Wecon V-NET Web User Manual

(V3.1)

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Date: November 20

Content

Chapter 1 Web link

Chinese server: http://V-BOX.net

Europe server: http://eu.V-BOX.net

Asean server: http://asean.V-BOX.net

V-BOX PC software and APP download link: http://www.we-con.com.cn/en/service.html

Chinese server: http://api.V-BOX.net

Europe server: http://api.eu.V-BOX.net

Asean server: http://api.asean.V-BOX.net

Chapter 2 Login page introduction

2.1 Register

Users could register V-BOX account through mobile phone number or email. The registration interface is shown in the figure below, but users in other countries (except China) could only register with e-mail address.

For mobile app register interface is shown in Figure 2- 1

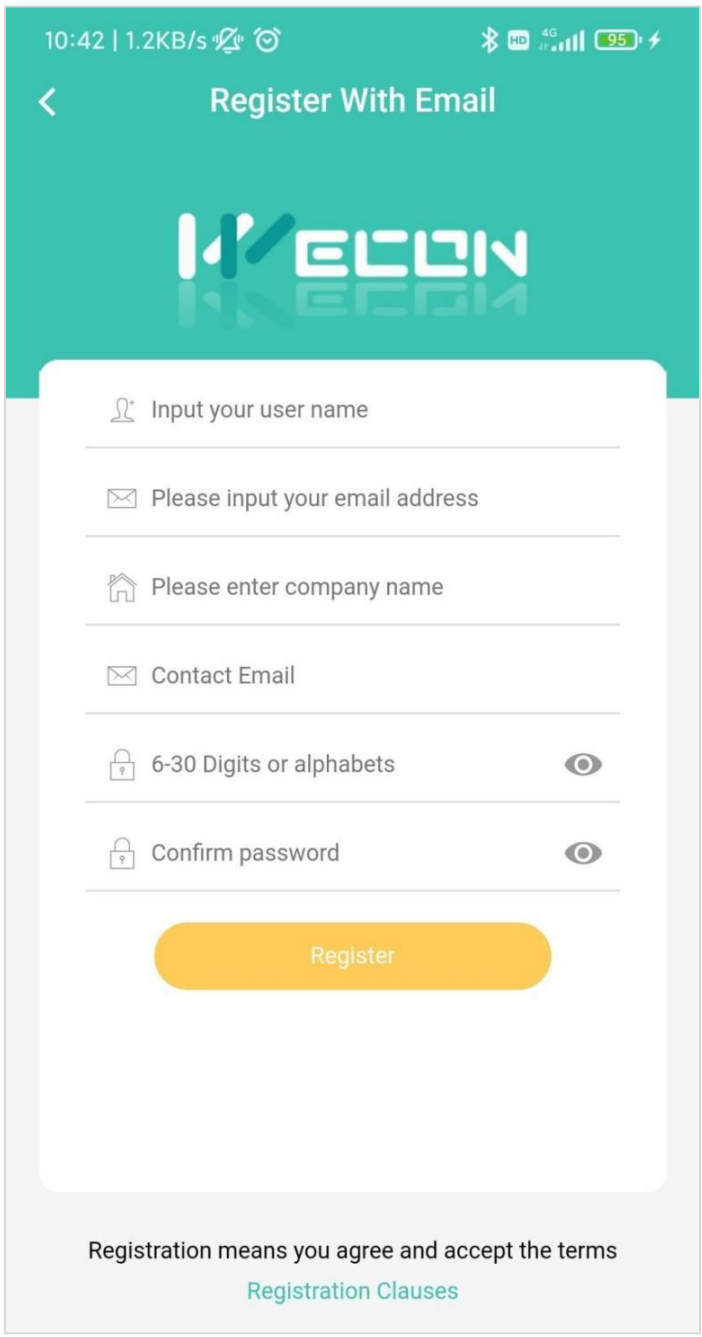


Figure 2- 1

For PC V-NET register interface is shown in Figure 2- 2 and Figure 2- 3.

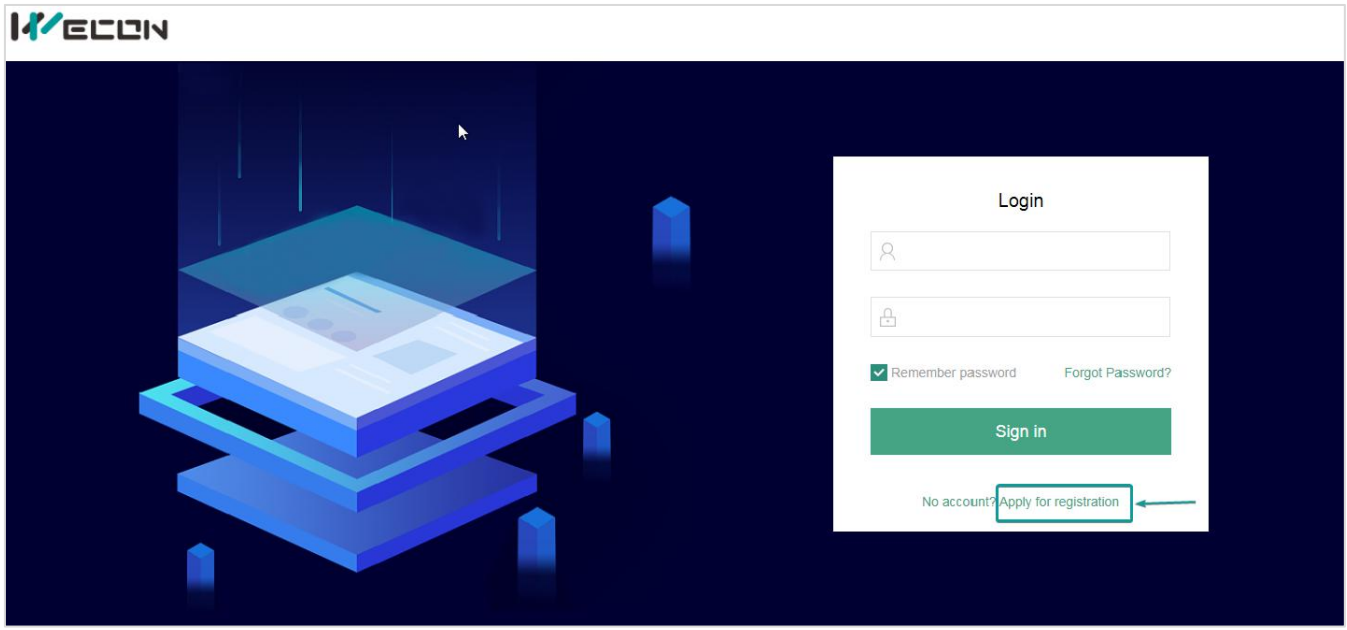


Figure 2- 2

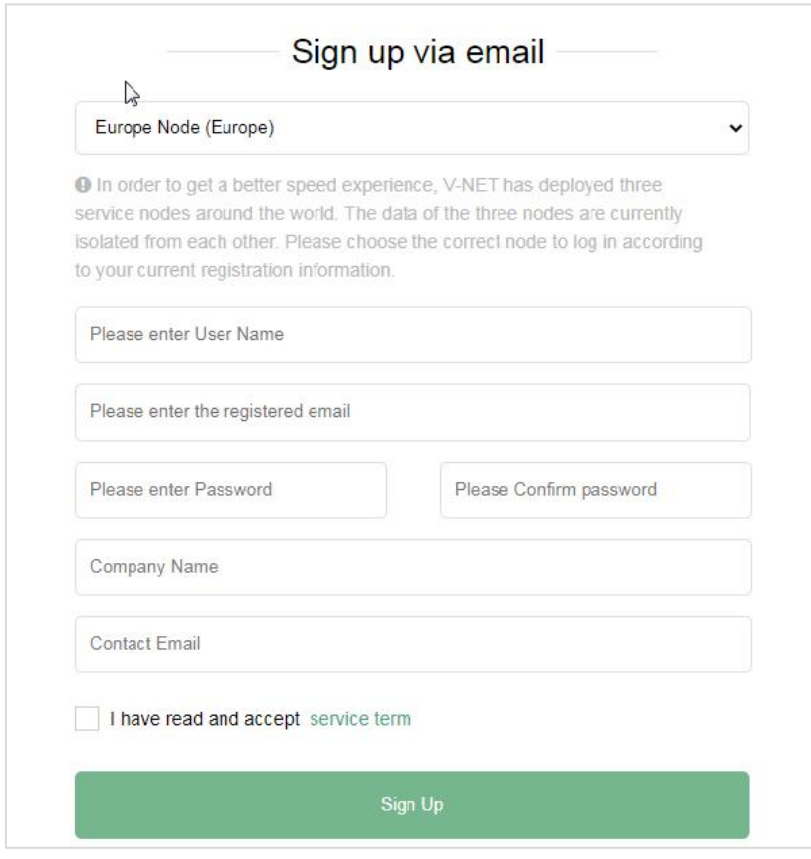


Figure 2- 3

Operating procedures of Registering by an Email address

① Enter user name, the user name should be a unique name. If the username already exists, the prompt message would appear, as below. And numbers, letters, and underscores are legal characters for the username, and the length of user name shall not exceed 20 digits.

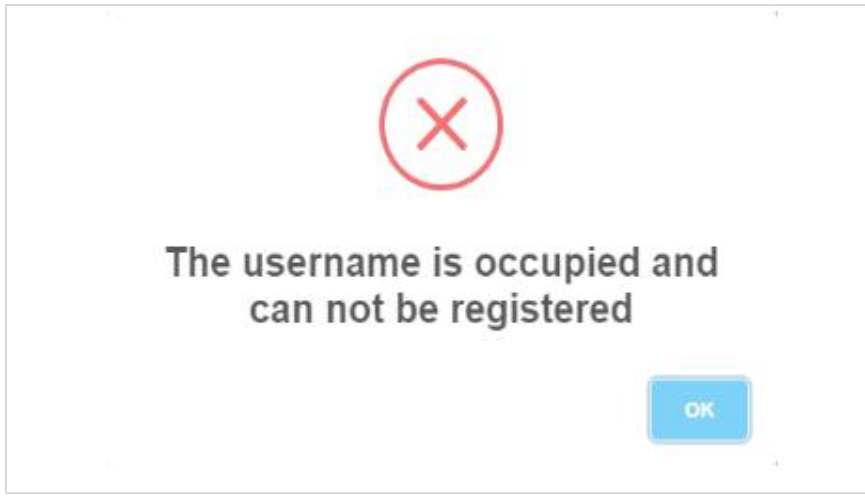


Figure 2- 4

② Enter the email address.

③ Set the password, and please ensure that the password which has been entered secondly shall be consistent.

④ Select "I have read and accept it", after reading "Registration Clauses", please make sure you could accept all terms of this agreement.

⑤ Click "Register" to execute account registration, and the prompt message would display as below。

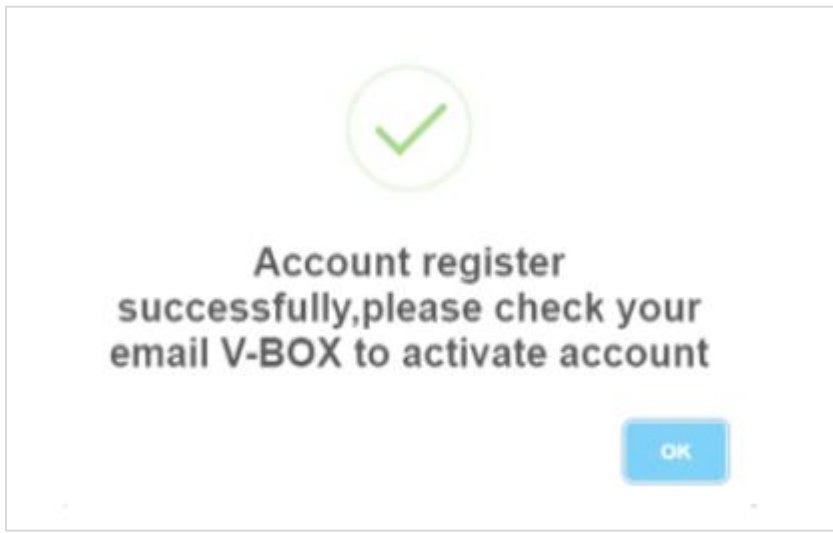


Figure 2- 5

✎**Note:** if user do not receive the register email, please check the Recycle bin.

2.2 User login

When the user logs in, the account could be the user name or email address (subject to the registered account). Only when the user name or email address is legal and matches the password, could the login succeed. The same account could be logged in at the same time on the web and mobile, but not on different PC devices at the same time. If you use the same account to log in on different PC devices successively, the account on the device that logs in first would be forced offline.

The configuration of the main picture, background color, and background picture of the middle part

in the landing page could be modified. Set the module parameters for configuration through the super management (main station super management and virtual super management) background landing interface. The virtual super management could only be configured if it is approved. The login interface is shown as below：

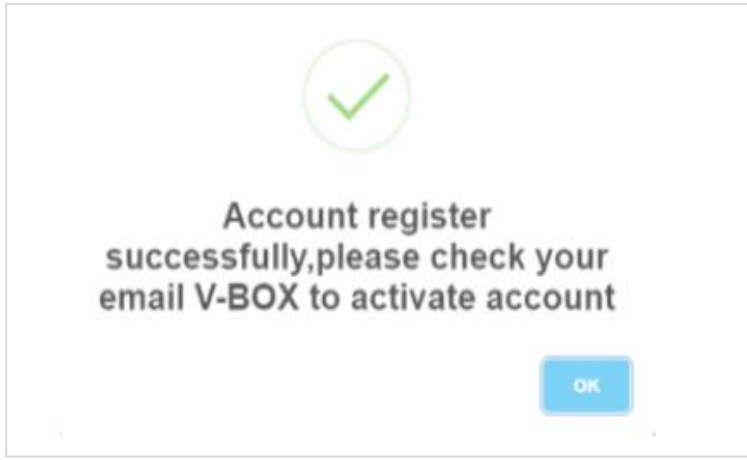


Figure 2- 6

Operating procedures of login

① Select user interface, Chinese or English are supported.
② Enter user name, such as WECONSupport.
③ Enter password.
④ Check "Keeping the state of sign in within 30 days", if necessary, kindly note, please don't use this option in public PC.
⑤ Click "Sign in" button.

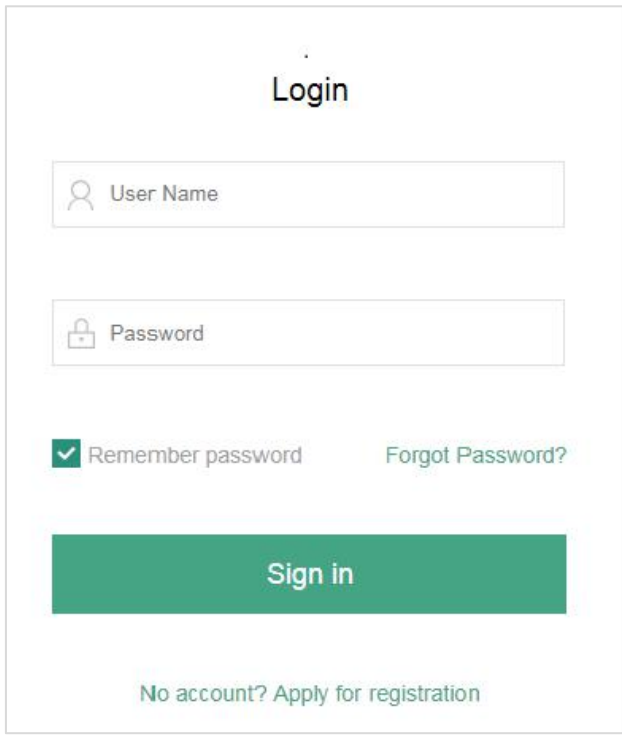


Figure 2- 7

2.3 Retrieve password

When the user forgets the login password, the password could be retrieved through email. The password could be modified successfully only when the entered verification code is consistent with the verification code received by the user on email and the entered password is legal, As shown below:

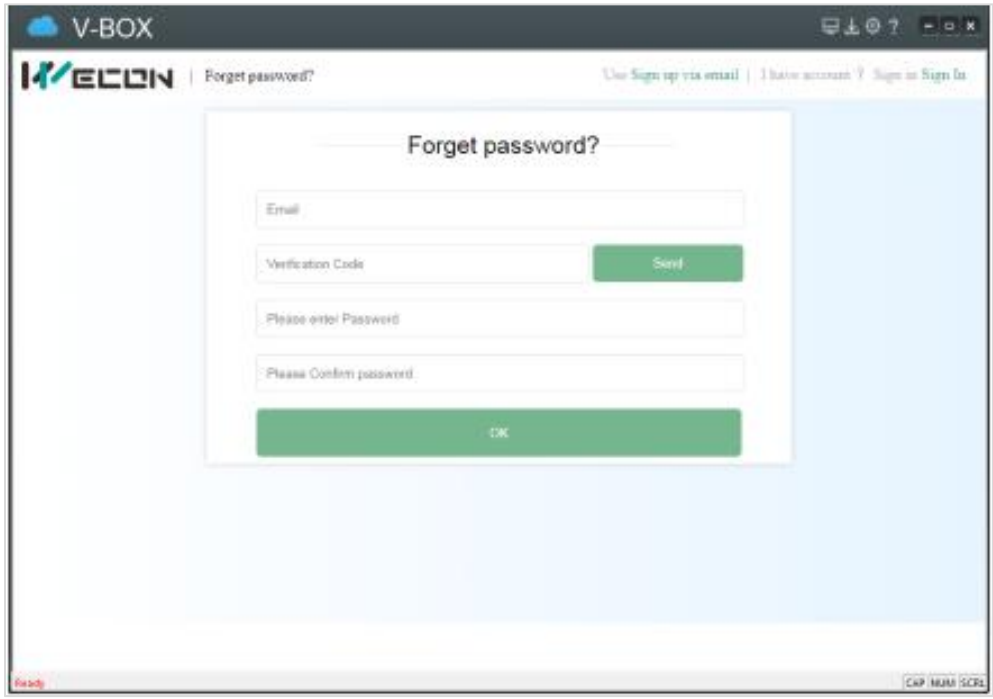


Figure 2- 8

2.4 Information navigation bar

Information navigation bar is on the top of the right interface of the V-NET platform, and it would be displayed on all pages of the platform (except for special pages, such as full-screen map pages, etc.), as shown in following figure.

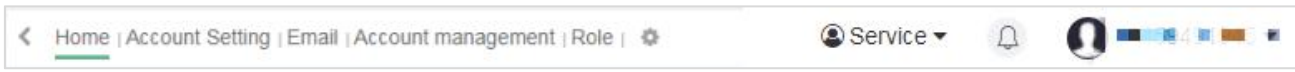


Figure 2- 9

2.4.1 Shortcut menu

The shortcut menu configuration is on the left side of the information navigation bar, the shortcut menu of user-defined configuration is displayed here. The homepage is a fixed menu and could not be canceled. The shortcut menus that could be configured include Role, Account setting, Email, Account management. The configurable shortcut menu could be configured in the administrator account.

Click the button  on the information navigation bar to choose to close or display the shortcut menu in the pop-up box, as shown in the following figure.

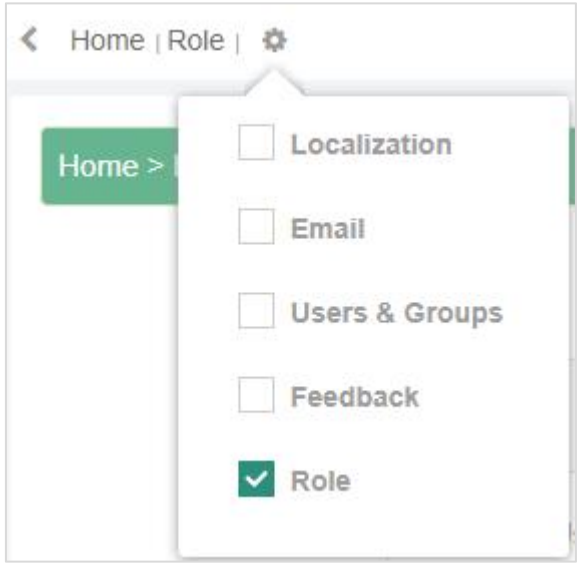


Figure 2- 10

2.4.2 Service

"Service" module includes eight functions, including **Account management, Role, Cloud SCADA, Email, Help, Feedback, HTTP access, Request to share.**

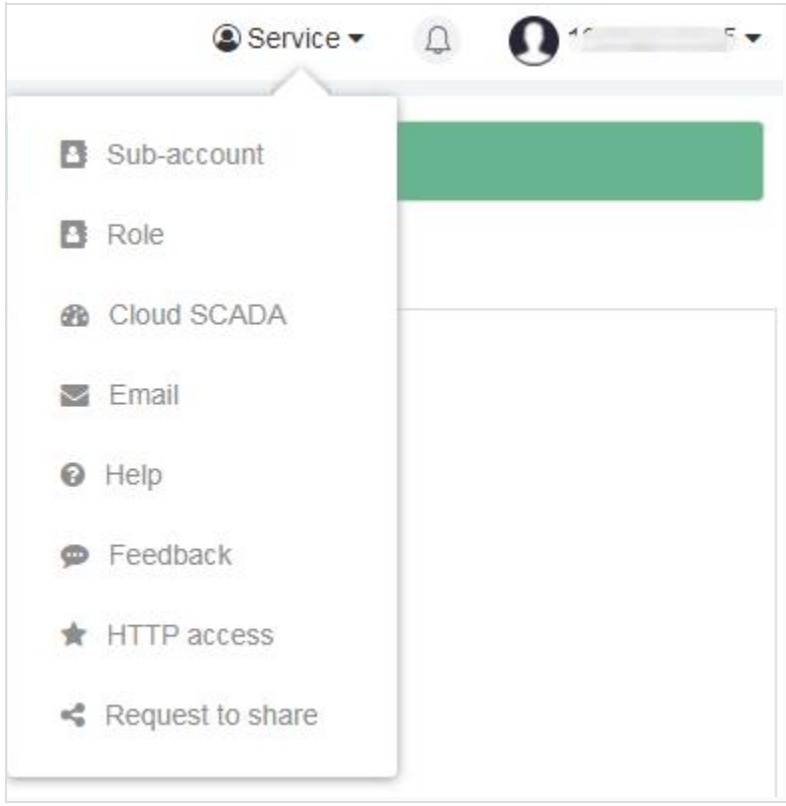


Figure 2- 11

(1) **Account management.** Refer to detail for **Chapter 6 Account management.**

(2) **Role.** Refer to detail for **Chapter 7 Role management.**

(3) **Cloud SCADA.** Refer to detail for **4.5 Cloud SCADA**

(4) **Email.** Refer to detail for **4.1.5 Status push(Email)**

(5) Help. Click it to jump to this user manual.

(6) Feedback. Click it to jump to the user feedback interface and fill in product requirements, function suggestions, product defects, etc., as shown in the following figure.

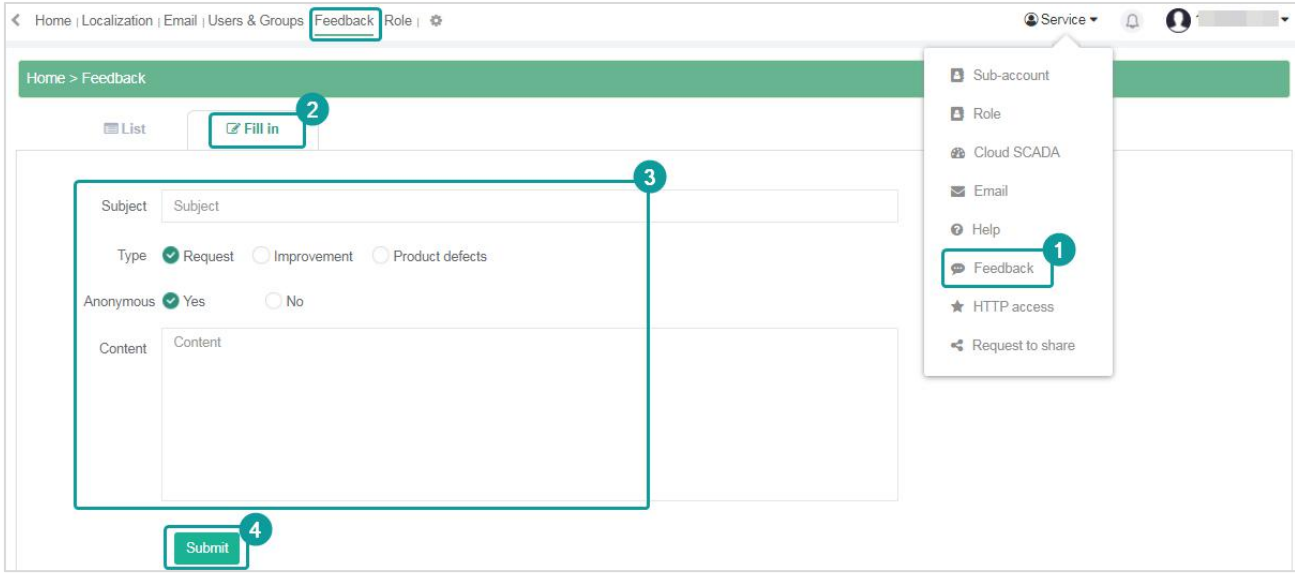


Figure 2- 12

(7) HTTP access.

Click it to jump to the configuration interface of HTTP access, as shown in following figure.

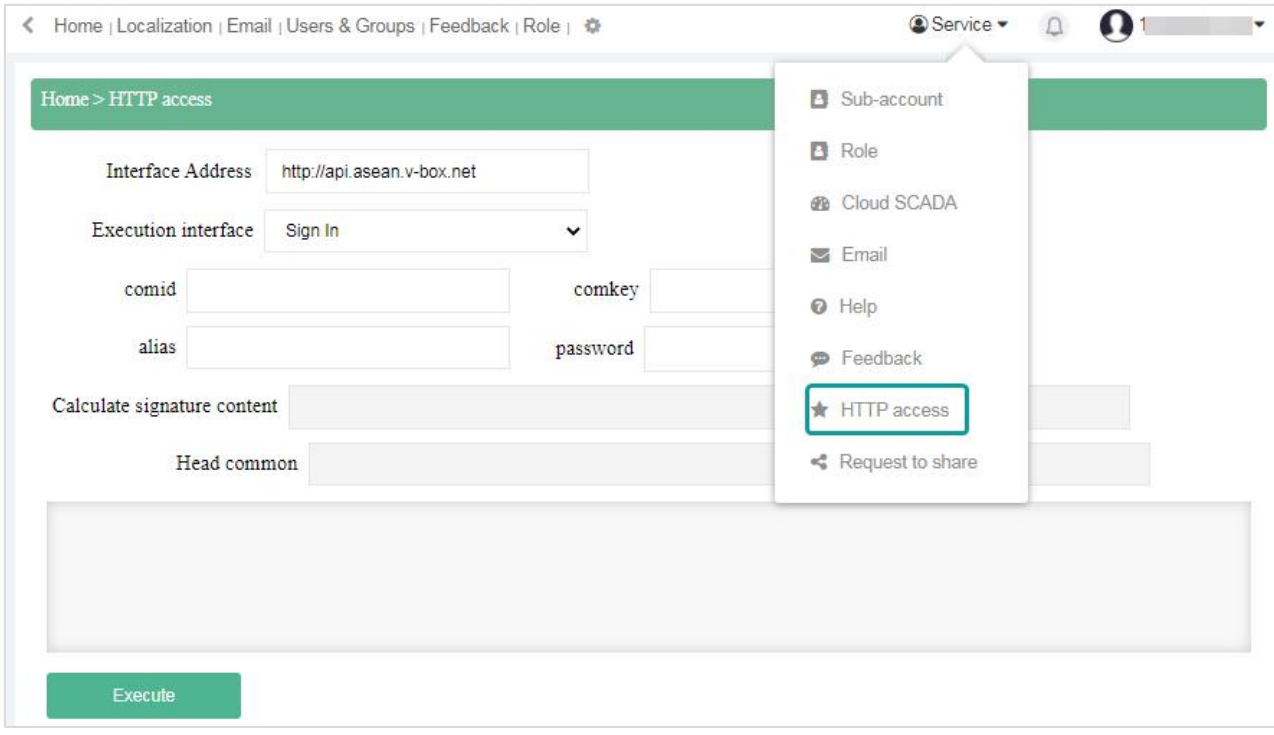


Figure 2- 13

(8) Request to share.

After the other account agrees to the request of sharing the V-BOX or ig screen, after the other party's account agrees, the device requested to be shared would be displayed in the "Share with Others" list under my account. To request sharing, the machine code of the v- box or ig screen should be entered.

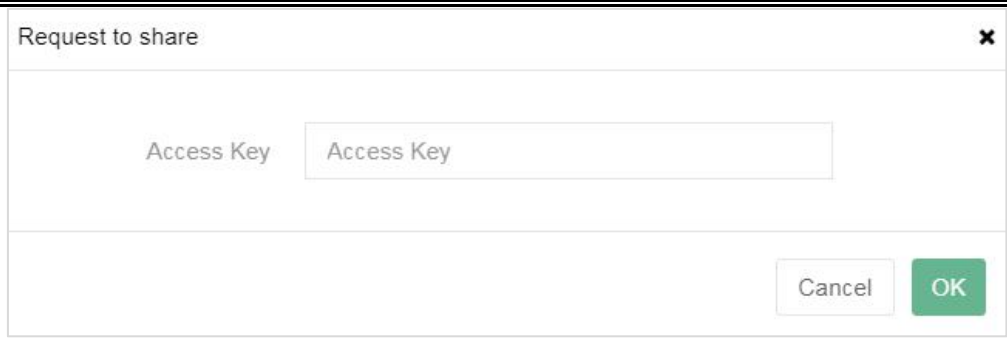


Figure 2- 14

The system would send a share request to the device account and waits for the other account's approval or rejection.

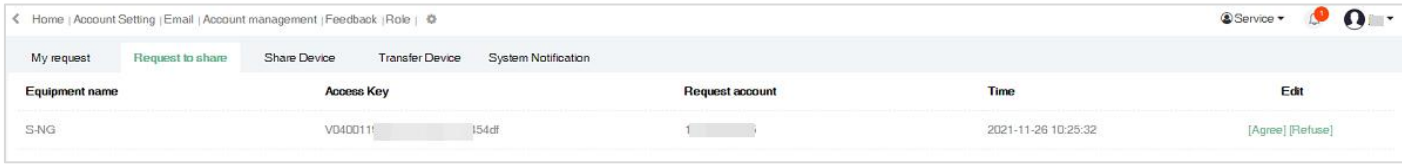


Figure 2- 15

2.4.3 Account Information

The right of the information navigation bar displays the currently logged-in account information, including **user avatar, username**. Click username to display a drop-down box, including **User avatar, Administrator account name, Account type, Change password, Modify avatar, Account details, Localization,** and **Sign out.**

(1) Modify avatar. Upload the user avatar. If the user does not upload the avatar, the default profile picture is used. As shown below.

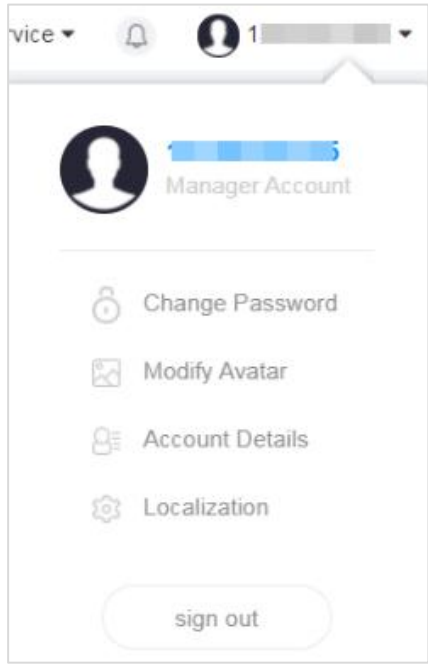


Figure 2- 16

(2) Change password. Users need to enter the old password and the new password. Only when the entered password is valid would the operation succeed. As shown below.

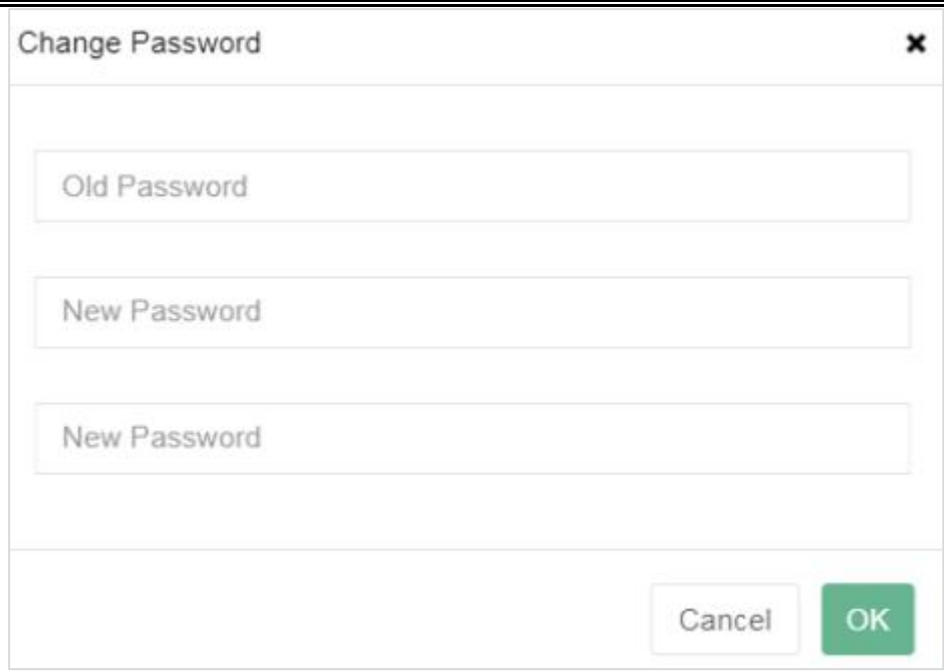


Figure 2- 17

(3) Account details. It includes users' information and company information.

1) users' information includes Username, Email, Phone number, and click "edit" to change email or phone number.
2) Company information includes Company name, Owner, Contact. Phone number and Email. As shown below.

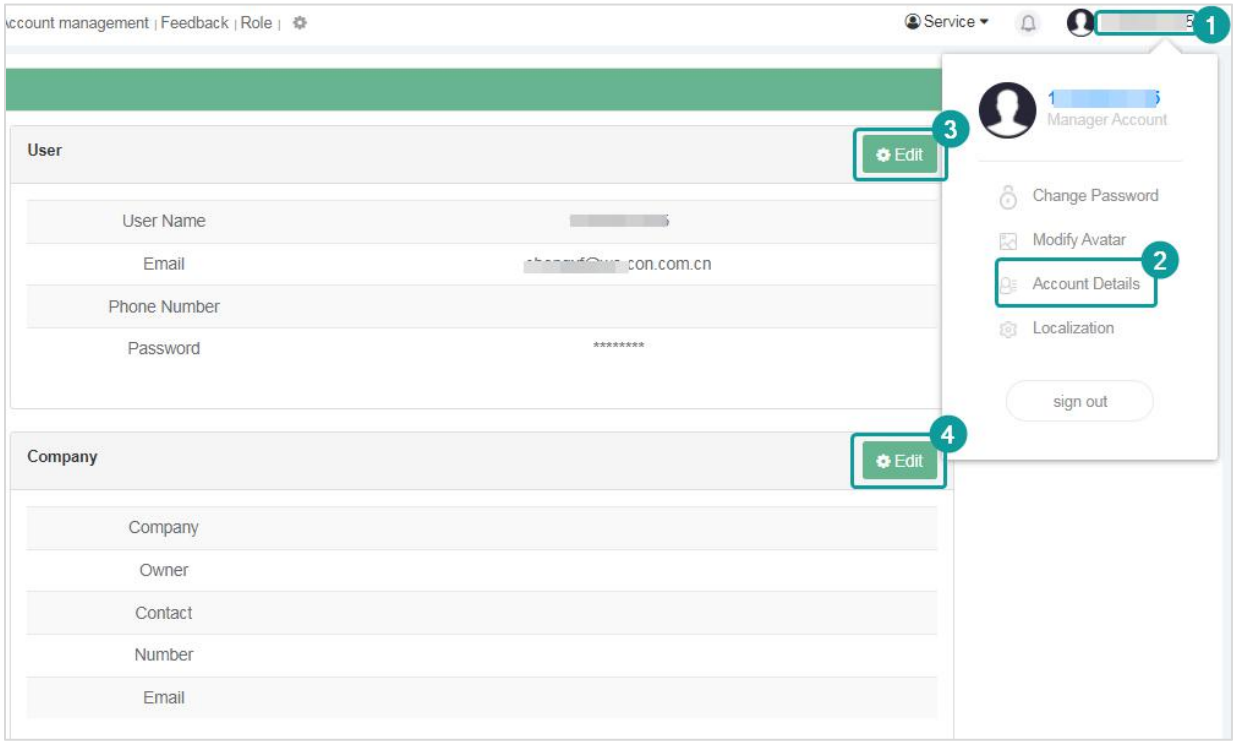


Figure 2- 18

(4) Localization. Click it to change the time zone, region, and map of the account. After the change, the time reported by the device would be converted and displayed in the set time zone. As shown below.

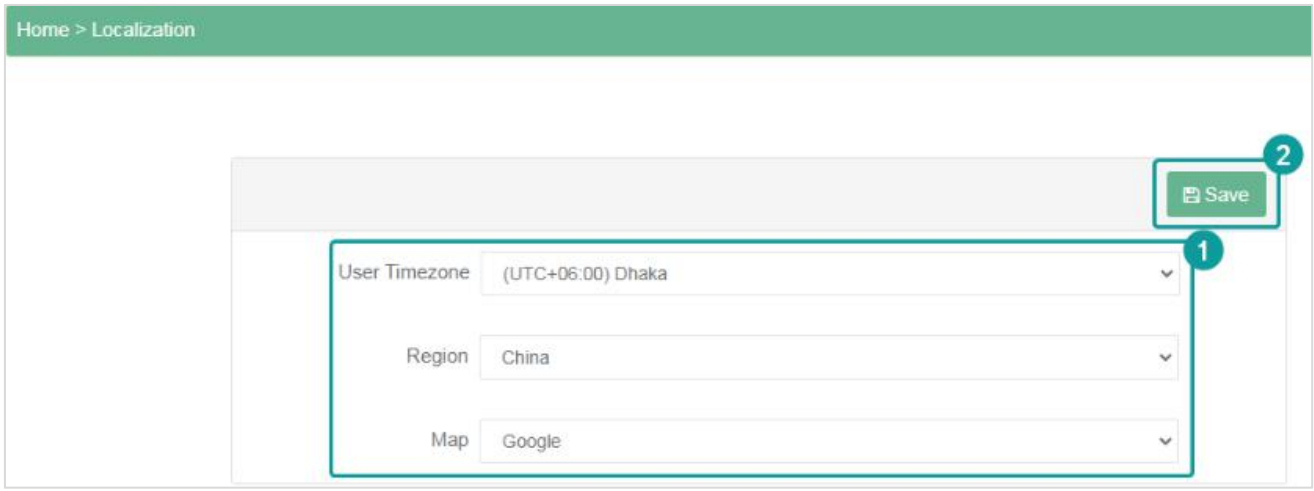


Figure 2- 19

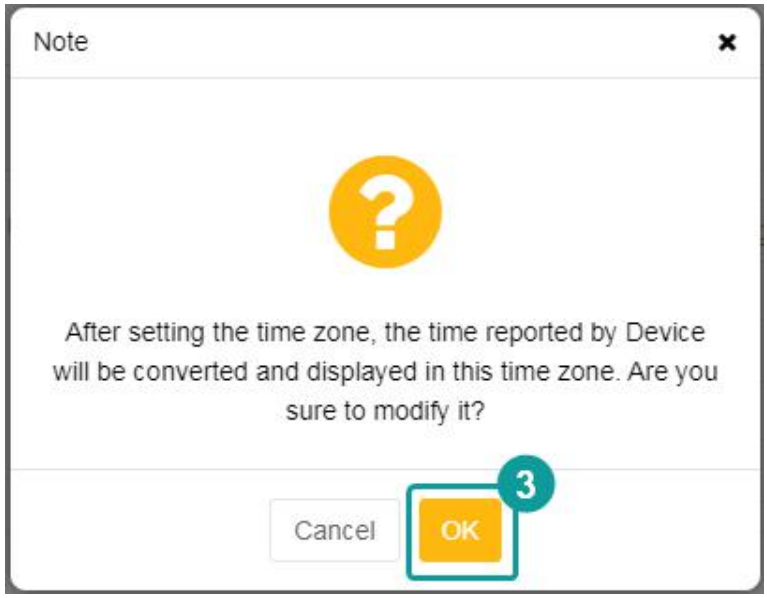


Figure 2- 20

2.5 Home page

The home page is the page that the user jumps to by default after logging in to the platform. Users could jump through the shortcut menu configured in the information navigation bar. The home page includes four modules, including **device statistics information, map thumbnail, announcement,** and **current alarms**. The home page is shown in the following figure.

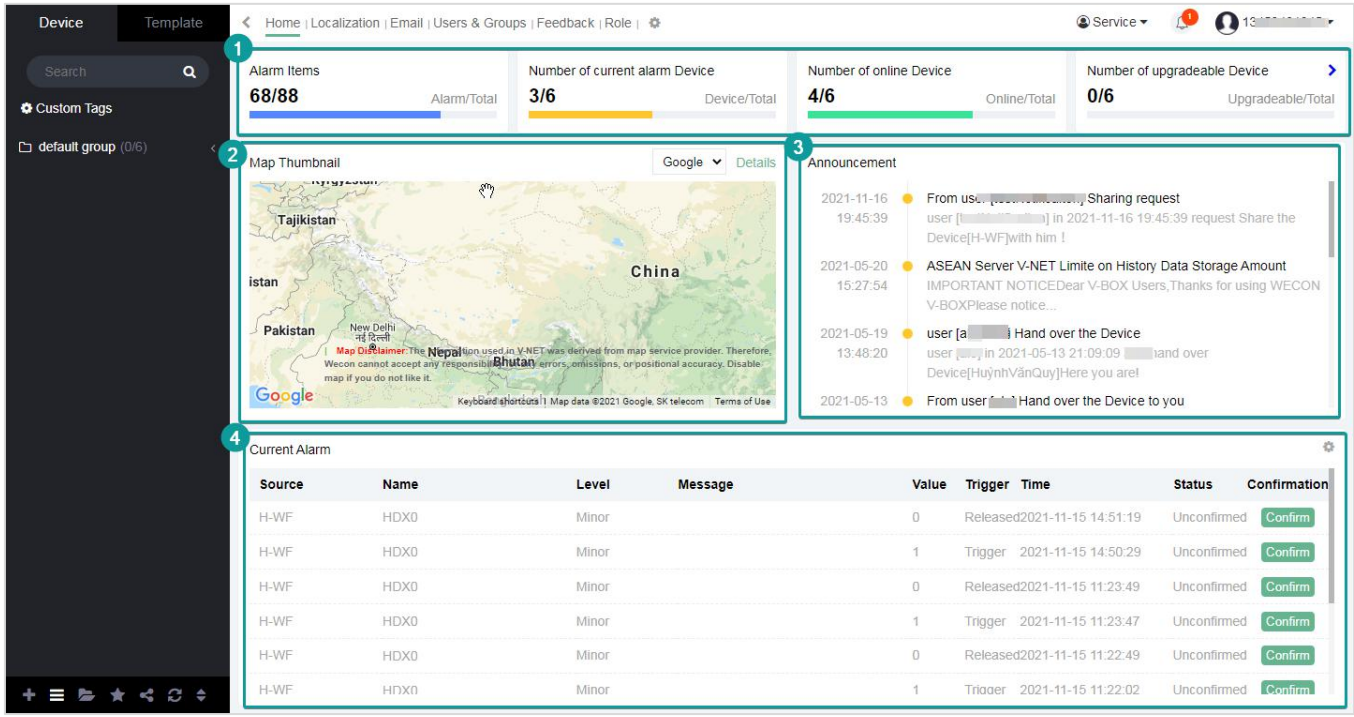


Figure 2- 21

2.5.1 Device statistics information

The device statistics information includes the current alarm numbers of the V-BOX/ig screen, the items of current alarm devices, the number of online devices, and the number of upgradeable devices. The progress bar in the statistical information is the proportion of data and total number.

(1) Current alarm items. The number of current alarms is divided by the number of all alarms.

(2) Number of current alarm devices. Current number of devices with alarms is divided by the total number of all devices.

(3) Number of online devices. The number of online devices is divided by the total number of all devices.

(4) Number of upgradeable devices. The number of devices that could upgrade firmware is divided by the total number of all devices.

Click the number of upgradeable devices, it would jump to the upgradeable device list page, where you could upgrade the V-BOX online, as shown in the following figure.

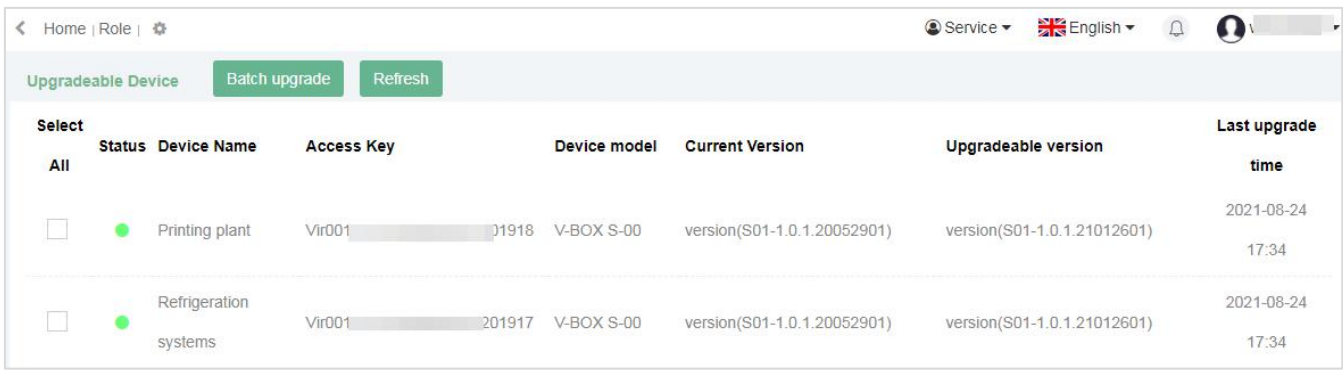


Figure 2- 22

2.5.2 Map thumbnail

The map thumbnail could realize the functions of color switching, point aggregation and dispersion, normal and satellite map switching, as shown in the following figure.

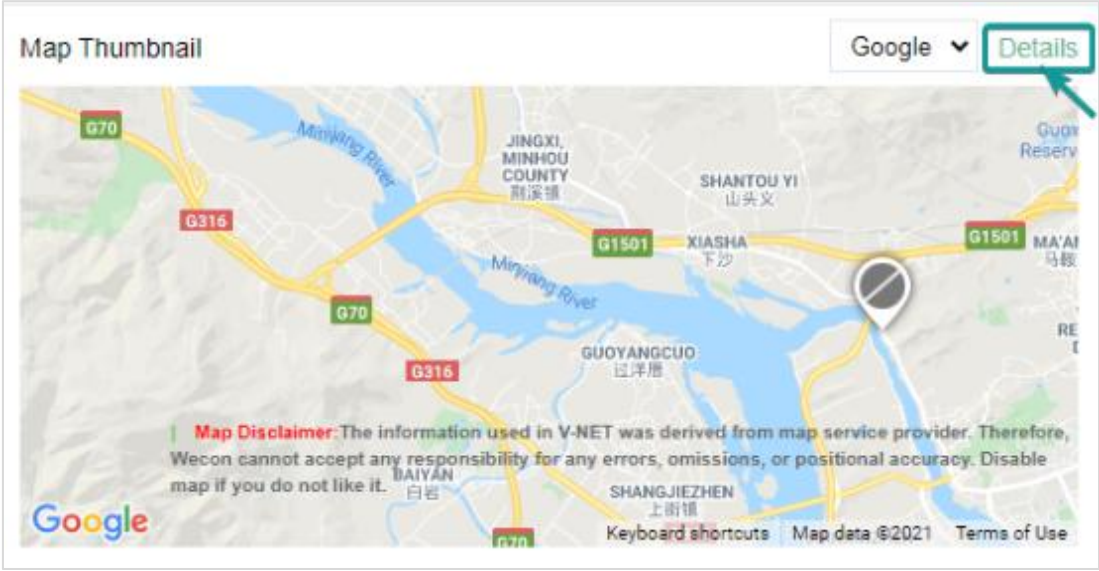


Figure 2- 23

Click the [Details] button in the upper right corner of the map thumbnail to enlarge the map.

Icon	Name	Meaning
	On line	V-BOX or ig screen is online.
	Off-line	V-BOX or ig screen is off-line.
	Pass-through	V-BOX or ig screen status is in pass-through.
	VPN pass-through	V-BOX or ig screen status is in VPN pass-through.
	Ordinary download channel is ready	V-BOX or ig screen is ready for ordinary download channel (could perform ordinary download).
	Ordinary download	V-BOX or ig screen status is in ordinary download.
	Off-line alarm	V-BOX or ig screen status is in off-line alarm.

	On line alarm	V-BOX or ig screen has at least one current alarm, and the device status is in online alarm.

Table 2- 1

2.5.3 Announcement

It displays the latest 10 notification announcements, including device transfer, sharing, system notification and other messages. As shown in the following figure.

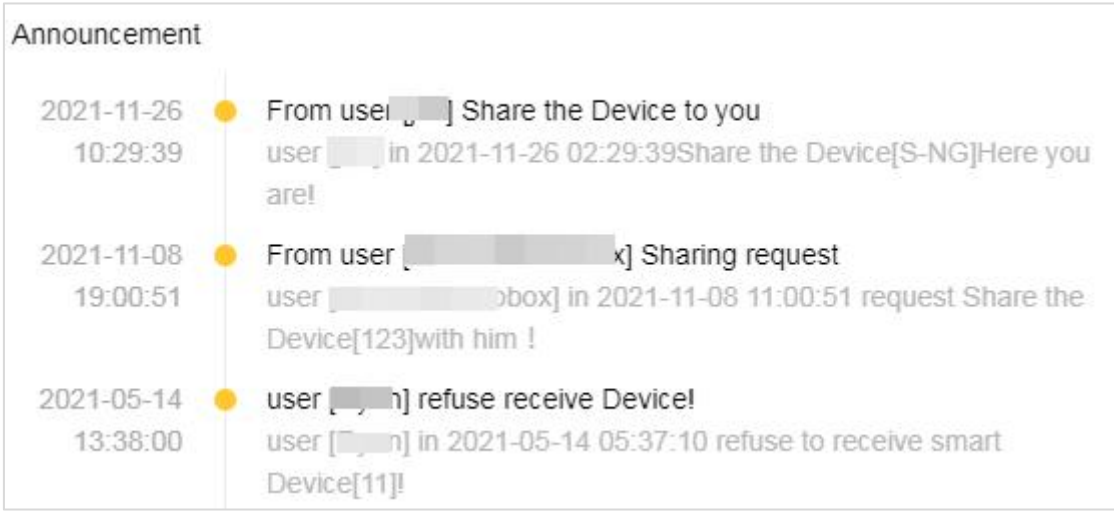


Figure 2- 24

2.5.4 Current alarms

It displays the latest 10 current alarms of the designated V-BOX/ or ig screen that the user has the authority to operate. As shown in the following figure.

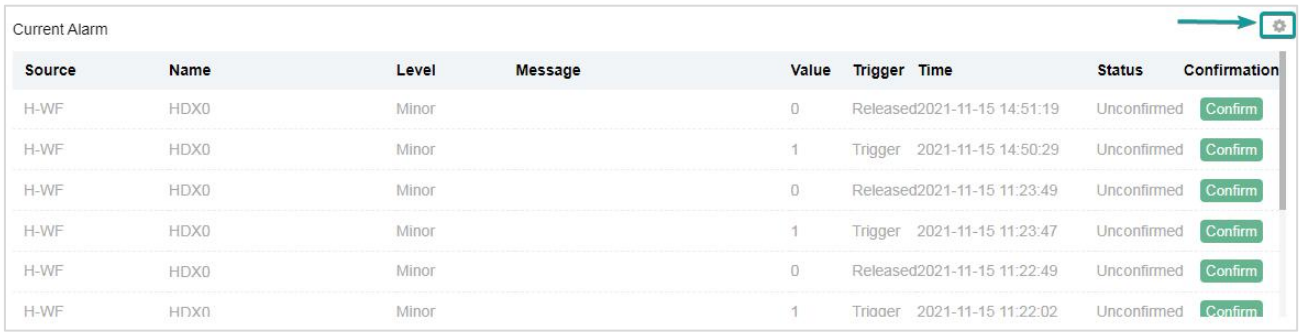


Figure 2- 25

✎Note

① When the user does not configure to display the alarms of the V-BOX or ig screen that needed, it displays is the alarm records of all the V-BOXs or ig screens by default, and displays the latest 10 current alarm records of all the V-BOXs or ig screens.

② The user could click the button in the upper right corner to configure the V-BOX or ig screen that displays the alarm records. (only select configuration, not configure the alarm monitoring point of the V-BOX or ig screen.

2.6 Device List Management

2.6.1 Device list

There are five functional areas in the device list modules: **Multi-grade device list, Template list, Customized monitoring points, Device search and Toolbar**.

The multi-level device list displays all the devices under the account, and displays it in the form of a multi-level grouped tree menu. Select the V-BOX device  , it would automatically jump to the functional module interface. There are seven modules, including **Real-time Data, Alarm, Historical data, Cloud SCADA, Lua script, Pass-through, and Configuration**. As shown in the following figure.

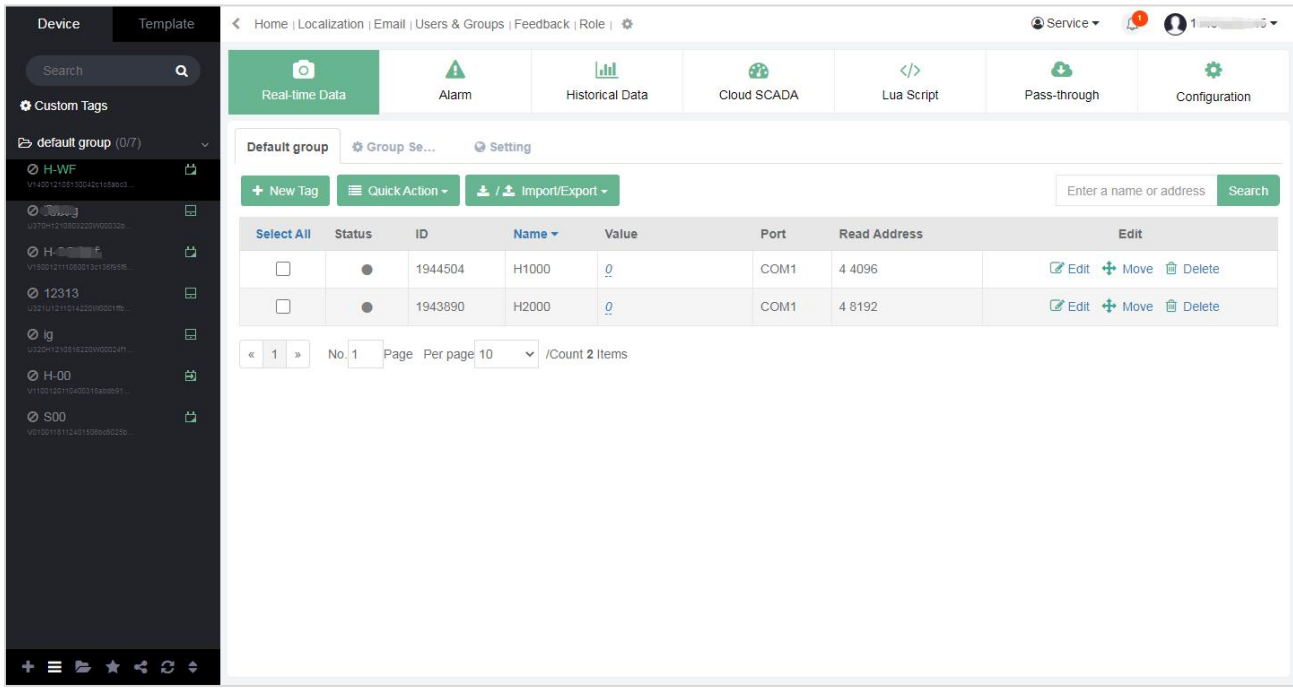


Figure 2- 26

Select the ig screen  , it would automatically jump to the functional module interface. There are four modules, including **Remote monitoring, Data view, Pass-through, and Basic**. As shown in the following figure.

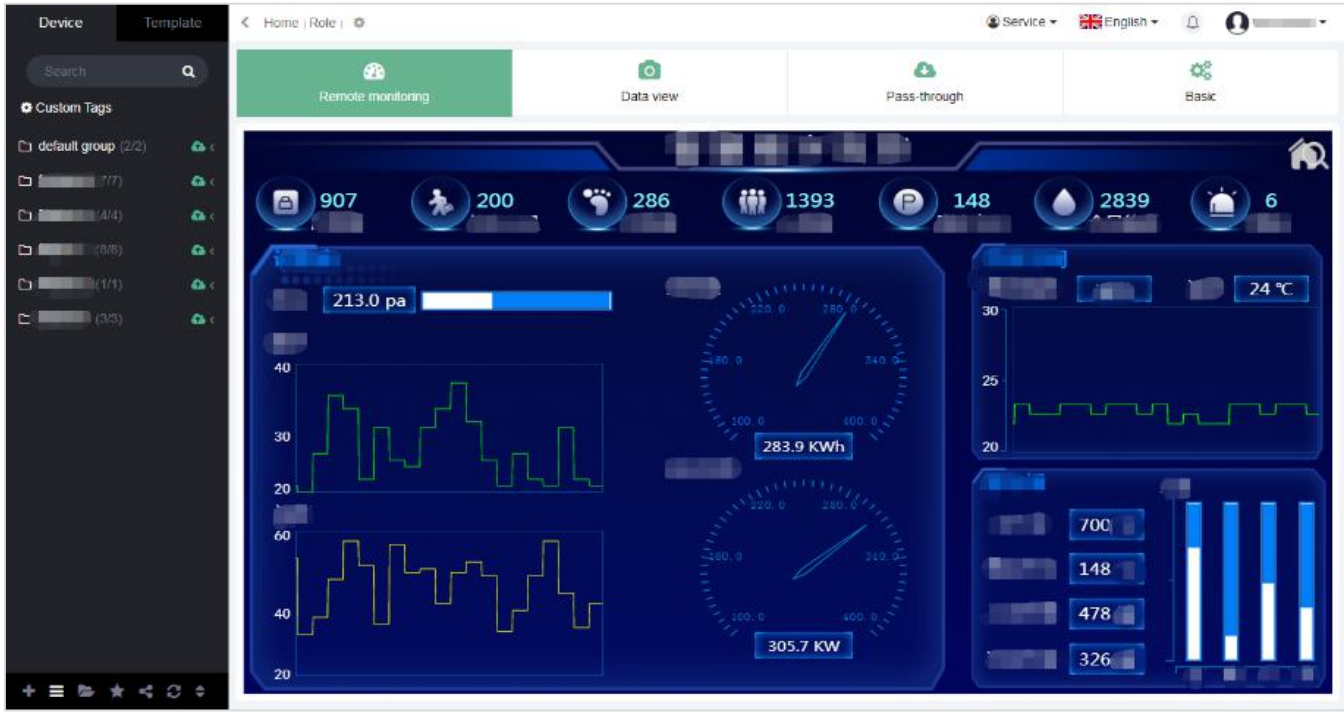


Figure 2- 27

(1) Group right-click menu

Position the mouse on the multi-grade group name, right-click the mouse to display a drop-down menu bar, including map, add, and rename functions. As shown in the following figure.

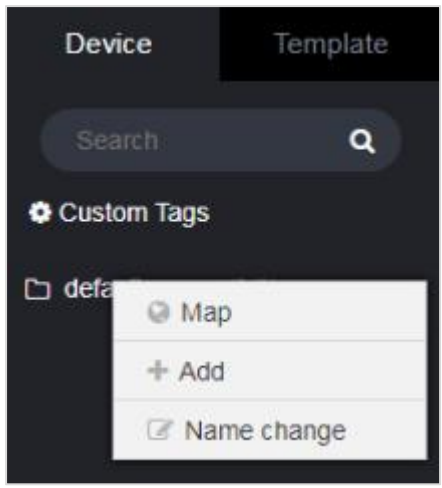


Figure 2- 28

1) **Map.** It displays the location of all V-BOXs or ig screens under this group on the map.
2) **Add.** Add a new V-BOX or ig screen to this group.
3) **Name change.** Change the group name

(2) Device right-click menu

Position the mouse on the name of a V-BOX or ig screen under a multi-grade group name, right-click the mouse to display a drop-down menu bar, including **Follow, Share Device, Move Group, Copy Access Key, Transfer, Replace, Pass-through, Cloud SCADA, Share configure, Export, Import, Mark on the map, Generate template.** As shown in the following figure.

1) V-BOX

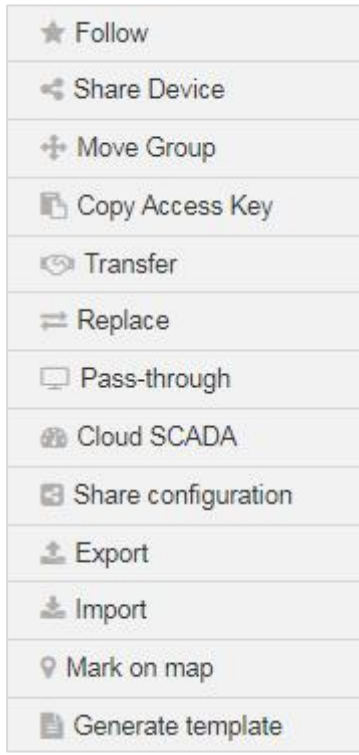


Figure 2- 29

2) ig screen

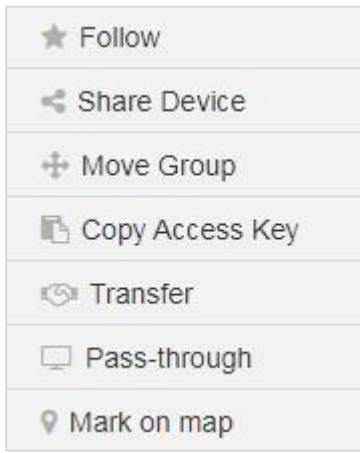


Figure 2- 30

① **Follow**

Select the device in the list and right-click, then click **[follow]** to add the devices you need to focus on to the follow list, and the followed V-BOX or ig screen could be viewed in the "My Follow" list, right-click and select cancel follow to delete it. As shown in the following figure.

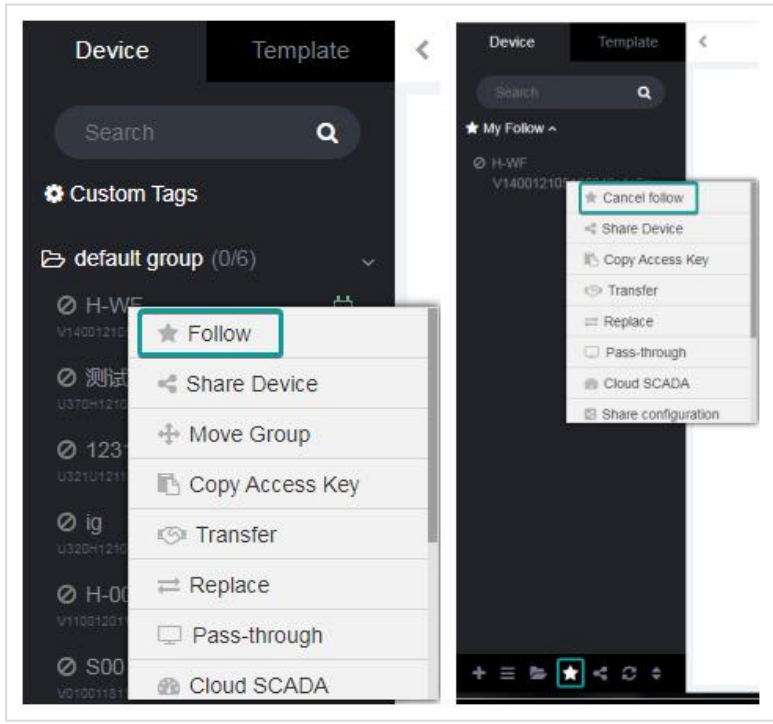


Figure 2- 31

② **Share device**

Share the V-BOX or ig screen device with permission (read and write) to other accounts. After sharing, the device is still in its own device list, and other accounts could view it without receiving it. Select the device in the list and right-click, then click [share device] in the menu bar to share the device. After sharing successfully, view the details in the "My Shares" list. As shown in the following figure.

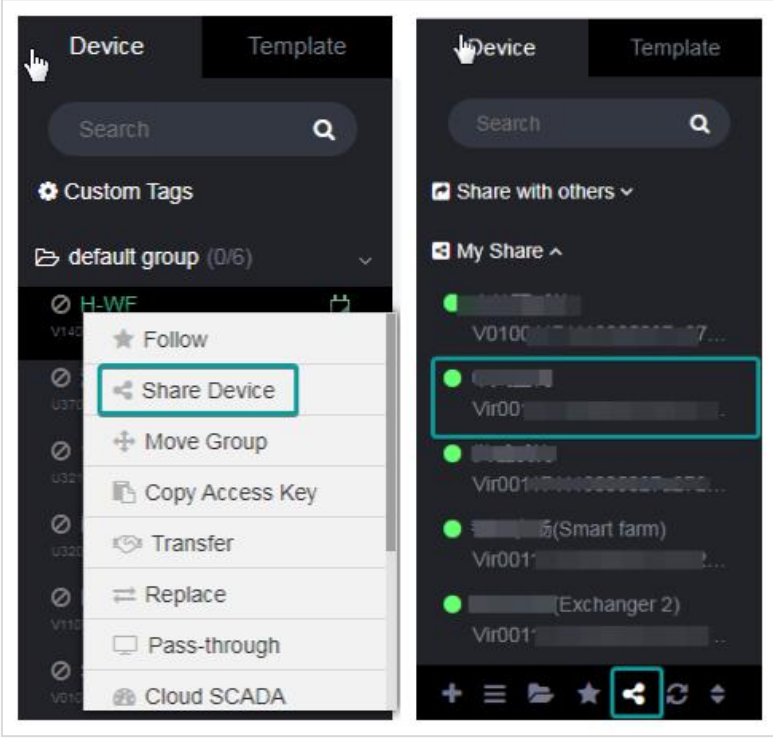


Figure 2- 32

✎**Note:** If select [Allow tags to write values], other accounts would has the permission to write values to the monitoring point of V-BOX or ig screen. If not, the value in the data monitoring interface would be gray and could not be changed. As shown in the following figure.

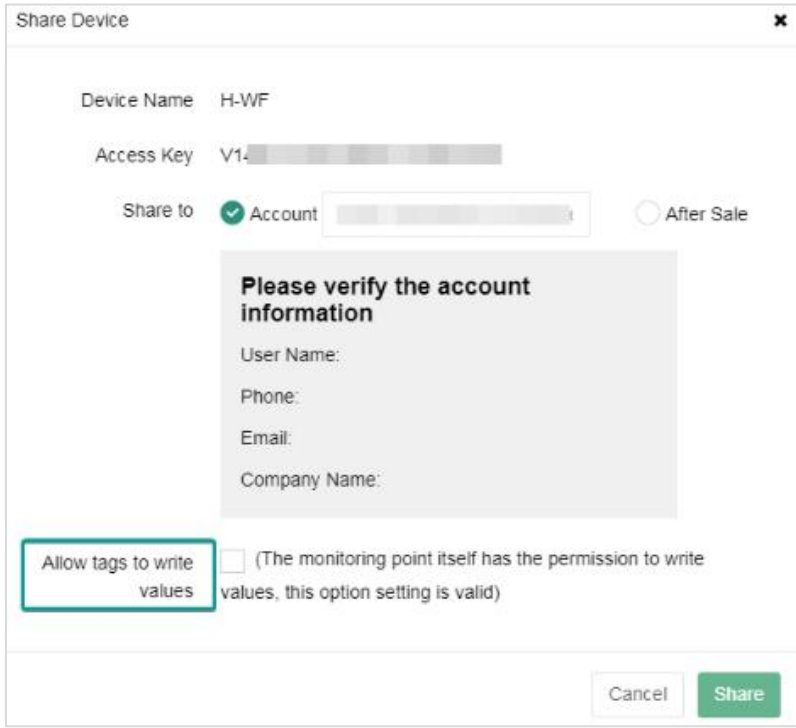


Figure 2- 33

③ **Move group**

Select the device in the list and right-click, then click [Move group] to modify the group to which the V-BOX or ig screen belongs. As shown in the following figure.

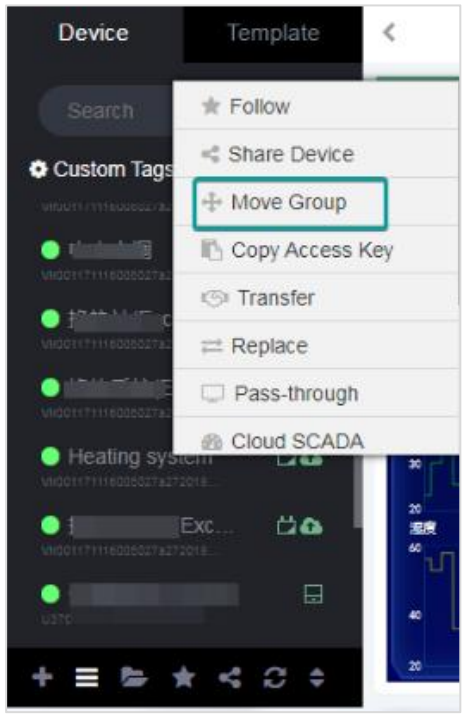


Figure 2- 34

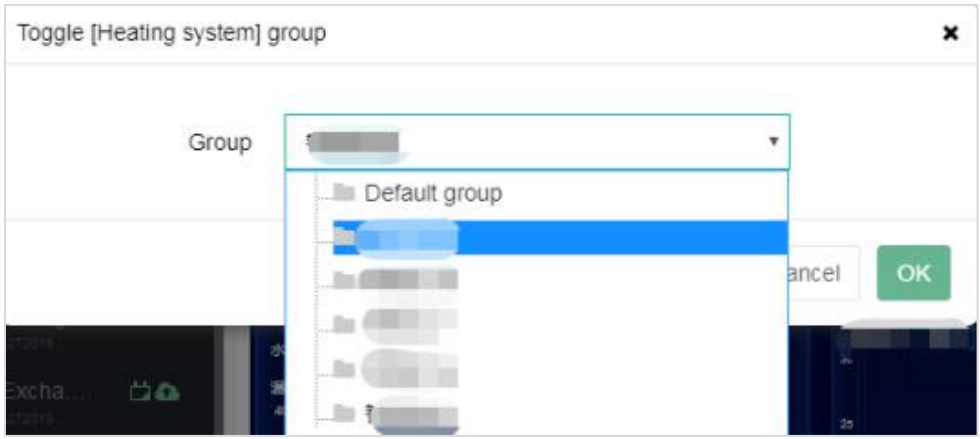


Figure 2- 35

④ **Copy Access Key**

Select the device in the list and right-click, then click [Copy Access Key] to copy the access key of the V-BOX or ig screen to the clipboard. As shown in the following figure.

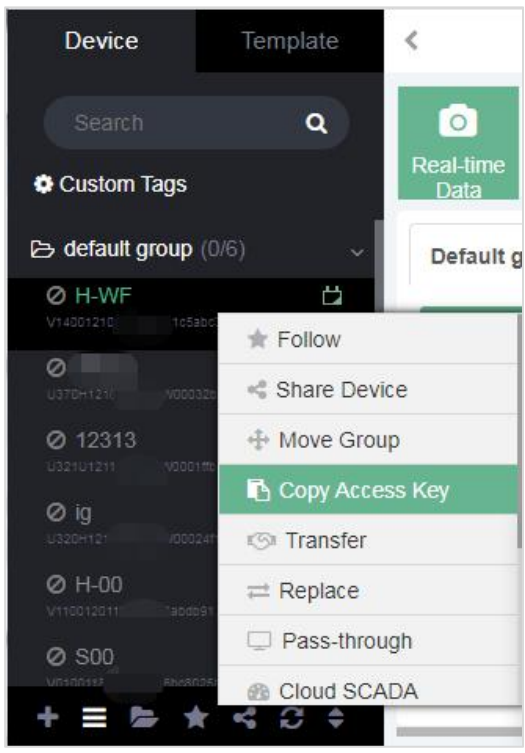


Figure 2- 36

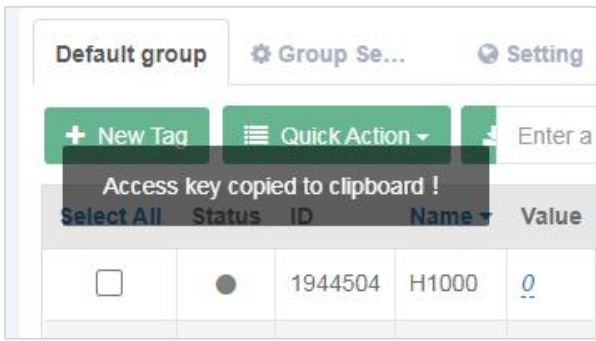


Figure 2- 37

⑤ **Transfer**

Transfer the V-BOX or ig screen from one account to another. the V-BOX or ig screen would not change any information except for the user, The transfer would be successful after the account received the device, and the device would no longer be in your own account.

✎**Remove device.** When removing the V-BOX or ig screen, you need to fill in the information of the transferred user and the password of the V-BOX or ig screen. The account information would appear if you fill in it correctly, and confirm that the information to transfer it. As shown in the following figure.

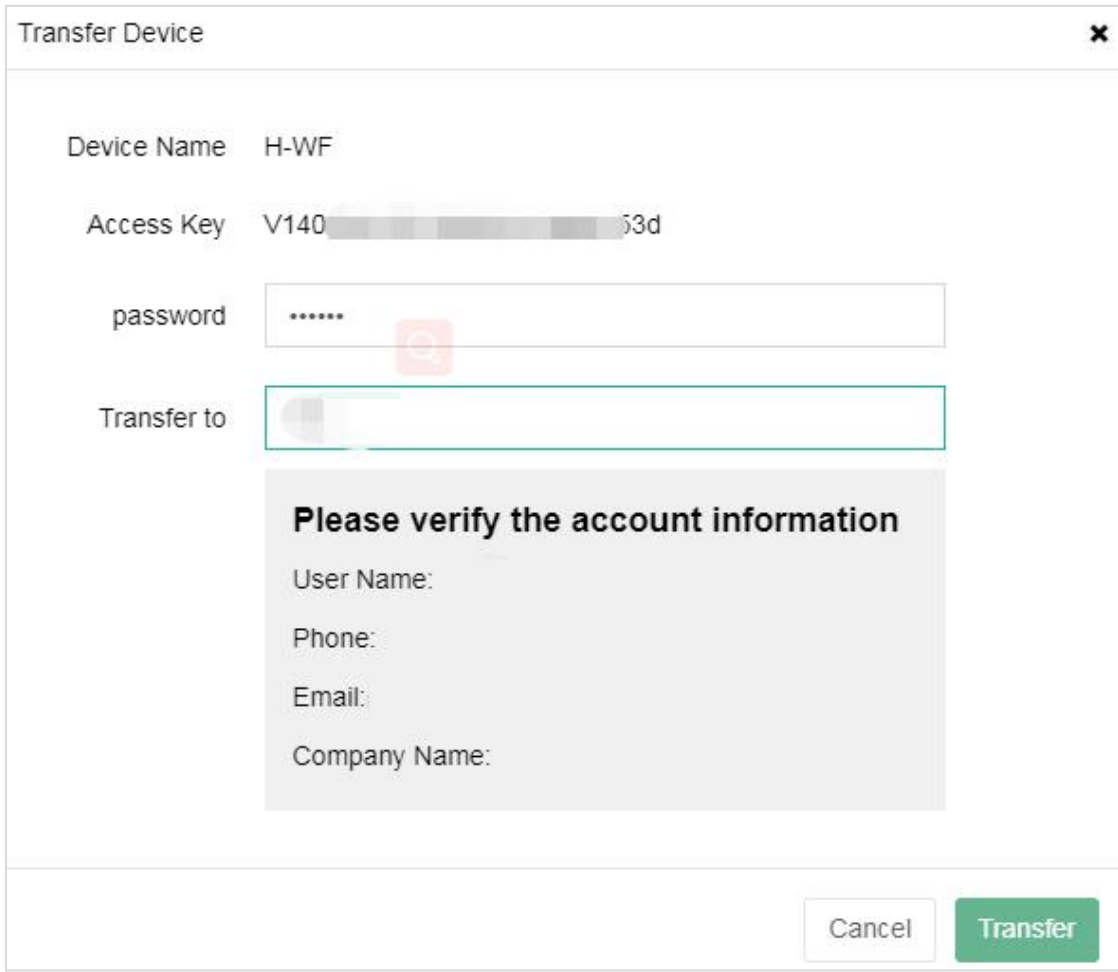


Figure 2- 38

✎**Receive device.** When receiving the V-BOX or ig screen, it needs to reset the name of the device and select the group.

⑥ **Replace**

Select the device in the list and right-click, then click [Replace], and the old V-BOX (same model) would be replaced with a new one in this account. The new one could not be bound to any account during the replacement process. As shown in the following figure.

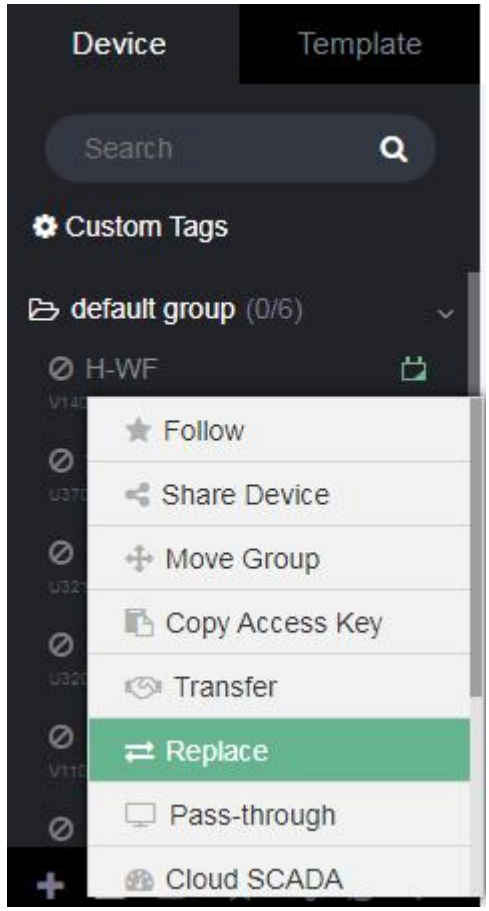


Figure 2- 39

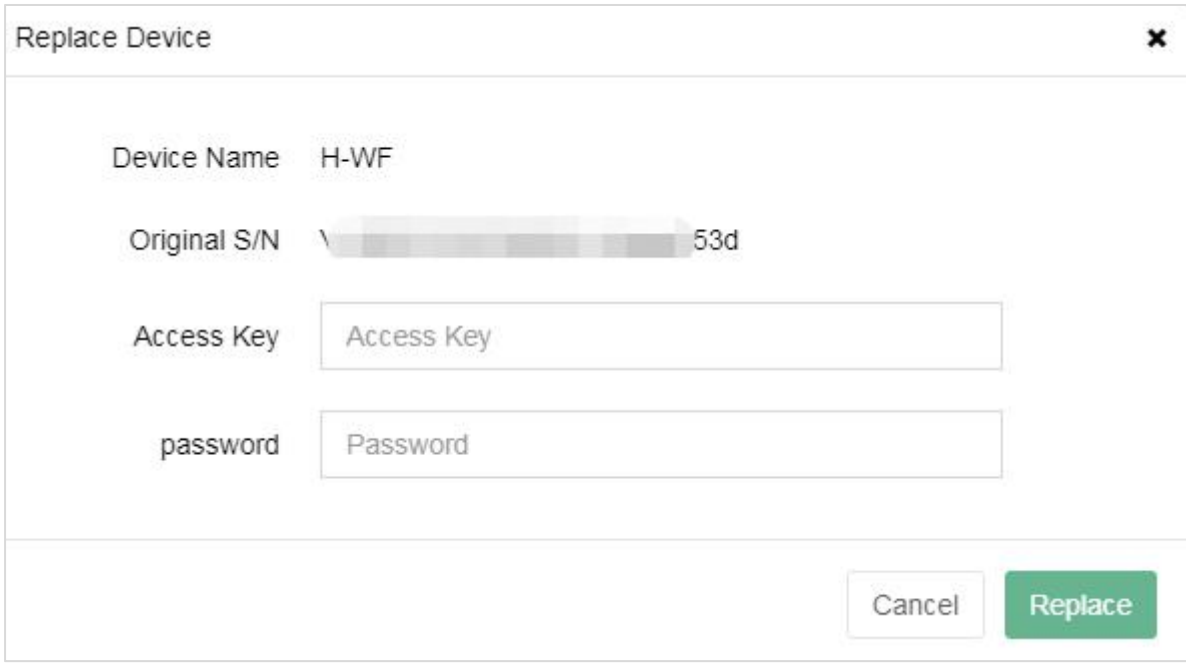


Figure 2- 40

⑦ **Pass-through**

Select the device in the list and right-click, then select Pass-through to jump to the Pass-through interface. As shown in the following figure.

