HIKVISION

UPS Accessory

SNMP Card User Manual

Content

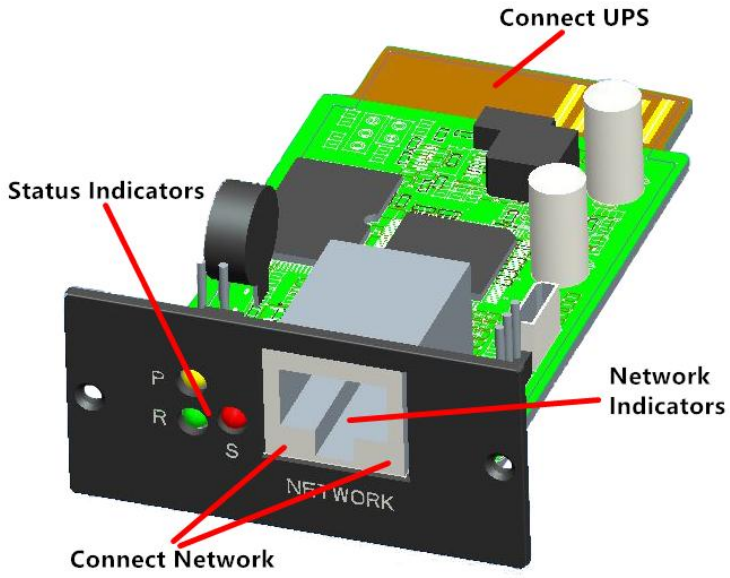
Revision Record

Version Number	Update Content	Date
v1.0	Initial Version.	Jan 2021
v2.0	Modified the email Settings in section 4.2.5A.	Sep 2021
v2.1	Modify the description of product functions and features in Chapters 1.2 and 1.3.	Apr 2022
v2.2	Modified the login description in section 3.1 Managing the Login Page.	Jul 2022
V2.3	Modified the descriptions in sections 4.2.1- A and 4.2.4-B and 4.2.5-A.	Mar 2025

1. Product Introduction

1.1. Overview

KPM220 is a built-in network SNMP card independently . It supports SNMPv1/v2 and v3 protocols, features e-mail alarm, historical events and historical data storage.Picture is shown as below:



1.2. Functions

- Support multiple operating systems (Windows、Mac、Linux)
- UPS can be monitored remotely through the network;
- Can realize web-based user interface;
- Support e-mail alarm;
- Multi-user permission management;
- Support DHCP;
- Support remote self-testing, shutdown and restart UPS functions (UPS support required);
- Support scheduled tasks (timed self-test, power on/off);
- Historical events and historical data storage functions;
- Remote UPS monitoring and management can be performed through HTTP, SNMP,Modbus TCP/IP;
- Complete equipment event handling (including event recording and notification);

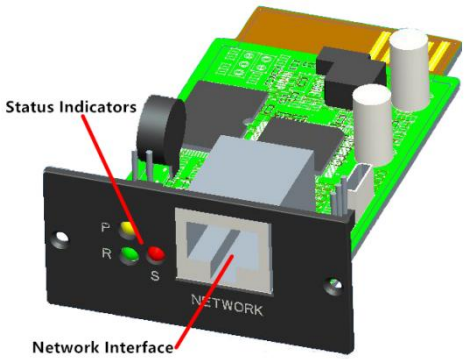
1.3. Features

- Networking methods: IP-based LAN, WAN, Internet, wireless Ethernet, etc.;
- User permission management, safe, confidential and reliable;
- Support Web page configuration;
- Support scheduled task function, allow setting scheduled UPS on/off, scheduled battery discharge, etc.
- Support storage of 50, 000 historical data and 5, 0000 historical event records;

- Built-in ultra-long-life system clock, support automatic timing to achieve time synchronization;
- Support SNMP V1/V2/V3, HTTP, HTTPS,Modbus TCP/IP network protocols;
- Support IPV6;

1.4. Network Interface

10/100M RJ45 Ethernet interface, used to connect to the switch.



1.5. Definition of Indicator Lights

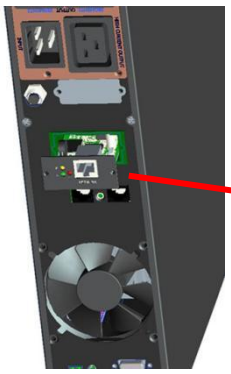
Power indicator yellow (Power), always on;

Status indicator red (Status), off when normal, always on when an alarm or fault is generated;

Run indicator green (Run), flashing when the program is running normally.

2. KPM220 Installation

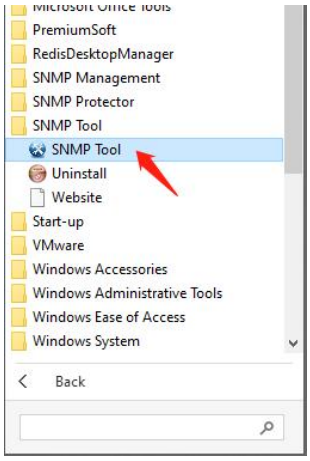
2.1. KPM220 Installation & Connection

KPM220 Installation & Connection	
 Step 1: Insert the SNMP card into UPS intelligent slot;	 Step 2: Connect the SNMP card to computer with network

2.2. SNMP-Tool Installation & Usage

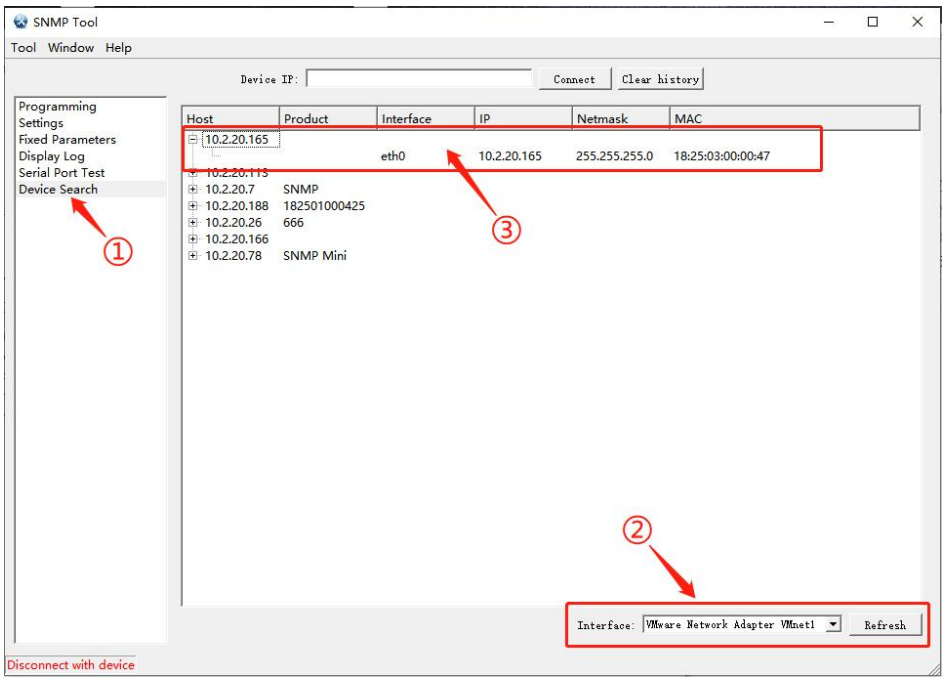
A. Download installation files from https://www.hikvision.com/en/support/download/software/ups-software/ execute "SNMP_Tool_20xxxxxx_V1.x.x.exe" to start the install the software, users can find the icon of software in "Start menu--All Programs--SNMP_Tool" after

installation.



B. Device IP address searching

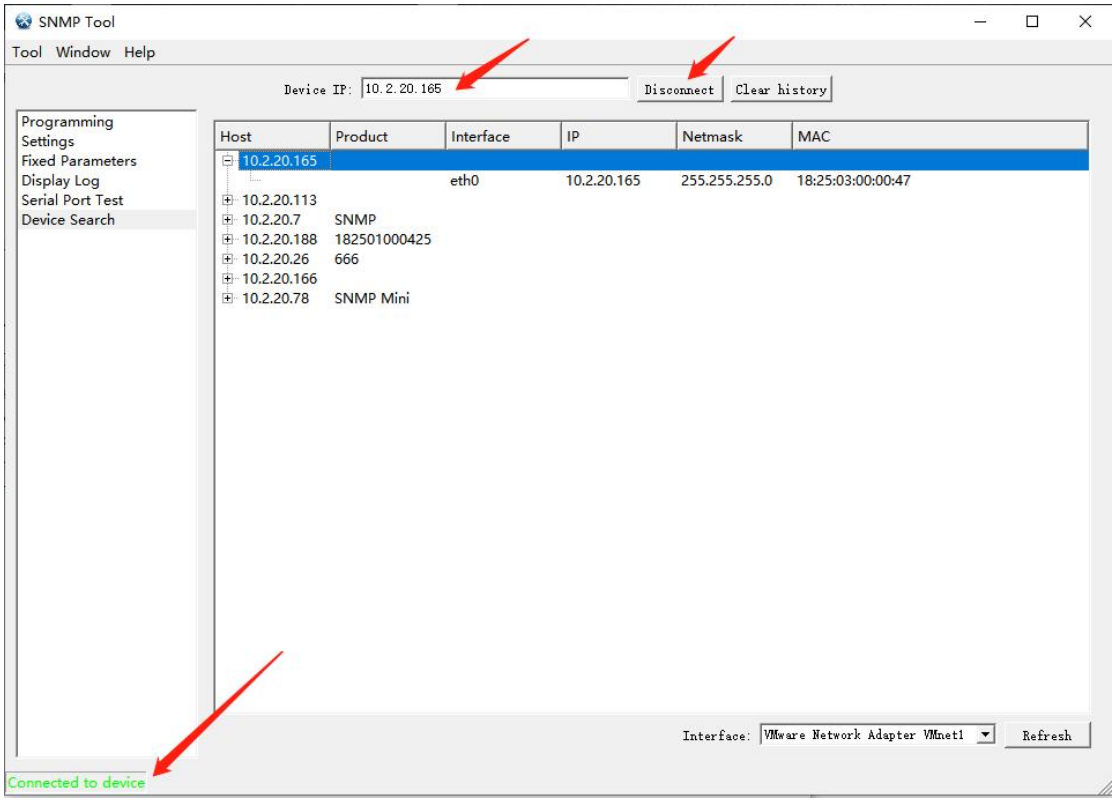
If the CURRENT IP address of the SNMP card cannot be determined because the IP address is changed or the IP mode of the shipped device is DHCP, you can search the IP address of SNMP card by installed "SNMP-Tool", the specific methods are as follows: ①Click"Device Search", ②Choose current network port, click"Refresh"to query the SNMP card IP in the LAN.



