E-pack200 Digital WANET Repeater Standalone Network Management System

Operation Guide

Hytera Communications Corporation Limited

Copyright Information

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Contents

Documentation Information

This section describes conventions and revision history of this document.

Documentation Conventions

Instruction Conventions

Icon	Description
TIP	Indicates information that can help you make better use of your product.
NOTE	Indicates references that can further describe the related topics.
CAUTION	Indicates situations that could cause data loss or equipment damage.
WARNING	Indicates situations that could cause minor personal injury.
DANGER	Indicates situations that could cause major personal injury or even death.

Notation Conventions

Item	Description	Example
Boldface	Denotes menus, tabs, parameter names, window names, dialogue names, and hardware buttons.	To save the configuration, click **Apply**.
		The **Log Level Settings** dialogue box appears.
		Press the **PTT** key.
" "	Denotes messages, directories, file names, folder names, and parameter values.	The screen displays "Invalid Battery!".
		Open "PSS.exe".
		Go to "D:/opt/local".
		In the **Port** text box, enter "22".
>	Directs you to access a multi-level menu.	Go to **File** > **New**.
Italic	Denotes document titles.	For details about using the DWS, refer to *Dispatch Workstation User Guide*.
`Courier New`	Denotes commands and their execution results.	To set the IP address, run the following command: `vos-cmd - m name IP`

Revision History

Version	Release Date	Description
V2.1.00	June 2023	Initial release.

1. Overview

This document instructs you to monitor and configure the E-pack200 through E-pack200 standalone network management system (NMS). With the E-pack200 standalone NMS, you can import and export configuration files, write and read data, upgrade or restart the E-pack200, and modify user data.

NOTE

The version of the E-pack200 in this document is V2.0.00.002.

2. Login

2.1 Prepare the Environment

- PC: Windows 7, Windows 8, or Windows 10
- Google Chrome: V47.0.2526.106 or later

2.2 Obtain the IP Address of the E-pack200

1. Turn on the E-pack200.
2. Attach the palm microphone to the E-pack200.
3. On the palm microphone, press the **OK/Menu** key.
4. Go to **Device** > **Local IP**.
5. Check the IP address of the E-pack200.

2.3 Log In to the E-pack200 Standalone NMS

The IP address of the PC and the E-pack200 must be on the same network segment. Otherwise, they cannot communicate with each other.

1. In the address bar of your browser, and then enter "http://IP:8090/login.html".

NOTE

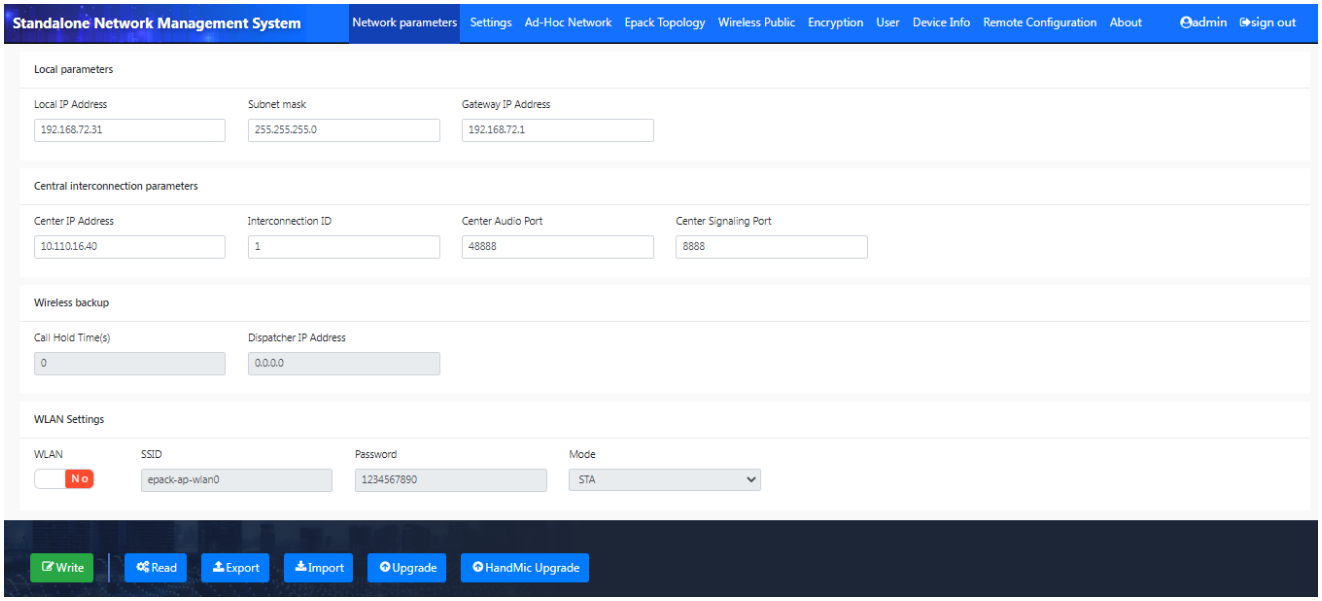
IP in "http://IP:8090/login.html" is that obtained in 2.2 Obtain the IP Address of the E-pack200.

2. Press **Enter**.

   The login interface of the standalone NMS appears.

3. Enter the password ("admin" by default).
4. Select the language.
5. Click **Login**.

   The following interface appears.



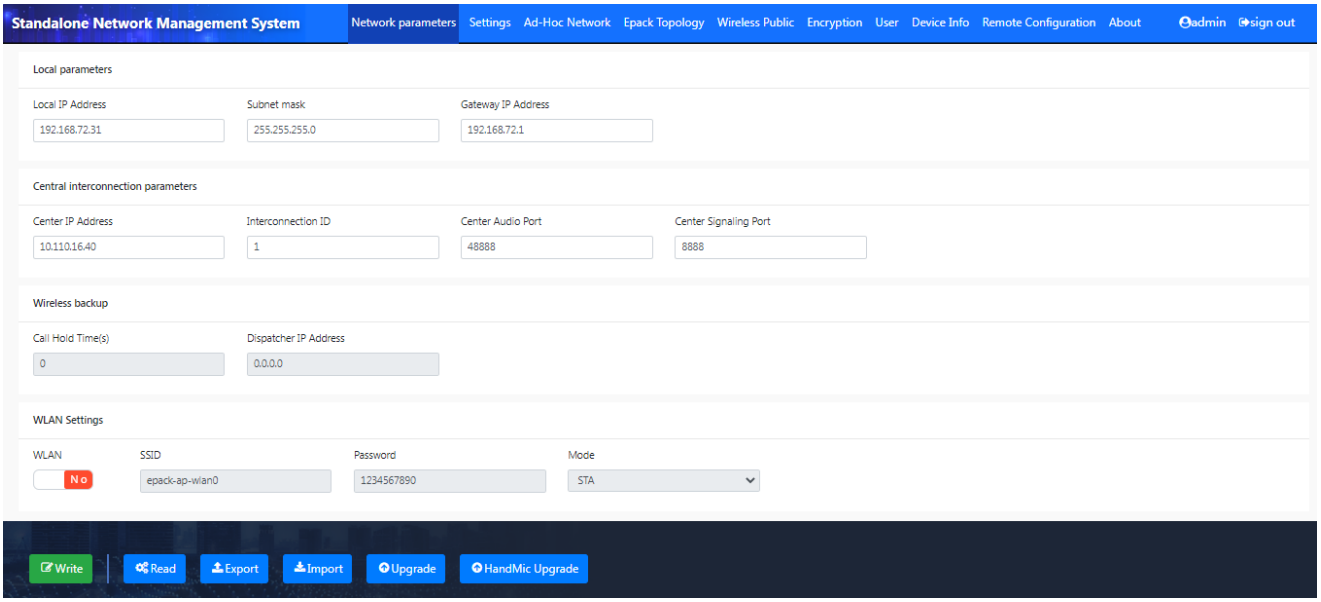
NOTE

- The password for logging in to the E-pack200 standalone NMS must be consistent with that of the connected E-pack200. Otherwise, operations may fail.
- You can enter the engineering mode of the E-pack200 with the password "Hytera1993". Only the debugging personnel are allowed to enter this mode.