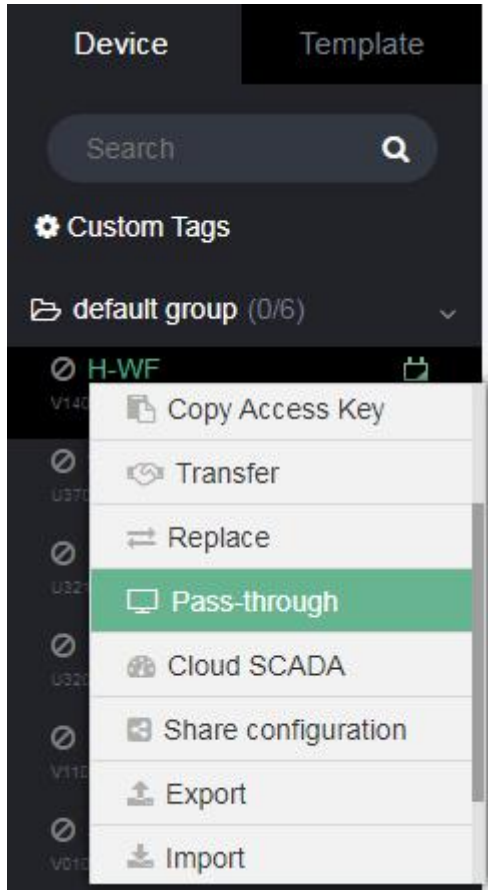


Figure 2- 41

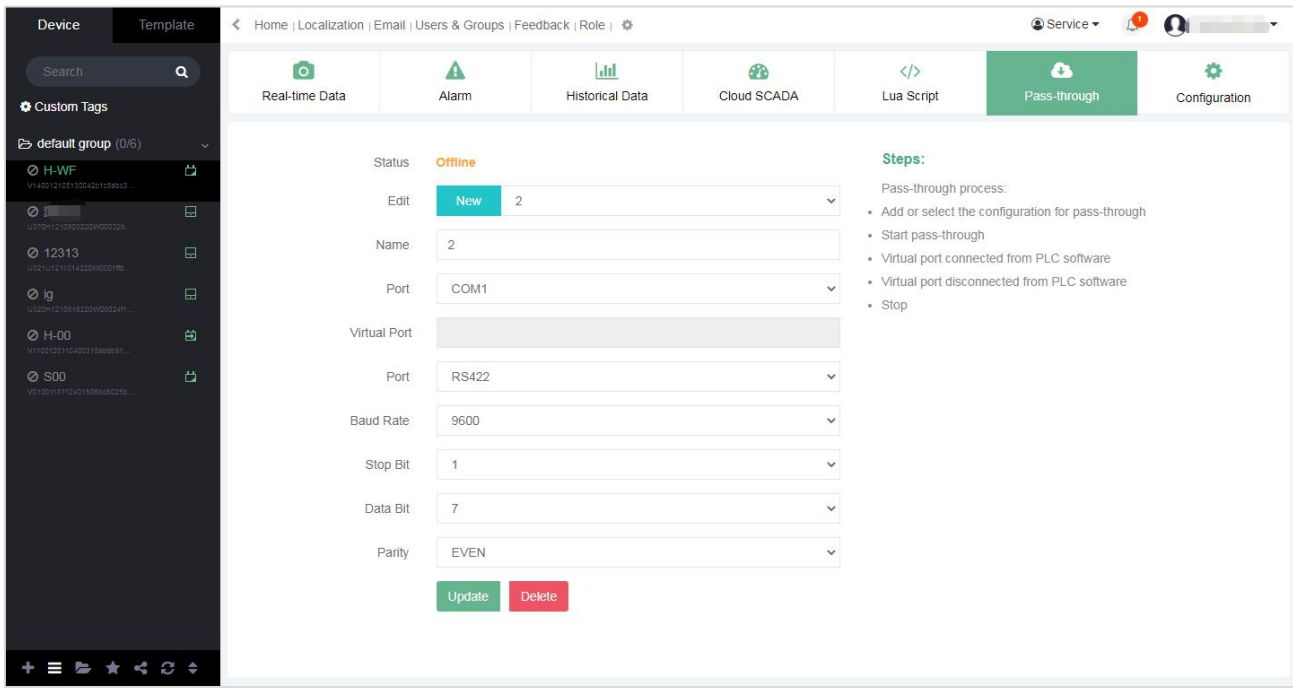


Figure 2- 42

⑧ Cloud SCADA

Select the device in the list and right-click, then click [Cloud SCADA] to jump to the Cloud SCADA interface. As shown in the following figure.

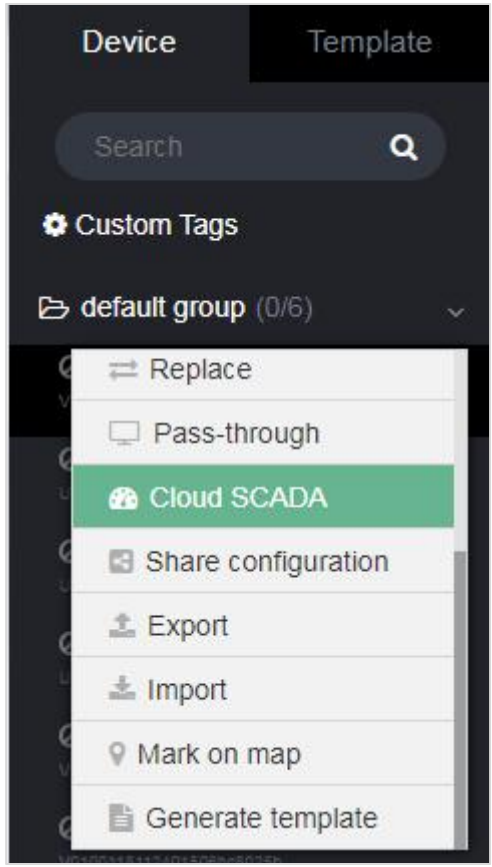


Figure 2- 43

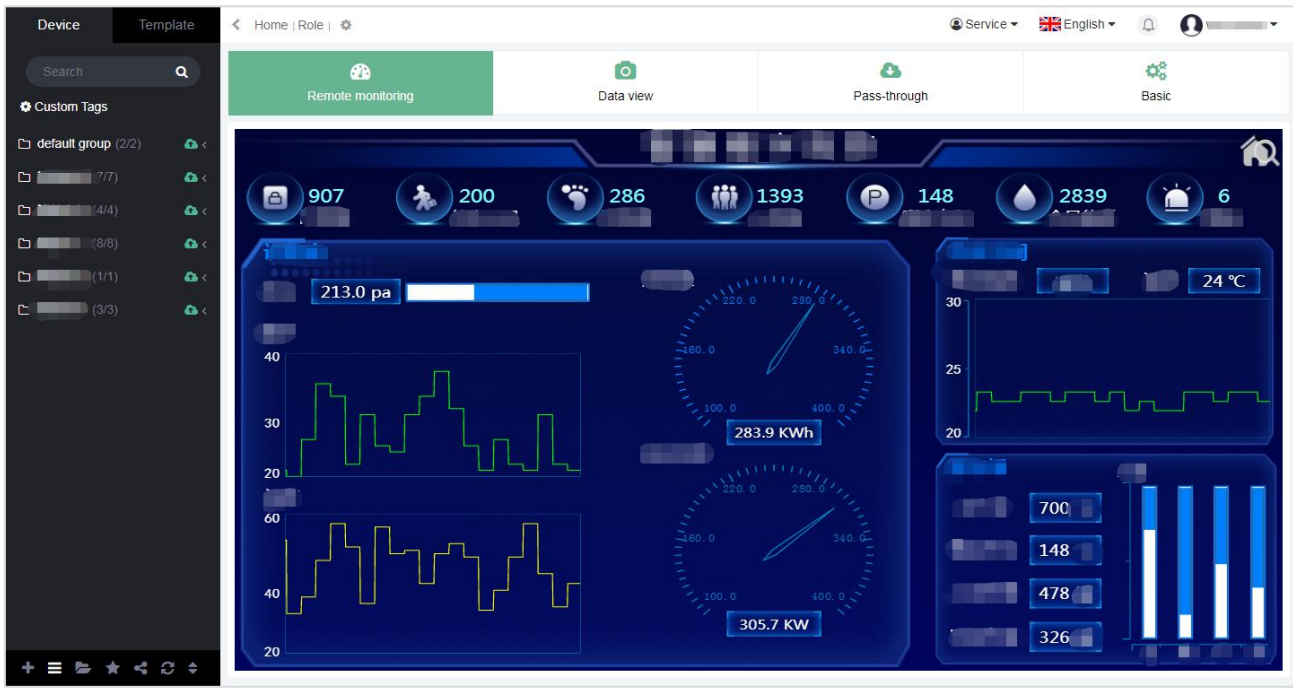


Figure 2- 44

⑨ **Share configuration**

Share the configure of V-BOX by the share code, and the validity period of the share code should be set. Select the device in the list and right-click, then click [Share configure] to share the share code of the V-BOX. Copy the share code, jump to the [configure] interface, and click the [sharing code

import] to import the share code. As shown in the following figures.

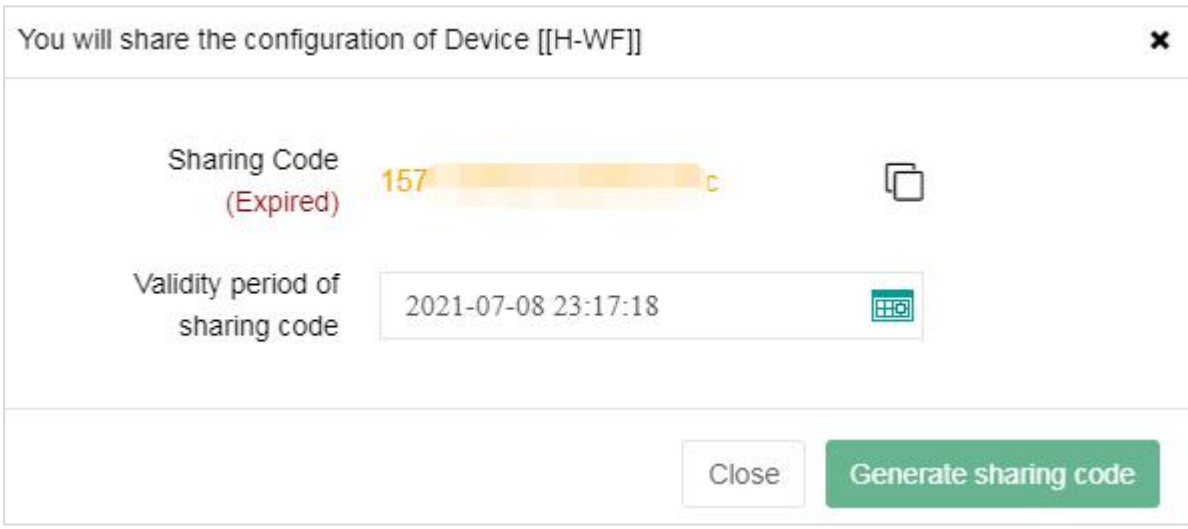


Figure 2- 45

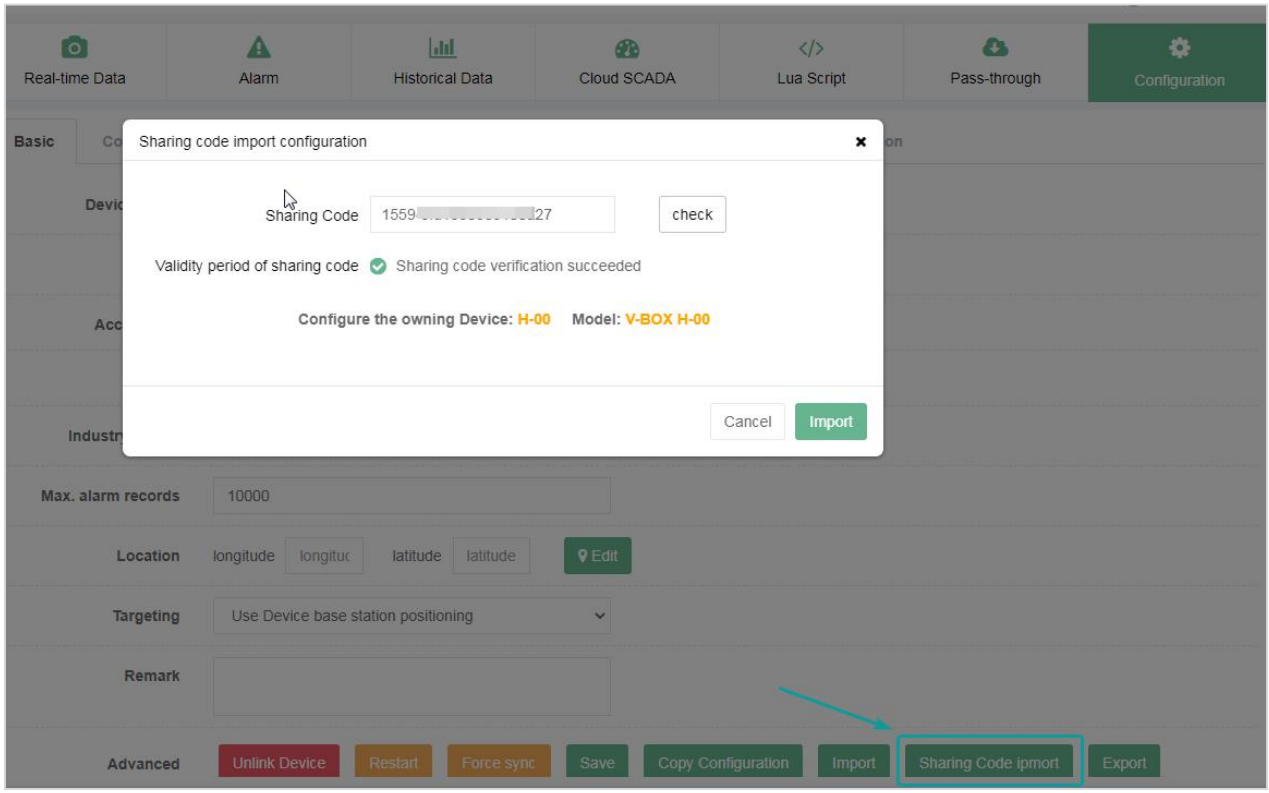


Figure 2- 46

⑩ **Export**

Select the device in the list and right-click, then click [Export] to export the configure of the device.

⑪ **Import**

Select the device in the list and right-click, then click [Import] to import the configuration for the device.

⑫ **Mark on map**

Select the device in the list and right-click, then click [Mark on map] to mark the new latitude and longitude on the map for the current V-BOX or ig screen.

⑬ **Generate template**

Select the device in the list and right-click, then click [Generate template] to generate a new template from the device configuration. The generated template is in the template list.

2.6.2 Device search

Enter the device name or the machine code in the search box, and it would automatically match to find the device. As shown in the following figure.

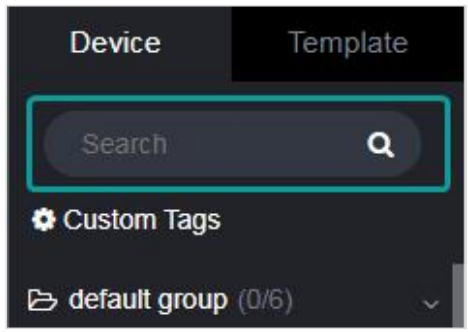


Figure 2- 47

2.6.3 Custom tags

Click [Custom tags], it would pop up the interface, including Real-time Data, Alarm, Historical Data. User could customize a certain monitoring point under the designated V-BOX to the data monitoring interface, and view all alarm records and historical data. As shown in the following figure.

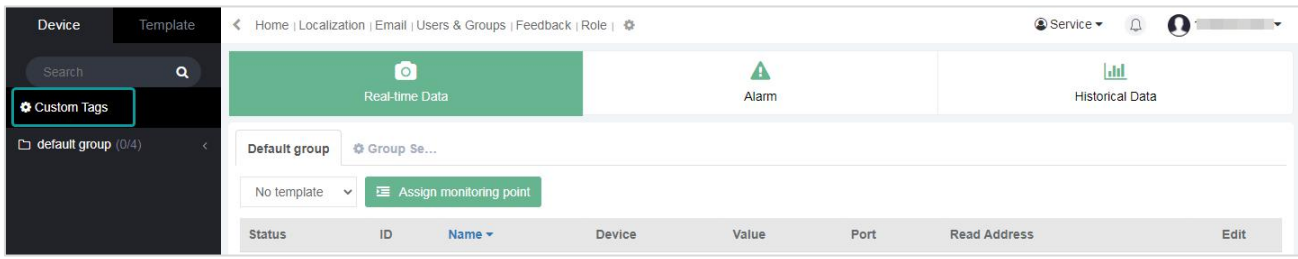


Figure 2- 48

2.6.4 Toolbar

The toolbar at the bottom of the module is mainly a collection of buttons for operating on the V-BOX or ig screen and device list. As shown in the following figure.

Figure 2- 49

(1) Add device

 Add new V-BOX or ig screen.

(2) Device list


Display the multi-grade device list of all the V-BOXs and ig screen.

(3) Group management


Administrators could manage V-BOX and ig screen groups.

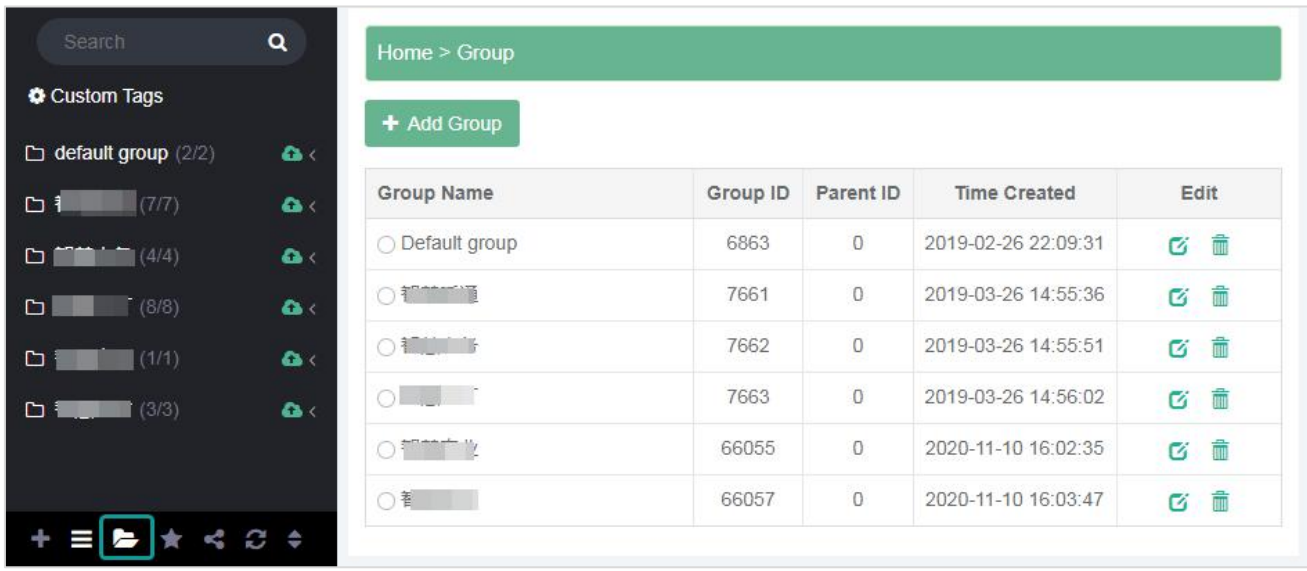


Figure 2- 50

1) **Add group.** When adding a group, the group name should be entered. As shown in the following figure.

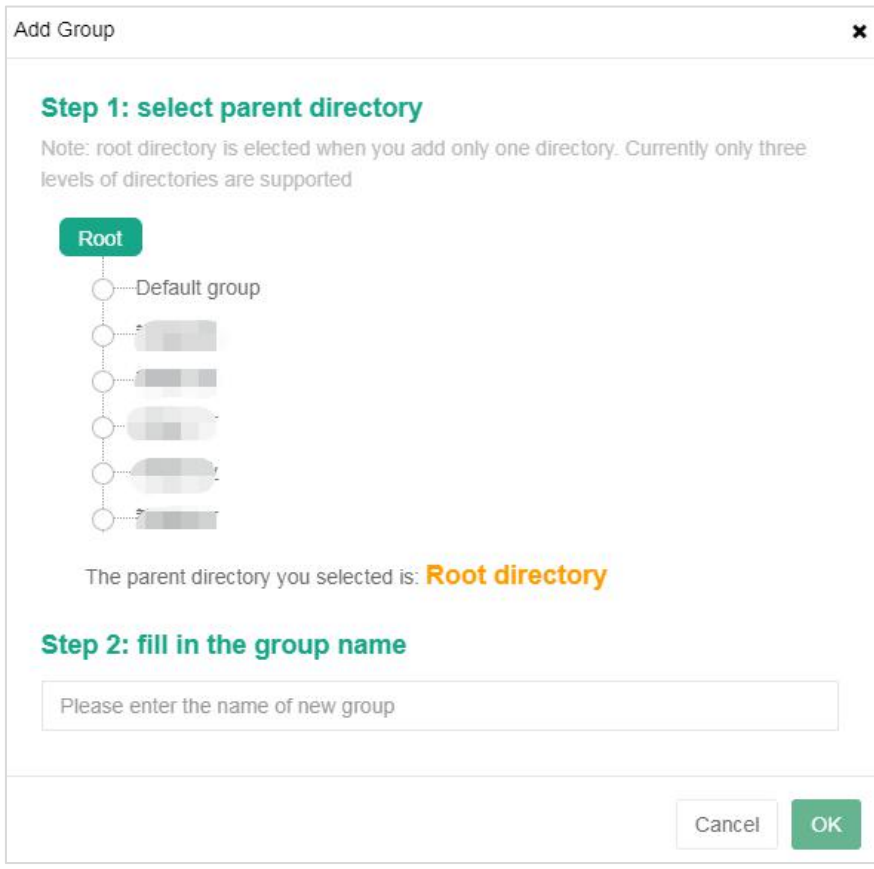


Figure 2- 51

2) **Edit group.** When editing a group, the new group name should be entered. As shown in the following figures.

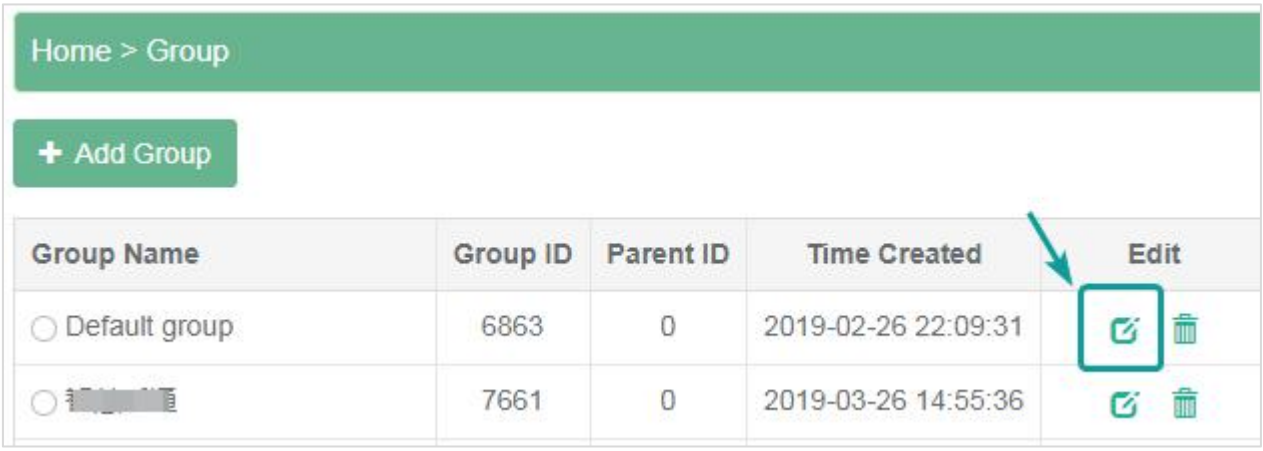


Figure 2- 52

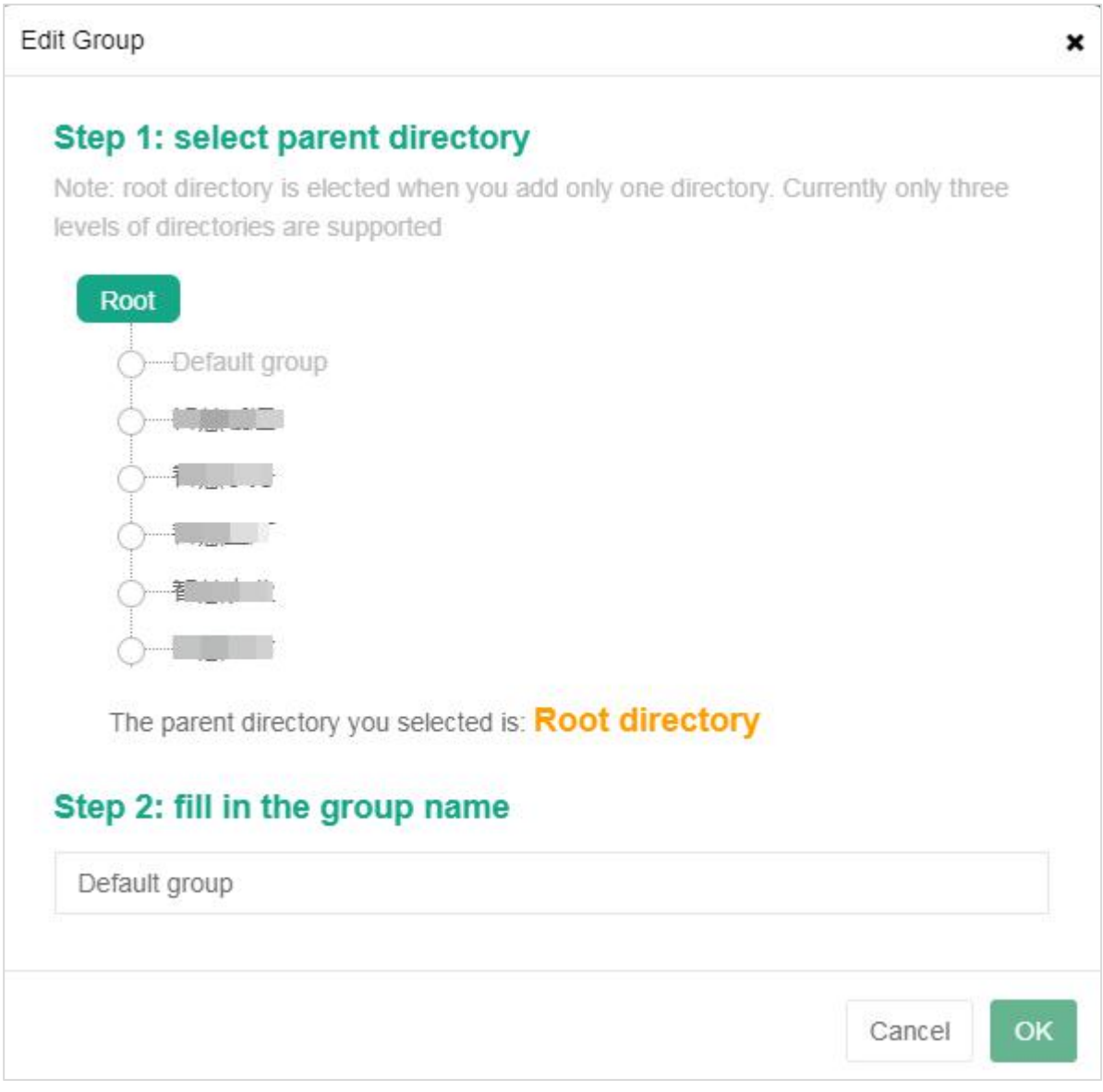


Figure 2- 53

3) **Delete group.** When deleting a group, if there are devices under the selected group, the group could not be deleted. To ensure operational reliability and data security, a dialog box would pop up to confirm whether the operation continues. As shown in the following figure.

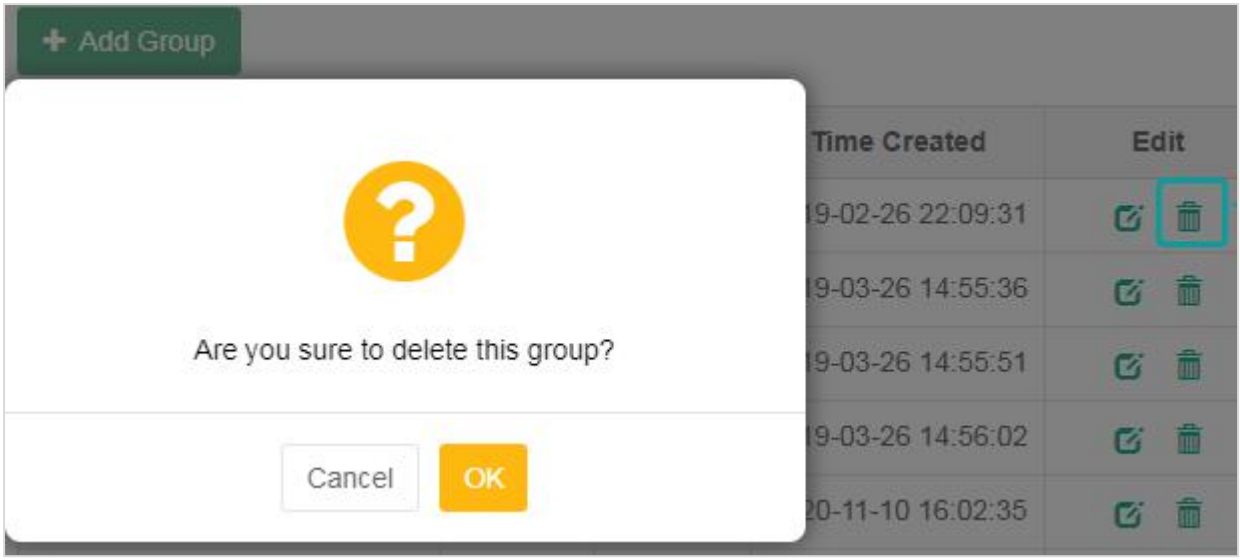


Figure 2- 54

(4) My follow

 It is the list of V-BOXs or ig screens followed by the account. As shown in the following figure.

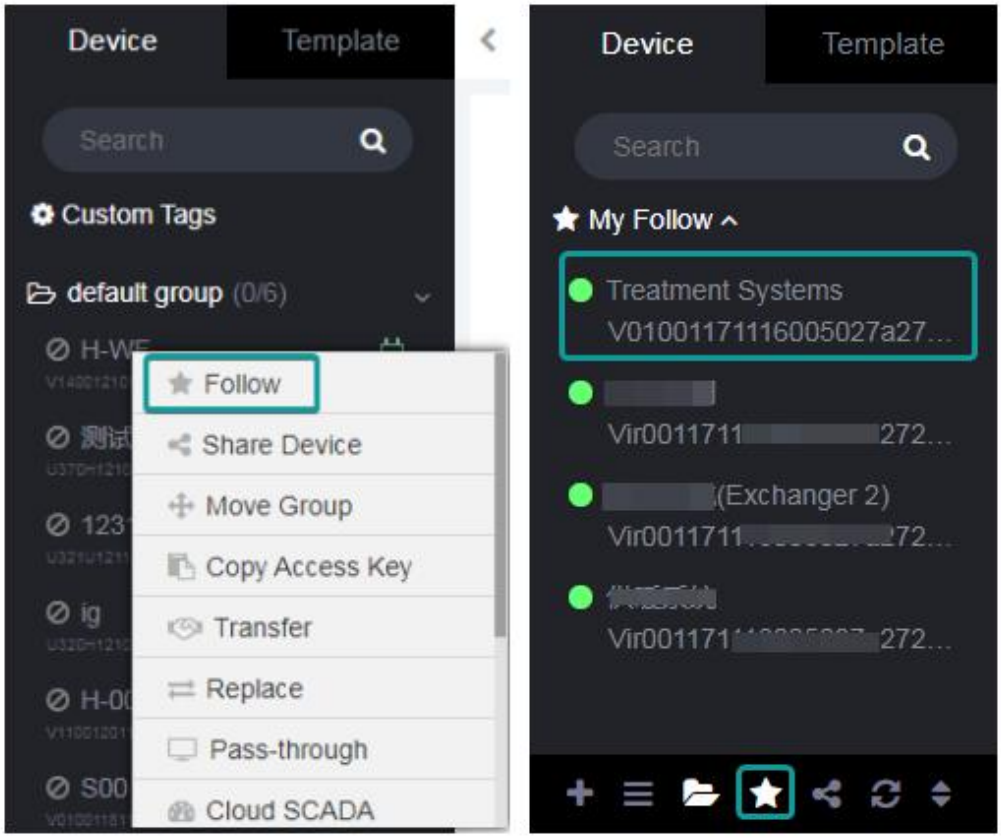


Figure 2- 55

(5) Share list

 The share list is divided into share with others and my share.

1) Share with others

It is the list of V-BOXs or ig screens shared by other accounts. All the data in the V-BOX or ig screen could be viewed, but the configuration could not be modified. Only the sharer could cancel the sharing of the V-BOX or ig screen, and the shareee could not cancel the sharing. Right-click the name of the device could view the sharer. As shown in the following figure.

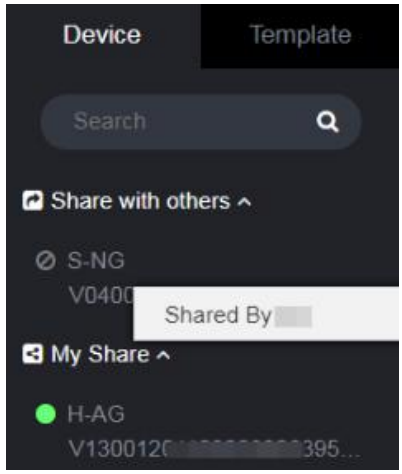


Figure 2- 56

2) My share

It is the list of V-BOXs or ig screens shared by the account. Right-click the name of the device could view the details of the sharee, and modify the configuration. As shown in the following figure.

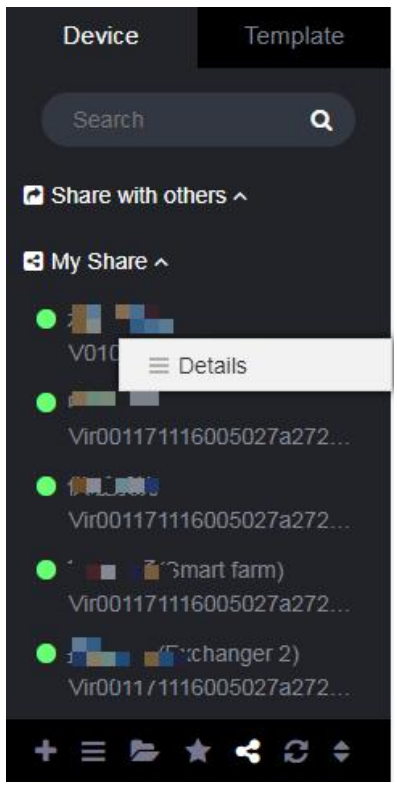


Figure 2- 57

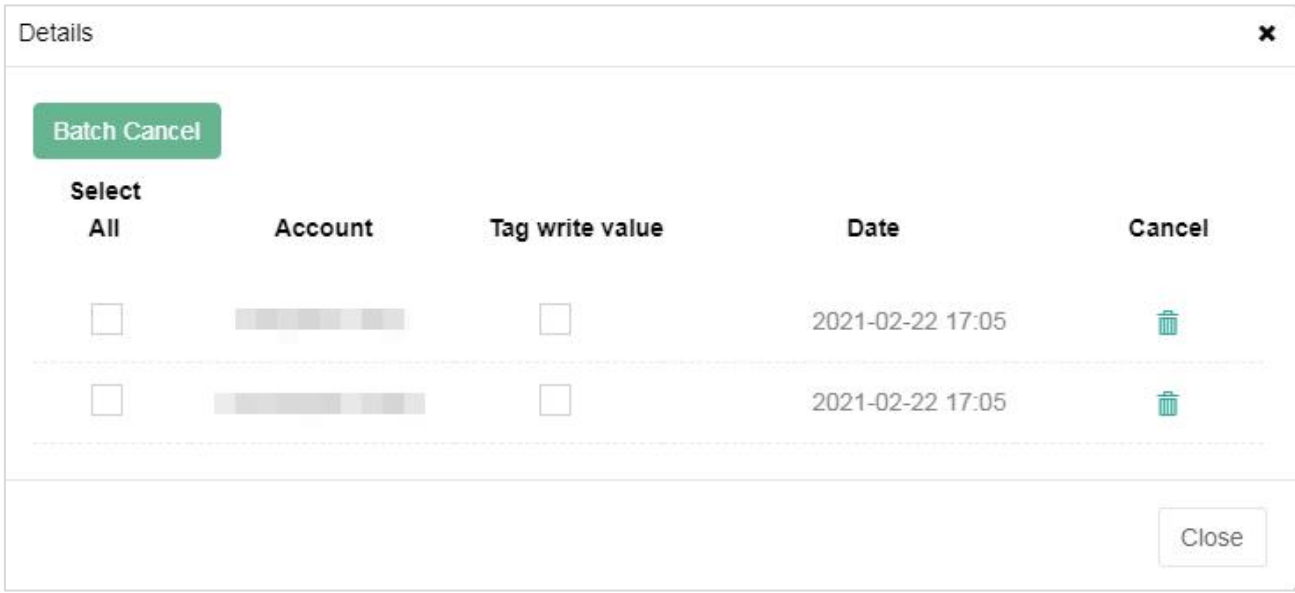


Figure 2- 58

✎Note:

① After the account cancels the sharing, the V-BOX or ig screen would be removed from the sharing list of both accounts.

② When the main account is unbound or handed over to the V-BOX or ig screen, the shared information of the V-BOX or ig screen would be automatically canceled.

③ When the permission of the engineer account is modified or the assigned V-BOX or ig screen changes, the shared V-BOX or ig screen would change synchronously.

(6) Refresh list

 Refresh the list of V-BOX or ig screen.

(7) Device multi-condition order

 The V-BOX or ig screen is sorted according to different status. The filter conditions include display order and other order. Click the restore button in the upper right corner to re-select the filter order conditions.

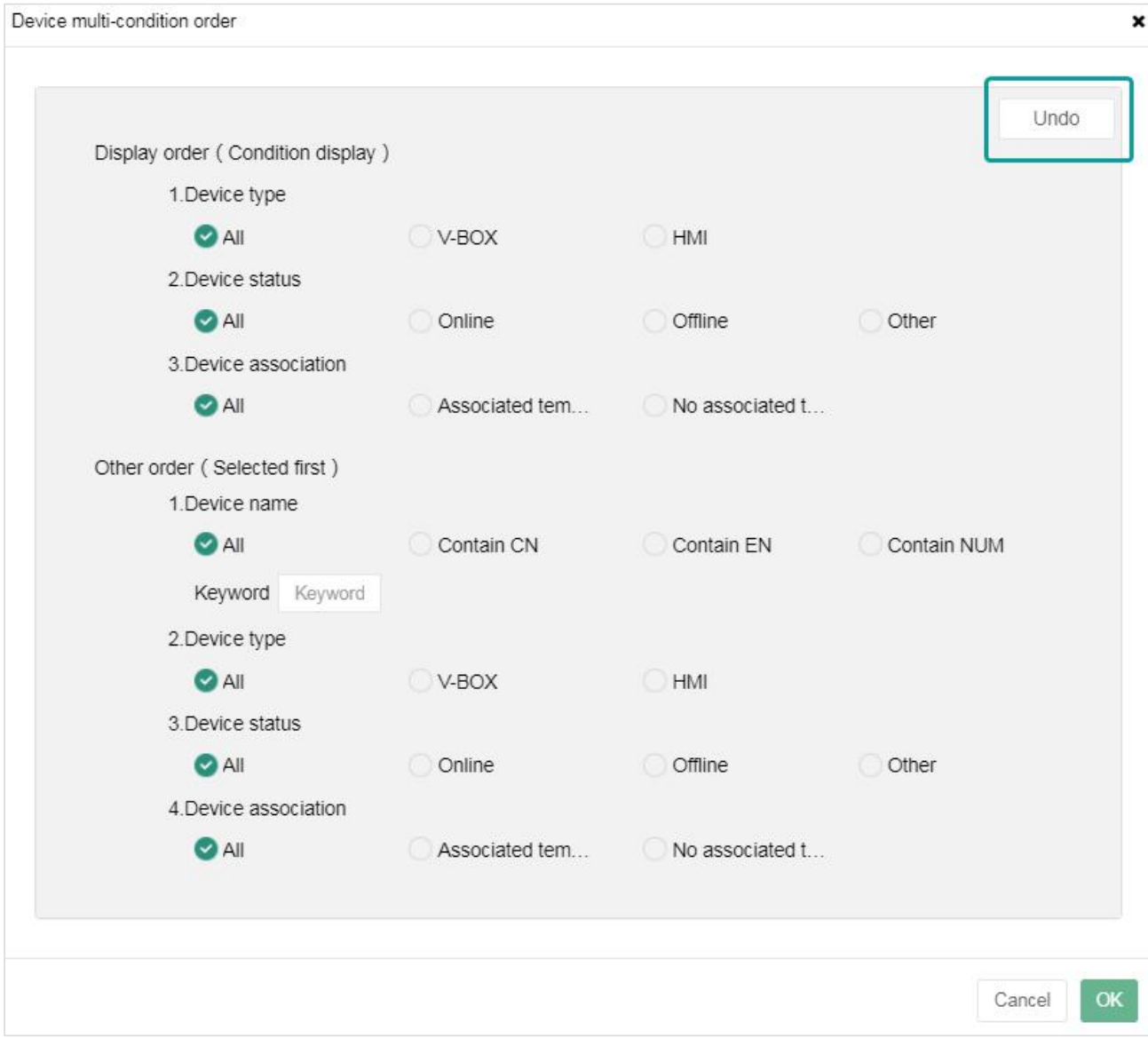


Figure 2- 59

1) **Display order** (Condition display) includes device type, device status, and device association. Filter all V-BOX or ig screen lists according to the selected conditions.
2) **Other order** (Selected first) include device name, device type, device status, and device association. Sort all the V-BOXs or ig screens in the list according to the selected order condition.

Chapter 3 V-BOX configuration on PC

3.1 V-NET PC software introduction

When using the V-BOX for the first time, users should first configure the parameters. Users could download the V-NET PC software from the official website of Wecon (**https://www.we-con.com.cn/en/**). Open the V-NET PC configuration software, as shown in the following figure.

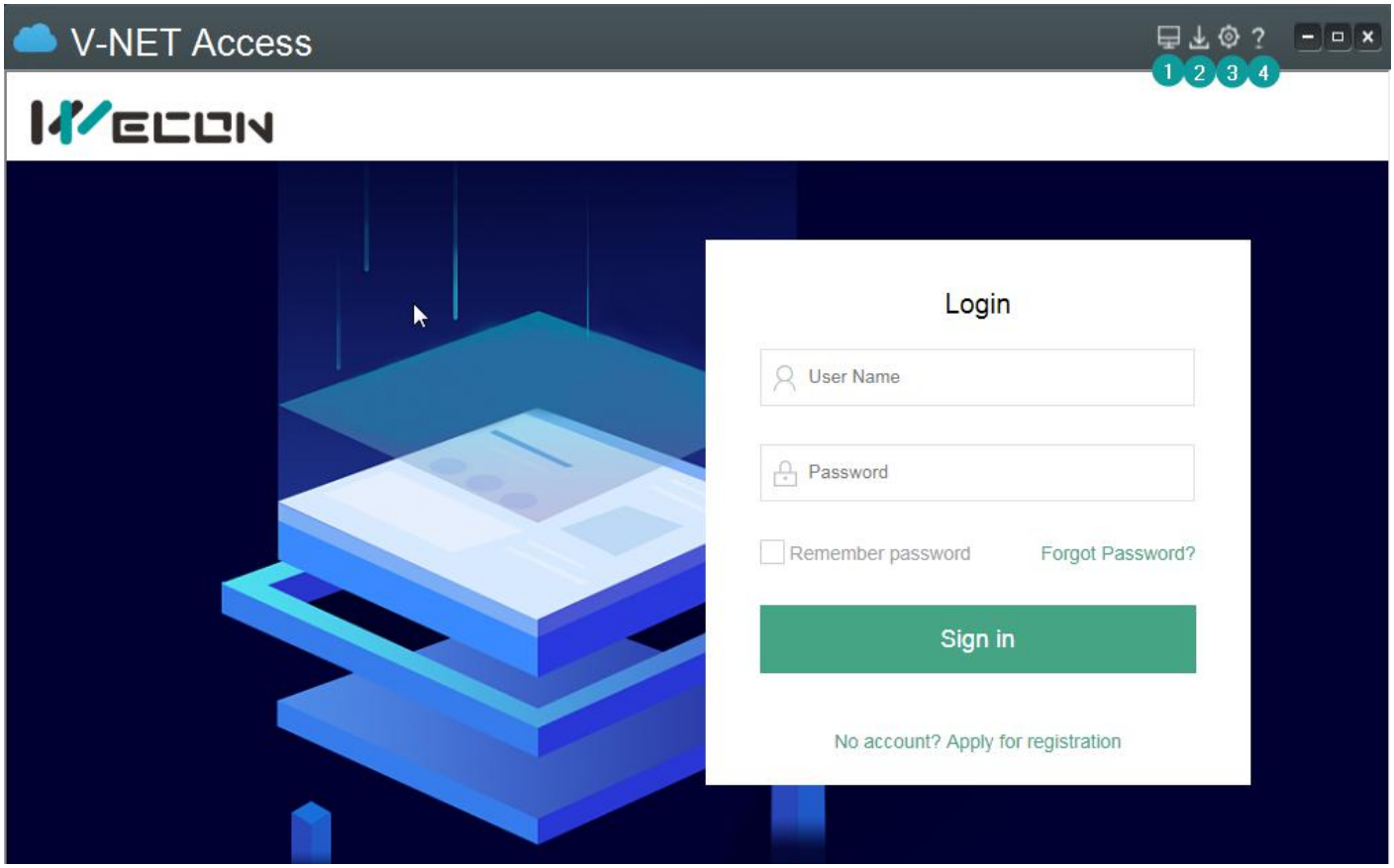


Figure 3- 1

The upper right corner is the jump to the configuration page. The details of the configuration interface are as follows:

(1) **Device monitoring.** Display the monitoring screen or login interface of the main interface, and the login interface of V-NET PC, as shown in the figure above.

(2) **Configuration download.** To configure the device network, V-BOX access password, V-BOX screen access mode, V-BOX machine code acquisition, the update device time, etc., as shown in the the following figure:

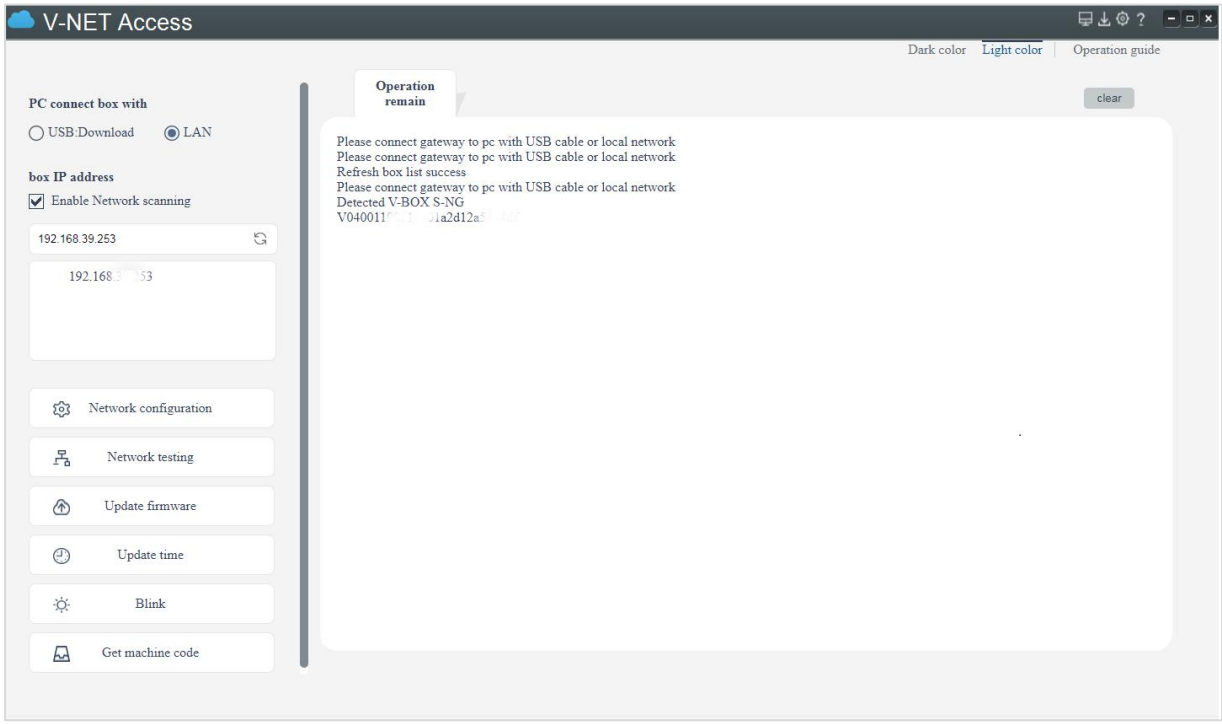


Figure 3- 2

(3)  Settings. Users could disable and enable the virtual serial port, and change the COM port used for penetration.

✎**Note:** If a PLC or other software is connecting to the original COM port when changing, it would be disconnected. As shown in the following figure.

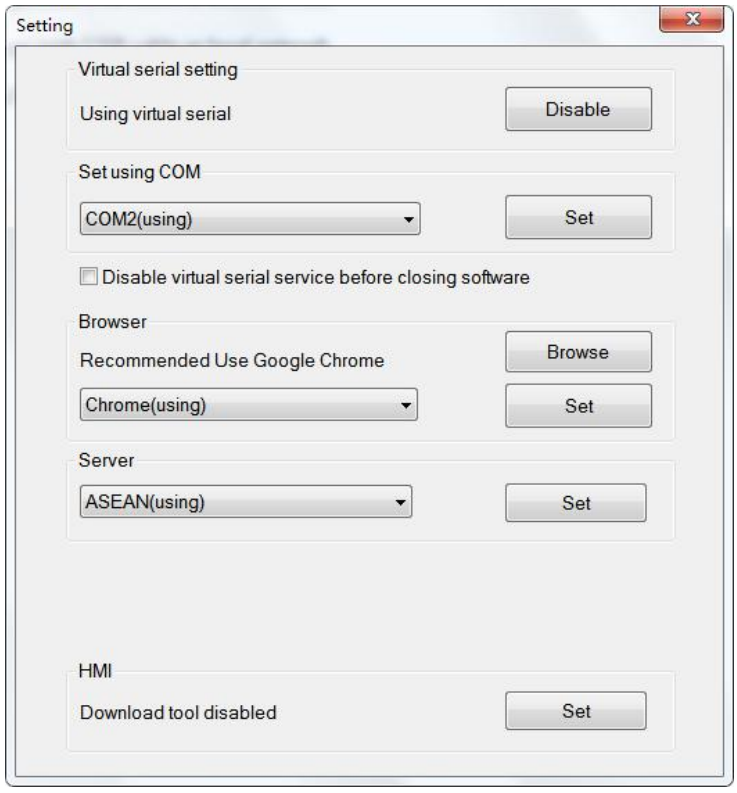


Figure 3- 3

(4) About: Display the company information of the software and software version, As shown in the following figure.

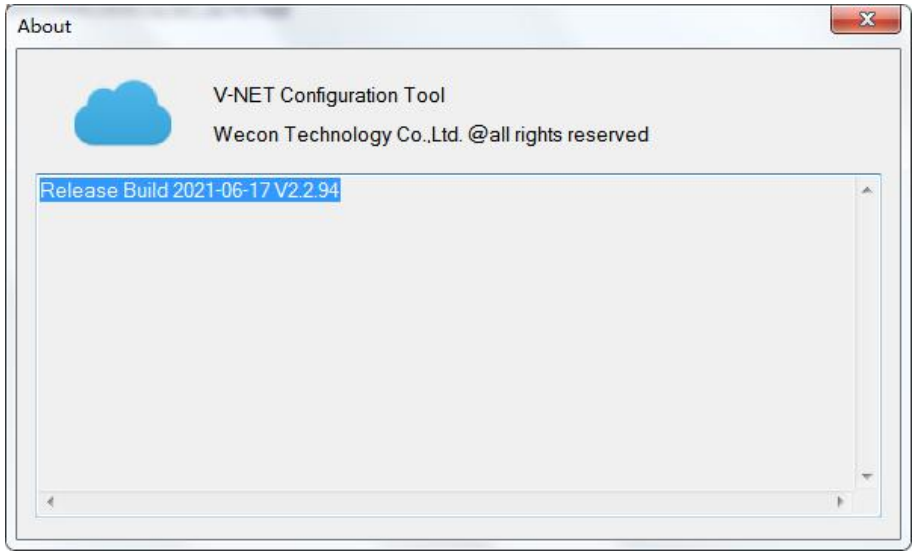


Figure 3- 4

3.2 Configure V-BOX

The way to connect to the PC configuration tool is to use an android download cable or LAN network cable search to connect the V-BOX to the PC software. When the PC software recognizes the V-BOX, it would be displayed in the list. As shown below.: "Detected V-BOX S-NG".

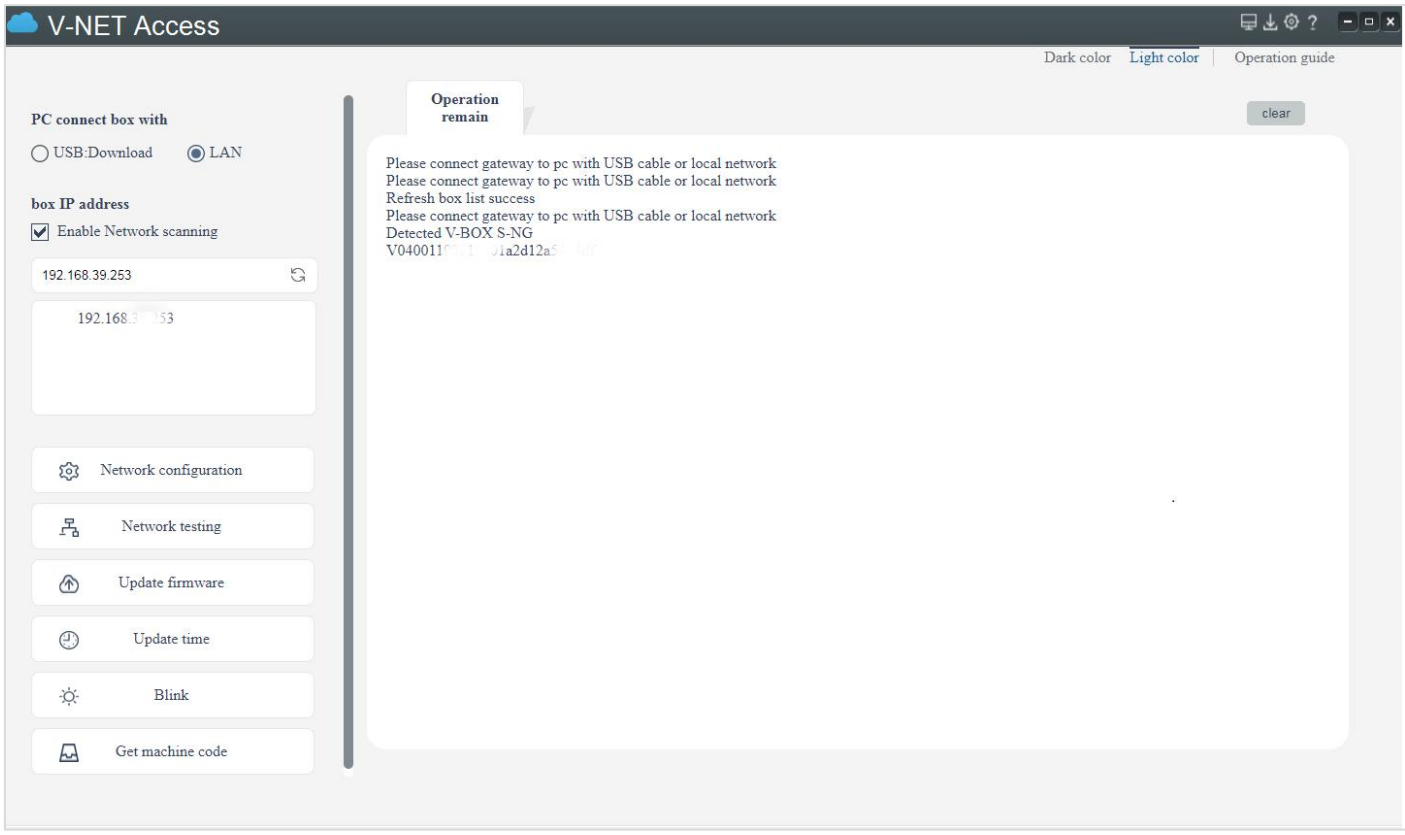


Figure 3- 5

3.3 V-BOX password

For the V-BOX device, there is an access password, the default is 888888. Users could change the password as they want.

Operating procedures of changing access password.

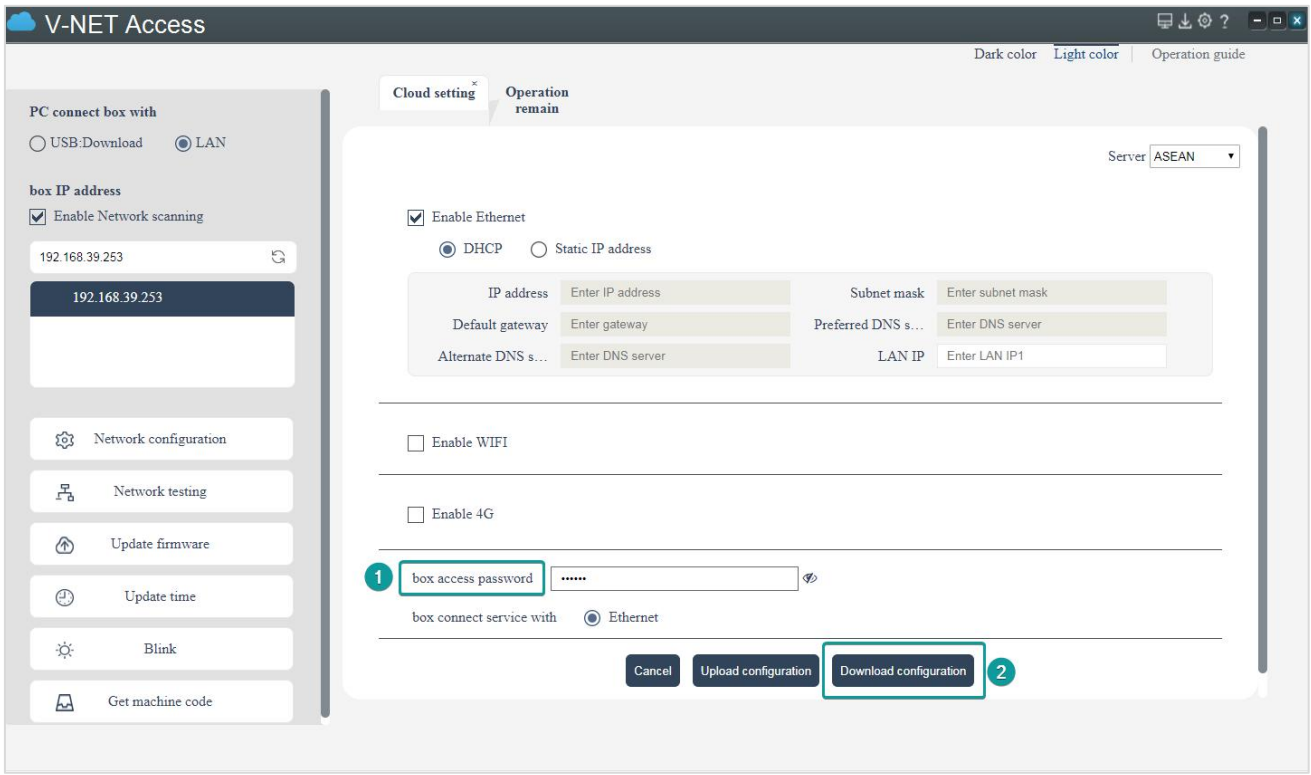


Figure 3- 6

3.4 Network settings

V-BOX connection settings, that is, V-BOX access mode configuration, to configure the mode in which V-BOX would connect to the server for data. There are three server configurations, including China server, Asean server, and Europe server. Please use a suitable server to ensure the stability of the network. There are three connection modes, including **Ethernet mode, WIFI mode, and 4G mode**.

✎**Note:** 4G mode is only available in V-BOX that supports 4G function. Each country's 4G frequency band and system are different. When purchasing a V-BOX containing 4G function, please maintain sufficient communication with the salesman. For example, V-BOX H-AG(Global 4G module).

3.3.1 Connect to the cloud automatically

When V-BOX is not configured to connect to the cloud, V-BOX would first automatically retrieve whether there is a connection mode activated. If the network access is retrieved, it would automatically use the method to connect to the cloud. The priority of the connection to the cloud: **Ethernet> WiFi>4G**, the default WiFi account is testwifi, and the password is testwifi. The specific instructions are as follows:

(1) If there is only one way to connect to the Internet, the system would automatically select it

to connect to the cloud. For example, if there is a network cable plugged in the Ethernet port, the connection to the cloud of the system defaults to Ethernet. If WiFi signal access is retrieved, the connection to the cloud of the system defaults to WIFI. If an existing 4G card is inserted, the connection to the cloud of the system defaults to 4G.

(2) If the Ethernet port and WiFi are connected at the same time, the connection to the cloud of the system defaults to Ethernet.

(3) If the Ethernet port and 4G are connected at the same time, the connection to the cloud of the system defaults to Ethernet.

(4) If WiFi and 4G are connected at the same time, the connection to the cloud of the system defaults to WIFI. If the WiFi signal couldnot be retrieved, it would automatically switch to the 4G connection mode.

(5) If all the three connection modes are retrieved, the connection to the cloud of the system defaults to Ethernet. If the Ethernet couldnot be connected to the Internet, it would automatically retrieve the WiFi signal. If the WiFi model couldnot be connected normally, it would automatically retrieve the 4G signal.

3.3.2 Connection mode setting

(1) Ethernet mode. There are two modes of dynamic IP address and static IP address. When using static IP address mode, complete IP information should be configured, and it should not conflict with other IPs.

Operating procedures of Ethernet settings are as below.

① Connect Ethernet cable to V-BOX.

② Check "Enable Ethernet".

③ Select modes, "Use a dynamic IP address" or "Use a static IP address".

④ If select "Use a static IP address", please enter IP address, subnet mask, default gateway, preferred DNS server and Alternate DNS server.

⑤ Select "Ethernet" in Server connection.

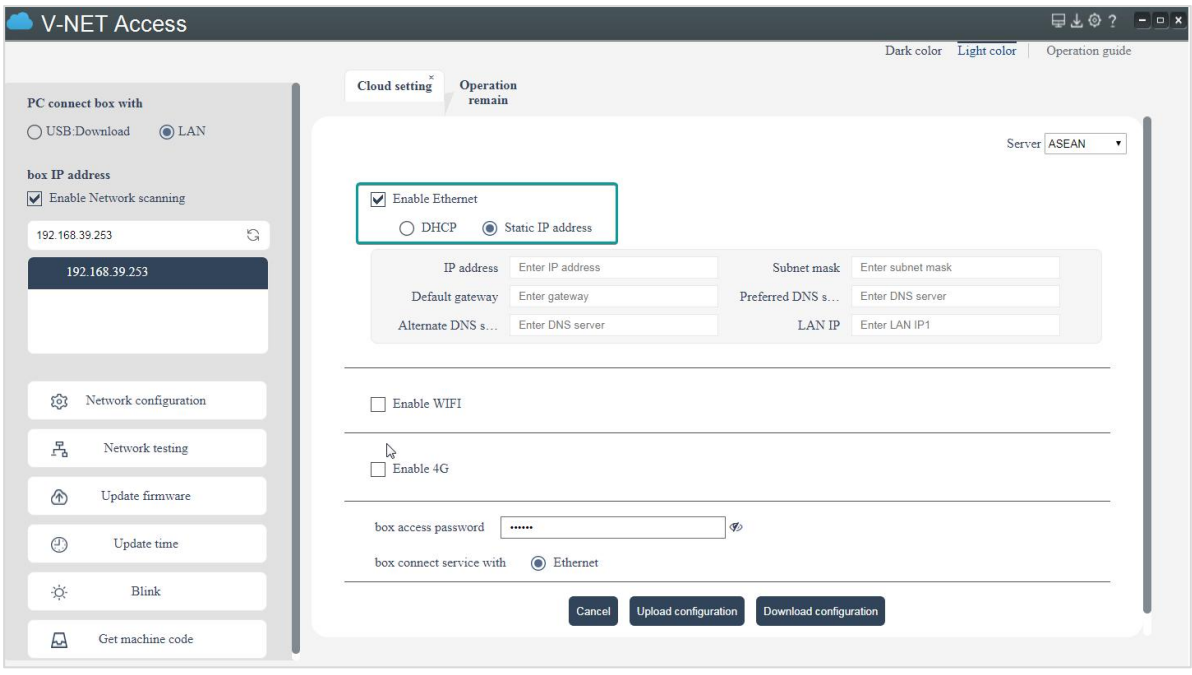


Figure 3- 7

(2) WIFI mode. Configure the WIFI account and password first, after powering on the V-BOX, it would automatically match the WIFI information and connect to the network.

Operating procedure of WIFI settings

① Check "Enable WIFI".
② Enter WIFI name.
③ Enter WIFI password.
④ Select "WIFI" in Server connection.

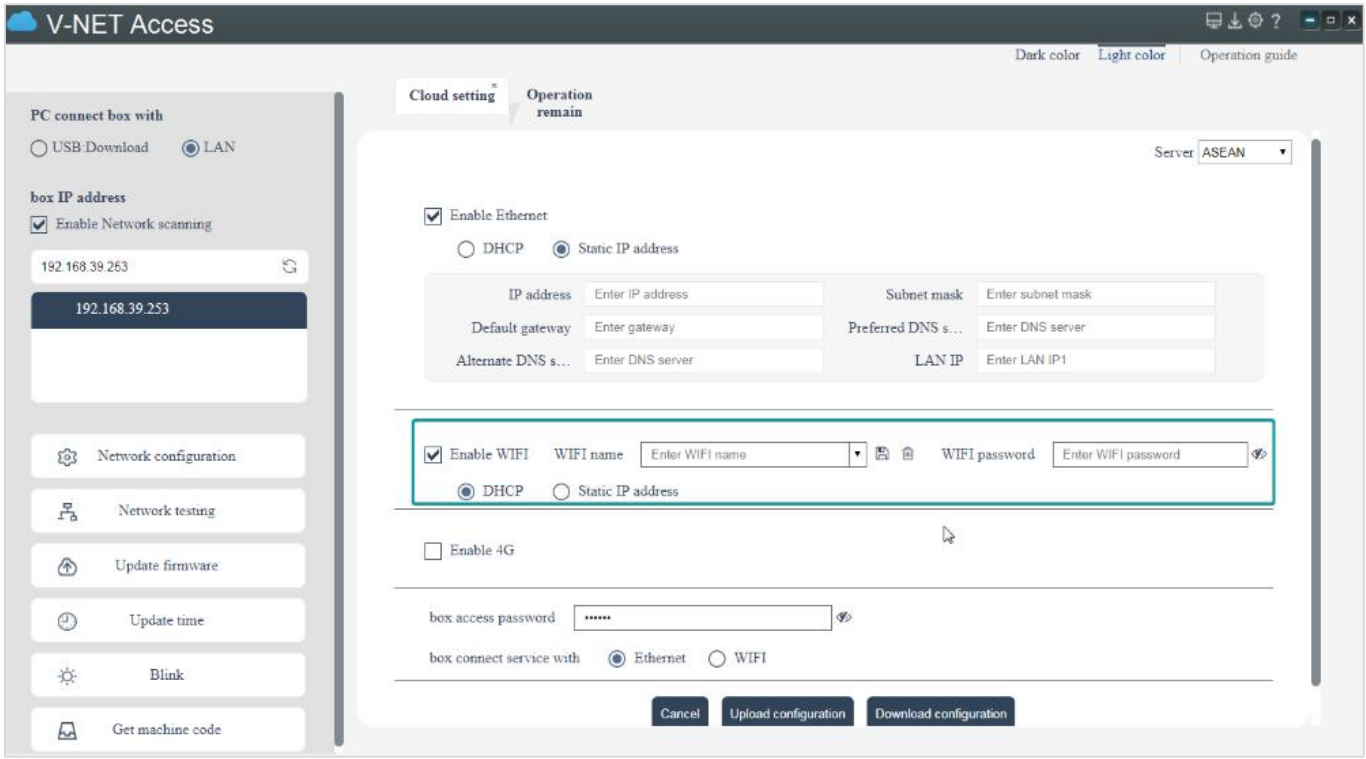


Figure 3- 8

(3) 4G mode. Use 4G card to connect the network. Please consult the mobile client for the data traffic cost consumed during use.

Operating procedure of 4G settings

① Install 4G SIM card in V-BOX.
② Check "Enable 4G".
③ Select "4G" in Server connection.

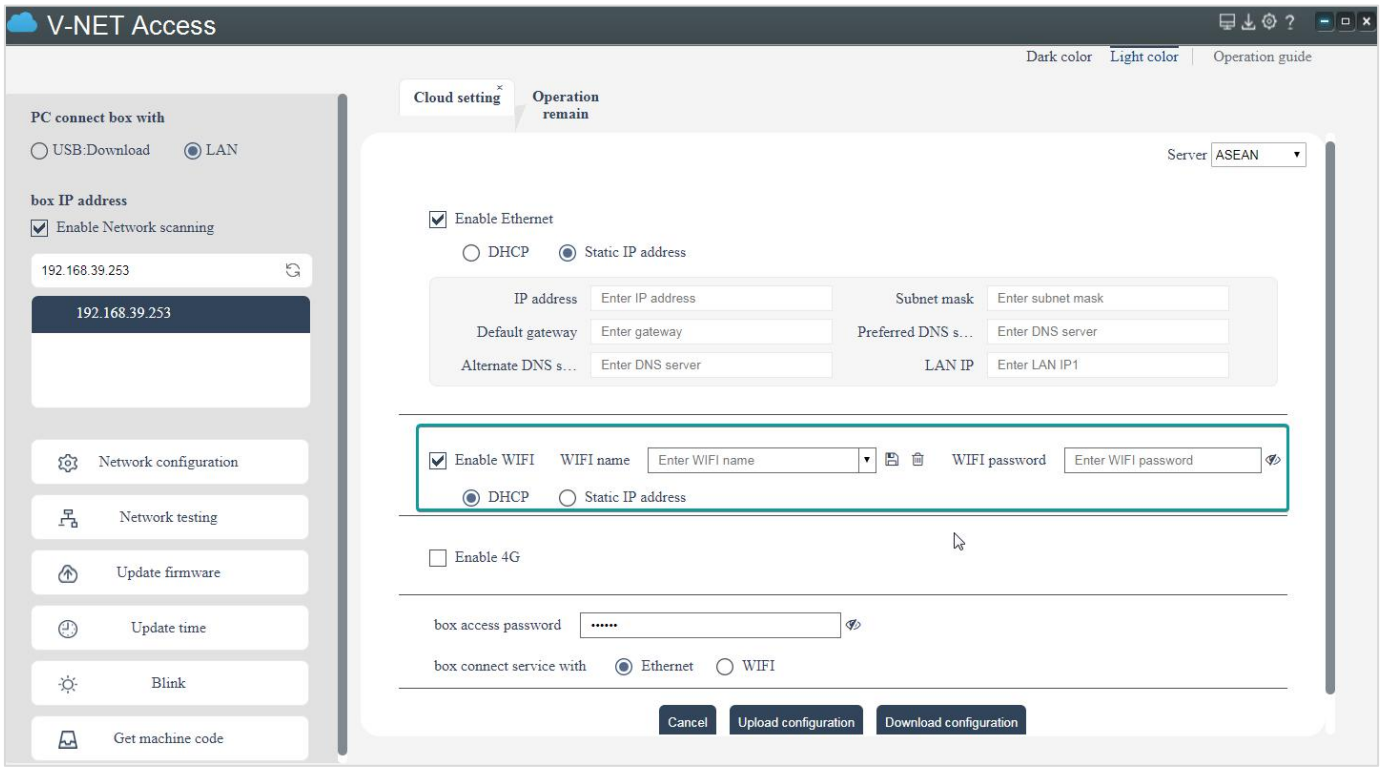


Figure 3- 9

3.5 Update time

Click **[Update time]** to synchronize the time on the PC side to the V-BOX.

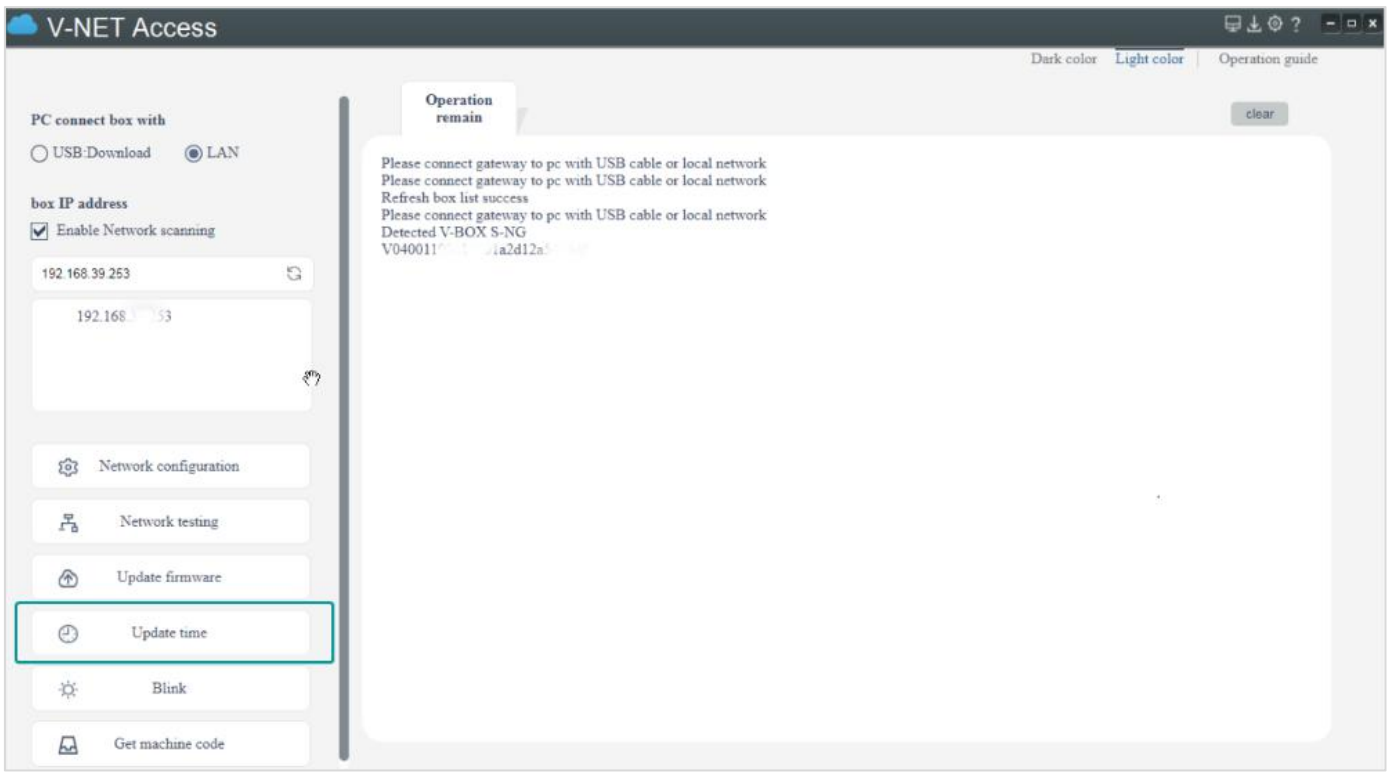


Figure 3- 10

3.6 Blink

Click **[Blink],** and the indicator light of the V-BOX flashes for 5 to10 seconds.

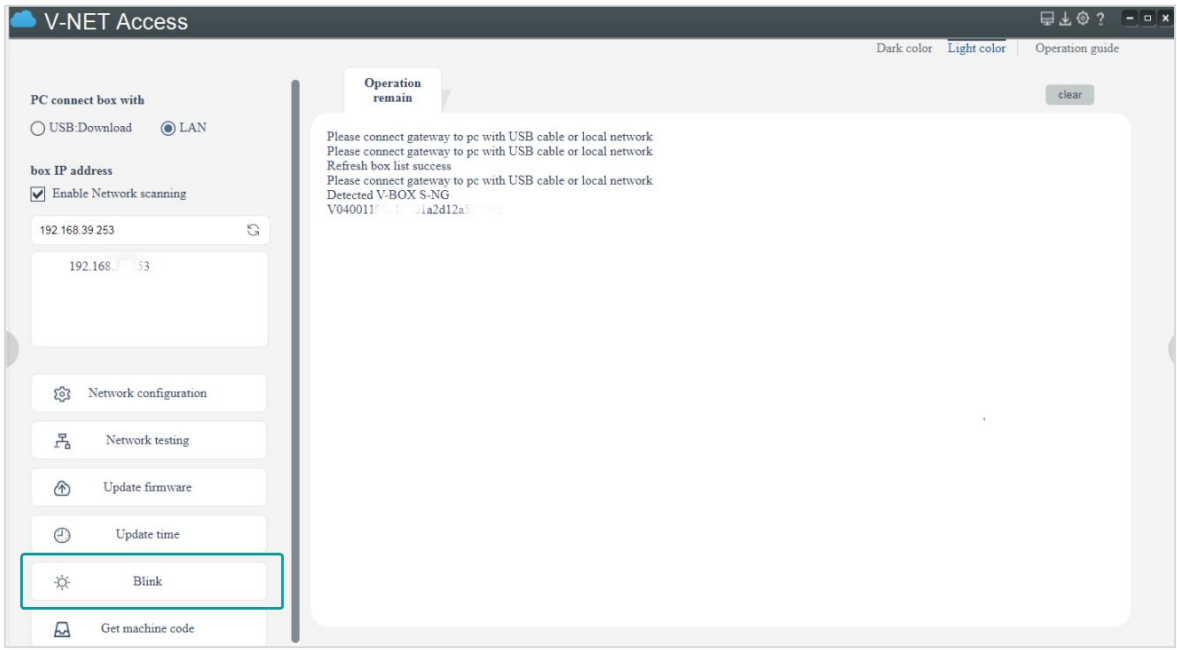


Figure 3- 11

3.7 Get V-BOX ID

Every V-BOX has its own unique machine code. Only when the machine code is acquired could it be bound and monitored. The machine code could be seen in the back of V-BOX or could be required through V-NET PC software.

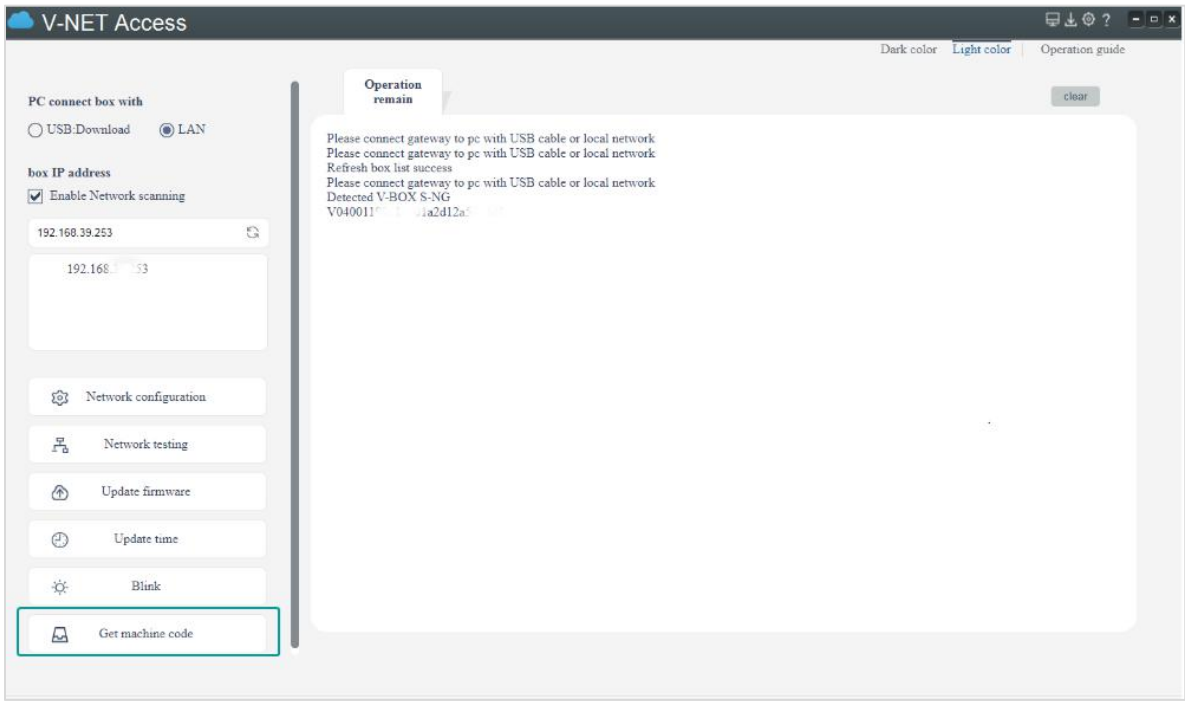


Figure 3- 12

Chapter 4 V-BOX access configuration

4.1 Basic configurations

4.1.1 Add a V-BOX

When logging in to the V-NET for the first time, the user needs to add the V-BOX or ig screen and bind it with the account. The account bound to the V-BOX or ig screen is called the "administrator account". A device could only be bound to one account, that is, the administrator account is unique.