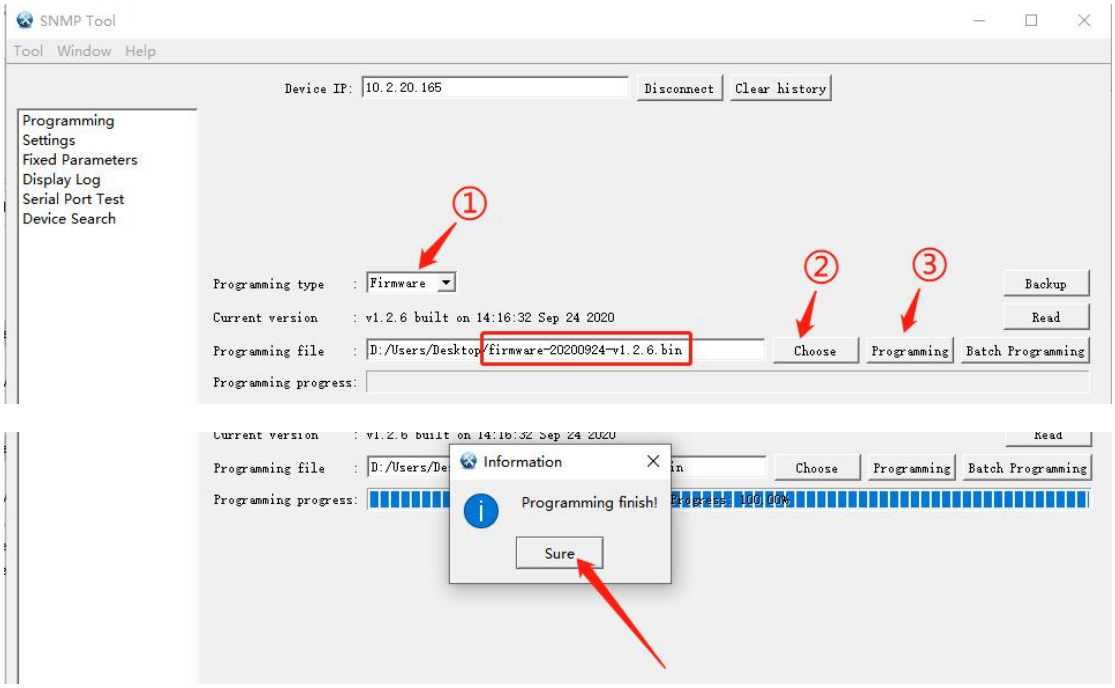
C. Software verision upgrade

(1) Connect the device, input the IP of the device that needs upgrade, click "Connect"

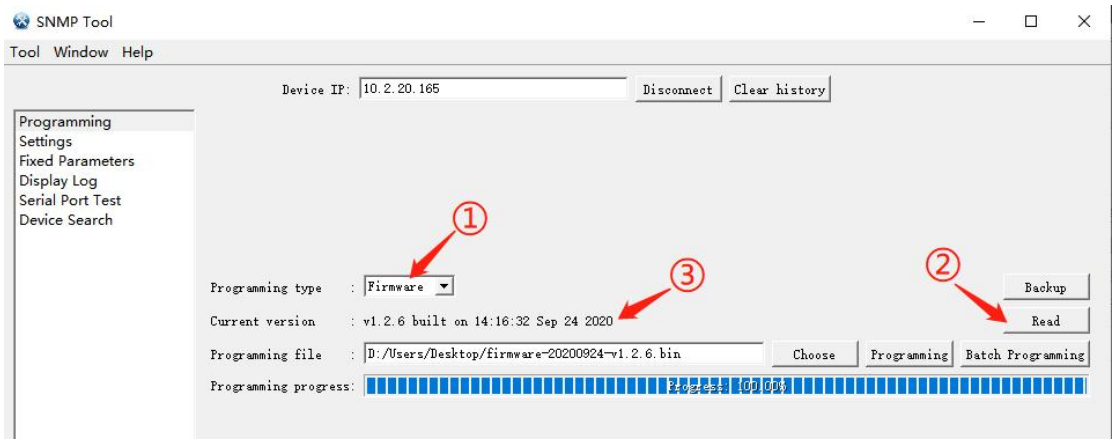
After the connection is successful, there will be a green font in the lower left corner of the tool interface that displays "Connected to device".



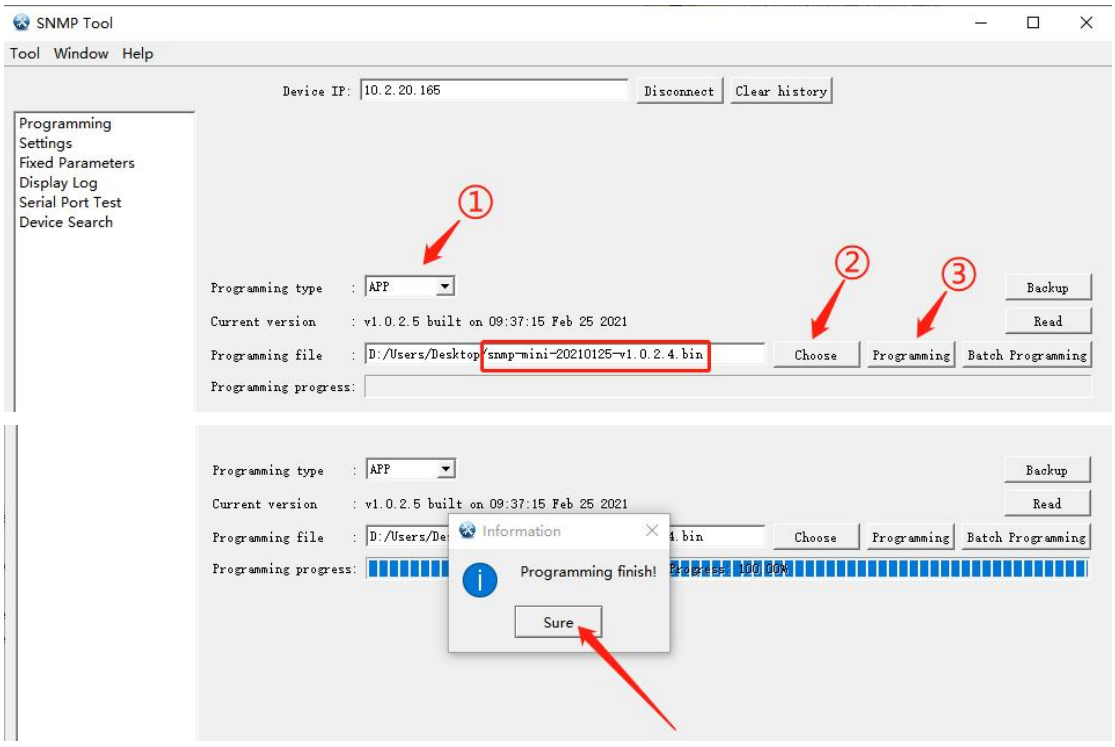
(2) Upgrade the firmware , select the new version file(file type is firmware -20xxxxx-v1.x.x.bin), and click "Programming", it will prompt "Programming finish".



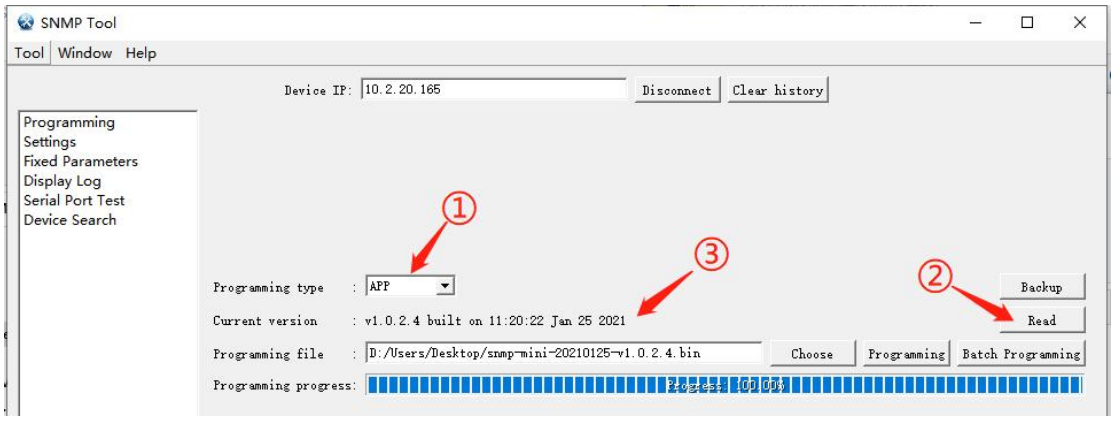
Check whether the firmware upgrade is successful, as shown in the figure below: Programming --Programming type--select "Firmware"-- Read -- check the current program version.