3. Parameters

3.1 Network Settings

On the **Network Settings** interface, you can set network parameters of the E-pack200 and parameters required for interconnecting to the control center.



The following table describes parameters on the above interface in details.

Parameter	Value Range	Description
Local IP Address	/	IP address of the E-pack200
Subnet mask	/	Subnet mask of the E-pack200
Gateway IP Address	/	Gateway IP address of the E-pack200
Center IP Address	/	IP address of the control center. For this version, the value is consistent with the IP address of the SmartOne Dispatch gateway.
Interconnection ID	1–51200	ID used by the E-pack200 to access the control center. The default value is "4051".
Center Audio Port	1–51200	The default value is "48888".
Center Signaling Port	1–51200	The default value is "8888".
Call Hold Times(s)	0–180	Call hang time on the dispatcher side after the call ends. Default value: "0

Parameter	Value Range	Description
Dispatcher IP Address	/	IP address of the dispatch station.
WLAN	● Enable ● Disable	If WLAN is enabled, the icon is green.
SSID	Customizable	Name of the WLAN network. Default value: "epack-ap-wlan0"
Password	Customizable. At least nine characters.	Name of the WLAN network. Default value: "1234567890"
Mode	● STA ● AP	Working mode of the WLAN network. Select one according to actual situations.

3.2 Basic Settings

On the **Basic Settings** interface, you can set the local device ID, radio ID, color code, power, alarm information, and more.

The following table describes parameters on the above interface in details.

Parameter	Value Range	Description
Local Device ID	1–32	It must be unique. Default value: "1"
Radio ID	Routing: 1–16777215	Used to identify a radio that initiates group call, text, or other services. Default value: "1"
TX Power(dBm)	● Low: 30 dBm ● Medium: 37 dBm ● High: 40 dBm	Indicates the current transmit power of the device.
Link Color Code	0–15	Devices over the same communication link must be configured with the same link color code so as to communicate with each other. This color code must be different from the radio color code. Default value: "15"

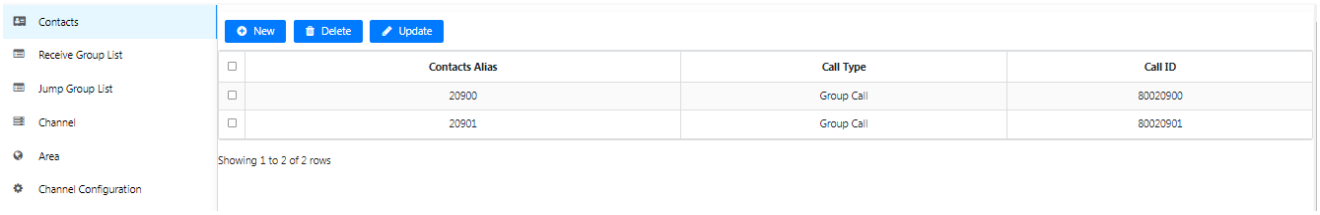
Parameter	Value Range	Description
Radio Color Code	0–15	Radios must be configured with the same radio color code so as to communicate with each other. This color code must be different from the link color code. This color code must be consistent with that configured on the radio. Default value: "1"
Operation Mode	● PDT Conventional ● DMR Conventional	Indicates the PMR network system used by a device. It can be modified only in the engineering mode.
Audio Codec	● NVOC ● AMBE	Indicates the voice encoding and decoding mode used by a device. It can be modified only in the engineering mode.
Squelch Threshold	● Low ● Medium ● High	Lower squelch threshold means longer communication distance.
Palm Microphone Volume	● Level 1 ● Level 2 ● Level 3 ● Level 4 ● Level 5	Indicates the output volume of the palm microphone.
Call Duration Limit(s)	20–500	Indicates the allowable communication time per call. Default value: "60"
Neighbor Query Interval	2, 4, 6, 8, 10, 12, 14, 16, 18, and 20	Specifies the interval for querying neighbor devices. Default value: "2"
Boot Mode	Manual Boot	Indicates how the device will be powered on.
Positioning Mode	● GPS ● GLONASS ● Beidou	Indicates positioning system used by the device. Set this parameter according to actual situations.
Dialing Rule	● Routing ● CPS-P3.	Indicates the dialing rules used by the device. Default value: "Routing"
Call Hold Time(s)	0–255	Indicates the call hold time

Parameter	Value Range	Description
		Default value: "1"
Auto Dial upon Power-on	● Enable ● Disable	Whether to enable the device to dial automatically through the built-in SIM card after the device is powered on. Default value: "Disable"
Auto Dial Number	At most 19 digits	Indicates the number to be called upon autodial.
GPS	● Enable ● Disable	Whether to enable GPS on the device.
Interval to receive GPS	1–120	Indicates the interval for the device to report GPS information.
Neighbor Query	● Enable ● Disable	Whether to enable the query of neighbor devices.
Report Neighbor	● Enable ● Disable	Whether to report information about neighbor devices to the control center.
Smart Repeating	● Enable ● Disable	Whether to repeat signals. If the received signal strength indicator (RSSI) is higher than the threshold, the E-pack200 will not repeat the signal.
Voice with GPS	● Enable ● Disable	Whether to send GPS information with calls.
Periodic GPS Report	● Enable ● Disable	Whether to allows the device to report GPS information.
Keep Synchronous	● Enable ● Disable	Whether to synchronize call signals among radios. You are advised to enable this parameter.
Emergency Alarm Repetitions	0–3	Specifies how many times an emergency alarm will be reported. When it is set to "0", the device will not report emergency alarms. Default value: "3"
Display Emergency Alarm	● Enable ● Disable	Whether to display emergency alarms.

3.3 Ad Hoc Network Settings

On the **Ad-Hoc Network** interface, you can set the contacts, receive group list, channel, area, and more.

3.3.1 Contacts



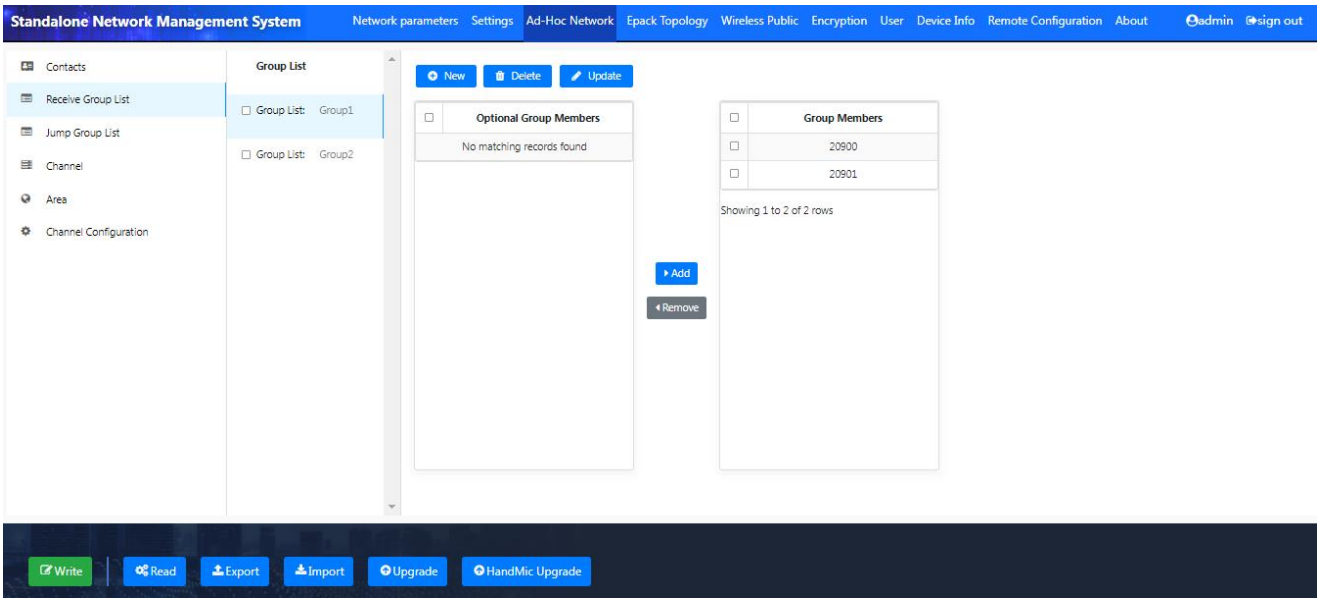
To add a contact, do as follows:

1. On the **Contacts** interface, click **New**.
2. In the **New Contacts** dialog box, set the parameters according to the following table.