When binding the V-BOX or ig screen, the user needs to know the machine code and password of the device, and enter the device name and set group. All the devices added by the administrator would be placed in the “default group” by default. If the administrator has created a device group, the added devices could also be placed in other groups.

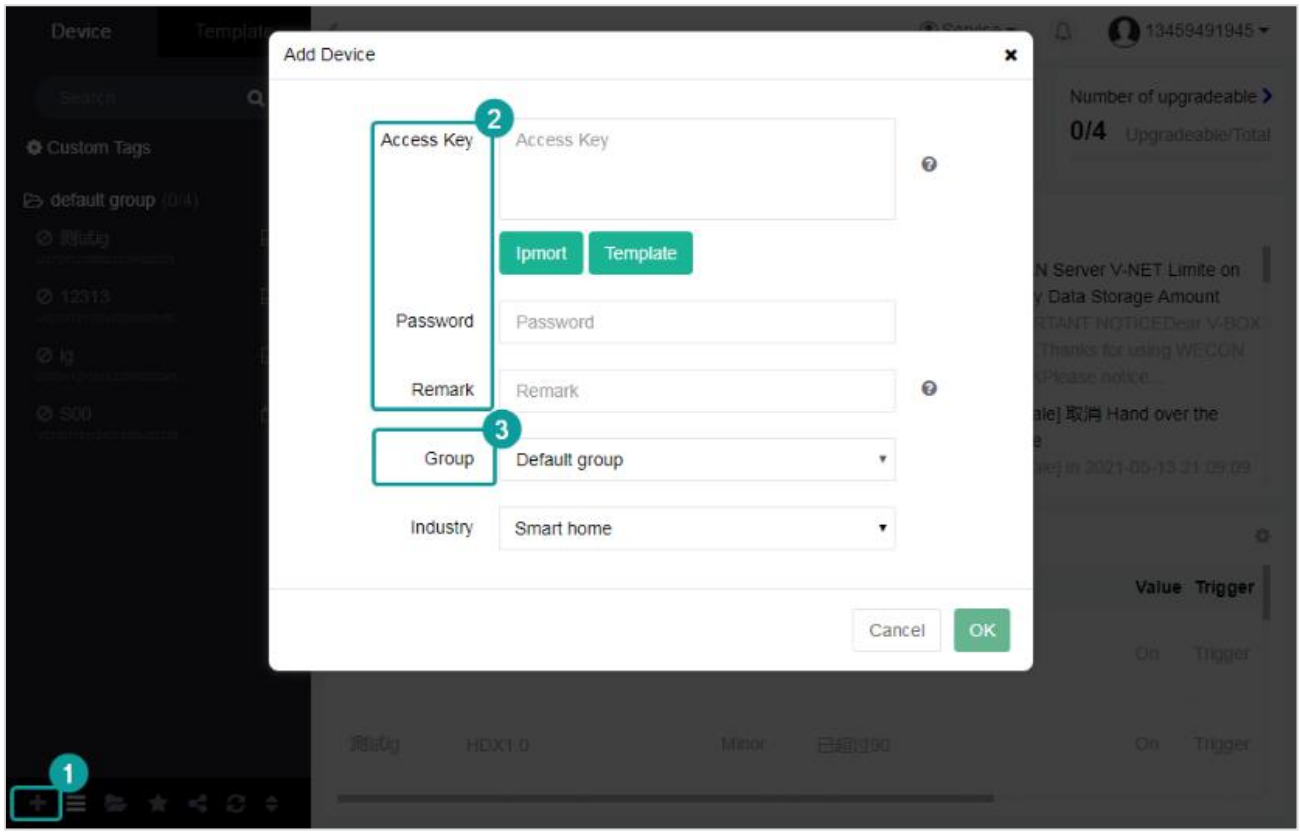


Figure 4- 1

(1) Access key(machine code). Each V-BOX or ig screen has a unique machine code.

(2) If multiple V-BOXs or ig screens are bound at the same time, export the template to fill in the machine codes, and then import the form to bind.

1) Template. An export template file is an excel form named "batch_mould" with the format to input machine codes.

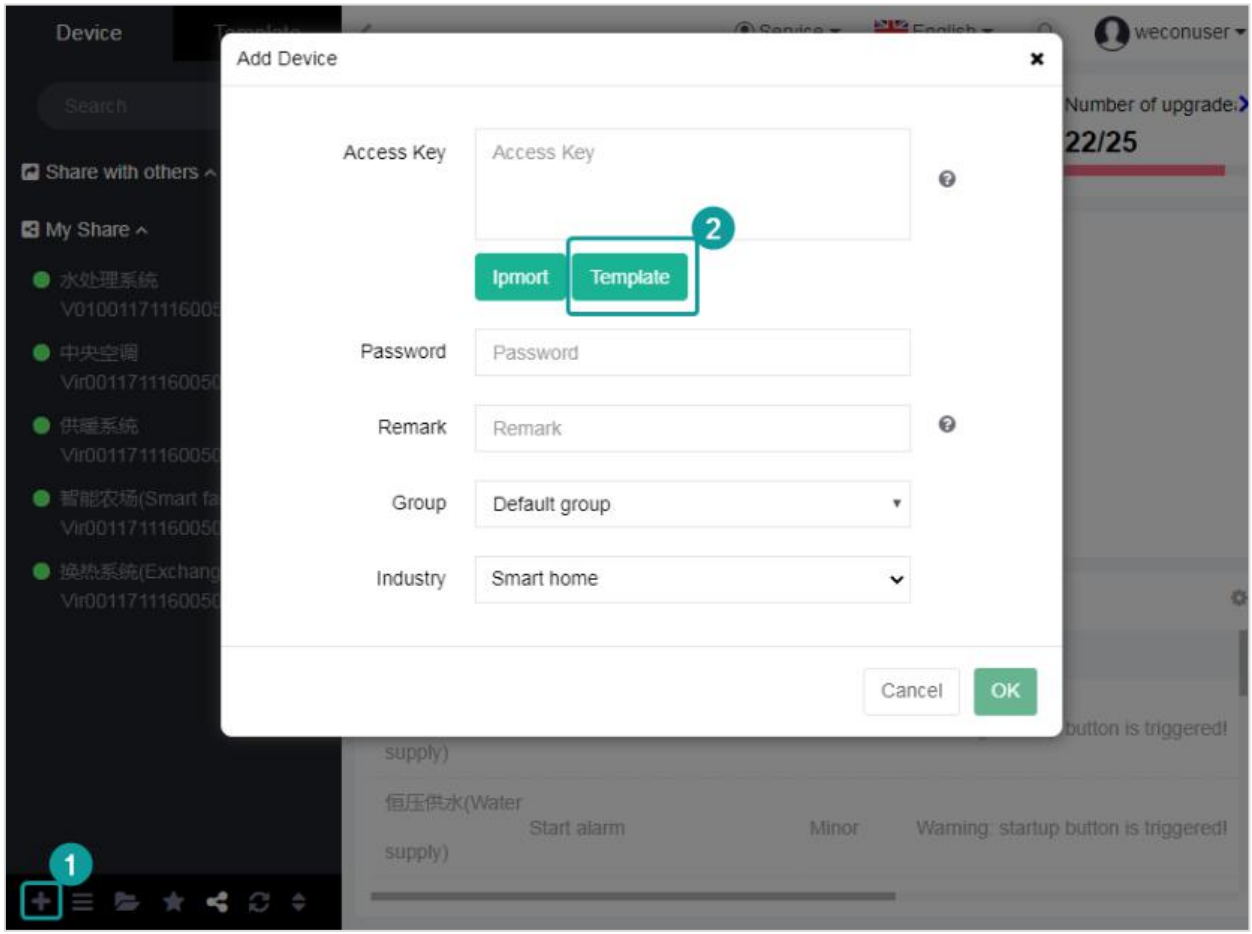


Figure 4- 2

2) Import. Fill in the machine codes to the template file, and import it.

✎**Note:** The content of the template file should only be header and machine codes, and all the other contents need to be deleted.

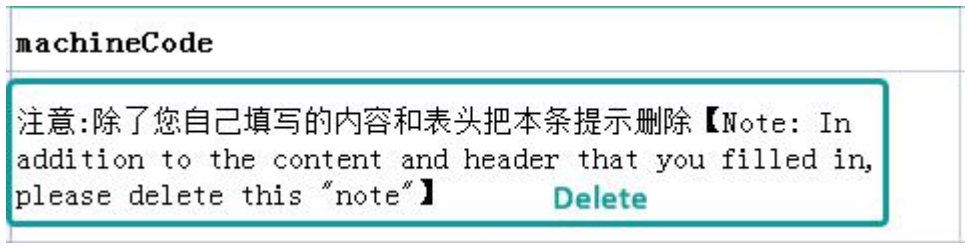


Figure 4- 3

(3) Password. The default password is 888888. The length of the device password is 6 digits, Special characters are allowed, and couldnot be empty.

(4) Device alias. It is the device name in the device menu bar. The name display up to 12 digits. Special characters are restricted to input except ,·_-+=}]"，。？、；：“”‘’【】—（）…！《》, and couldnot be empty.

✎**Note:**

① If the user binds multiple devices at the same time, the passwords of the devices should be consistent. Only one machine code could be entered on a line. When entering multiple machine codes, use the "Enter" key to change the line. If not, the format is wrong, and the binding would fail and an error would be reported.

② If the user binds multiple machine codes in batches, the device alias would use the input device name as the prefix, and the system would automatically add a suffix. Example: Default group (device alias)_1 (automatically added suffix).

4.1.2 Basic information

After adding a V-BOX or ig screen, click the device list on the left to select V-BOX or ig screen, and it would automatically jump to the device detail interface with seven subpages. The subpages include **Real-time Data, Alarm, Historical data, Cloud SCADA, Pass-through, and Configuration**. Users could modify the information with valid data, and click the "save" button to finish the modification successfully. As shown in the following figure.

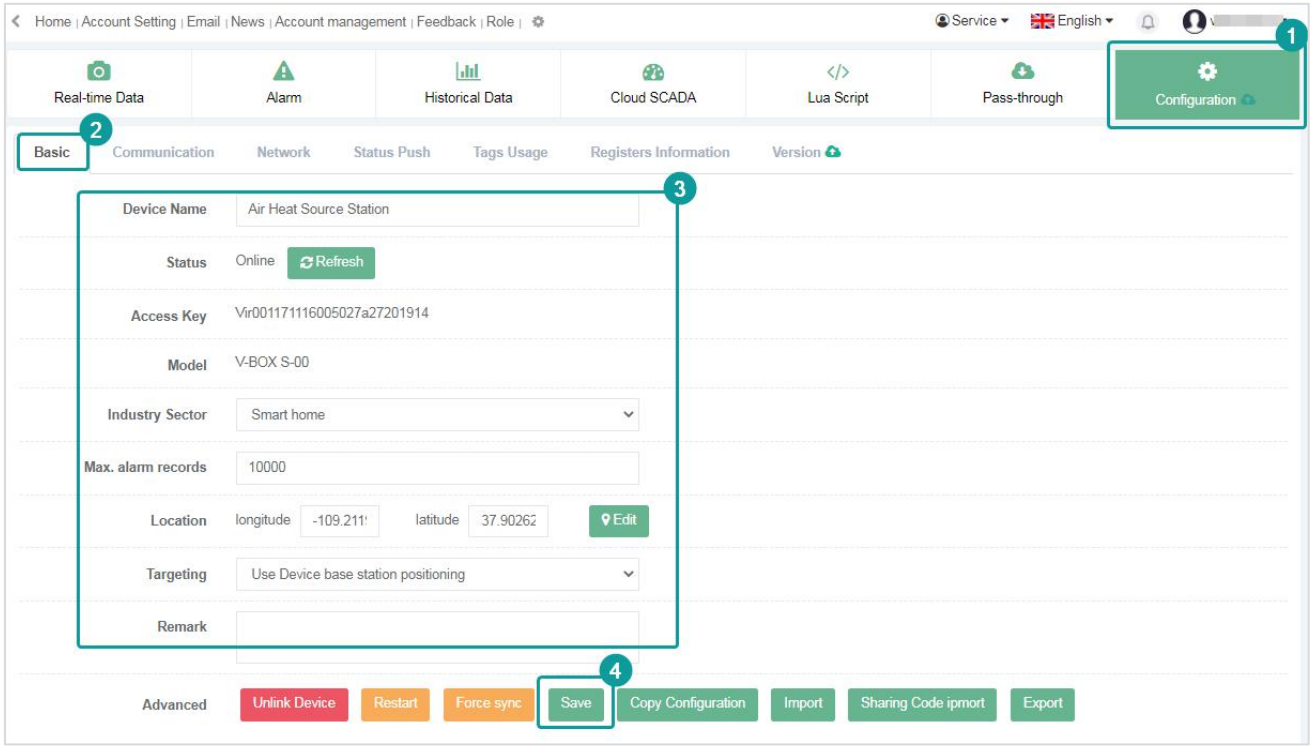


Figure 4- 4

(1) Unbind the device

The administrator could click "Unlink device" to unbind the V-BOX or ig screen on the "Basic Information" sub-page under the "Basic Configuration" page. If the configuration of the communication port and monitoring point corresponding to the device is not deleted after unbinding, then the next time the device is added, the data is still exist and automatically transferred to the device. As shown in the following figure.

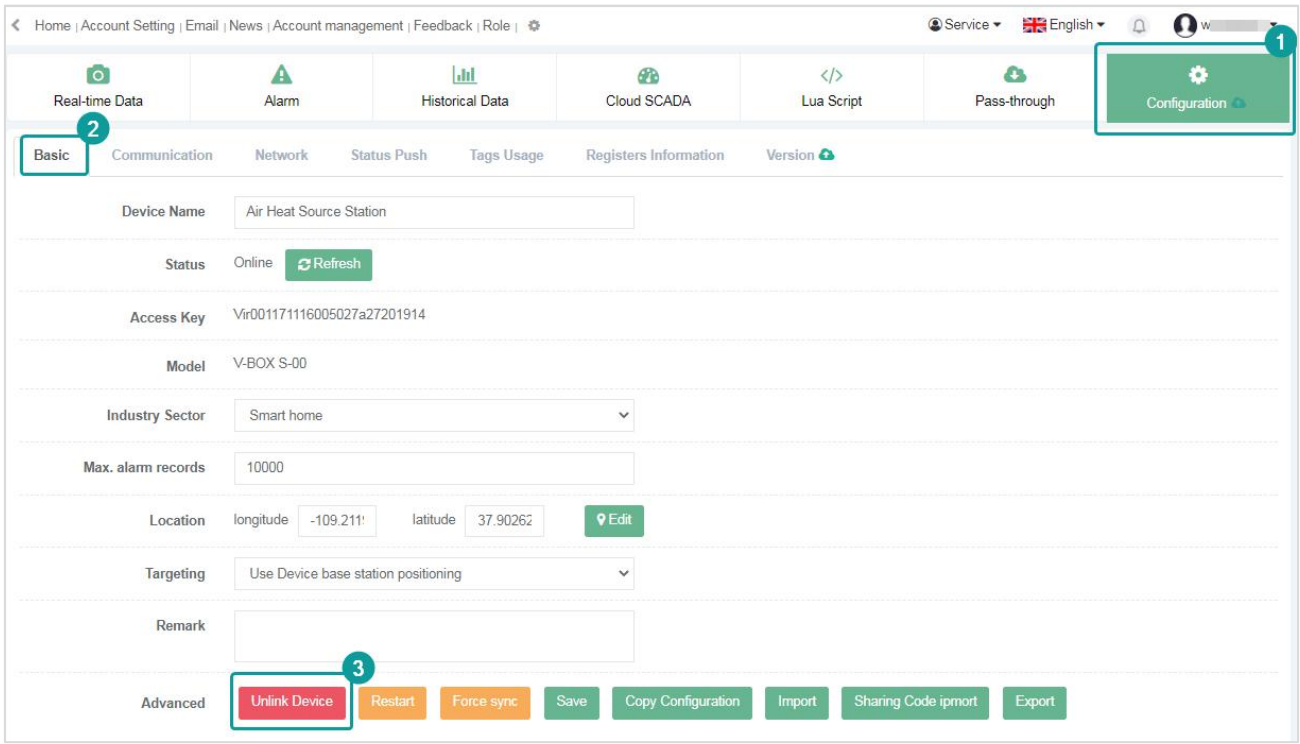


Figure 4- 5

(2) Copy configuration

Copy configuration is to copy the device configuration from one V-BOX to another V-BOX. If the configurations of multiple devices are the same or alike, the user could configure the information of one V-BOX first, and copy the configuration to another V-BOX through the [Copy Configuration] function. The configuration could only be copied if there is a V-BOX of the same model in the account. As shown in the following figure.

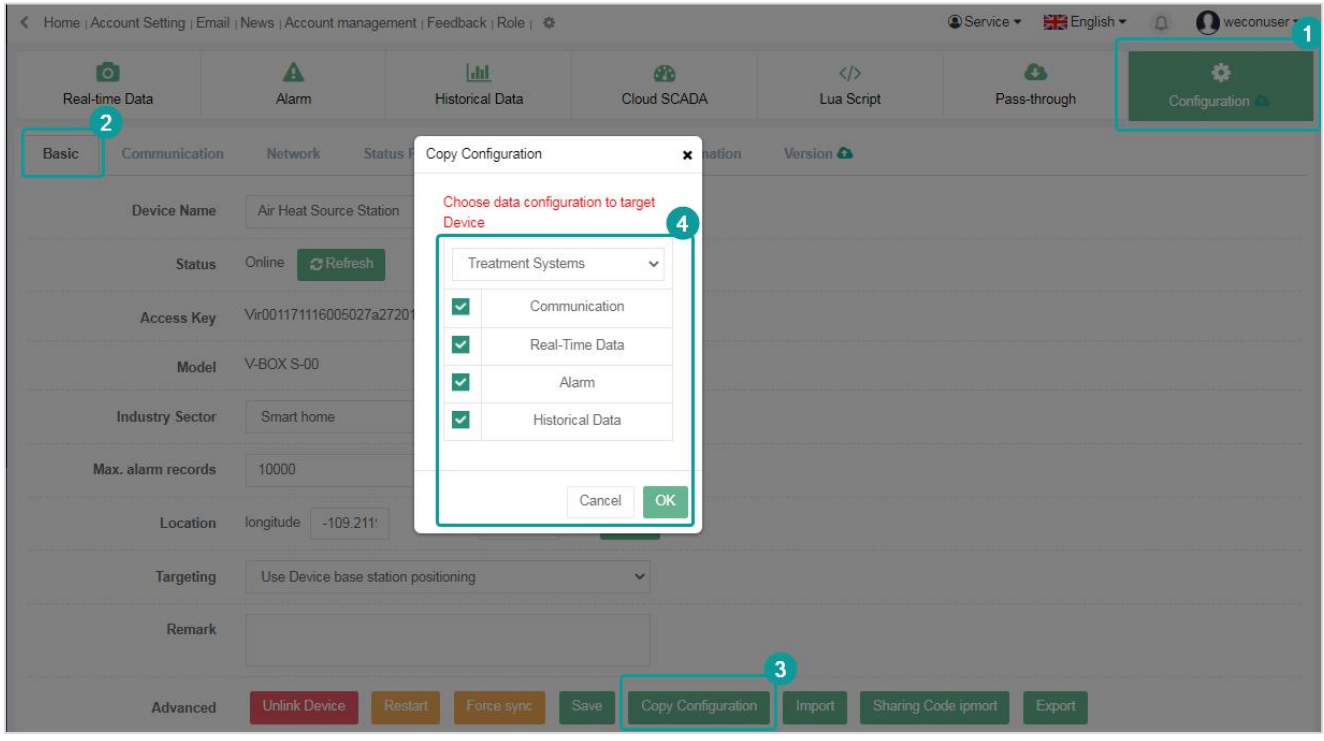


Figure 4- 6

If the configuration is copied successfully, the following figure would be prompted.

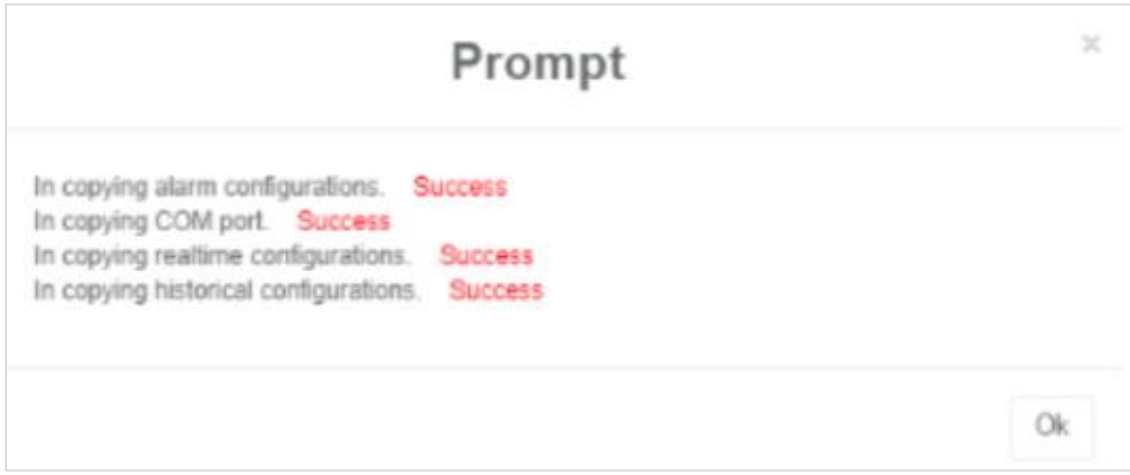


Figure 4- 7

✎**Note:** Only when the configuration information of the "Water Treatment System" of the V-BOX is empty could the configuration information be copied successfully. If other parameters are configured in the "water treatment system" of V-BOX, and a copy failure message would be prompted as below.

Figure 4- 8

4.1.3 Communication port configuration

Users could add, modify and delete communication configuration in "Configuration", but only the administrator account has permissions to operate this function.

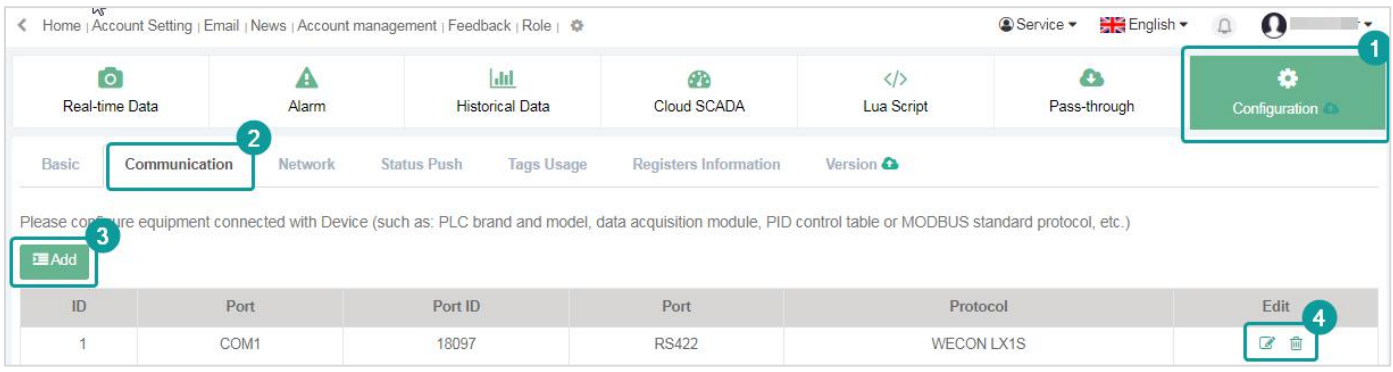


Figure 4- 9

(1) Add communication port configuration

Click the Add button 

to configure the communication port. If the configurations are configured successfully, the system would synchronize the configuration information and drive files to the V-BOX. The operating procedure is as the figure below.

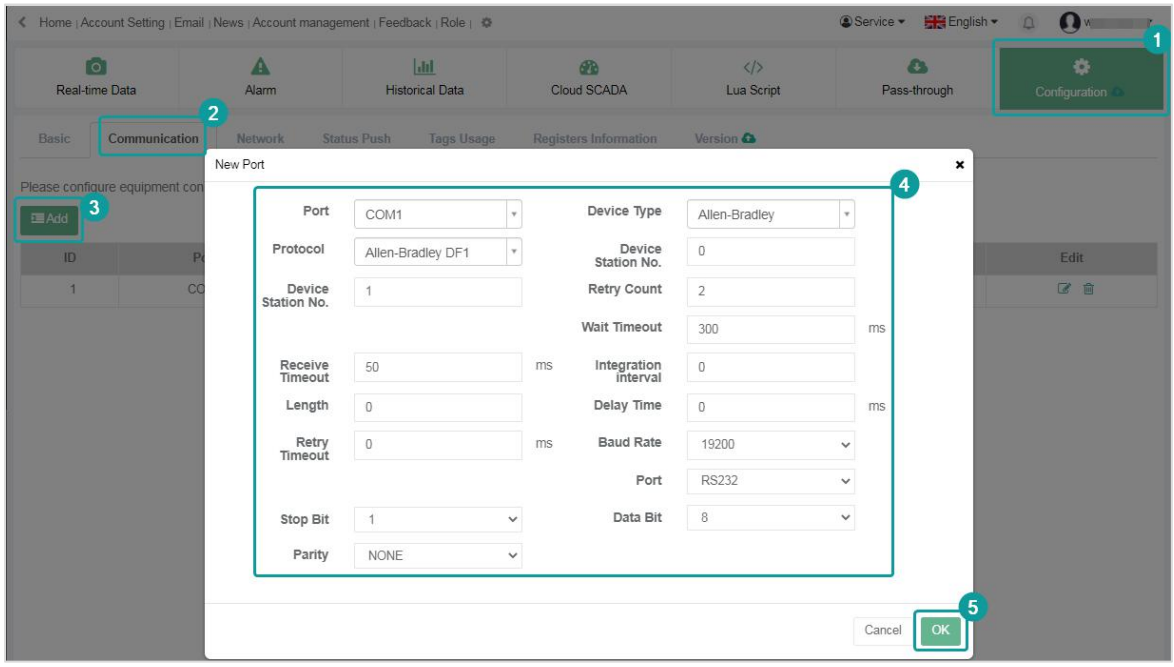


Figure 4- 10

(2) Modify communication port configuration

The administrator could click the button  to modify the data of the V-BOX except for the machine code. If the drive file changes, the monitoring point and data of the communication port would be deleted synchronously. The operating procedure is as the figure below.

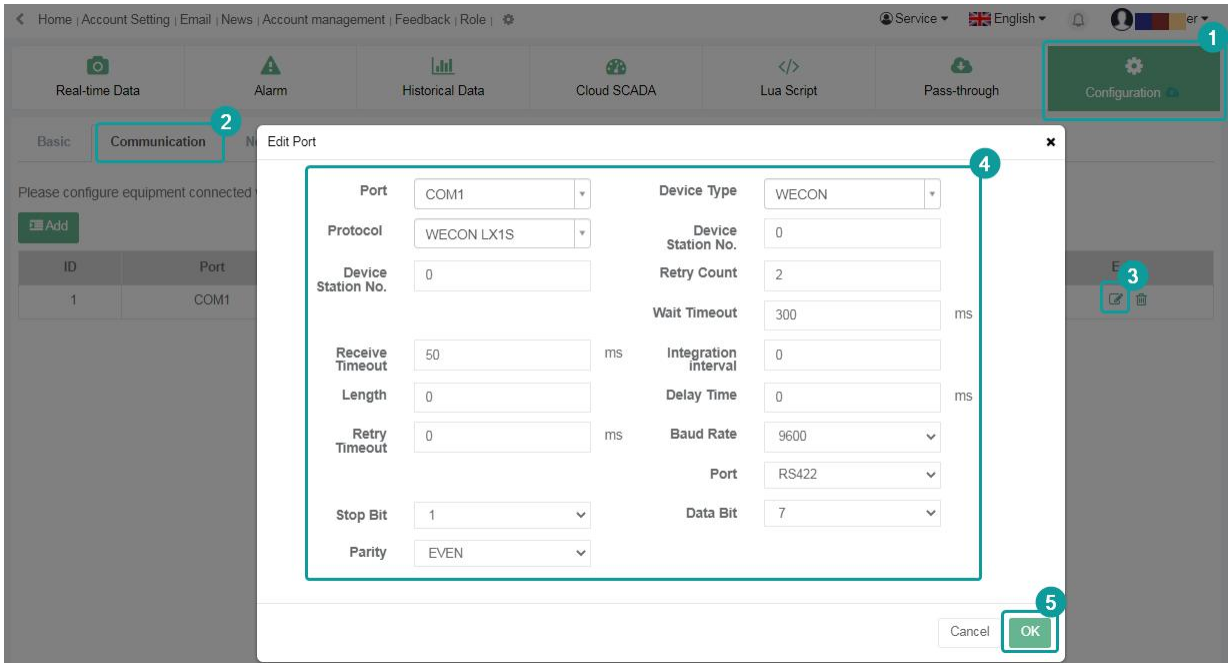


Figure 4- 11

(3) Delete communication port configuration

Click the button to delete the communication port configuration, the monitoring point data associated with the communication port configuration under the V-BOX would also be deleted, and a dialog box would pop up to confirm whether the operation continues. The operating procedure is as the figure below.

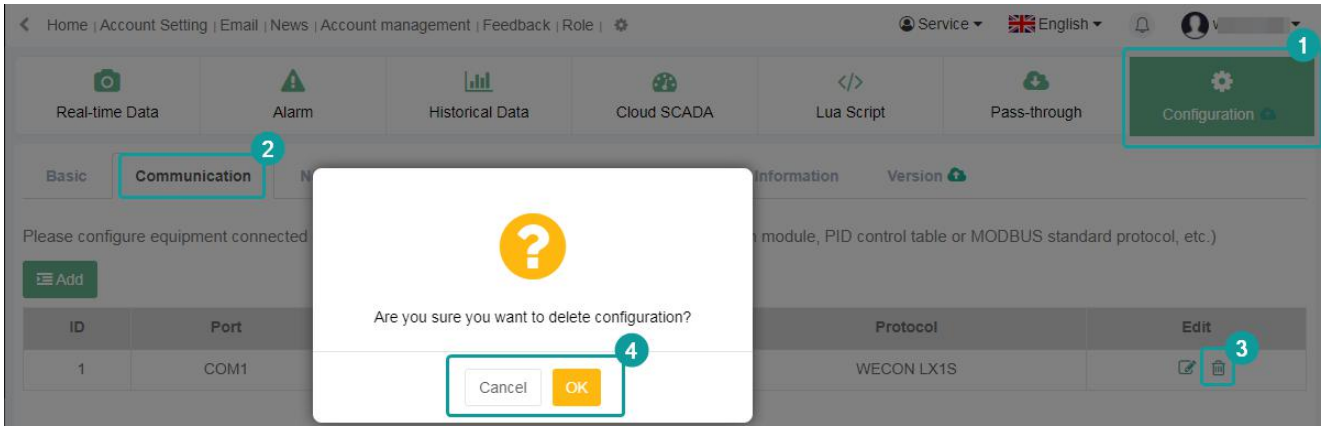


Figure 4- 12

4.1.4 Network configuration

Users could view the network configuration of V-BOX and update and change it. As shown below

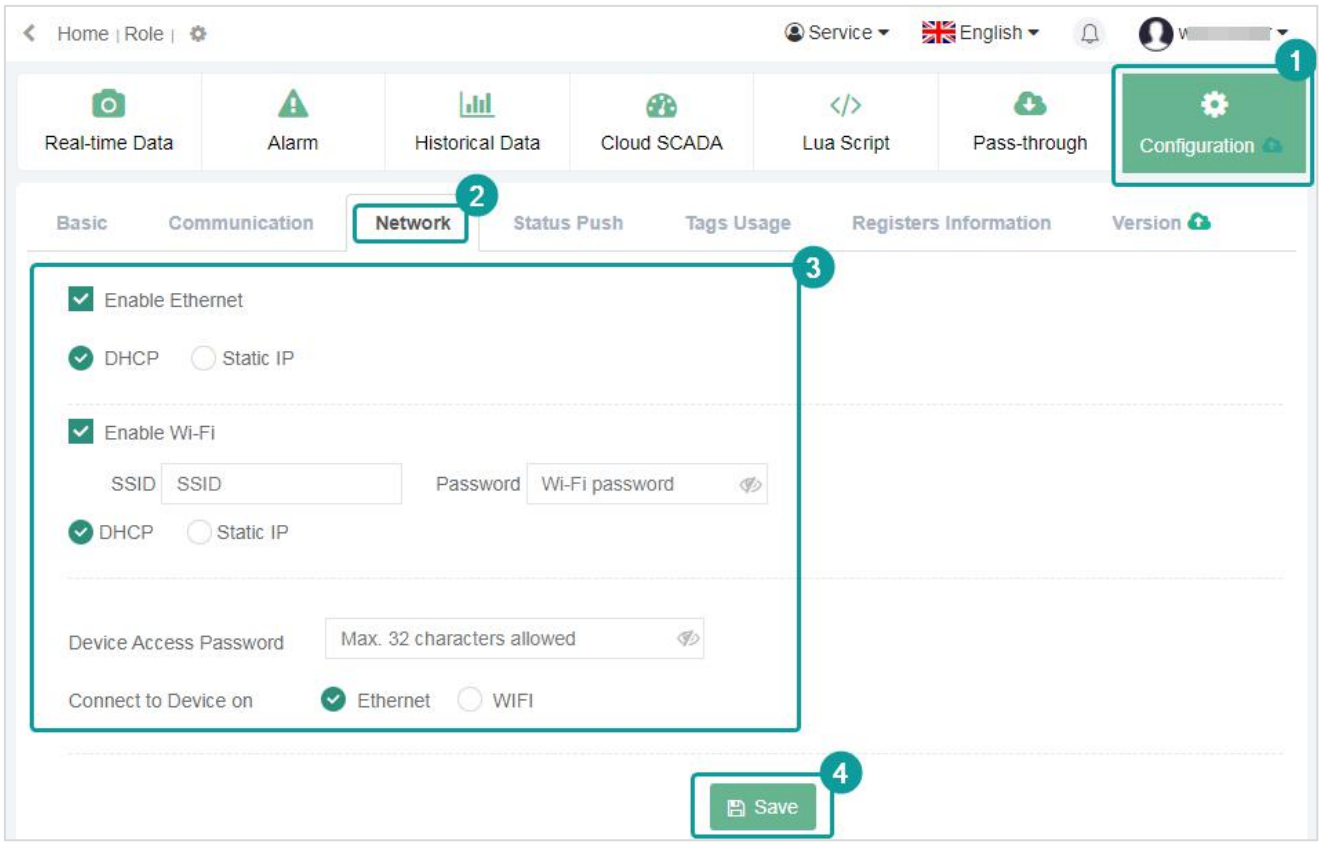


Figure 4- 13

4.1.5 Status push(Email)

Status push is to push the data set by the V-BOX to the mailbox. As shown below.

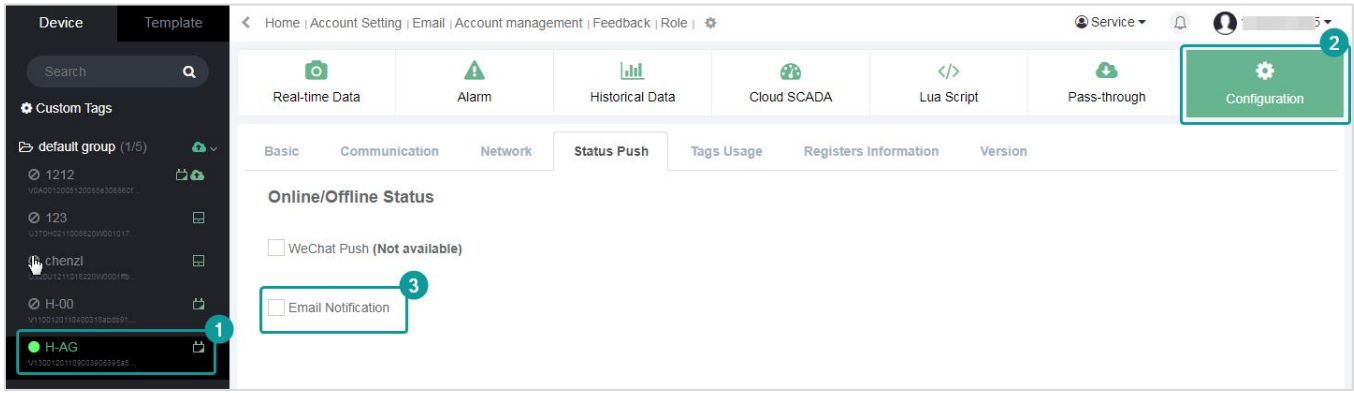


Figure 4- 14

(1) Email notification. Set the email push information in Service--Email.

1) Add recipient. Add the recipient name, email address, and enable the email permission. As shown below.

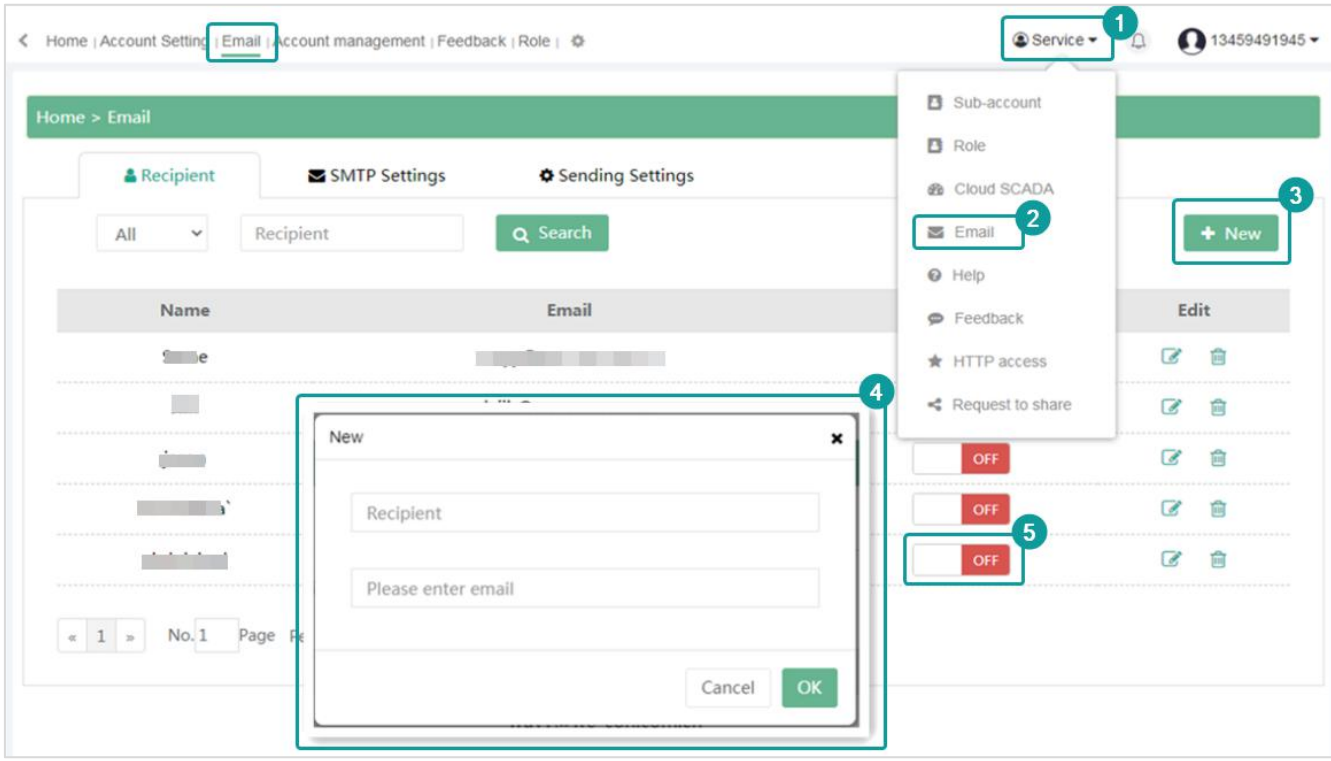


Figure 4- 15

2) Sender settings. Here we recommend Gmail. The setting procedure is as the following figures.

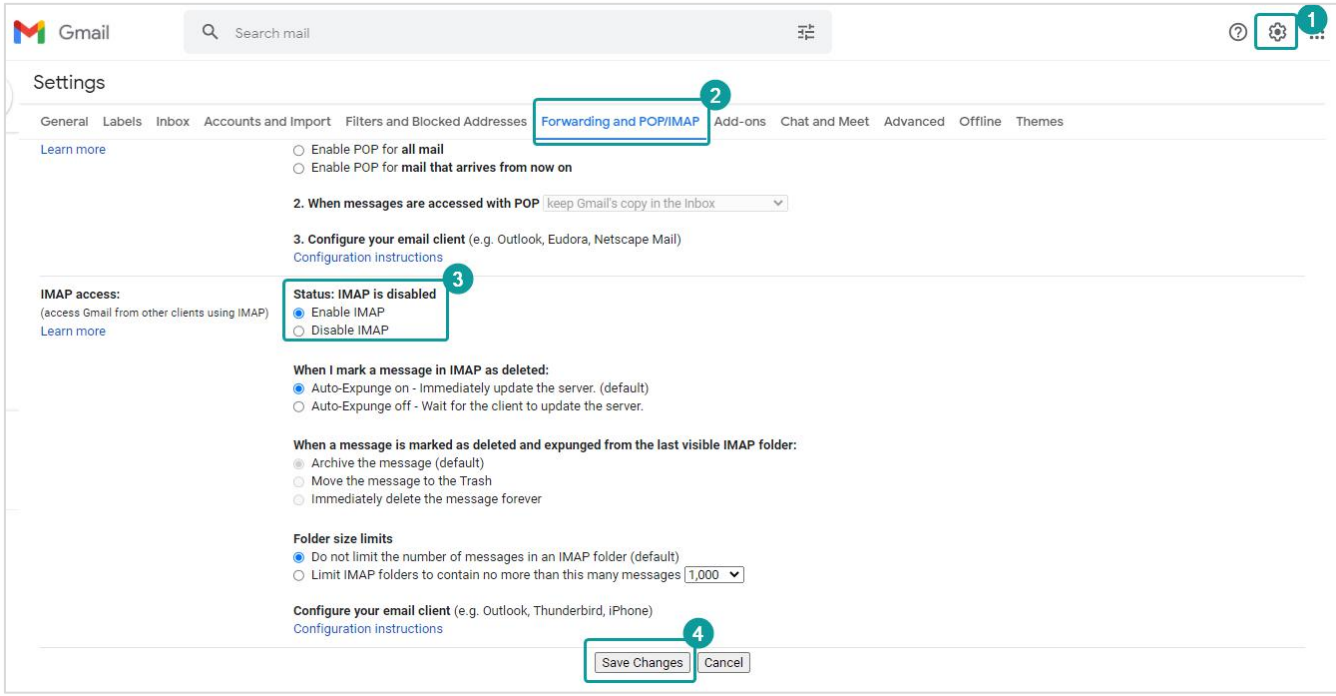


Figure 4- 16

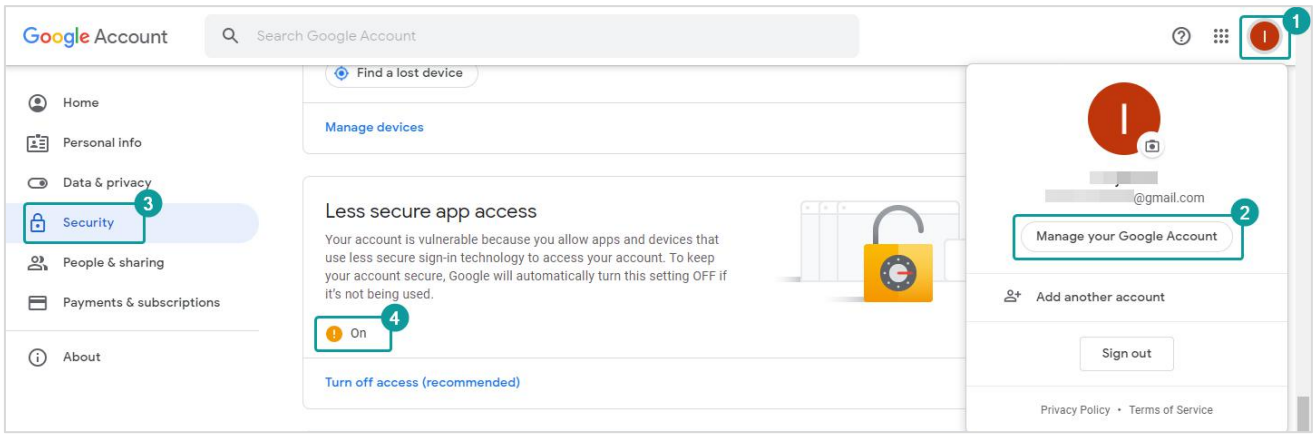


Figure 4- 17

if Gmail still could not work during your test Gmail. Google account would receive V-BOX asking. Please check the below message, and allow V-BOX application to use Gmail.

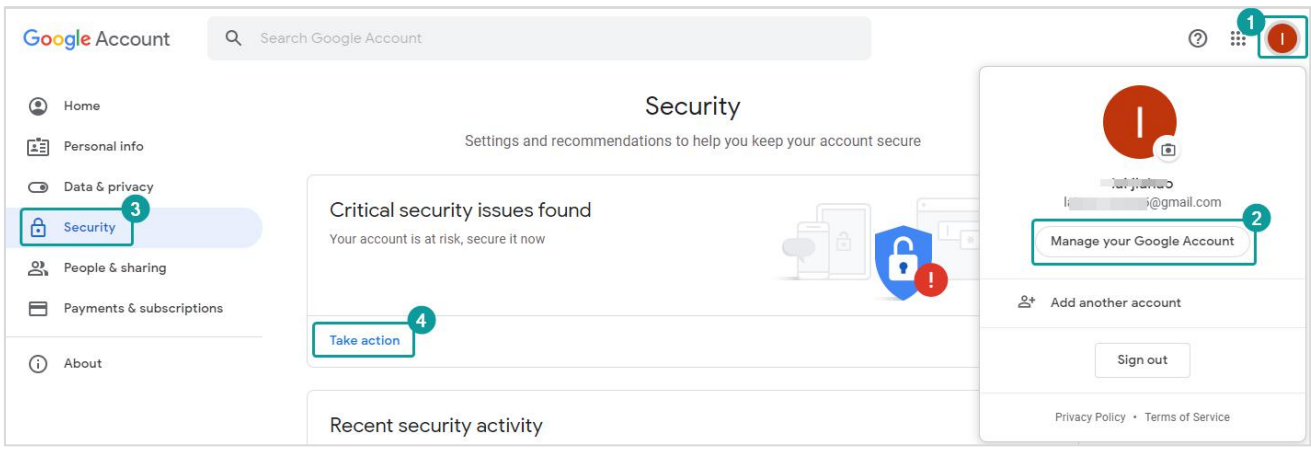


Figure 4- 18

If SMTP still could not solve the problem, please check the link below.
https://support.google.com/mail/answer/7126229?visit_id=637347010295058878-3054942826&rd=2#couldtsigni

3) SMTP Settings.

Fill in the SMTP setting as the sender's information, check the SMTP setting and enter the email address to be verified, and a checking email would be sent to the email to remind the SMTP setting to succeed.

① Sender: The name is arbitrary without requirements.
② Email address: Fill in the sender's email address.
③ Password: Fill in the password of the sender's email.
④ SMTP: Fill in smtp.qq.com.
⑤ Port: If the secret key selects "No", fill in 25. If the secret key selects "SSL", fill in 465 or 587.
⑥ The setting procedure is as the following figure.

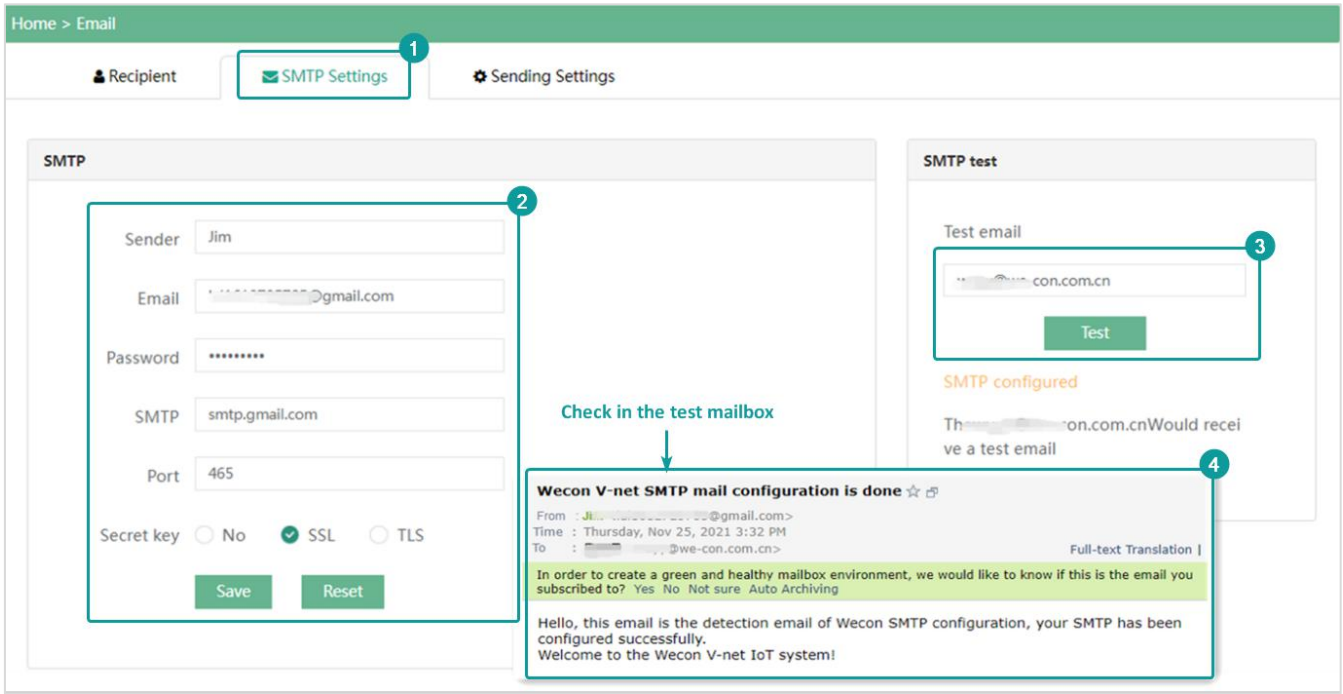


Figure 4- 19

4) Sending settings.

① Add: add a new configuration, and multiple configurations could be added.
② Enable: Check to enable to use the e-mail push function, and fill in the configuration.

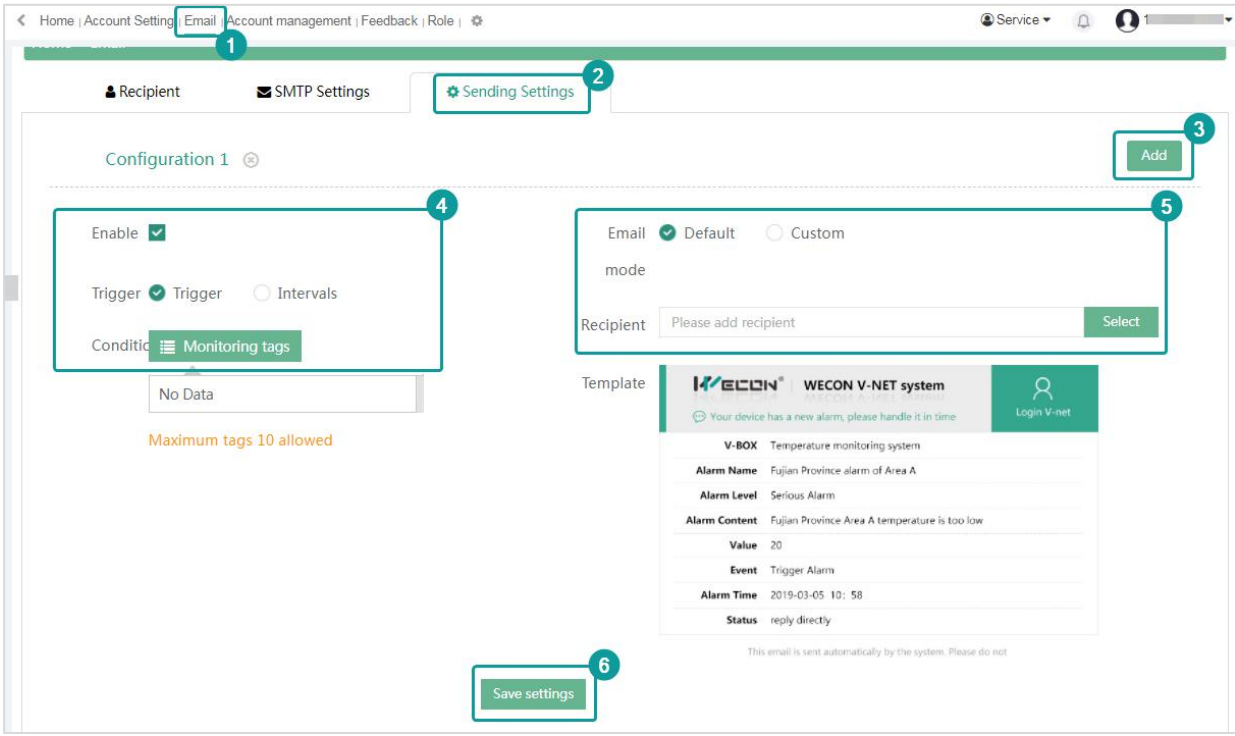


Figure 4- 20

5) Trigger. There are two ways to send emails, including "Triggers" and "Intervals".

① **Trigger.** It needs to bind an alarm tag. When the alarm tag reaches the alarm condition, it would send an email.

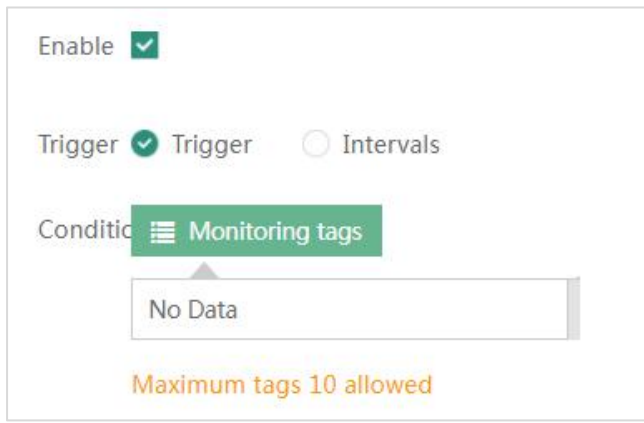


Figure 4- 21

② **Intervals.** Users could select "Once a day", "Once a week" and "Once a month".and the time.

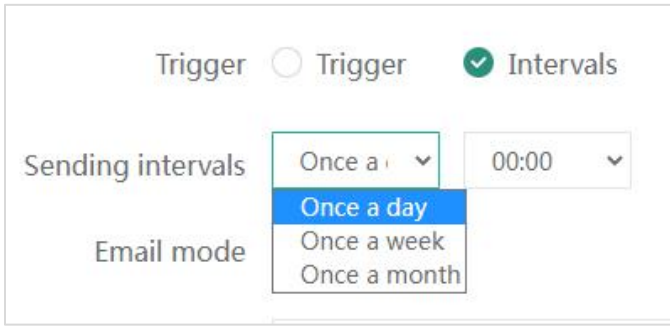


Figure 4- 22

(2) Mode: There are modes.

① **Default**. Default is the WECON template.

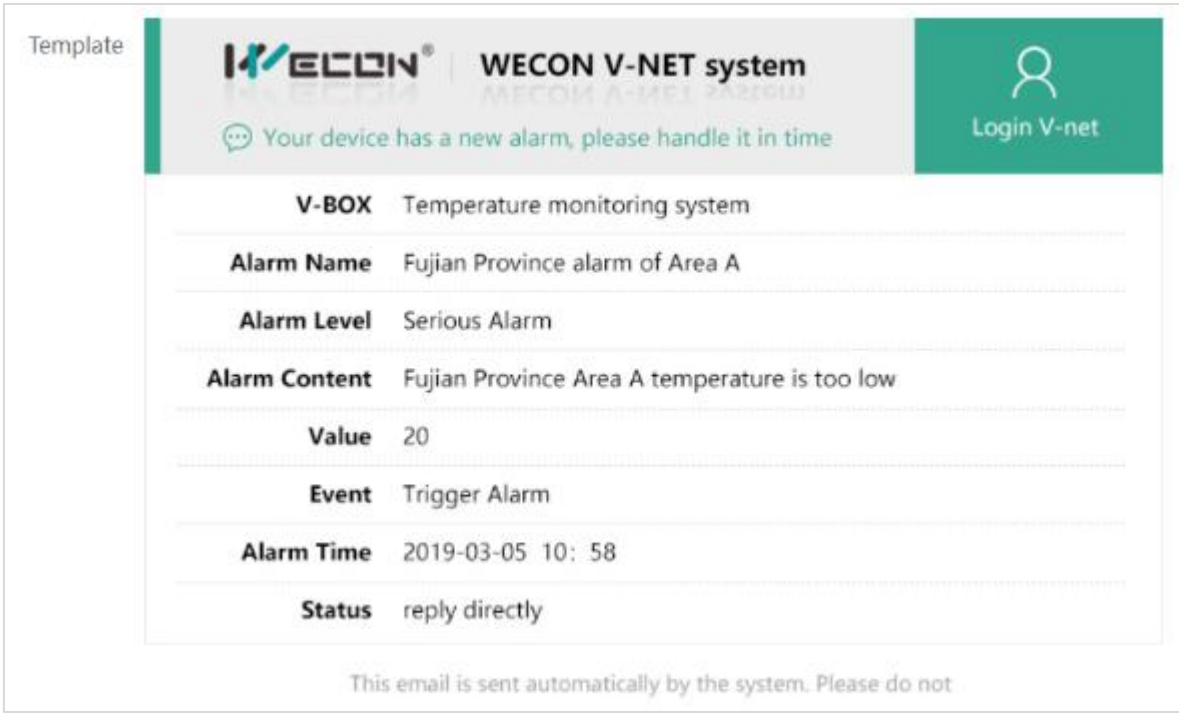


Figure 4- 23

② **Custom:** Users could add a bit monitoring point or word monitoring point according to their needs. When users choose to send emails at regular intervals, there is only Custom mode.

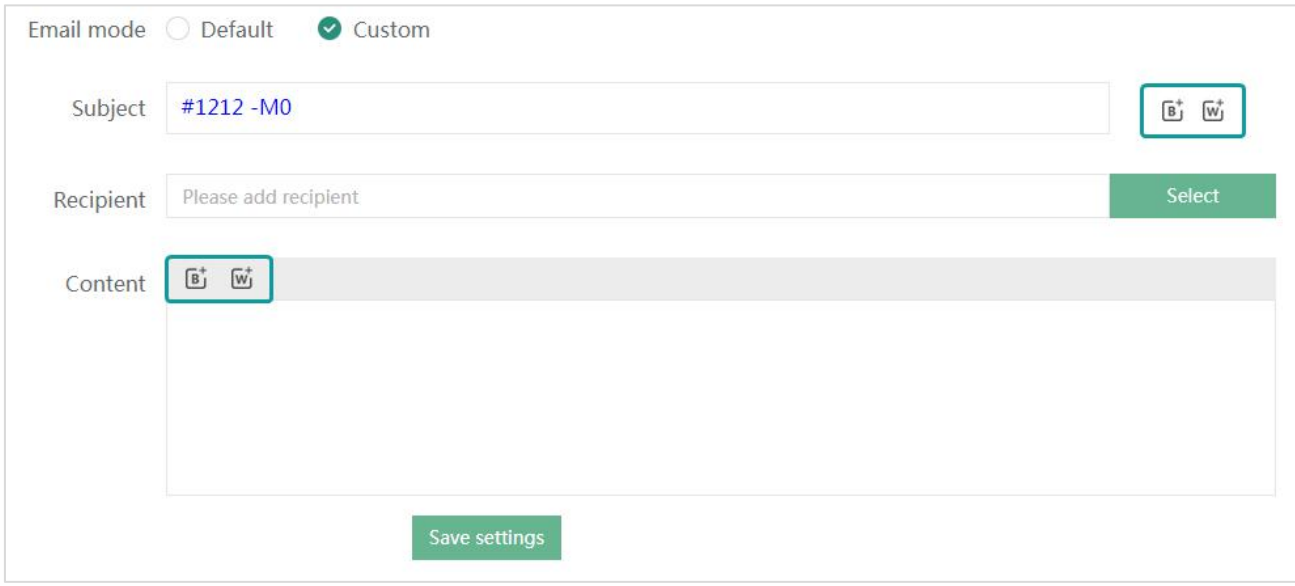


Figure 4- 24

4.1.6 Tags usage

It records the current use and a maximum number of data monitoring points of data monitoring, historical records, and alarm records of the current V-BOX. As shown below.

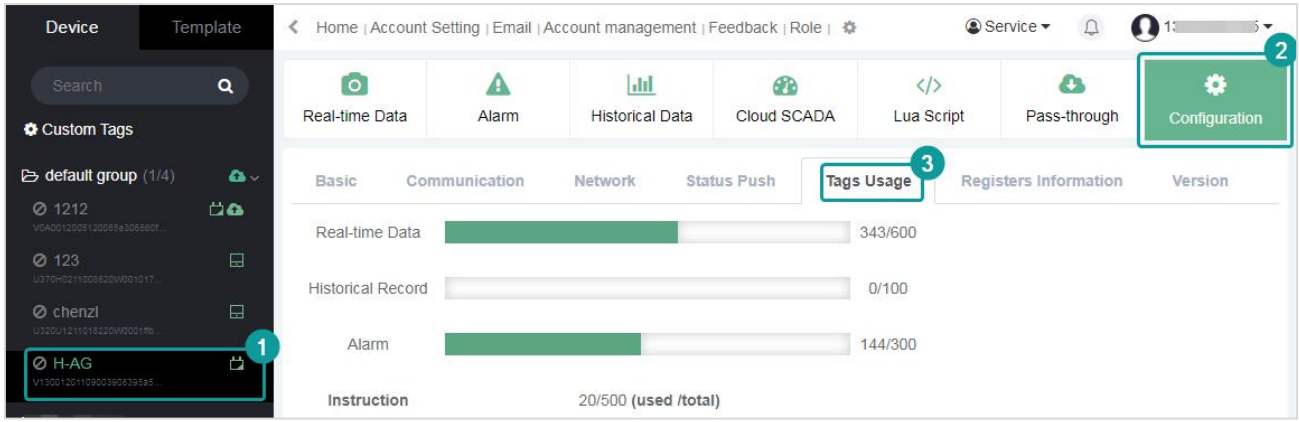


Figure 4- 25

4.1.7 Registers information

It records the V-BOX information, such as IP address, WIFI. As shown below.

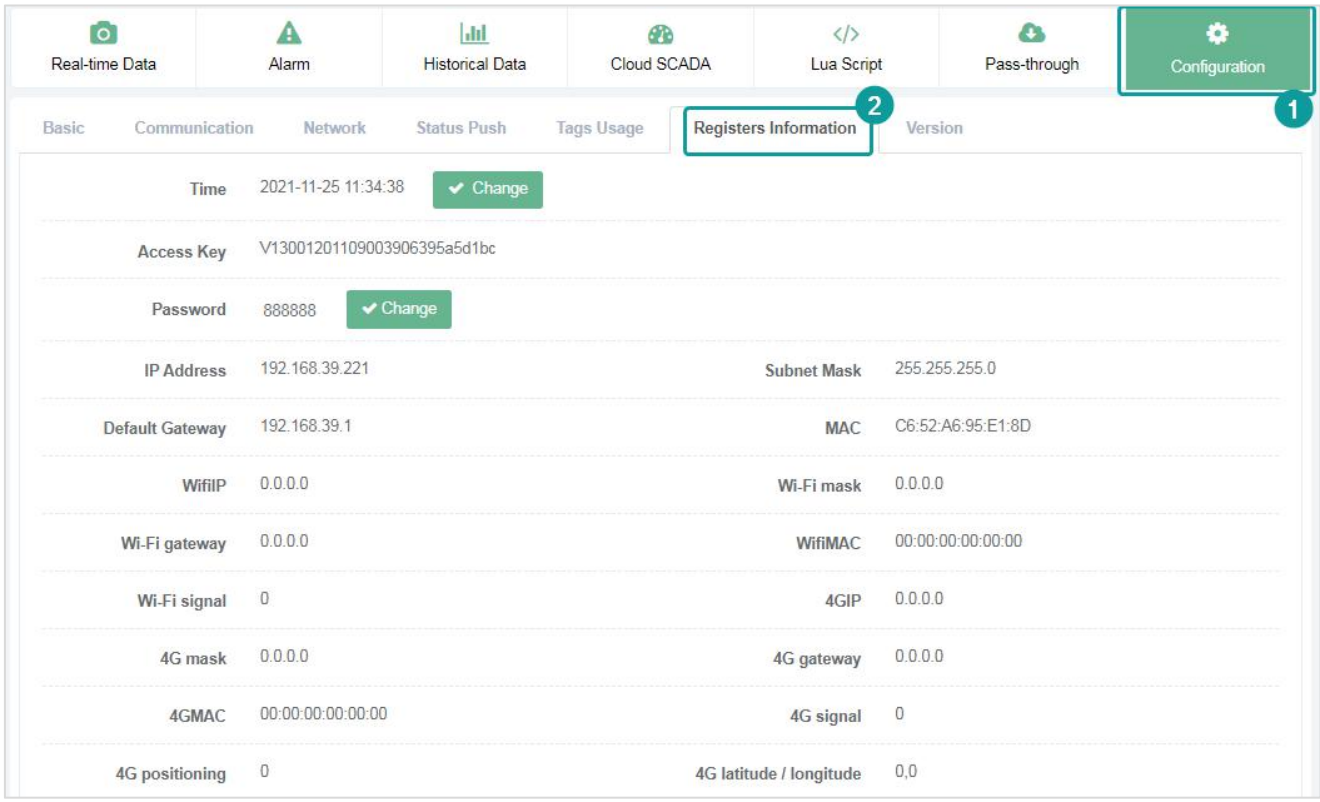


Figure 4- 26

4.1.8 Device version

As the product is constantly updated, the functions of theV-BOX could be judged based on the version information. As shown below.

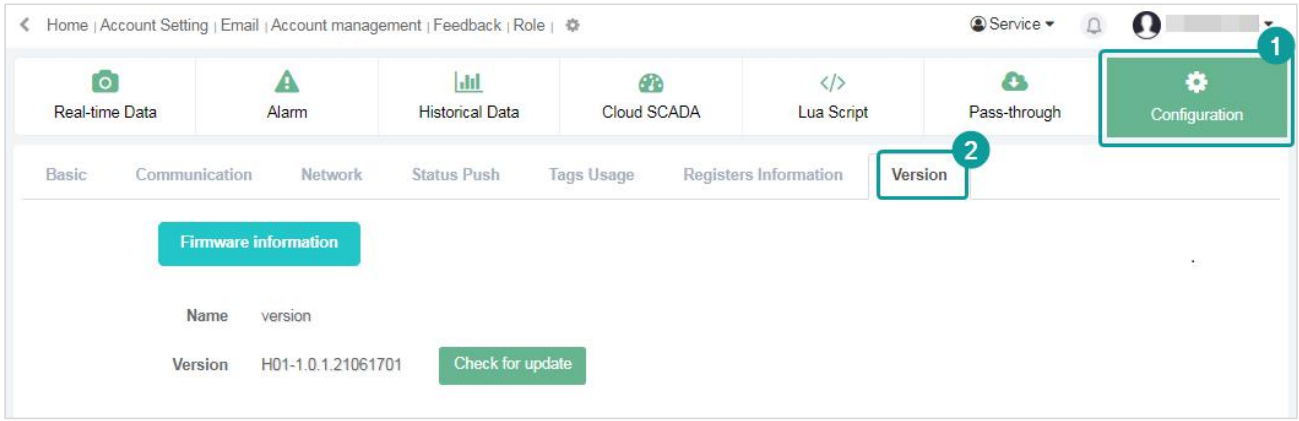


Figure 4- 27

4.2 Real-time data configuration

4.2.1 Real-time monitoring point configuration

In the "Real-time Data" interface, users could configure real-time monitoring points to easily obtain equipment data, and operate online. To add a real-time monitoring point, users need to select a group or enter the real-time monitoring point name, the connected device (ie, communication port), address type, register type, and other data. As shown below.

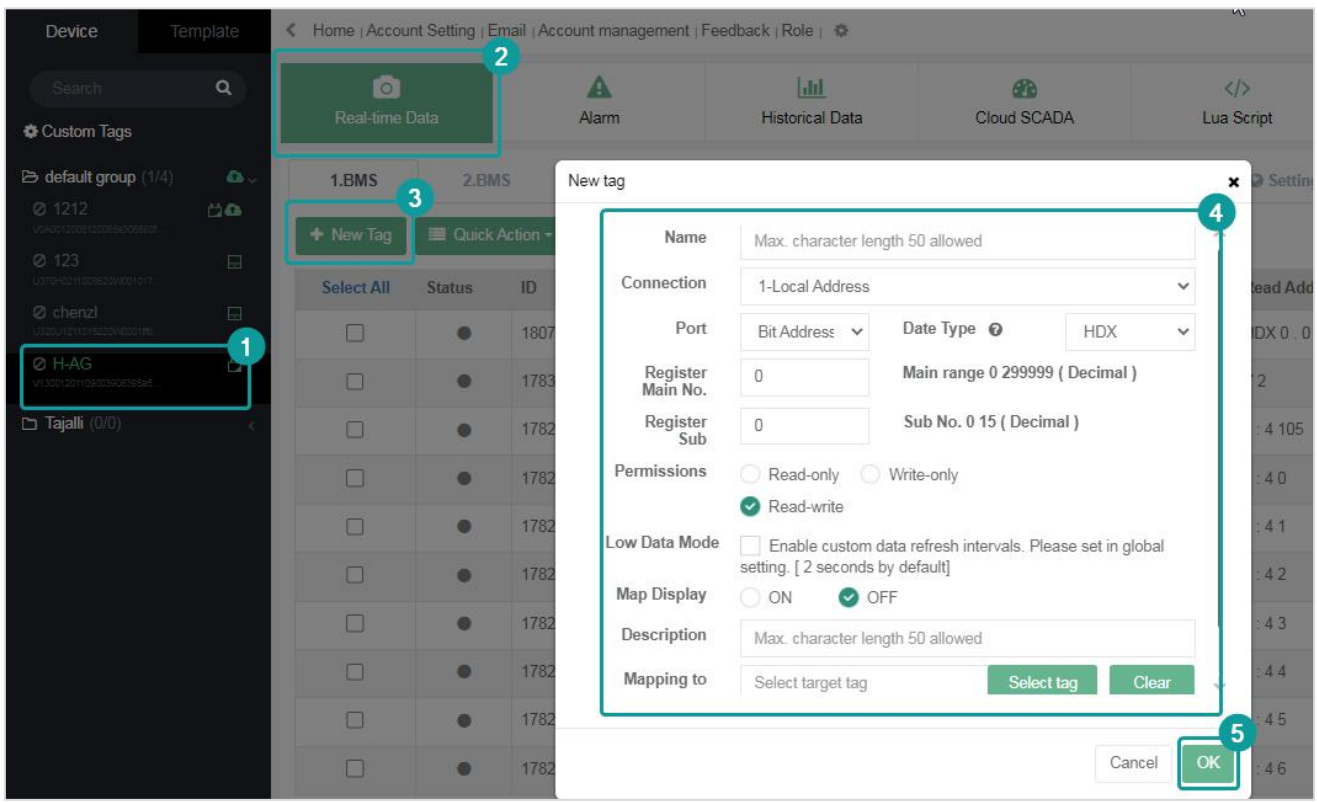


Figure 4- 28

(1) Add and delete in batch. As shown below.

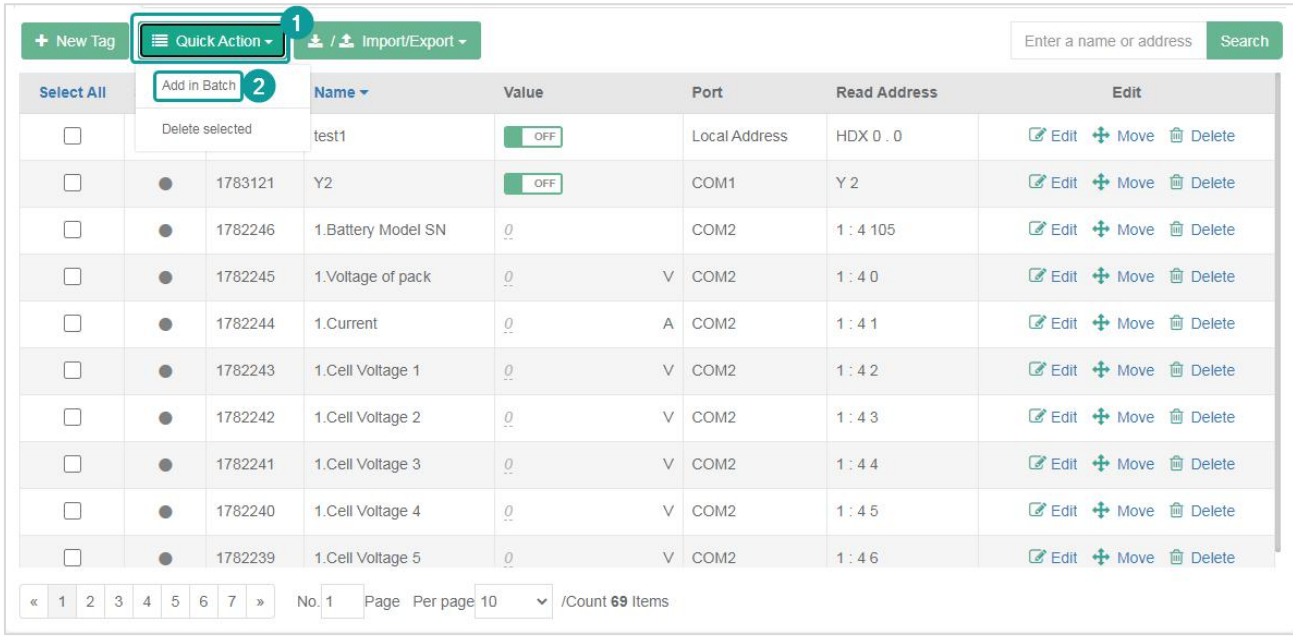


Figure 4- 29

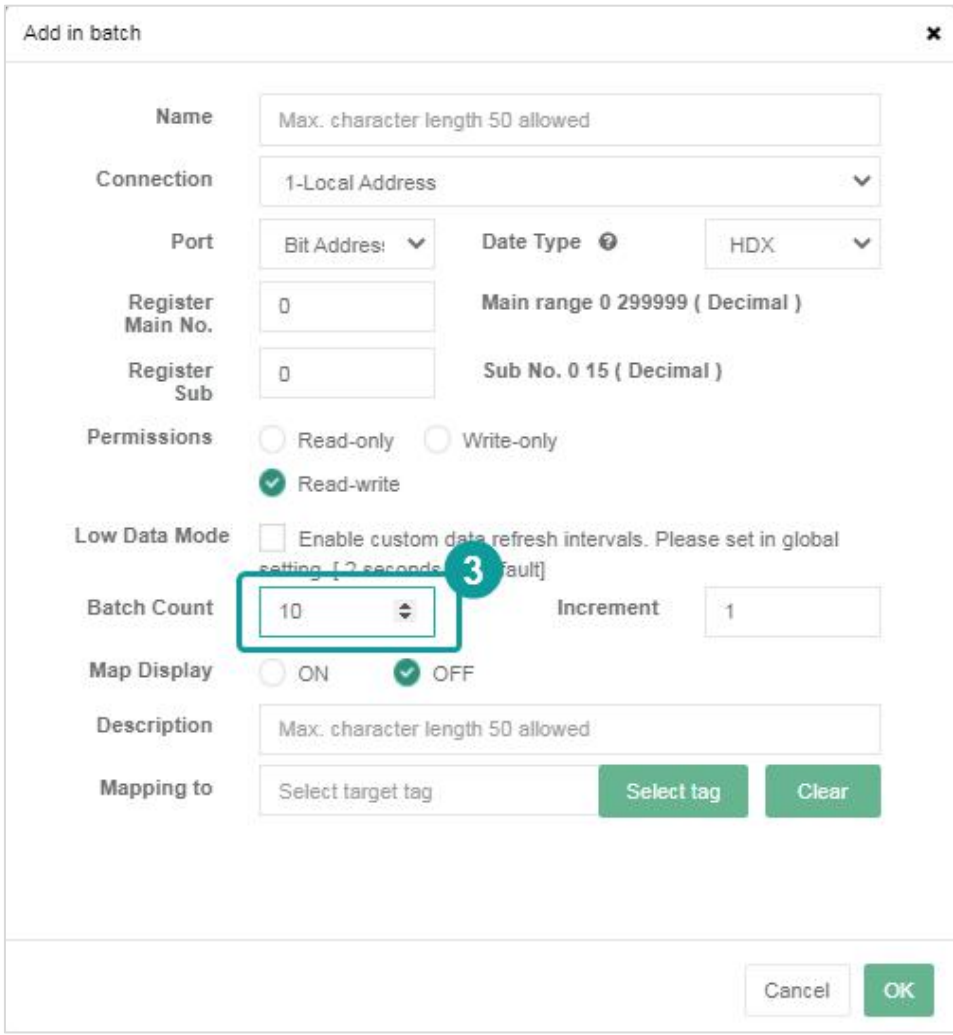


Figure 4- 30

(2) Import and export. As shown below.

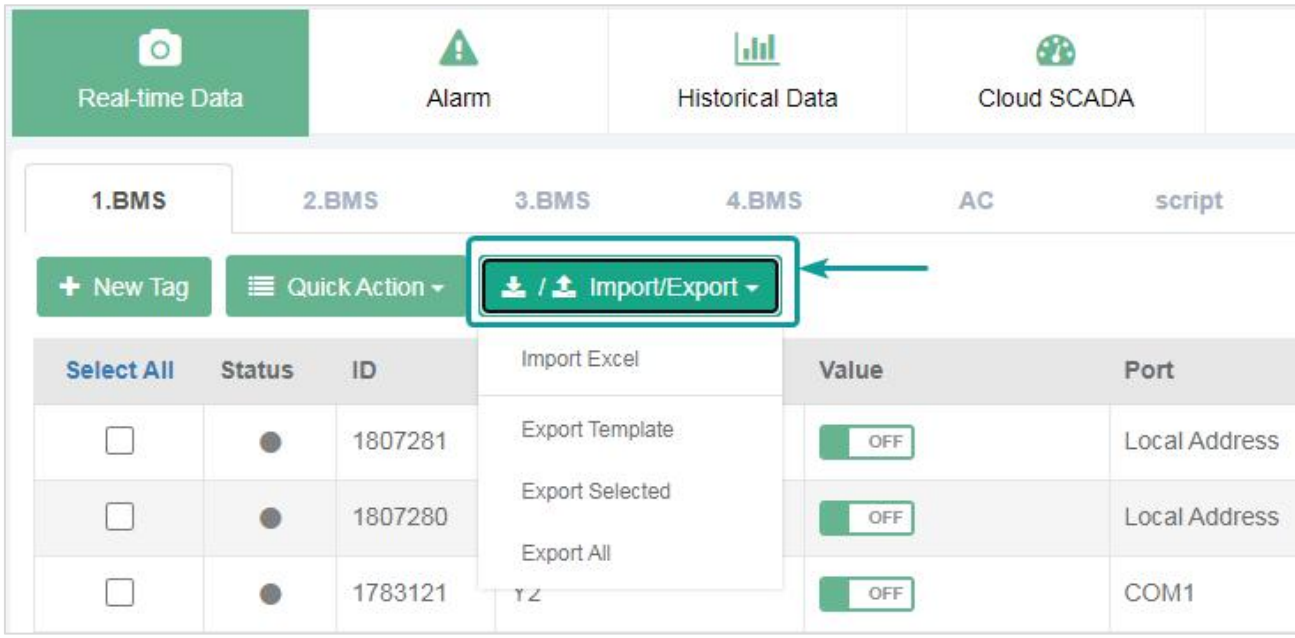


Figure 4- 31

4.2.2 Monitoring points group management

Real-time monitoring points could be grouped and managed, and monitoring points could be moved to different groups. Users could click the "Group Settings" to add, modify, and delete groups.

