between the alarm box and each alarm server. Assign different group IDs to the alarm servers.
5. Restart the alarm box.
6. Perform necessary configurations on the alarm servers and connect them to the alarm box. The networking configuration is complete.

Appendix A Alarm Box Upgrade

A.1 Introduction

Description

This chapter describes how to upgrade the alarm box, including fonts, alarm sound (voice), the boot program and the version program.

Contents

A.2 Setting FTP Parameters

Purpose

The version files are transferred from the server to the flash disk of the alarm box through FTP. These files are loaded to the RAM before they are run. Therefore, FTP parameters must be set correctly.

Prerequisites

- The path of the version files is known.
- An operation and maintenance console is deployed as the FTP server where the version files of the alarm box are stored.

Steps

1. On the FTP server, run the **WFTPD.exe** file. Select **Security > User/rights**.
2. Click **New User…**. The new user dialog box appears.
3. Enter the user name **zxwb** and click **OK.**
4. In the pop-up dialog box, enter the password **zxwb** and click **OK**.
5. Enter the directory that stores the version files to be downloaded.

For example, the **D:\ZXWB** directory includes the font file, the version program, the boot program, and the voice file, as shown in Figure A.2-1.

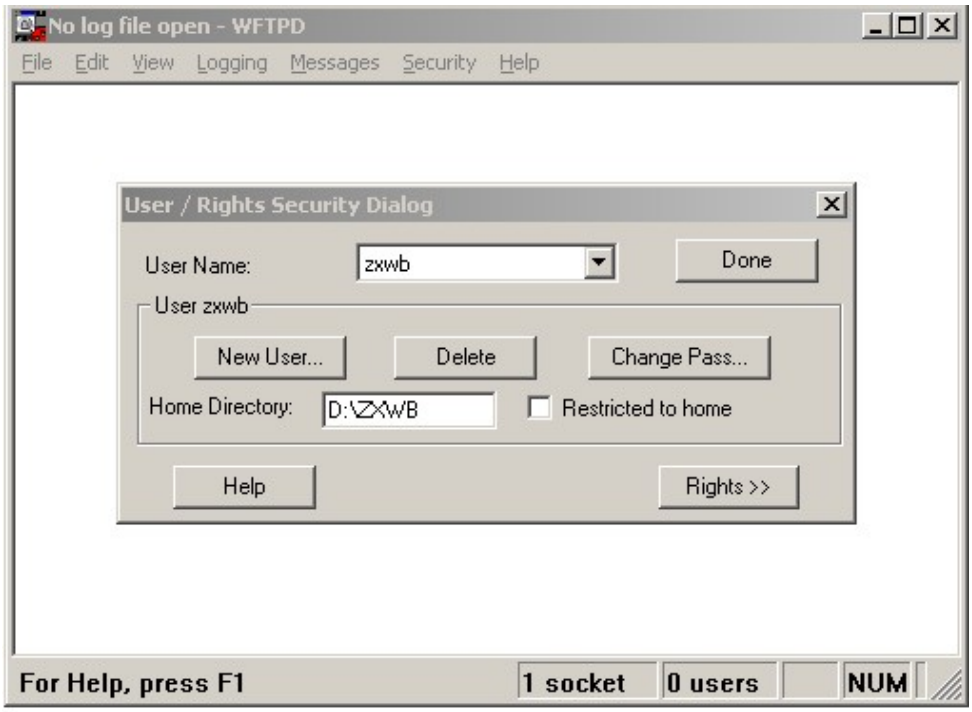


Figure A.2-1 Setting the Path of Files to Be Downloaded

6. Click **Done** to complete the settings of the new user and file path.
7. Select **Logging > logging Options**, and then select all the options, as shown in Figure A.2-2. The download status can be displayed during the download process.