Parameter	Value Range	Description
Contacts Alias	At most six characters	You are advised to set the alias to call ID.
Call ID	At most eight characters that consist of numbers and the asterisk (*).	Identifier of the communication device.
Call Type	● Group call ● Private call ● All call	/

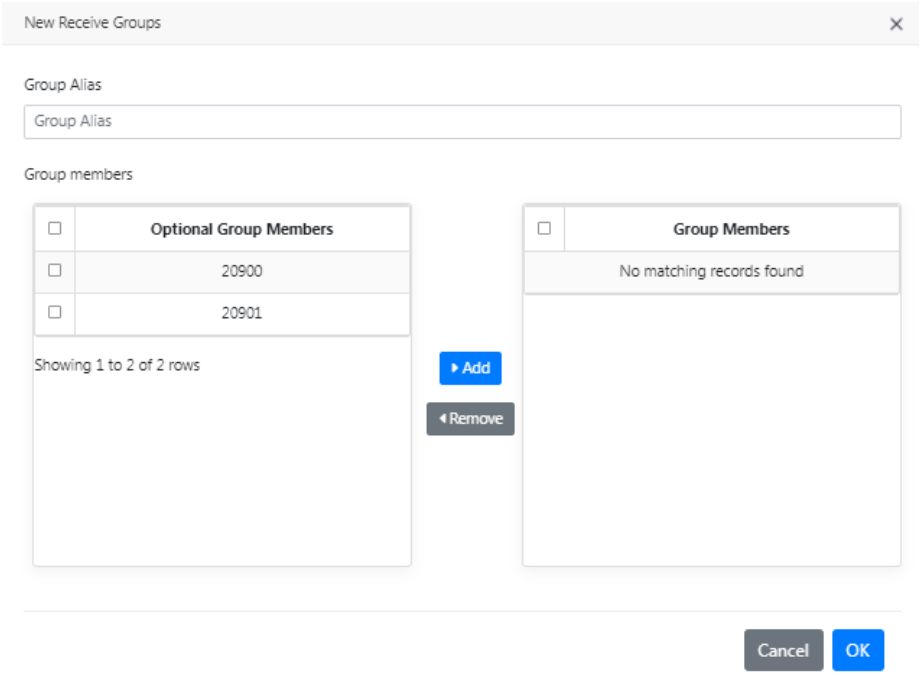
3. Click **OK**.

3.3.2 Receive Group List



To add a contact, do as follows:

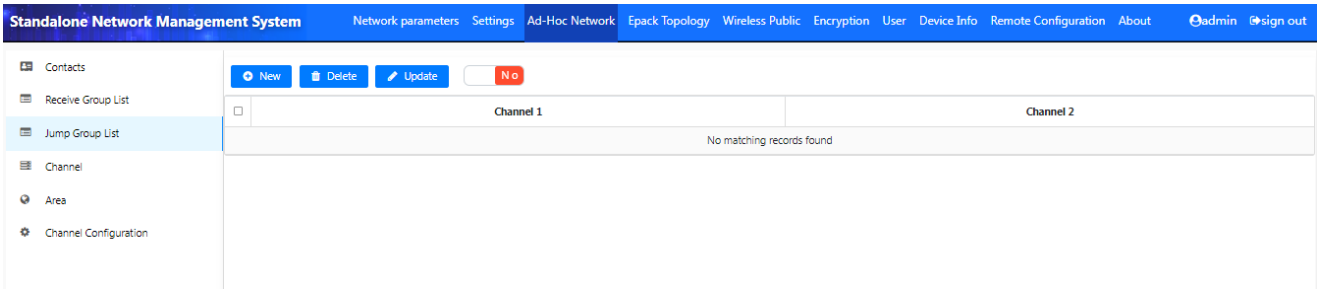
1. On the **Receive Group List** interface, click **New**.
2. In the **New Receive Groups** dialog box, enter the group alias.



3. Under **Optional Group Members**, check group numbers, and then click **Add**.
4. Click **OK**.

3.3.3 Jump Group List

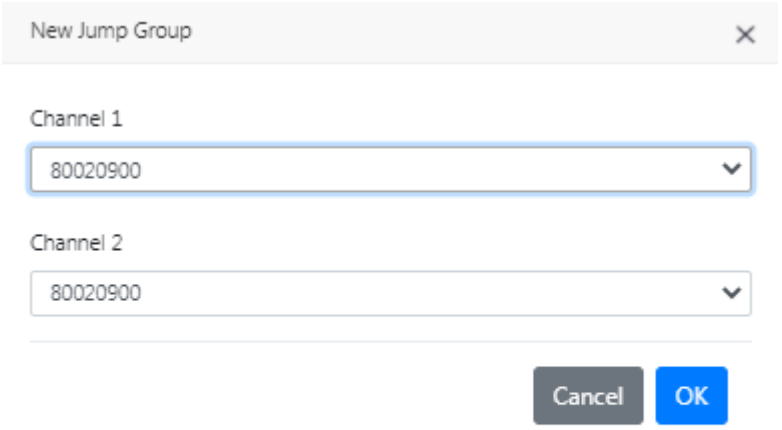
The E-pack200 supports Channel Jumping, which is for specific scenarios only.



The Channel Jumping feature is disabled by default. When this parameter is enabled, the E-pack200 can receive signals on Channel 1 and transmit on Channel 2.

To add a jump group, do as follows:

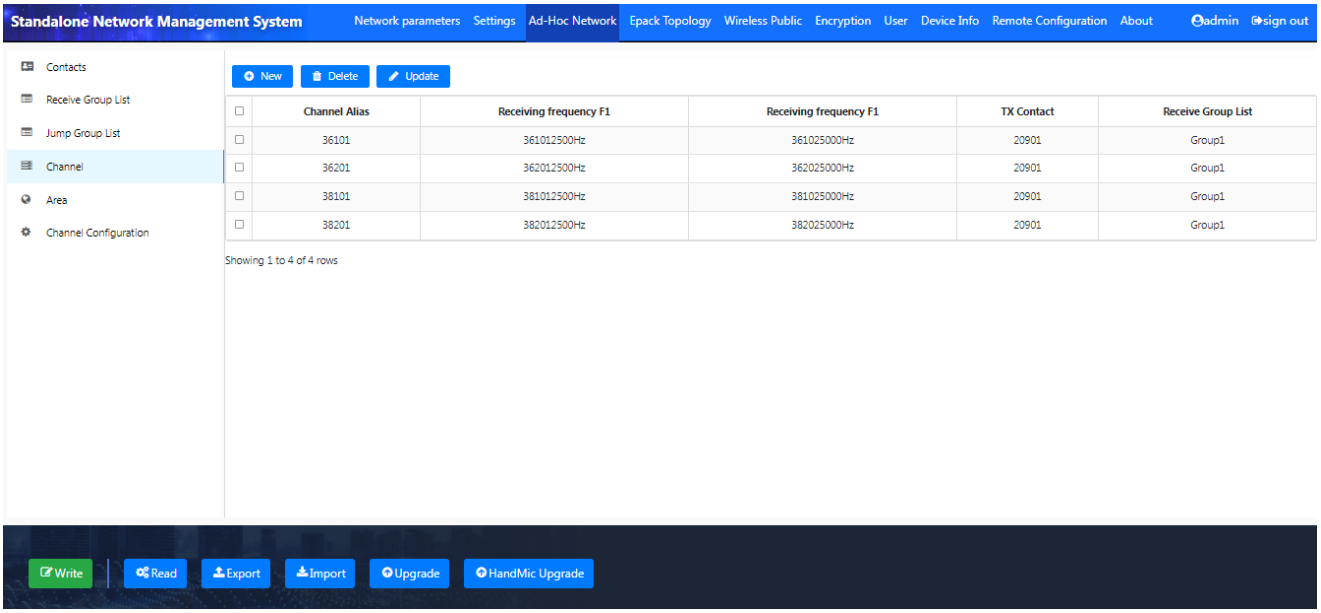
1. On the **Jump Group List** interface, click **New**.
2. In the **New Jump Group** dialog box, enter the group number for Channel 1 and Channel 2.