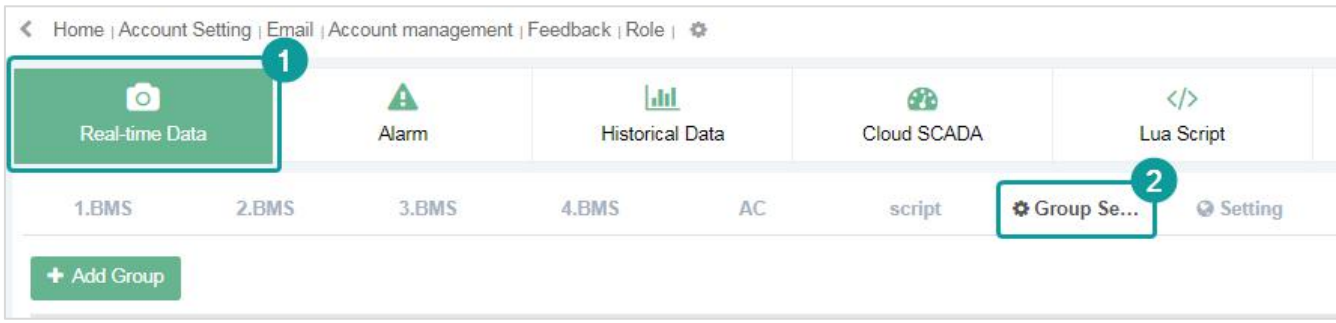


Figure 4- 32

(1) Add group. Enter the group name to add a new group. As shown below.

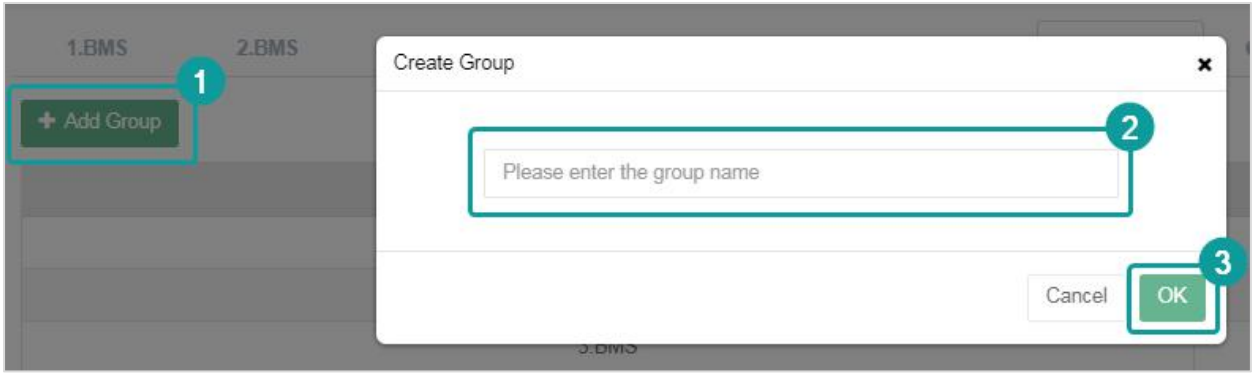


Figure 4- 33

(2) Modify group. Enter the new group name to modify the group. As shown below.

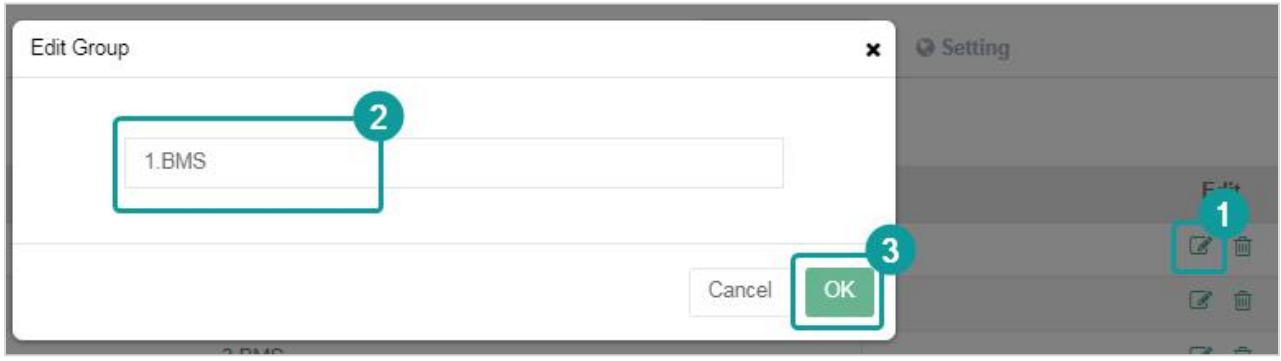


Figure 4- 34

(3) Delete group. When deleting a group, a dialog box would prompted to confirm the deletion operation. As shown below.

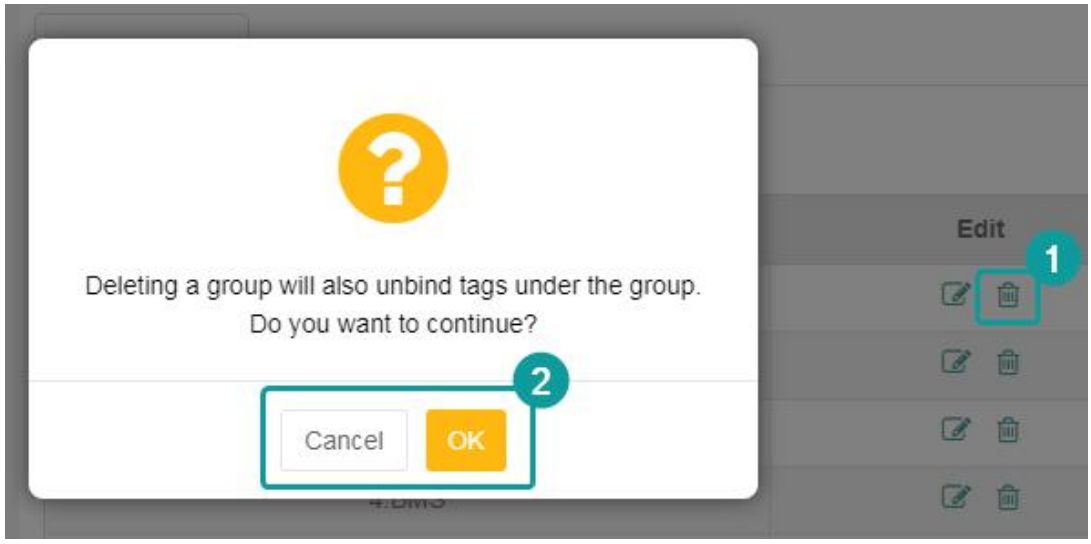


Figure 4- 35

4.2.3 Real-time data modification

Users could modify the real-time data of the monitoring point. Click the data of one monitoring point to edit, and click , the monitoring point real-time data would be modified to the data entered. Click to cancel the modification.

Figure 4- 36

4.3 Alarm configuration

Users could configure the alarms, and view the current alarms and historical alarms. Alarms could be divided into current alarm and historical alarm according to the administrator's confirmation.

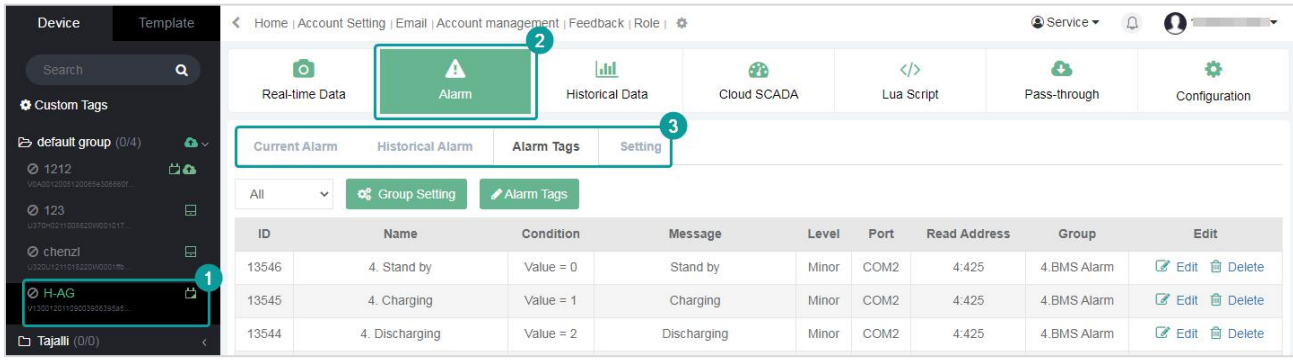


Figure 4- 37

4.3.1 Alarm tags

In the sub-page of "Alarm Registration" under "Alarm Record", users could add a new alarm. When adding an alarm record, users need to select or enter data such as name, group, the connected device (ie communication port), address type, etc. As shown below.

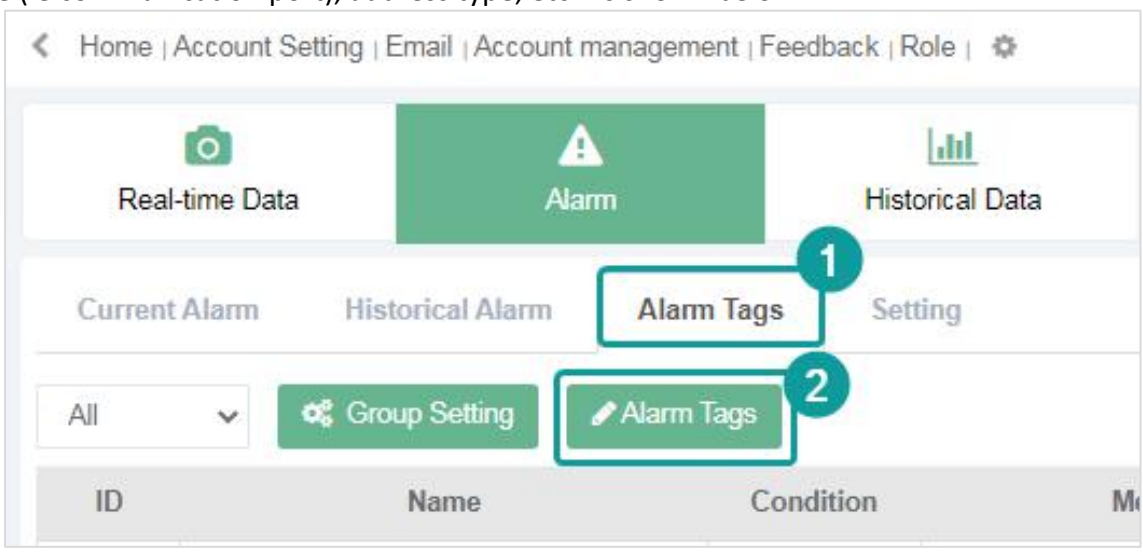


Figure 4- 38

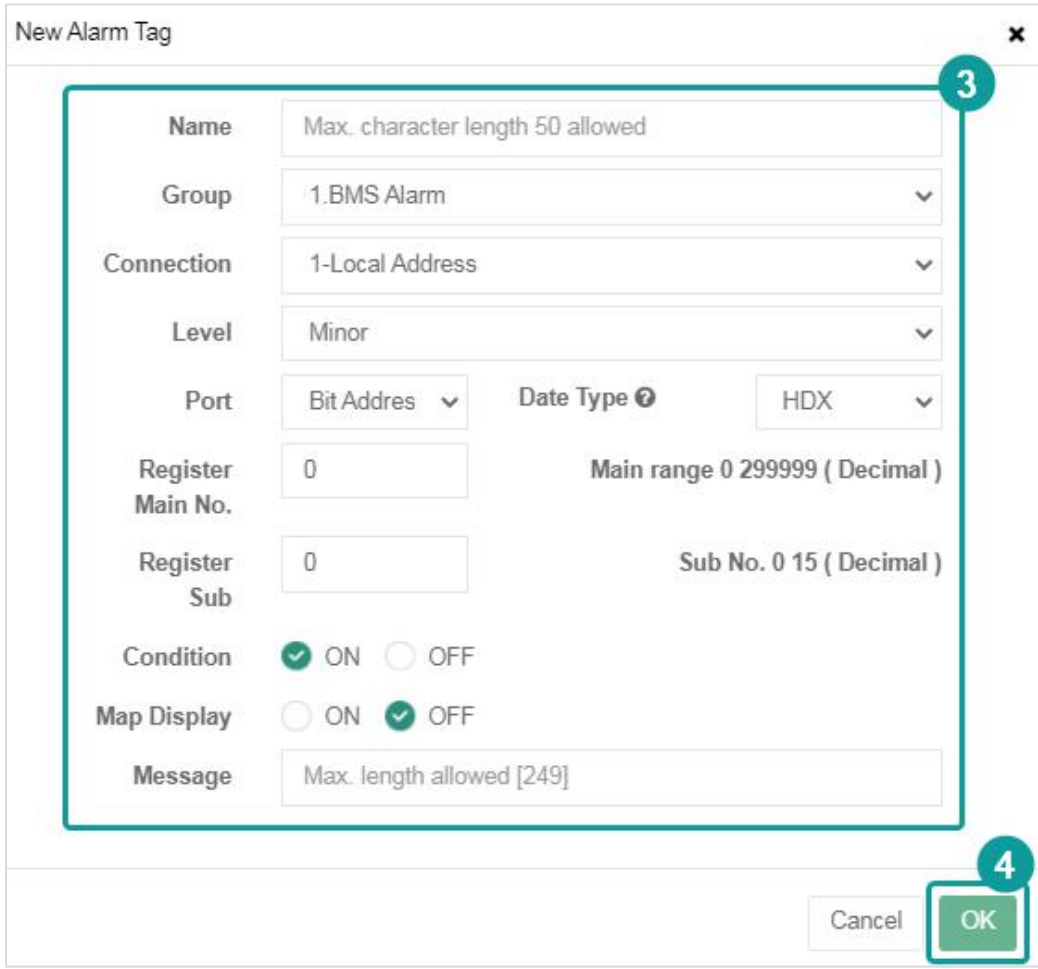


Figure 4- 39

4.3.2 Current alarm

The alarm data in the "current alarm" sub-page are all the records that have not yet been "confirmed". The administrator could "confirm" the current alarm data to change its state. The alarm data could be queried according to the code, name, start and end date, and other conditions. As shown below

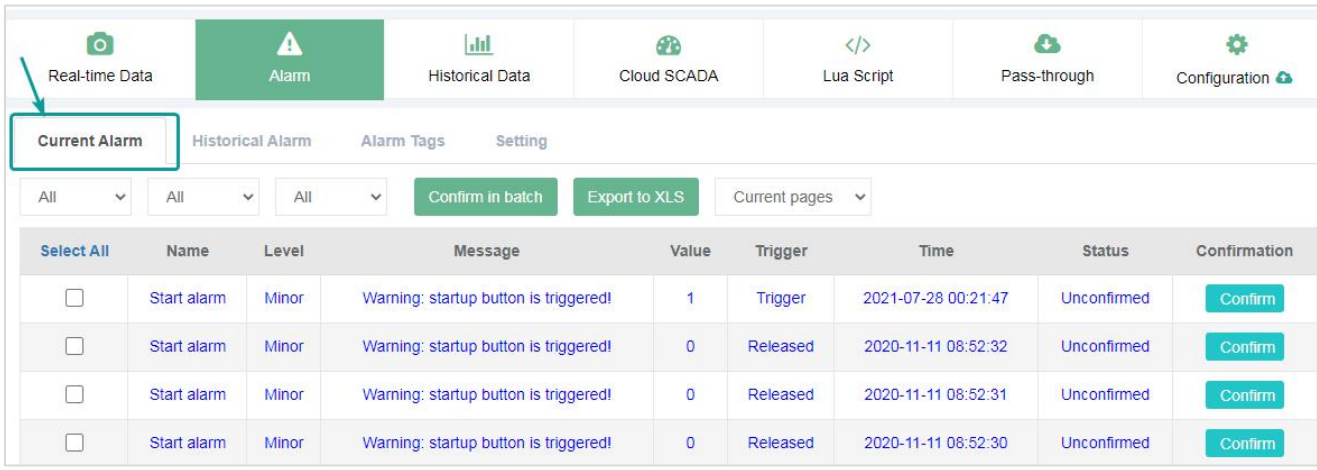


Figure 4- 40

4.3.3 Historical alarm

The alarm data after the "confirm" operation is the historical alarm data and would be transferred to the "historical alarm" sub-page. The data could be queried according to the code, name, start and end date, and other conditions. As shown below

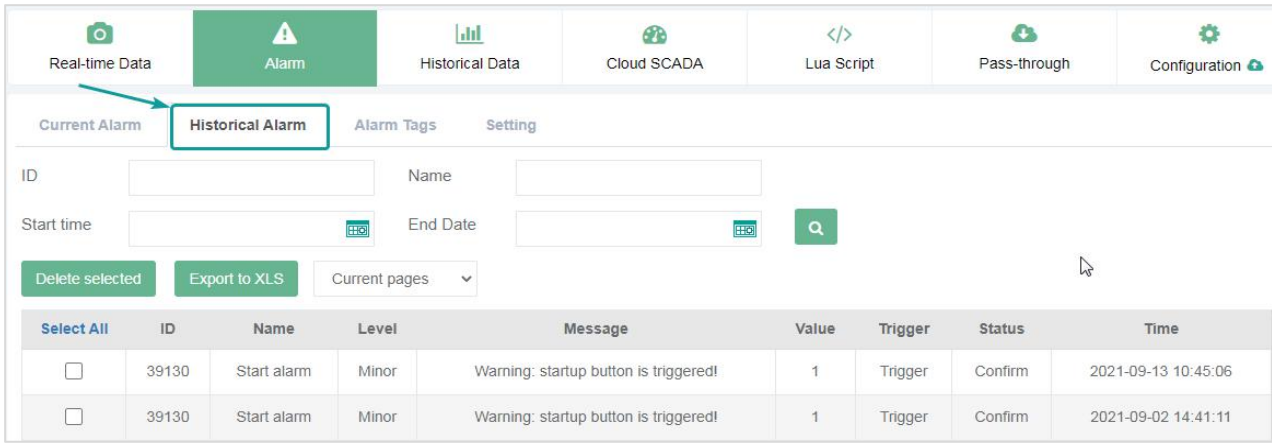


Figure 4- 41

4.4 Historical data configuration

Users could add the address to be monitored, collect data according to conditions, and form data tables, which could be used for query and storage.

4.4.1 Historical tags

On the "Historical tags" sub-page of "Historical Data", Users could configure historical data, including name, the connection device (communication port), address type, and register type, etc., As shown below

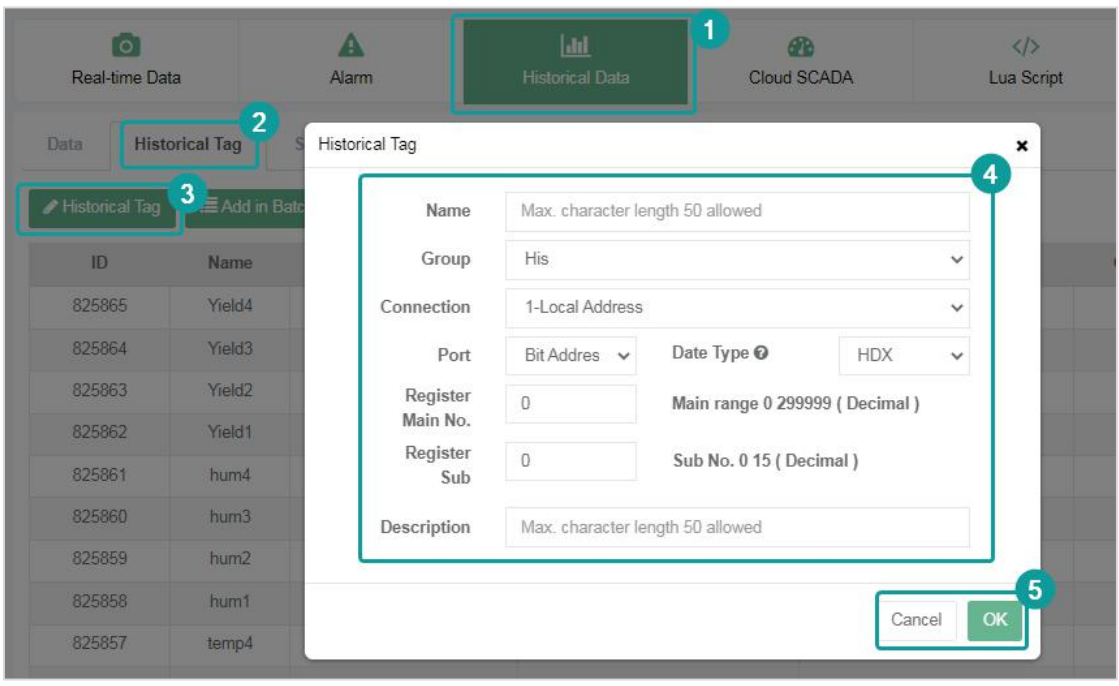


Figure 4- 42

4.4.2 Data query

On the "Data" sub-page of "Historical Data", Users could query and delete historical data. including name, the connection device (communication port), address type, and register type, etc. When querying data, users need to select or enter the monitoring point and start and end dates. The display of historical data could be viewed in both tables and curves. As shown below.

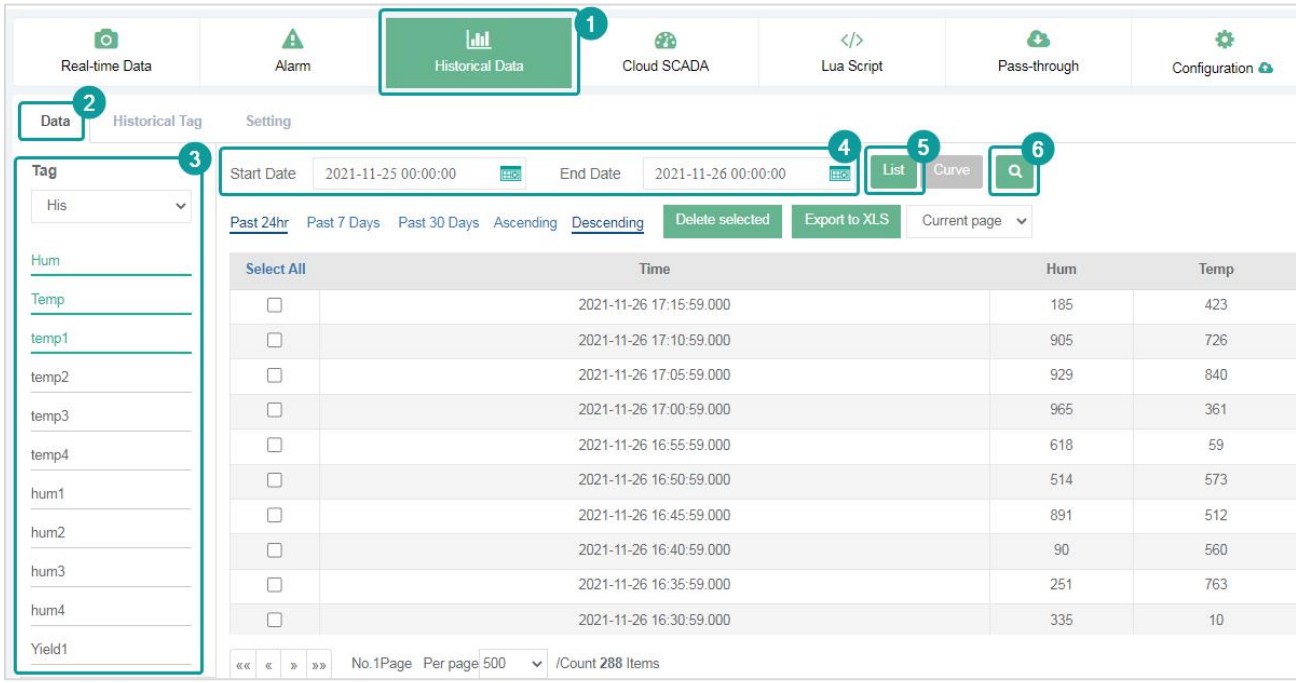


Figure 4- 43

Figure 4- 44

4.5 Cloud SCADA

Cloud SCADA is to monitor remote configuration interface. Click it to jump to the interface, and a cloud SCADA project bound to the V-BOX is As shown below

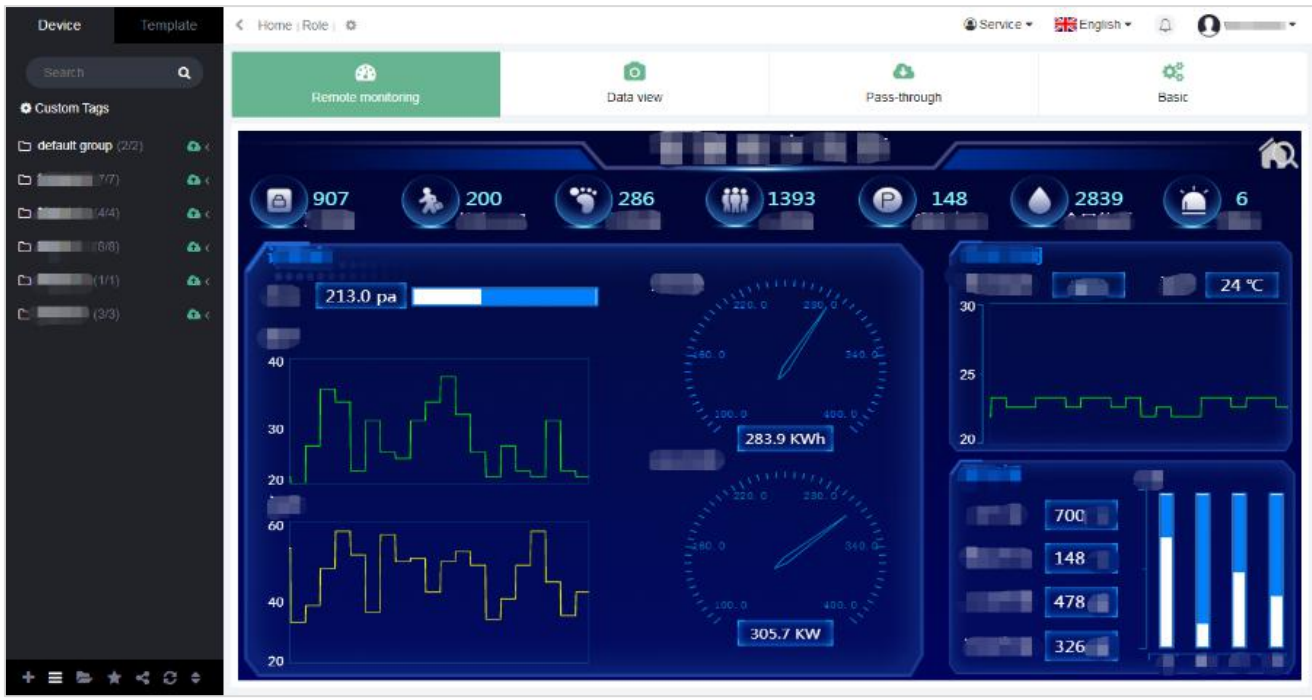


Figure 4- 45

(1) One V-BOX could be bound to at most one cloud SCADA project.

If the V-BOX is not bound to a cloud SCADA project, it would prompt "you have not bound the Web SCADA project for Device, please bind it!".

If the bound project has been deleted, it would prompt "The project you bound has been deleted or you have no permission to view it! Please rebind.". As shown below

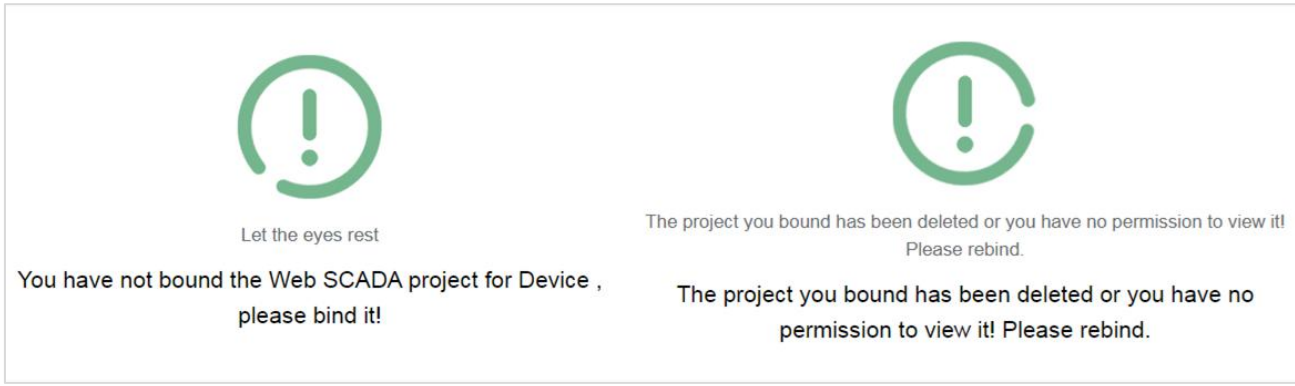


Figure 4- 46

(2) V-BOX would preference to use the cloud SCADA project in the template. If a cloud SCADA project template has been bound to the V-BOX, it couldnot bind or modify the cloud SACDA project of the V-BOX separately.

(3) If the V-BOX is not bound to a template, the V-BOX could choose to bind the cloud SCADA project specified in the cloud SCADA platform. The cloud SCADA project across the V-BOX is

not optional.

(4) The V-BOX uses The template cloud SCADA project to design on the cloud SCADA platform, But bthe browsing and viewing access are in the V-NET. The projects could not be browsed and viewed in the cloud SCADA platform.

(5) If the template project is modified, Cloud SCADA of all V-BOXs using this template would update synchronously.

4.6 LUA script

4.6.1 Lua script management

Click "LUA script" to jump to the LUA script management module of V-BOX. The module has the functions including a script list, new script, edit script, delete scripts in batch, sync scripts, sync scripts in batch, import scripts, export scripts, debug, view box scripts, etc. As shown below

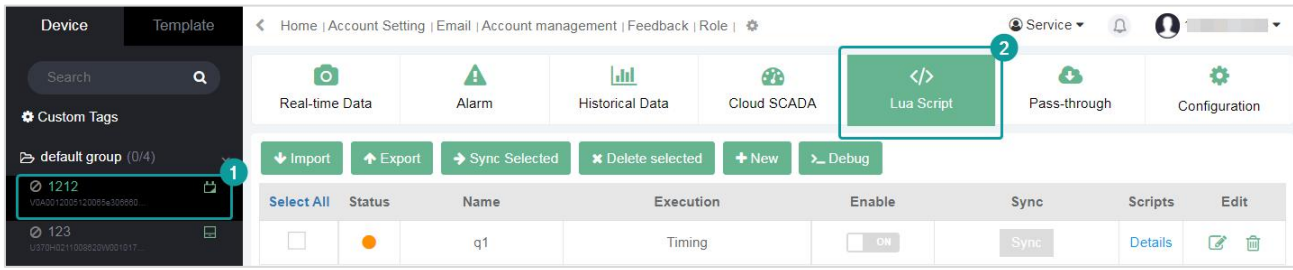


Figure 4- 47

(1) New script

1) Create a new script

Click the button 

to fill in the name and execution, then click "save and next" to create a new script. As shown below

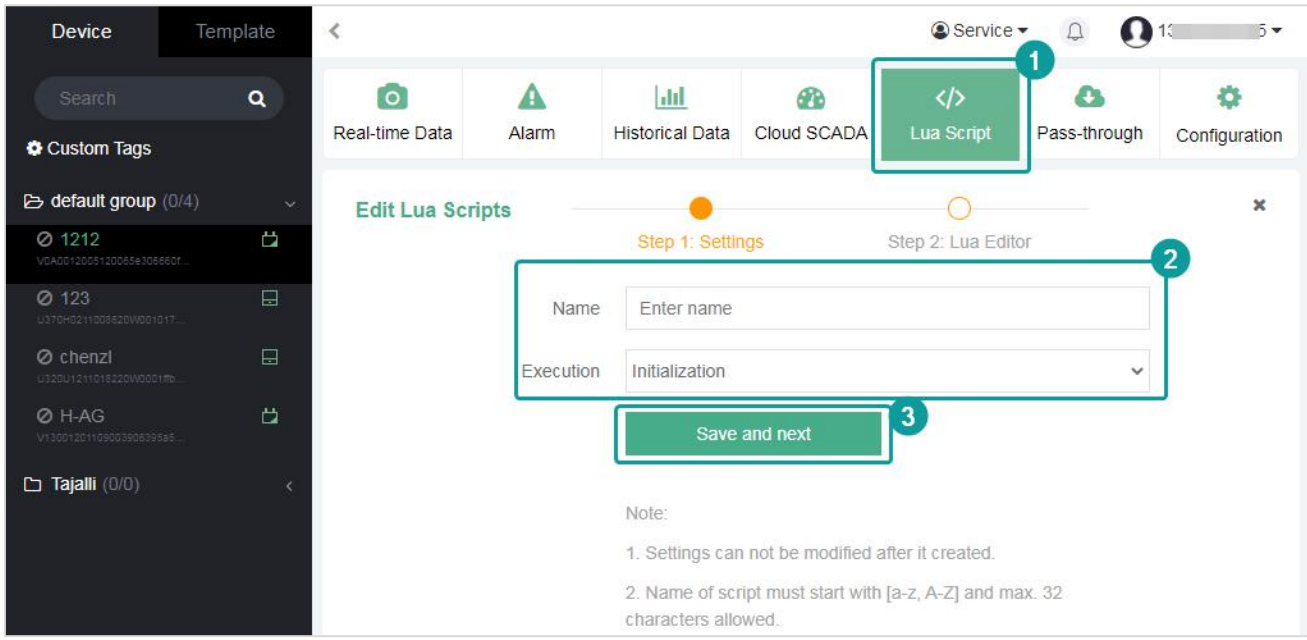


Figure 4- 48

① Name. The name of the script should start with [a-z, A-Z] and a maximum of 32 characters are allowed.

② Execution. There are four script execution conditions as the following.

Execution condition	Function	Number
initialization	Execute only once after power on.	Maximum one
Execution if connected	Execute after the V-BOX is connected to the server.	Maximum one
Execution if Disconnected	Execute when the box is disconnected from the server.	Maximum one
Timing	Executed cyclically according to the set timing time	Maximum five

Table 4- 1

③ Timing. If the user selects "Timing" as execution condition, the time and the time unit need to be entered.

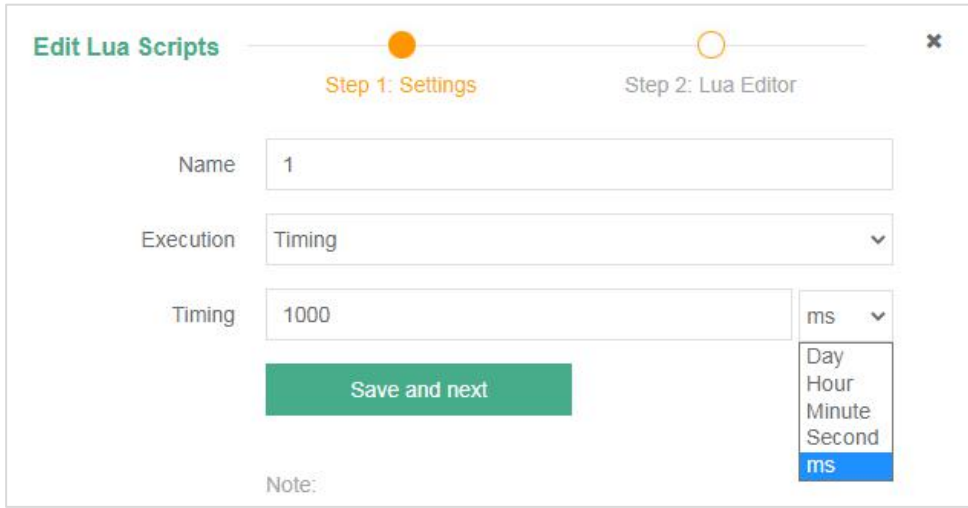


Figure 4- 49

✎**Note:** The script could not be modified after it is created except for the timing.

2) Edit script

① Click  to jump to the LUA script edit interface and the script editor would display the initialization code. As shown below.

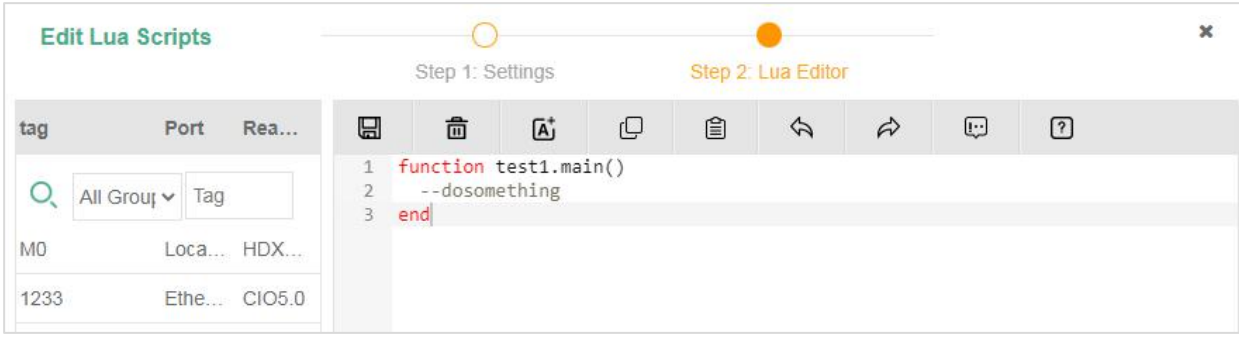


Figure 4- 50

② The LUA script written by the user would be written in the initialized function structure, and the structure is not allowed to be modified.

(2) Script list

The added script is displayed in the script list. A Row represents a script. As shown below.

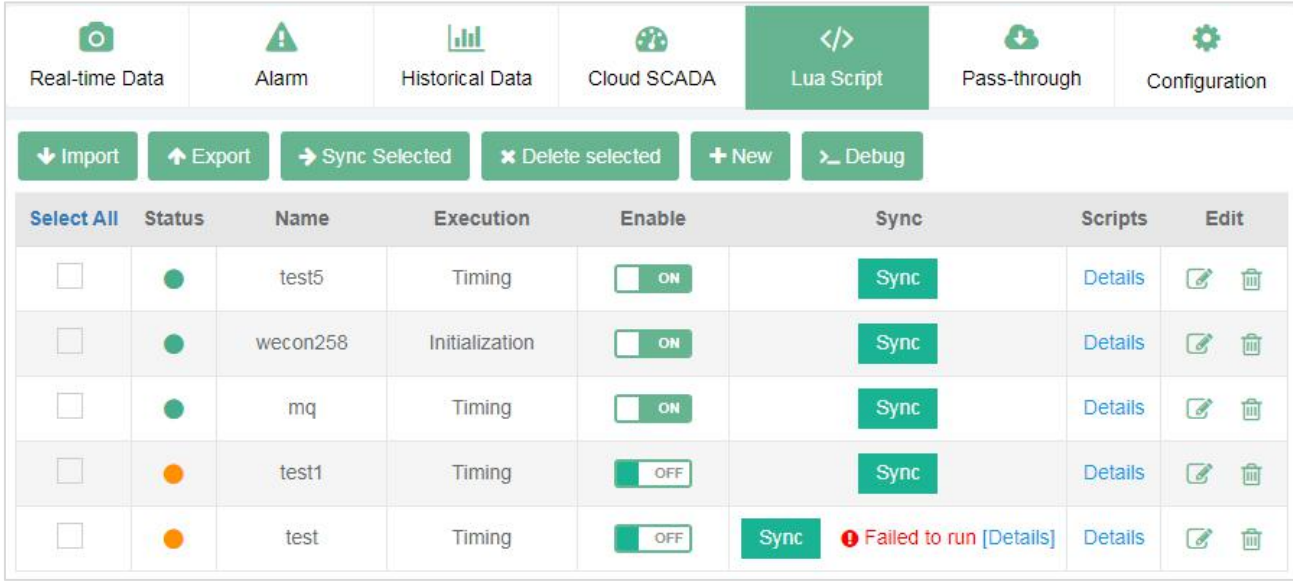


Figure 4- 51

The following table describes the parameters in the script list.

Parameter	Instruction
Status	The two status of script, including sync and not synced
Name	Script name
Execution	Script execution condition
Enable	Script enable switch.
Sync	ON is to enable the script, and OFF is to disable the script. When the V-BOX is offline or penetrating, the button is grayed out and could not be operated.
Scripts	View the scripts that are already running on the V-BOX.
Operation	Edit or delete the script.

(3) Delete script

Edit the button  to delete the script. Select multiple scripts, click the button  to delete in batch. As shown below.

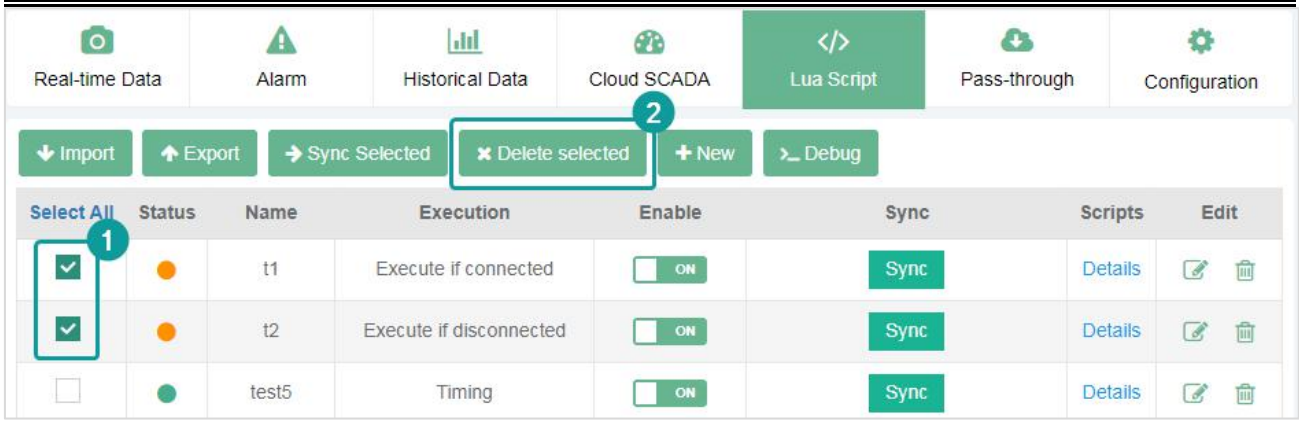


Figure 4- 52

(4) Sync in batch

Select the scripts in the list, click the button 

to sync in batch. The failed sync information would display after the sync button in the script list. As shown below

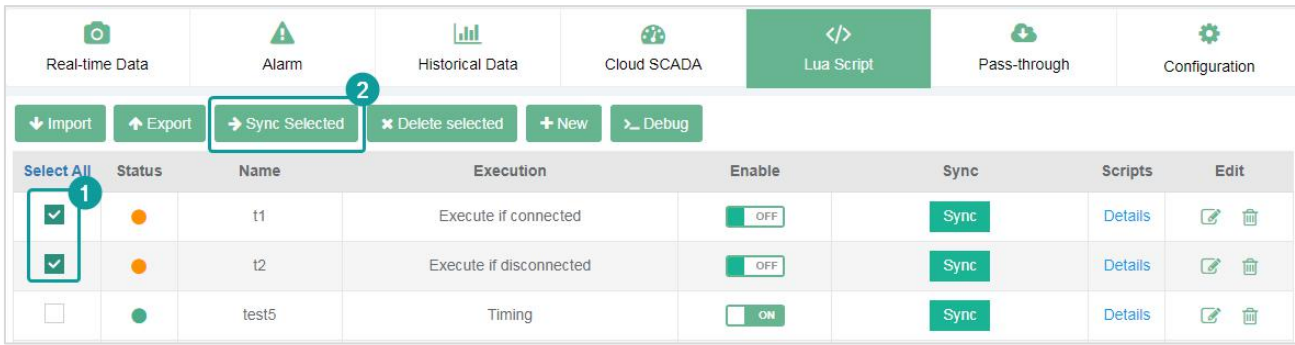


Figure 4- 53

Figure 4- 54

(5) Import and export script

1) Export script. Click the button 

, all the scripts of the V-BOX could be exported as a file with a .script extension.

2) Import script. Click the button 

, the file with a script extension could be imported to the V-BOX. After the script is imported, the script in the current V-BOX is cleared.

✎Note:

① Replacing the communication port would replace the original communication port in the script with the communication port of the current V-BOX.

② If the communication port of the current V-BOX is empty, it would prompt: there is no communication port configuration in the script, no need to replace it.

③ If the communication port in the imported script file is empty, it would prompt: there is no communication port configuration in the script, no need to replace it.

(6) Debug

Click the button Debug to jump to the script debug interface. As shown below.

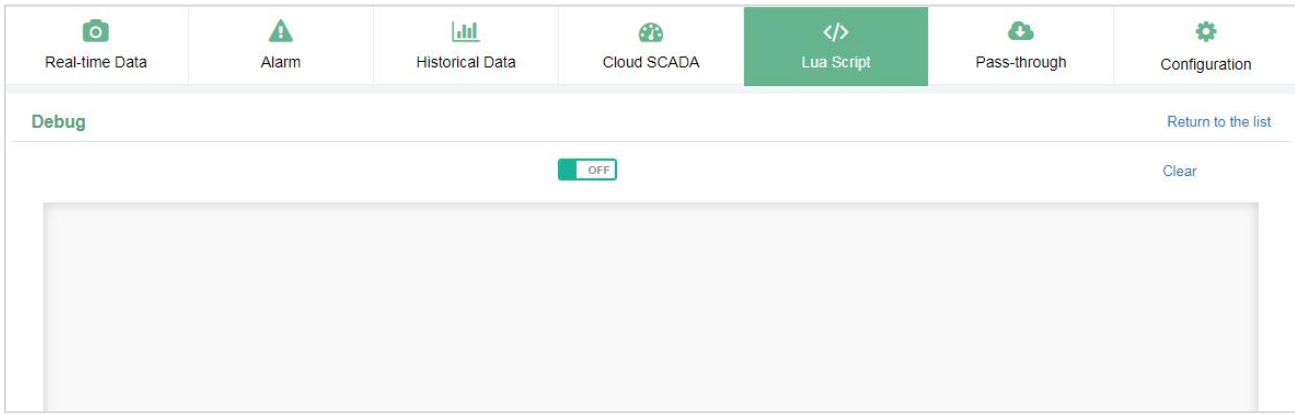


Figure 4- 55

4.6.2 Script editor

The script editor is an online editor to write Lua scripts. When creating new scripts and modifying scripts, users could switch to the script editor page to write the Lua script of the V-BOX script. As shown below.

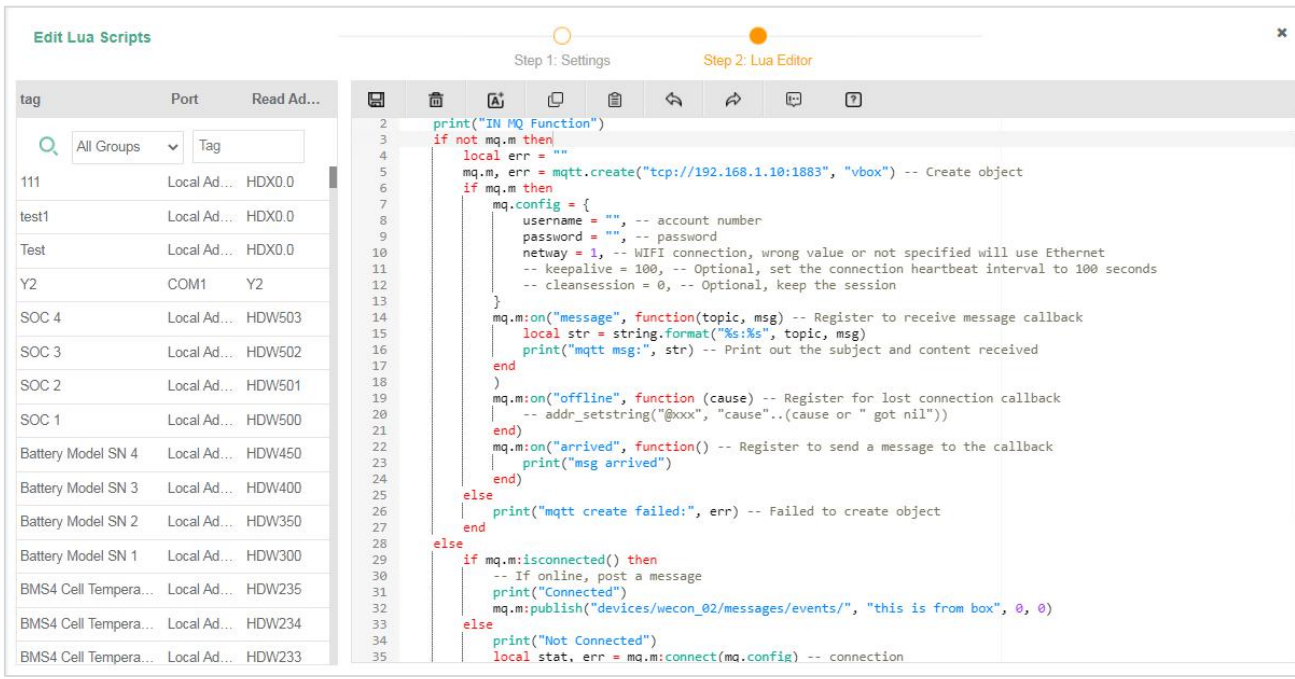


Figure 4- 56

The function sections in the script edit page are As shown below.

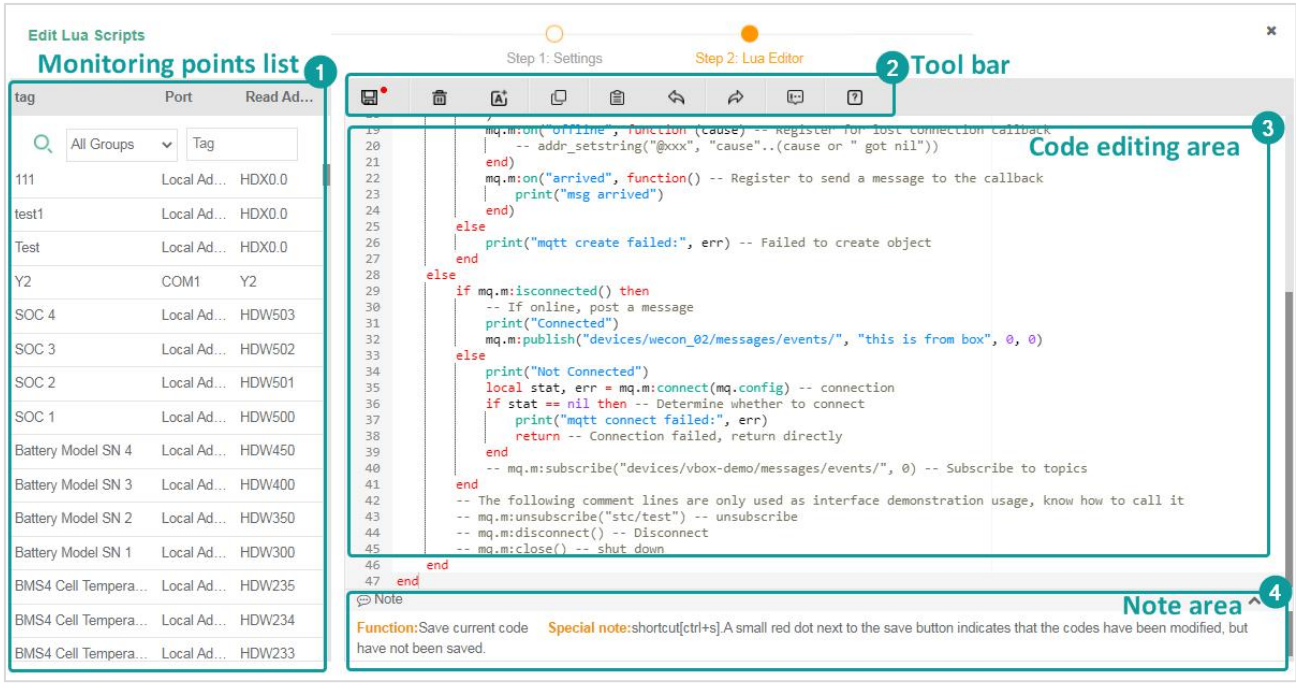


Figure 4- 57

(1) Monitoring points list

1) The area displays all the monitoring points of the current V-BOX with a function of search monitoring points.
2) Click the line of the monitoring point, and the monitoring point would be inserted at the current cursor of the script editor. The inserted monitoring point would be added with the symbol "@" in front of the monitoring point name in the editor and defined as a string. For example, "@City A temperature", the monitoring point variable would check grammar following the grammatical rules of the string. After the script is synchronized, the monitoring point variable would be converted to an address on the server-side and sent to the V-BOX side for use.

✎Note:

① The address format of the monitoring points are converted to is "@ address type _ serial number # station number: register type major number. sub number". If the station number is empty, then remove it. If the sub number is empty, then remove it.

② When the mouse passes over the row where the monitoring point is located, more detailed monitoring point information would be displayed through the floating box, and clicking the floating box could also display it to the cursor of the script editor.

(2) Toolbar

The toolbar is at the top of the script editor. As shown below.

Figure 4- 58

From left to right, the functions are as below.

① Save codes. Save the current codes, with the small red dot next to it indicating that the code was modified but not saved.

② Clear codes. Clear the current codes in the script editor, and restore them to the initialization structure.

③ Insert new address. Inserts a new bit or word address at the current cursor.

④ Copy codes. The shortcut keys are "ctrl+c". For some browsers with earlier versions (IE8 and below), it may not be able to copy content for use outside of this editor. It is advised to use "ctrl+c".

⑤ Paste codes. The shortcut keys are "ctrl+v". This button is limited to pasting text copied from the current editor except using Internet Explorer. t is advised to use "ctrl+v".

⑥ Cancel. Cancel the actions in the editor at each step.

⑦ Restore. Restore the actions in the editor at each step.

⑧ Comment. Comment or uncomment the code in the current line or the selected line.

⑨ Help. Jump to help document of script editor, and it is a simple introduction to Lua script editing.

(3) Code editing area

The Lua script editor provides Lua scripts for users to write scripts and could perform syntax verification, keyword prompts, common code snippet prompts, variable prompts, code completion, etc. At the same time, it provides monitoring point management functions, which could be directly Insert the address as a variable in the code.

1) syntax check

Figure 4- 59

Users could check the validity of the syntax in real-time when writing Lua code. As shown in the figure above, there would be an icon next to the line number of the syntax error line, and the error message would be prompted after the mouse placing. When multiple lines have errors, it would be displayed on the first line of the error. After solving the error in this line, it would be displayed on the next line of the error line.

The syntax check includes the following contents.

① Check the spelling of keywords.

② Check the definition of variables.

③ Check the usage specifications of operators.

④ Check the syntax of the function structure.

✎**Note:** The syntax check above does not include running error checking. Running error checking is an error message that is sent to the box, compiled through the V-BOX, and returned.

2) Script prompts

When writing code, the script editor provides hints for fuzzy matching keywords, defined variables, code snippets, etc. Click the corresponding prompt line to complete the codes. As shown below

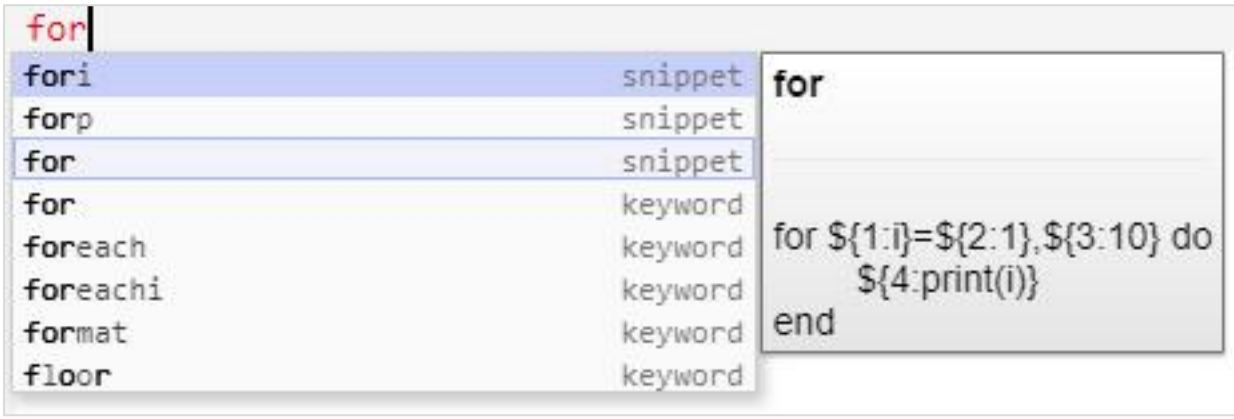


Figure 4- 60

The provided prompt codes and complete codes include the following categories:

① Keywords. Lua language keywords, built-in method names, built-in constants, library functions.

② Code snippet. commonly used code snippets in Lua language.

③ Defined variables (local), the names of all the defined variables.

Name	Sample code	Name
Code snippet	local x = 1	Variable definition
	function fname(...) -- body end	Function structure
	for i=1,10 do print end	for loop structure
	while (condition) do -- body end	while loop structure
	if (condition) then -- body end	Conditional structure
Method name	_G|_VERSION|assert|collectgarbage|dofile|error|getmetatable|ipairs|" +	

	"load|loadfile|next|pairs|pcall|print|rawequal|" + "rawget|rawlen|rawset|require|select|setmetatable|" + "tonumber|tostring|type|xpcall|create|isyieldable|resume|running|" + "status|wrap|yield|debug|gethook|getinfo|getlocal|" + "getmetatable|getregistry|getupvalue|" + "getuservalue|sethook|setlocal|setmetatable|setupvalue|setuservalue|traceback|upvalueid|upvaluejoin|" + "abs|acos|asin|atan|ceil|cos|deg|exp|" + "floor|fmod|huge|log|max| maxinteger|min|mininteger|" + "modf|pi|rad|random|randomseed|sin|sqrt|tan|" + "tointeger|type|ult|clock|date|difftime|time|config|cpath|" + "loaded|loadlib|path|preload|searchers|searchpath|byte|char|dump|" + "find|format|gmatch|gsub|len|lower|match|pack|packsize|rep|reverse|" + "sub|unpack|upper|concat|insert|move|pack|remove|sort|unpack|charpattern|" + "codepoint|codes|offset|" + "foreachi|maxn|foreach|concat|remove|	
Built-in constants	true|false|nil|_G|_VERSION	

3) Codes highlight

Code type	Color
Normal code	Black
Keyword	Red
Variable	Black
String	Blue
Built-in method name	Green
Constants and built-in constants	Purple
Library function	Black
Comments, [[xx]]	Gray

(4) Note area

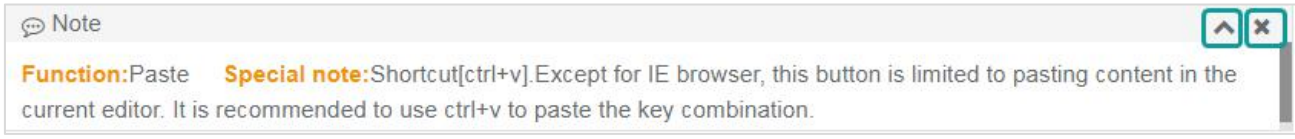


Figure 4- 61

1) It is located below the script editor and hidden by default. A prompt is displayed when user clicks a custom method name or the mouse moves over the toolbar button.
2) Double click the prompt box or click the button  to close it.
3) Click the up or down arrow to expand or collapse the prompt message.

(5) Save reminder

If the script content is modified and not saved, a confirmation dialog box would be displayed when jumping to another module. The message varies with browsers.

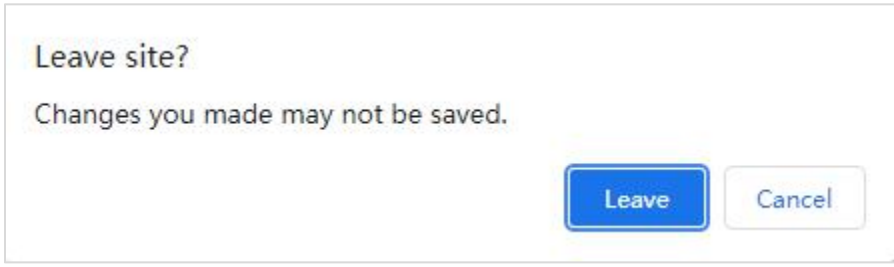


Figure 4- 62

Chapter 5 V-BOX template

5.1 Template introduction

Users could use the configuration of a custom general template to make all V-BOX bound to the template use V-BOX the configuration uniformly, instead of configuring a single V-BOX one by one.
Using templates to configure V-BOX would greatly improve the configuration efficiency of the V-BOX of the same model, which is easy to manage and easy to use. The V-BOX that uses this template would automatically synchronize the configuration of the template's data points and communication protocol, and its original configuration would be overwritten by the template's configuration. The change of the template set would be automatically synchronized to all the V-BOX in the template. When the V-BOX is removed from the template, the V-BOX would automatically have the same monitoring point and communication protocol configuration as the template.
Click on a template name in the template list on the left, on the right side, the user could configure, view, and publish the current template. At the top is the menu bar of the current template, including **Basic Information, Template Configuration, Device List, Release, Release and save as history, History version**. The button is the basic information of the template.

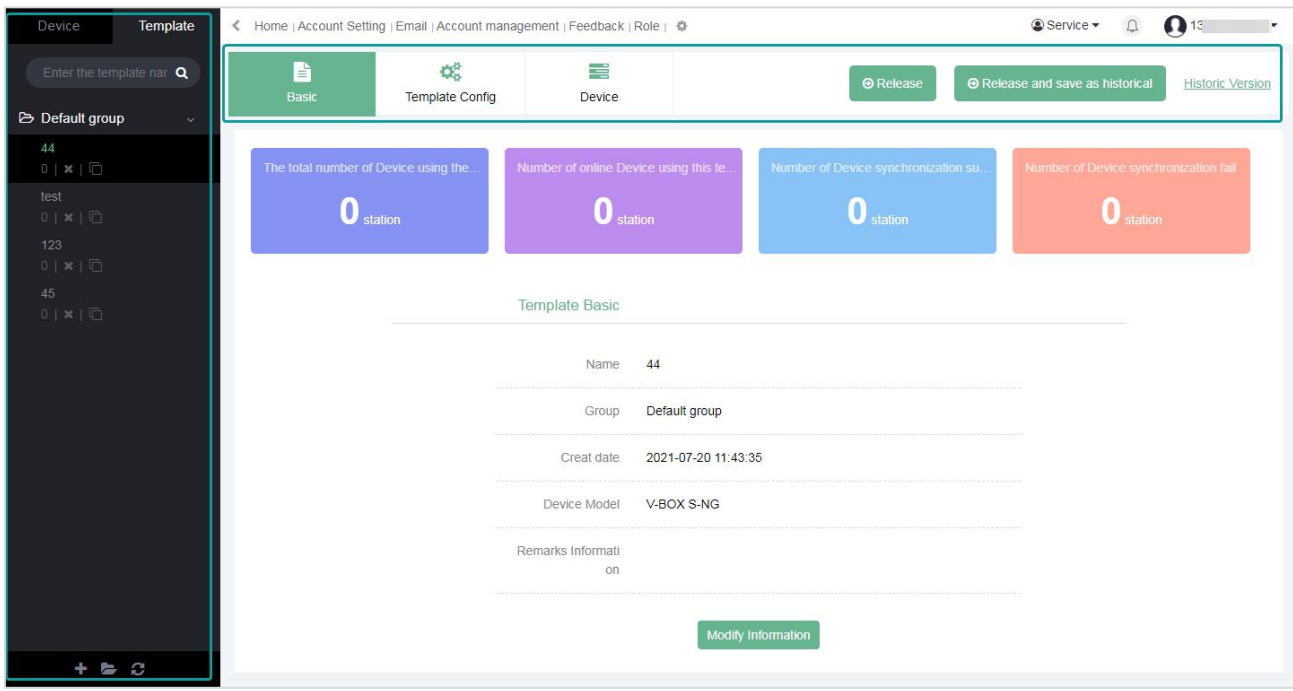


Figure 5- 1

5.2 Template operation

Click the switch menu [Template] at the top left of the V-NET. In the template list, users could view all templates created.

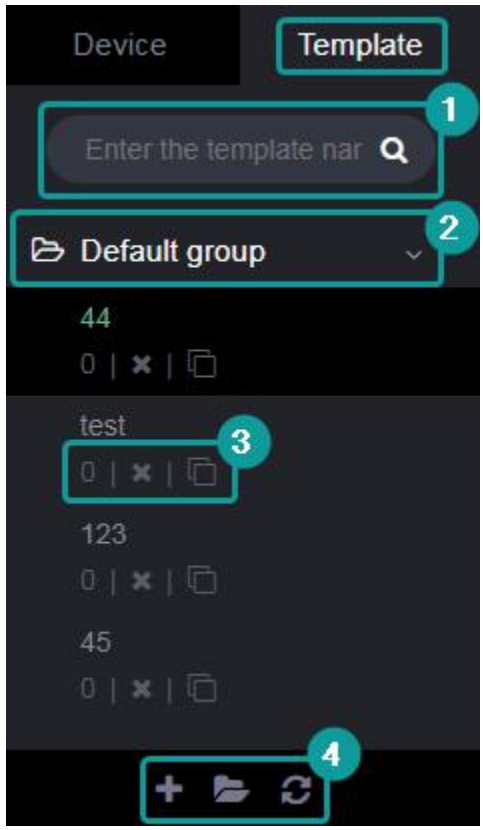


Figure 5- 2

(1) Template search. On the top of the template list, users could enter the template name in the search box for a fuzzy search, and the group to which the matched template belongs is automatically opened, and all matching results could be viewed.

(2) Template. In the template list, the templates are managed in the way of first-level group management. Click the group name to open the group and view all the templates under the group. When you click again, you could shrink the group. Click the template name could view the detailed content of the template on the right side of the page.

(3) Shortcut key. The number of V-BOXs bound to the template, the delete template button, and the copy template button are displayed below each template name

(4) Toolbar. The toolbar at the bottom of the template list contains add a template, group management, and refresh template list.

5.2.1 Add template

Click the button  on the toolbar to add a new template. As shown below.

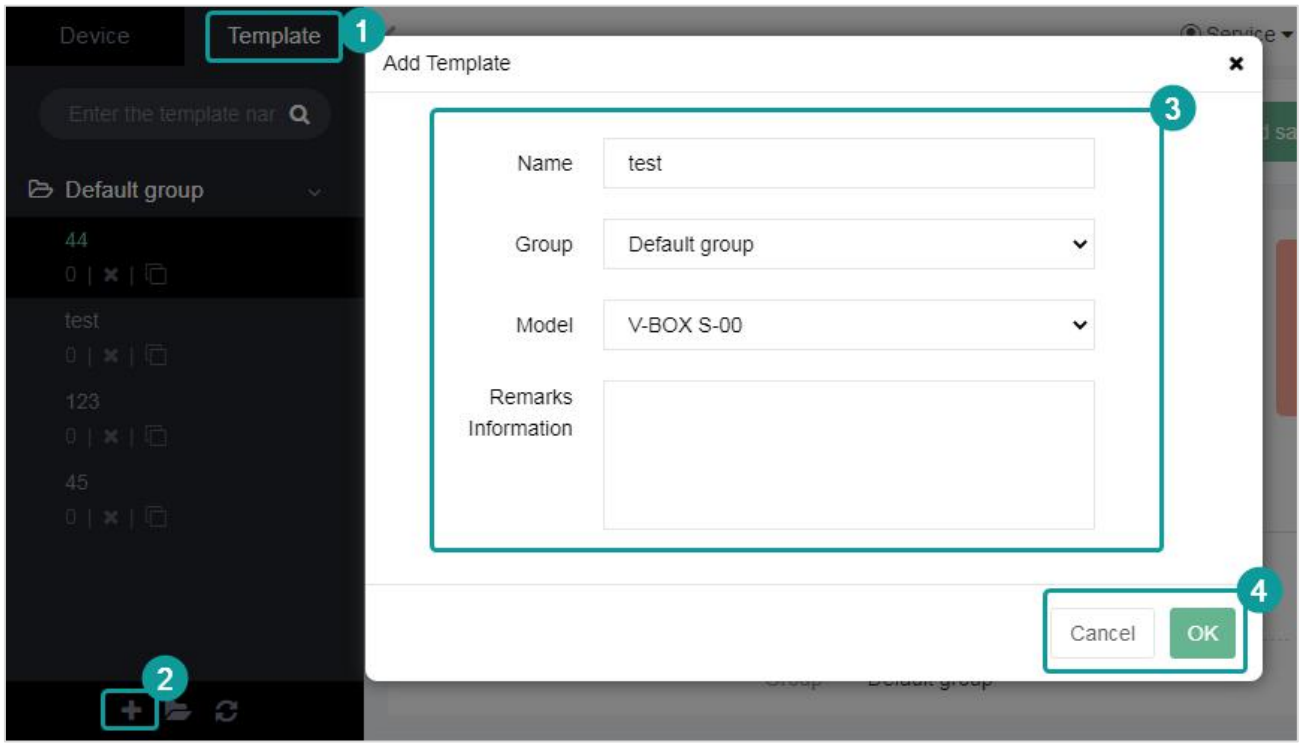


Figure 5- 3

(1) **Template name.** The name of the created template. The name could not be empty.

(2) **Template group.** Select the group to which the newly created template belongs.

(3) **Model.** Select the V-BOX model bound to the template.

✎**Note:** Once the template is created successfully, the V-BOX model is not allowed to be modified, and the template could only be bound to the V-BOX of the same model.

(4) **Remarks information.** Remarks information of the template.

5.2.2 Group management

Click the button  on the toolbar, and in the pop-up box, users could manage the grouping of templates.

(1) New group.

At the top of the group management pop-up box, Users could add a new group. Enter the group name in the input box and click the button  to add a group. The group name is not allowed to be empty, and no spaces are allowed.

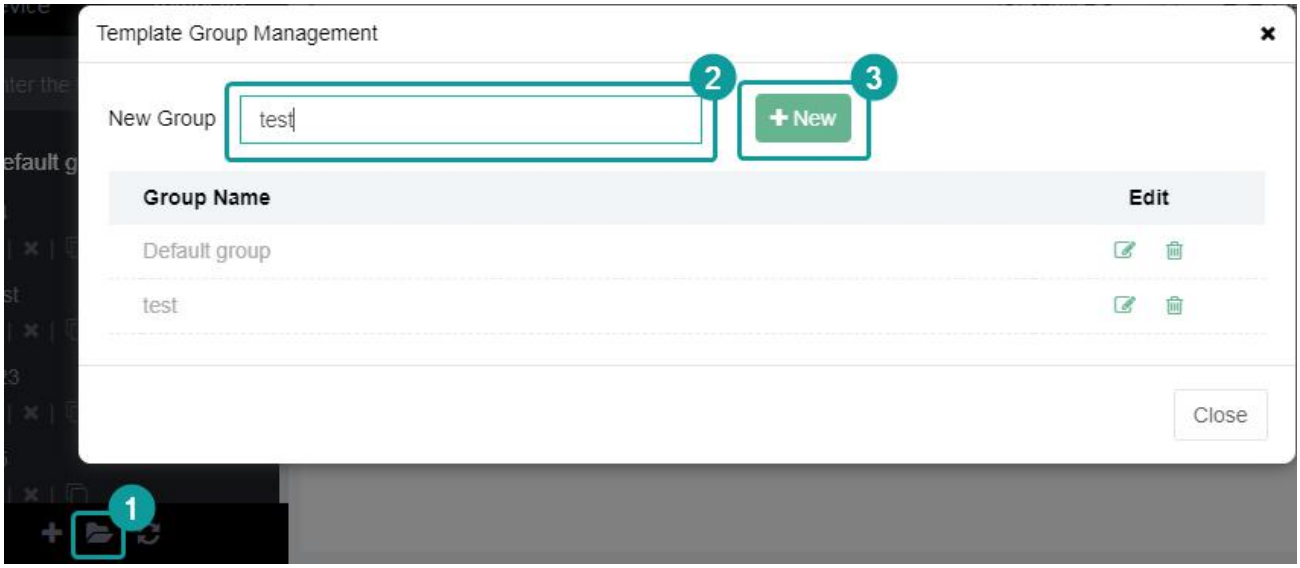


Figure 5- 4

(2) Group management.

In the group management pop-up box, all the groups created would be displayed. Users could modify and delete the selected group.

✎**Note:** If there are templates in the group, Users could not delete the group. Users need to remove all the templates before delete them.

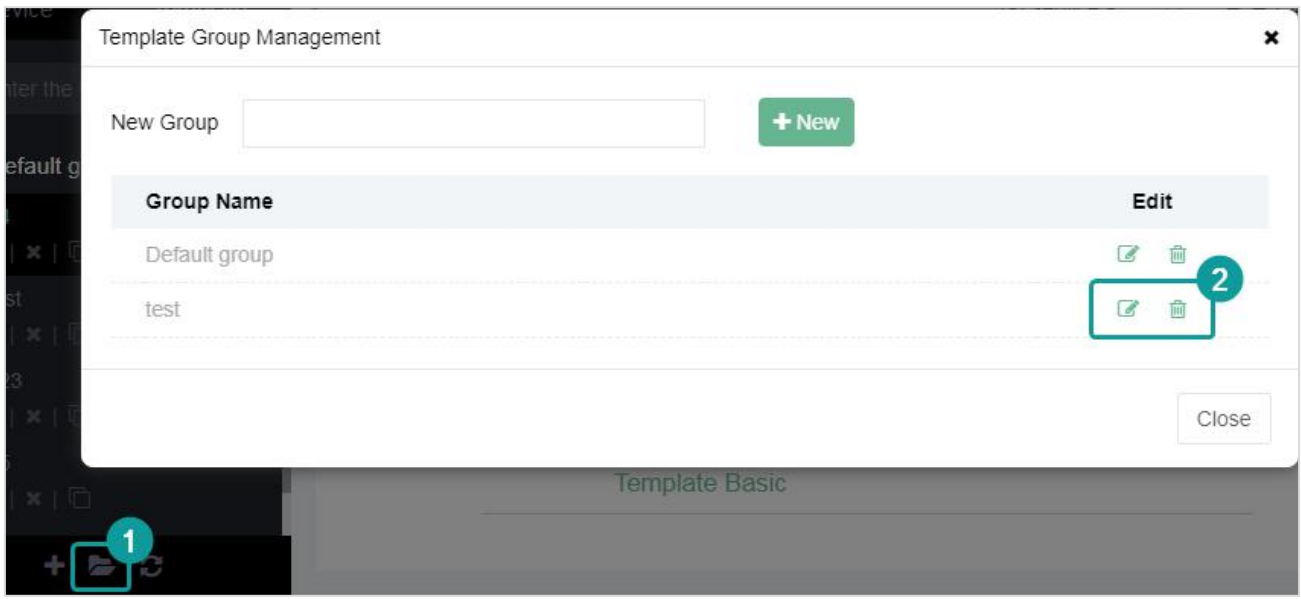


Figure 5- 5

5.2.3 Copy template

Click the button  under the template name in the template list to copy the current template as a new template, As shown below

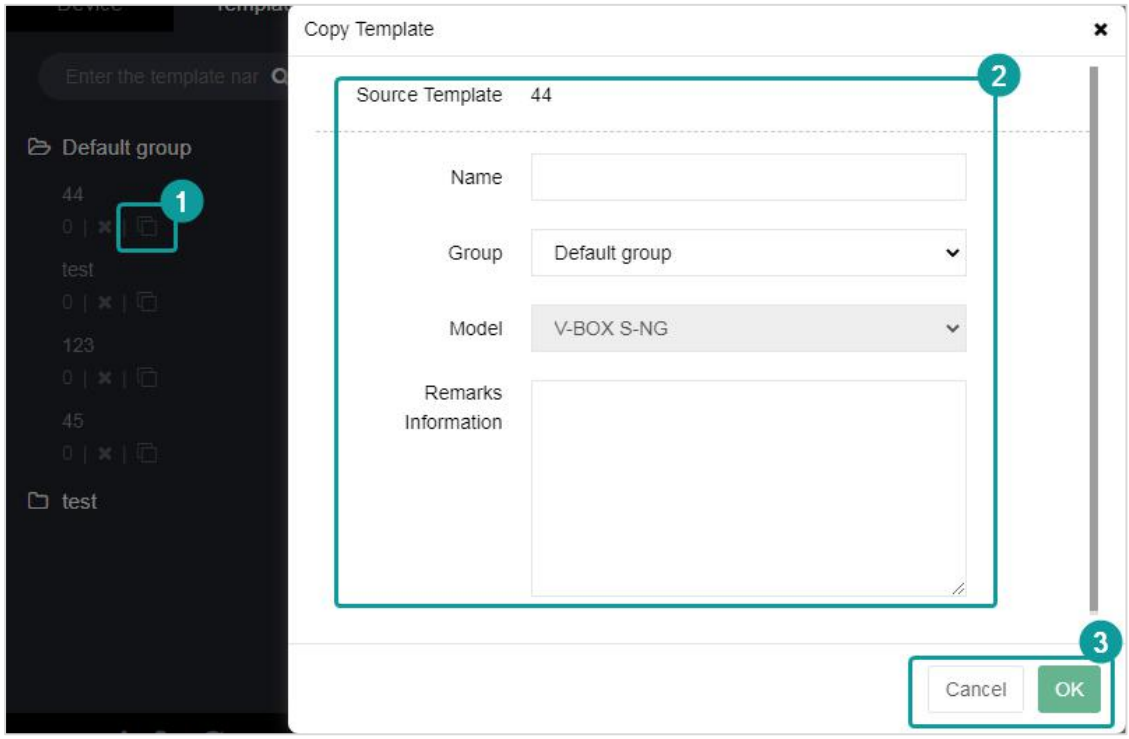


Figure 5- 6

✎**Note:** For the copied new template, only the template name, grouping and remarks could be modified, but the model of the V-BOX could not be changed.

5.2.4 Generate template

Right-click the name of the V-BOX in the V-BOX list, and click the [Generate Template] button to generate a new template from the configuration of the V-BOX that is not currently bound. The V-BOX model of the new template is not available for change, as shown in the following figure.

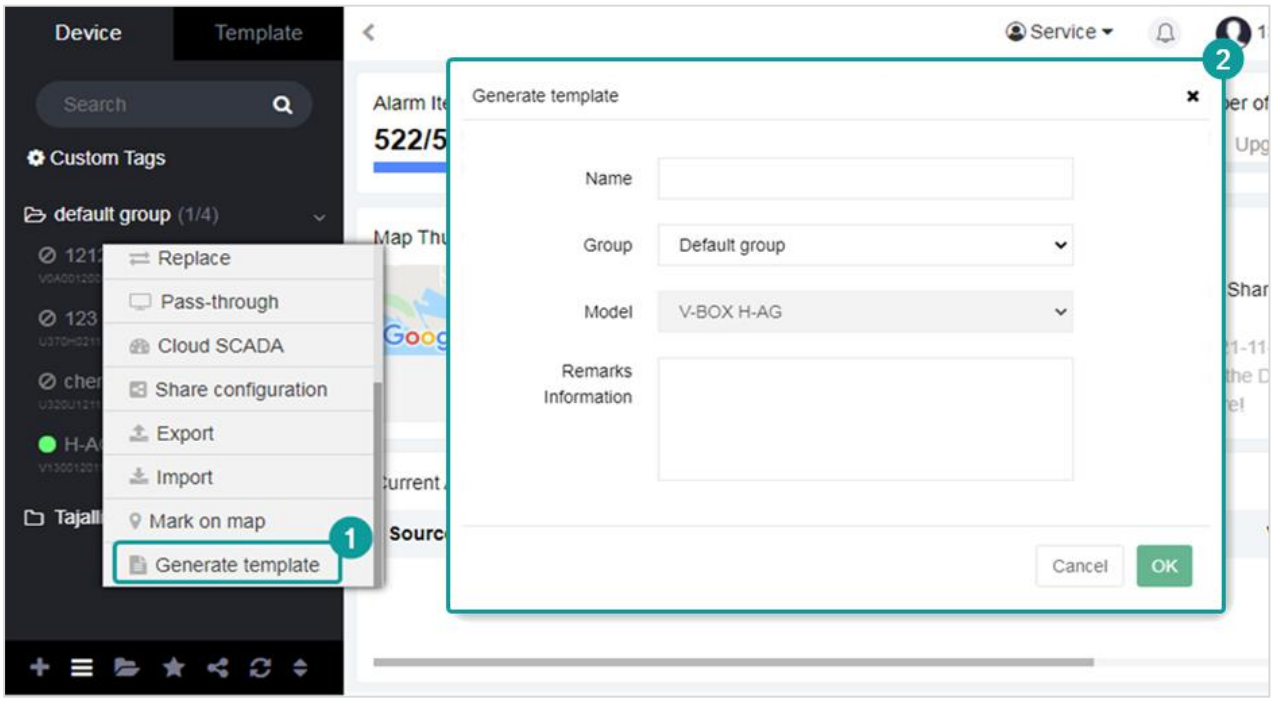


Figure 5- 7

5.2.5 Delete template

If a template is bound to a V-BOX, the template could not be deleted. Users need to unbind all V-BOXs bound to the template to delete a template.