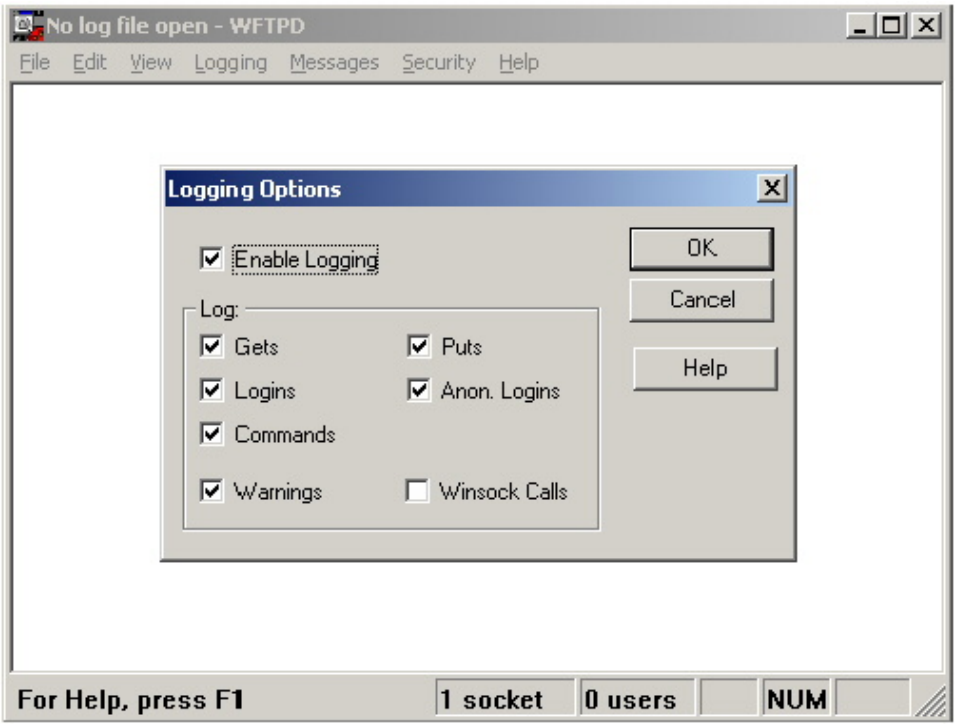


Figure A.2-2 Setting the Log Options

Follow-Up

You need to set the HyperTerminal and load the version files. For details, see A.3.

A.3 Loading Version Files

Purpose

The version files include the LCD display font file, the alarm sound (voice) file, the boot program, and the version program. You can download these version files by using the HyperTerminal through FTP. The download process is divided into the following:

1. Configure the HyperTerminal (Step 1 - 5).
2. Create the flash file system in the alarm box (Step 6).
3. Set the network parameters (Step 7 - 10).
4. Download the boot program, font file, alarm sound file, and version program (Step 11 - 17).

Prerequisites

- The version files should be copied to the specified FTP directory.

Steps

1. The operation and maintenance console is connected to the alarm box using a RS232 serial cable through the LAN, as shown in Figure A.3-1.