3. Click **OK**.

3.3.4 Channel

Each channel has two frequencies. Set the frequency according to actual situations.



To add a channel, do as follows:

1. On the **Channel** interface, click **New**.

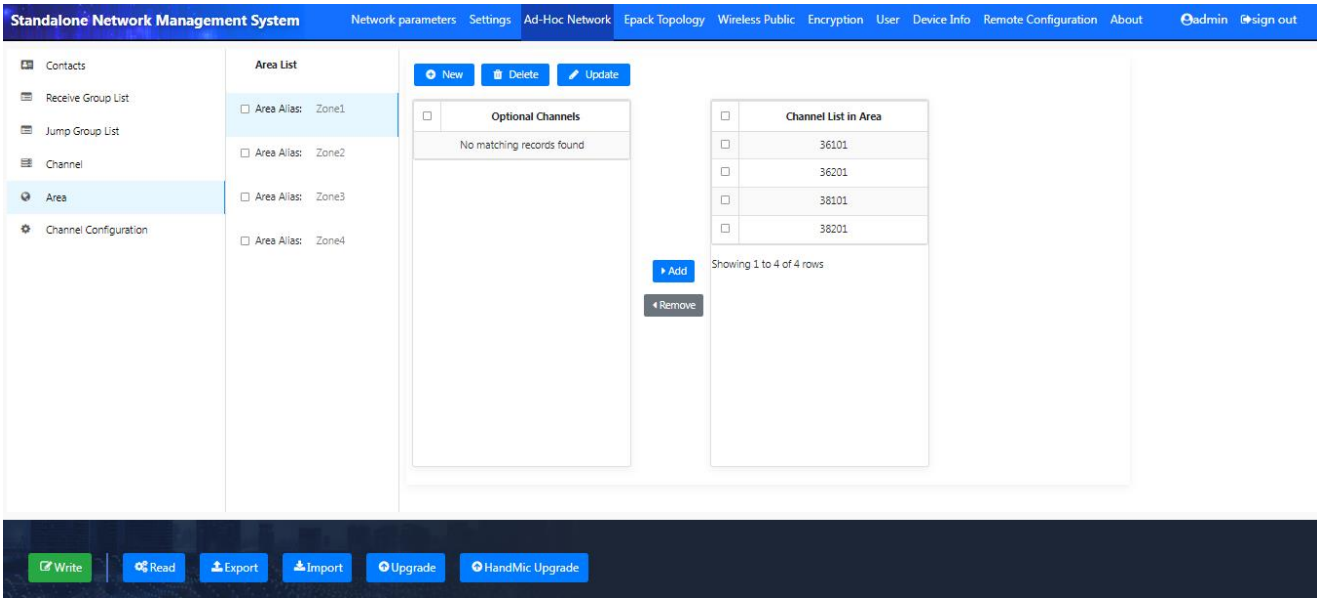
2. In the **New Channels** dialog box, set the parameters according to the following table.

Parameter	Value Range	Description
Channel Alias	At most six characters	Customizable. Only numbers or letters.
Receiving frequency F1(Hz)	/	Set this parameter according to actual situations.
Receiving frequency F2(Hz)	/	Set this parameter according to actual situations.
TX Contact	/	Select from the drop-down list.
Receive Group List	/	Select from the drop-down list.

3. Click **OK**.

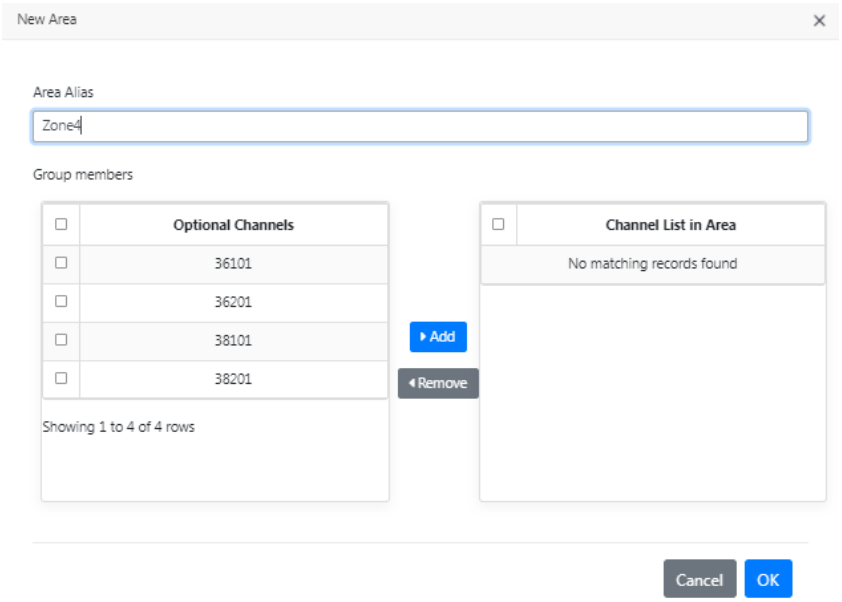
3.3.5 Area

You can add at most four areas.



To add an area, do as follows:

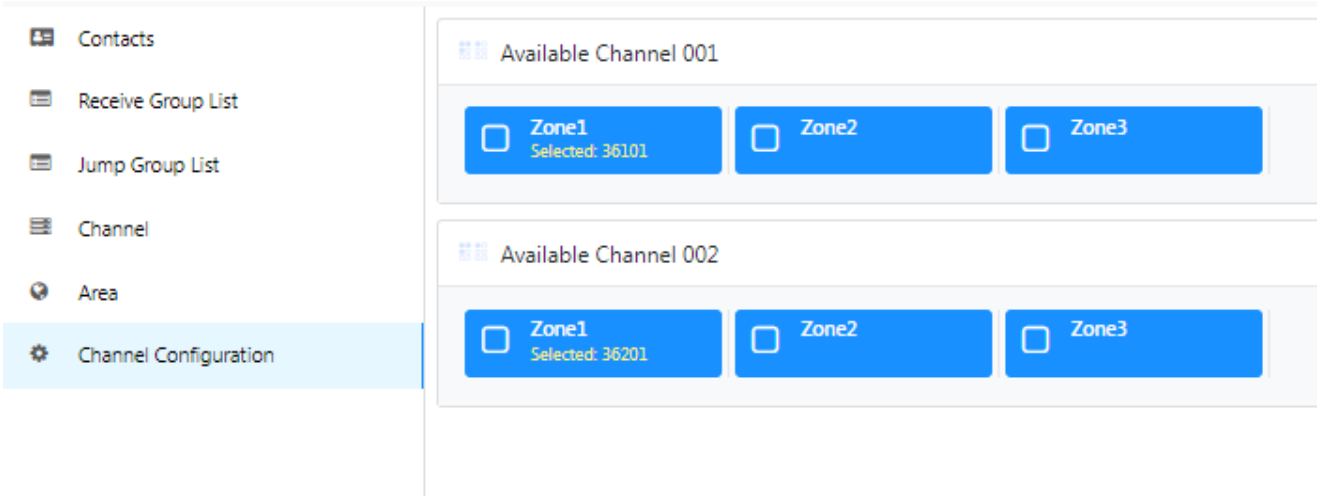
1. On the **Area** interface, click **New**.
2. In the **New Area** dialog box, enter the area alias.



3. Under **Group Channels**, check the area.
4. Click **Add**.
5. Click **OK**.

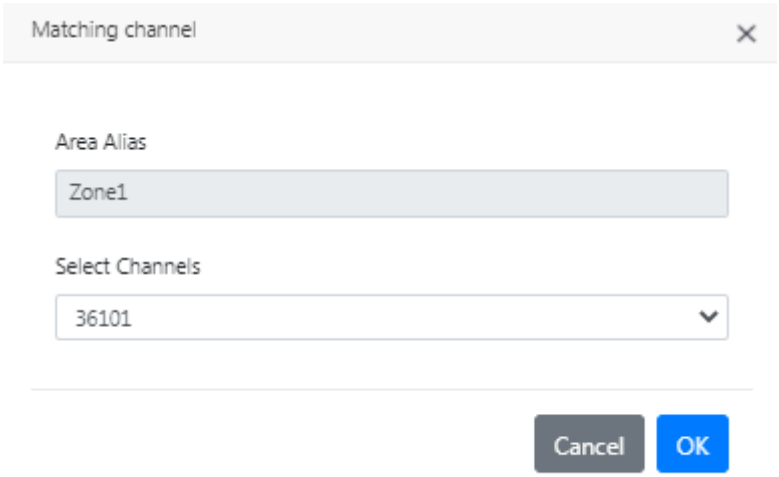
3.3.6 Channel Configuration

On the **Channel Configuration** interface, you can set the zone that the channel is used.