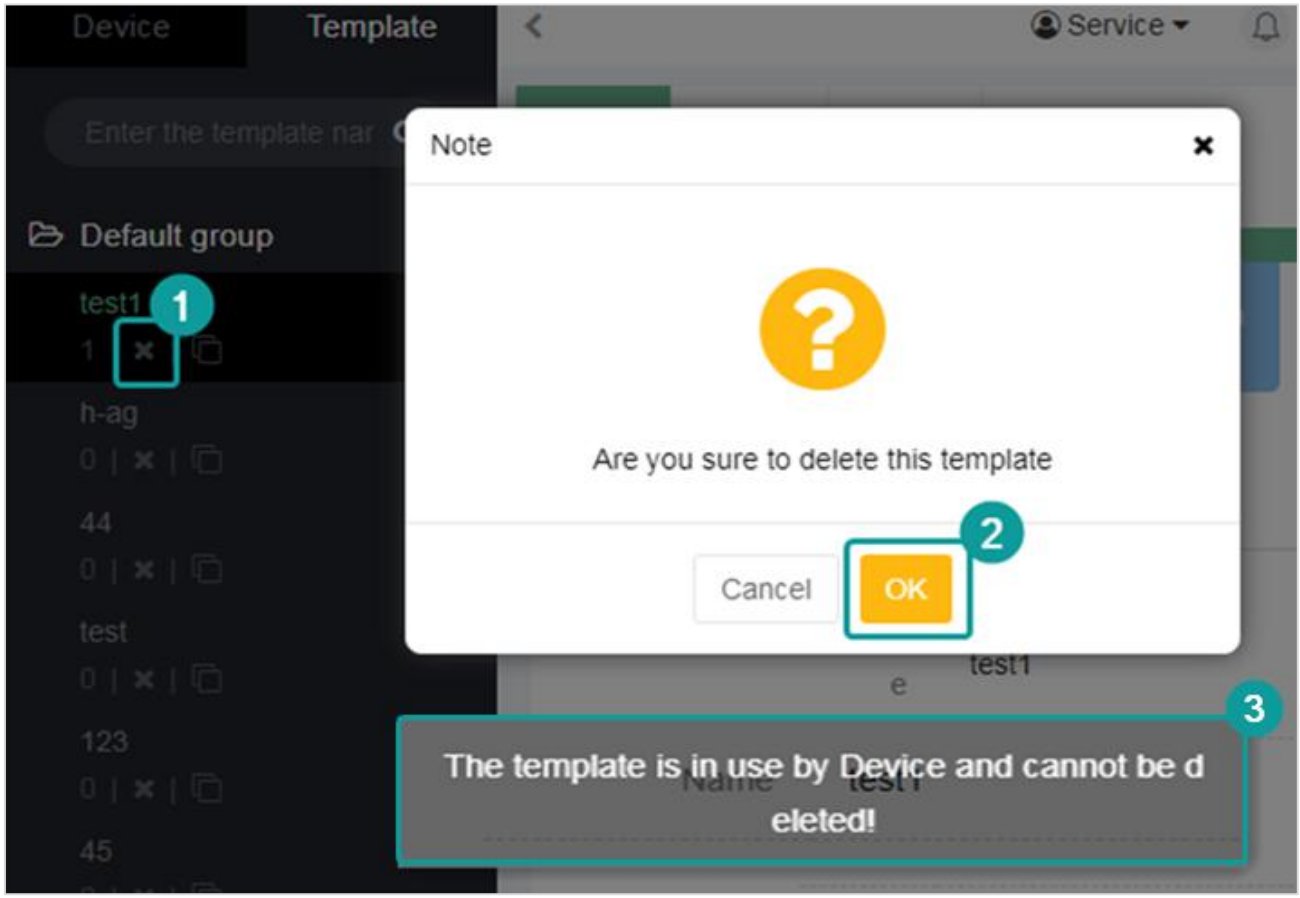


Figure 5- 8

5.3 Basic information

After clicking the template name, the [Basic Information] page of the template is opened by default, as shown in the figure below.

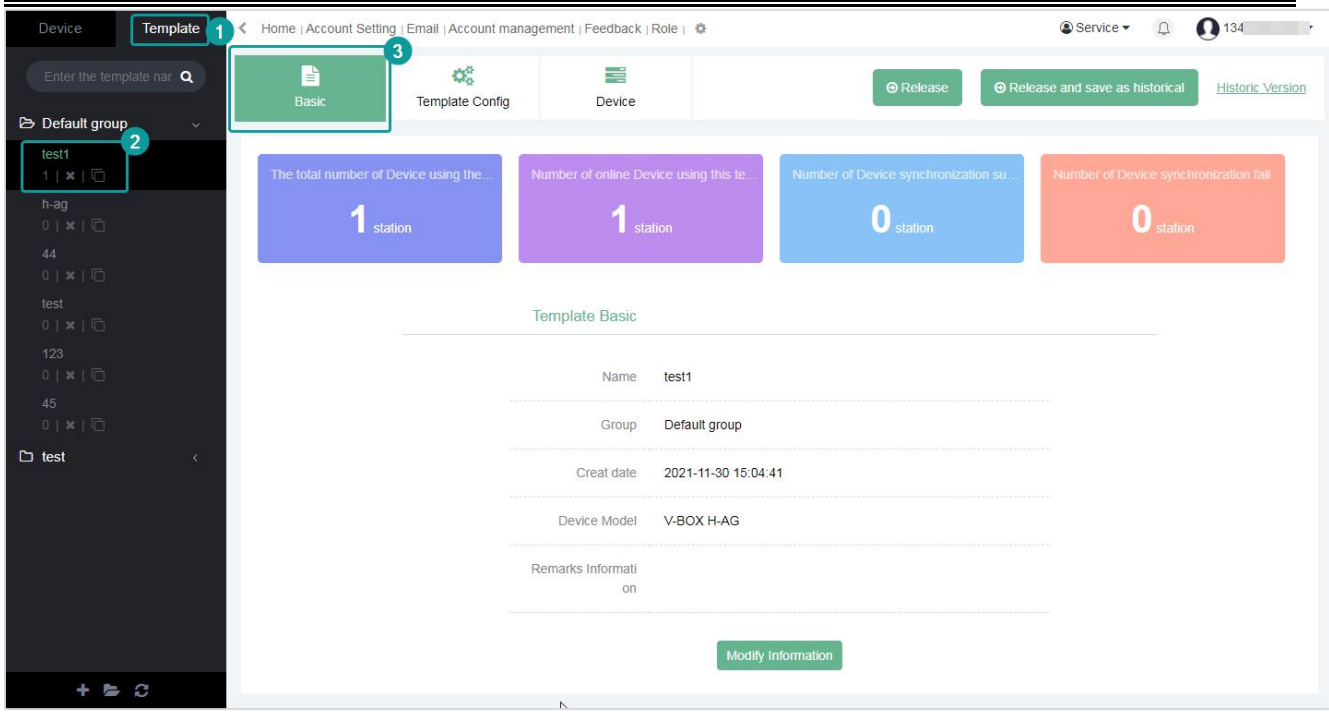


Figure 5- 9

(1) In the **[Template Statistics]** of **[Basic Information]**, some statistics of the V-BOX bound to the template are displayed, including the total number of devices using the template, the number of online devices using the template, the number of successfully synchronized devices, and the number of failed devices.

(2) In the template **[Basic Information]**, view the basic information when V-BOX creates the template.

(3) Click the **[Modify Information]** button to modify the basic information of the template. The V-BOX model of the template is not allowed to be modified, as shown in Figure below.

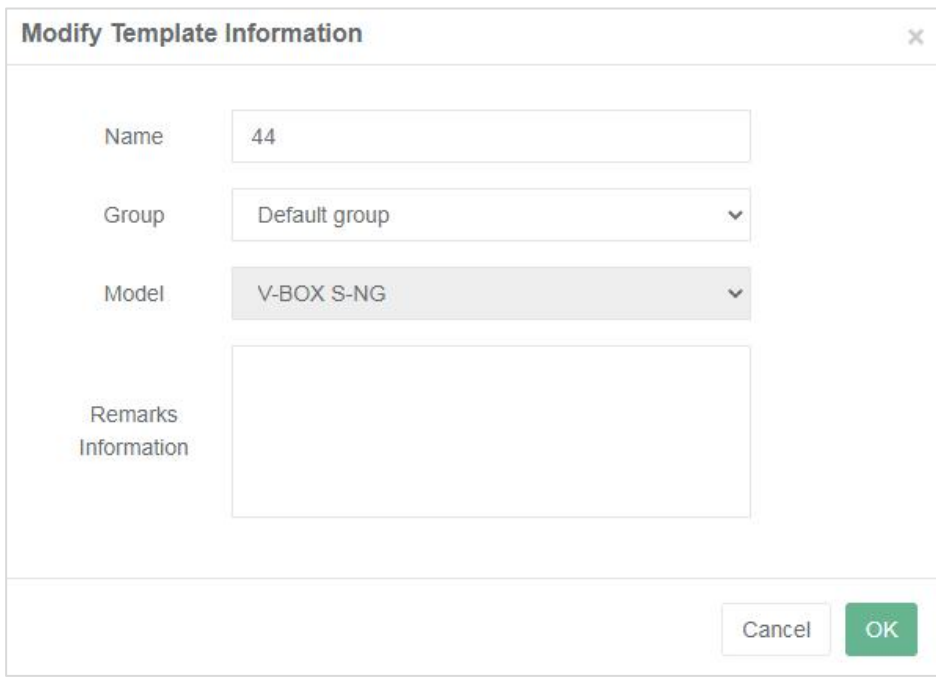


Figure 5- 10

5.4 Template configuration

Click the **[Template Configuration]** menu to enter the detailed configuration page of the current template. The detailed configurations include **Communication port configuration], Real-time monitoring point configuration, Alarm record configuration, Historical data configuration, Script configuration, Cloud SCADA configuration, Global setting.** As shown below.

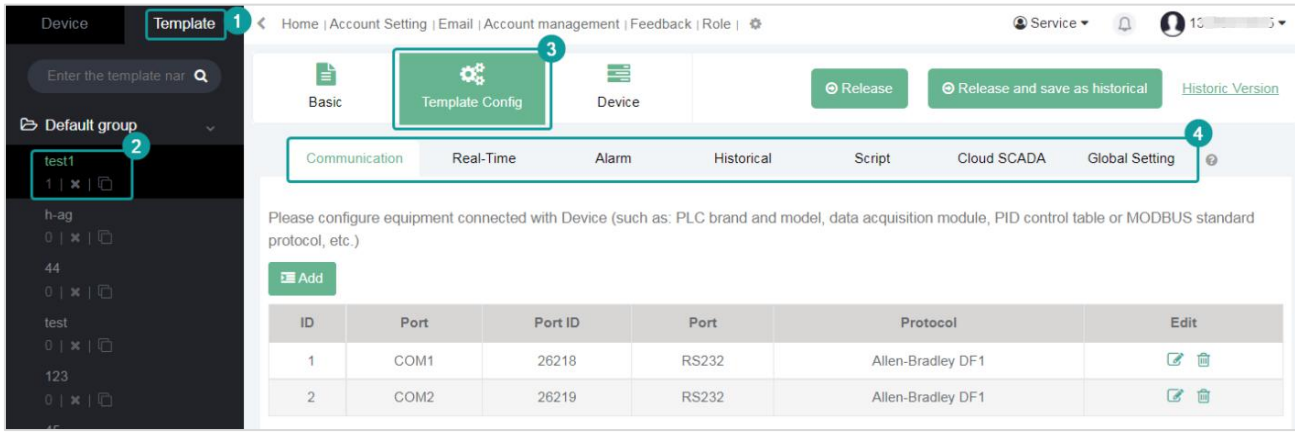


Figure 5- 11

(1) **Communication port configuration.** Configure the communication port used by the template. For specific configuration, please refer to 4.1.3 [Communication Port Configuration].

(2) **Real-time monitoring point configuration.** Configure the real-time monitoring point for the template. For specific configuration, please refer to **4.2 [Real-time data configuration]**, but there is no real-time data of monitoring points in the template.

(3) **Alarm record configuration.** Configure the alarm record for the template. For specific configuration, please refer to **4.3 [Alarm Configuration]**, but there is no specific alarm data in the template. To view the alarm data, Users need to view it in the V-BOX bound to the template.

(4) **Historical data configuration.** Configure historical data for the template. For specific configuration, please refer to **4.4 [Historical Data Configuration]**, but there is no specific historical data in the template. To view the historical data, Users need to view it in the V-BOX bound to the template.

(5) **Script configuration.** Configure the scripting strategy of the template. For specific configuration, please refer to **4.6 [Lua script]**, but the template could not be issued with a separate script strategy, and it also could not view the scripts run by the V-BOX.

(6) **Cloud SCADA configuration.** Users could select only one Cloud SCADA project for the template configuration. Click the button in the upper right corner  to jump to the Cloud SCADA platform to design the Cloud SCADA project of the template. For the design of a template Cloud SCADA project, users could only click here to jump, and the project couldnot be found on the Cloud SCADA platform for design. For specific configuration, please refer to **5.8 [Template Cloud Configuration]**.

(7) **Global setting.** Configure the traffic saving mode and data push function for the template.

5.5 V-BOX list

Click [V-BOX List] configuration menu to bind the template to the V-BOX. Synchronize the template configuration to the V-BOX, and the configuration in the V-BOX would be modified to the configuration of the template, and the template configuration would overwrite the original configuration of the V-BOX.

✎**Note:** A V-BOX could be associated with only one template, and a template could be associated with multiple V-BOXs.

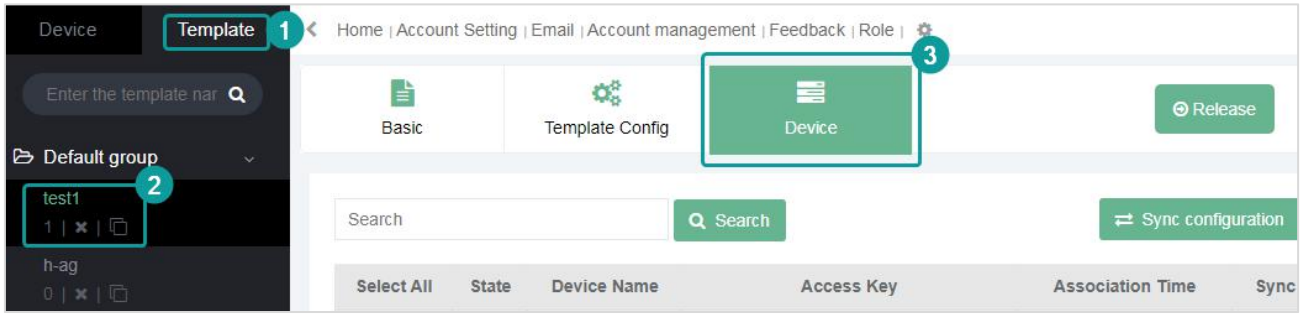


Figure 5- 12

5.5.1 Associate V-BOX

(1) Click the button 

, and in the pop-up box, the user could select the V-BOX of the same model as that in the template under the same account to associate the template. The list only displays the V-BOX of the same model that is not associated with the template. As shown below.

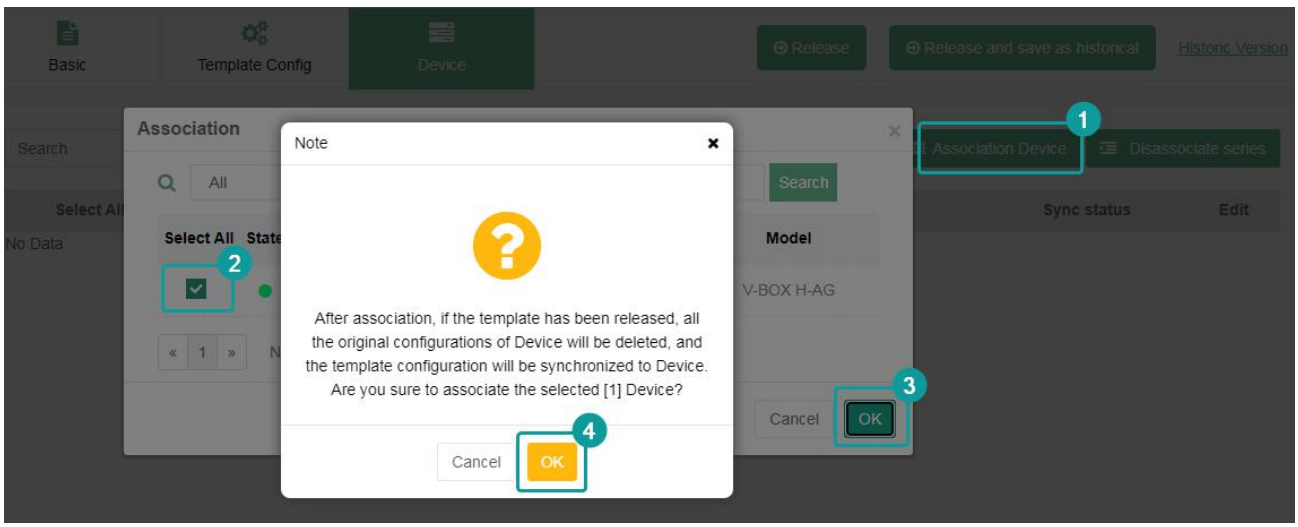


Figure 5- 13

✎**Note:** This is only to associate the V-BOX to the template. If the template is not published and the synchronization configuration is not operated, the template in the V-BOX is still the original configuration, that is to say, the configuration of the template is not delivered to the V-BOX.

(2) The associated V-BOX would be displayed in the V-BOX list.

(3) In the V-BOX list, Users could view the status of the V-BOX bound to the template, the name of the V-BOX, machine code, associated time, synchronization status, operation, etc.

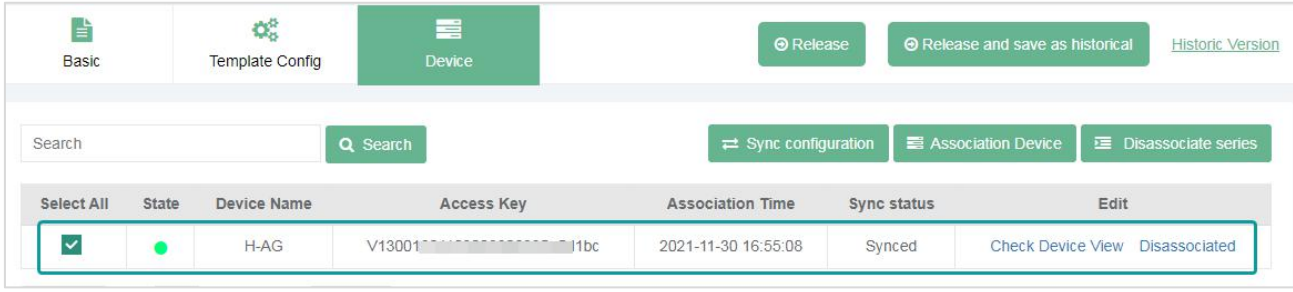


Figure 5- 14

(4) View the data of each module in the current configuration of the V-BOX. As shown below.

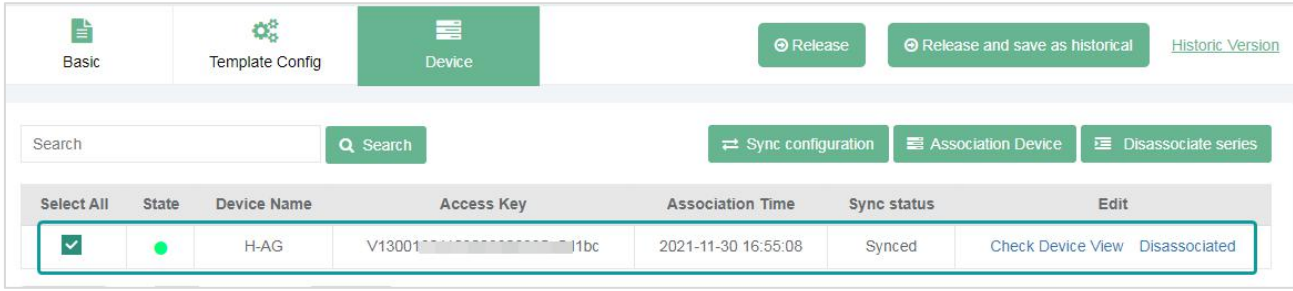


Figure 5- 15

5.5.2 Disassociate V-BOX

Disassociate V-BOX. Disassociate the V-BOX from the template. After disassociation, the V-BOX retains all the configuration information of the release version in the template.

Click the button Disassociate series or [Disassociated] behind the V-BOX to disassociate the selected V-BOX or the current V-BOX from the current template in batches. After disassociation, a published configuration of the template would be copied to the V-BOX, and the V-BOX would disassociate the template and restore it to the original un-associated template.

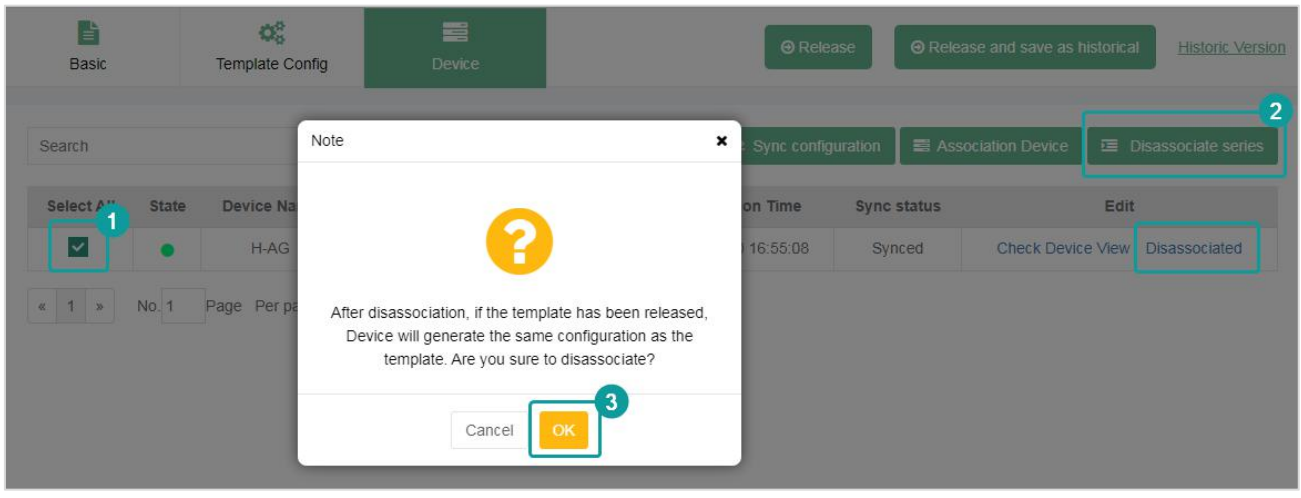


Figure 5- 16

5.5.3 Synchronous configuration

Click the button Sync configuration to send the configuration (release version) of the template to the selected V-BOX. The current online V-BOX would be delivered immediately, and the

offline V-BOX would be delivered after the next time it goes online. After the synchronization is successful, the configuration of the current template would overwrite the configuration of the selected V-BOX. As shown below.

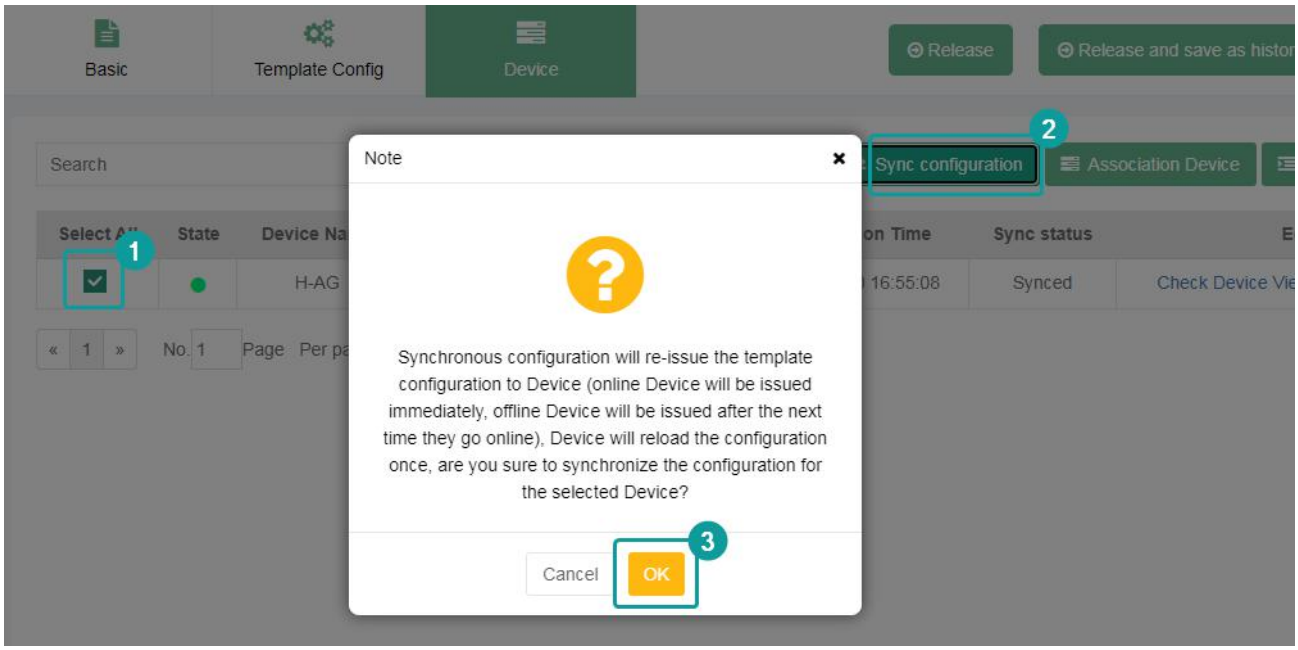


Figure 5- 17

5.6 Release template

The template could only take effect after it is released. That is, the template configuration edited by the user could be synchronously delivered to the bound V-BOX only after it is released. The released template is called [Release Version]. A template could only have one release version at most, and the others are called the historical version or the currently edited version.

The V-BOX synchronization configuration function in 5.5.3 Synchronous configuration is to deliver template configuration of [Release Version] to the V-BOX. If the template has never been released before, it would prompt [The template has not been synchronized] when synchronizing the configuration of the V-BOX. At this time, the user needs to release the template first, and then perform the synchronization configuration of the V-BOX.

5.6.1 Release template

The configured template needs to be released before it could take effect. Click the button 

to release the current template. After a successful release, the configuration would be automatically synchronized to all bound V-BOX. As shown below.

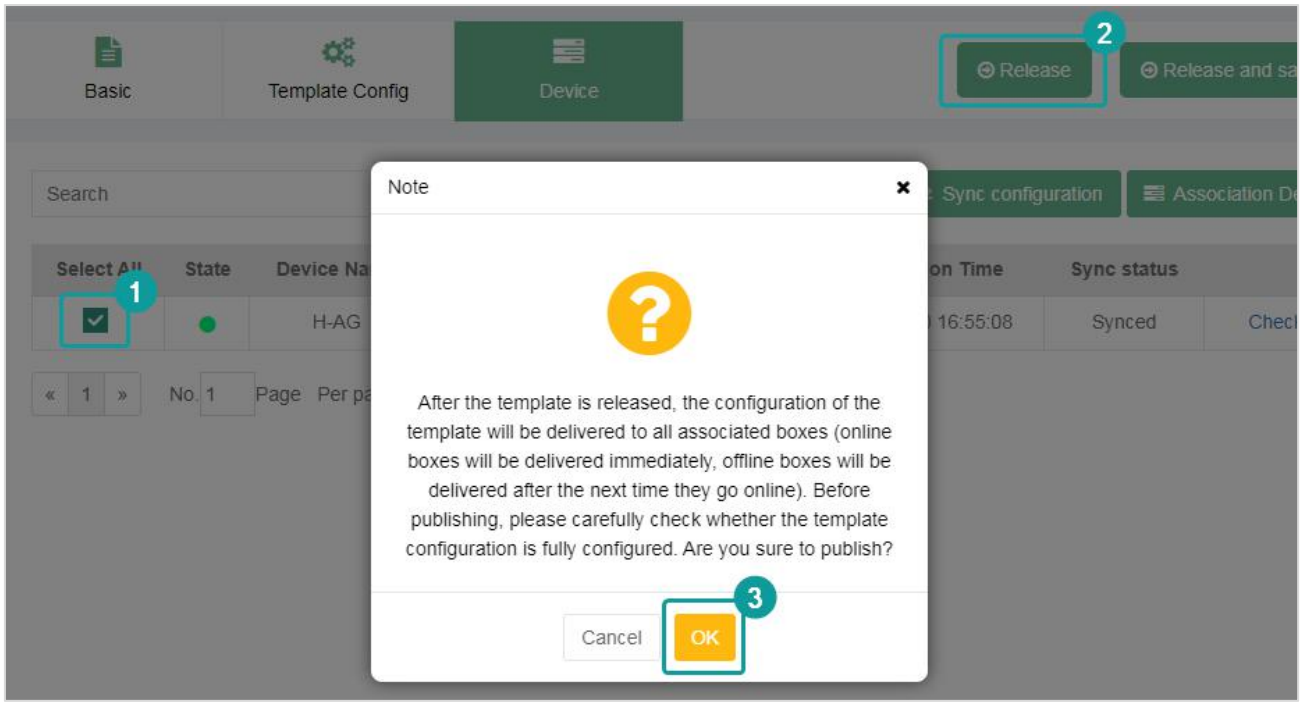


Figure 5- 18

5.6.2 Release and save as historical

Click the button 

to release the current template and save it as a historical version. The stored historical version could be viewed or rolled back in the [historical version] page, as shown below.

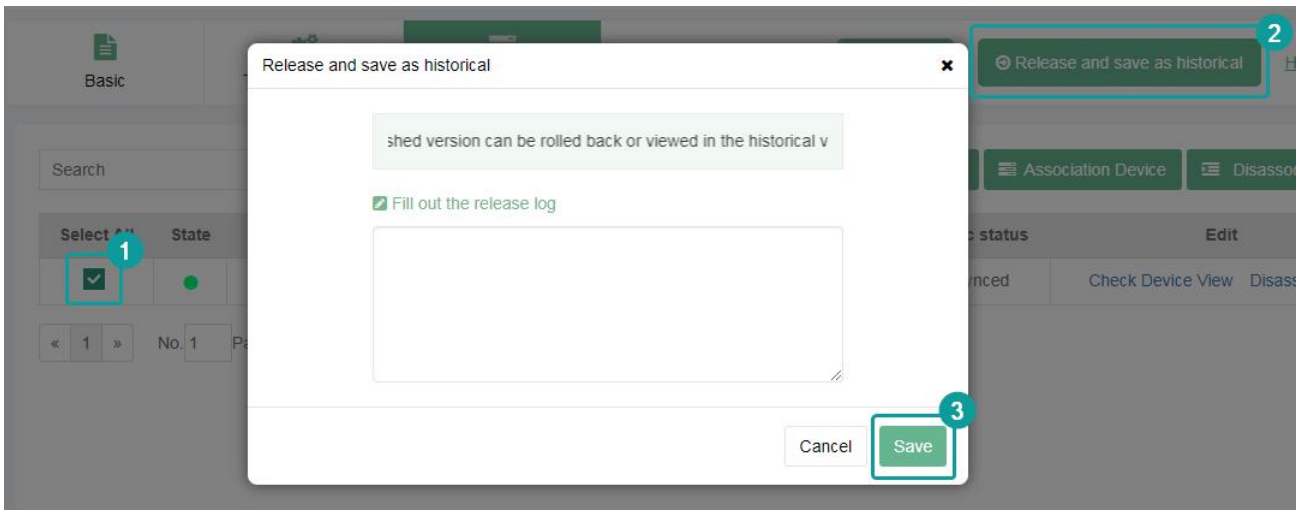


Figure 5- 19

5.6.3 Historical version

Click the [Historical Version] menu to view the release version of the current template and all historical versions, as shown below.

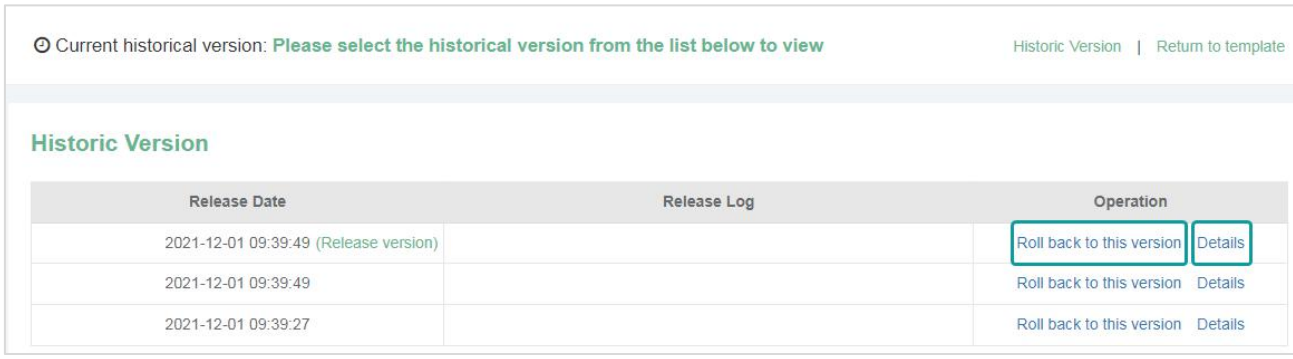


Figure 5- 20

(1) Release version

The first one in the history version list is the [release version] of the current template.

(2) History version

Except for [Release Version] in the list, all historical versions are stored after [Release and save as historical version].

(3) View details

Click the [Details] button to view all configuration information of the selected version.

(4) Roll back to this version

Click [roll back to this version] to overwrite the currently edited template configuration information with the configuration information of this version. Only the current edited version is overwritten, and the release process is not performed.

5.7 View the V-BOX bound to the template

When the template configuration is completed and the configuration is delivered to the V-BOX, the user could view the configuration and data of the V-BOX in the [Device] list.

The status icons of the V-BOX with bound template and the V-BOX with an unbound template in the list of the V-BOX are shown below.

5.7.1 The V-BOX with bound template

(1) The icon behind the V-BOX  : indicates that the V-BOX is bound to a template.

(2) The icon behind the V-BOX  : indicates that the V-BOX is bound to a template of another account.

(3) The V-BOX with the icon  could view the bound template. The user could right-click the name of the V-BOX and select [Currently Binding Template] in the right-click menu to jump to the template, as shown below.

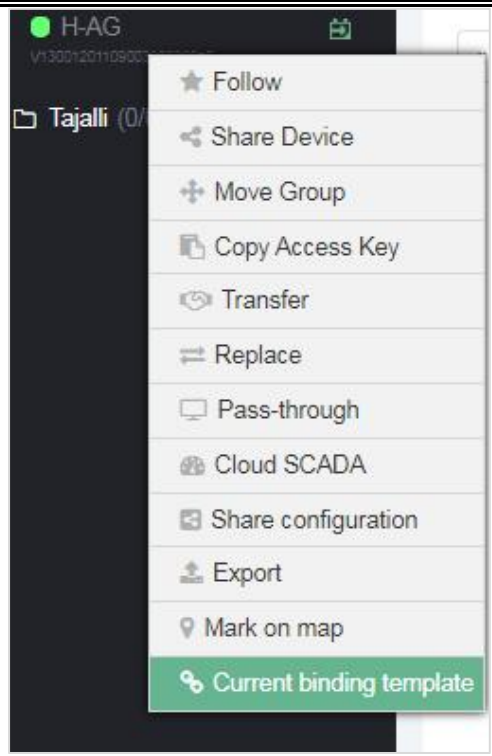


Figure 5- 21

5.7.2 V-BOX with unbound template

The icon behind the V-BOX  : indicates that the V-BOX is not bound to any template. Right-click the V-BOX name, and click the [Generate Template], the configuration of the V-BOX could be generated a new template.

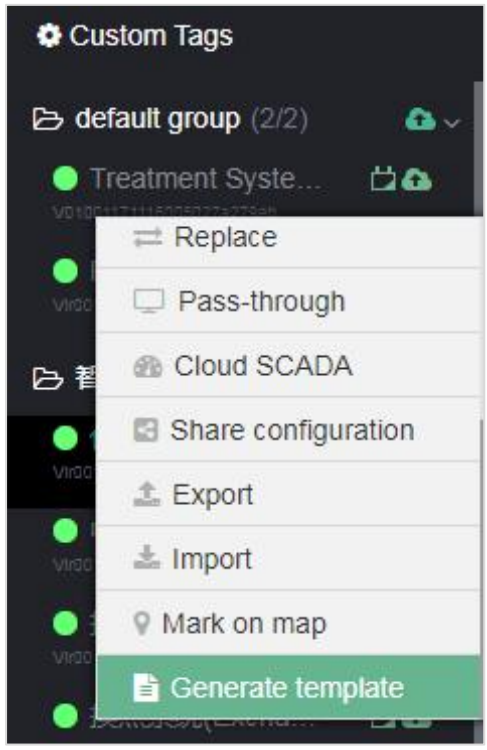


Figure 5- 22

5.8 Template cloud SCADA

Adding a template cloud SCADA in the [template configuration] interface of the V-BOX template is to configure a cloud SCADA project for the template, and to jump to the cloud SCADA platform for configuration design. To view the data status screen of the analysis page of the cloud SCADA project, the user needs to browse to the cloud SCADA module bound to the template.

5.8.1 Configuration toolbar

The tools in the toolbar are to operate the currently bound configuration project, the specific operations are as follows:

(1) Full screen . To realize the full screen display of the configuration project. Print "Esc" to exit the full screen.

(2) Bind the V-BOX configuration project . If the V-BOX does not use a template, the button could bind the V-BOX or modify the cloud SCADA platform to specify the configuration project of the V-BOX. If the cloud SCADA project in the template has been used by V-BOX, this button is grayed out and could not be used.

(3) Unbind the V-BOX configuration project . Click the configuration project in the selected configuration project list again to unbind the V-BOX cloud SCADA for the V-BOX.

(4) Edit . Edit the configuration project bound to the V-BOX, and it would jump to the configuration editor page of the cloud SCADA platform.

5.8.2 Template configuration cloud SCADA

(1) If the template has a cloud configuration project, click the button in the upper right corner to jump to the cloud SCADA platform to design the cloud SCADA project of the template. If the template has not been configured with the cloud SCADA project, click [Create] to jump to the unique cloud SCADA editing interface of the modified template, as shown below.

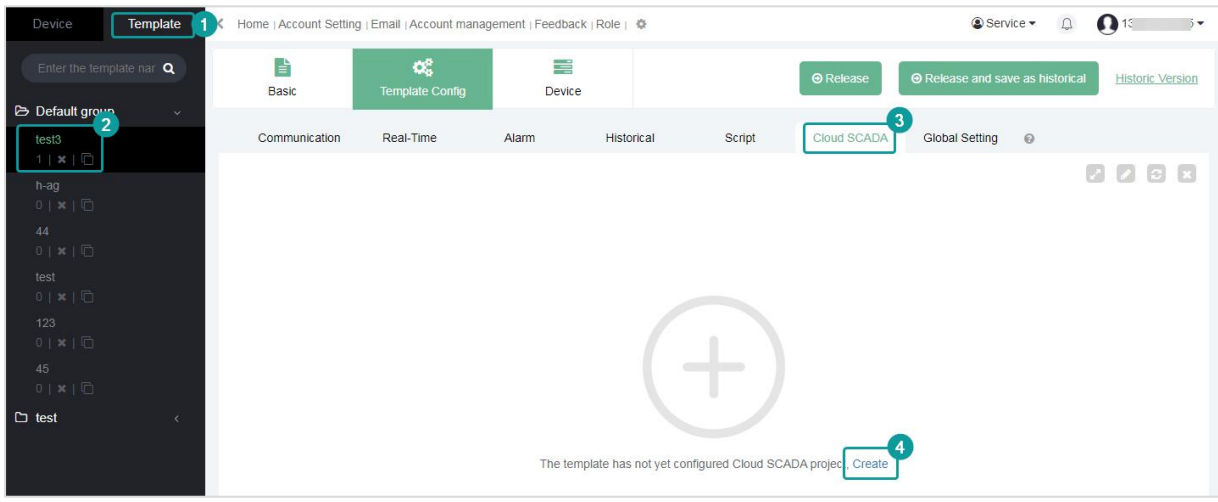


Figure 5- 23

(2) Edit the cloud SCADA project in the cloud SCADA platform interface, click the save button in the upper left corner, as shown below.

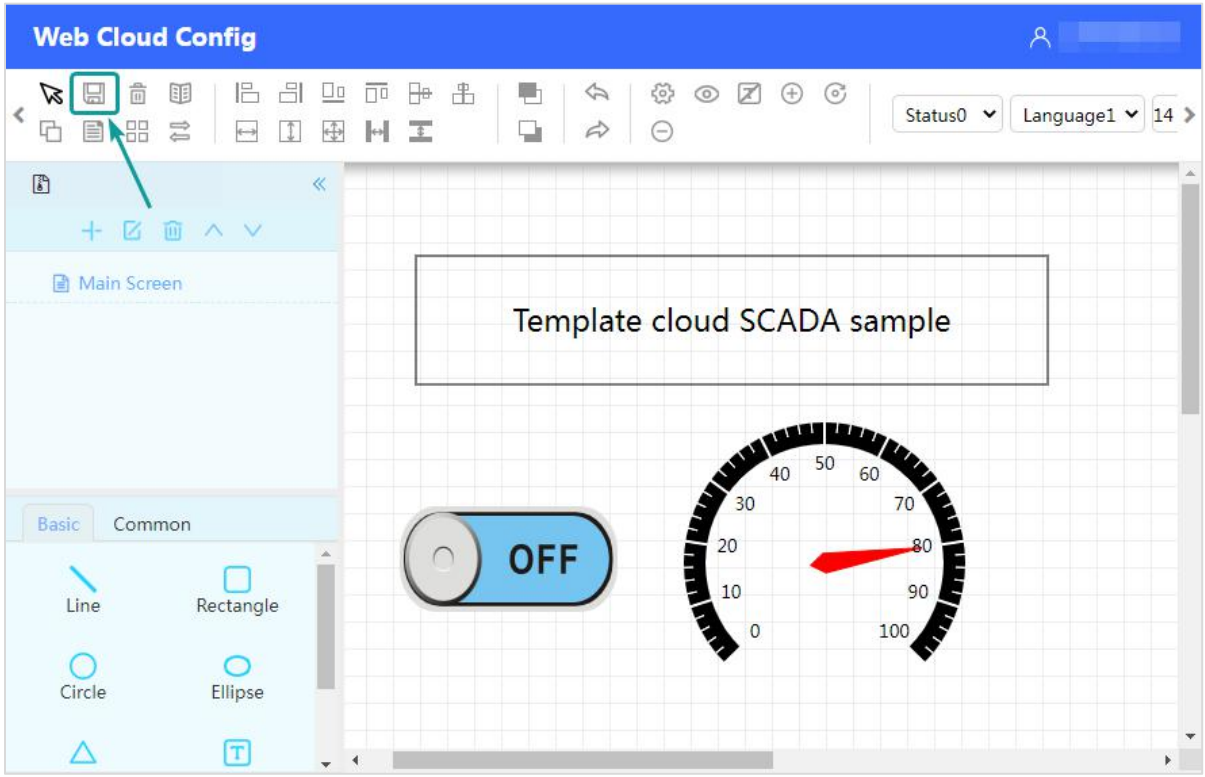


Figure 5- 24

(3) Click [Release] or [Release and save as history] to release the current template. As shown below.

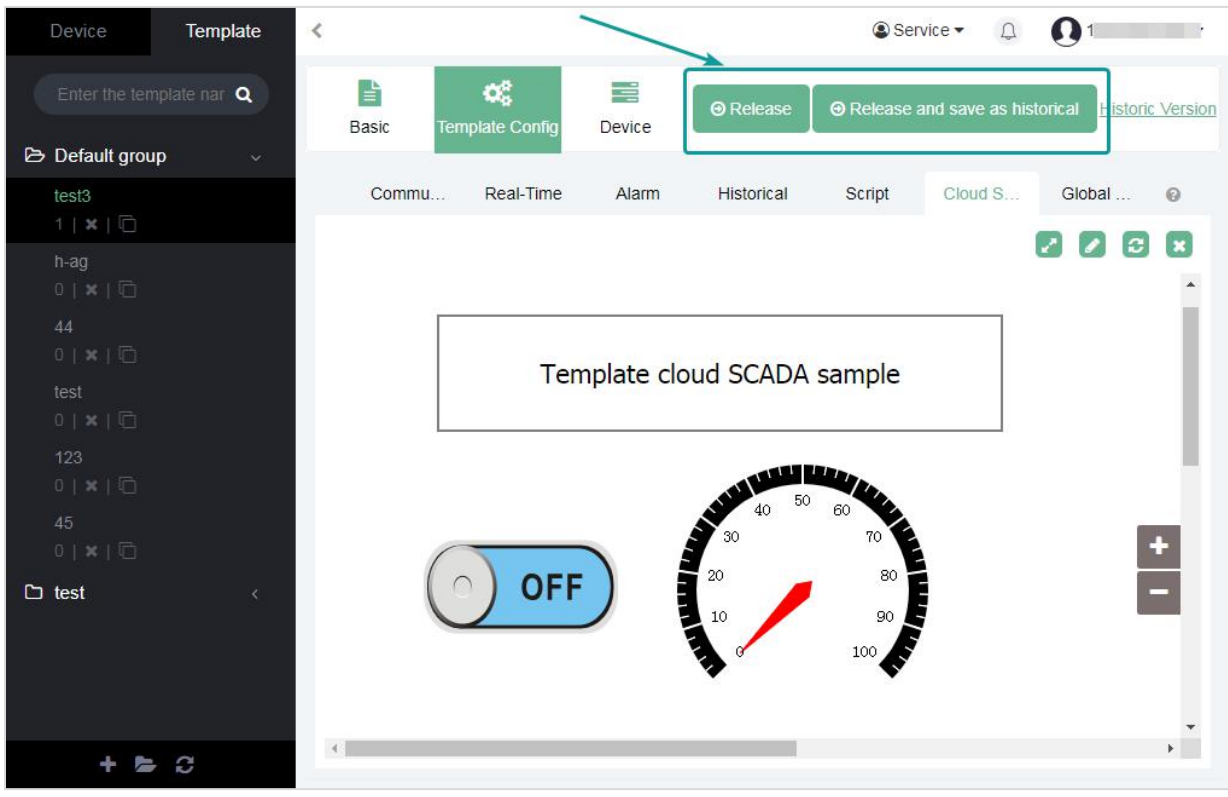


Figure 5- 25

(4) View the cloud SCADA module in the list of devices associated with the V-BOX. As shown below.

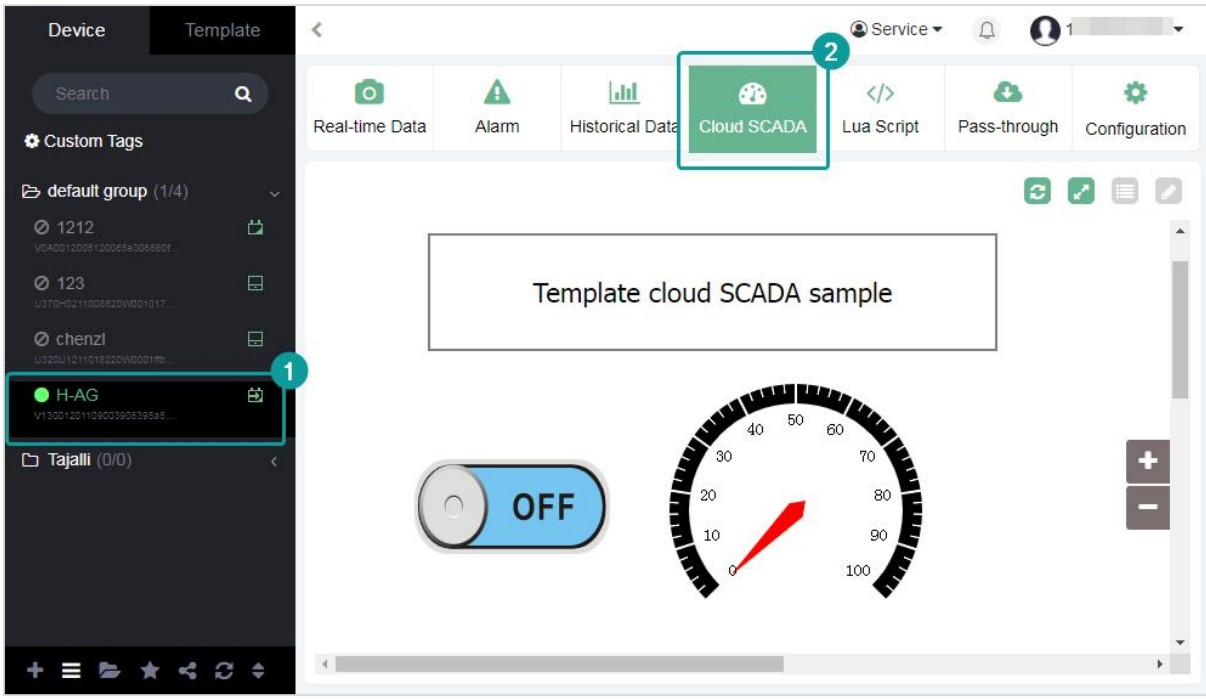


Figure 5- 26

(5) When unbinding the V-BOX from the template, if the template has a cloud SCADA project, a cloud SCADA project specifying the V-BOX would be generated in the centralized monitoring module of the cloud SCADA platform. The project name is "template+ V-BOX name+random number". As shown below.

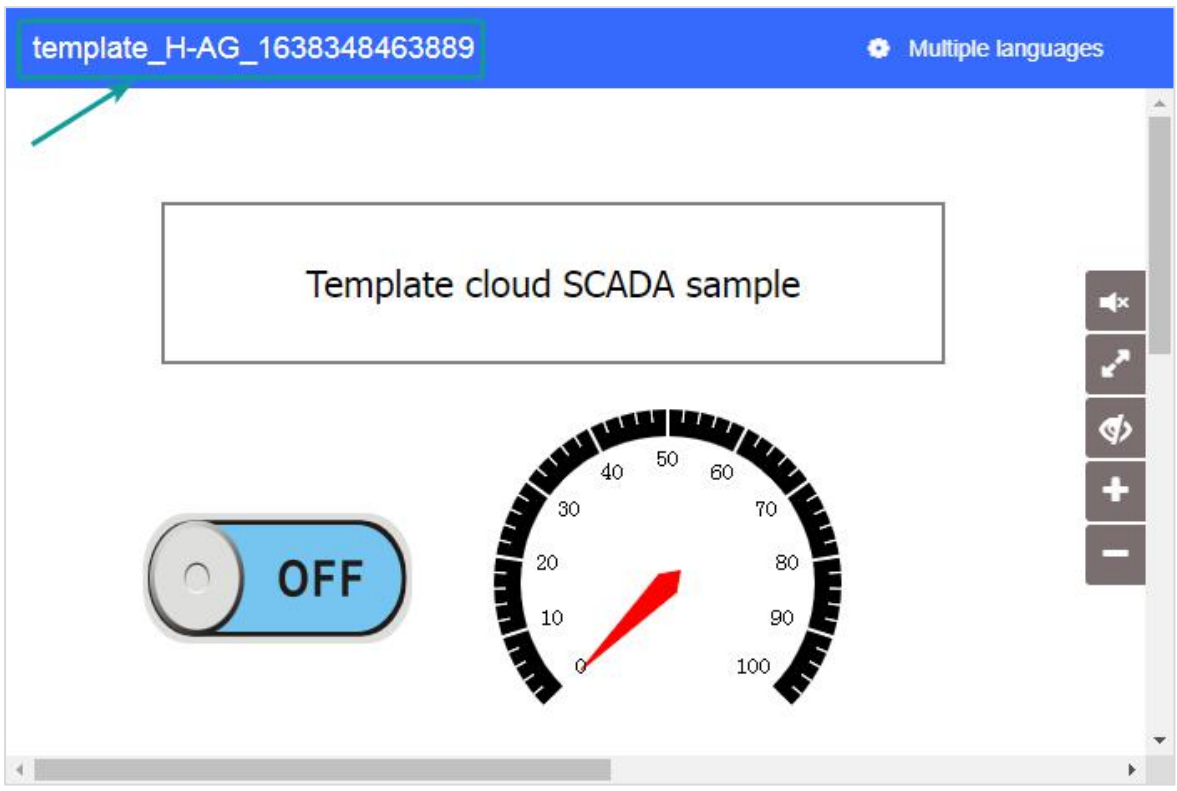


Figure 5- 27

5.8.3 Differences with cloud SCADA platform

(1) The template cloud SCADA could not be found in the cloud SCADA platform. The template cloud SCADA project could only be edited from the [template]-[template configuration]-[cloud SCADA] of V-NET.
(2) The V-BOX bound to the template project could only use the configuration of the template.
(3) When viewing the template cloud SCADA project, only the default status of the component could be viewed, and could not view the data status and operate. Users could only view the data of the project in the [device]-[cloud SCADA] bound to the template V-BOX.
(4) When designing the template cloud SCADA project, there is no function of compiling and importing the template, be sure to click save.
(5) When unbinding the V-BOX from the template, if the template has a cloud SCADA project, a cloud SCADA project specifying the V-BOX would be generated in the centralized monitoring module of the cloud SCADA platform. The project name format is "template+ V-BOX name+random number".
(6) If the template has been configured with a cloud SCADA project, only the cloud SCADA project could be displayed in the cloud SCADA module of the V-BOX bound to the template. and the V-BOX could not be configured to specify to use other cloud SCADA projects.

Chapter 6 Account management

When logging in to an account, bind the V-BOX with the account by adding the V-BOX information, and the account bound to the V-BOX is called the "administrator account". A V-BOX could only be bound to one account, that is, the administrator account is unique.

6.1 Administrator authority

An admin account could be configured with multiple view accounts, and the view accounts could be assigned to monitor the V-BOX, as well as the read and write operation rights of the V-BOX data. As shown below.

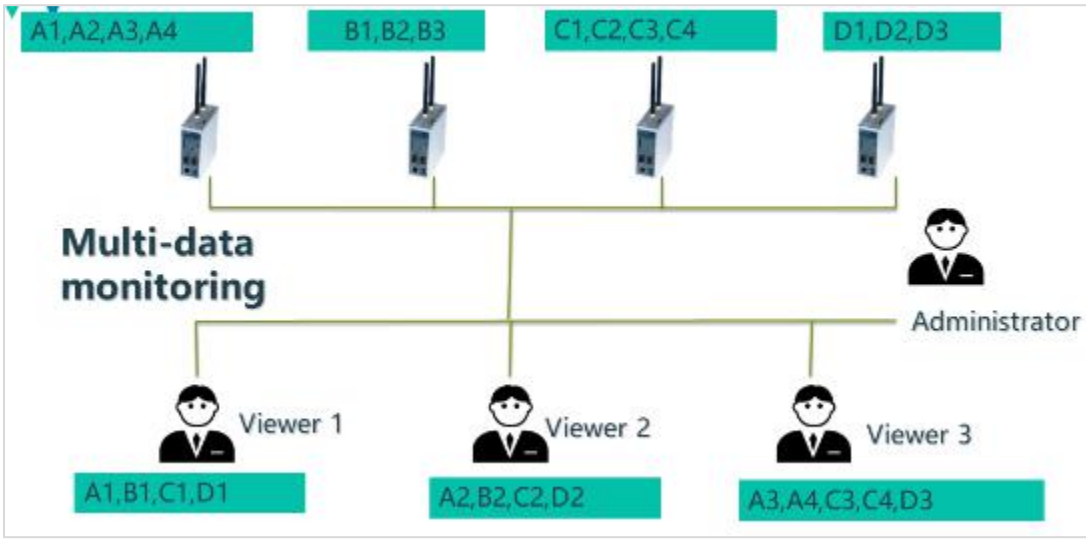


Figure 6- 1

Here is the relationship analysis of the figure above. The admin account has four V-BOXs (A, B, C, D), and each V-BOX has operable data (A1, A2, A3, A4, B1, B2, B3, C1, C2, C3, C4, D1, D2, D3). And Admin account creates three view accounts, and assigns different authorities for each view account.

For example,

① View account one could monitor and operate one data (A1, B1, C1, D1) of four V-BOXs (A, B, C, D),

② View account two could monitor and operate one data (A2, B2, C2, D3) of four V-BOXs (A, B, C, D),

③ View account three could monitor and operate the data (A3, A4, C3, C4, D3) of three V-BOXs (A, C, D)).

6.2 View-account management

Click the "Account Management" button to enter the view account management page. List). In the view account management page, the user could perform operations such as adding, disabling, and authority management of view accounts. Authority management includes the management of real-time monitoring points, historical monitoring points, and alarm monitoring points.

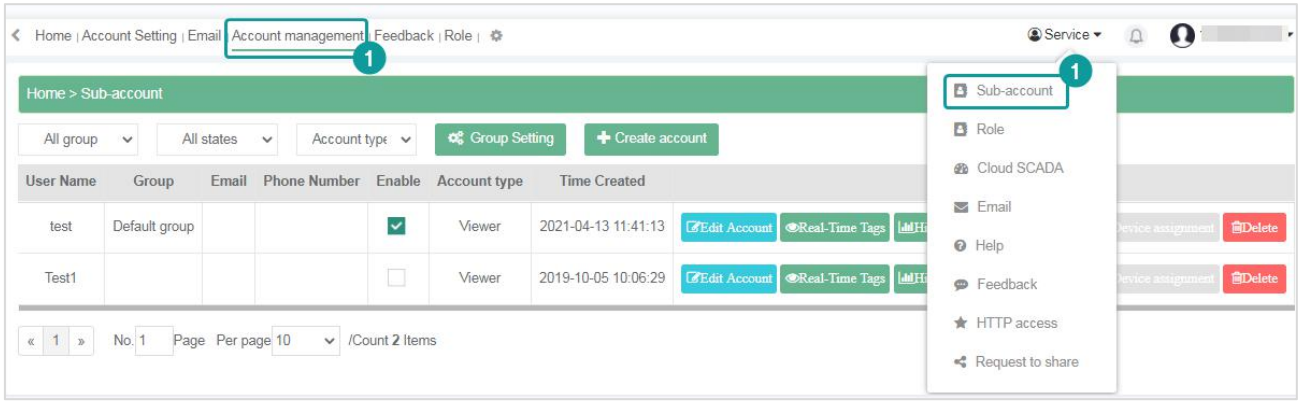


Figure 6- 2

6.2.1 Create account

The status of view accounts could be divided into Enabled or disabled.

Click 

to create a view account, and the account and password of the view account need to be entered. The user could select whether to enable the view account immediately after adding the view account.

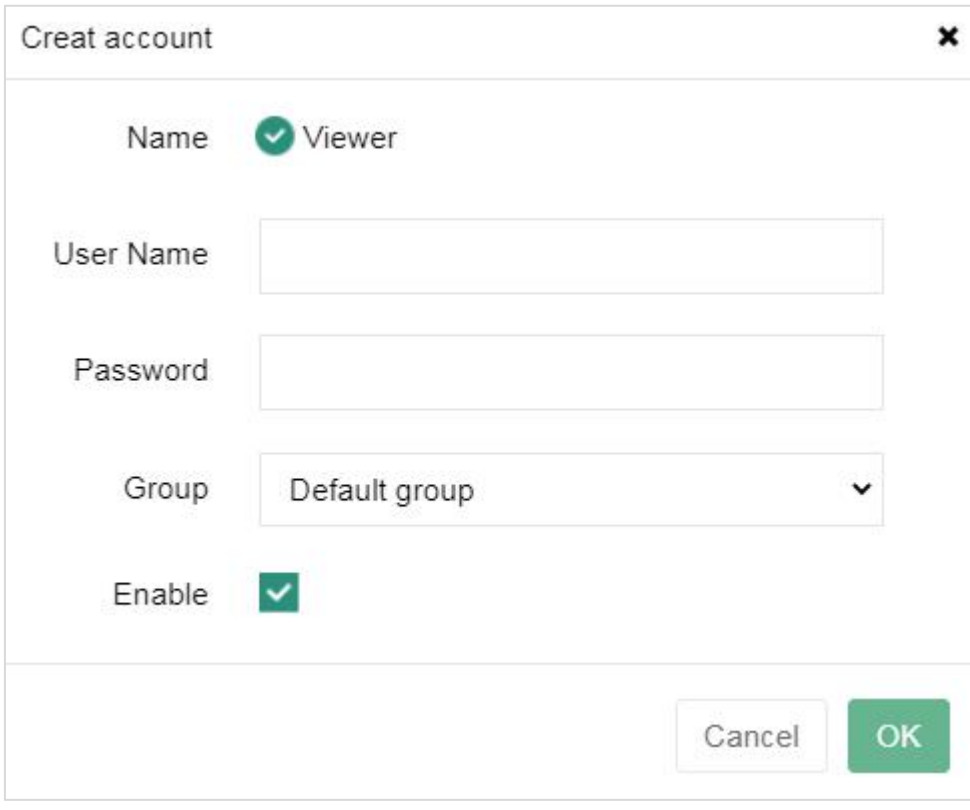


Figure 6- 3

6.2.2 Authority Management

When disabling a view account, uncheck it directly, and login would be prohibited after disabling.

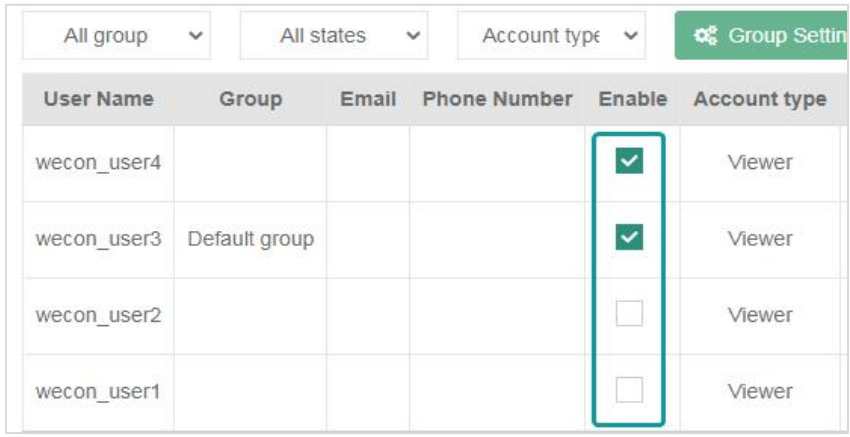


Figure 6- 4

6.2.3 Modify the monitoring point authority

Click the button  to modify the monitoring points authority of a view account, it would jump to the "modify the status of the monitoring point" page.

Figure 6- 5

Users could manage the monitoring point authority of the currently selected view account, including **"read only", "Write only", or "Read and write".** Users could unbind the monitoring point authority of the view account. After unbinding, a certain set of authorities (real-time, history, and alarm) of the view account for the monitoring point would be deleted.

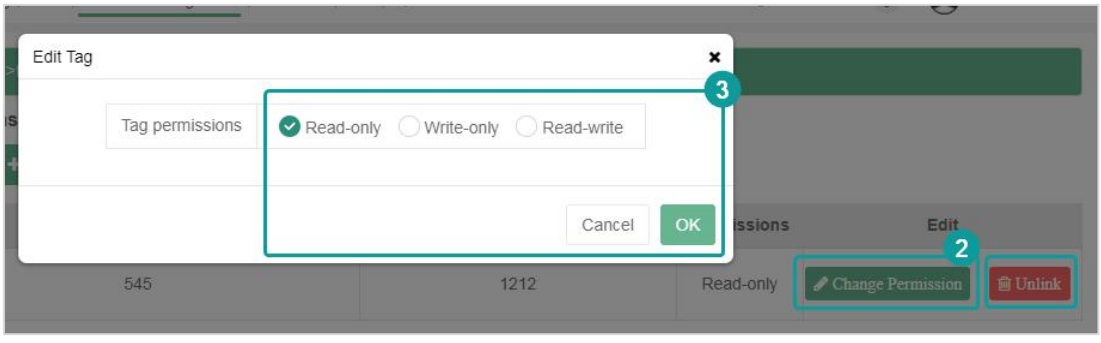


Figure 6- 6

6.2.4 Assign monitoring point

Assign monitoring points to the currently selected view account. The assigned monitoring points could come from different V-BOXs. After the assignment, the view account has a certain set of authorities to the assigned monitoring points.

Figure 6- 7

(1) Real-time monitoring point assignment

It is to assign the monitoring points under [Real-time tags] under the V-BOX. Users could select "Assign all" to assign all the monitoring points under the selected device, that is to select all the remaining unassigned monitoring points of the device.

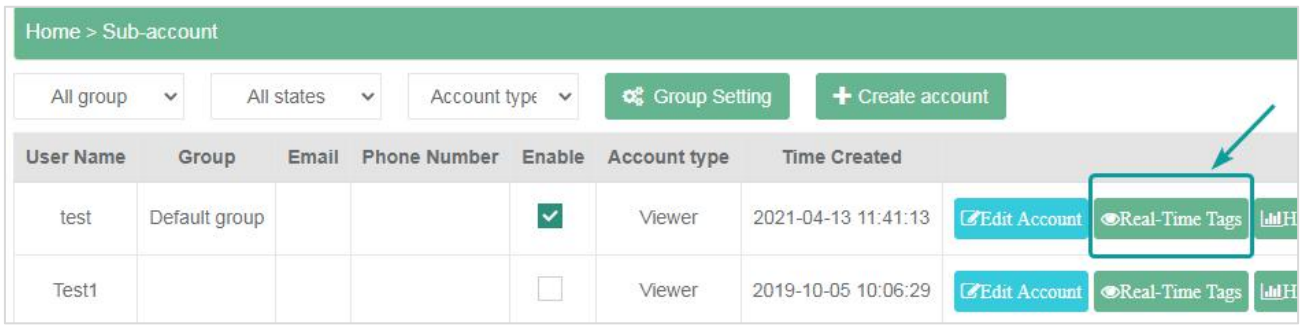


Figure 6- 8

✎Note:

① If the monitoring point authority is read-only, it could not be modified to write-only or read-write.

② If the monitoring point authority is write-only, it could not be changed to read-only or read-write.

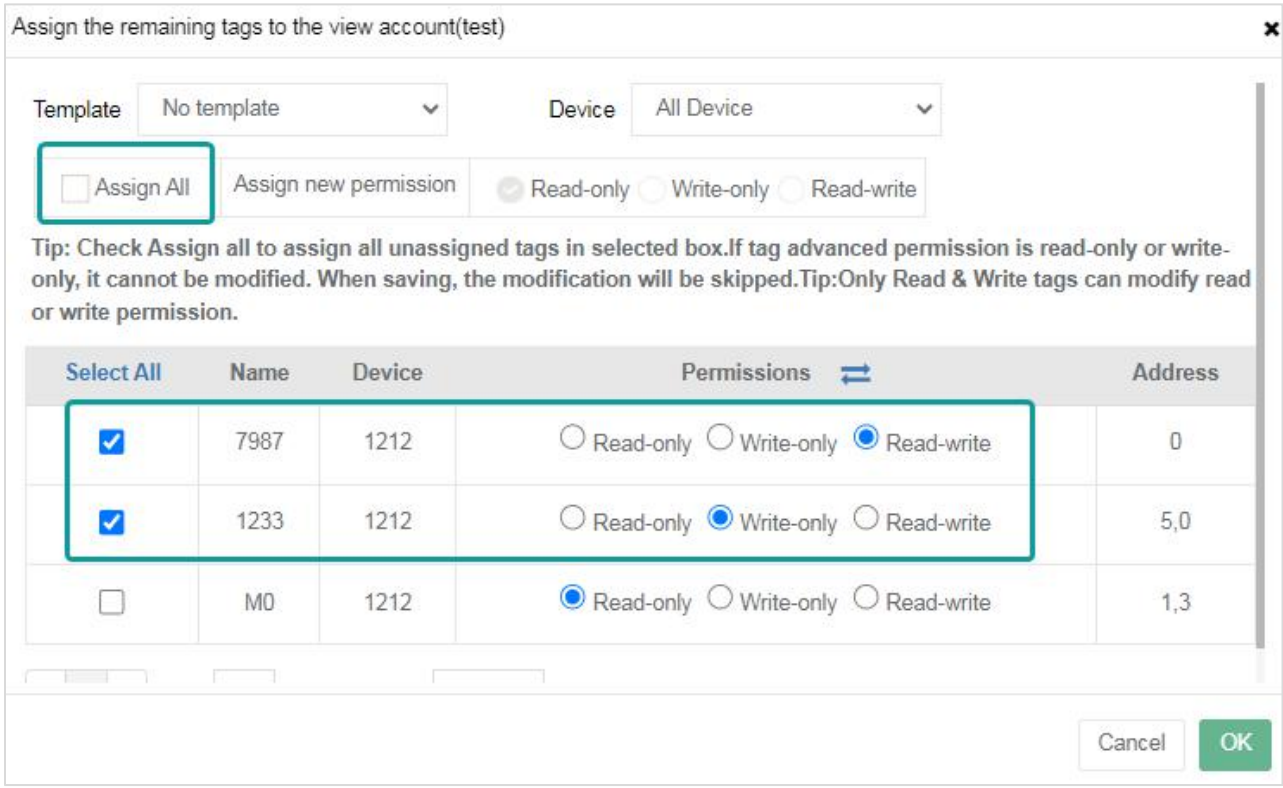


Figure 6- 9

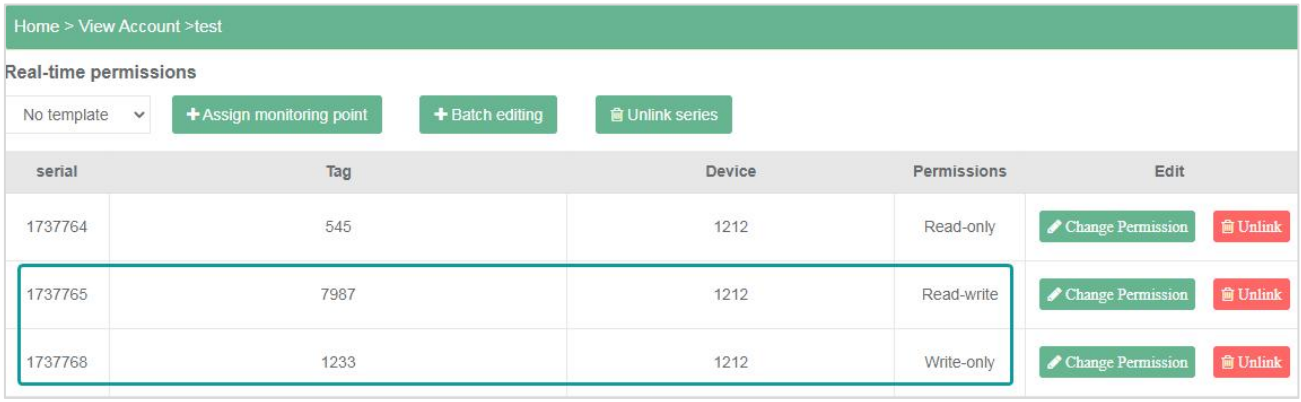


Figure 6- 10

(2) Historical monitoring points assignment

It is to assign the monitoring points under [Historical tags] under the V-BOX. Users could select "Assign all" to assign all the monitoring points under the selected device, that is to select all the remaining unassigned monitoring points of the device.

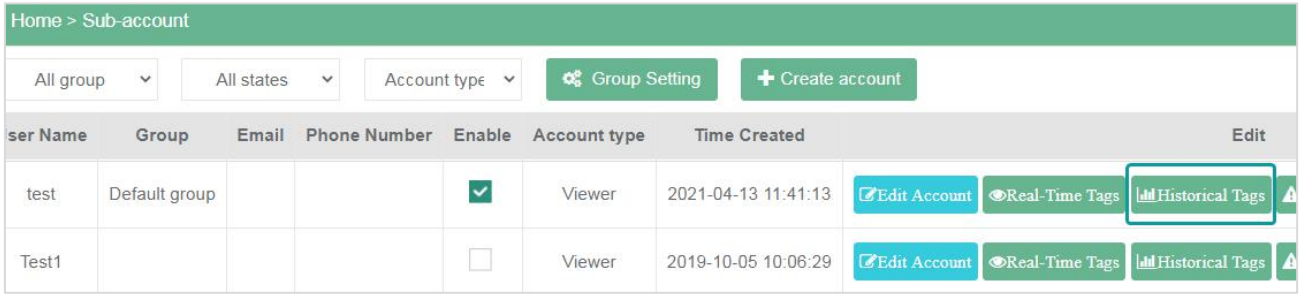


Figure 6- 11

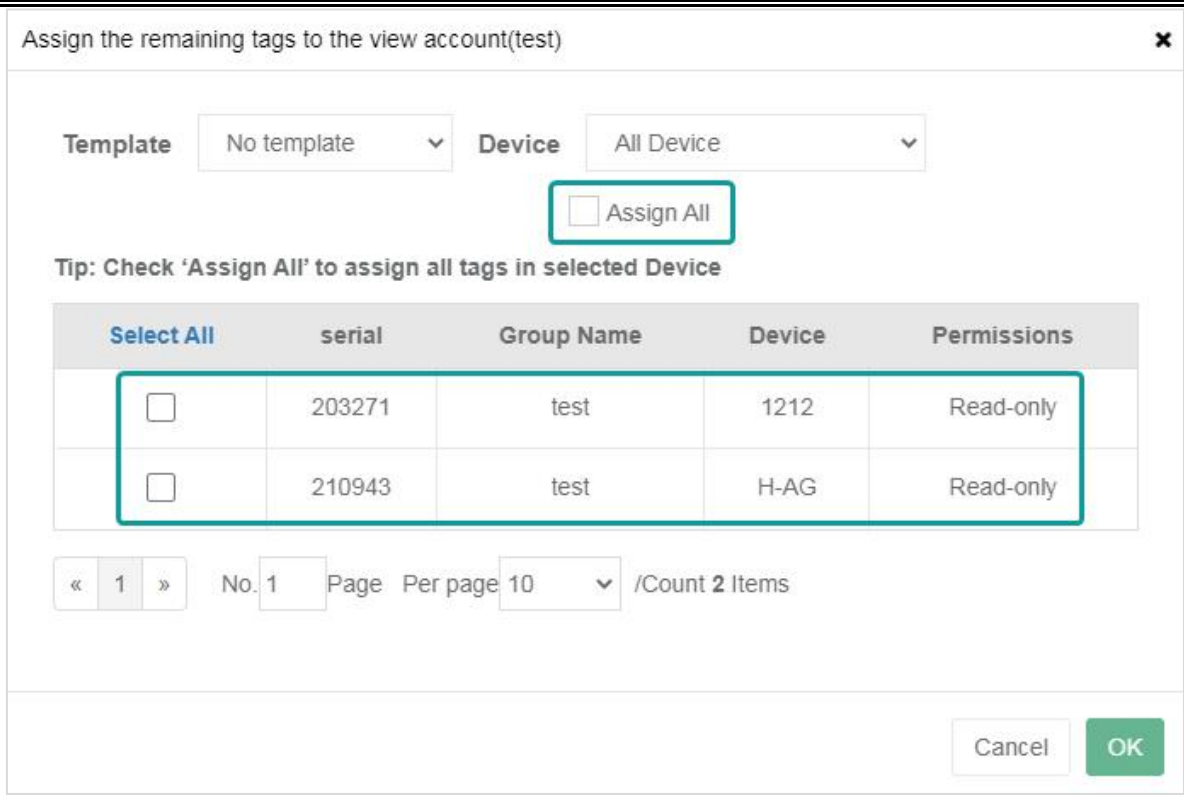


Figure 6- 12

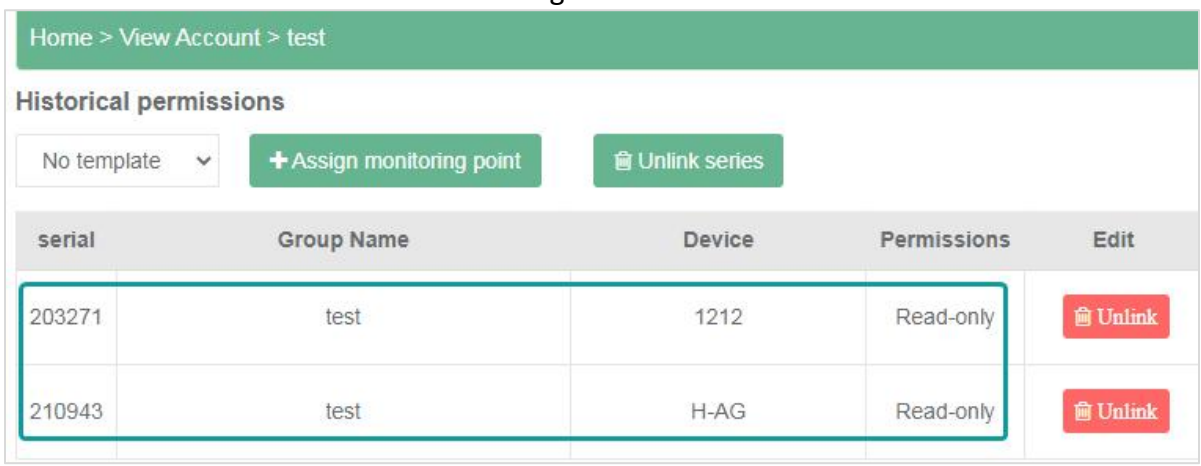


Figure 6- 13

(3) Historical monitoring points assignment

It is to assign the monitoring points under [Alarm tags] under the V-BOX. Users could select "Assign all" to assign all the monitoring points under the selected device, that is to select all the remaining unassigned monitoring points of the device.

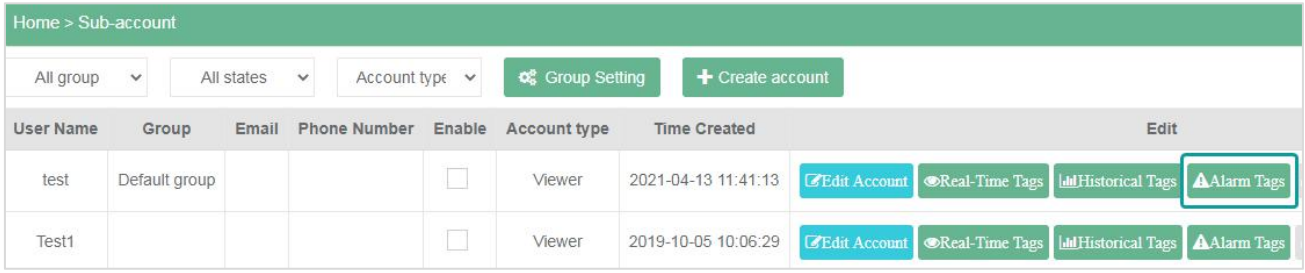


Figure 6- 14

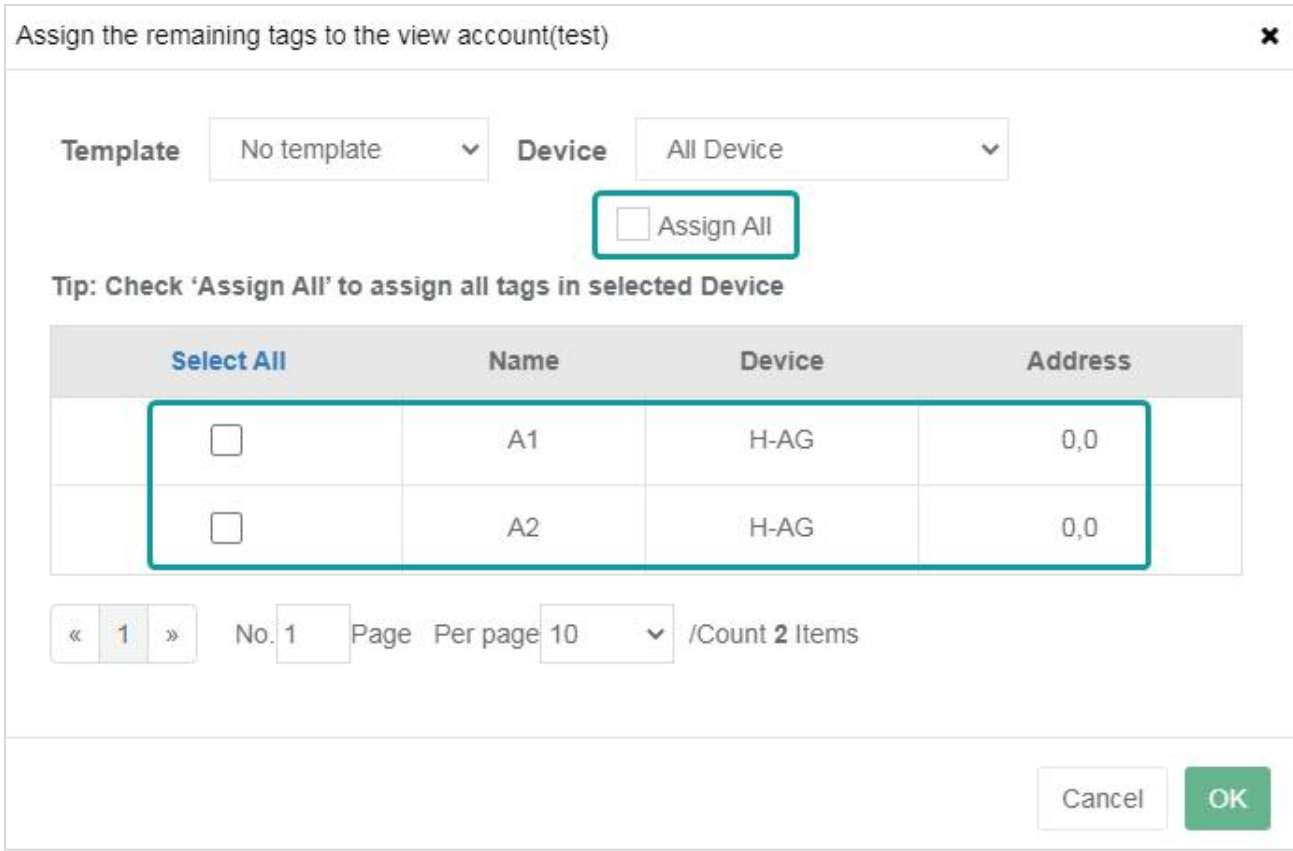


Figure 6- 15

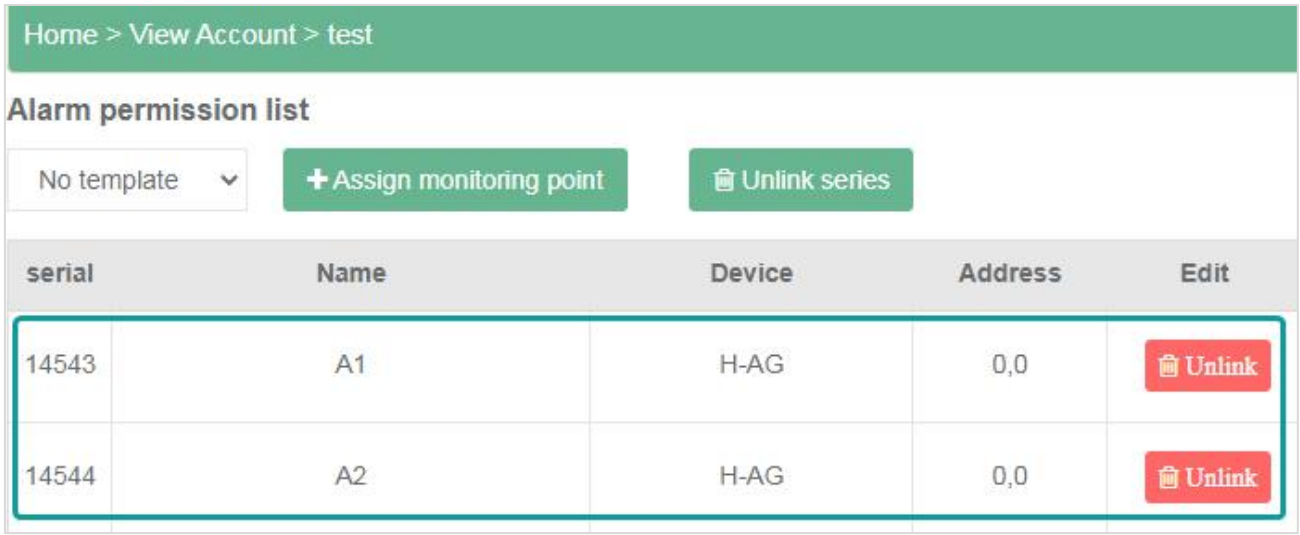


Figure 6- 16

✎**Note:** The hierarchical management in the view account is not intelligent enough. It is recommended to use the [role management] function to manage accounts.