(3)Upgrade the application,①Programming type select "APP"② select the new version file(file type is snmp-20xxxx-v1.x.x.x.bin),③ click "Programming", wait about 30 seconds,it will prompt "Programming finish".And then log in the background of SNMP card to check the software version.



Check whether the application upgrade is successful, as shown in the figure below: Programming - Programming type select "APP"- Read - check the current software version.

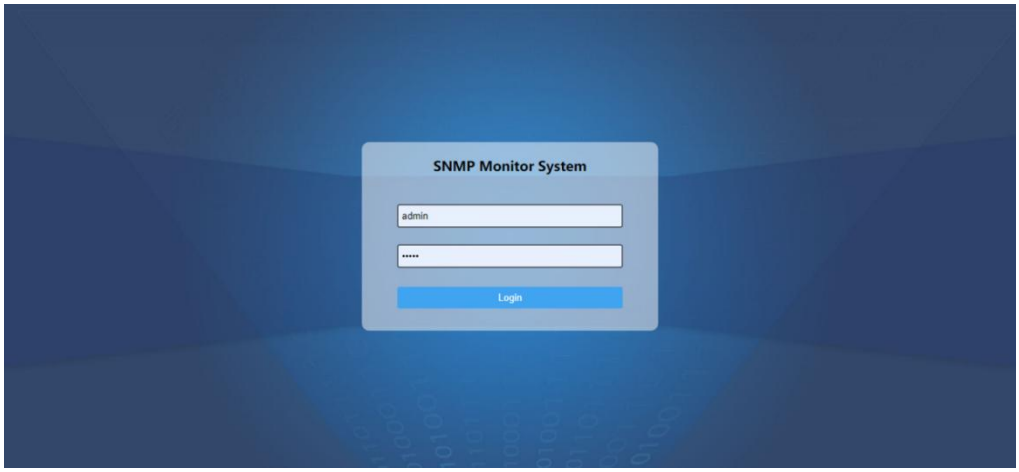


3. Web Login

3.1. Web login management

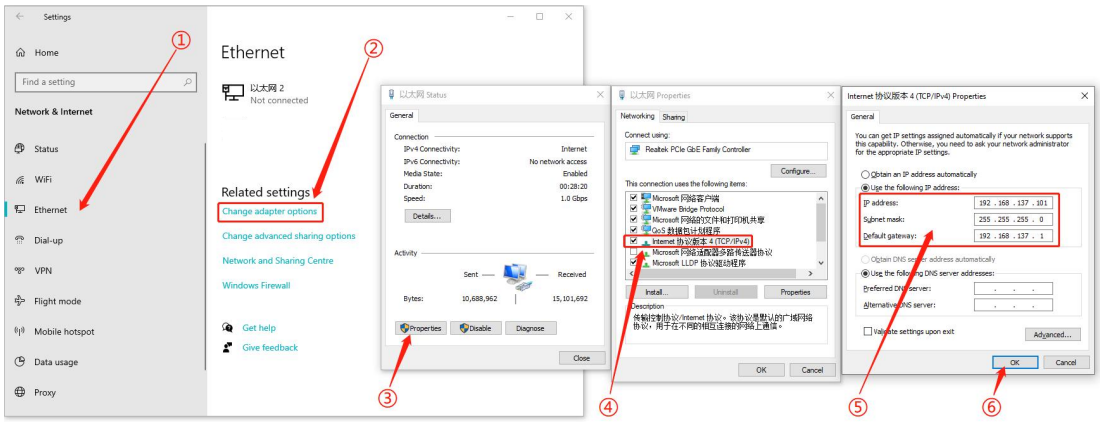
Connect the PC and SNMP card to the router, and use SNMP_Tool to search for the IP address of the device (see 2.2 B.Device IP address searching). Device IP address search, and then enter the IP address in the browser to log in(The default user name and password are admin) to the SNMP monitoring system.

Note: Before login, modify the PC IP address and ensure that the PC IP address and SNMP card IP address are in the same network segment.



The method to modify the computer IP is as follows:

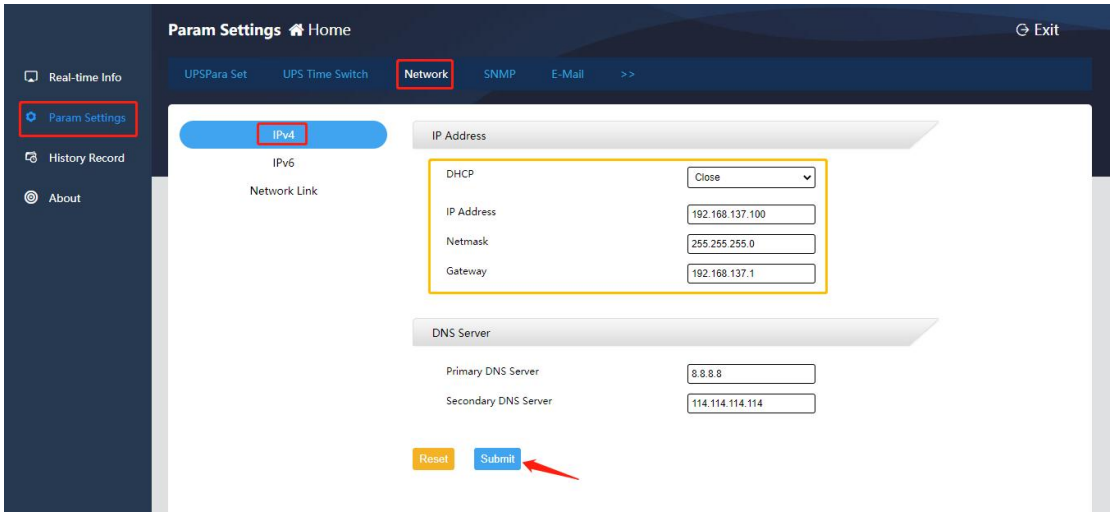
Open "Network & Internet", ①Select "Ethernet", ②Click "Change adapter options", double click the Ethernet connected, ③Click "Properties", ④Double click "Internet protocol version 4(TCP/IPv4)", ⑤Select "Use the following IP address:", fill in the IP address information of the same network segment as the SNMP card(for example:The device IP address is 192.168.137.100,Then set the COMPUTER IP address to 192.168.137.101, subnet mask is 255.255.255.0, default gateway is 192.168.137.1,If you are not sure about the gateway, you do not need to set the gateway.) ⑥Click "OK".



3.2. Chang IP Address

Parameter settings - Network -- IPV4, set to automatically obtain IP (select On for DHCP) or static IP address (select Off for DHCP), set the static IP address of SNMP card, and fill in the corresponding subnet mask and gateway; when

domain name resolution is used, you need to set the DNS server; click “Submit” to confirm after completing the settings, as shown in the figure below:

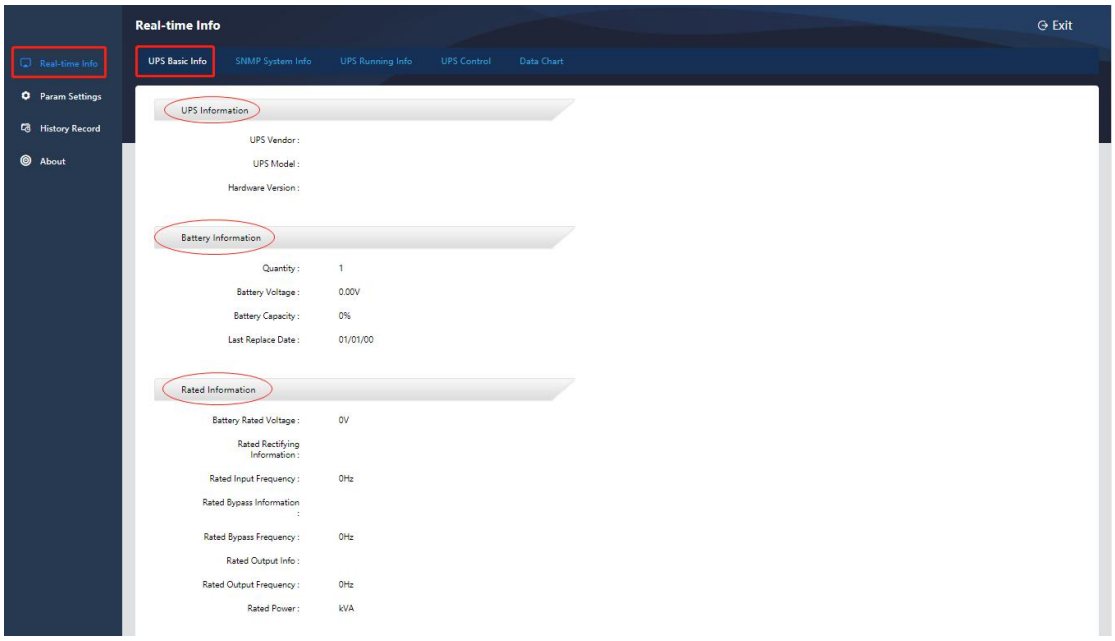


4. Web Monitoring Management

4.1. Real-time Information

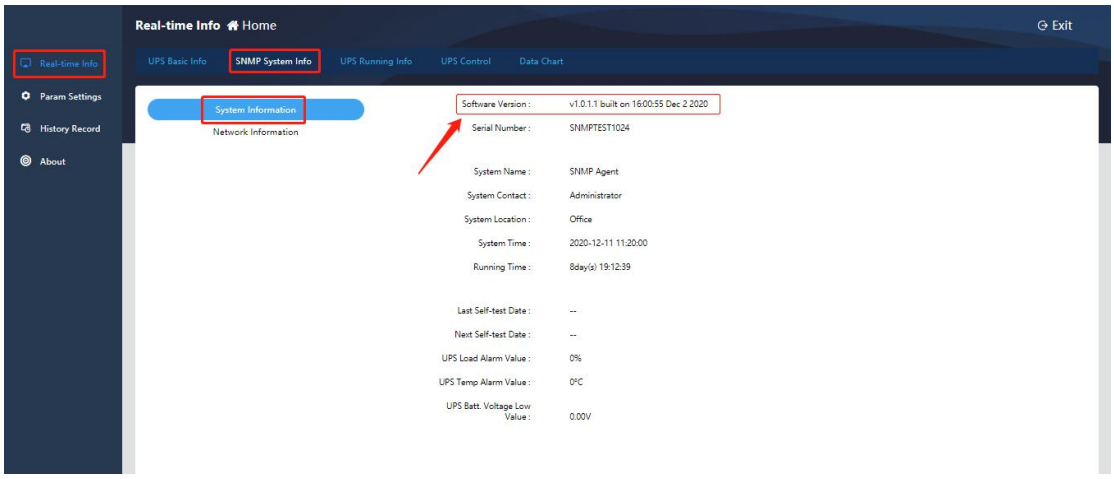
A. UPS Basic Information

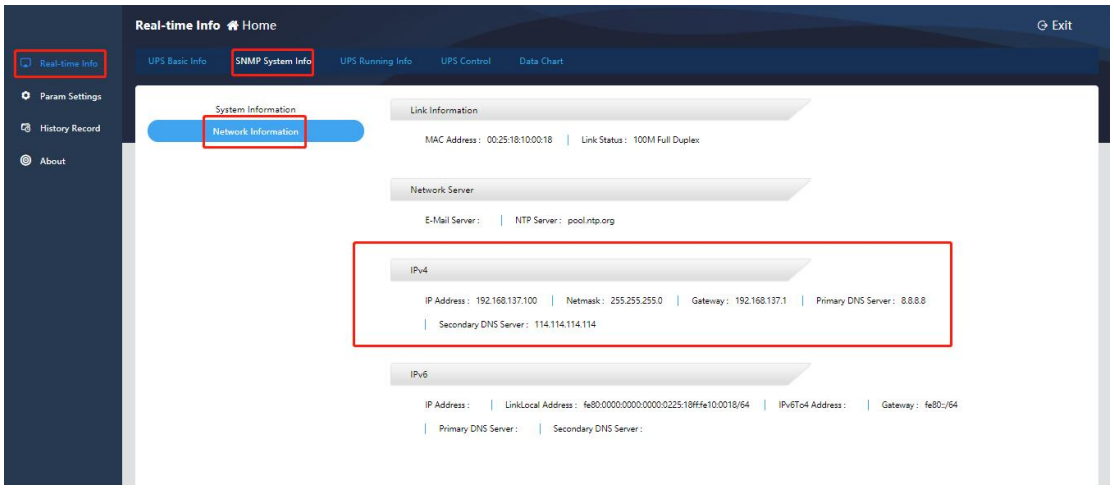
This item allows viewing basic UPS information, including UPS information, battery information and rated information, as shown in the following figure:



B. SNMP System Information

This item allows viewing system information (software version), network information (IP information), as shown in the figure below:

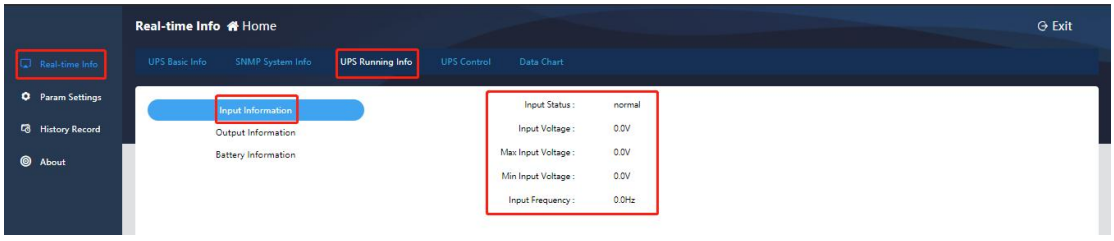




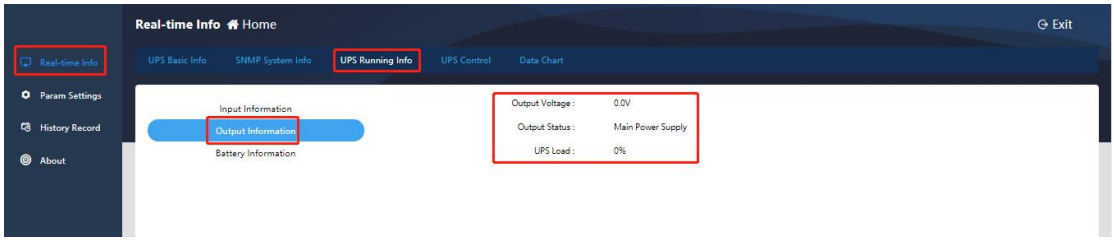
C. UPS Operation Information

The content of UPS operation information is different according to the selected communication protocol. Taking MegaTec1:1 protocol as an example, UPS operation information includes input information, output information, and battery information, as shown in the following figure:

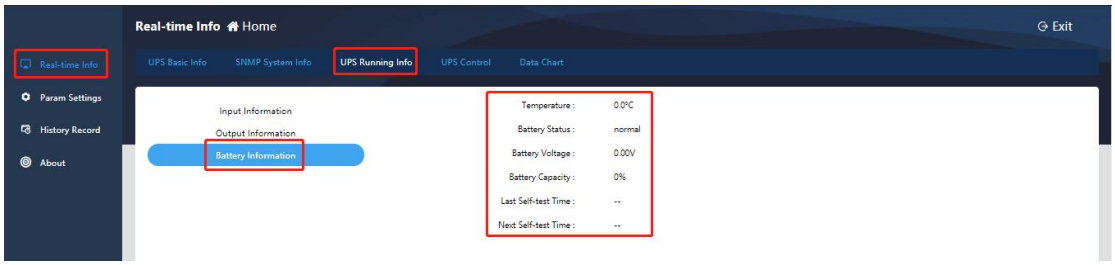
Input information:



Output information:

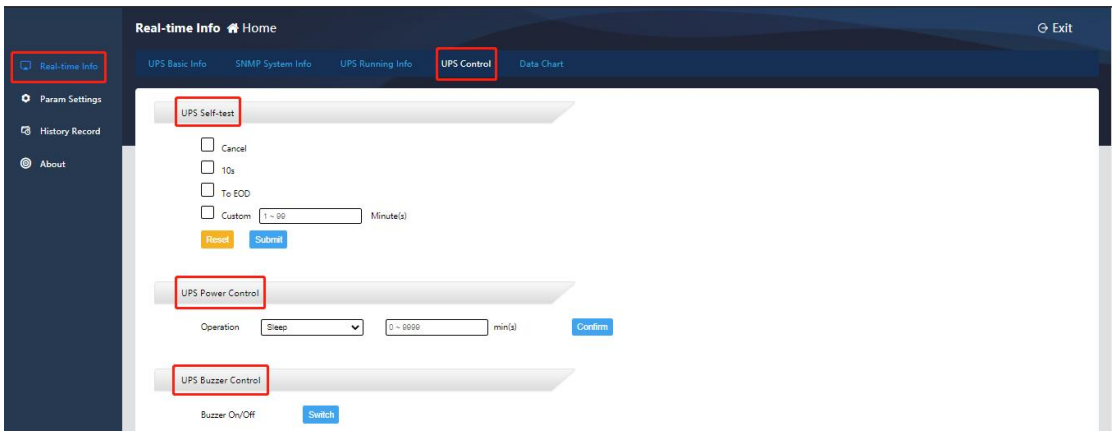


Battery information:



D. UPS Control

The UPS control content is different according to the selected communication protocol. Take the MegaTec1:1 protocol as an example, it includes manual UPS self-check, manual power on/off and buzzer on/off control, as shown in the figure below;



E. Data Chart

This item can be used to query the single day operating data change curve of the equipment by selecting a specific date. The data types include temperature (°C), output voltage, and load (%). You can select or cancel the type to be displayed by clicking the mouse. The curve recording interval is 90 minutes.

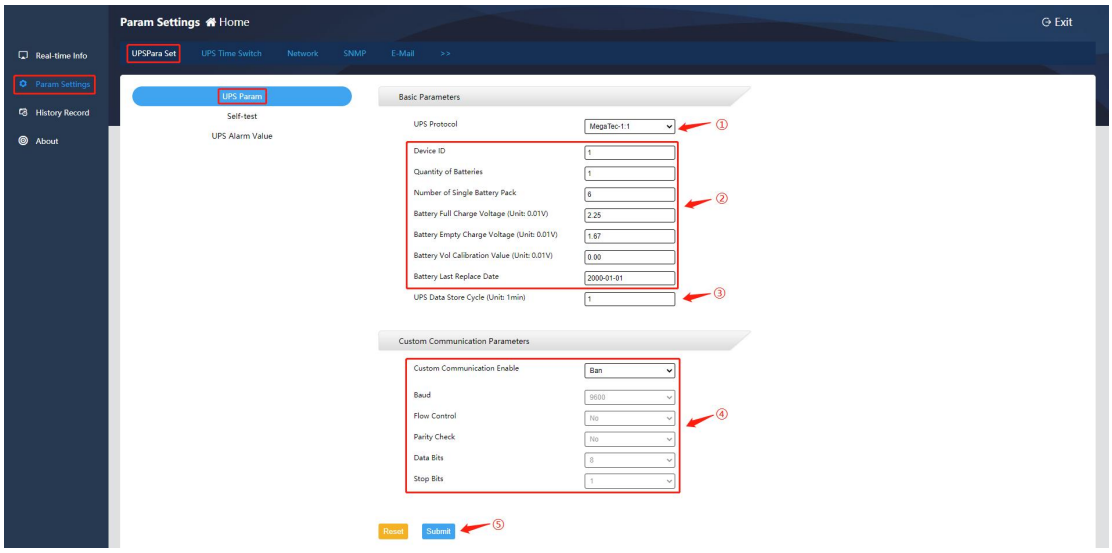
4.2. Parameter Settings

4.2.1. Parameter Settings

A. UPS Parameter Settings

Here you need to ①Select the UPS protocol according to the actual situation on site, ②Fill in the battery information、device ID ③Data store cycle, ④Customize communication parameters (This setting remains disabled when using a