To set a channel for a zone, do as follows:

1. On the **Channel Configuration** interface, under a channel, click a zone.
2. In the **Matching channel** dialog box, enter the area alias, and then select a channel from the drop-down list.

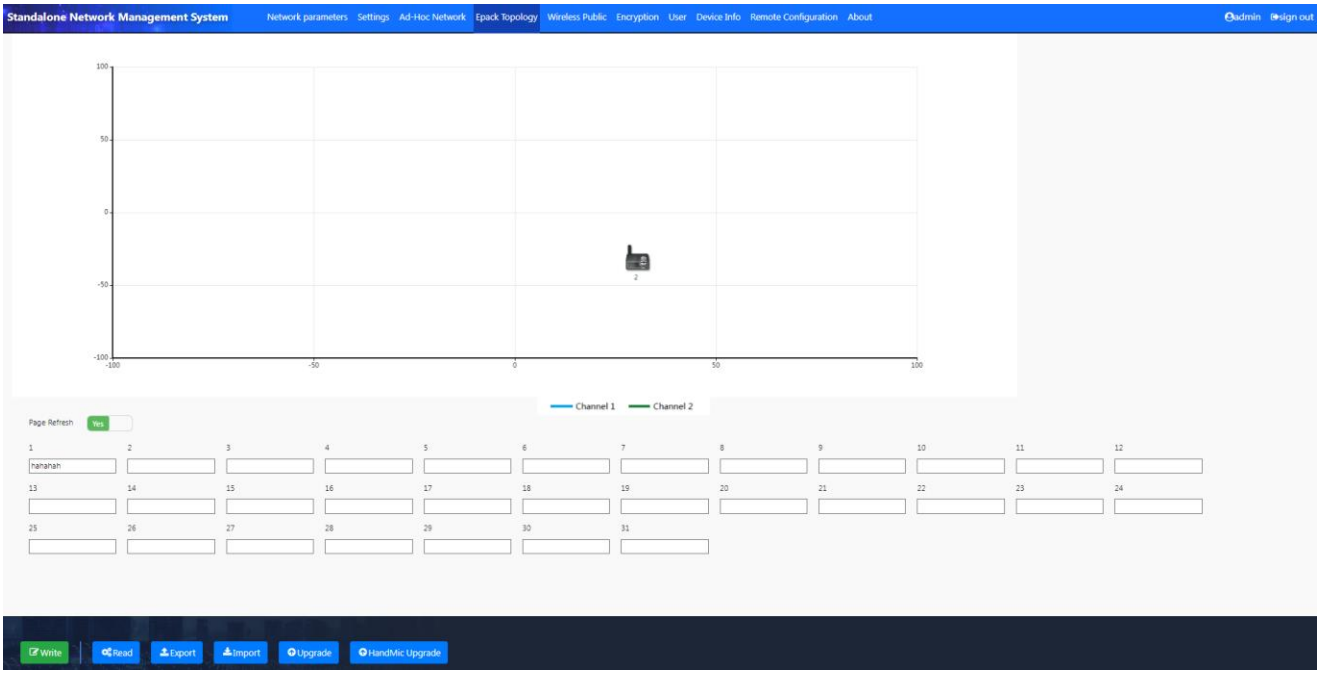


3. Click **OK**.

   The E-pack200 will be on the selected channel and zone after power-on.

3.4 Topology

On the **Epack Topology** interface, you can check devices, filed strength of each channel, and neighbor relation. Meanwhile, you can set the E-pack200 alias.

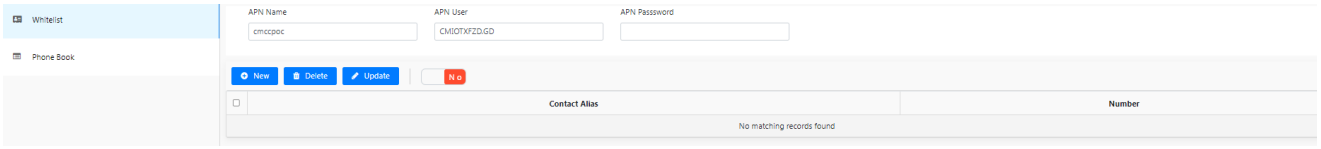


3.5 Wireless Public Settings

You can set the whitelist and phone book.

3.5.1 Whitelist

If you insert an SIM card into the E-pack200, the device can use the GSM link. If the SIM card is for access point name (APN) only, the device can communicate over APN.



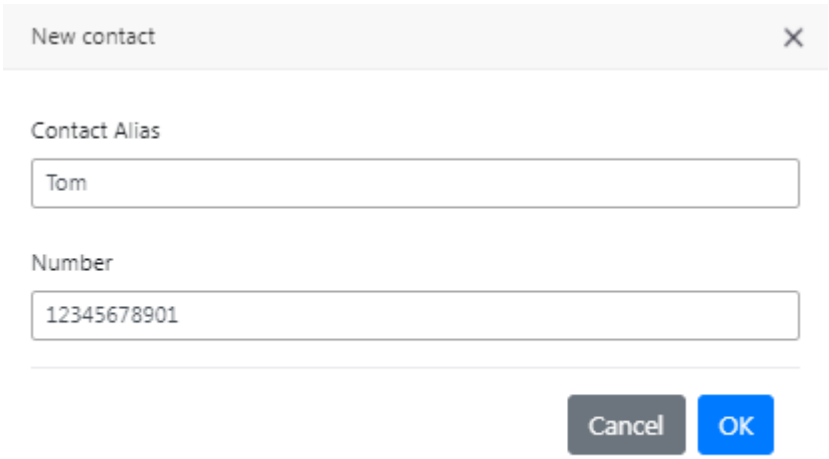
- To enable whitelist, click No.

  In this case, only numbers on the whitelist can communicate with the E-pack200.

- To add a contact to the whitelist, do as follows:

  a. On the **Whitelist** interface, click **New**.

  b. In the **New Contact** dialog box, enter the contact alias and number.



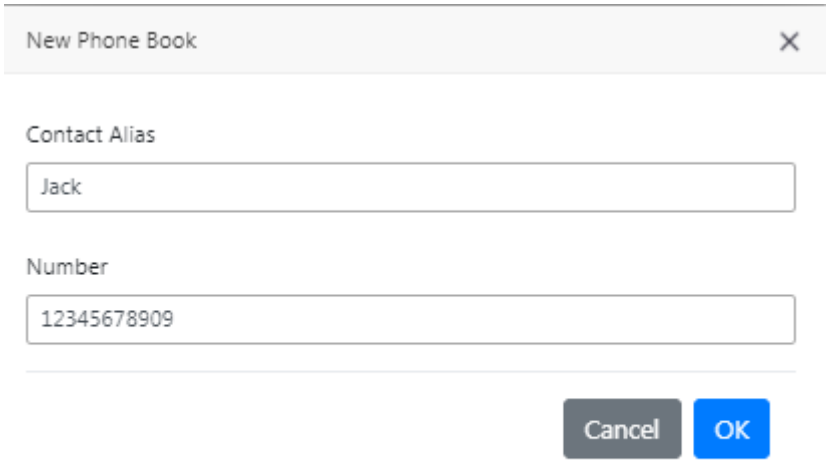
c. Click **OK**.

3.5.2 Phone Book

You can add at most 10 contacts to a phone book.