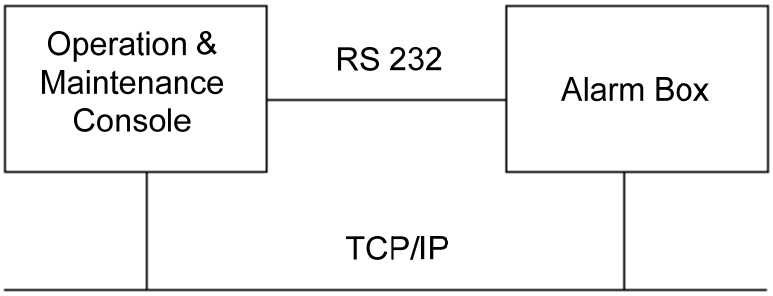


Figure A.3-1 Hardware Connection

2. Start the HyperTerminal and select the available port COM1.
3. Set the properties of COM1, as shown in Figure A.3-2.

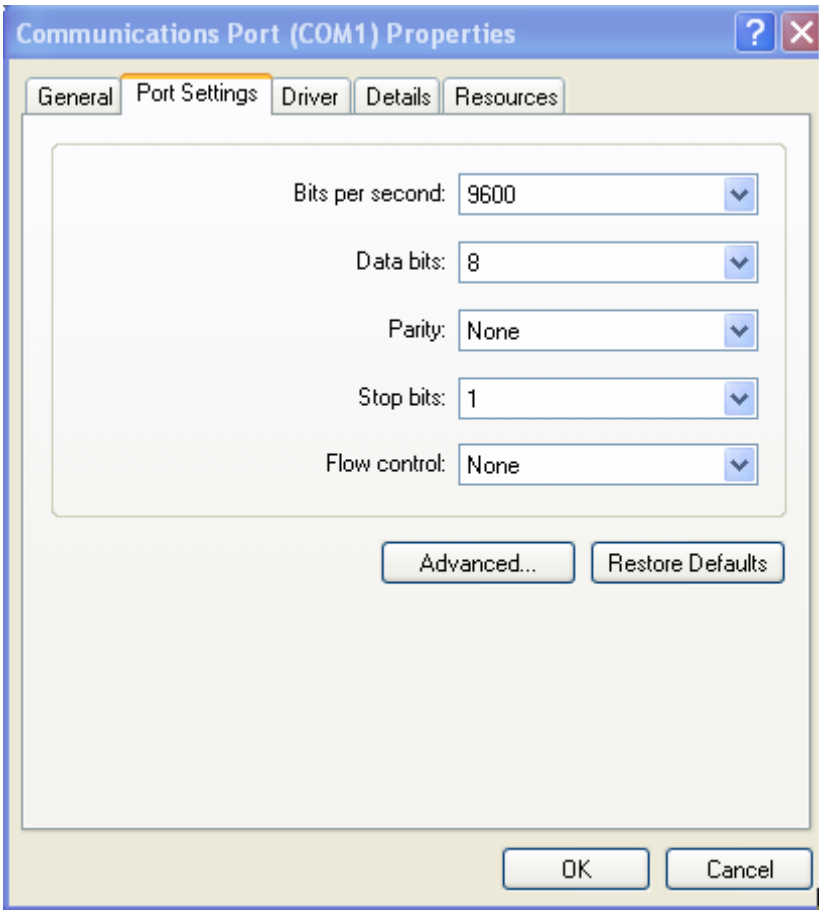


Figure A.3-2 Setting the Port Properties

4. Start the alarm box and run the HyperTerminal. When the system counts down the seconds (3 seconds), press any key. The system displays the **Boot** *Password***(3GPLAT or 3gplat)->** prompt.

Note:

If you do not press any key in three seconds, the system automatically loads the version saved in the flash.

5. At this prompt, enter the password **3gplat** or **3GPLAT**. The BSP menu appears, as shown in Figure A.3-3. Enter **?** if you need help.

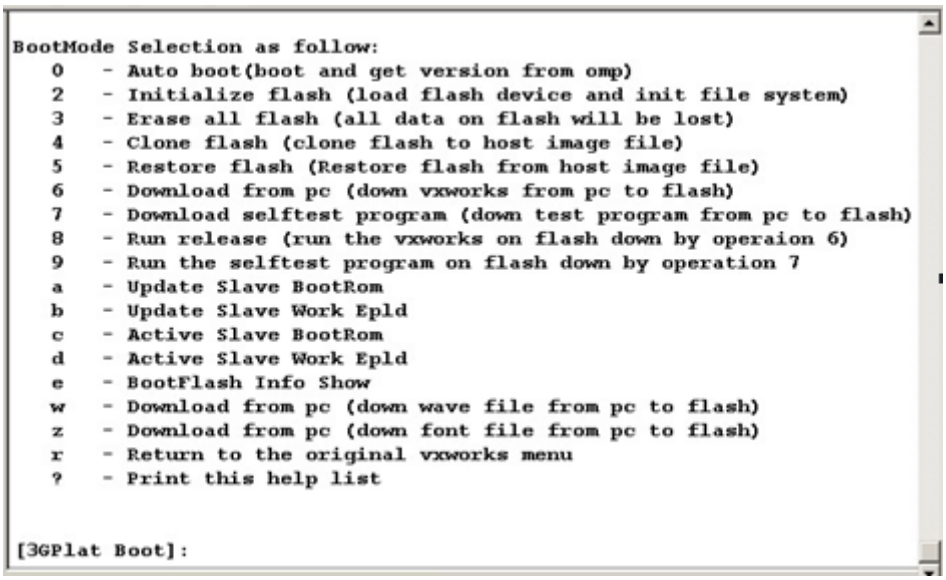


Figure A.3-3 HyperTerminal Interface

6. If the software version of the alarm box is upgraded from a lower version to V5.0, you need to format the flash to create a file system.

   1) Enter **3** to erase the files saved in the flash.

   2) Enter **2** to initialize the flash.

7. At the **3GPlat Boot** prompt, enter **r** and press **Enter**. The system displays the **Vxworks Boot** prompt, as shown in Figure A.3-4.