1-in-1-out UPS), after parameter setting, ⑤Click "Submit" and it's effective, as shown in the figure below:

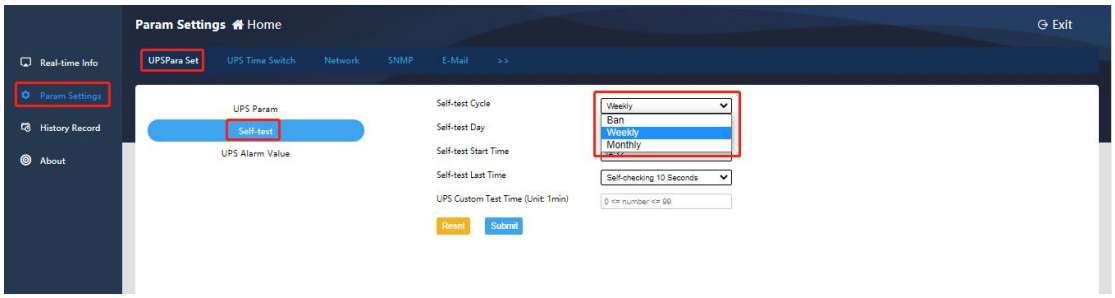


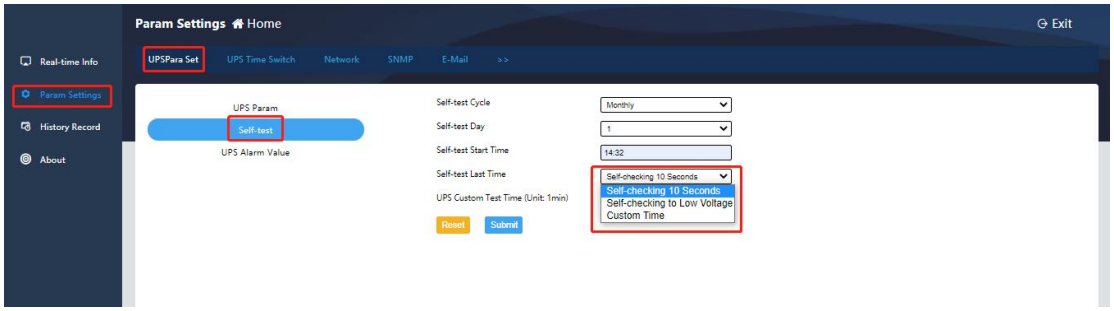
Description of each setting item:

- ①**UPS Protocol**: The default value is megate-1:1, applicable to 1-input 1-output UPS. Megate-3:1 is applicable to 3-input 1-output UPS; Megate-3:3 applies to 3-input 3-output UPS.
- ②**Device SN**: The serial number of the UPS is optional.
- **Device ID**: The default value is 1, which does not need to be changed in non-parallel scenarios. In parallel scenarios, set this parameter based on the actual device ID.
- **Quantity of batteries**: Fill in the number of batteries in a group. For example, there are actually 2 groups of batteries, each group of 16, so fill in 16 here.
- **Number of Single Battery battery packs**: The default value is 6. For 12V batteries, set the value to 6. Set the 2V battery to 1.
- **Battery Full Charge Voltage**: Use the default value 2.25.
- **Battery Empty Charge Voltage**: Use the default value 1.68.
- **Battery voltage calibration value**: The default value is 0. If the battery capacity is not 100% in the floating charge state, the value can be increased by positive 0.01.
- **Battery Last Replace Date**: Fill in the most recent battery replacement time, or the date of installation for new machines. Used for battery maintenance tips.
- ③**UPS Data Store Cycle**: The default value is 1, indicating that one UPS running data (event history) is saved every minute.
- ④**Custom communication parameters**: This parameter is disabled by default. Normally, you do not need to change it. Protocols such as Modbus-**** must be Enable For communication, set the baud rate to 2400 or 9600. Other parameters do not need to be changed.

B. Self-check Settings

This function depends on whether the UPS host has a self-check function. The UPS self-check cycle can be weekly/monthly, and the self-check time can be customized, 10 seconds or until the battery voltage is low. Click [Submit] after completing the setting, as shown in the figure below:

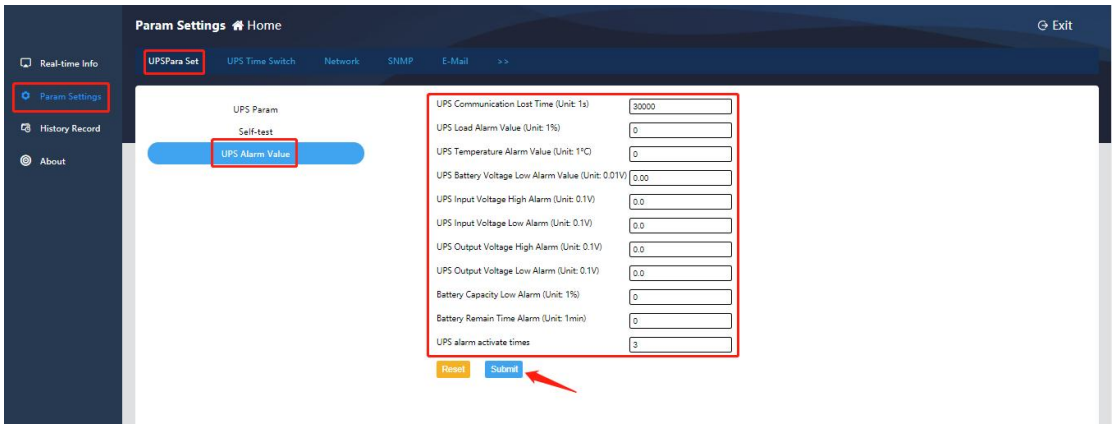




C. UPS Alarm Value Setting

This item allows customizing the UPS communication loss time (for example, if 30 seconds is set, the UPS is offline when the communication is lost for 30 seconds), load alarm value, temperature alarm value, battery voltage low alarm value, UPS input/output voltage alarm Value, UPS alarm activation times (for example, if the setting value is 3, it will output alarm information when the program returns 3 consecutive polls); after completing the settings, click [Submit] to confirm.

Note: Except UPS communication loss time and UPS alarm activation times, when other custom alarm values are set to 0, meas this type of alarm is not enabled.



Description of each setting item :

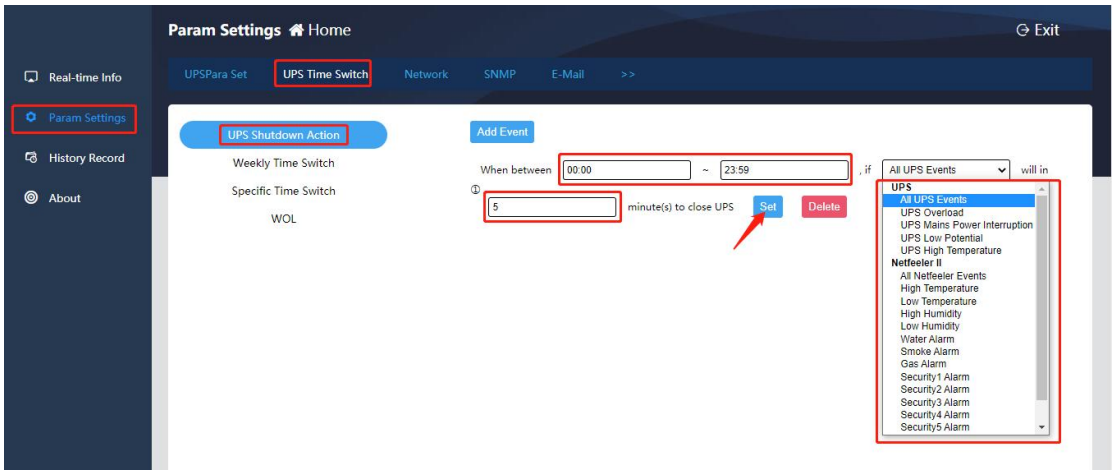
- **UPS communication loss time**: The default value is 30 seconds. If the UPS running data is not obtained within 30 seconds, a UPS communication loss alarm is generated.
- **UPS load alarm value**: You are advised to set it to 90% or based on actual equipment room management requirements.
- **UPS temperature alarm value**: You are advised to set it to 50 or based on the equipment room management requirements.
- **UPS battery low voltage alarm value**: If a single protocol such as megate-1:1 is used, fill in the voltage of the unit. The recommended value is 1.78 to 1.80 (that is 10.7~10.8V single battery voltage); The rest of the three-phase protocol is set according to the total voltage of the battery pack low voltage warning value),

- **UPS input voltage high alarm**: Set the alarm based on the actual power grid condition or equipment room O&M requirements.
- **UPS input low voltage alarm**: Set this alarm based on the actual power grid condition or equipment room O&M requirements.
- **UPS output voltage high alarm**: Set the alarm based on the actual power grid condition or equipment room O&M requirements.
- **UPS output low voltage alarm**: Set this alarm based on actual power grid conditions or equipment room O&M requirements.
- **Battery capacity Low alarm**: An alarm is generated when the battery capacity is lower than a certain percentage.
- **Battery Remaining time alarm**: Set the number of minutes when the remaining battery time is less than the number of minutes.
- **Battery maintenance time**: Set the battery maintenance reminder period based on [Battery last replacement Date] (4.2.1-a-②). For example, if the value is set to 12, a battery maintenance reminder will be triggered one year after the date the battery was last replaced.
- **UPS alarm activation times**: The default value is 3. This setting is for the UPS custom alarm mentioned above. Once the set number of judgments is met, the alarm will be triggered immediately. For example, if the set value is 3, and the input voltage value exceeds the high voltage threshold for three consecutive queries, the "UPS input voltage high" alarm will be triggered immediately.