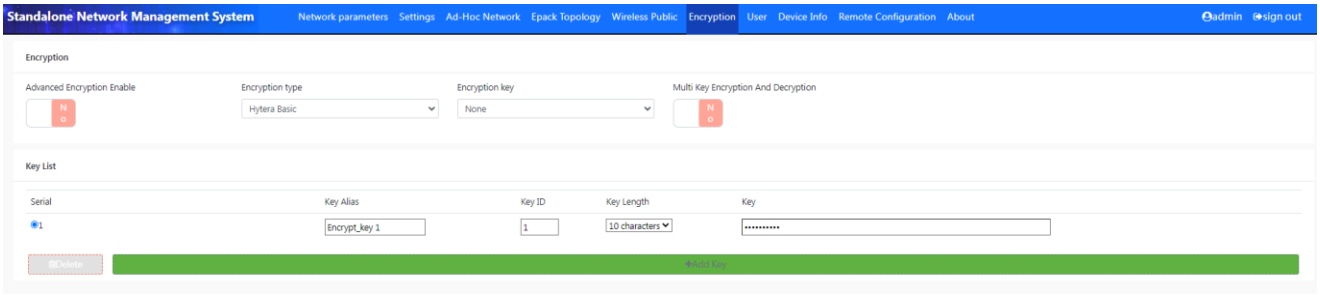
To add a contact to the phone book, do as follows:

1. On the **Phone Book** interface, click **New**.
2. In the **New Phone Book** dialog box, enter the contact alias and number.
3. Click **OK**.



3.6 Encryption Settings

On the **Encryption** interface, you can apply encryption to and configure keys for the E-pack200.



The following table describes parameters in the **Encryption** area in details.

Parameter	Value Range	Description
Advanced Encryption Enable	● Enable ● Disable	Whether to apply advanced encryption to data and voice transmitted and received by the device. You need to purchase a License for this feature.
Encryption type	● Null ● Hytera Basic	Defines the mode for encrypting data and voice on the current channel.
Encryption key	Keys in the list	It is used to encrypt and decrypt voice and data. Only when encryption keys of the receiving device and the transmitting device are the same can they communicate.
Multi Key Encryption And Decryption	● Enable ● Disable	Whether to encrypt voice or data in transmission with a random key. Then the device searches the key table for a key value that matches the received key ID to decrypt the voice or data.

The following table describes parameters in the **Key List** area in details.

Parameter	Value Range	Description
Serial	/	Indicates the serial number of a key in the key table.
Key Alias	/	Indicates the alias of the key. It consists of digits, symbols, letters, or Chinese characters. It is used for configuring encryption keys for digital channels.
Key ID	1–255	It is an index in the encryption key table which maps each key value. It must be unique. Set this parameter according to actual situations.

Parameter	Value Range	Description
Key Length	10 characters, 32 characters, and 64 characters	Defines the length of a key, which limits the character quantity of the key value.
Key	/	Indicates the value of the key, whose length is restricted by **Key Length**. If the value length is shorter than the preset key length, the left characters will be "F'.

3.7 User Management

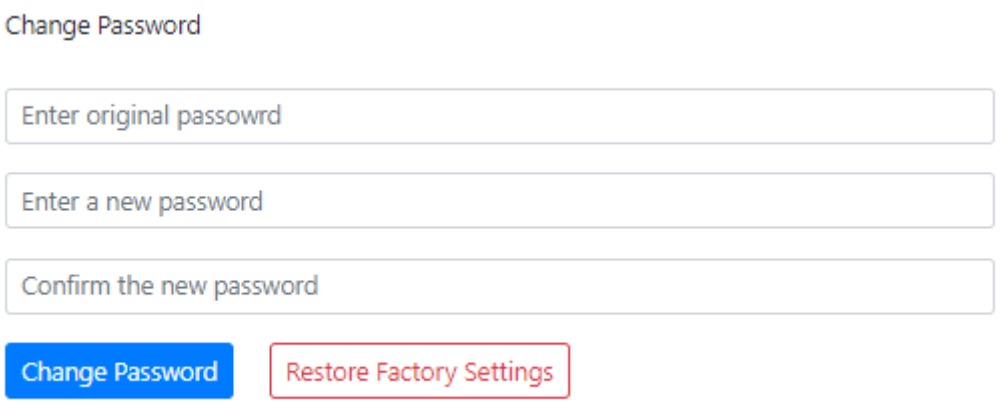
On the **User Management** interface, you can modify the password of the E-pack200 and restore the device to factory settings.

- To change the password, do as follows:

  a. On **User** interface, enter the old password, new password, and confirm password.

NOTE

The password should to five to 20 characters long and consists of only digits and letters.

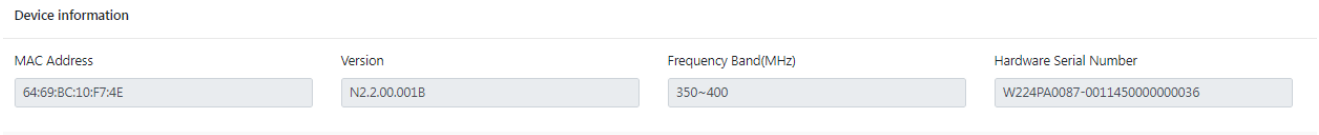


  b. Click **Change Password**.

- To restore the E-pack200 to factory settings, on **User** interface, click **Restore Factory Settings**.

3.8 Device Information

On the **Device Info** interface, you can view the version of the E-pack200, its MAC address, frequency, and electrical serial number (ESN).

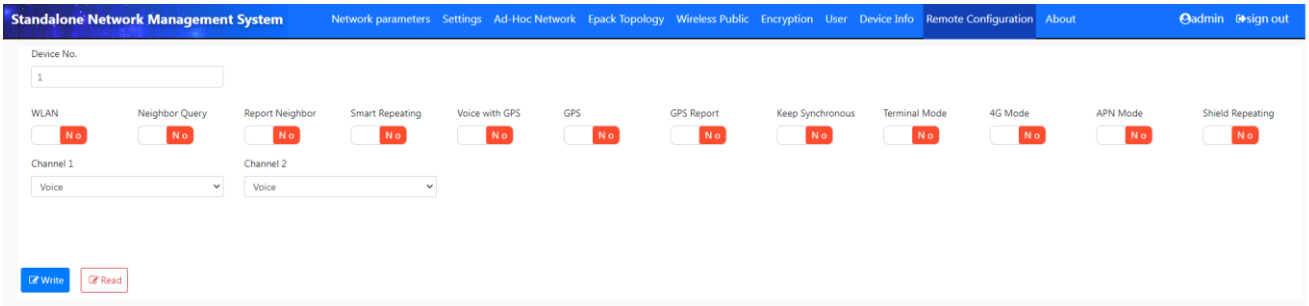


The following table describes parameters on the above interface in details.

Parameter	Description
MAC Address	Indicates the MAC address of the device.
Version	Indicates the current version of the E-pack200.
Frequency Band(MHz)	Indicates the frequency information of the E-pack200.
Hardware Serial Number	Indicates the ESN of the E-pack200.

3.9 Remote Configuration

On the **Remote Configuration** interface, you can configure other E-pack200 devices remotely.



The following table describes parameters on the above interface in details.

Parameter	Value Range	Description
Device No.	/	Indicates the device ID of the E-pack200 under remote configuration.
WLAN	● Enable ● Disable	If WLAN is enabled, the icon is green.
Neighbor Query	● Enable ● Disable	Whether to enable the query of neighbor devices.
Report Neighbor	● Enable ● Disable	Whether to report information about neighbor devices to the control center.
Smart Repeating	● Enable ● Disable	Whether to repeat signals. If the RSSI is higher than the threshold, the E-pack200 will not repeat the signal.