6.3 View account usage

Use the view account to log in through eu.v-box.net or asean.v-box.net.The home page of the view account is data monitoring, data recording, and historical data. All the above data are assigned by the administrator account, and the view account could not be bound to the device.

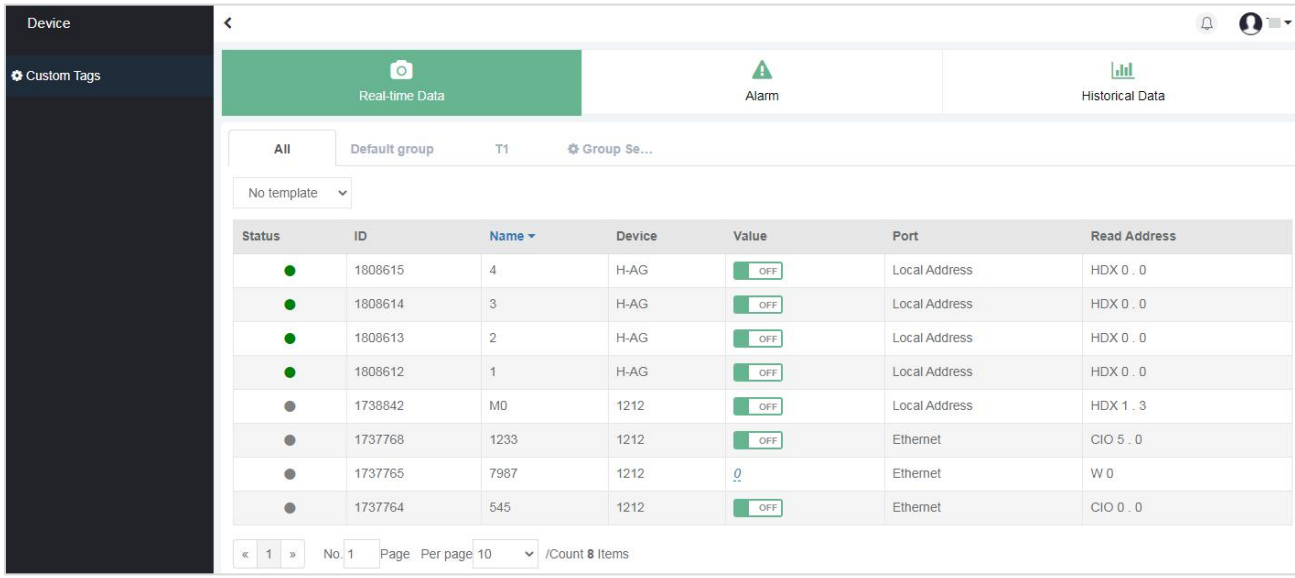


Figure 6- 17

6.3.1 Data monitoring

(1) Group management

A view account could manage monitoring point groups, such as creating, modifying, and deleting a group. Users need to enter a group name when creating a group.

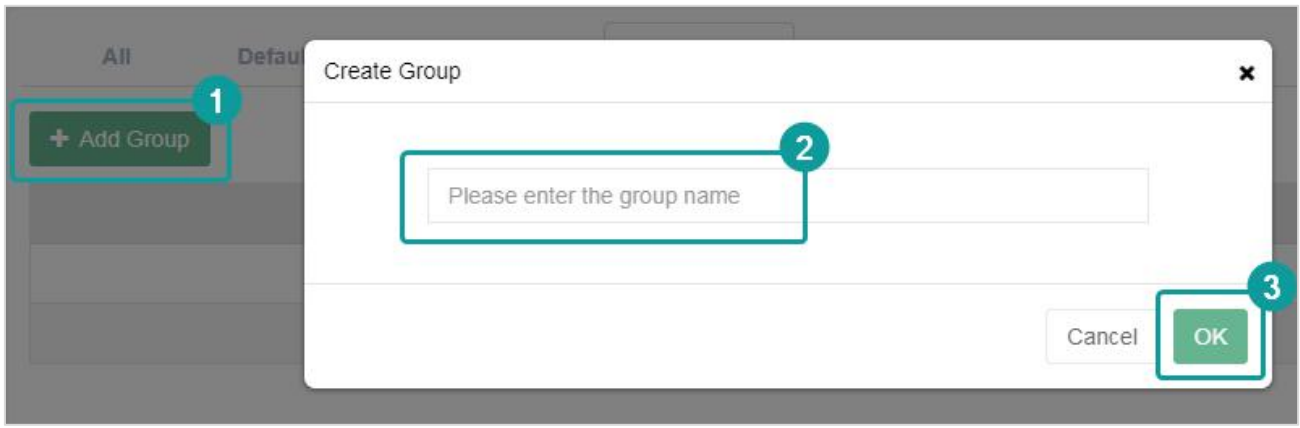


Figure 6- 18

Users need to enter a new group name when modifying a group.

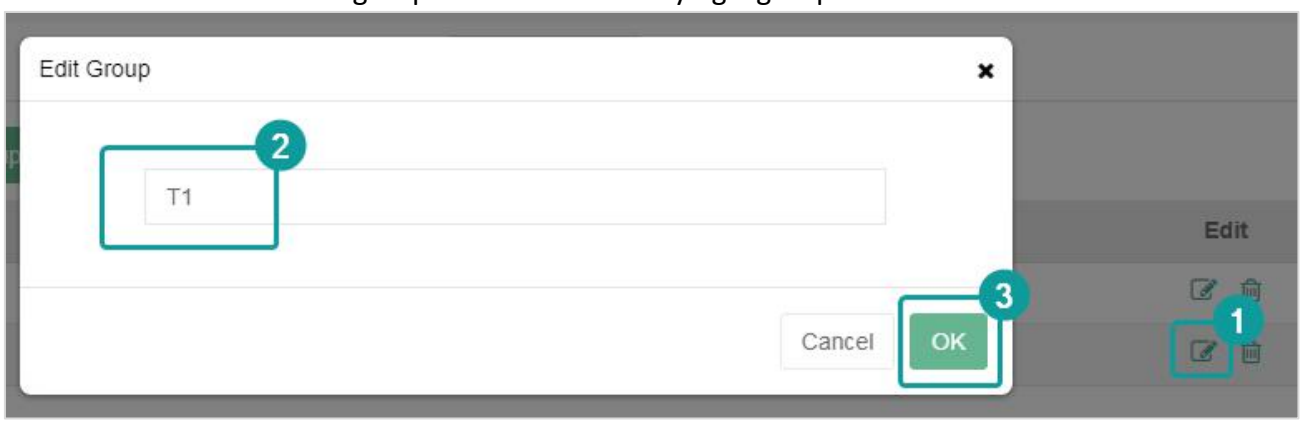


Figure 6- 19

When deleting a group, a prompt dialog box would pop up to confirm the deletion operation. If the deletion is confirmed, the monitoring point under the group would also be unbound from the group.

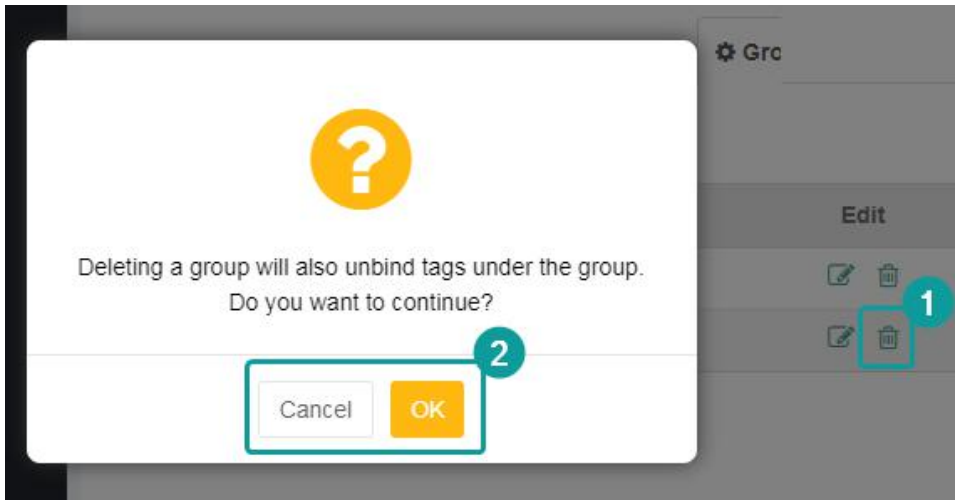


Figure 6- 20

(2) Monitoring assignment

The view account could group and manage all the monitoring points assigned by the administrator. In the "Data Monitoring" page, the view account could assign the monitoring points to different groups.

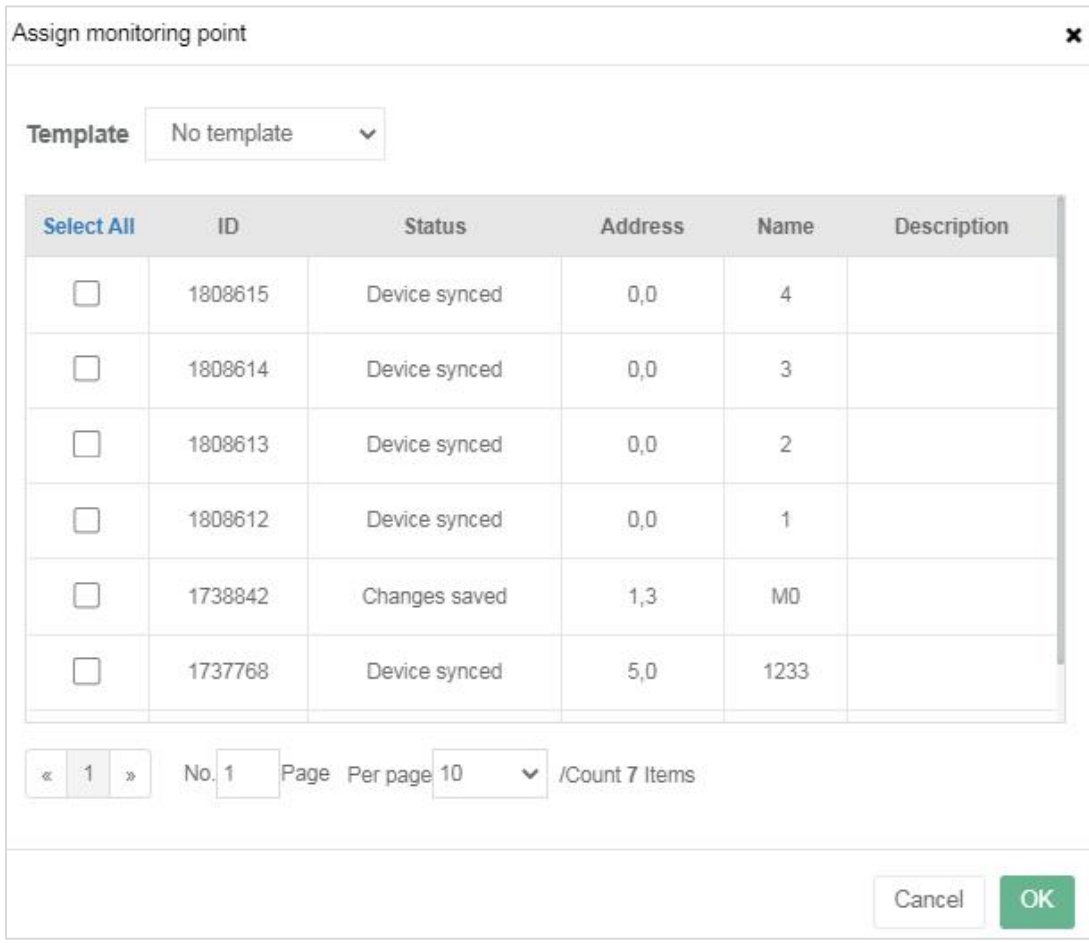


Figure 6- 21

The same monitoring points are allowed assigned to different groups. After assigning, the real-time data of the real-time monitoring points under the current group could be viewed in a certain group. If the view account has read and write authorities, the real-time data of the monitoring points could be modified, otherwise, it could only be queried.

6.3.2 Alarm

After the administrator assigns the alarm monitoring points to the view account, the view account could view the alarm data of the monitoring points assigned by the administrator on the "Alarm" page. Users could view "Current Alarm" and "Historical Alarm" on the page. The alarm data has two states: "confirmed" and "unconfirmed". The "current alarm" displays the alarm data in the "unconfirmed" state, and the "historical alarm" displays the alarm data in the "confirmed" state.

(1) Current alarm

The view account could confirm the unconfirmed alarm data by clicking "Confirm" if it has read and write permission. Otherwise, it could only query the alarm data.

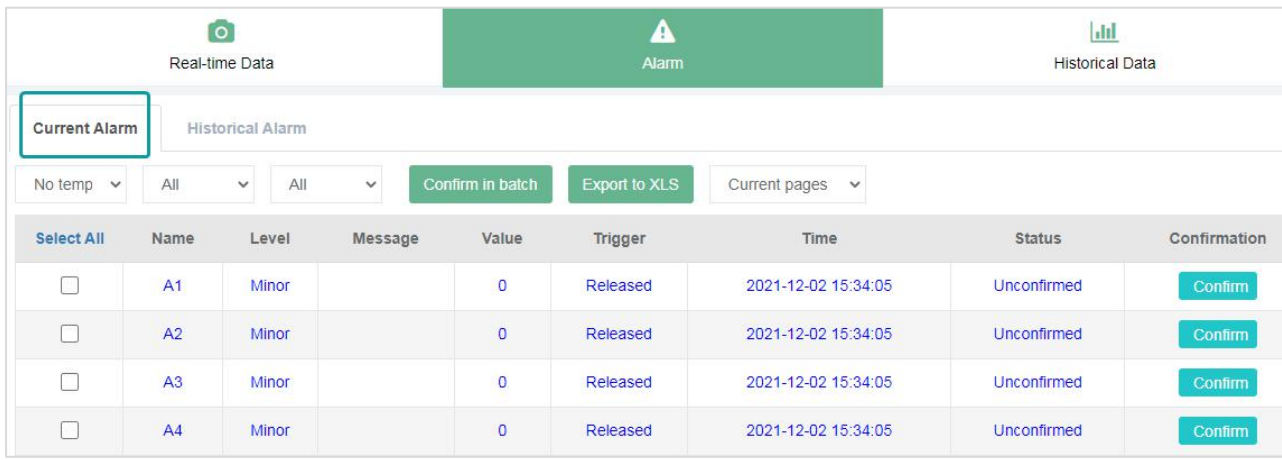


Figure 6- 22

(2) Historical alarm

After the alarm is confirmed in [Current Alarm], the corresponding current alarm data would be displayed in the "Historical alarm" sub-page. the alarm data could be queried according to the code, name, start and end date, and other conditions.

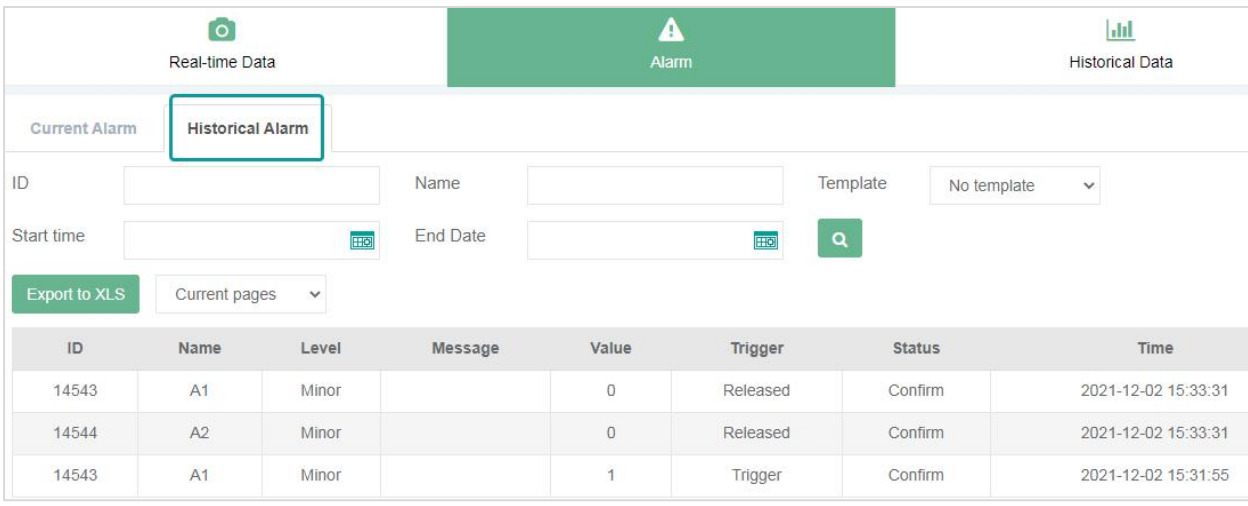


Figure 6- 23

6.3.3 Historical data

On the "historical data" page, the view account could query the historical data according to monitoring point, start and end date(Only query supported). The historical data could display in lists and curves.

(1) Display in lists

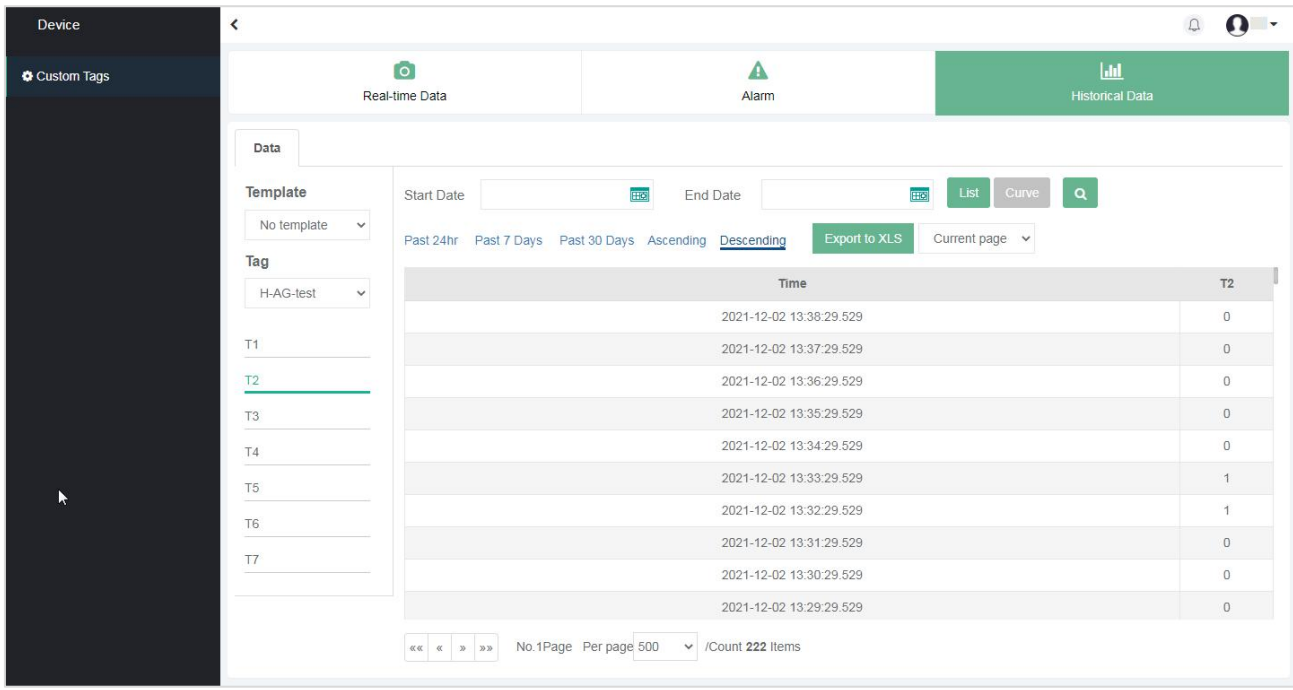


Figure 6- 24

(2) Display in curves

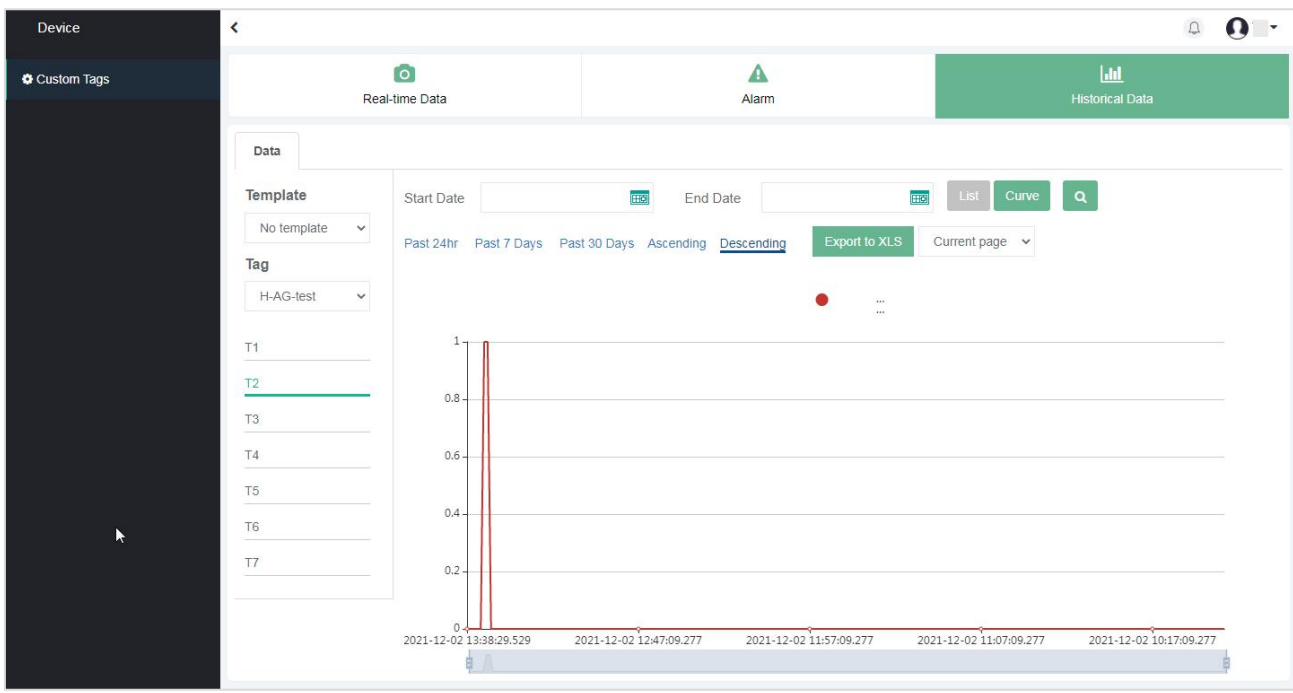


Figure 6- 25

Chapter 7 Role management

7.1 Role introduction

Role management could configure role permissions, and assign a role to the newly added sub-account, and the sub-account would have all the permissions of the role. The new sub-account management [role management] makes the configuration of sub-accounts more convenient and quicker, and is more conducive to unified management.

① Up to 5 levels of sub-accounts are supported under each Master account.

② Each account could create a maximum of one hundred sub-accounts. Sub-accounts could only be created and deleted by grade, but could not be operated or managed across grades.

③ The administrator could bind V-BOX and ig screen, create and delete level 2 sub-accounts, and restrict the management of all the sub-accounts permissions of it.

④ The sub-accounts of level 2, level 3, and level 4 could only create and delete the next level sub-accounts, and restrict the management of all the sub-accounts permissions of it.

⑤ Level 5 sub-accounts have no role management function, and could only view the information assigned by level 4 sub-accounts.

The relationship of "Role management" is shown below.

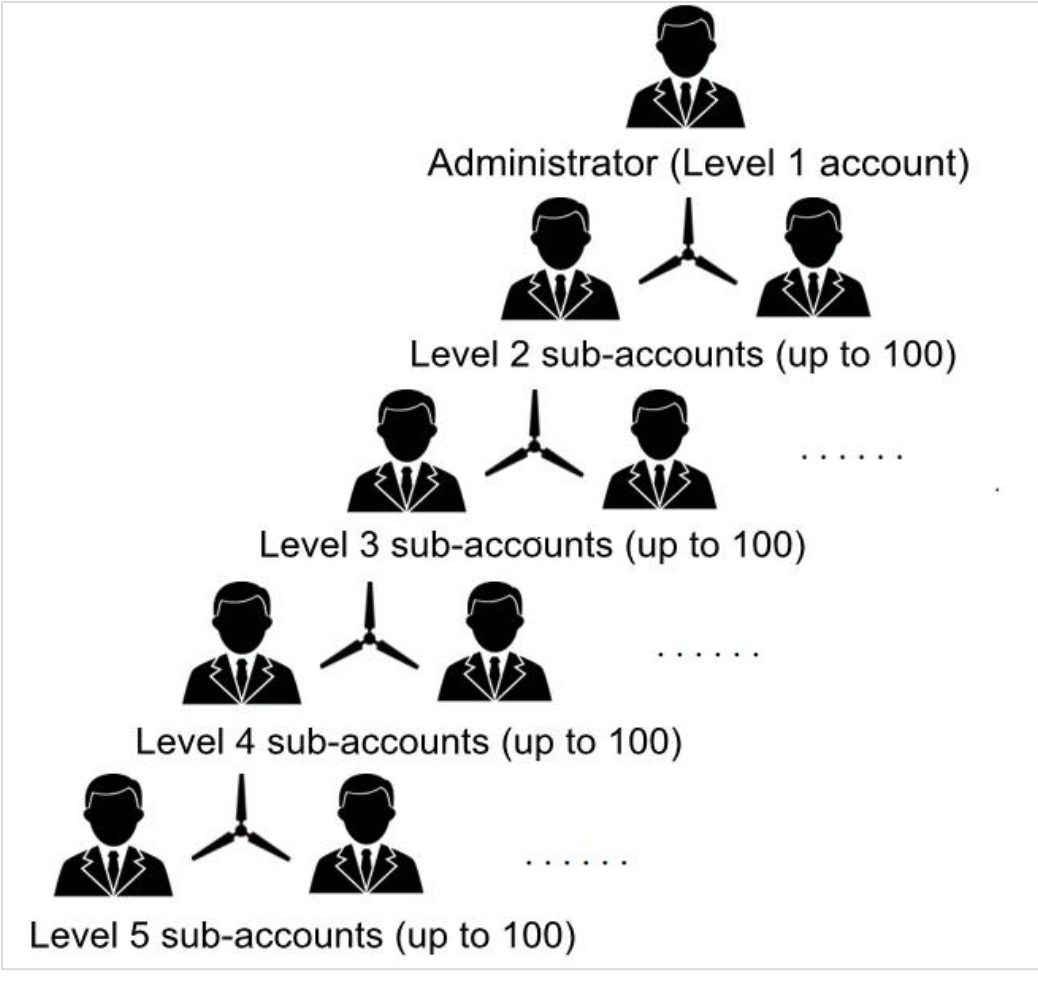


Figure 7- 1

7.2 Compatibility with old sub-accounts

7.2.1 Compatibility description

① The old sub-account(old user)management is entered through the menu [Account management], and the following [Account management] all refer to the old sub-account management.

② The new sub-account management is entered through the menu [Role management], and the following [Role management] all refer to the new sub-account management.

③ The old sub-account management [Account management] includes engineer account and view account.

The following table explains the compatibility of these two types of old accounts.

Category	Account management	Role management
Engineer account	Normal use, but unable to add	Compatible
Viewer account	Normal use	Compatible

Table 7- 1

7.2.2 The old engineer account

The following are applications of the old engineer account in the new and old sub-account system.

① After [Role Management] goes online, the old engineer account that has not been modified in the [Role Management] system could be used in both the new and old sub-account management systems.

② If the old engineer account is bound to a role in the [Role Management] system, the account would be switched to a new sub-account, and use the permissions function of the new sub-account management system, and it would no longer be displayed in the old sub-account management system.

③ If the old engineer account is bound to the V-BOX, it could not be modified in the [Role Management]. Users need to unbind all the V-BOXs before assigning the roles.

④ Once the old engineer account is bound to a certain role, the new sub-account would not be displayed and used in the [Account Management] system.

7.3 Group management

The role and group need to be set before creating a new sub-account. Click the switch menu [Group Management] to manage group, as shown in the following.

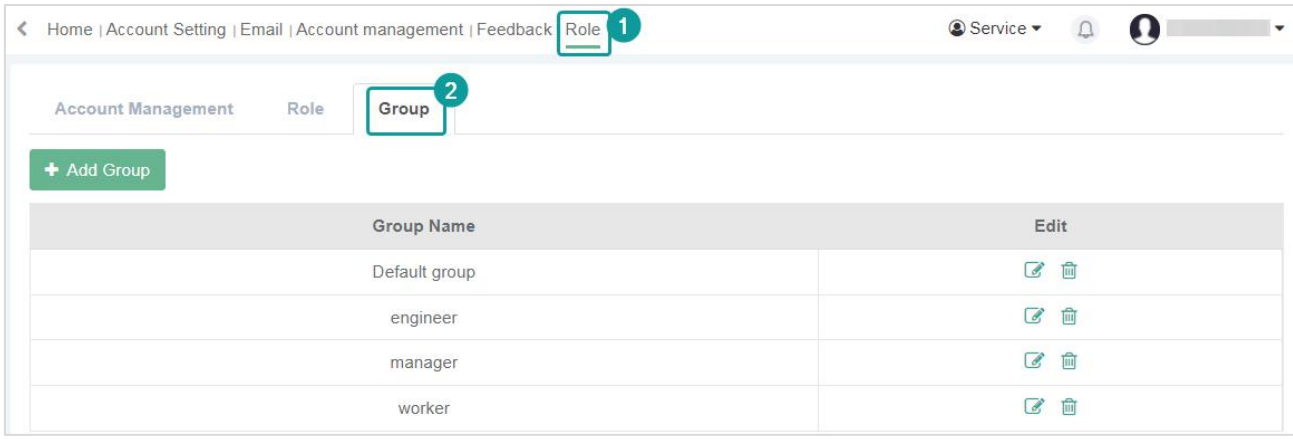


Figure 7- 2

On the group management page, users could add, modify, and delete groups.

① **Add group.** The group name could not be repeated and supports up to 16 characters.

② **Modify group**. Users could modify and edit account passwords, roles, and groups.

Delete a group. If there are sub-accounts under the group, it is not allowed to delete the group.

7.4 Role management

Click the switch menu [Role Management] to perform role management. The left side is the list of created roles, and the right side is the detailed configurations of the currently selected role.

The role has the authority to configure V-BOX and HMI. If the sub-account is bound to a role, the sub-account would have all the authorities configured by the role, and could also configure the real-time data read and write permissions, as shown in the following figure.

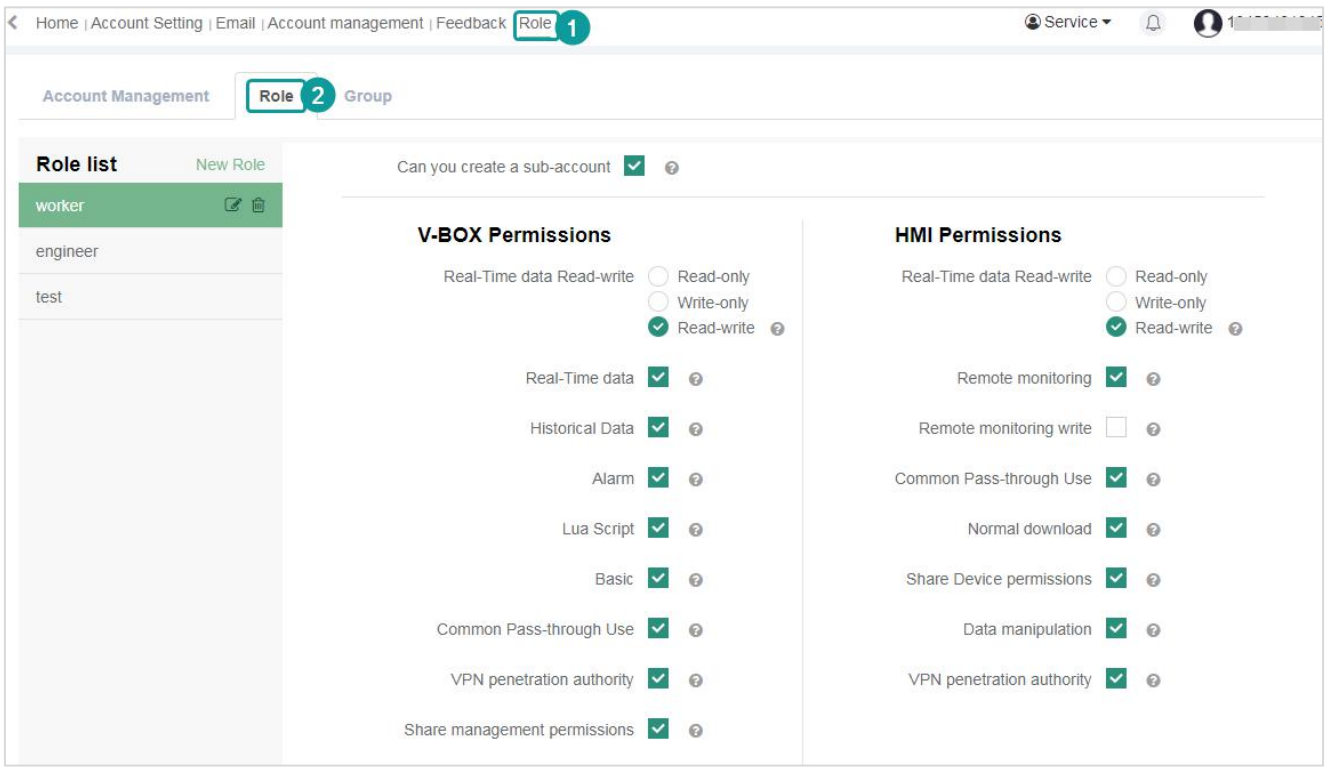


Figure 7- 3

7.4.1 New role

Click the [New Role] on the left to add a role, as shown below.

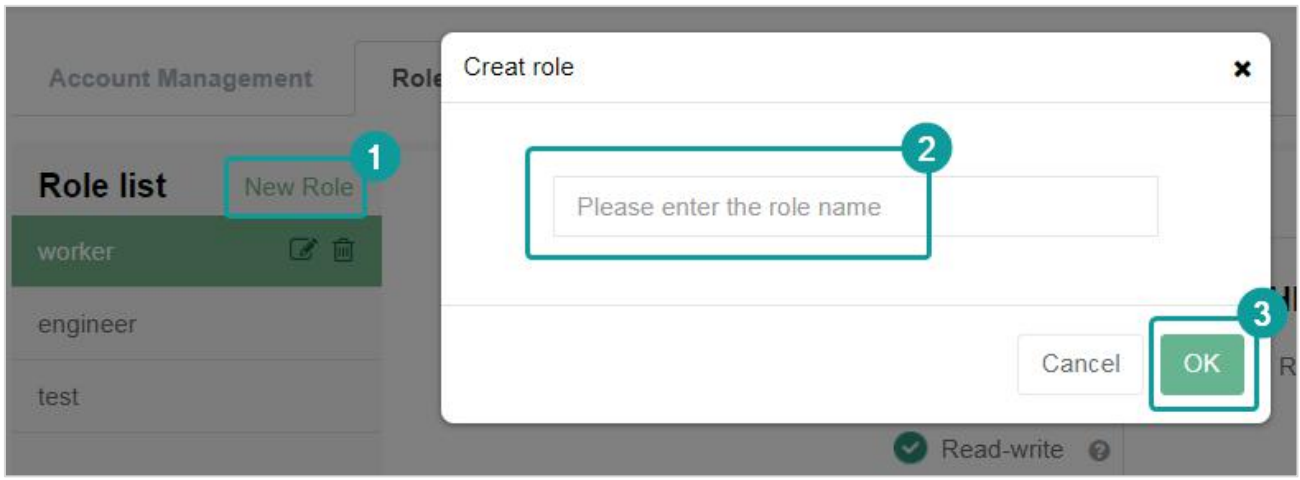


Figure 7- 4

✎**Note:** A maximum of 100 roles could be created. It needs to create at least one role before creating a subaccount.

7.4.2 Configure role permissions

Click a role in the role list to configure the detailed permissions of the role on the right, as shown below.

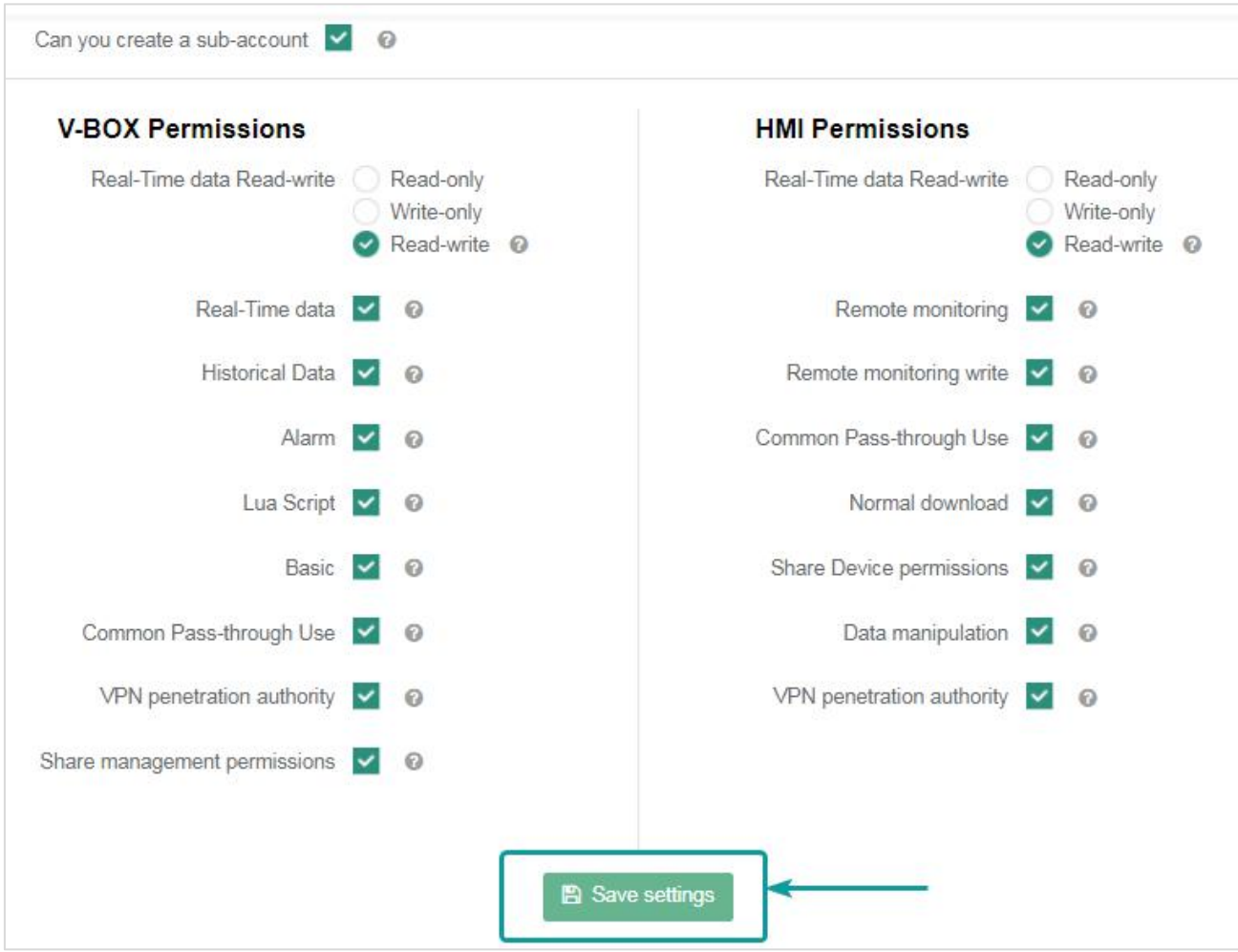


Figure 7- 5

The following table lists the description of the role that has the permissions configuration of the V-BOX and the HMI. Uses could also move the mouse to the icon behind the configuration item on the platform. After configuring the role permissions, click the button Save settings to save the modified role permissions. The specific permissions configuration are as follows.

V-BOX permission configuration	
Permission configuration item name	**Description**
could you create a sub-account	To configure whether the account belonging to the role could create a sub-account and assign a V-BOX device.
Real-time data read- write	To configure the read and write permissions of the data monitoring point of the V-BOX, including read-only, write-only, and read-write functions.
Real-time data	To configure the basic operational functions of the real-time data of the

	V-BOX (add, delete, modify real-time monitoring points, etc.).
Historical data	To configure the basic operational functions of the historical data of the V-BOX device (deleting original data, data registration, etc.) .
Alarm	To configure the basic operational functions of the alarm record of the V-BOX (confirm alarm data, alarm registration, etc.).
Lua script	To configure the basic operational functions of the Lua script of the V-BOX (add, delete, edit strategy, synchronization strategy, etc.).
Basic	To configure the operational functions of the basic information module of the V-BOX (modify the V-BOX information, copy the configuration, import the configuration, restart the V-BOX, synchronize the V-BOX, add communication ports, firmware upgrades, etc.).
Common Pass-through Use	To configure whether the V-BOX under the account belonging to the role has the permission of pass-through.
VPN pass-through authority	To configure whether the V-BOX under the account belonging to the role has the permission of VPN pass-through. After configuration, it would directly affect the permissions of the account that the role belongs to and all sub-accounts of the role.
Share management permissions	To configure whether the account belonging to the role has the permission to share the V-BOX.
HMI permission configuration	
Permission configuration item name	**Description**
Real-time data read- write	To configure the read and write permissions of the data monitoring point of the HMI, including read-only, write-only, and read-write functions.
Remote monitoring permissions	To configure whether the account belonging to the role has the functions of remote monitoring operation，including write.
Common Pass-through Use	To configure whether the account belonging to the role has the function of pass-through.
Normal download	To configure whether the account belonging to the role has the function of normal download.

Share device permissions	To configure whether the account that belongs to the role has permission to share the HMI.
Data operation authority	To configure the basic operational functions of the data operation of the HMI (confirmation and deletion of alarm data, deletion of historical data, operation buttons on the basic information page, etc.).
VPN Pass-through	To configure whether the V-BOX under the account belonging to the role has the permission of VPN pass-through.

✎**Note:**

① The configuration would directly affect the module operation permissions of the account to which the role belongs and all of its sub-accounts.

② [Disable]. This operation means that the account belonging to the role and all its sub-accounts would not be able to create sub-accounts or assign V-BOX and ig screen to sub-accounts.

③ [Enable], This operation means that only the configuration of the account belonging to the role is enabled, and the permissions of all sub-accounts of the account need to be enabled by the sub-account.

7.4.3 Modify the role name

Click the button  behind the current role in the role list to modify the name of the role.

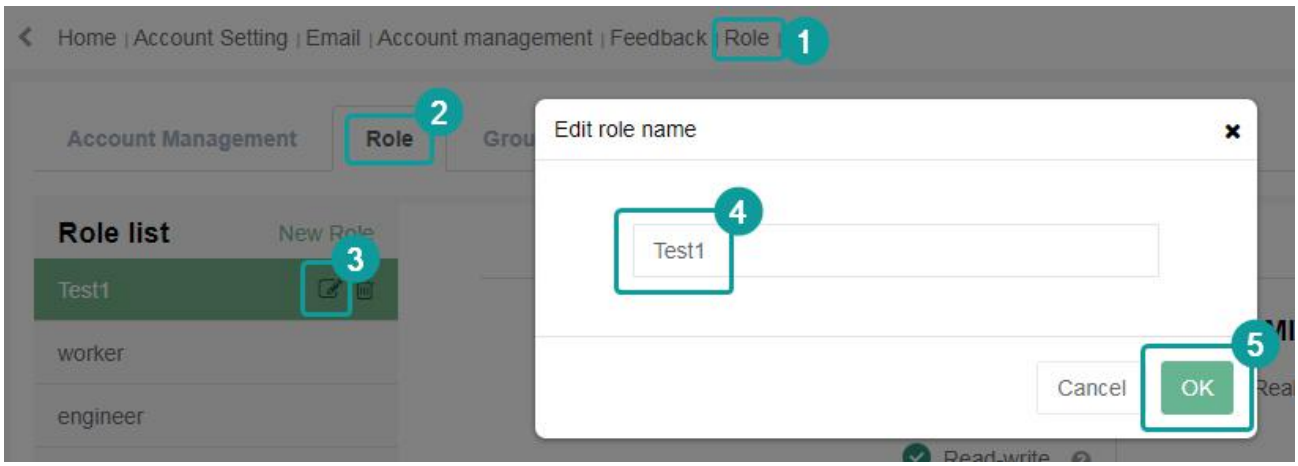


Figure 7- 6

7.4.4 Delete the role

Click the button  behind the current role in the role list to delete the role. After the role is deleted, it could not be restored.

✎**Note:** If an account belongs to the role, all the accounts that the role belongs to need to be removed before deleting it.

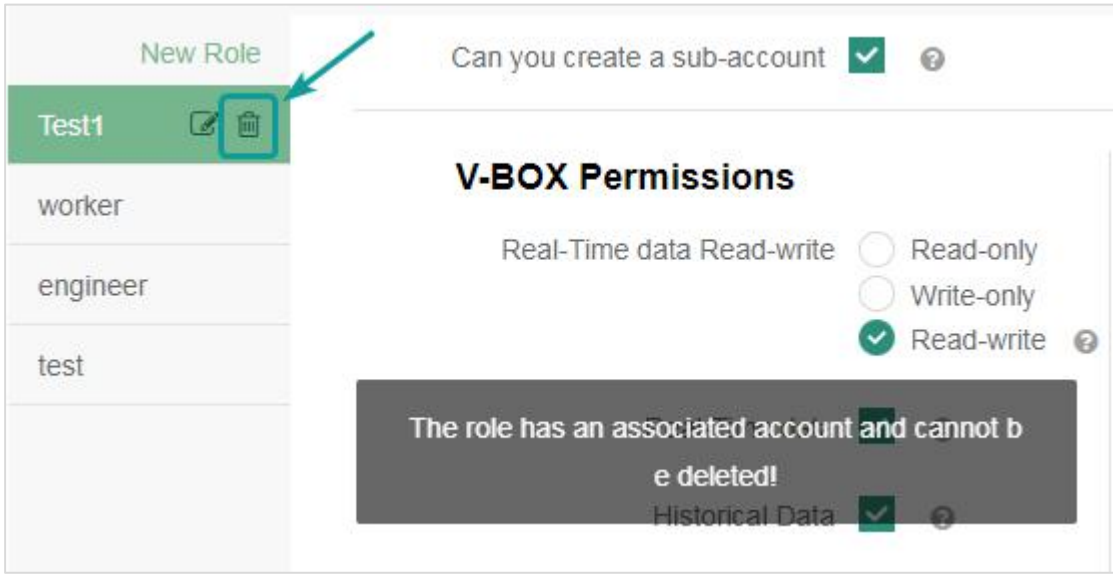


Figure 7- 7

7.5 Account Management

After adding groups and roles, users could add sub-accounts. Click the switch menu [Account Management] to manage the sub-accounts of the current account, as shown below.

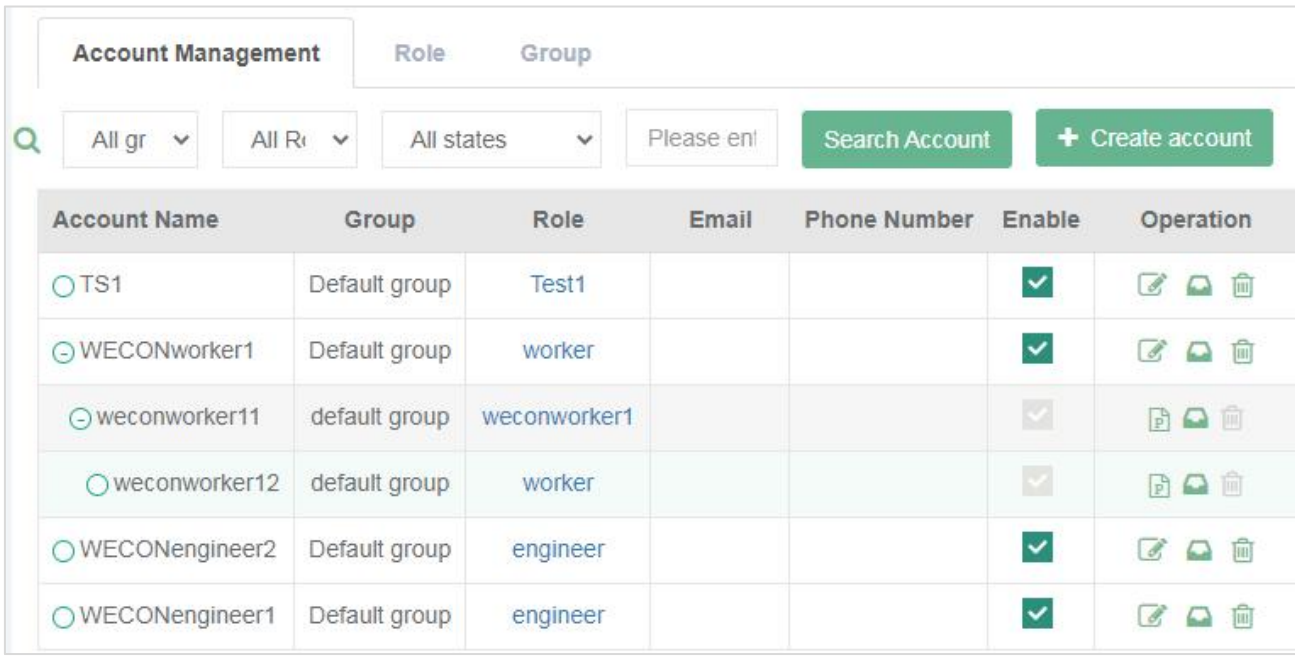


Figure 7- 8

7.5.1 Create an account

Click the button 

on the right to create a sub-account of the current account, as shown below :

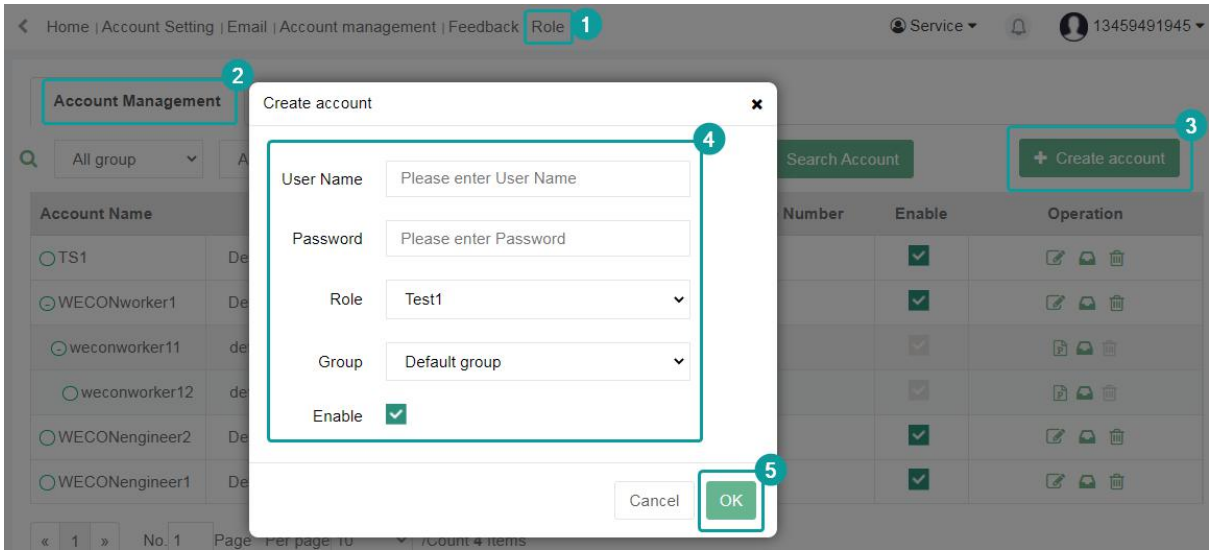


Figure 7- 9

① User name. Create the name of the account. The user name is 1-20 characters in length and could only consist of letters, numbers, and underscores.

② Password. The length of the password could not be less than 6 digits.

③ Role and group. Please configure roles in [Role Management] and configure groups in [Group Management] before creating an account.

④ Enable. Select the enable means that the account could log in normally, otherwise, it is prohibited to login.

7.5.2 Account list

The created account could be displayed in the account list. The current account could only create up to 100 sub-accounts.

All the sub-accounts and all the detailed information of the sub-accounts created by the sub-account could be viewed in the account list.

Accounts in role management currently include administrator account and support 5-level accounts. The account management page of administrator account is shown below:

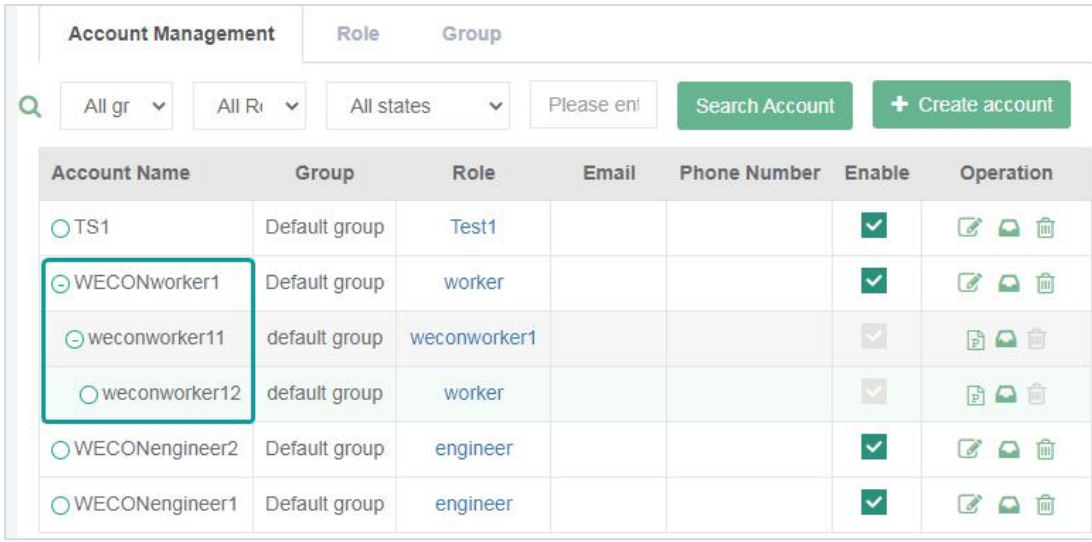


Figure 7- 10

Users could click the icon in front of the account name to shrink and expand sub-accounts and to view sub-accounts. The meaning of each icon is shown in the table below.

Icon	Description
	This sub-account has no sub-accounts.
	This sub-account has sub-accounts and is in contraction, and could be expanded after clicking.
	This sub-account has sub-accounts and is in an expanded state, and could be contracted after clicking.

Table 7- 2

7.5.3 Modify sub-account

Click the button behind the sub-account created by the current account in the account list to modify the details of the sub-account, but the username could not be modified.

Expand the multi-level list of all sub-accounts of a sub-account to view all sub-accounts of the sub-account. Click the button could view details about the sub-account, but could not modify the sub-account.

✎Note: The current account could only modify the sub-account information created by it. For all the sub-accounts created under the sub-account, it could only view but not modify it.

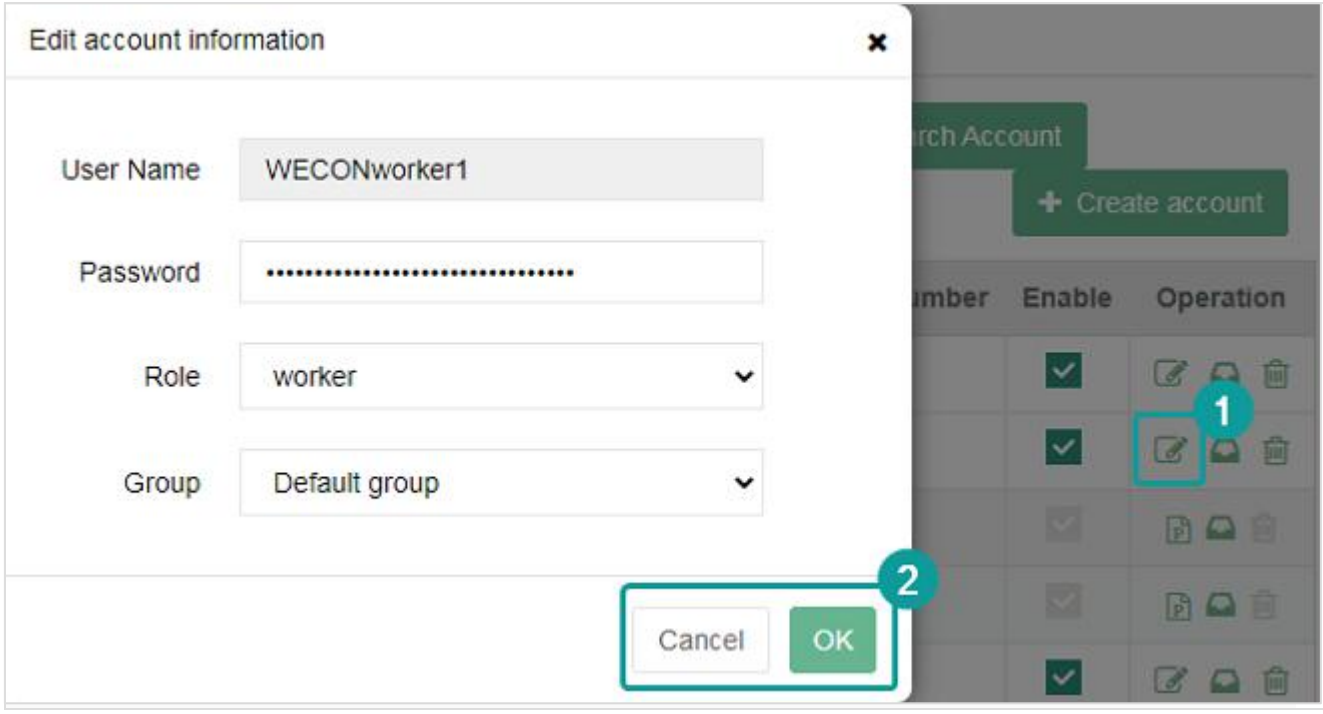


Figure 7- 11

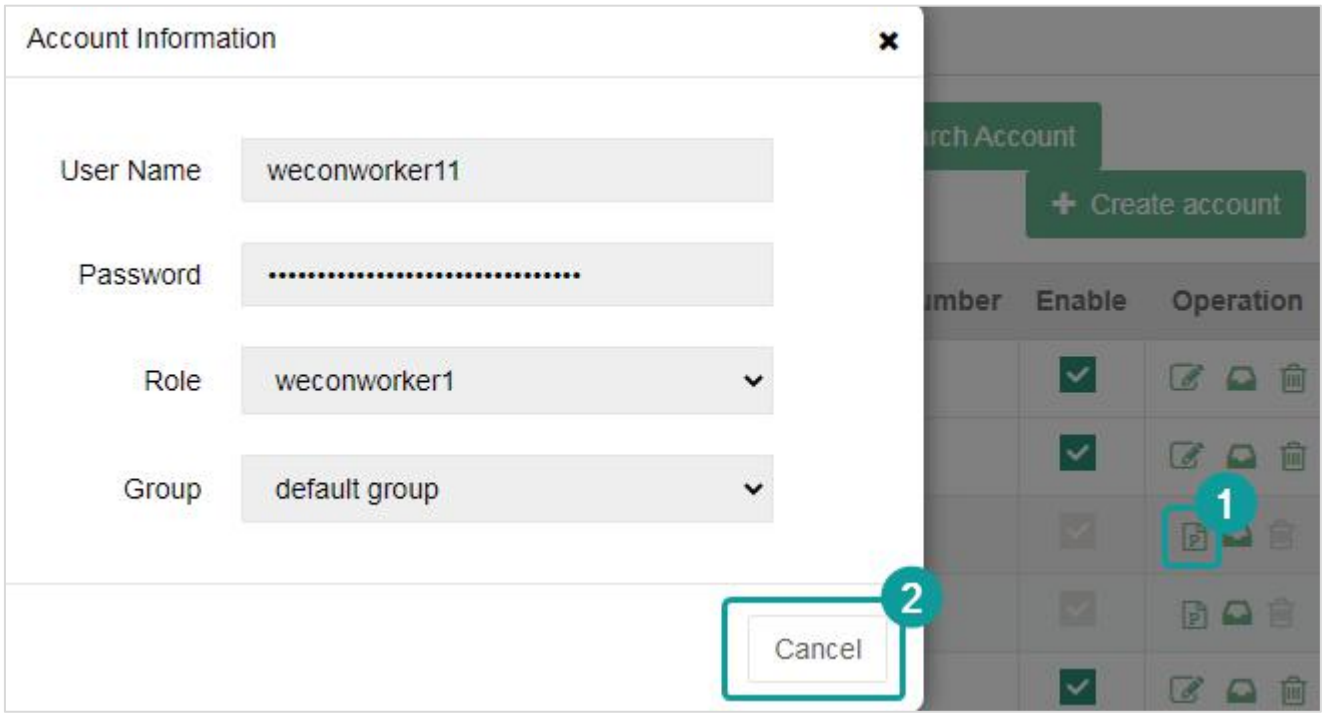


Figure 7- 12

7.5.4 Delete sub-account

Click the button next to the role to delete the role. After the role is deleted, it could not be restored. Users could only delete the information about the sub-accounts created by themselves, but could not delete the sub-accounts across the levels, and the delete button is grayed out and could not be operated. Remove all the sub-accounts of the sub-account and unbind all the assigned V-BOXs and ig screens to delete a sub-account.

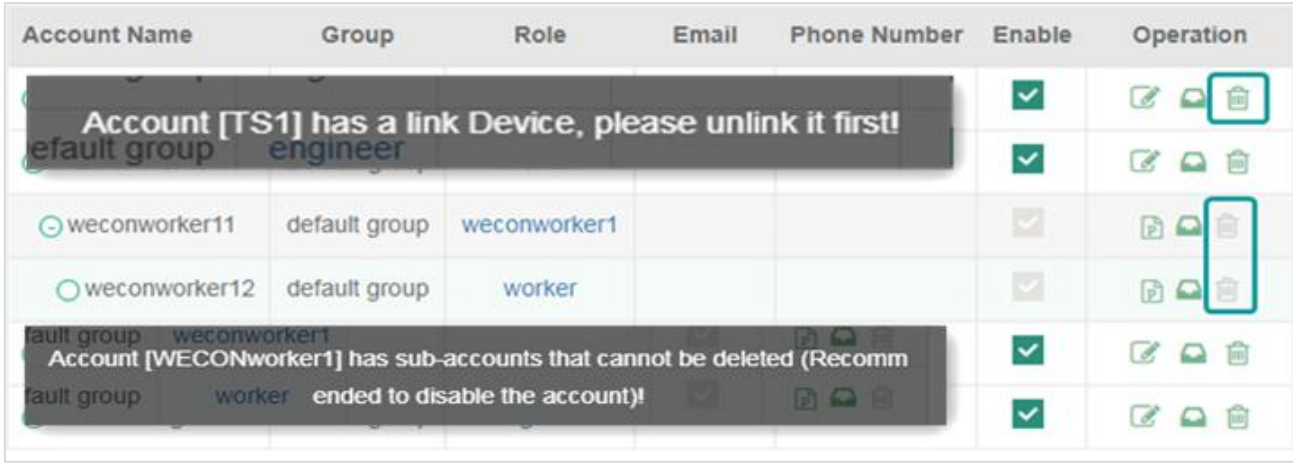


Figure 7- 13

7.5.5 Assigned devices

Click the button  behind the sub-account, users could view the assigned devices for the sub-account. Click the button  , and select the device to assign the devices to the account in the pop-up box, and click OK, the assignment is complete. as shown below.

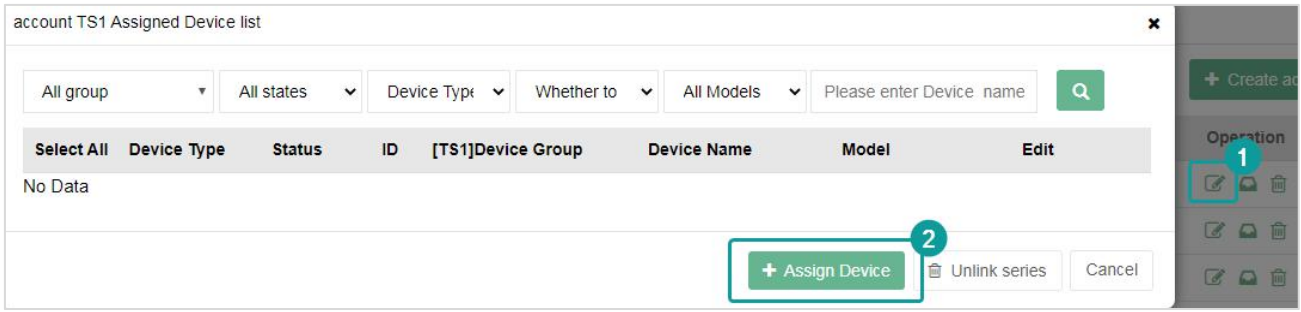


Figure 7- 14

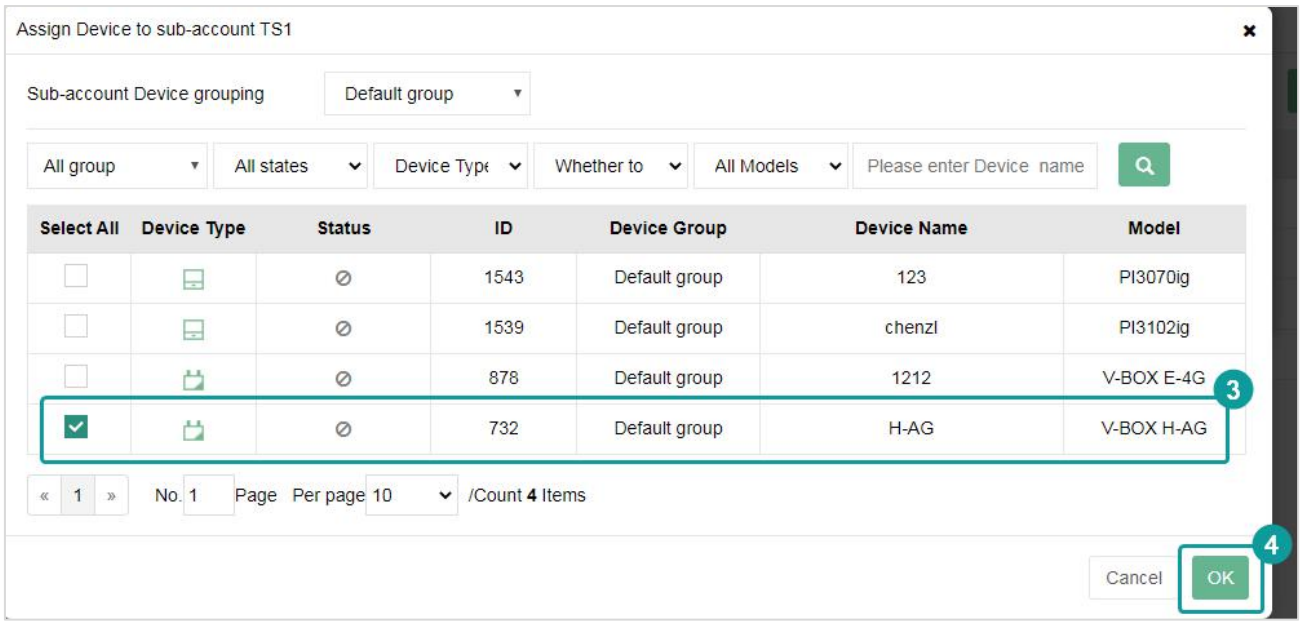


Figure 7- 15

① Before assigning V-NET devices, users need to select the sub-account device group, and the device would be assigned to the account.

② Users could search for the corresponding V-NET device through the search bar.

✎**Note:** The current account could only assign V-NET devices to sub-accounts created by itself. For all sub-accounts created by sub-accounts, the account couild only view the list of assigned V-NET devices, but could not assign V-NET devices.

7.5.6 Unbind devices

In the list of assigned V-NET devices, users could click the button  and

button 

to unbind the selected V-NET device from the account. If a certain device to the sub-account is unbound, it would also unbind the devices assigned to all sub-accounts created by the sub-account.

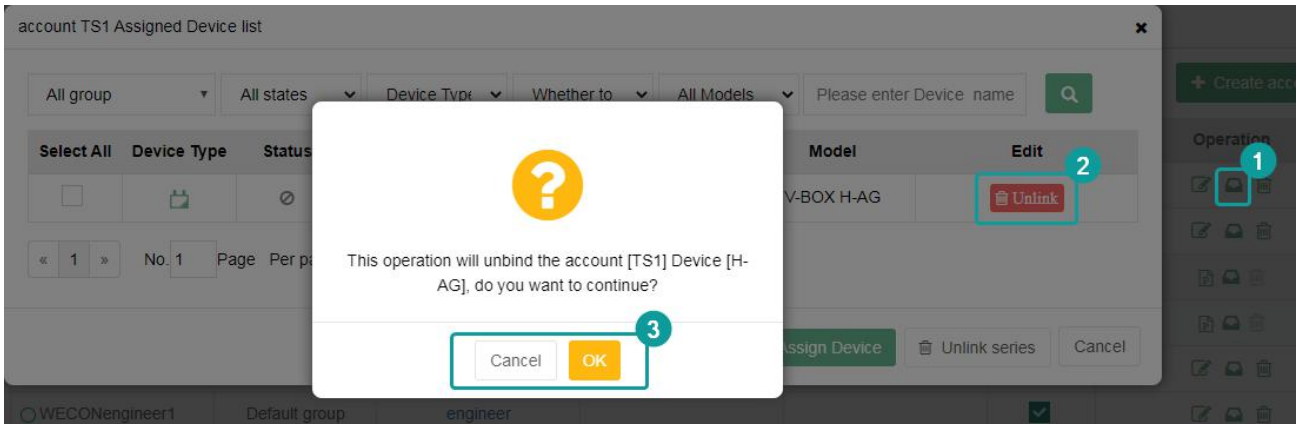


Figure 7- 16

Chapter 8 HMI ig series configuration

8.1 Connect ig screen to V-NET

8.1.1 Add ig screens

When logging in to the V-NET for the first time, users need to add an ig screen and bind it with the account. The account bound to the ig screen is called the "administrator account". A device could only be bound to one account, that is, the administrator account is unique.

When binding an ig screen, users need to know the machine code and password of the device, and enter the device name and set group. All the devices added by the administrator would be placed in the “default group” by default. If the administrator has created a device group, the added devices could also be modified to other groups.

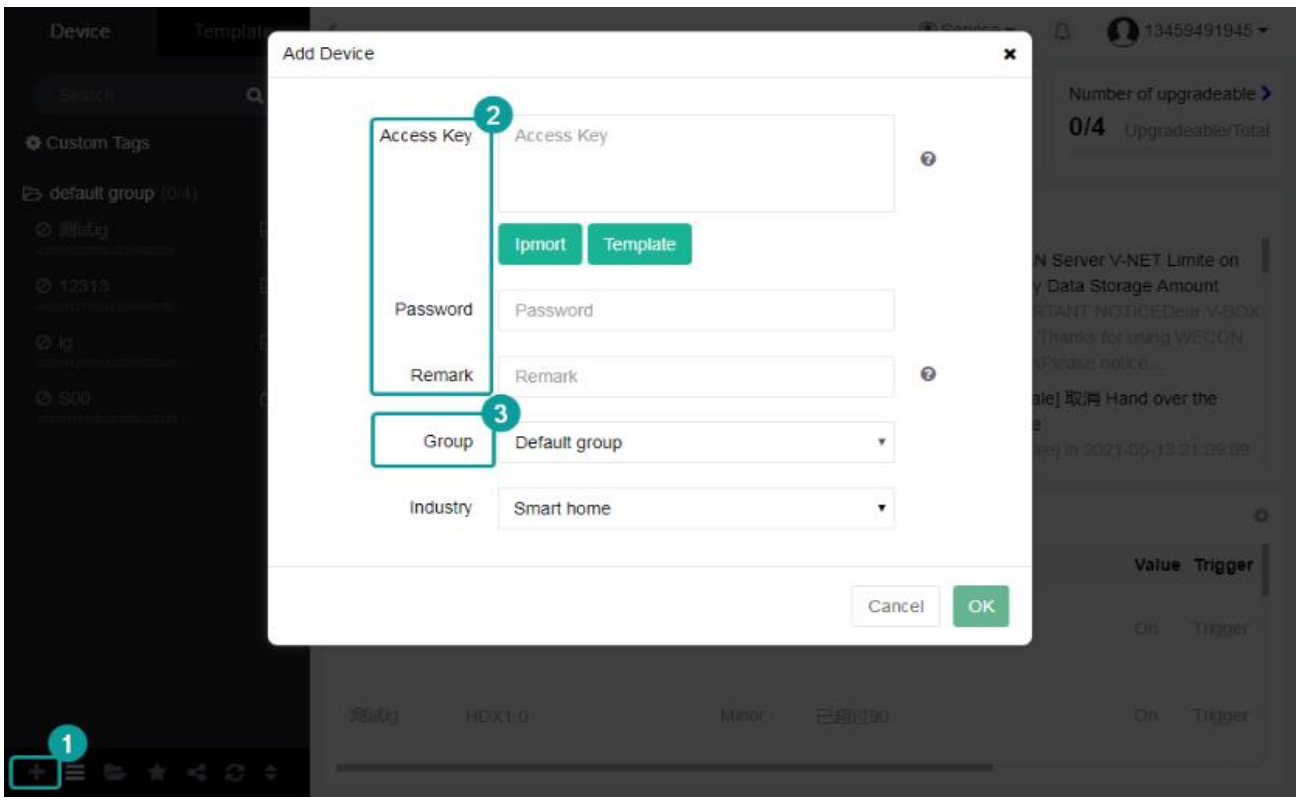


Figure 8- 1

(1) Access key(machine code). Each ig screen has a unique machine code for remote monitoring equipment identification. If multiple V-BOXs or ig screens are bound at the same time, export the template to fill in the machine codes, and then import the form to bind.

(2) Import. Fill in the machine codes to the template file, and import it.

(3) Template. An export template file is an excel form named "batch_mould" with the format to input machine codes.

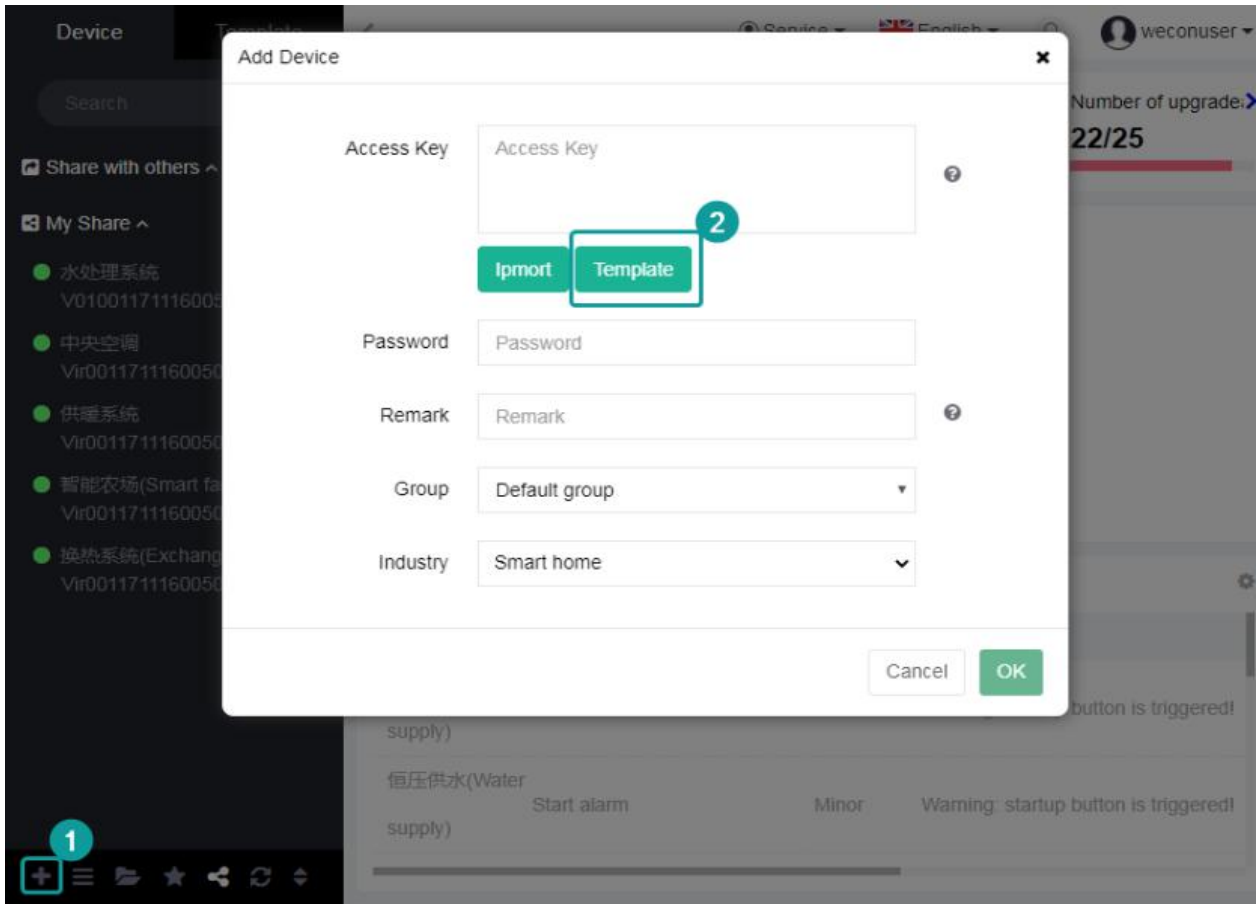


Figure 8- 2

✎**Note:** The content of the template file should only be header and machine codes, and all the other contents need to be deleted.

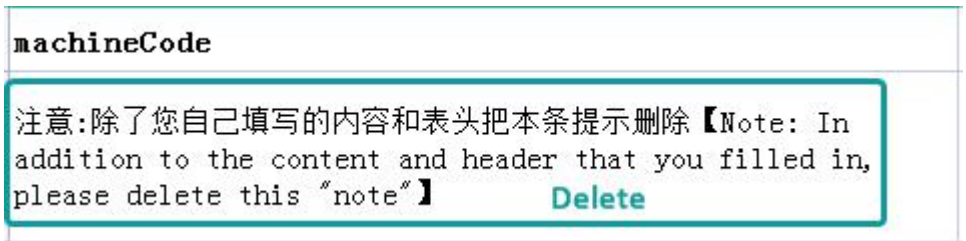


Figure 8- 3

(4) Password. The default password is 888888, and it is the cloud access password. Binding device password for the first time, please refer to the configuration software "PIStudio" [cloud configuration].