Figure A.3-4 Vxworks Menu

8. At the **VxWorks Boot** prompt, enter **p** to display the current network parameter settings, as shown in Figure A.3-5.

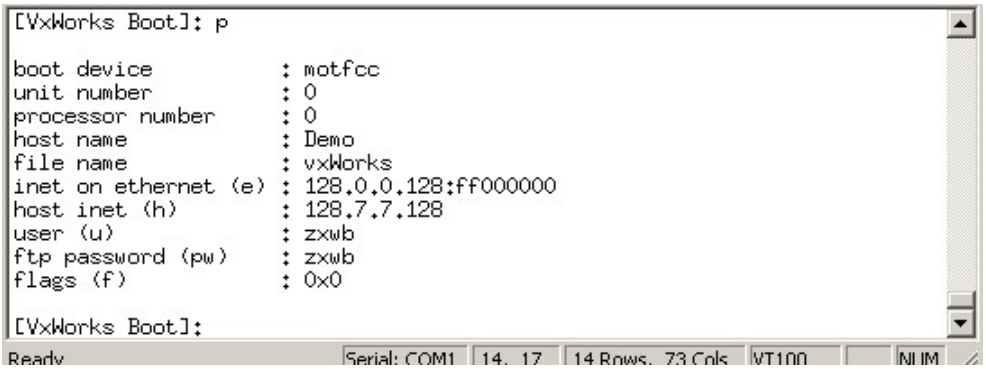


Figure A.3-5 Network Parameter Settings

9. Enter **c** and press **Enter**. Modify the parameters.

- **boot device**: Indicates the network interface name. Set it to **motfcc0**.
- **Filename**: Indicates the name of the image file. The name should be the same with the name of the version program, namely **vxWorks.**
- **inet on ethernet (e)**: Indicates the IP address of the alarm box, for example 10.42.20.254.
- **host inet (h)**: Indicates the IP address of the PC where the version file is stored, for example 10.42.20.20.
- **user (u)**: Indicates the FTP user name that should be the same with that on the FTP server. By default, the FTP user name is **zxwb**.
- **ftp password (pw)**: Indicates the FTP password that should be the same with that on the FTP server. By default, the FTP password is zxwb.

Press **Enter** to ignore other parameters, as shown in Figure A.3-6.

```
[VxWorks Boot]: c

'.' = clear field;  '-' = go to previous field;  ^D = quit

boot device          : motfcc0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 128.0.0.128:ffffff00 10.42.20.254:fffffc00
inet on backplane (b):
host inet (h)        : 128.7.7.128 10.42.20.20
gateway inet (g)     :
user (u)             : zxwb
ftp password (pw) (blank = use rsh): zxwb
flags (f)            : 0x0
target name (tn)     :
startup script (s)   :
other (o)            :

[VxWorks Boot]:
```

Figure A.3-6 Setting the Network Parameters

10. Enter **r** and press **Enter** to return to the BSP menu.
11. At the **3GPlat Boot** prompt, enter **a** and press **Enter** to download the boot program, as shown in Figure A.3-7.

```
   7   - Download selftest program (down test program from pc to flash)
   8   - Run release (run the vxworks on flash down by operaion 6)
   9   - Run the selftest program on flash down by operation 7
   a   - Update Slave BootRom
   b   - Update Slave Work Epld
   c   - Active Slave BootRom
   d   - Active Slave Work Epld
   e   - BootFlash Info Show
   w   - Download from pc (down wave file from pc to flash)
   z   - Download from pc (down font file from pc to flash)
   r   - Return to the original vxworks menu
   ?   - Print this help list


[3GPlat Boot]: a


user          : zxwb
ftp password  : zxwb
BOOT_UBF File : BOOTROM.UBF
host inet     : 10.42.20.20
board inet    : 10.42.20.254
Attached TCP/IP interface to motfcc0.
Warning: no netmask specified.
Attaching network interface lo0... done.

write content...succeed!

write header...succeed!
```

Figure A.3-7 Downloading the Boot Program

12. After the boot program is downloaded successfully, enter **c** and press **Enter** to activate the boot program, as shown in Figure A.3-8.

```
   b   - Update Slave Work Epld
   c   - Active Slave BootRom
   d   - Active Slave Work Epld
   e   - BootFlash Info Show
   w   - Download from pc (down wave file from pc to flash)
   z   - Download from pc (down font file from pc to flash)
   r   - Return to the original vxworks menu
   ?   - Print this help list


[3GPlat Boot]:
[3GPlat Boot]: c

boot device          : motfcc
unit number          : 0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 10.42.20.254
host inet (h)        : 10.42.20.20
user (u)             : zxwb
ftp password (pw)    : zxwb
flags (f)            : 0x0
```

Figure A.3-8 Activating the Boot Program

Note:

The boot program can be run only after you restart the alarm box.