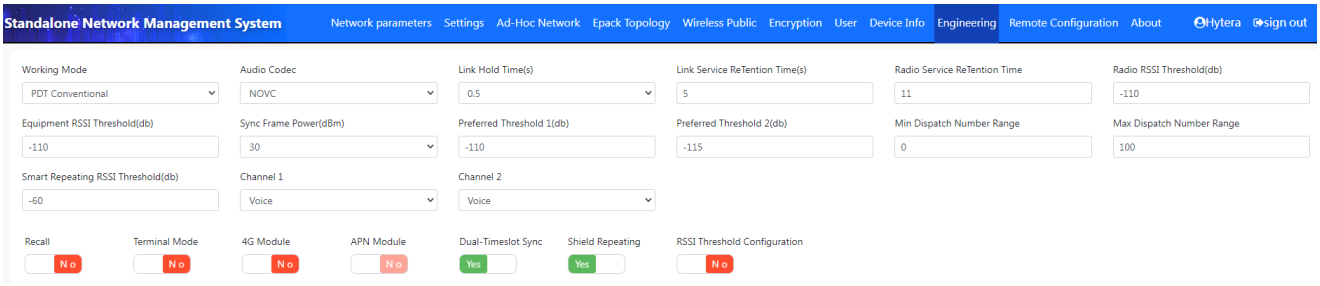
Parameter	Value Range	Description
Voice with GPS	● Enable ● Disable	Whether to send GPS information with calls.
GPS	● Enable ● Disable	Whether to enable GPS on the device.
GPS Report	● Enable ● Disable	Whether to allow the device to report GPS information.
Keep Synchronous	● Enable ● Disable	Whether to synchronize call signals among radios. You are advised to enable this parameter.
Terminal Mode	● Enable ● Disable	Reserved.
4G Mode	● Enable ● Disable	Whether to enable 4G module.
APN Mode	● Enable ● Disable	Whether to enable APN module.
Shield Repeating	● Enable ● Disable	If Shield Repeating is enabled, the E-pack200 will not repeat audio signals of other groups.
Channel 1	● Voice ● Data	Default value: "Voice" The option "Data" is reserved.
Channel 2	● Voice ● Data	Default value: "Voice" The option "Data" is reserved.

3.10 Engineering Mode

You can enter the engineering mode with the password "Hytera1993".

NOTE

It is recommended that you change parameters in the **Engineering** interface under the instruction of R&D engineers.



The following table describes parameters on the above interface in details.

Parameter	Description
Working Mode	PDT Conventional or DMR Conventional.
Audio Codec	● AMBE ● NVOC
Link Hold Time(s)	Default value: "0.5s" If the E-pack200 receives signals within 0.5s after the call ends, it will not process the signals.
Link Service ReTention Time(s)	Indicates the link hold time for data services. Default value: "5s"
Radio Service ReTention Time	Indicates the radio hold time for a data service. Default value: "11s"
Radio RSSI Threshold(db)	Indicates the RSSI threshold when the E-pack200 receives signals from radios.
Equipment RSSI Threshold(db)	Indicates the RSSI threshold when the E-pack200 receives signals from other devices.
Sync Frame Power(dBm)	Indicates the power to transmit the sync frame.
Preferred Threshold 1(db)	When the RSSI is higher than the preferred threshold 1, the E-pack200 will repeat the signals.
Preferred Threshold 2(db)	When the RSSI is lower than the preferred threshold 1 and higher than the preferred threshold 2, the E-pack200 will repeat the strongest received signals.
Min Dispatch Number Range	Reserved.
Max Dispatch Number Range	Reserved.

Smart Repeating RSSI Threshold(db)	If Smart Repeating is enabled and RSSI is higher than the smart repeating RSSI threshold, the E-pack200 will not repeat the signals.
Channel 1	Default value: "Voice"
Channel 2	The option "Data" is reserved.
Recall	If Recall is enabled, the E-pack200 will re-initiate the call if the device is the calling party in a GSM call.
Terminal Mode	Reserved
4G Module	Whether to enable 4G module.
APN Module	Whether to enable APN module.
Dual-Timeslot Sync	You are advised to enable this parameter.
Shield Repeating	If Shield Repeating is enabled, the E-pack200 will not repeat audio signals of other groups.
RSSI Threshold Configuration	Whether to allow configuring RSSI threshold.

NOTE

In the engineering mode, it is recommended that you only modify the operation mode and voice codec according to actual conditions and leave other parameters at default value.

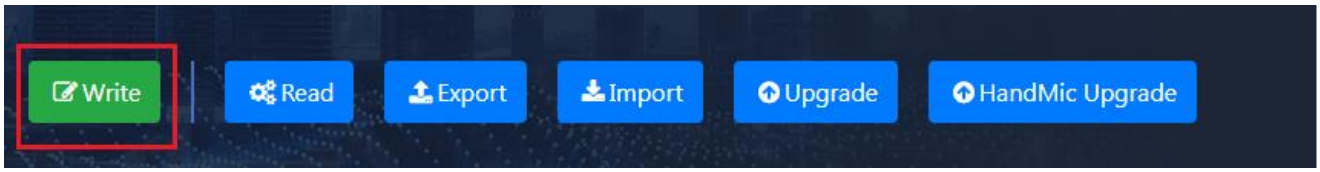
4. Operations

4.1 Write the Configuration Data into the E-pack200

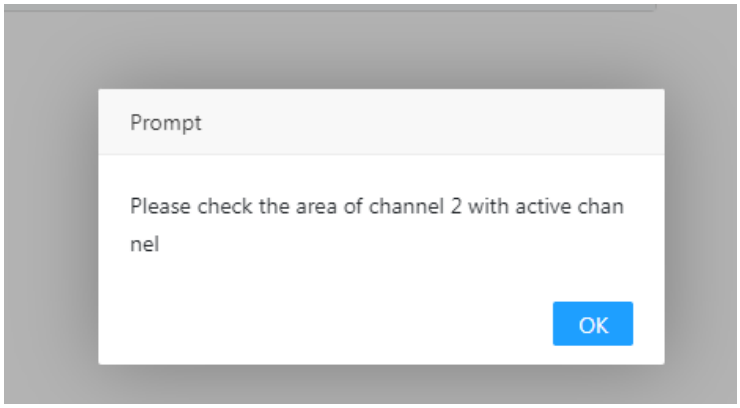
You can write the configuration data into the current E-pack200.

1. Connect the E-pack200 to the PC.
2. Log in to the E-pack200 standalone NMS.

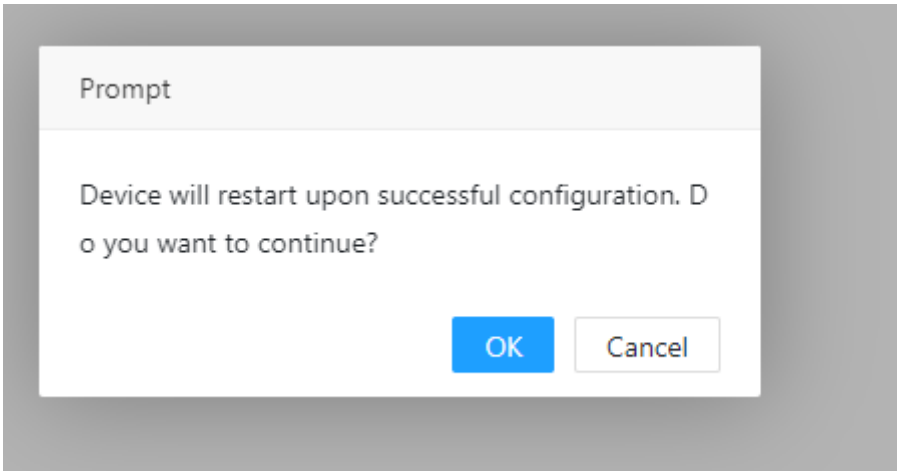
   The configuration of the current E-pack200 is displayed.
3. Modify the parameters.
4. Click **Write**.



If a parameter does not meet a specific requirement, the following error prompt appears:



If parameters configured meet their respective requirements, the following prompt appears:



5. Click **OK**.

The device restarts automatically to make the change take effect.

NOTE

You are advised to log in to the E-pack200 standalone NMS again to check the result after the E-pack200 is restarted.

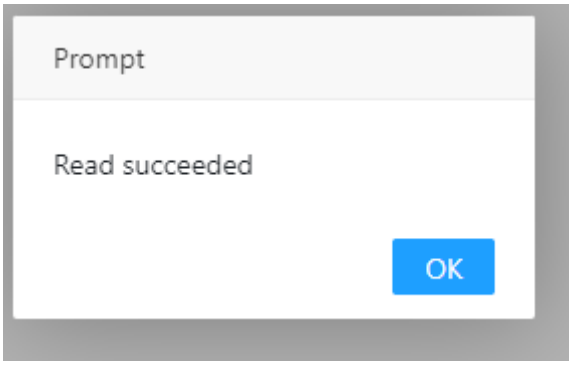
4.2 Read the Configuration Data from the E-pack200

You can read the configuration data from the current E-pack200.