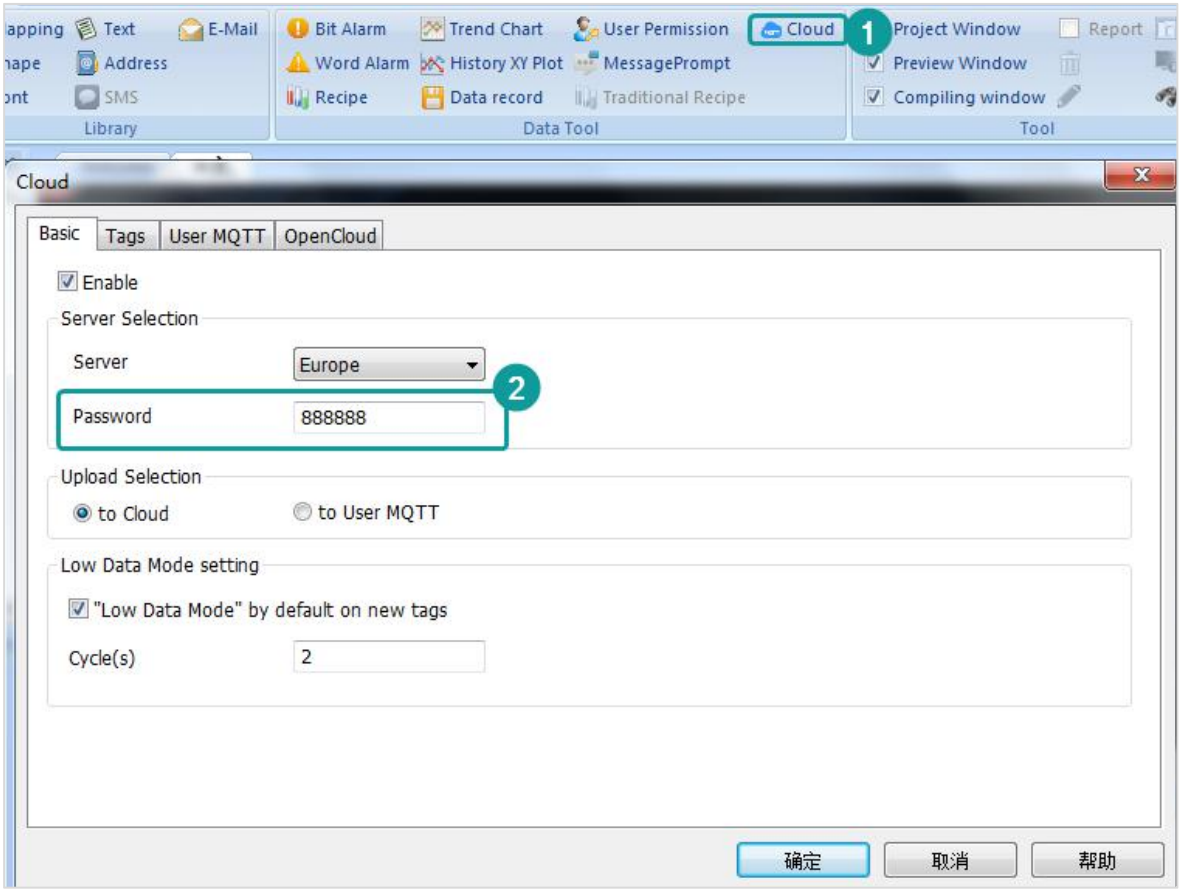


Figure 8- 4

(5) Device alias. It is the device name in the device menu bar.

✎Note:

① If the user binds multiple devices at the same time, the passwords of the devices should be consistent. Only one machine code could be entered on a line. When entering multiple machine codes, use the "Enter" key to change the line. If not, the format is wrong, and the binding would fail and an error would be reported.

② If the user binds multiple machine codes in batches, the device alias would use the input device name as the prefix, and the system would automatically add a suffix. Example: Default group (device alias)_1 (automatically added suffix)

8.1.2 Obtain machine code

The method of obtaining the machine code is as follows.

(1) PIStudio—[Project]—[Tool]—[Download]—copy the machine code, as shown below.

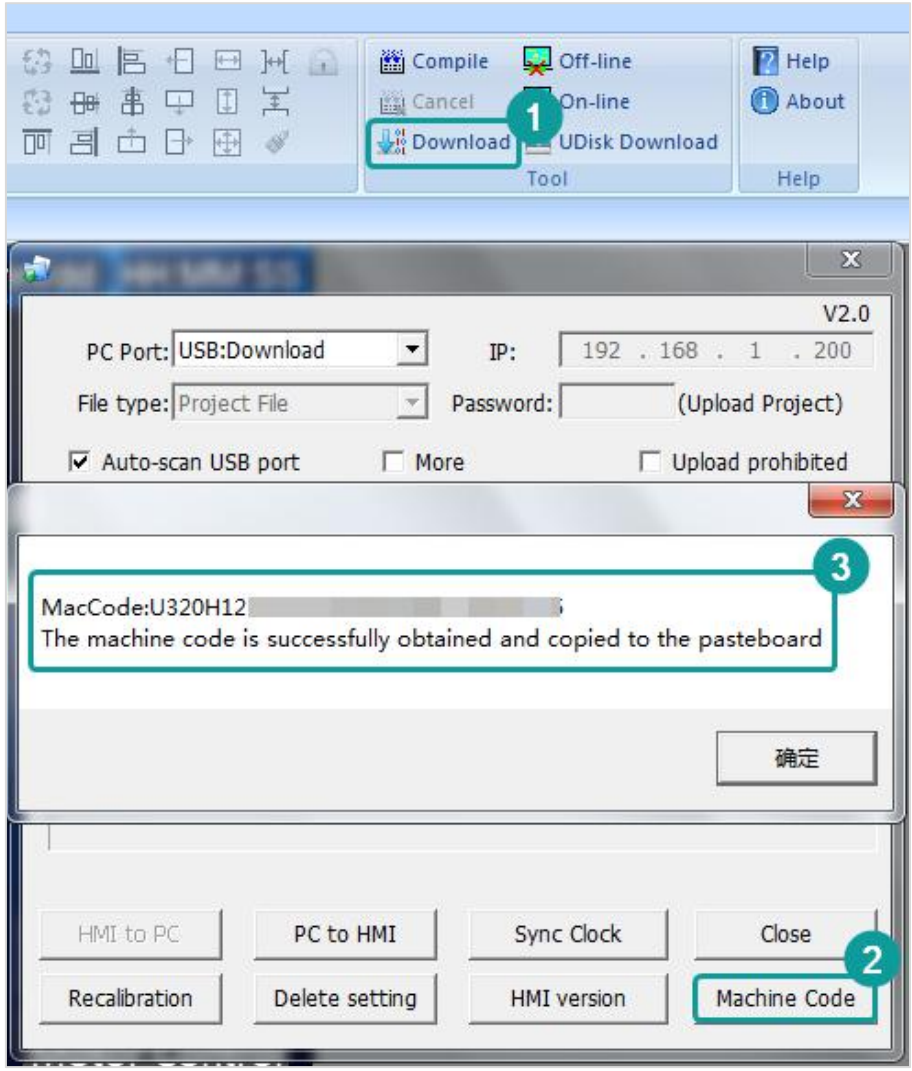


Figure 8- 5

(2) Obtain from the ig screen. Long press the upper right corner of the HMI to enter the backstage, and Users could see it in "Machine Info" [Machine Id], as shown below.

Figure 8- 6

8.1.3 Basic information

After the administrator adds a device, click on a device from the device list on the left side to enter the device details page. The page includes four sub-pages: “Remote monitoring", “Data view", “Pass-through", and “Basic", as shown in below.

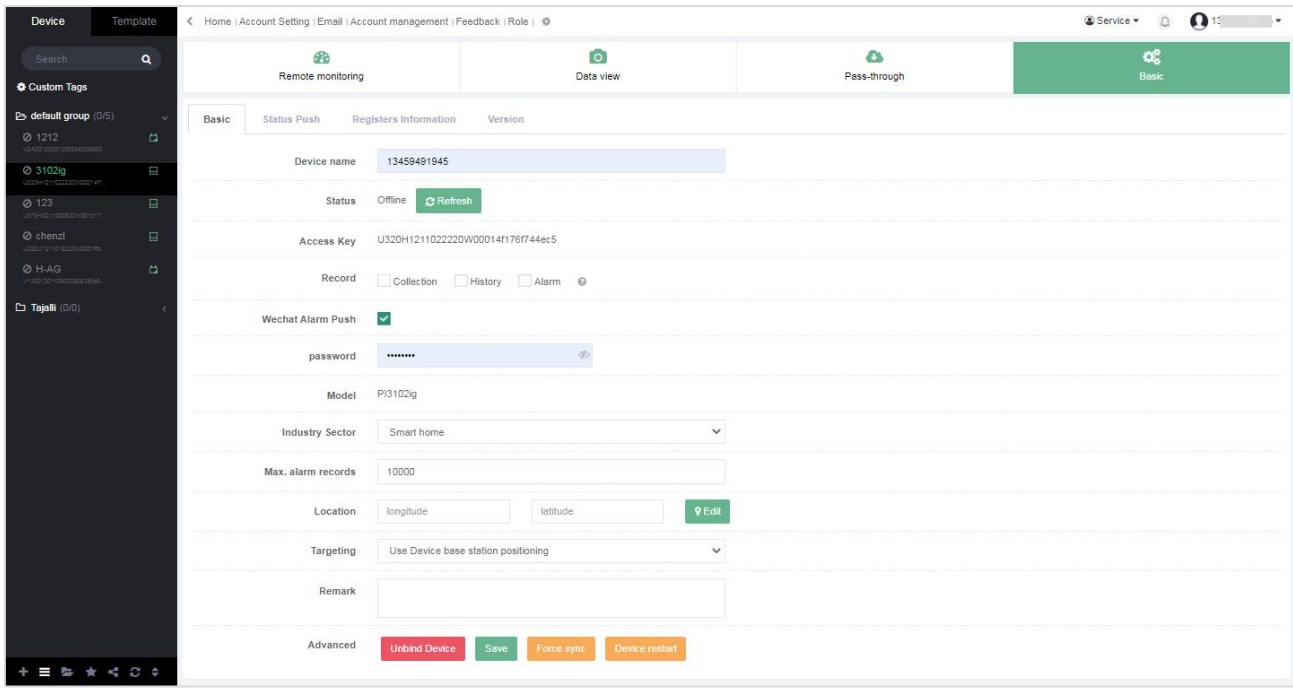


Figure 8- 7

In the "Basic Information" sub page of basic configuration, users could also manage the device information, such as modifying the device name, latitude and longitude, and remarks. After the user inputs modified information, and the input data is legal, click the "Save" button at the bottom. then it would be modified successfully.

(1) Device name. The alias of the HMI device in the device menu bar.

(2) Online status. Click the refresh button to refresh the online status of the HMI.

(3) Machine code. Each HMI has a unique and independent machine code for the identification of the remote device.

(4) Record. The selected configuration and data would not be updated when the HMI project is downloaded again.

The configured data is collection point information, alarm data, and data record data on the IG screen. That is, the selected configuration would not be updated to the cloud with the ig screen at the same time. The project on the tHMI actually has the configuration.

If users want the cloud and ig screen configurations to be the same, deselect and save the modification, and download the project again or force to synchronization.This operation is to delete all configurations on the cloud and synchronize the configurations on the screen to the cloud.

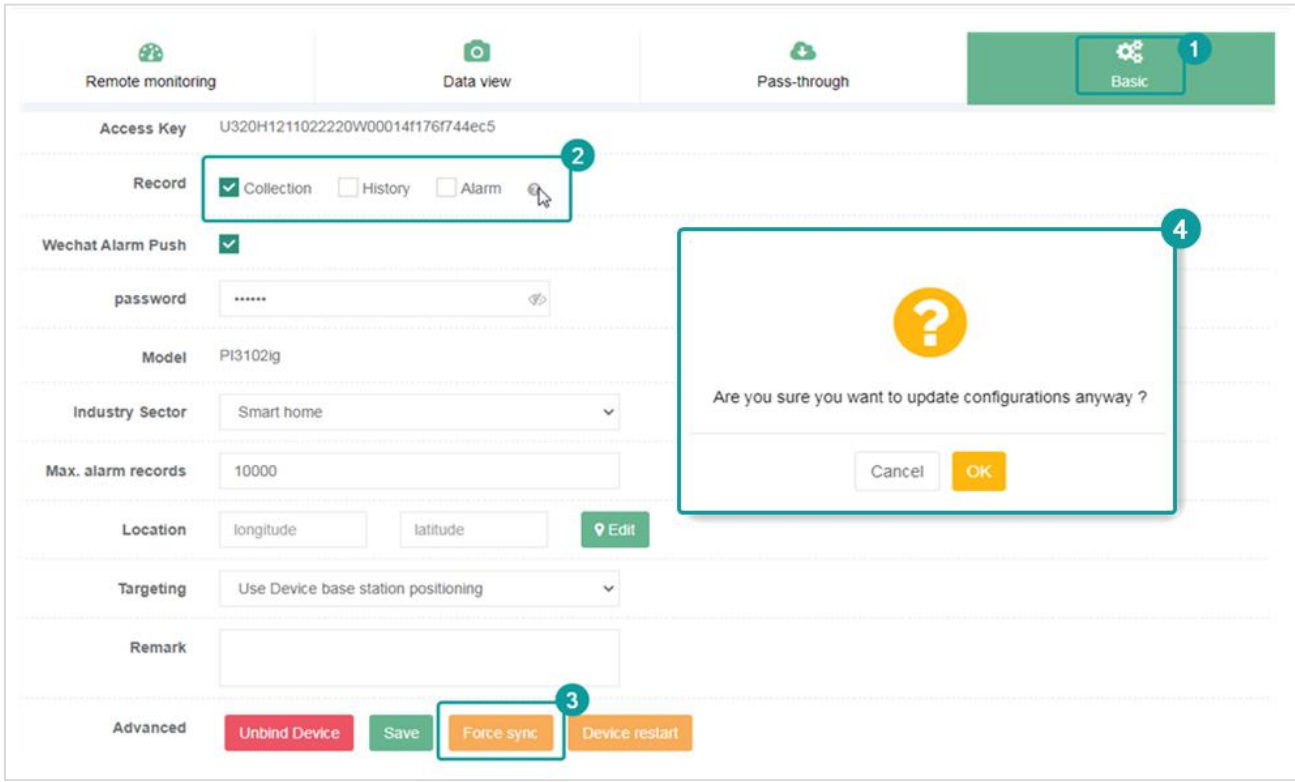


Figure 8- 8

(5) Password. It is the cloud access password, the default is 888888, and it could be modified.

(6) Maximum storage of alarm data. The number of alarm data stored is with a range of 1-50000.

(7) Positioning method.

1) Device base station positioning.
2) Manual positioning.

(8) Unbind the device. Administrator could click the button Unbind Device to unbind the device.

(9) After modifying the basic information of the device, users need to click the button Save to save it successfully. If the save is not successful, click Force sync

8.1.4 Status Push

In the "Status Push" interface under "Basic ", users could set the ""Email Notification" settings. For details, refer to **4.1.5 Status push(Email)**

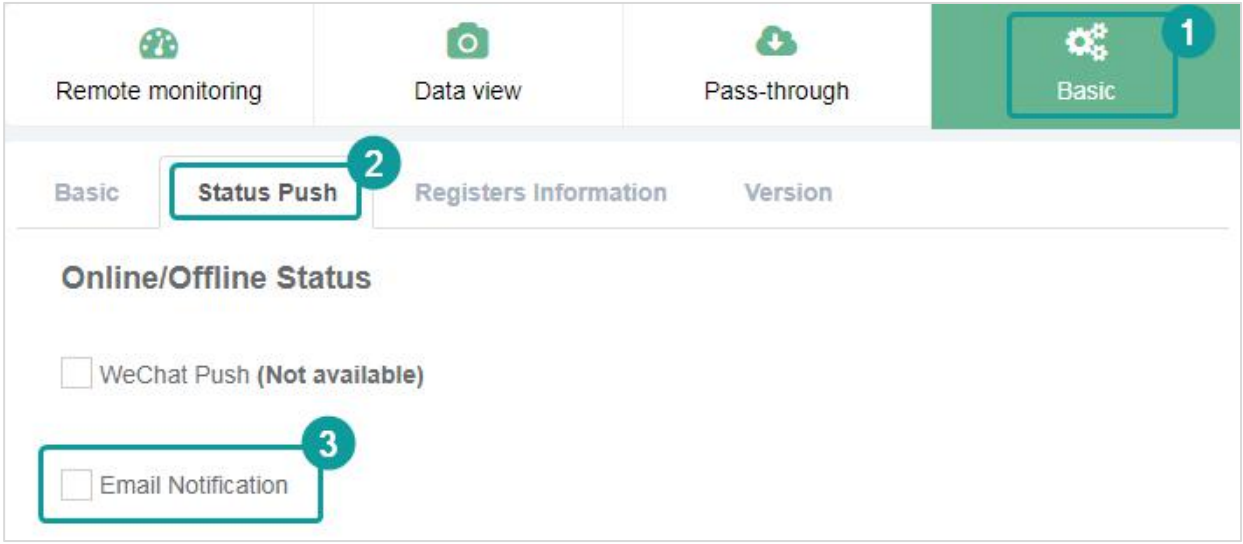


Figure 8- 9

8.1.5 Registers Information

In the “Registers Information" page, users could view the machine code or IP address of the device, Wi-Fi IP, 4G IP and other information, as shown below.

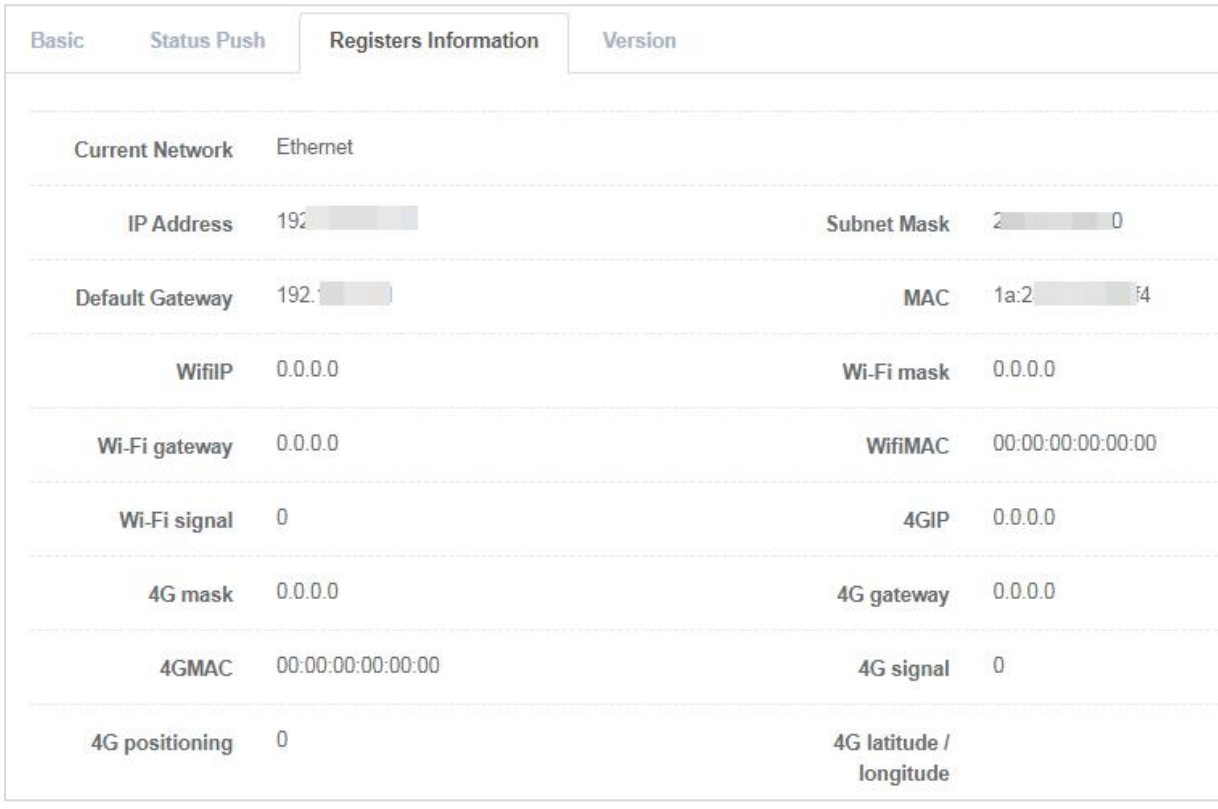


Figure 8- 10

8.1.6 Version

As the product is in the pace of continuous updating, the functional attributes of the device could be judged based on the version information. As shown below.

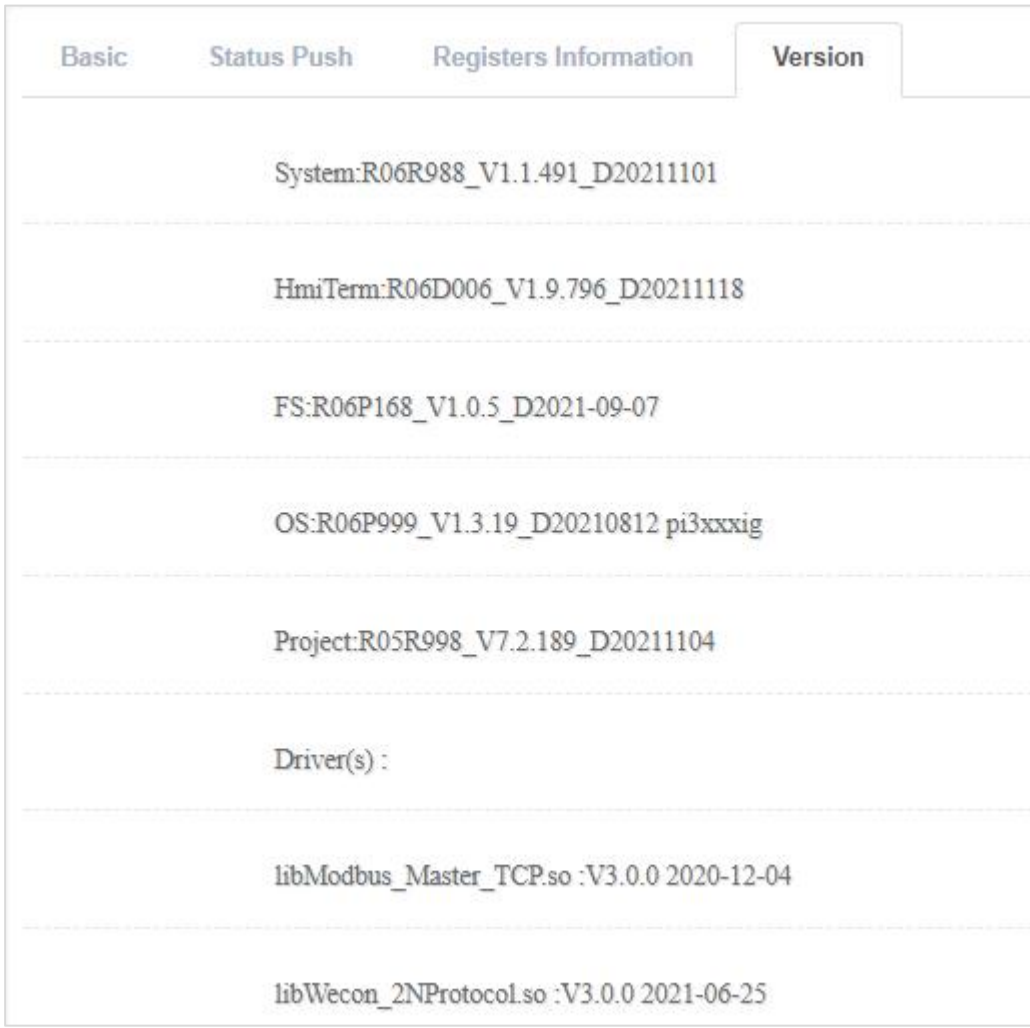


Figure 8- 11

8.2 Device List

The main function of the device module: **Multi-level device list, Custom monitoring point, Search device, and Toolbar.**

The multi-level device list displays all the devices under the account, and displays it in the form of a multi-level grouped tree menu. After selecting the device  , it would automatically jump to the functional interface, including **Remote monitoring, Data view, Pass-through, and Basic**. As shown below.

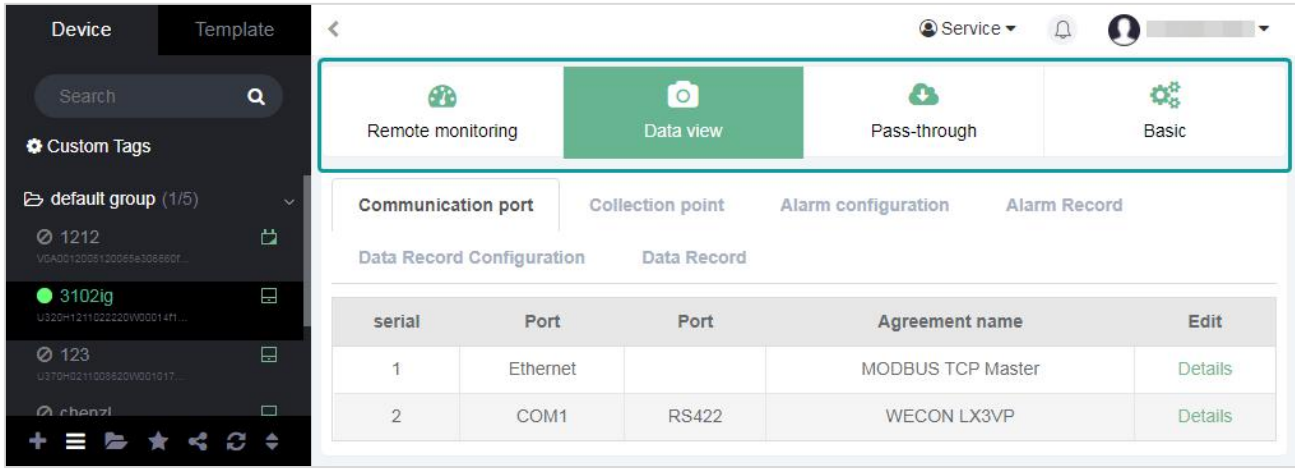


Figure 8- 12

When the mouse is located on a device name under a multi-level group, right-click the mouse to display a drop-down list, which includes functions such as Follow, Share Device, Move Group, Copy Access Key, Transfer, Pass-through, Mark on map, etc., as shown in Figure 8- 10 shows:

Position the mouse on the multi-grade group name, right-click the mouse to display a drop-down list, including **Follow, Share Device, Move Group, Copy Access Key, Transfer, Pass-through, Mark on map**. As shown in the following figure.

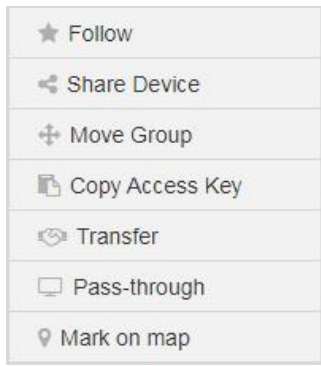


Figure 8- 13

(1) Follow. Select the device in the list and right-click, then click [follow] to add the devices, Users need to focus on to the list, and the followed ig screen could be viewed in the "My Follow" list, right-click and select “cancel follow” to delete it. As shown in the following figure.

(2) Share Device. Users could share the device with other accounts for viewing (only for viewing, not operating).

(3) Move Group. Modify the group to which the device belongs, as shown below.

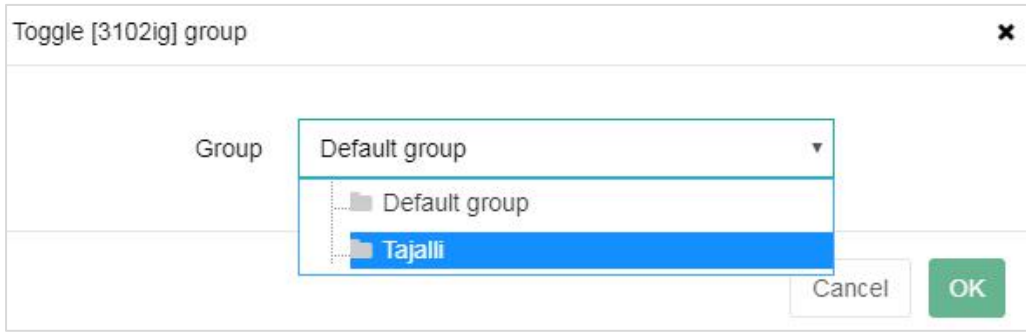


Figure 8- 14

(4) Copy machine code. Copy the machine code of the device.

(5) Transfer. Transfer the device to another account. After the other account agrees to receive it, the device would be bound to the account, and the device would be removed from the removed account. For details, please refer to [Transfer Device].

1) Remove device. When transfer the device to another account, Users need to fill in the information of the transferred user and the password of the device. The account information would appear if you fill in the right one. Confirm that the account information of the opposite is accurate and then transfer. As shown in Figure 8-12:

When removing the ig screen, users need to fill in the information of the transferred user and the password of the ig screen. The account information would appear if you fill in it correctly, and confirm that the information to transfer it. As shown in the following figure.

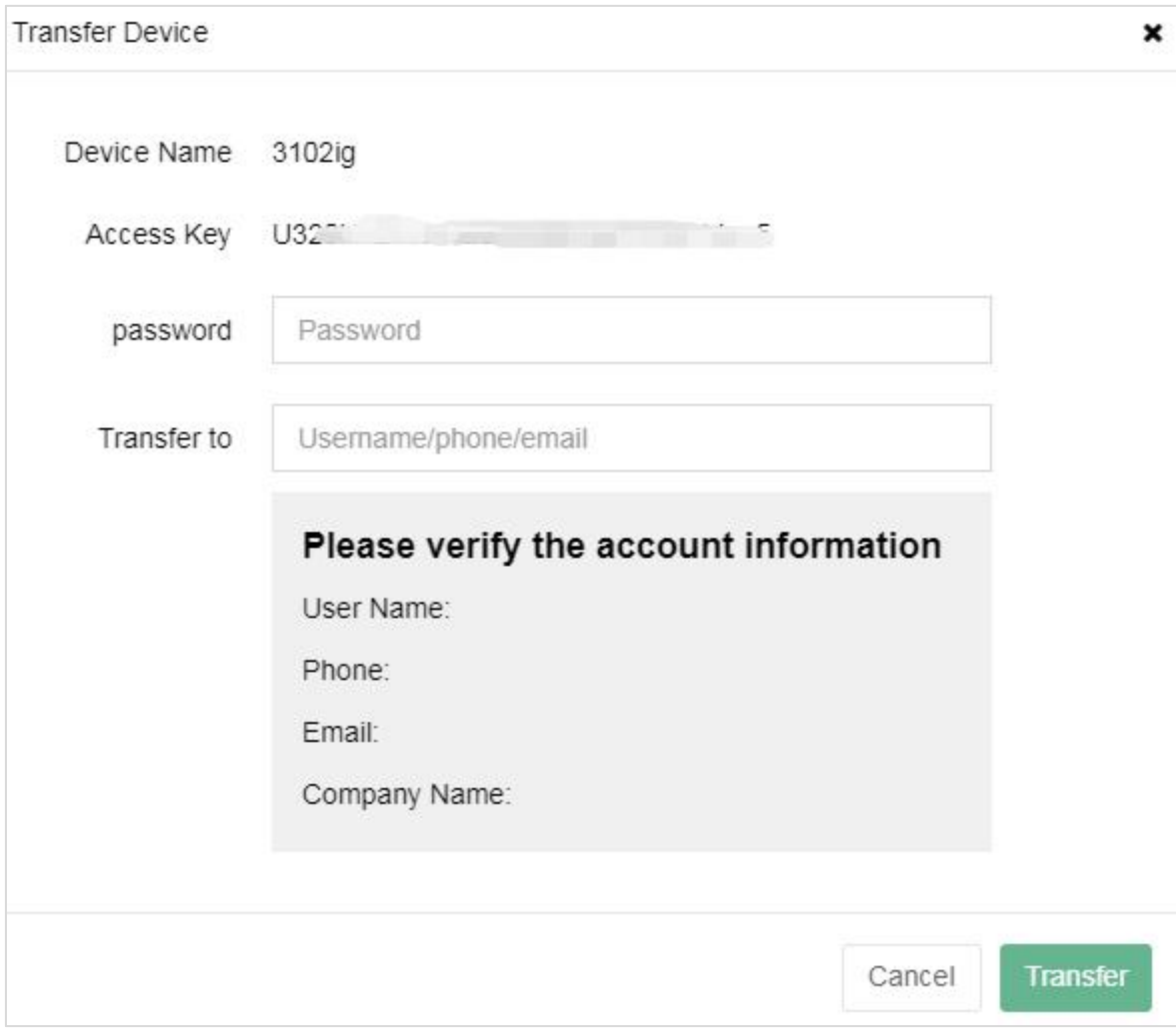


Figure 8- 15

2) Receive device. When receiving the ig screen, it needs to reset the name of the device and select the group.

(6) Pass-through. Select the device in the list and right-click, then click [Pass-through] to jump to the Pass-through page.

(7) Mark on map. Mark the new latitude and longitude on the map for the current device.

8.3 Remote Monitoring

Remote monitoring could display the project page of the current screen in real-time, and realize the operation of the project on the web page, remote monitoring of the screen, and the control of the screen, etc. As shown below.

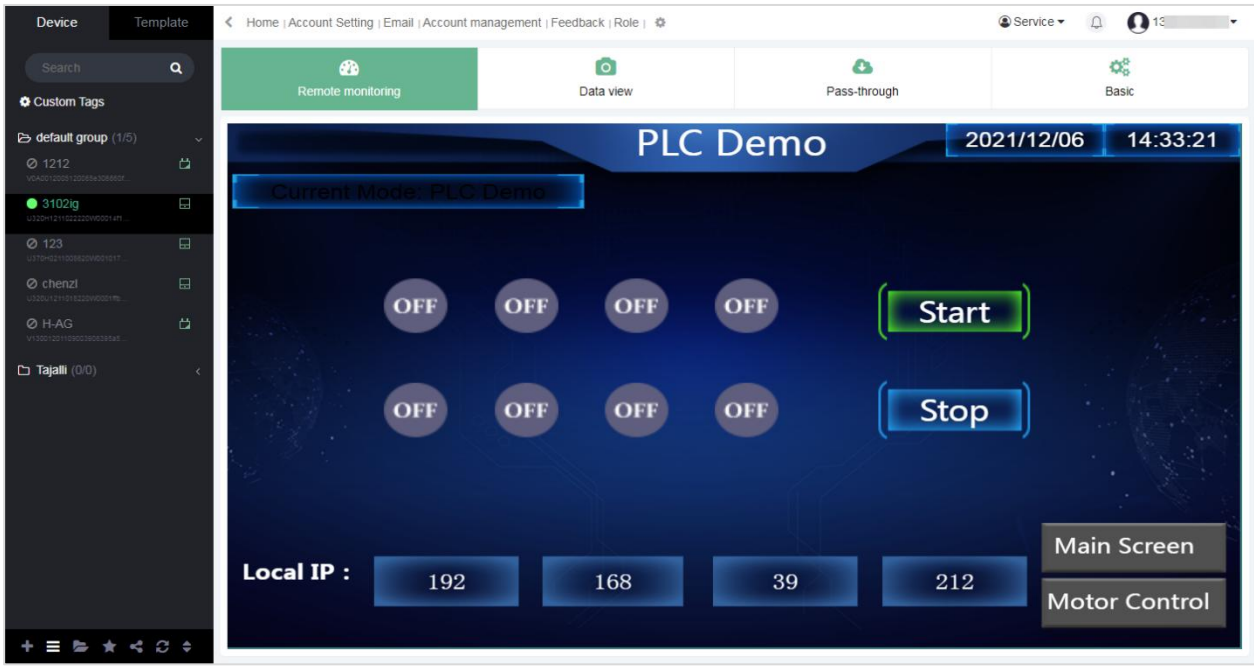


Figure 8- 16

(1) The remote monitoring screens of the Web+ ig screens could only display up to 4 screens at the same time. According to the priority of the user entering the remote monitoring interface, that is, when the fifth user access, there would be a prompt as below.

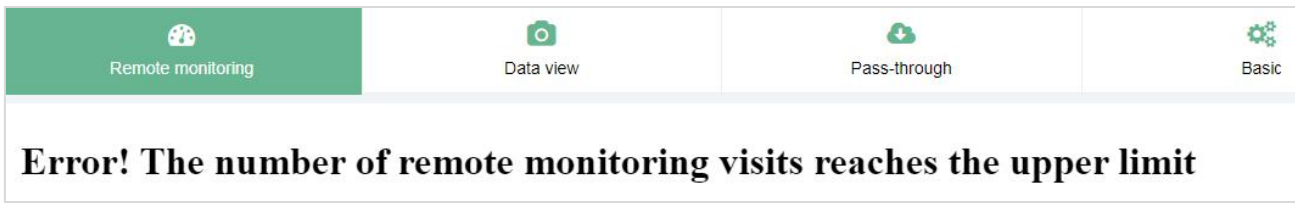


Figure 8- 17

(2) If the device is offline, it would display that the device configuration project could not be loaded successfully! As shown below.

Figure 8- 18

8.4 Data View

Data view has six modules, including **Communication port, Collection point, Alarm configuration, Alarm Record, Data Record Configuration, Data Record**. As shown below.

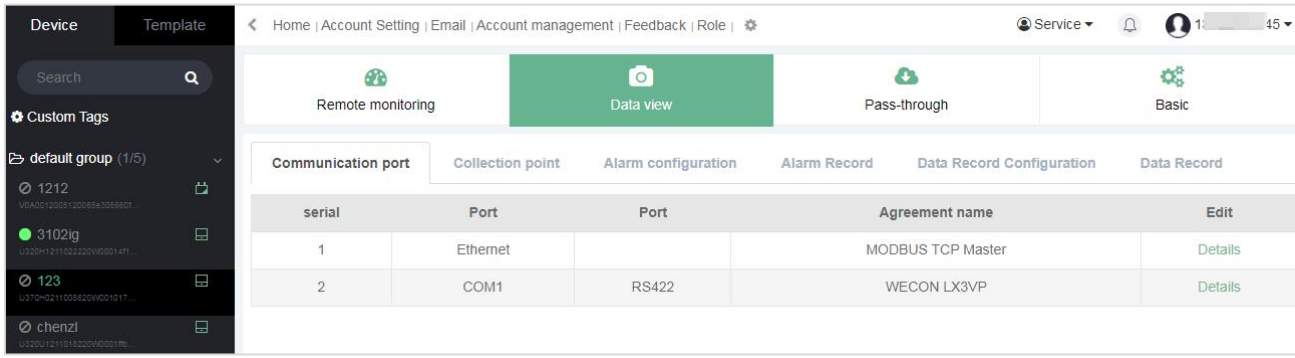


Figure 8- 19

The data and the configurations for data viewing are all from the configuration software PIStudio. The monitoring point could not be added to the V-NET account, and the cloud function should be enabled first. The operation is as below.

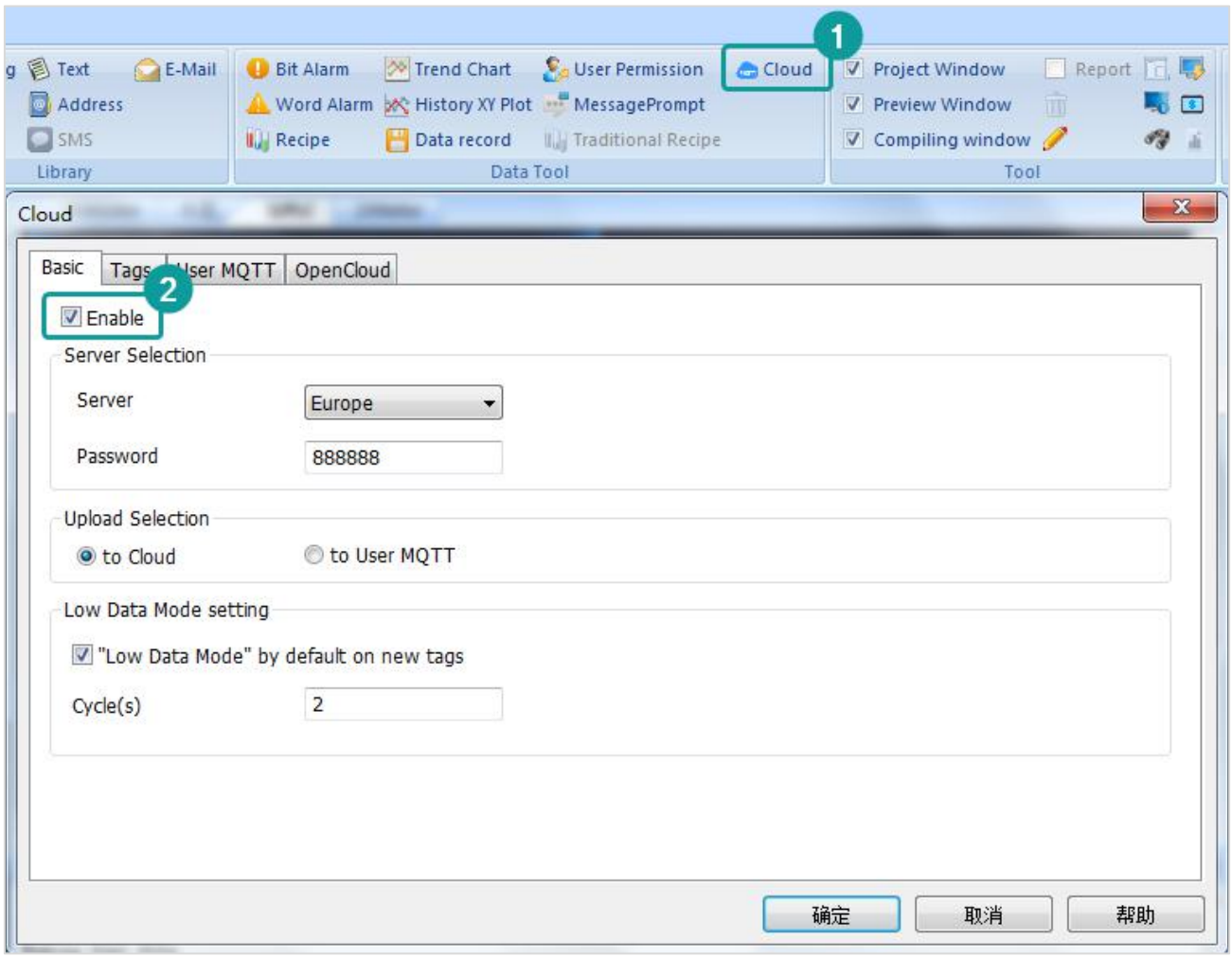
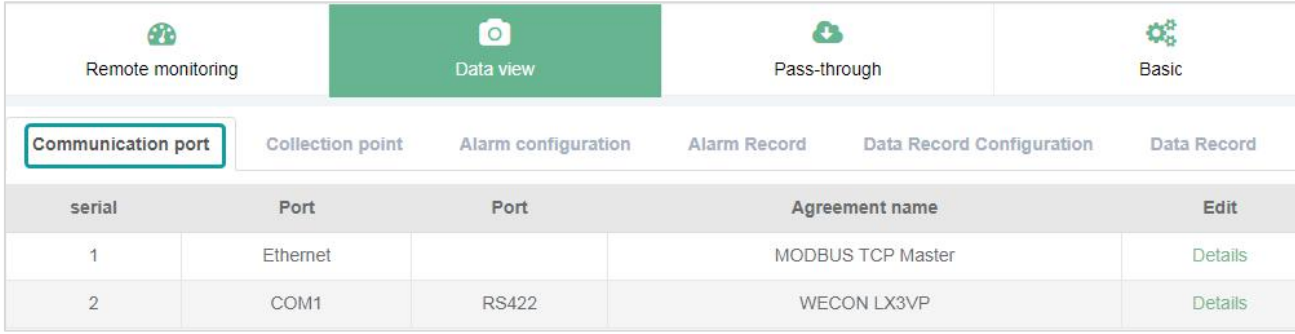


Figure 8- 20

8.4.1 Communication port

The connection method and protocol name and communication port of HMI could only be viewed, and could not be added or modified.



serial	Port	Port	Agreement name	Edit
1	Ethernet		MODBUS TCP Master	Details
2	COM1	RS422	WECON LX3VP	Details

Figure 8- 21

The communication port information comes from the information set on the ig screen, and it needs to be configured on the PIStudio.

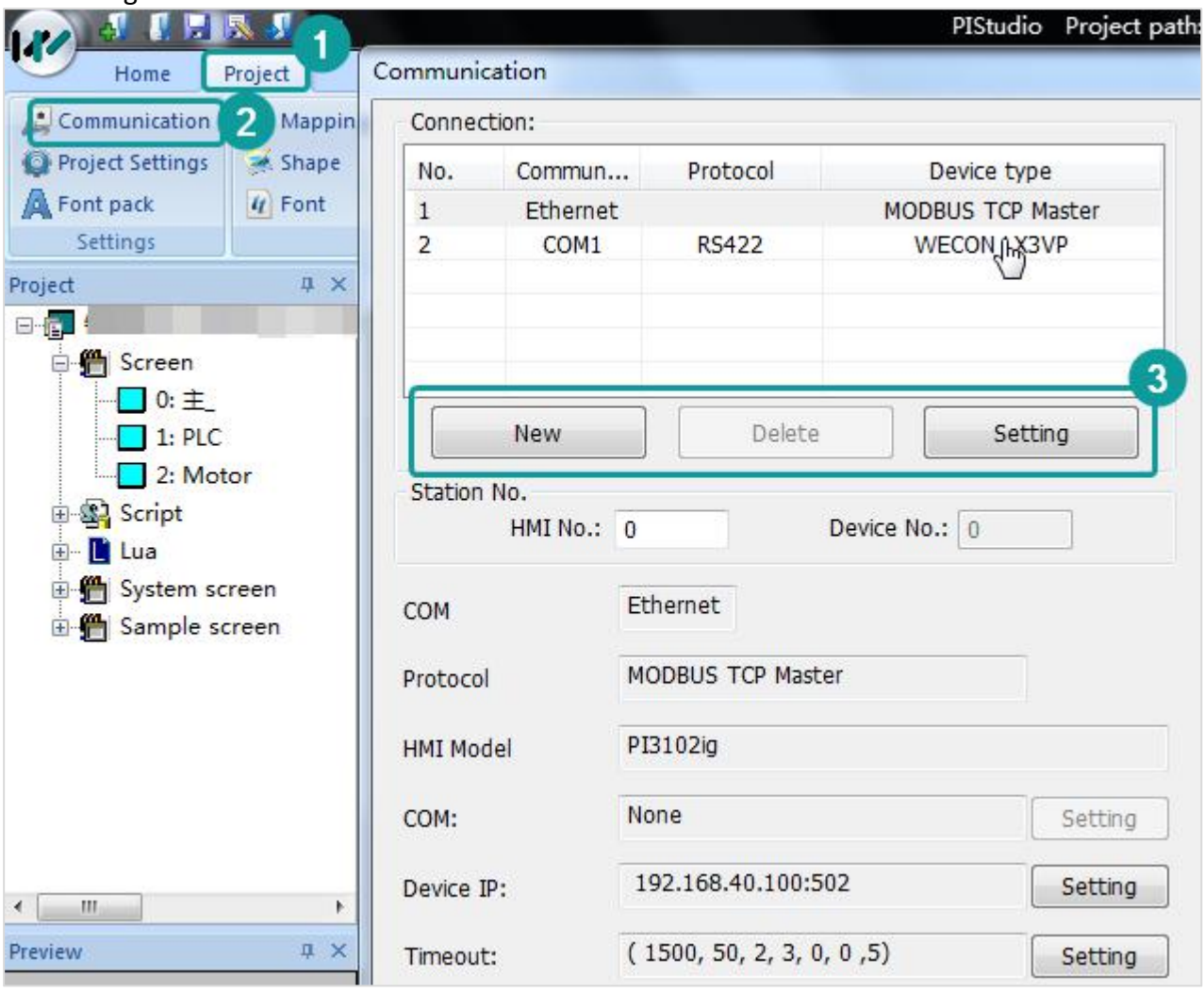


Figure 8- 22

8.4.2 Collect point

It is the data monitoring of the device. The collection point is the monitoring tag. Its read-write, write-only, and read-only permissions also come from the tags set in PIStudio. Users could not add or delete collection points here.

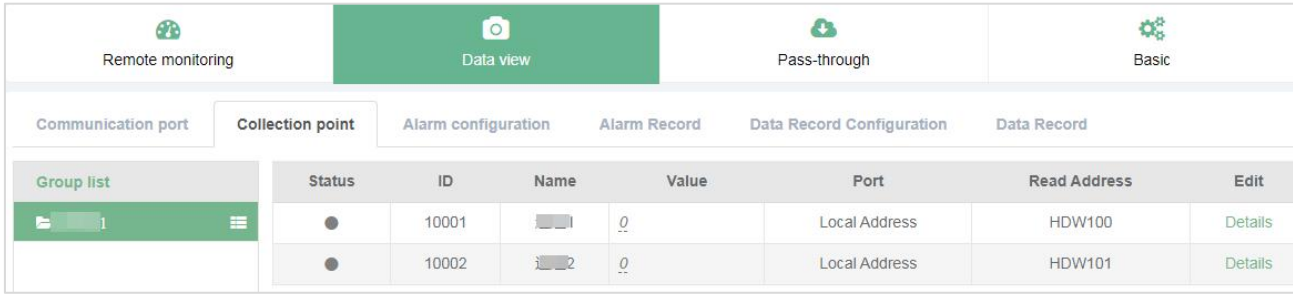


Figure 8- 23

The read-write permissions of the collection points set in the HMI would directly restrict the modification of the read-write permissions of the collection point in the V-NET.

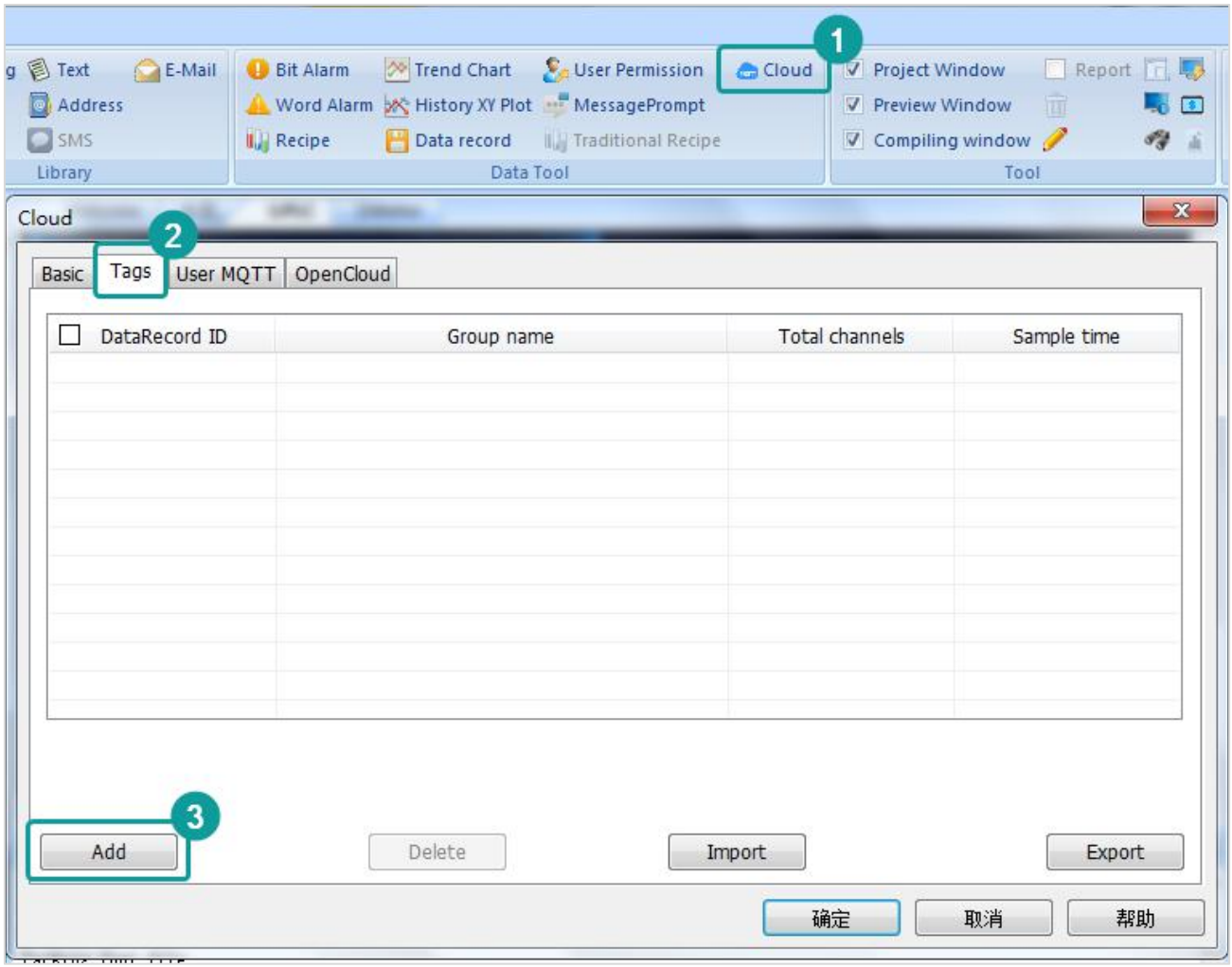


Figure 8- 24

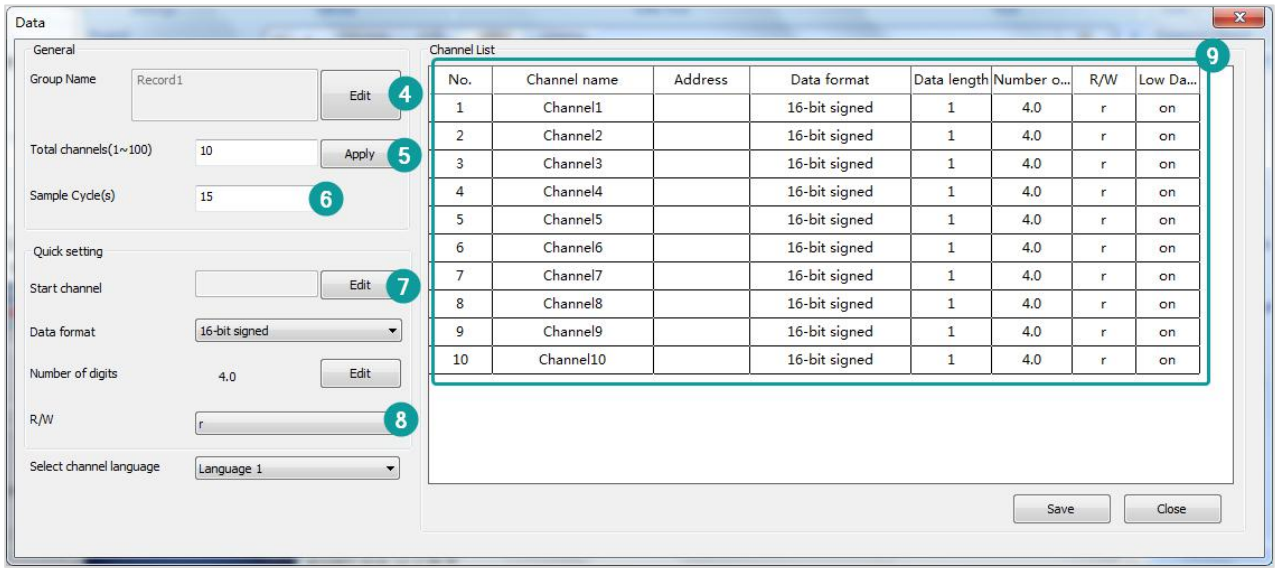


Figure 8- 25

8.4.3 Alarm record

Alarm record of the device and monitoring points could not be added in the V-NET. The data comes from the bit alarm and word alarm configured on the PIStudio. As shown below.

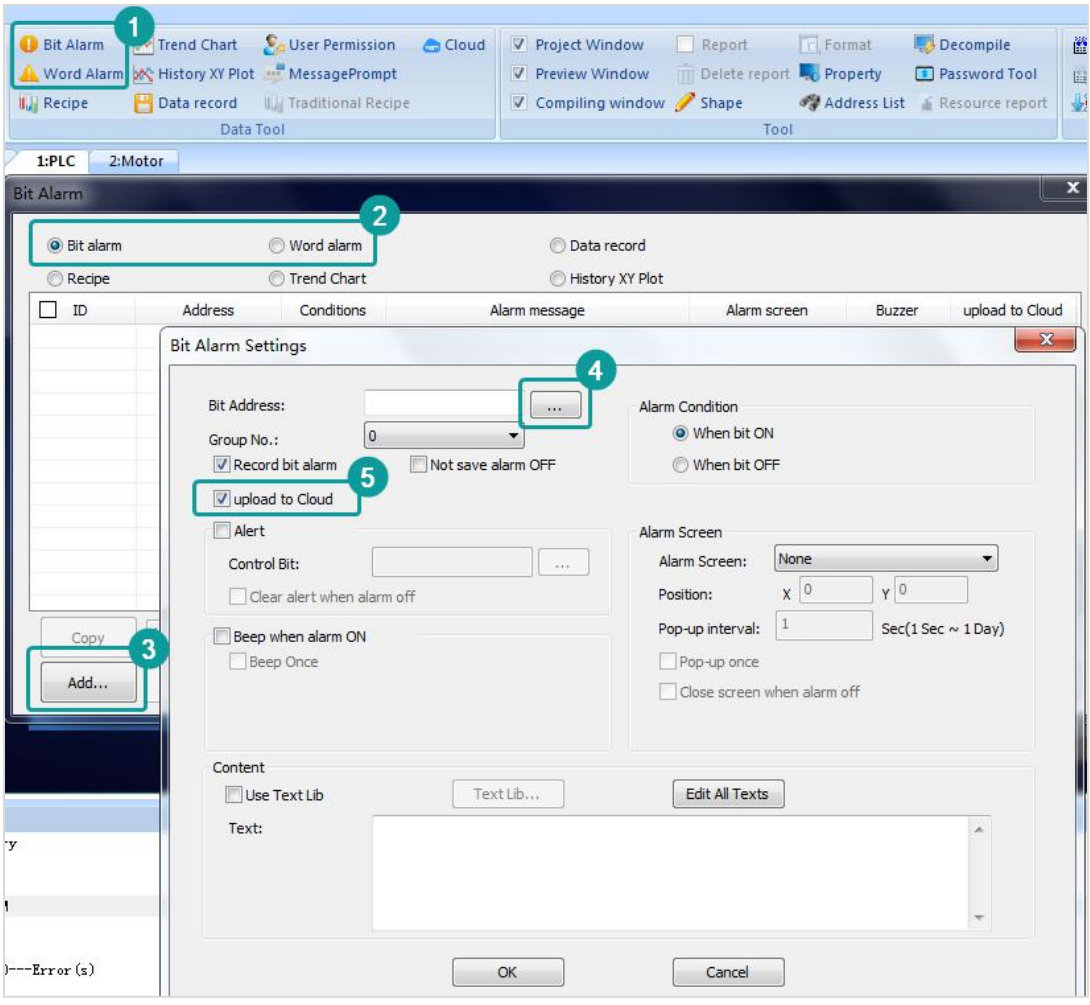


Figure 8- 26

Users could confirm the alarm and export the data.

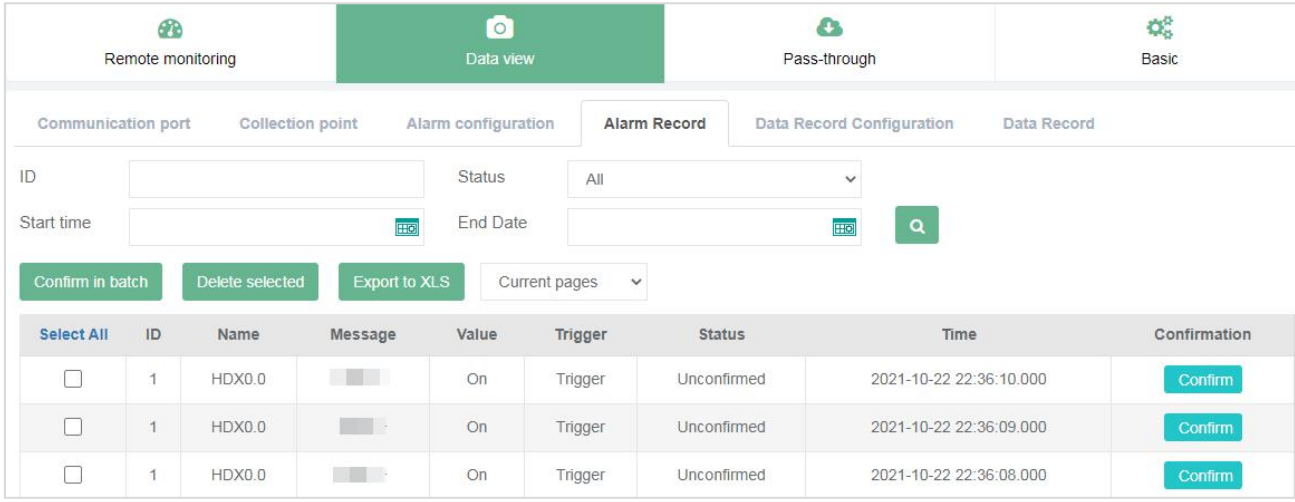


Figure 8- 27

8.4.4 Data record

It is the historical data of the device. The monitoring points could not be added, and could only be viewed.

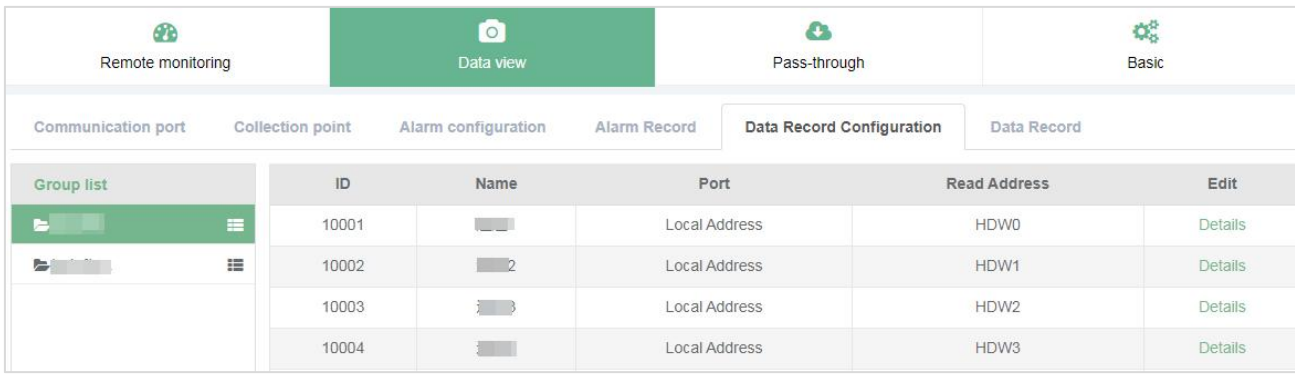


Figure 8- 28

The data comes from the bit alarm and word alarm configured on the PIStudio. As shown below.

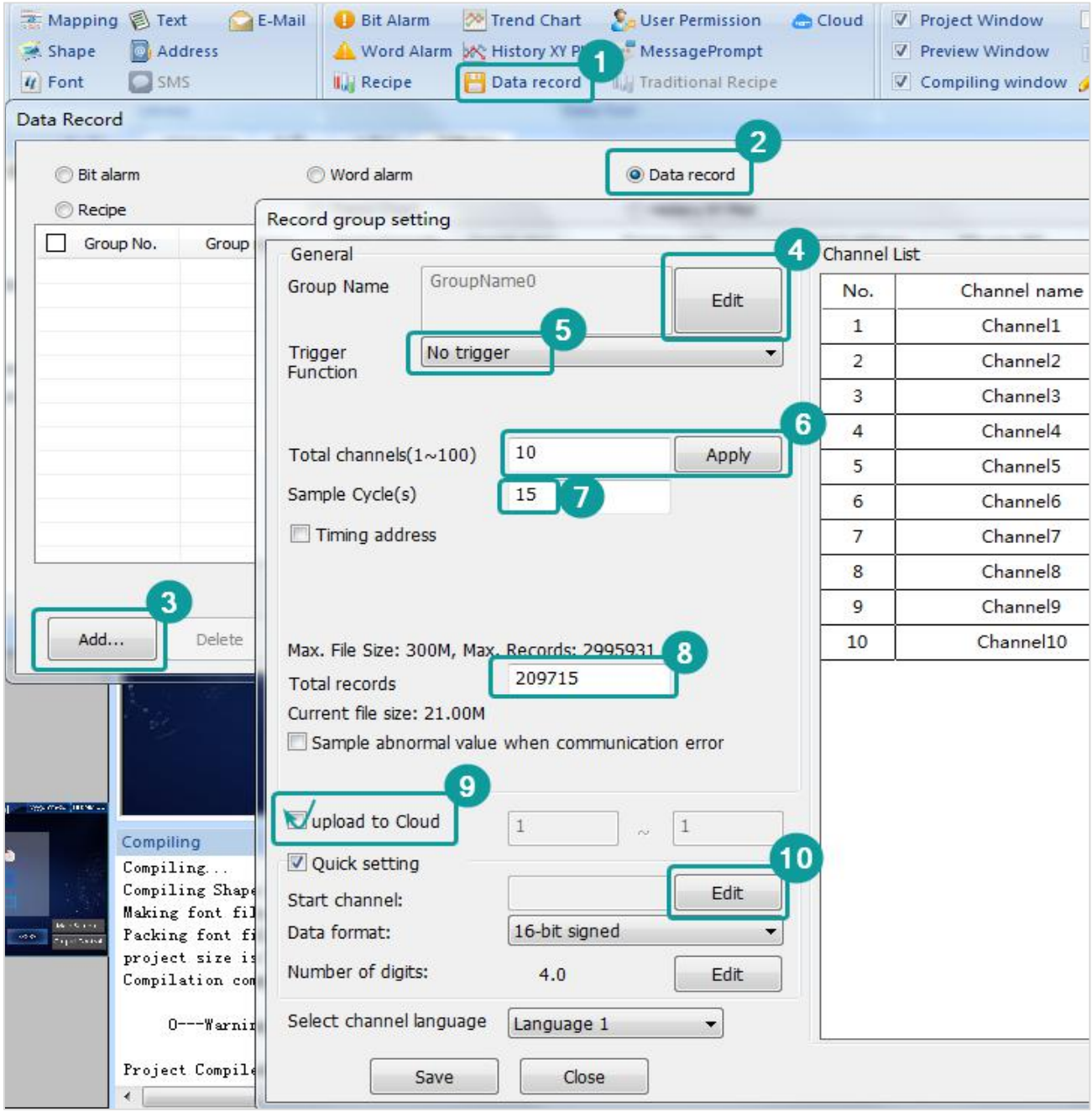


Figure 8- 29

When querying data, users need to select or enter the monitoring point and start and end dates. The display of historical data could be viewed in both tables and curves. As shown below.

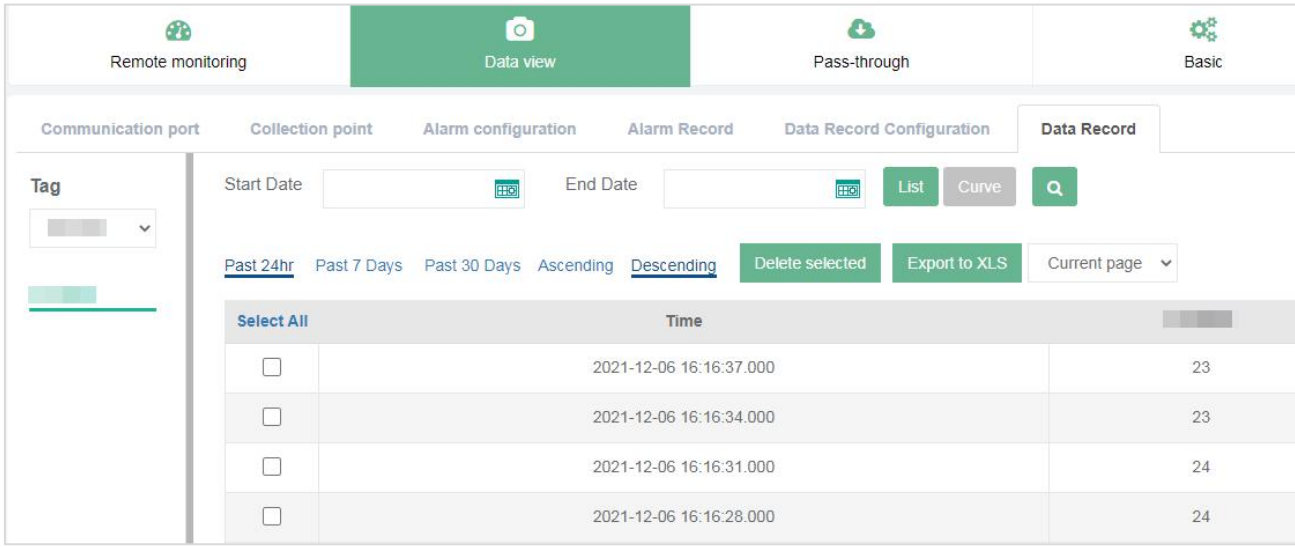


Figure 8- 30

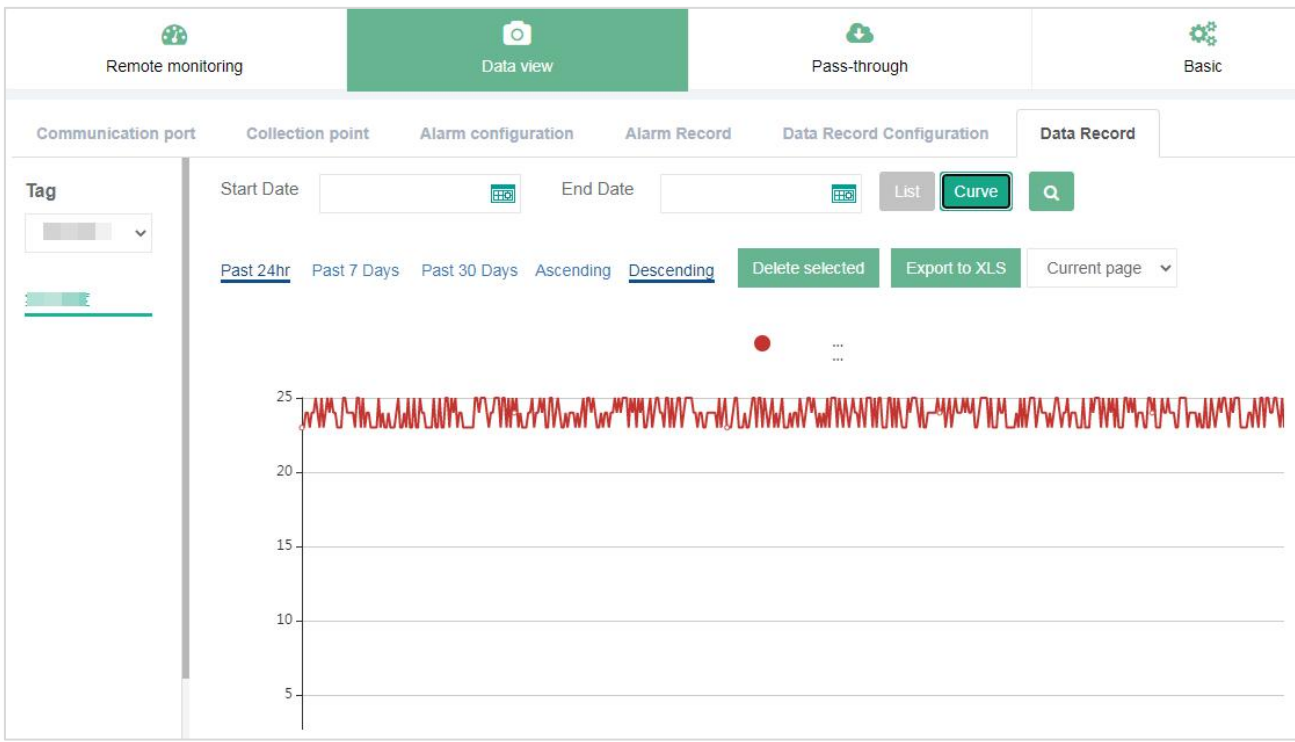


Figure 8- 31

8.5 Pass-through

This function allows applications on the computer to download directly to PLC or HMI. The remote download function of pass-through couldnot be used on the Web server temporarily, it could be used only on the PC client. For details, refer to 09 Remote download.

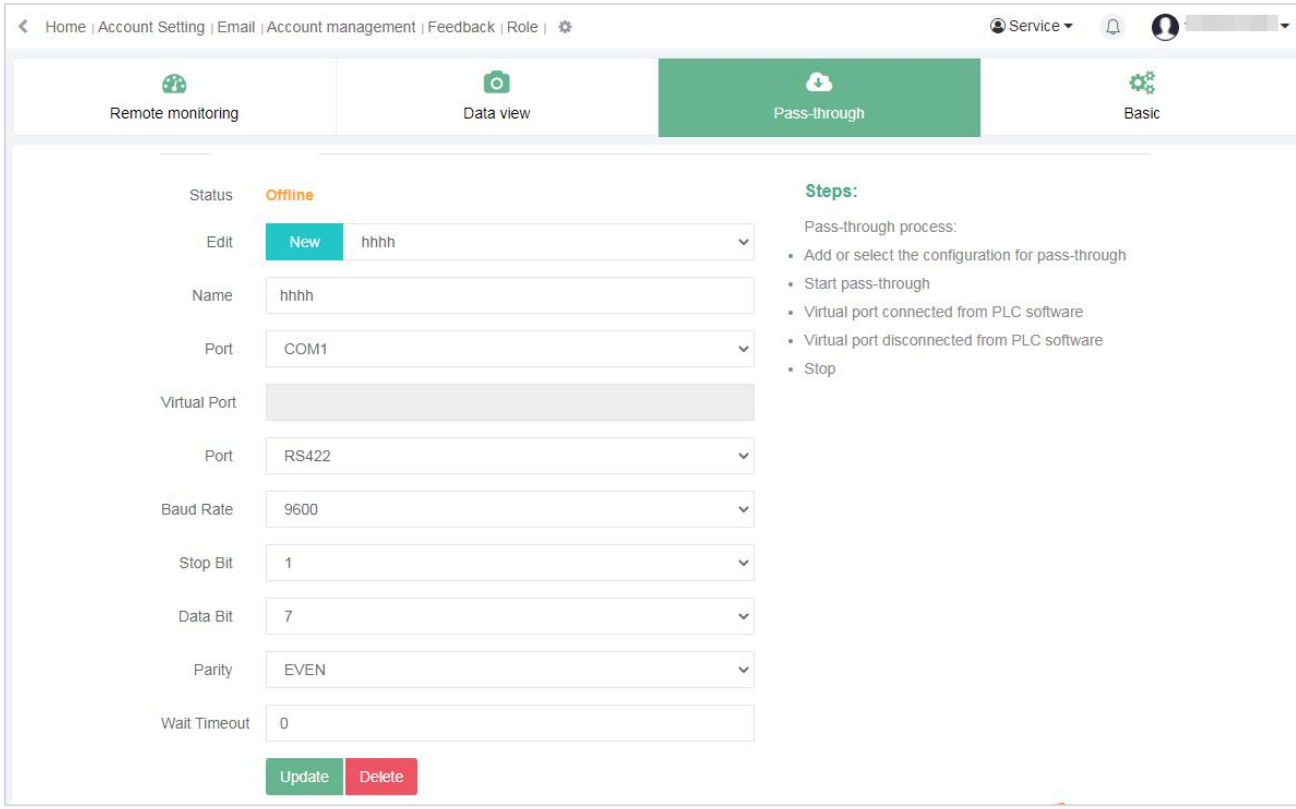


Figure 8- 32

Chapter 9 Remote download

The function of pass-through allows applications on the computer to remotely pass-through the device, download projects, etc., via the V-BOX or ig screen.

Figure 9- 1

9.1 PLC Download

Through the V-NET PC software, remotely pass-through the V-BOX or IIoT ig screen (the PLC remote download procedure is the same) to directly control the PLC devices, including upload, download, and monitor PLC programs.

9.1.1 The COM port

When installing the software for the first time, users need to restart the computer to prevent the virtual serial port node from being incorrect. PLC software may not be able to identify the virtual serial port. After the software is successfully installed, the virtual serial port is displayed in device Manager, as shown below.

Figure 9- 2

Click the setting button  in the upper right corner of the PC software to view the COM port configuration used for PLC downloads and Pass-through. The marked area is. This COM port is the same virtual serial port as the device manager. As shown below.

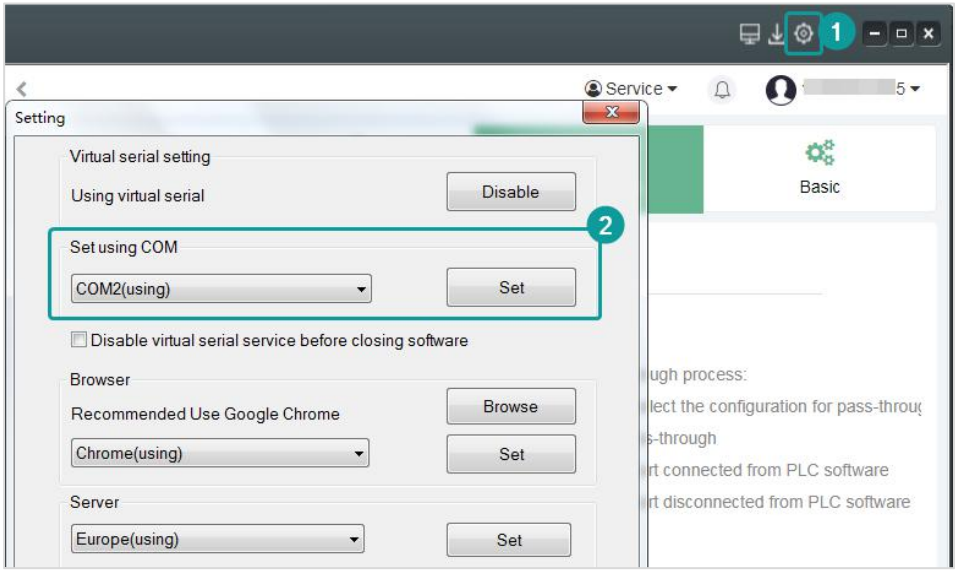


Figure 9- 3

9.1.2 Remote download configuration

When operating pass-through, V-BOX and IG screen should be connected to the network, and ensure normal communication with PLC.

If the virtual serial port is set successfully, the system automatically updates the enabled virtual serial port. Fill in the device information, choose COM1 or COM2 as the communication port. When the information filled in is the same as the PLC, Click the button Start pass through

If the pass-through succeeds, the current status changes to "running", and all the filling information becomes gray and could not be filled, and only the function button "stop" is left indicating that the pass-through is successful.

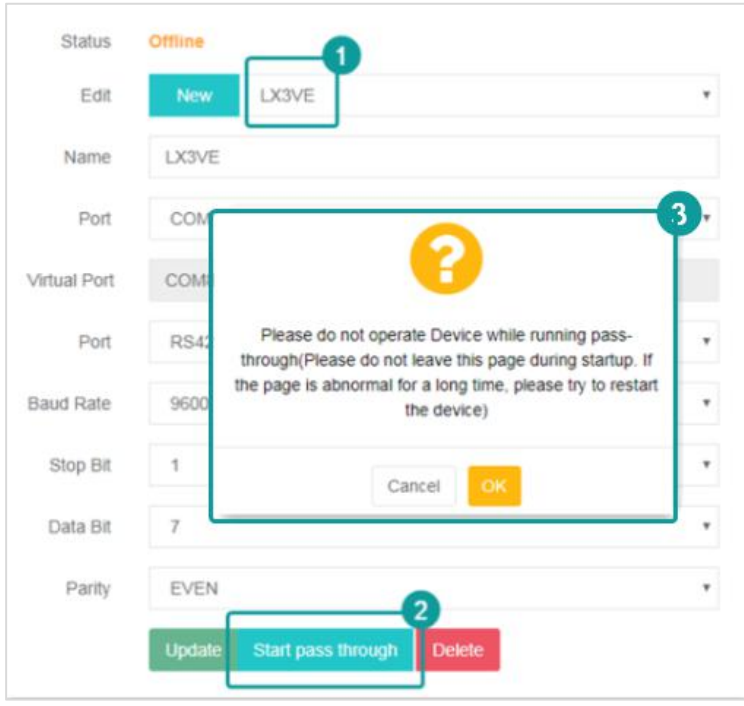


Figure 9- 4

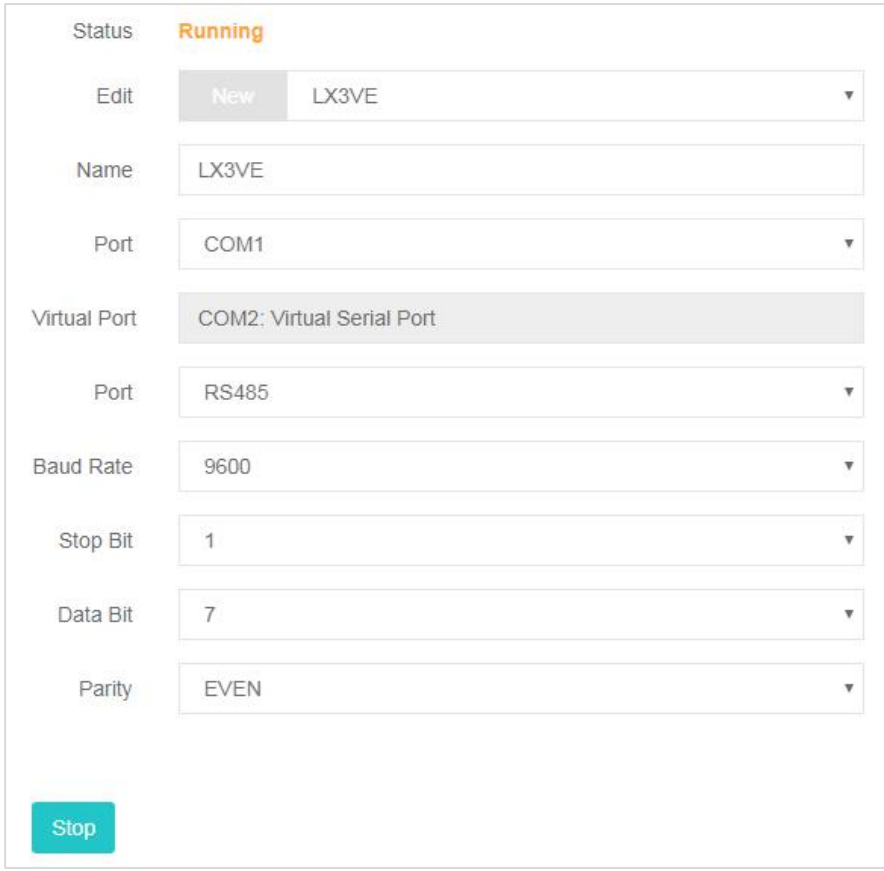


Figure 9- 5

The descriptions of the remote download page are as follows.