4.2.2. UPS Time Switch

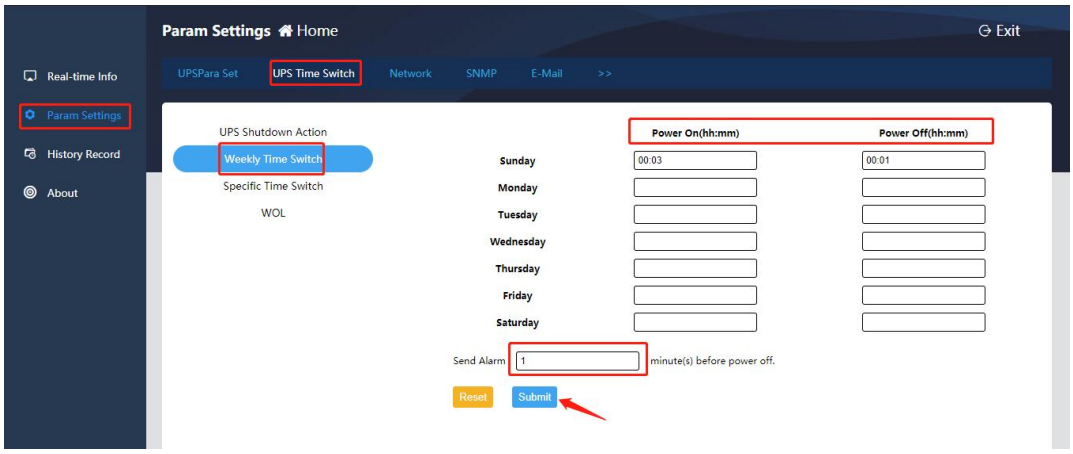
A. UPS Shutdown Action

This function allows selecting the time period of shutdown, shutdown conditions, and execution time of shutdown. After setting, click [Set] to confirm:



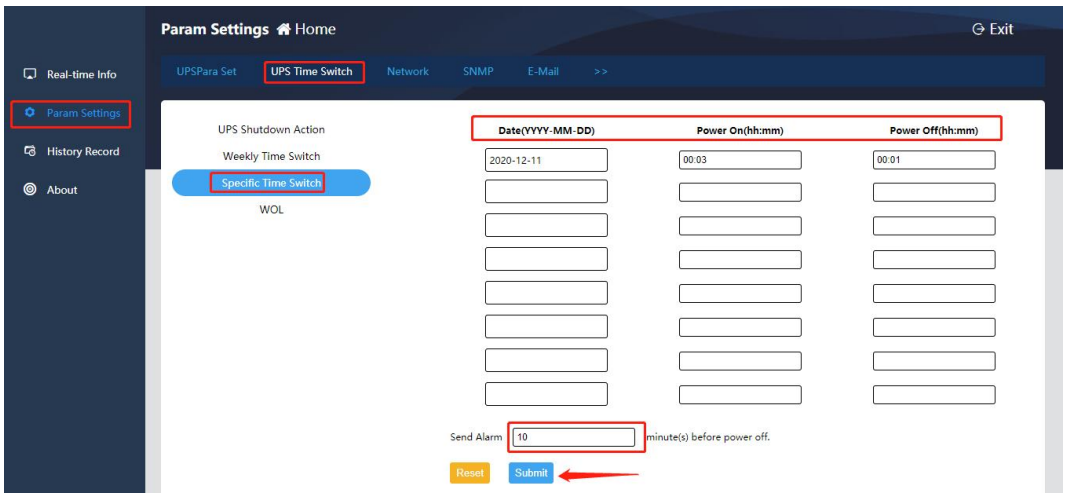
B. Weekly Time Switch

This setting takes one week as a cycle. You can set the specific time of one day or several days in the cycle to perform the power on/off action, and you can set the minutes of sending an alarm before shutdown. After completing the setting, click [Submit] to confirm, as shown below:



C. Specific Time Switch

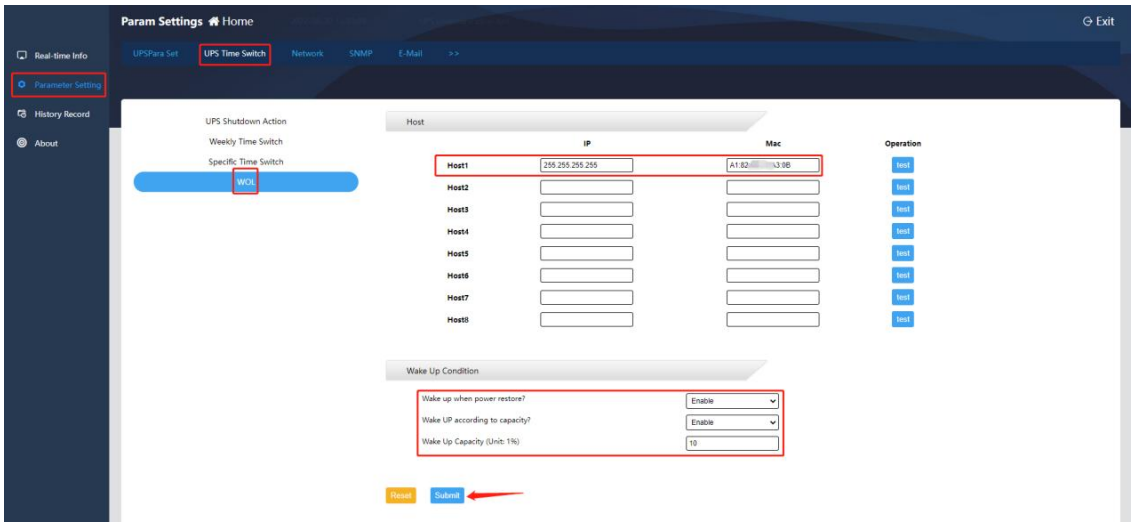
This item allows setting the specific date and time to perform the power on/off action, and can set the minutes of sending an alarm before shutdown. After completing the setting, click [Submit] to confirm, as shown below:



D. WOL

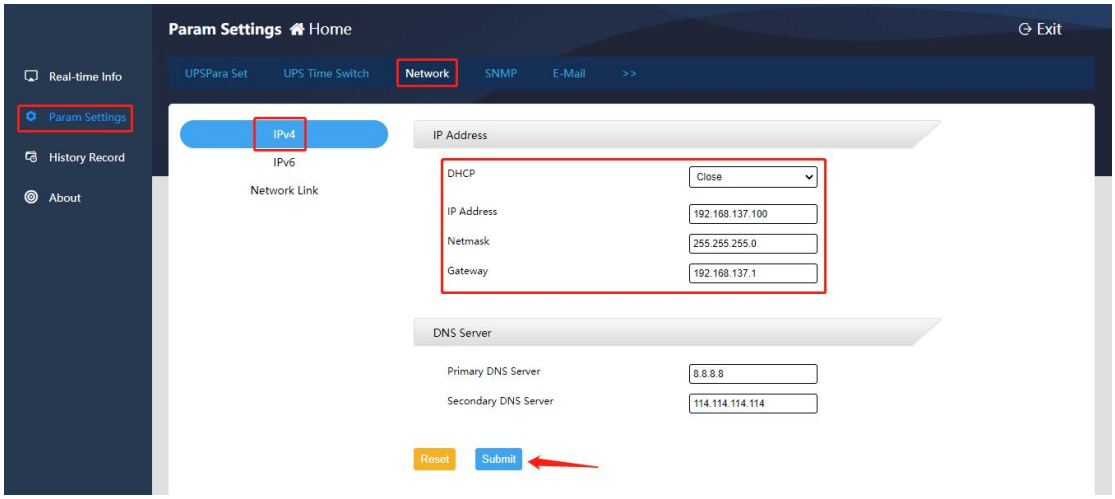
This item allows setting wake-up of specific host (the computer mainboard should support wake-up setting function), set to wake up when the power is restored or wake up when the power reaches the set percentage. After completing the settings, click [Submit] to confirm, as shown below.

Note: The broadcast address in the IP address must be set as 255.255.255.255, and every two bits of the MAC address must be separated by colons.



4.2.3. Network Settings

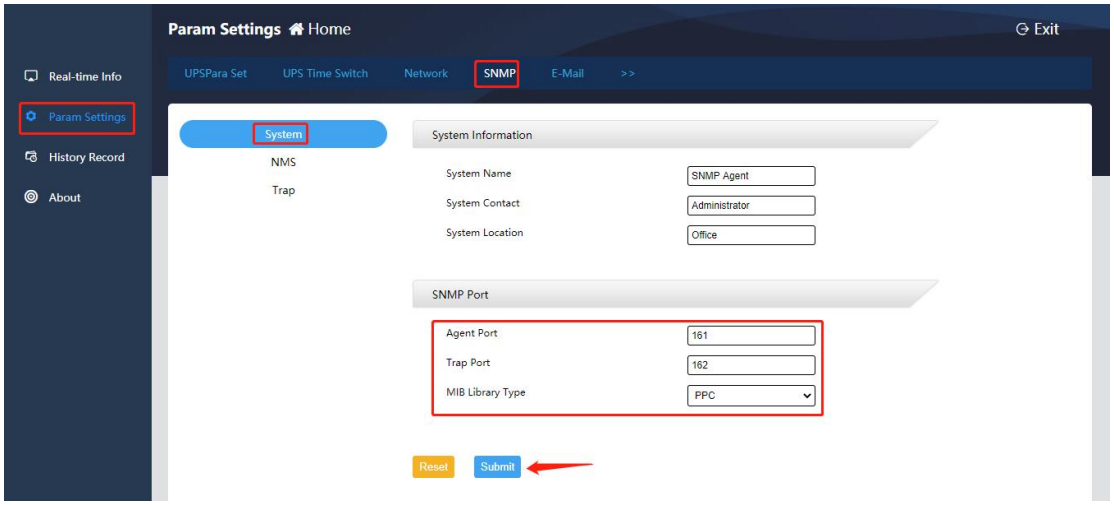
This item allows setting the static IP address of the SNMP card, filling in the corresponding subnet mask and gateway, and setting the DNS server when using the domain name resolution function(Like the email sending function); click [Submit] to confirm after completing the settings, as shown below:



4.2.4. SNMP Settings

A. System Settings

This item allows changing the system information (system name, system administrator, system location), and setting the SNMP port. The default Agent port is 161 (the data transmission port for uploading real-time data when the platform issues polling instructions), and the Trap port is 162 (data transmission port for real-time upload of alarm information). After completing the settings, click [Submit] to confirm, as shown in the figure below:



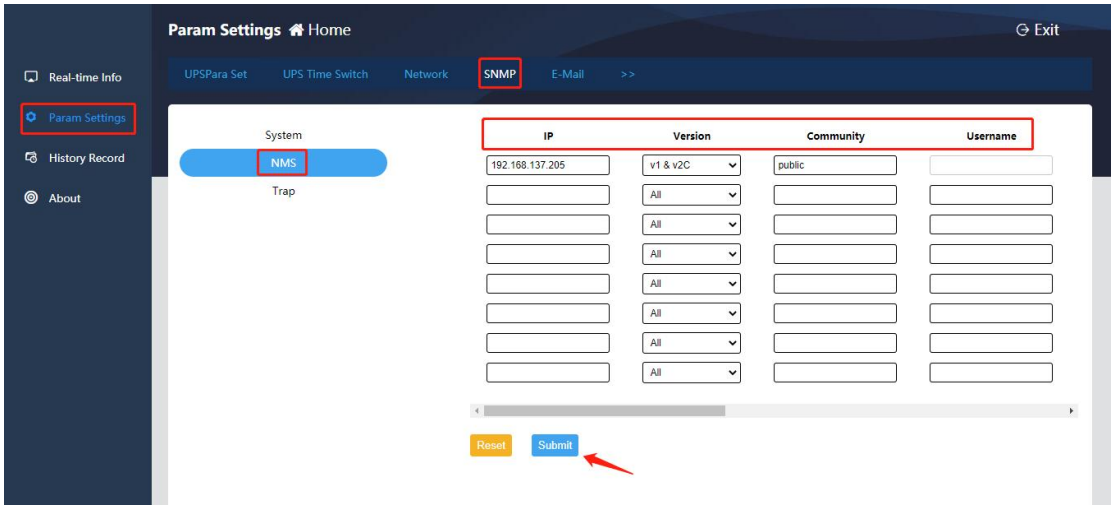
B. NMS Settings

If no information is set in the list here, it means there are no SNMP access restrictions, and any IP can obtain the relevant data of the SNMP card through the SNMP protocol(By using the default port "udp 161" and the default community string "public"); If IP, ommunity string, and version information are set, only the IP in the set list can obtain relevant data of the SNMP card through the SNMP protocol.

Attention:

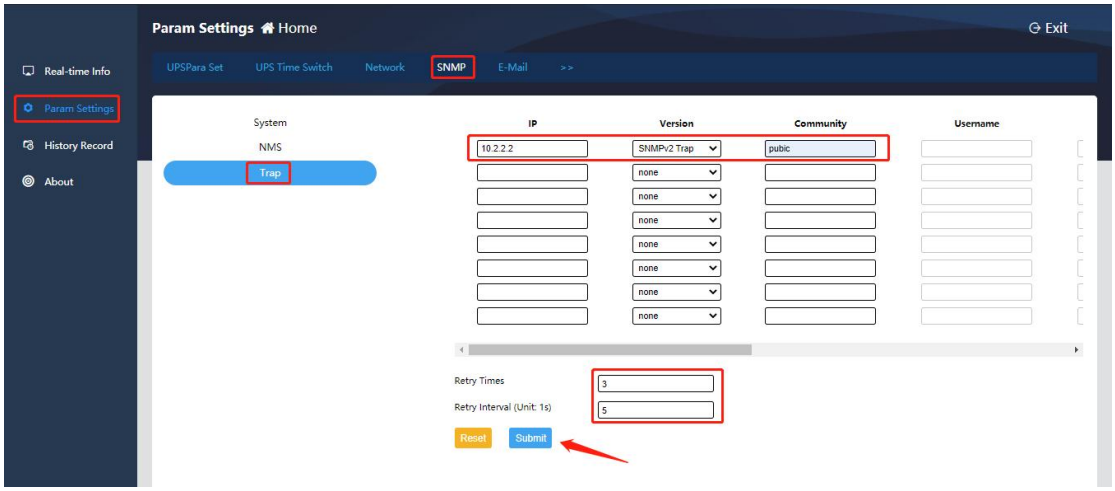
The shutdown protection software and third-party monitoring platform that come with SNMP cards use SNMP protocol communication to achieve data exchange.

Unless the community string used by the monitoring platform communicating with the SNMP card is not public, NMS does not need to be set.



C. Trap Settings

This item allows setting the monitoring server IP and version (SNMPv1 Trap, SNMPv2 Trap, SNMPv2 Inform, SNMPv3 Trap, SNMPv3 Inform), and filling in the community string (can be understood as the transmission password of the SNMP protocol, the SNMP card and the connected monitoring platform should have consistent setting). After the above settings are completed, the alarm information of the SNMP card can be uploaded to the designated monitoring platform in real time, and the number of retries and retry interval can be set. After completing the settings, click [Submit] to confirm, as shown below:



4.2.5. E-Mail Settings

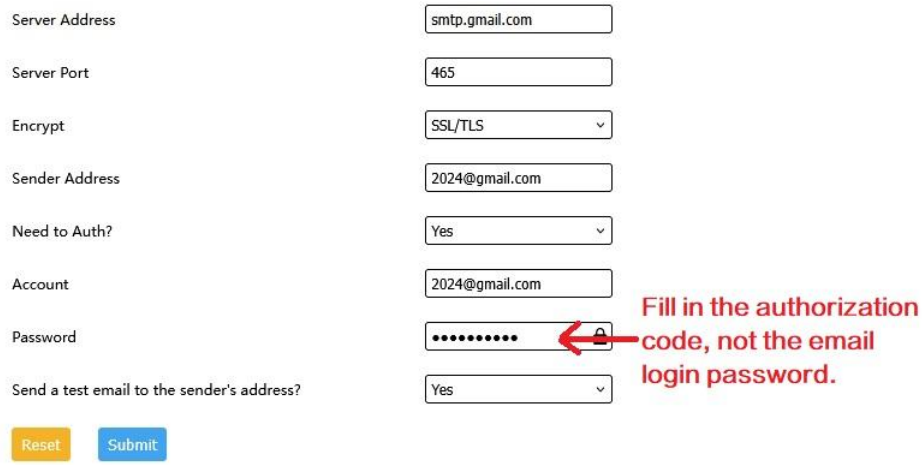
A. Server Settings

- **Server Address**:Only SMTP mail servers are supported,POP3 and IMAP are not supported.
- **Server Port/Encrypt** :The non encrypted email port number corresponds to 25, the SSL/TLS encrypted email port number corresponds to 465, and the STARTTLS encrypted email port number corresponds to 587.
- **Sender Address**:Fill in the sender email account.
- **Need to Auth?**:If set to [yes], you need to fill in the sender account and password below. If it is set to No, you do not need to fill in the following sender account and password.
- **account** :Fill in the sender email account.

- **Password**: fill in the authorization code, not the mailbox login password. For instructions on how to obtain an authorization code, please refer to the description behind the example image.
- **Send a test email to the sender's address?**:When set to [yes], a test email is sent to the sender address. Not the alarm user account.

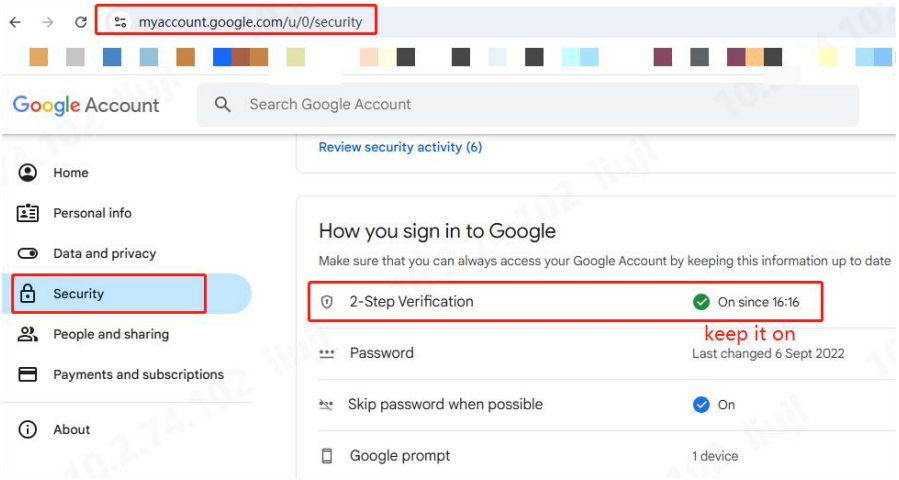
Note: If the above configuration is correct, the alarm message cannot be sent successfully. Ensure that the network connection between the SNMP card and the mail server is normal, and that the DNS configuration is correct.