1. Connect the E-pack200 to the PC.
2. Log in to Standalone E-pack200 NMS.
3. Click **Read**.

4. Click **OK**.

   The prompt appears to show you the result.

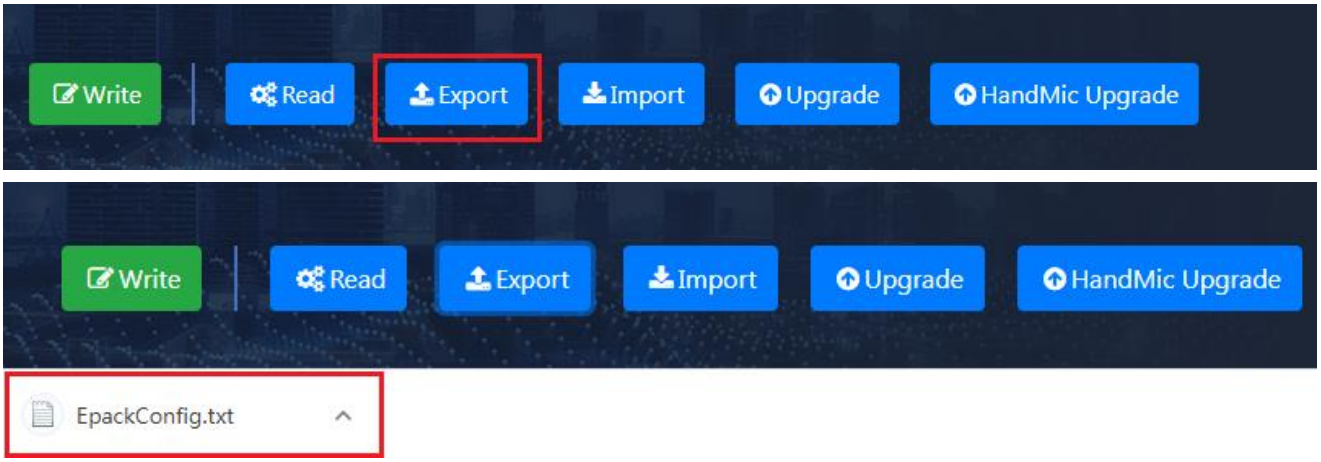


4.3 Export the Configuration Data

You can export the configuration data of the current E-pack200 to the local folder for configuring other devices.

1. Connect the E-pack200 to the PC.
2. Log in to Standalone E-pack200 NMS.
3. Click **Export**.

   The file is named "EpackConf *.txt".



NOTE

Do not modify the exported configuration file.

4.4 Import the Configuration Data

You can import a local configuration file into the current E-pack200.

1. Connect the E-pack200 to the PC.
2. Log in to Standalone E-pack200 NMS.
3. Click **Import**.

4. Select the configuration file from the local folder.
5. Click **OK**.

   If the format of the file meets requirements, a dialog indicating import success appears; otherwise, a dialog indicating import failure appears.

NOTE

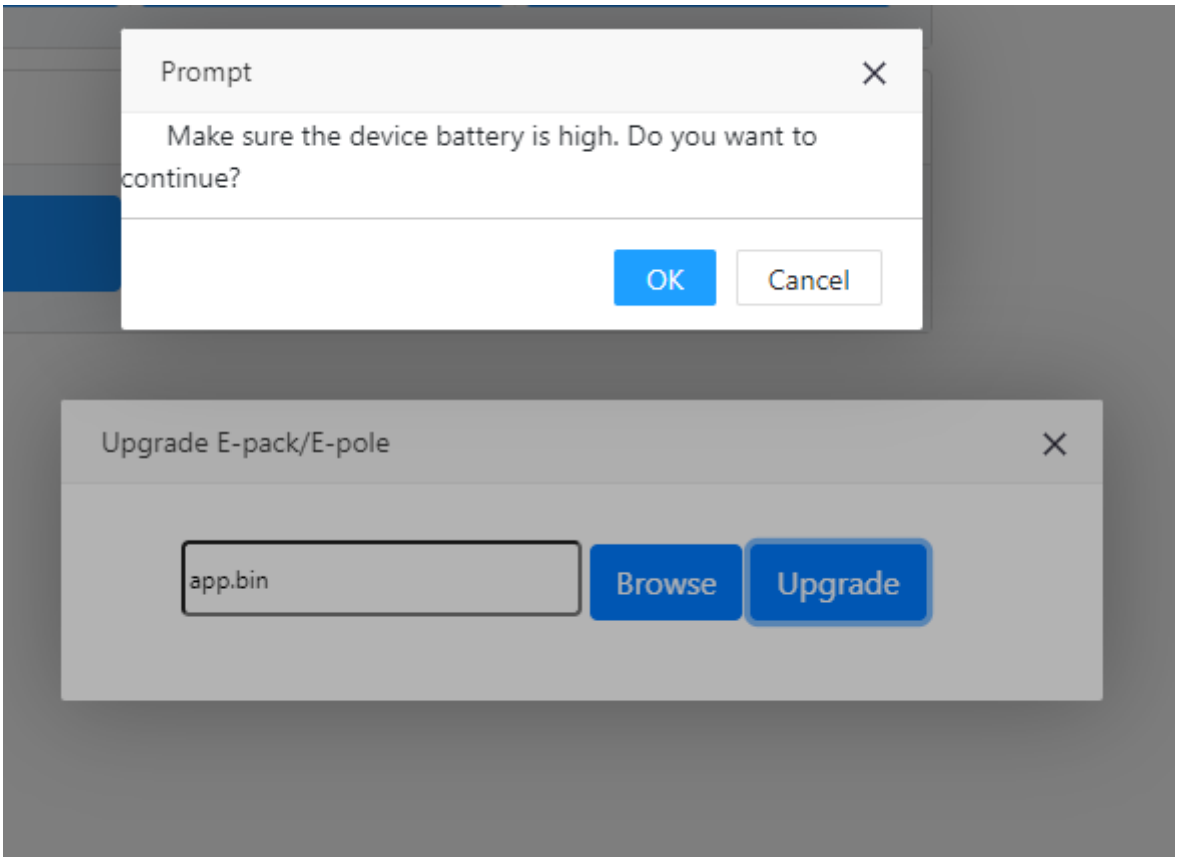
- Exported configuration files have been encrypted and verified; therefore, only eligible configuration files are allowed to be imported.
- The template must be consistent with the E-pack200 version.

4.5 Upgrade the E-pack200

You can upgrade the file system, kernel, and applications.

1. Connect the E-pack200 to the PC.
2. Log in to Standalone E-pack200 NMS.
3. Click **Upgrade**.

4. Click **Browse**.
5. Go to the path "E-pack200_VX.X.XX.\E-pack_VX.X.XX.XXX".
6. Select the upgrade file ("app.bin") from the local folder.
7. Click **Upgrade**.
8. Click **OK**.



9. Click **Restart** to make the new version take effect.

NOTE

During upgrade, do not turn off the PC or close the standalone NMS.

4.6 Upgrade the Palm Microphone

1. Connect the E-pack200 to the PC, and then connect the palm microphone to the E-pack200.
2. Log in to Standalone E-pack200 NMS.
3. Click **HandMic Upgrade**.
4. Click **Browse**.
5. Go to the path "E-pack200_VX.X.XX.\E-pack_VX.X.XX.XXX".
6. Select the upgrade file ("Handmicphone_app") from the local folder.

   Make sure the version of E-pack200 and the palm microphone are consistent.
7. Click **Upgrade**.
8. Click **OK**.
9. Click **Restart** to make the new version take effect.

4.7 Upgrade the License

1. Connect the E-pack200 to the PC, and then connect the palm microphone to the E-pack200.
2. Log in to Standalone E-pack200 NMS.
3. Click **HandMic Upgrade**.
4. Click **Browse**.
5. Go to the path "E-pack200_VX.X.XX.\E-pack_VX.X.XX.XXX".
6. Select the upgrade file ("VOS.lic") from the local folder.
7. Click **Upgrade**.
8. Click **OK**.
9. Click **Restart** to make the new version take effect.

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