13. At the **3GPlat Boot** prompt, enter **z** and press **Enter** to download the font file. After successful download, the system returns to the BSP menu, as shown in Figure A.3-9.

```
[3GPlat Boot]: z


user           : zxwb
ftp password   : zxwb
host inet      : 10.42.20.20
board inet     : 10.42.20.254

boot device          : motfcc
unit number          : 0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 10.42.20.254
host inet (h)        : 10.42.20.20
user (u)             : zxwb
ftp password (pw)    : zxwb
flags (f)            : 0x0

          [BSP]:NOR-Flash Detected...
          [BSP]:Creat tffs device for /FLASH0

          [BSP]:/FLASH0 has been successfully initialized.
/FLASH0/  - disk check in progress ...

dosChkLib : CLOCK_REALTIME is being reset to TUE APR 13 01:28:38 2027
Value obtained from file system volume descriptor pointer: 0x3d8fcb0
The old setting was THU JAN 01 00:00:00 1970
Accepted system dates are greater than THU DEC 27 00:00:00 1990
/FLASH0/  - Volume is OK

          total # of clusters:  7,721
           # of free clusters:  663
             # of bad clusters:  0
              total free space:  1,326 Kb
     max contiguous free space:  1,357,824 bytes
                  # of files:  10
                # of folders:  2
          total bytes in files:  14,098 Kb
              # of lost chains:  0
   total bytes in lost chains:  0

Begin downloading font file, please wait....

[BSP]:Begin load font3.dot to flash
 ................
[BSP]:reach the end of /FLASH0/DATA/font3.dot file
[BSP]:already read 267616
[BSP]:downtime is 766 ms[BSP]:ftptime is 283 ms[BSP]:writetime is 483 ms
[BSP]:The speed is 340 kbps
[BSP]:Succession of downloading from FTP to flash
```

Figure A.3-9 Downloading the Font File

14. At the **3GPlat Boot** prompt, enter **w** and press **Enter** to download the alarm sound file. After successful download, the system returns to the BSP menu, as shown in Figure A.3-10.

```
   d   - Active Slave Work Epld
   e   - BootFlash Info Show
   w   - Download from pc (down wave file from pc to flash)
   z   - Download from pc (down font file from pc to flash)
   r   - Return to the original vxworks menu
   ?   - Print this help list

[3GPlat Boot]: w


user           : zxwb
ftp password   : zxwb
host inet      : 10.42.20.20
board inet     : 10.42.20.254

boot device          : motfcc
unit number          : 0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 10.42.20.254
host inet (h)        : 10.42.20.20
user (u)             : zxwb
ftp password (pw)    : zxwb
flags (f)            : 0x0

          [BSP]:NOR-Flash Detected...
          [BSP]:This device has been initialized. The device name is /FLASH0

Begin downloading wave file, please wait....

[BSP]:Begin load LEVEL1_CN_PCM.wav to flash

[BSP]:reach the end of /FLASH0/DATA/LEVEL1_CN_PCM.wav file
[BSP]:already read 11578
[BSP]:downtime is 66 ms[BSP]:ftptime is 16 ms[BSP]:writetime is 16 ms
[BSP]:The speed is 339 kbps
[BSP]:Succession of downloading from FTP to flash

Begin downloading wave file, please wait....

[BSP]:Begin load LEVEL2_CN_PCM.wav to flash
```

Figure A.3-10 Downloading the Alarm Sound File

Note:

Generally, the font file and the alarm sound file do not need to be upgraded.