① Status. Display the statuses of the device, including ready to pass-through, pass-through is in progress.

② Edit. Users could add and save different pass-through parameters configurations.

③ Name. Set the name of the saved record.

④ Communication port. The communication ports of V-BOX and the device to pass-through

⑤ Virtual port. The virtual serial port is generated by the PC. After successful penetration, the PLC software connects to the virtual serial port, and then the PLC could be monitored, uploaded/downloaded, etc.

⑥ Connection ways include RS232, RS422, RS485, and Ethernet.

⑦ Baud rate. Select the baud rate corresponding to the configuration of the communication port on the device.

⑧ Stop bit. Select the communication parameters corresponding to the communication port configuration of the device.

⑨ parity. Select the communication parameters corresponding to the communication port configuration of the device.

⑩ Update. Update or save the setting records.

⑪ Start pass-through. Click "Start pass-through" and the current state changes to "Stop". At this time, PLC software could be used for remote monitoring, uploading/downloading programs, and other operations.

⑫ Delete. To delete the saved settings.

⑬ Stop. To stop pass-through.

9.1.3 Transport Settings

Here is the example of LX3VE. Click here to download the PLC programming software of Wecon "Wecon PLC Editor".

Open the PLC programming software of Wecon "Wecon PLC Editor", click"Transfer setup"-"Serial connection" to select the virtual serial port set in 9.1.1 The COM port, select "Connection test" and the communication with the device is successful. As shown below.

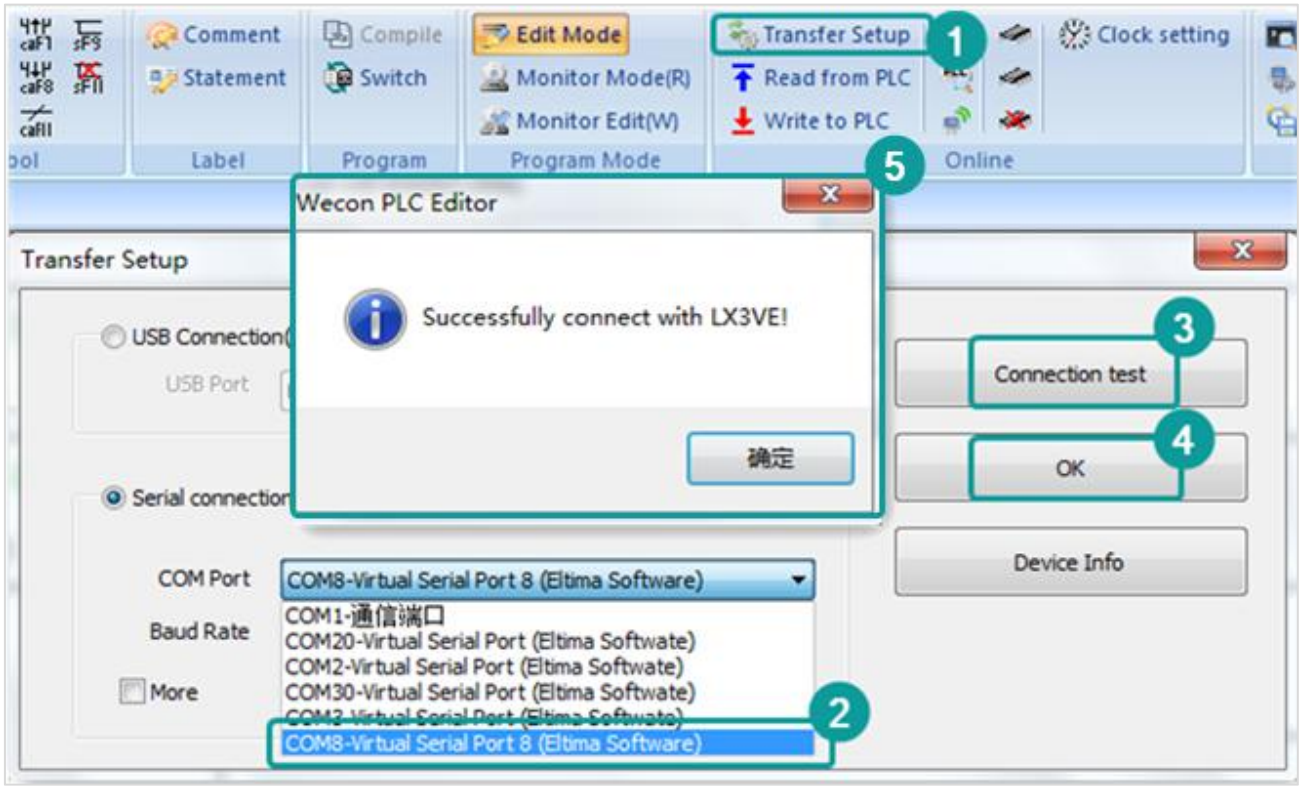


Figure 9- 6

9.1.4 PLC upload

(1) Select "Read from PLC"-"Parameter+program", click "Execute" to upload the program of PLC to the PC. As shown below.

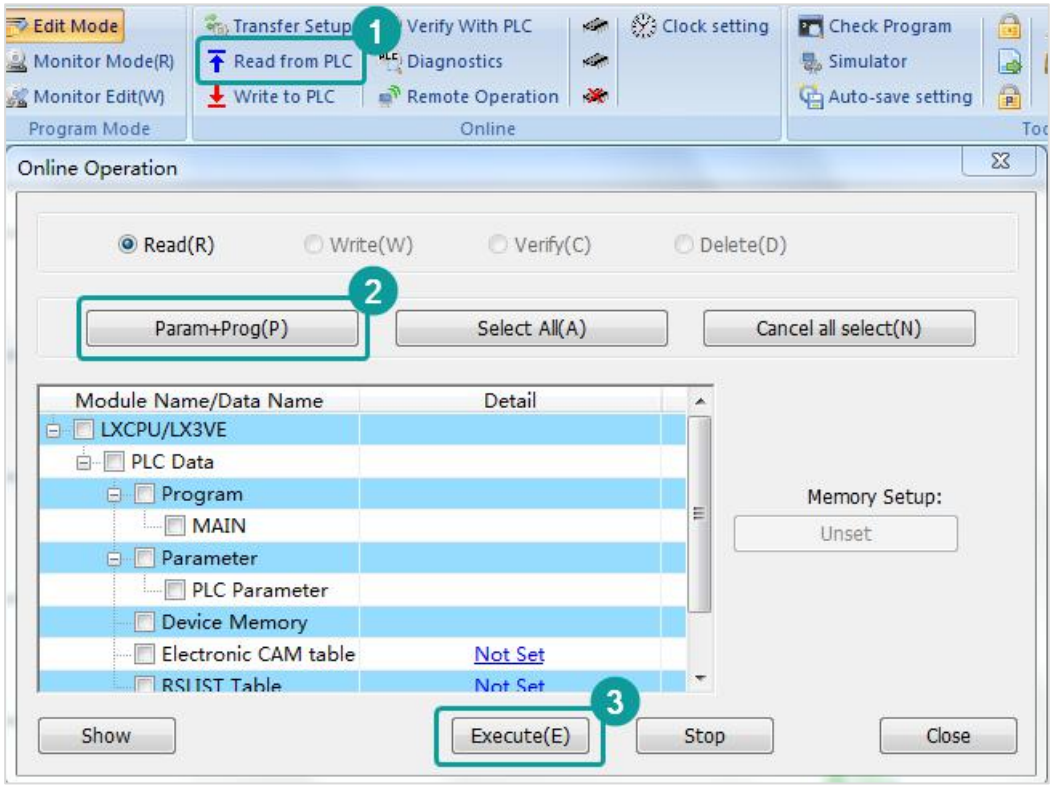


Figure 9- 7

(2) During uploading PLC program, it would prompt **"Parameter/program already exists. Do you want to cover it?"**, select **"Yes"**. If upload successfully, it would prompt **"Read from PLC(Complete) ".** As shown below.

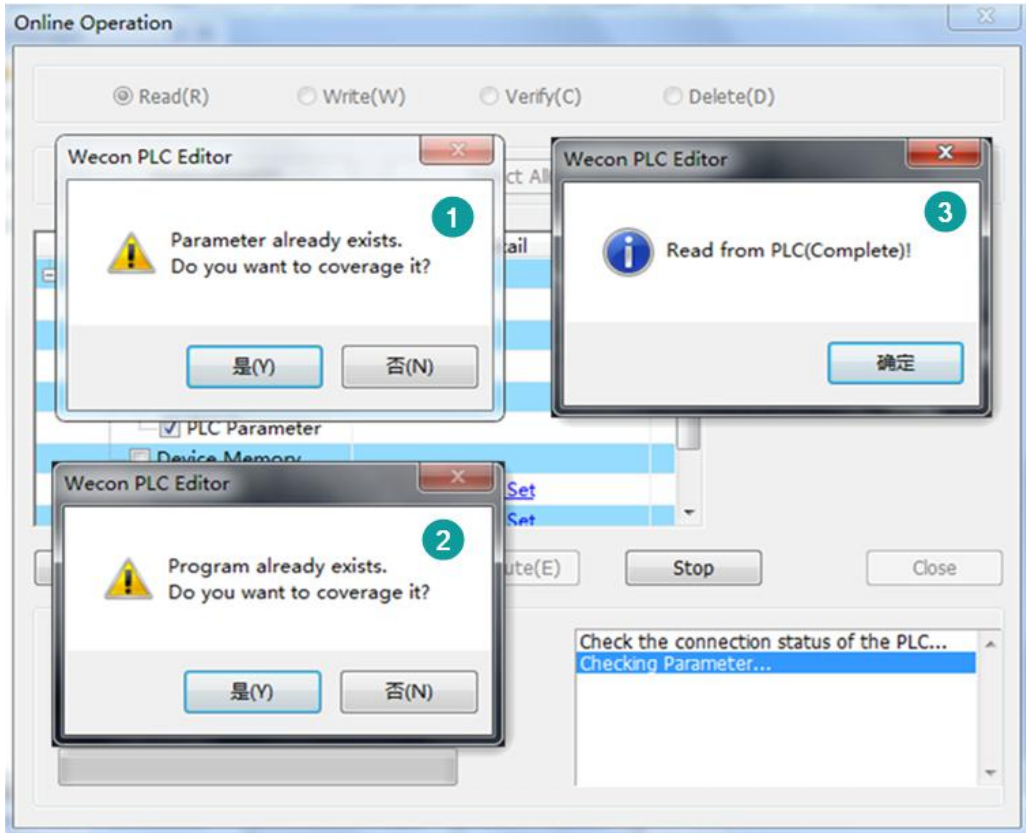


Figure 9- 8

9.1.5 PLC download

(1) Select "Write to PLC"-"Parameter+program", click "Execute" to download the program to the PLC. As shown below.

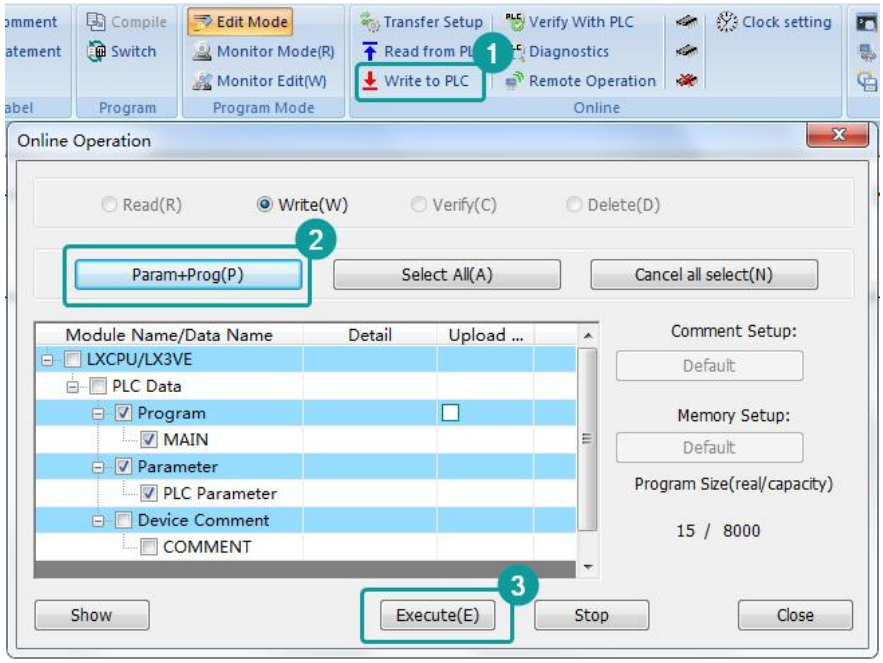


Figure 9- 9

(2) During downloading the program, it would prompt "After stop remotely, continue to execute?", select "Yes". If upload successfully, it would prompt "Write to PLC(Complete) ". As shown below.

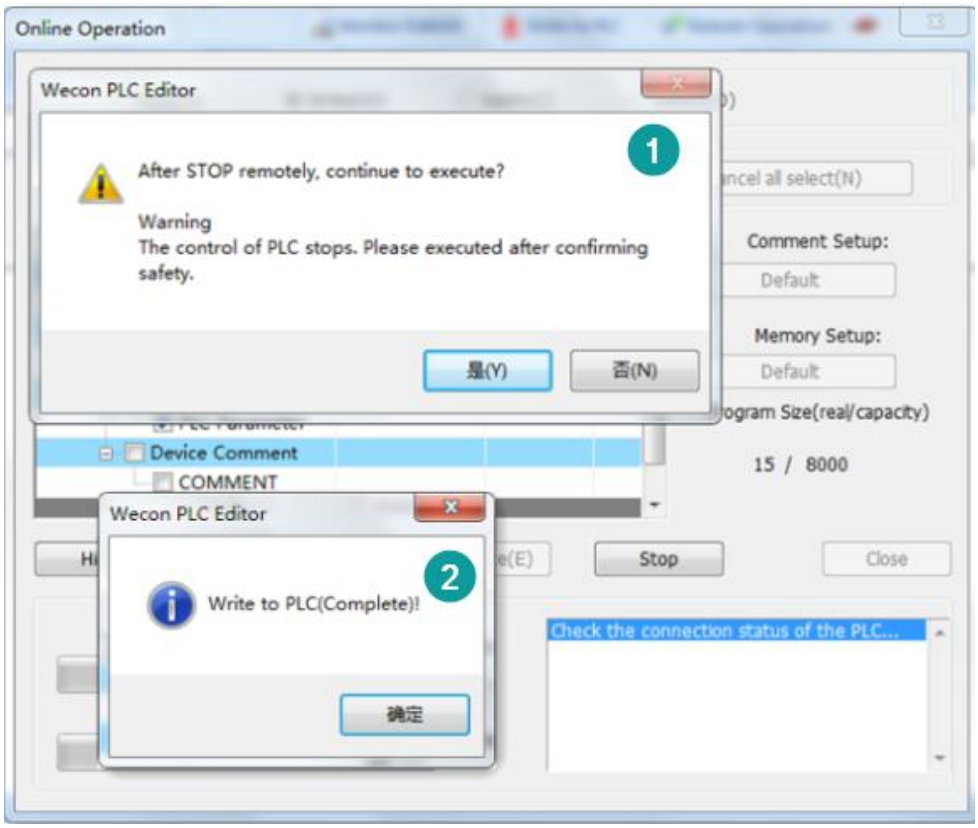


Figure 9- 10

9.1.6 Monitor mode

Open the PLC software on PC, and open a PLC program or an uploaded program, select "Monitor mode" to monitor the status of the ladder diagram. As shown below.

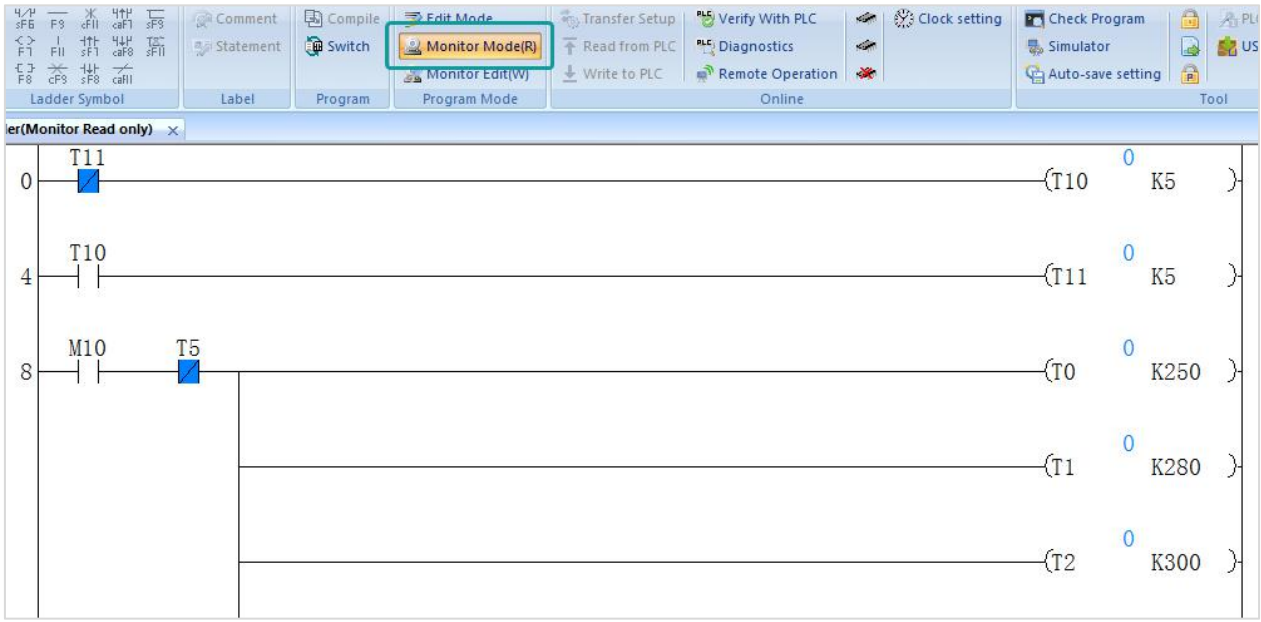


Figure 9- 11

9.1.7 Stop pass-through

If the operation of PLC is complete, the connection between PC and PLC software should be terminated first, and the V-BOX would restart automatically. As shown below.

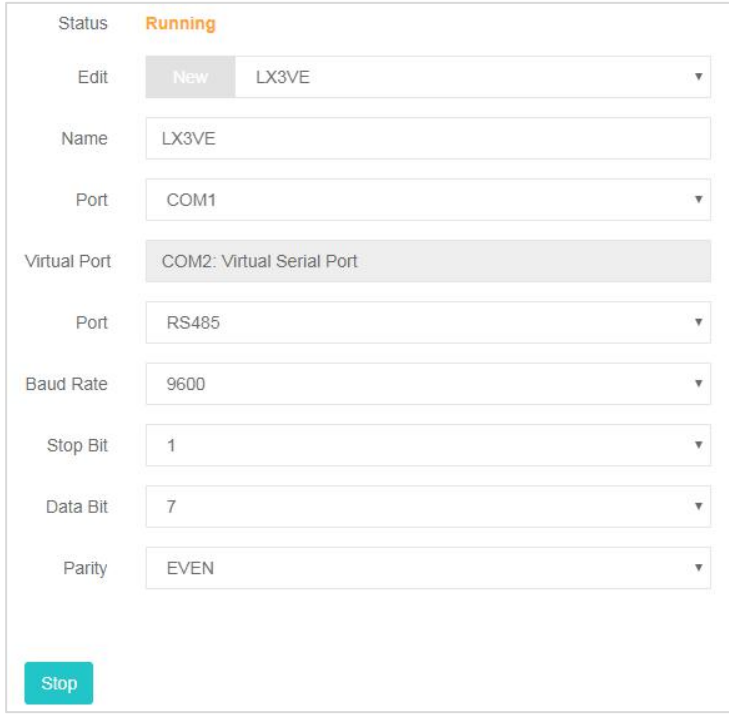


Figure 9- 12

9.2 HMI download

9.2.1 Download configuration

Users could click here to download the software "PIStudio". If the account is logged in for the first time, users need to click the Settings button  on the upper right corner of the software to configure the virtual serial port parameters. The COM port used during pass-through is a virtual serial port. After setting successfully once, there is no need to repeat this step again.

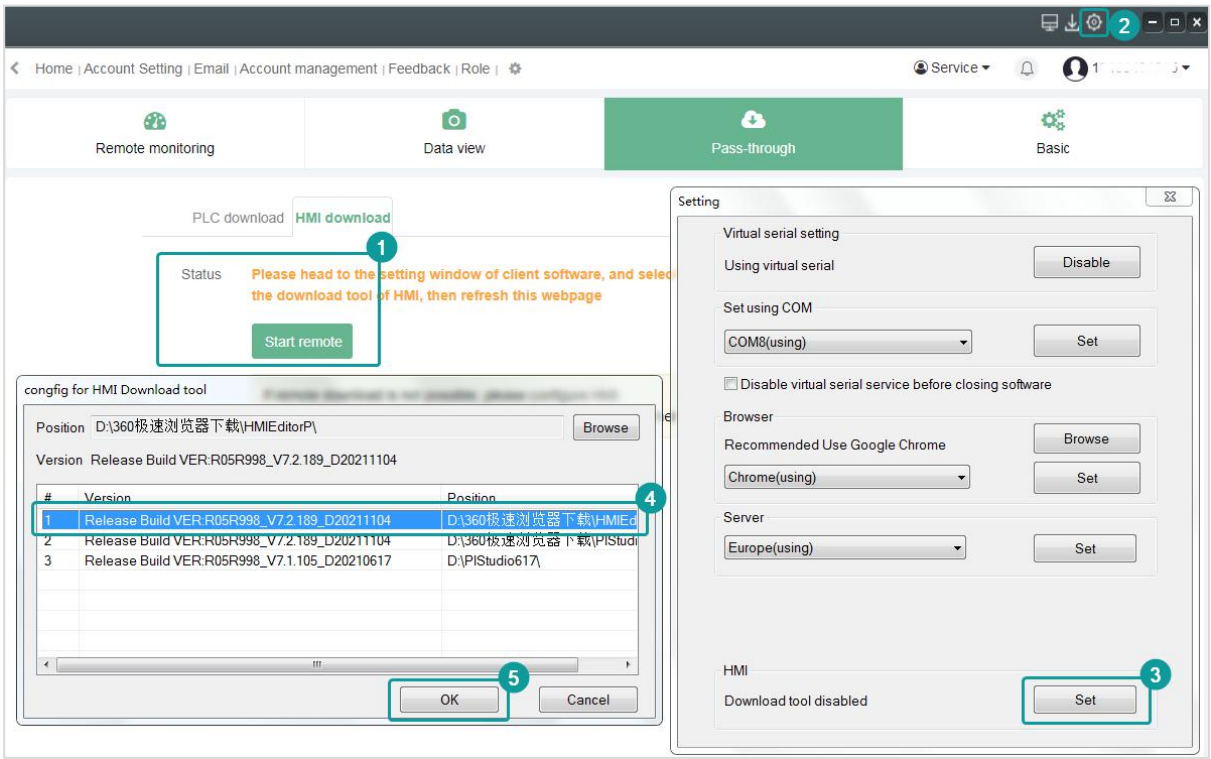


Figure 9- 13

9.2.2 HMI download

During the pass-through, the HMI should be online. When the status is ready, and the download configuration is complete, click the button Start remote

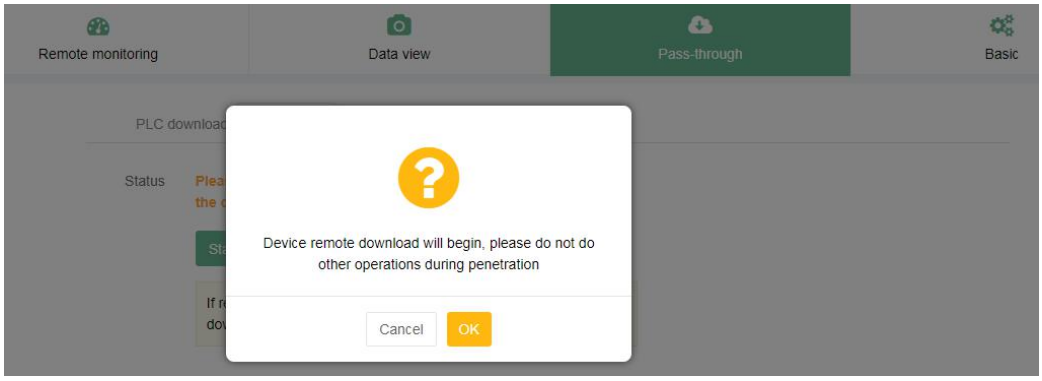


Figure 9- 14

Click "OK", it would prompt a download tool box, select "PC to HMI", then select the ".wmt" file which has been compiled to download the program to the HMI. When the download is complete, the HMI would restart automatically.

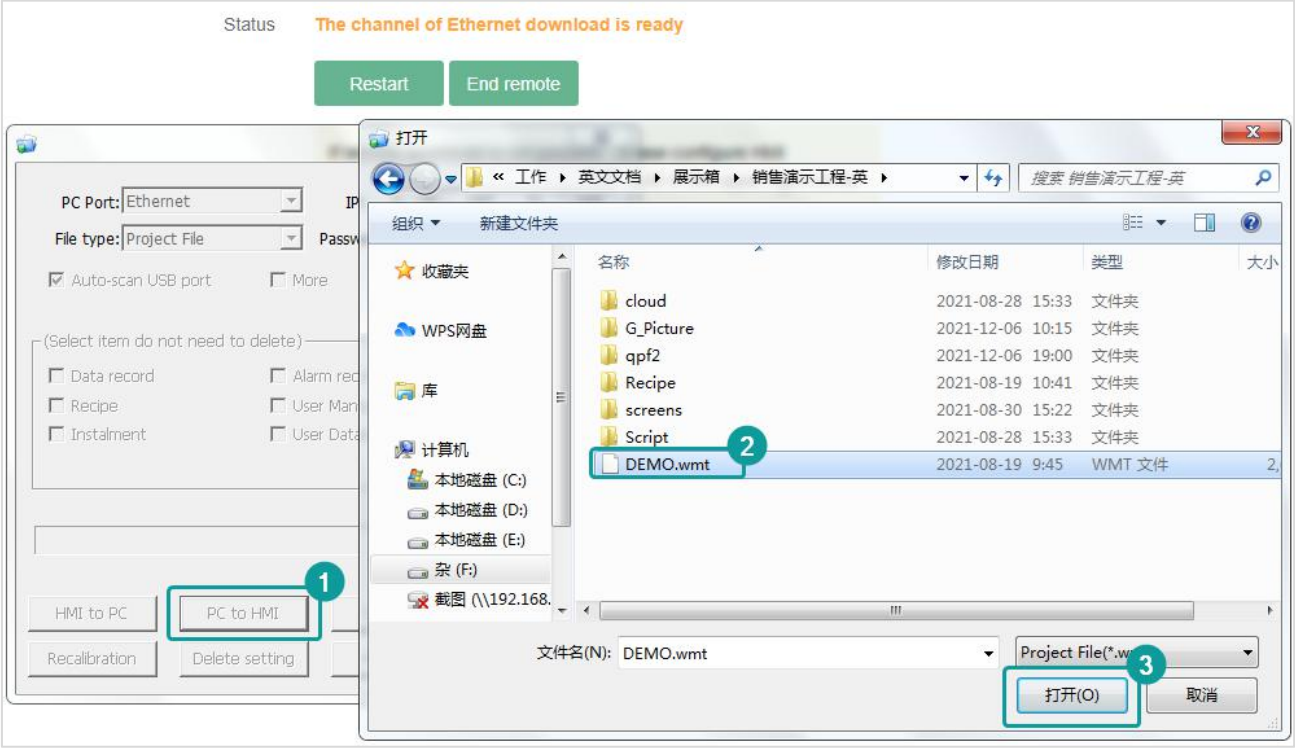


Figure 9- 15

9.2.3 Stop remote

When the download is complete, the HMI would restart automatically. If users need to download again, click "Restart" or "End remote". As shown below.

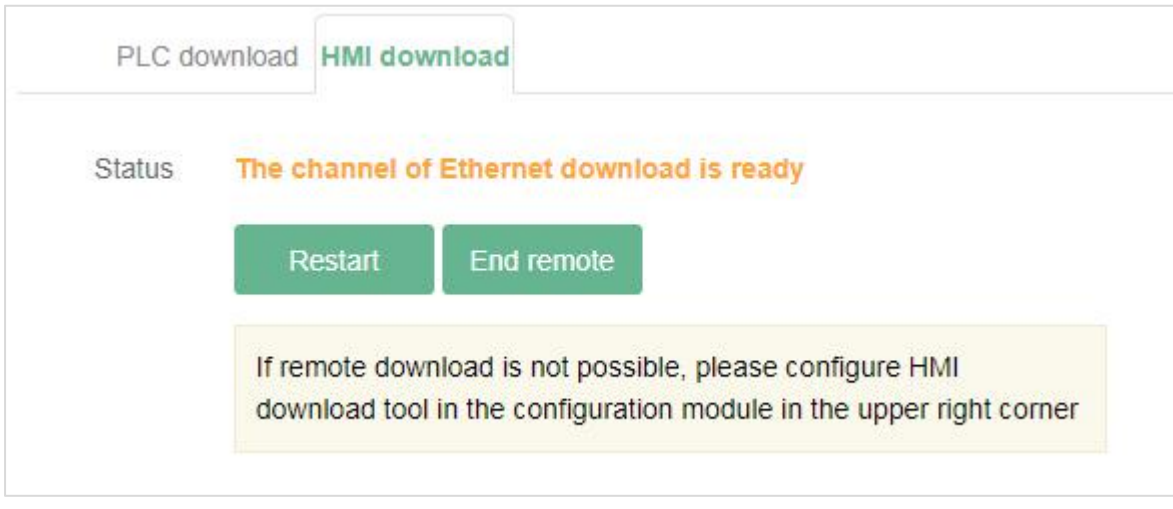


Figure 9- 16

Chapter 10 Device maintenance

In order not to affect the normal operation of the devices, Wecon provides "replace device" and "transfer device" for customers to use the devices quickly and conveniently.

10.1 Replace devices

When the V-BOX or ig screen is abnormal and could not continue to use, users could select the function of "Replace". It is to replace an old device with a new device, at the same time, synchronize the configuration information of the old device to the new device.

Replace a device is to replace an old device with a new device. There are two devices, and device A is bound to an account. If device A is abnormal, replace device A with device B, and device B should be in the unbound state. The procedures are as below.

(1) Device A is bound to an account.

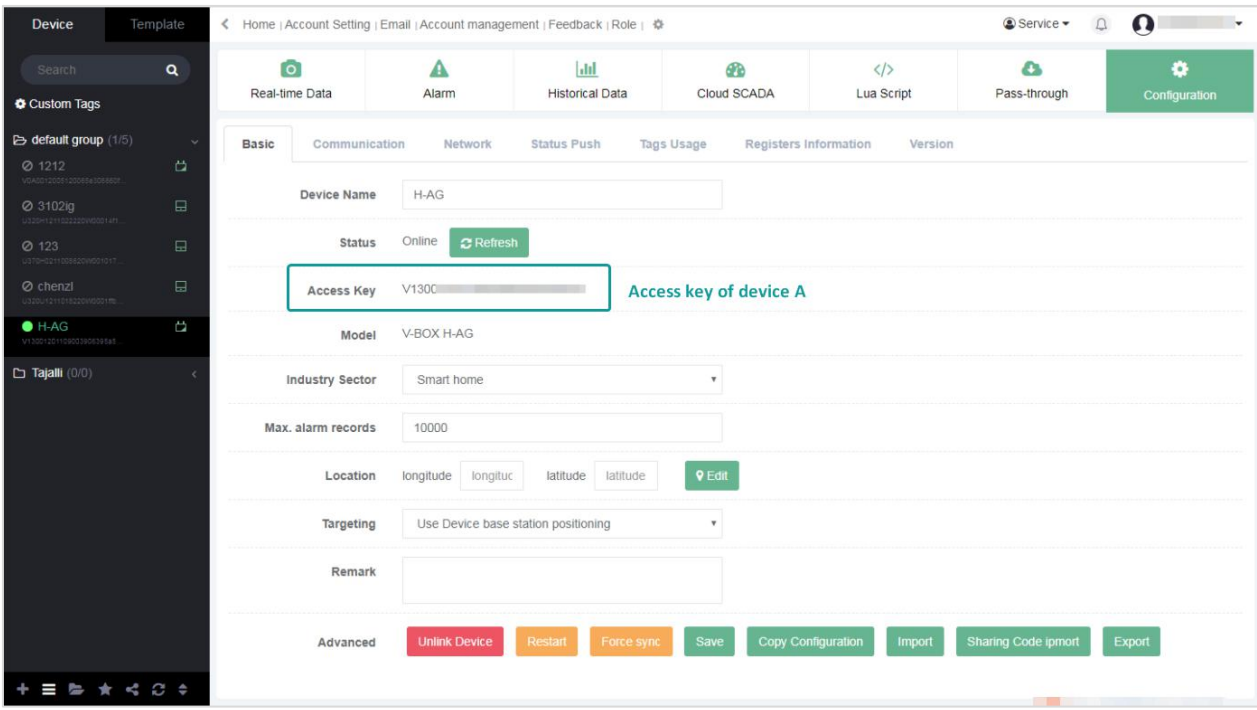


Figure 10- 1

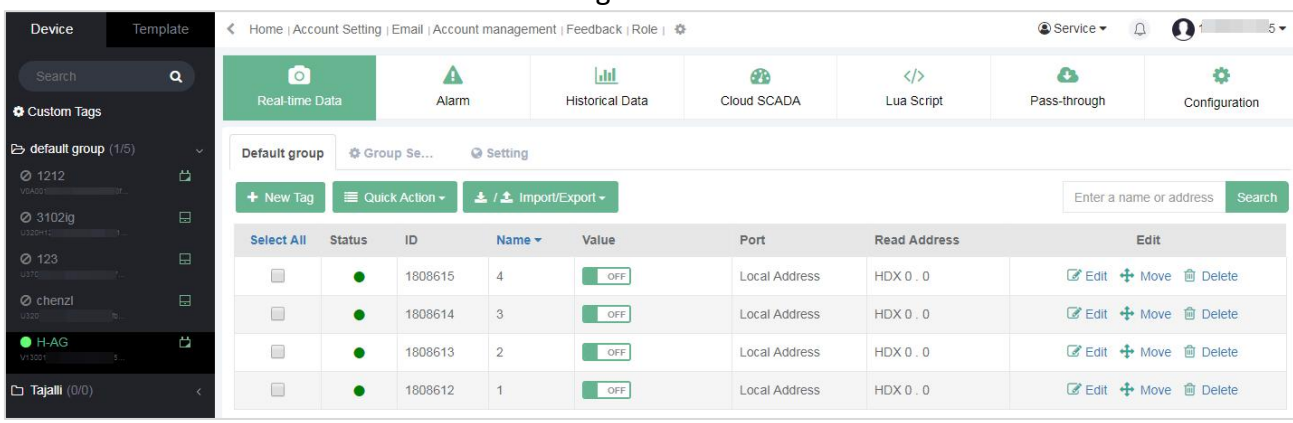


Figure 10- 2

(2) Search device A in the device list, right-click it, then click "Replace".

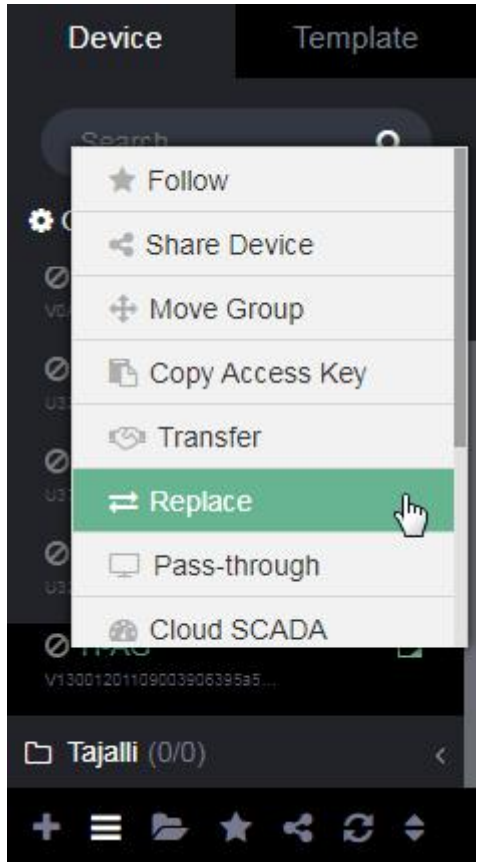


Figure 10- 3

(3) Enter the machine code and the password of device B (the default password is 888888) in the replacement interface, and click Replace.

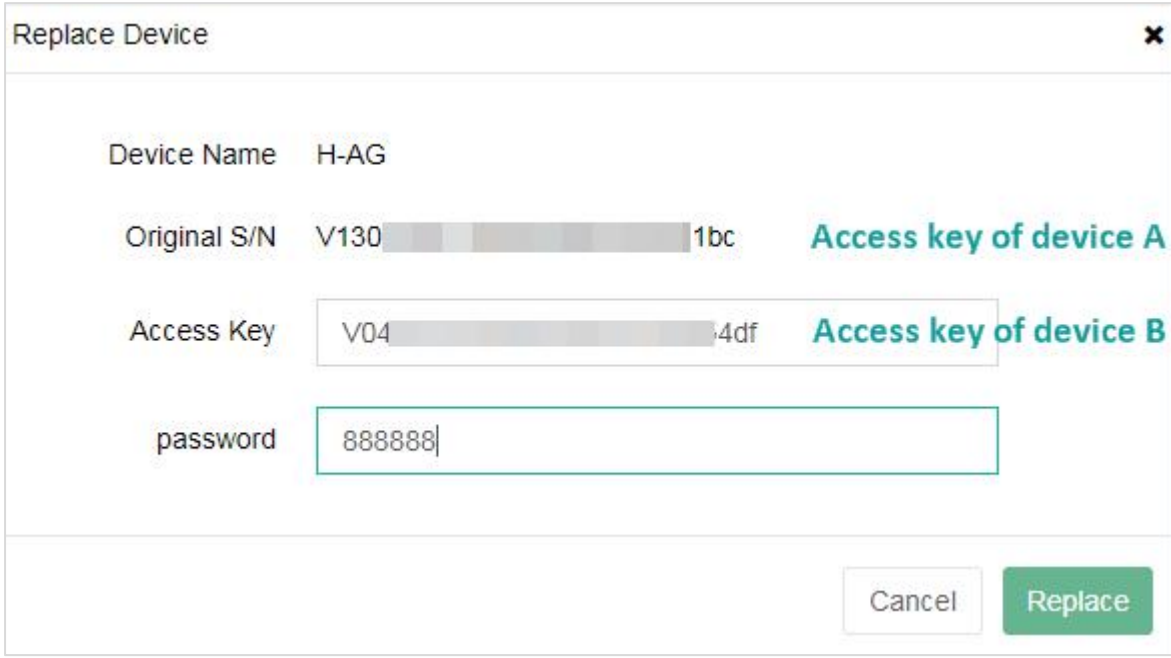


Figure 10- 4

(4) During the replacement, it would prompt whether to continue the replacement, as shwon below.

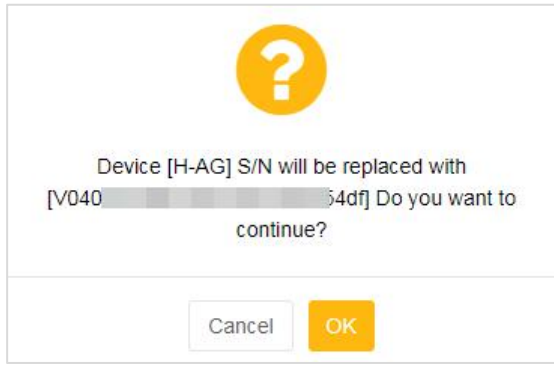


Figure 10- 5

(5) Click "OK" to confirm the replacement, and device A is replaced by device B. All the configuration information except machine code remains unchanged.

✎**Note:**

① Only the old device and the new one are of the same model could be replaced.

② The device B that needs to be replaced could not be in the bound state, otherwise, it would prompt "The device has been bound!"

10.2 Transfer devices

The **"transfer"** function is to transfer the device from one account to another, other information of the device would not change except the change of users. When removing the device, fill in the information of the transferred user and the password of the device correctly, confirm the account information and then transfer. The procedures are as follows.

(1) Search the device in the device list, right-click it, then click "Transfer".

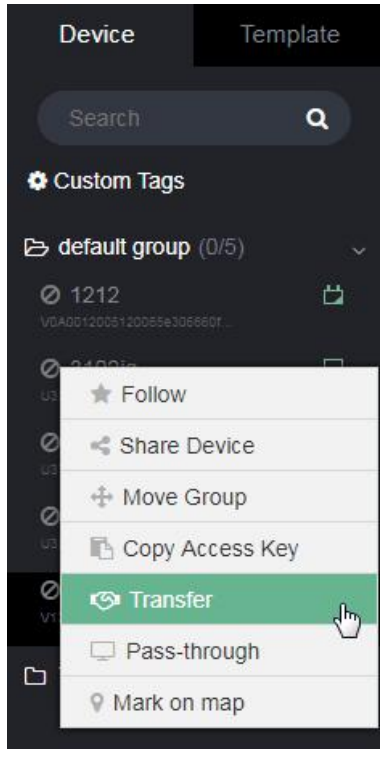


Figure 10- 6

(2) Enter the information about the transferred user and the password of the device (the default password is 888888). Fill in correctly would appear the account information as below.

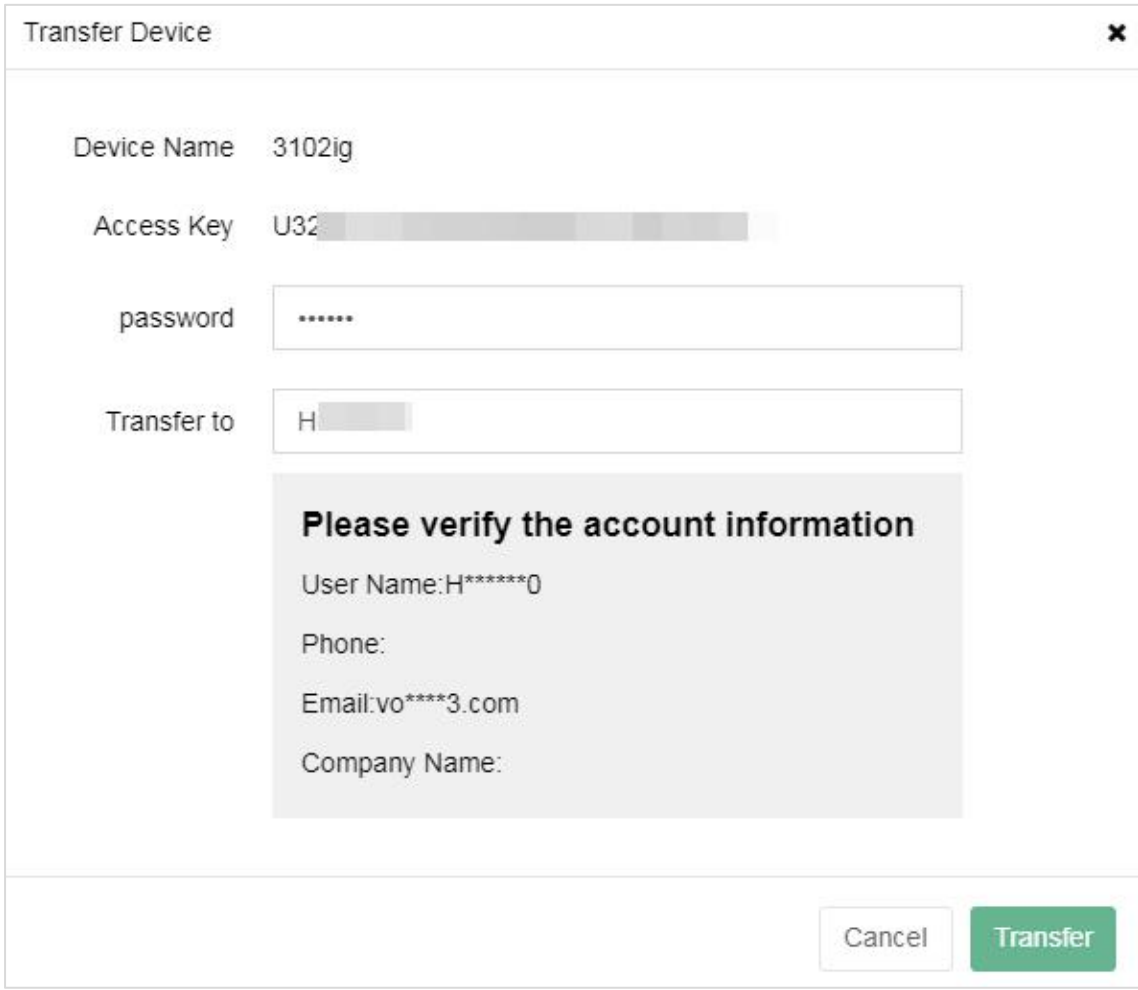


Figure 10- 7

(3) Click "Transfer", if the transfer is successful, wait for the account to accept.

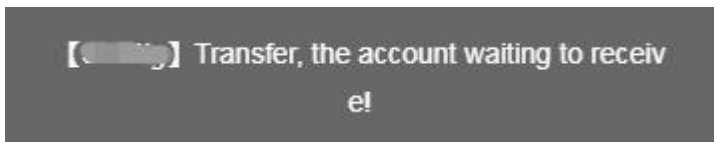


Figure 10- 8

(4) In the receiving account, click the small bell prompt box in the upper right corner of the page, find the device that needs to be transferred in, and click "Accept".

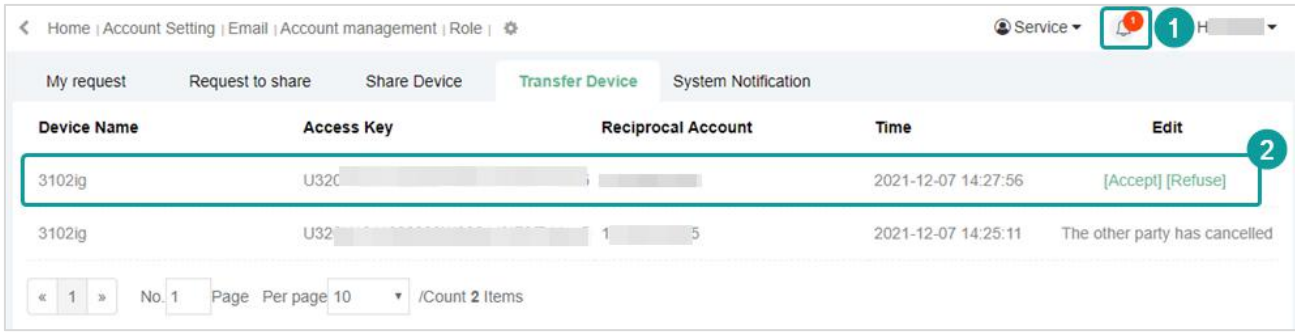


Figure 10- 9

(5) To receive the device, the name of the device and the group and industry to which the device belongs need to be reset.

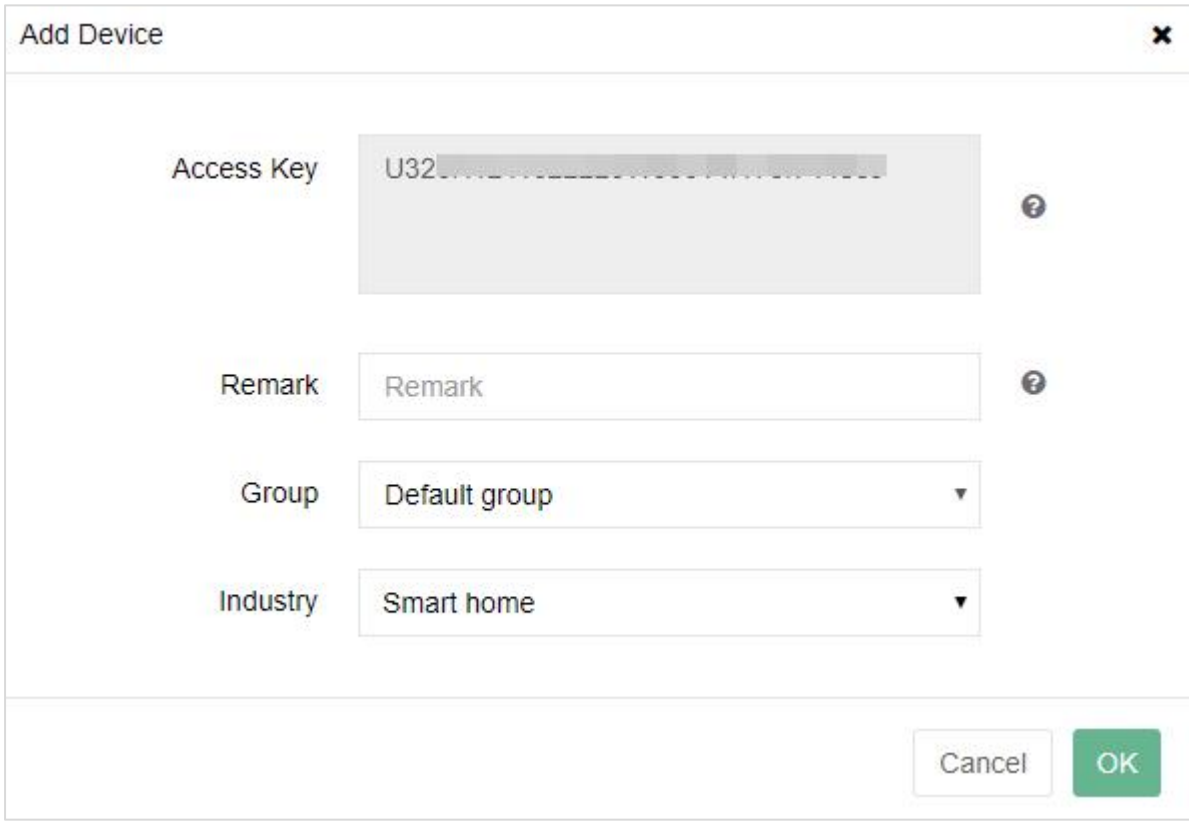


Figure 10- 10

Chapter 11 OPC configuration

11.1 Introduction

Open Platform Communications (OPC) is a series of standards and specifications for industrial telecommunication. WECON V-BOX series product provides OPC function to users.
This document describes how to use OPC TOOL on your computer.

11.2 Basic configuration

The device uses the OPC configuration tool to push the data sources of the device to other OPC clients

11.2.1 Login interface

Figure 11- 1

Interface function:

① Use the sqlite database to record the users who have successfully logged in. According to the login time, they are arranged in the user name drop-down box from large to small.

② Remember password: use DES secondary encryption, the secret key is CPUID and network card MAC address respectively.

③ Configure the server address, and the software restart is required for the configuration to take effect.

11.2.2 Server setting

The default server address is the V-NET monitoring address. When deploying a private cloud, connect to the corresponding network address. After configuring the server address, the OPC Tool restart is required to take effect.

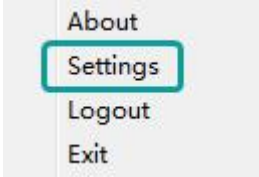


Figure 11- 2

After configuring the server address, the OPC Tool restart is required to take effect.

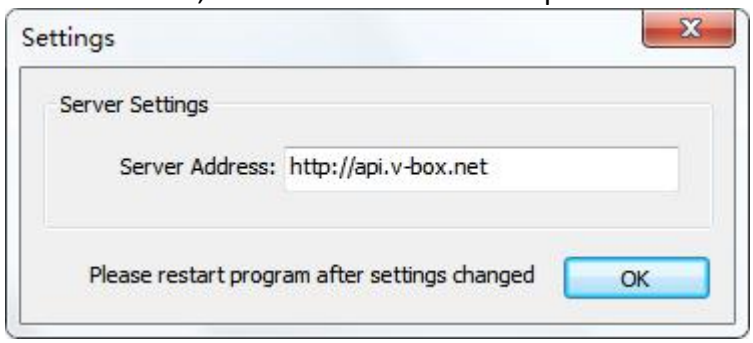


Figure 11- 3

① About. Software version information.
② Settings. To set the server address settings.
③ Logout. Log out of the current account.
④ Exit. Exit the software.

At present, Wecon has three servers. Please enter the corresponding server address.

① China: http://api.V-BOX.net
② Asean: http://api.asean.V-BOX.net
③ Europe: http://api.eu.V-BOX.net

11.2.3 configuration successfully

After the user logs in successfully, the OPC SERVER is started. As shown below.

Figure 11- 4

✎**Note:** When using the OPC function, run the OPC Tool software.

11.3 Example

The precondition is to use the OPC Server and OPC Client on the same PC.

11.3.1 Run the OPC tool

Figure 11- 5

11.3.2 Create OPC device

Take the OPC Quick Client.exe tool for example. Download here.

(1) Run "OPC Quick Client.exe"

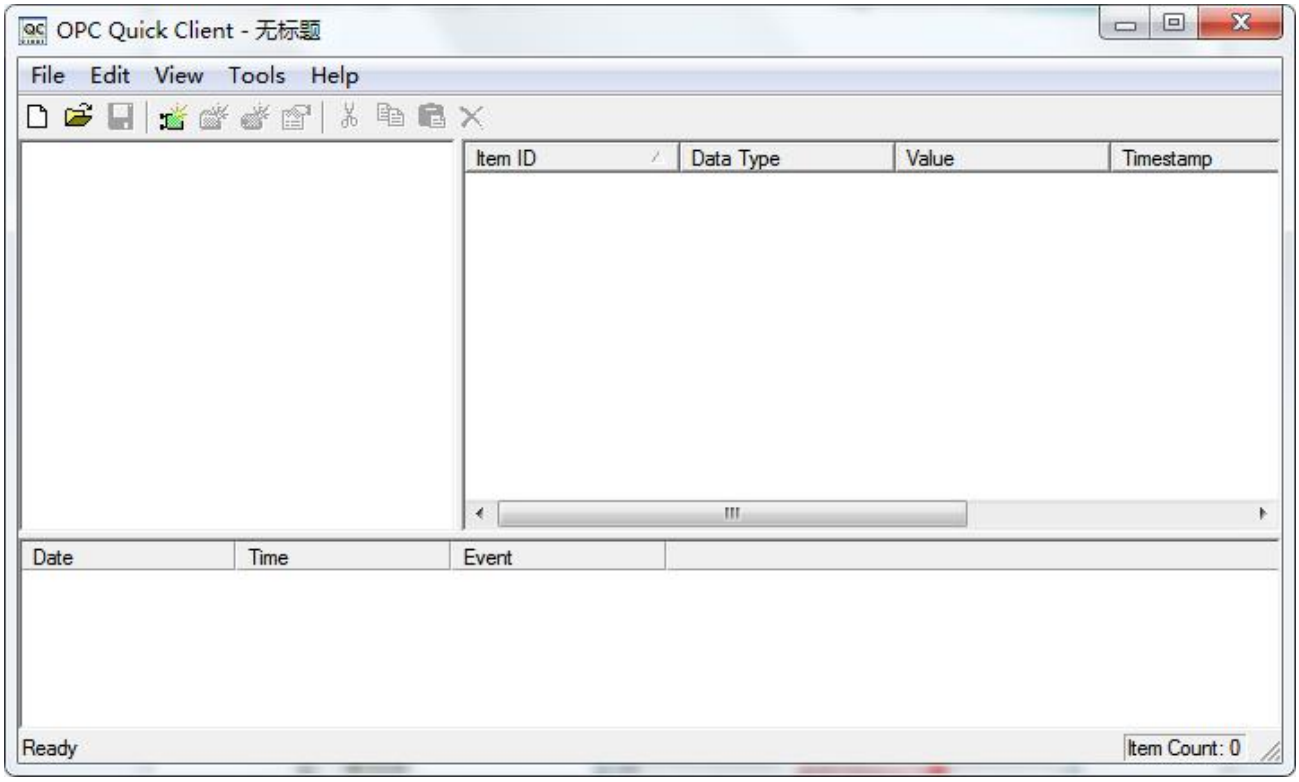


Figure 11- 6

(2) Run V-BOX OPC tool and set corresponding server

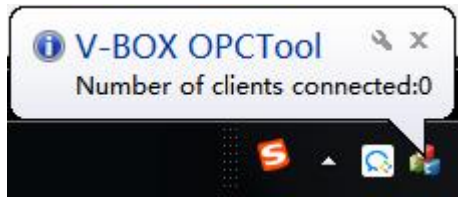


Figure 11- 7

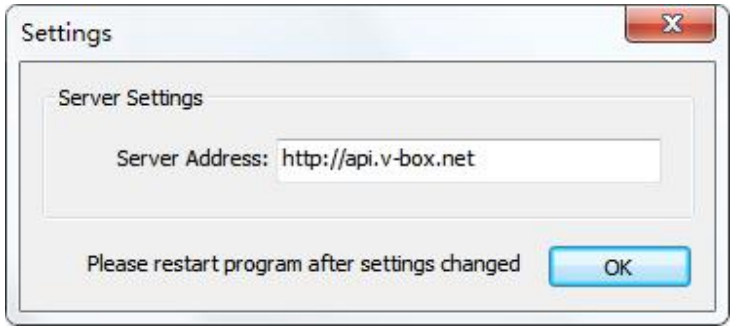


Figure 11- 8

(3) Select "New Server Connection" and select "V-BOX.OPCSERVER DLL"

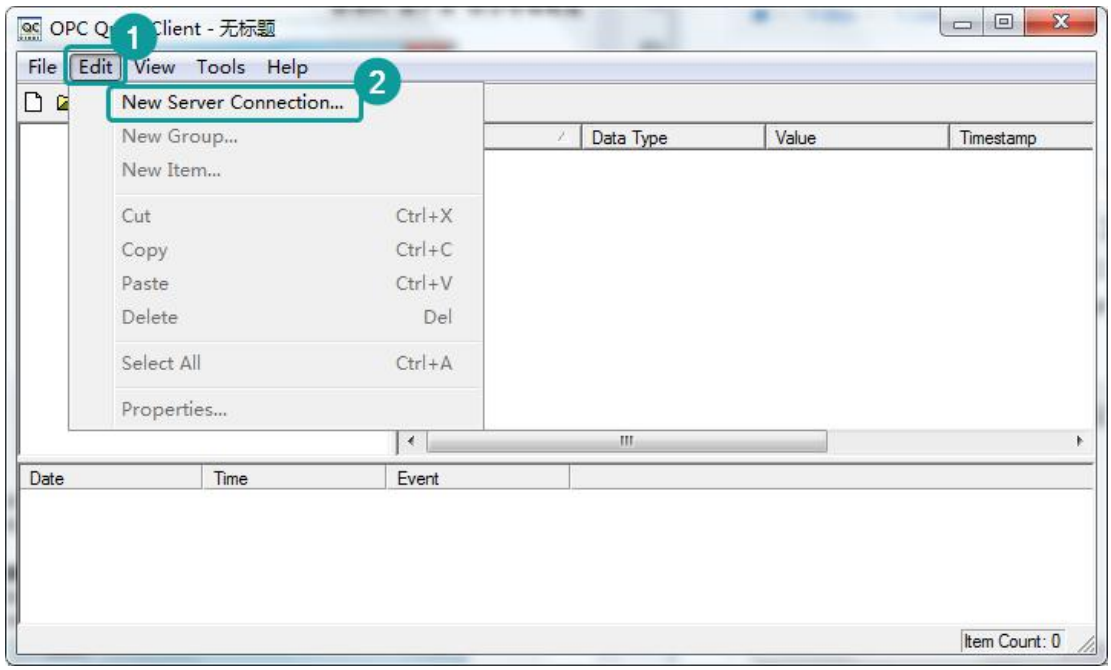


Figure 11- 9

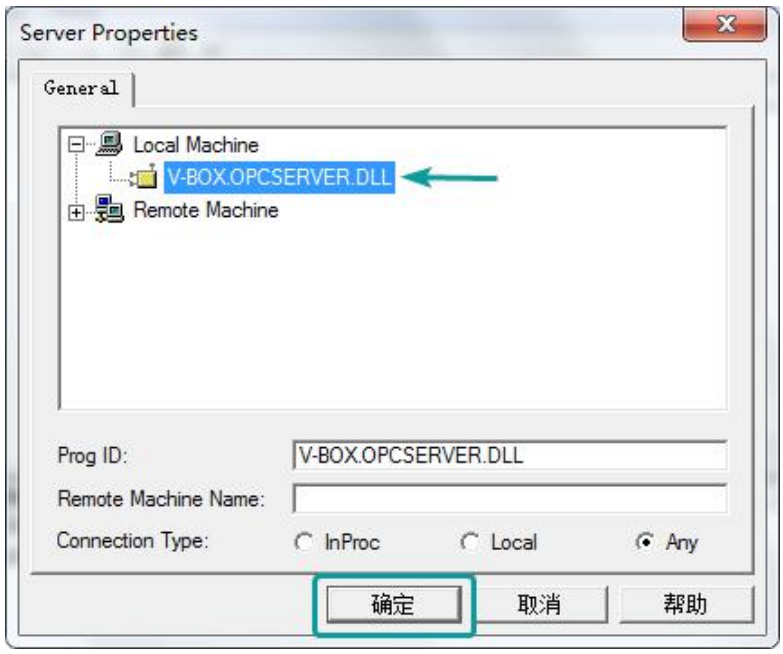


Figure 11- 10

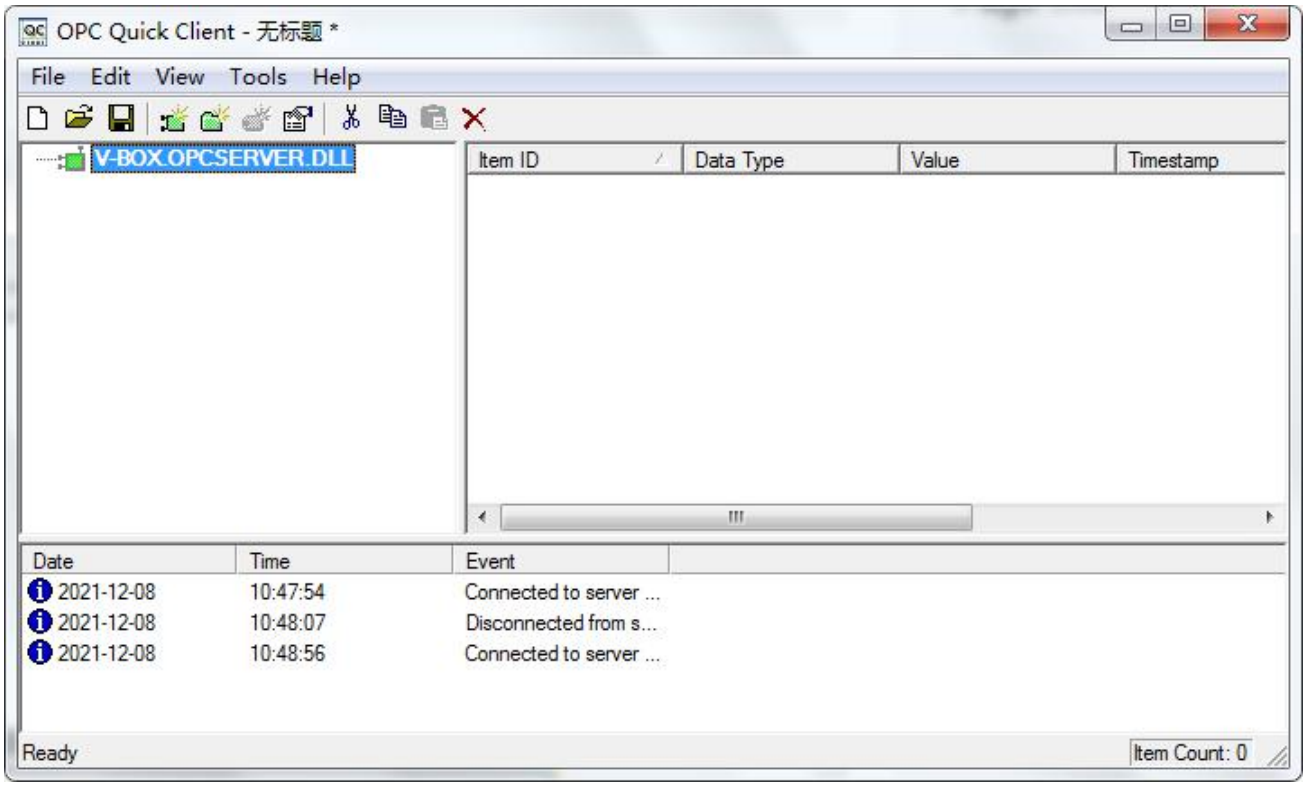


Figure 11- 11

(4) Add a new group, set the group name according to your needs.

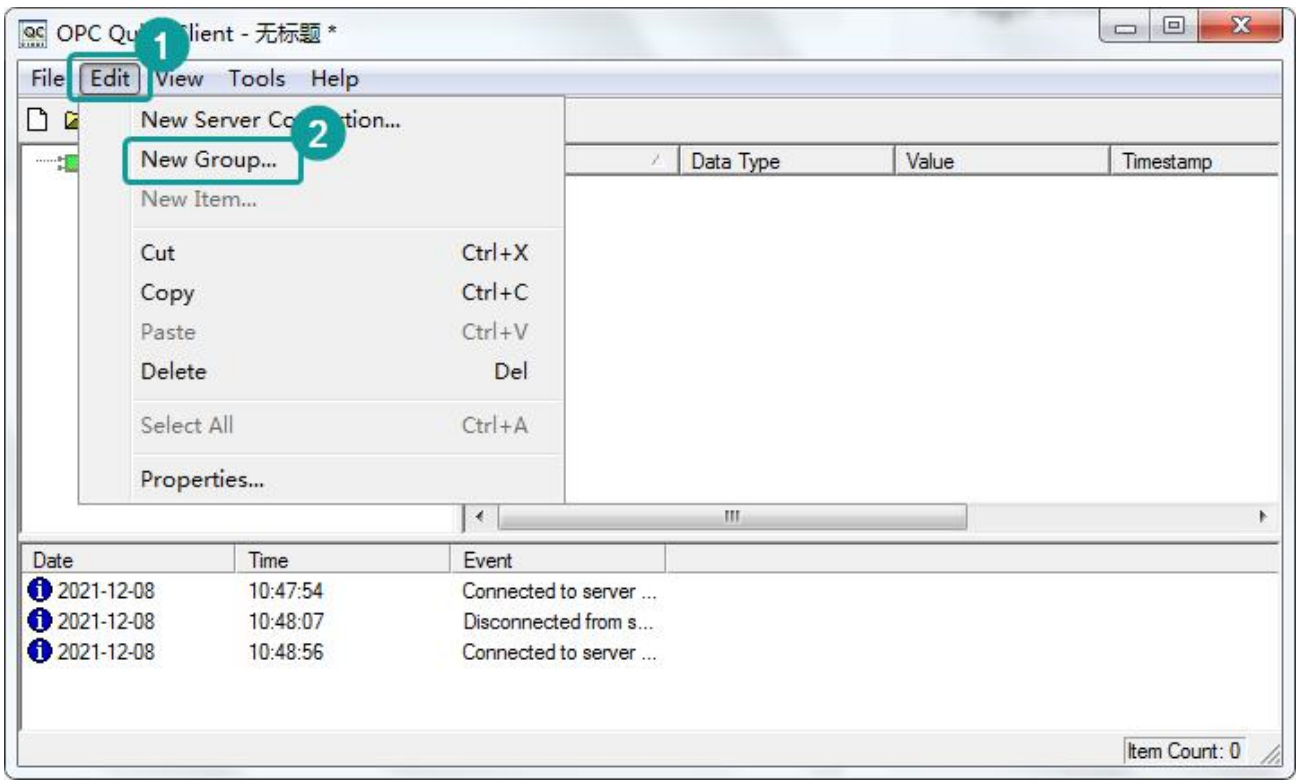


Figure 11- 12

(5) Add a new item for the group.

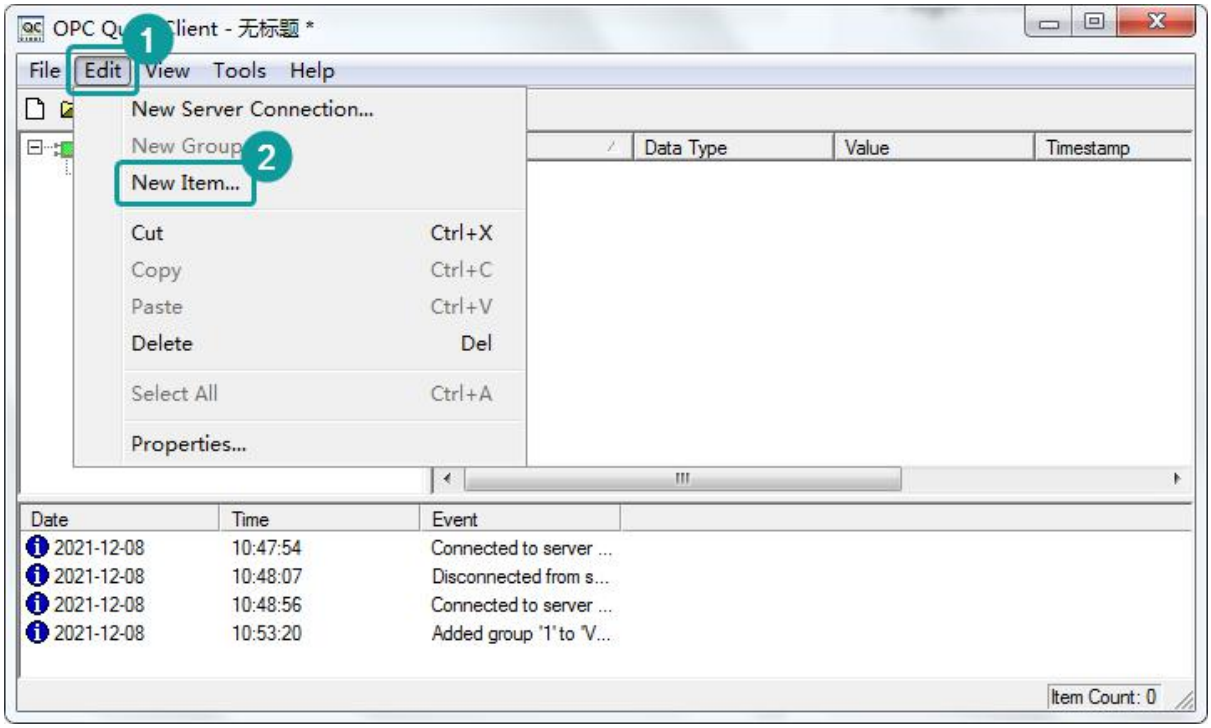


Figure 11- 13

(6) Select corresponding V-BOX and monitor point. Double click it to add Item.

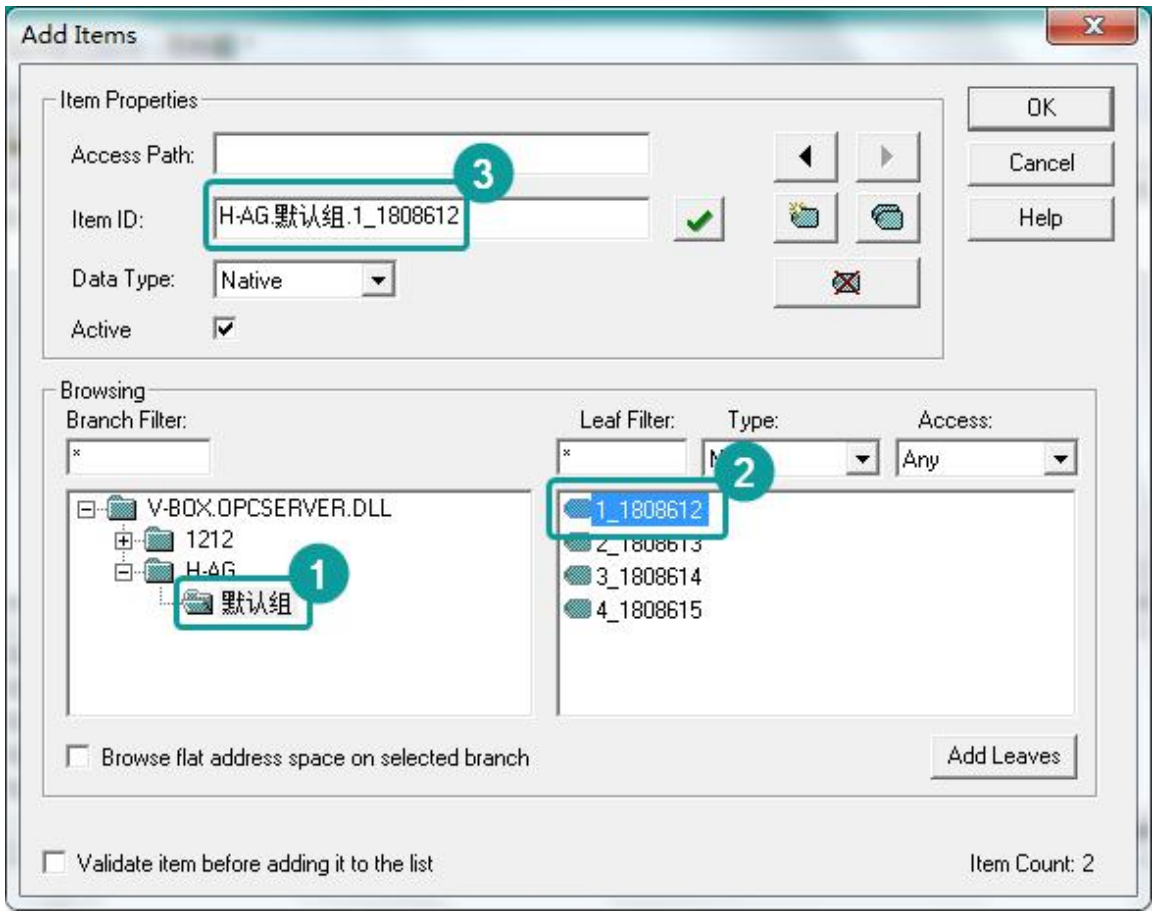


Figure 11- 14

Then this Item value would display as below.

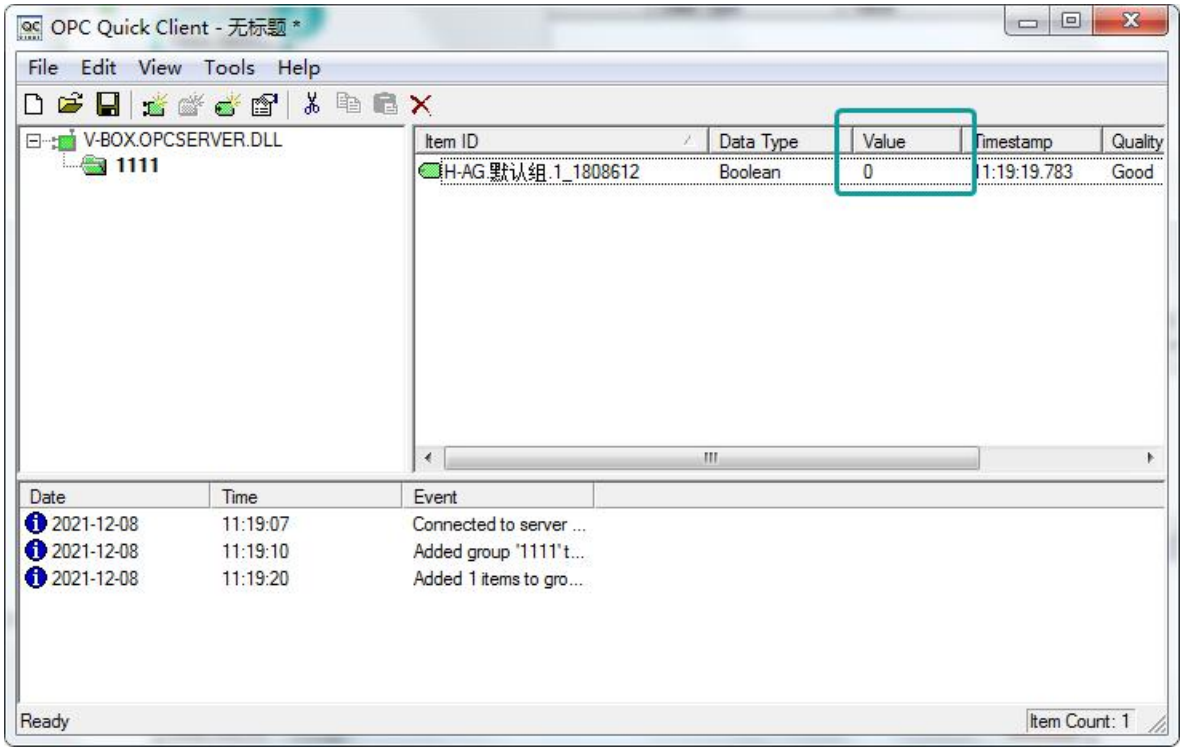


Figure 11- 15

Right-click the item, and select "Synchronous Write" to change the value of item.

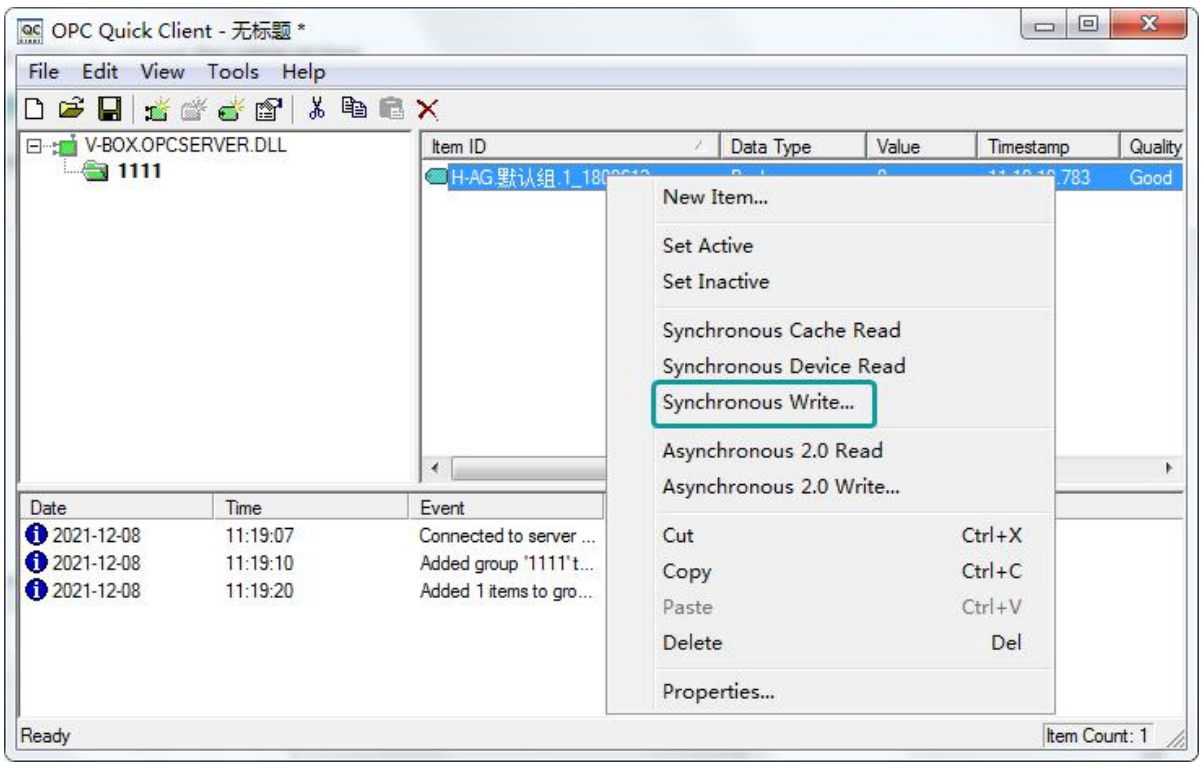


Figure 11- 16

✎**Note:** After the software is started, it would not dynamically adjust according to the increase, deletion, or configuration modification of the server monitoring point, and would only update the value of the monitoring point from time to time.