15. At the **3GPlat Boot** prompt, enter **6** and press **Enter** to download the version program. After successful download, the system returns to the

BSP menu (maybe you need to wait three to five minutes), as shown in Figure A.3-11.

```
   6   - Download from pc (down vxworks from pc to flash)
   7   - Download selftest program (down test program from pc to flash)
   8   - Run release (run the vxworks on flash down by operaion 6)
   9   - Run the selftest program on flash down by operation 7
   a   - Update Slave BootRom
   b   - Update Slave Work Epld
   c   - Active Slave BootRom
   d   - Active Slave Work Epld
   e   - BootFlash Info Show
   w   - Download from pc (down wave file from pc to flash)
   z   - Download from pc (down font file from pc to flash)
   r   - Return to the original vxworks menu
   ?   - Print this help list


[3GPlat Boot]: 6


user           : zxwb
ftp password   : zxwb
file name      : vxWorks
host inet      : 10.42.20.20
board inet     : 10.42.20.254

boot device          : motfcc
unit number          : 0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 10.42.20.254
host inet (h)        : 10.42.20.20
user (u)             : zxwb
ftp password (pw)    : zxwb
flags (f)            : 0x0

          [BSP]:NOR-Flash Detected...
          [BSP]:This device has been initialized. The device name is /FLASH0

Begin downloading program, please wait....

[BSP]:Begin load vxWorks to flash

.................................................................................
.................................................................................
.................................
[BSP]:reach the end of /FLASH0/RELEASE/vxWorks file
[BSP]:already read 3287504
[BSP]:downtime is 115733 ms[BSP]:ftptime is 6433 ms[BSP]:writetime is 109300 ms
[BSP]:The speed is 27 kbps
[BSP]:Succession of downloading from FTP to flash
```

Figure A.3-11 Downloading the Version Program

Note:

It may take you a long period of time to download the version program. If any error occurs during the download process, you need to restart the alarm box and then download the version program again.

16. At the **3GPlat Boot** prompt, enter **0** and press **Enter** to automatically start the new version from the flash. Otherwise, you can enter **8** and press **Enter** to run the new version, as shown in Figure A.3-12.

```
   7   - Download selftest program (down test program from pc to flash)
   8   - Run release (run the vxworks on flash down by operaion 6)
   9   - Run the selftest program on flash down by operation 7
   a   - Update Slave BootRom
   b   - Update Slave Work Epld
   c   - Active Slave BootRom
   d   - Active Slave Work Epld
   e   - BootFlash Info Show
   w   - Download from pc (down wave file from pc to flash)
   z   - Download from pc (down font file from pc to flash)
   r   - Return to the original vxworks menu
   ?   - Print this help list


[3GPlat Boot]: [3GPlat Boot]:
[3GPlat Boot]:
[3GPlat Boot]: 8

boot device          : motfcc
unit number          : 0
processor number     : 0
host name            : Demo
file name            : vxWorks
inet on ethernet (e) : 10.42.20.254
host inet (h)        : 10.42.20.20
user (u)             : zxwb
ftp password (pw)    : zxwb
flags (f)            : 0x0

          [BSP]:NOR-Flash Detected...
          [BSP]:This device has been initialized. The device name is /FLASH0
3748944
entry = 0x10000
Starting at 0x10000...

Attached TCP/IP interface to motfcc unit 0
Attaching interface lo0...done

Adding 7100 symbols for standalone.
```

Figure A.3-12 Running the New Version

17. After the upgrade, press ◄ on the alarm box panel to view the current version.

Caution:

Assume that the boot program is already upgraded to v5.0. If you need to upgrade any one of boot, version, sound, and font, you do not need to format the flash. You can refer to the preceding steps related to the file that you need to download. The downloaded file overwrites the old one in the flash.

RF exposure information: To maintain compliance with FCC RF exposure requirements, use handset that maintain a 20cm separation distance between the user's body and the host.

MPE limit for RF exposure at prediction frequency is 0.558mW/cm2 for GSM850MHz and 1mW/cm2 for GSM1900MHz. The MPE for GSM850MHz is 0.46 mW/cm2 and 0.421mW/cm2 for GSM1900MHz. It satisfy RF exposure compliance.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Appendix B Acronyms and Abbreviations

Abbreviation	Full Name
APN	Access Point Name
DNS	Domain Name Server
FTP	File Transfer Protocol
GPRS	General Packet Radio Service
ISP	Internal Service Provider
MAC	Media Access Control
OMC	Operation Maintenance Center
TCP/IP	Transmission Control Protocol/Internet Protocol