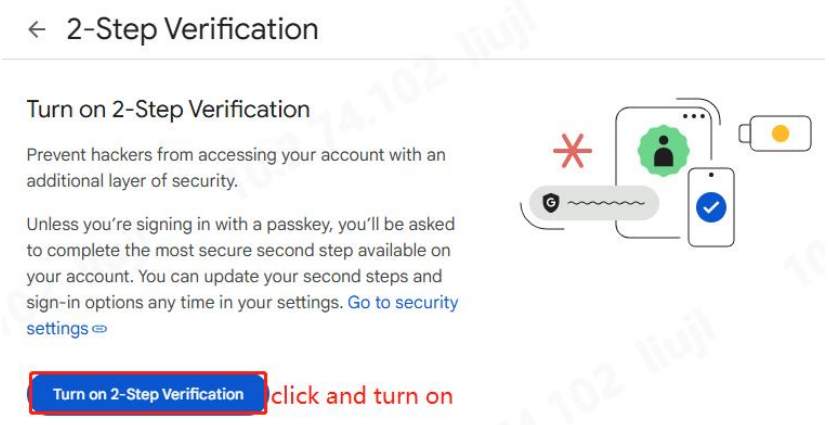
After completing the settings, click [Submit] to confirm.



Example of obtaining authorization code from Gmail:

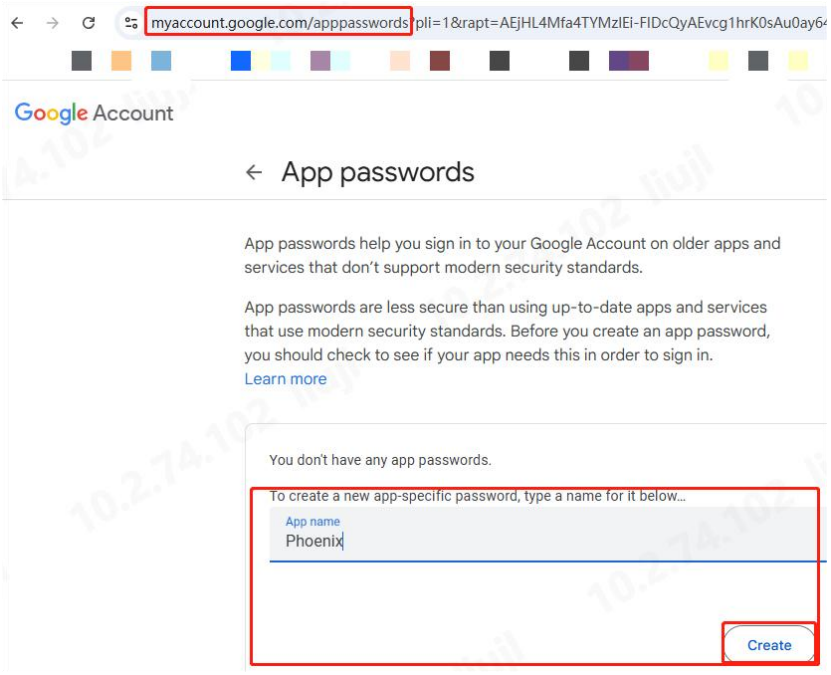
First step, get in to this address: https://myaccount.google.com/u/2/security,then set the 2-step verification, keep turn on.





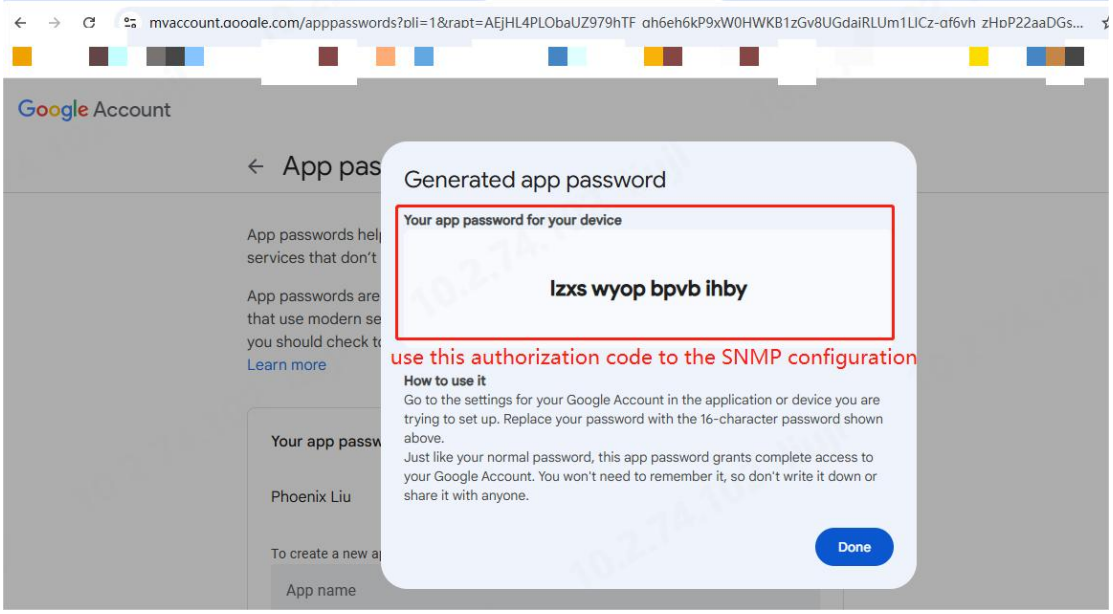
Then get into other address as below for app passwords:

https://myaccount.google.com/apppasswords



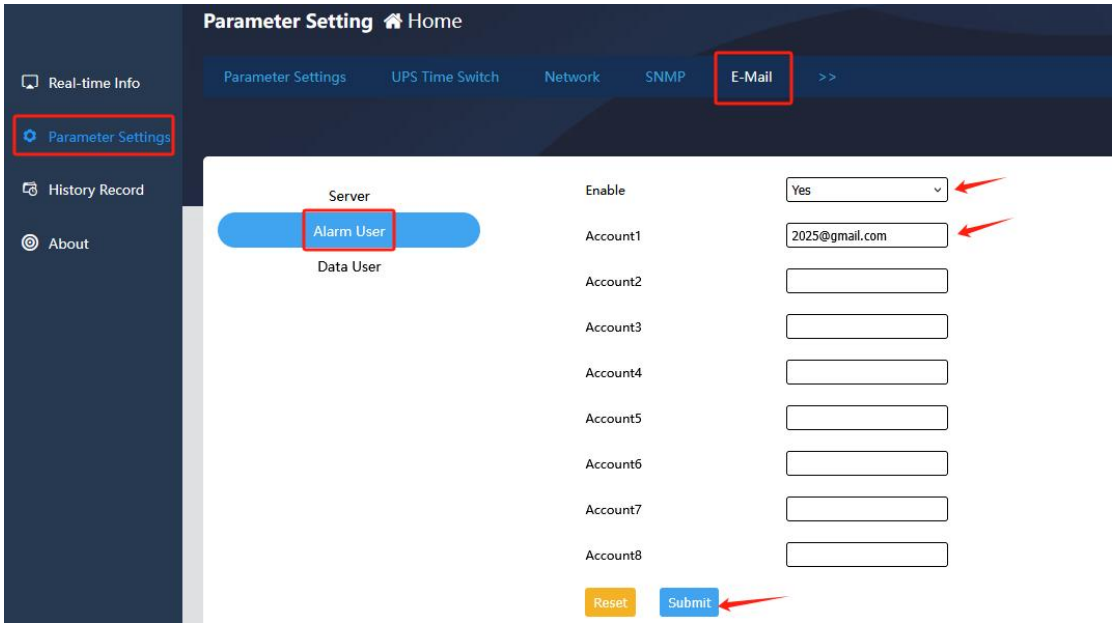
You will then be given a 16-digit application authorization password, as shown below.

Enter the authorization code in the email configuration of the SNMP card to implement the alarm email function.



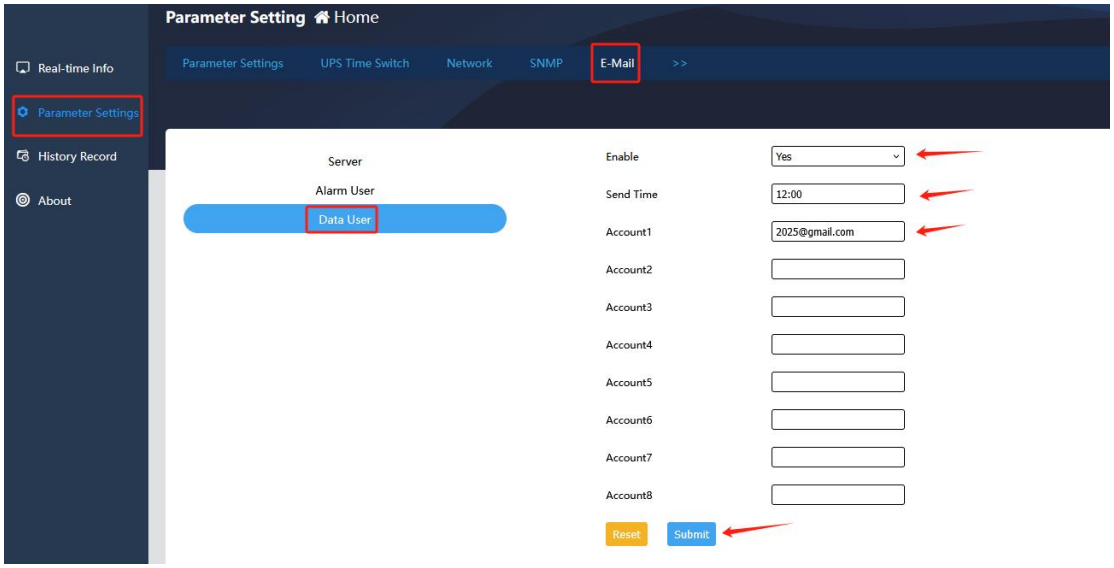
B. Alarm User Settings

This item needs to fill in the e-mail account that will receive the alarm email and select "Yes" for Enable to activate the e-mail alarm function. After completing the settings, click [Submit] to confirm, as shown below:



C. Data User Settings

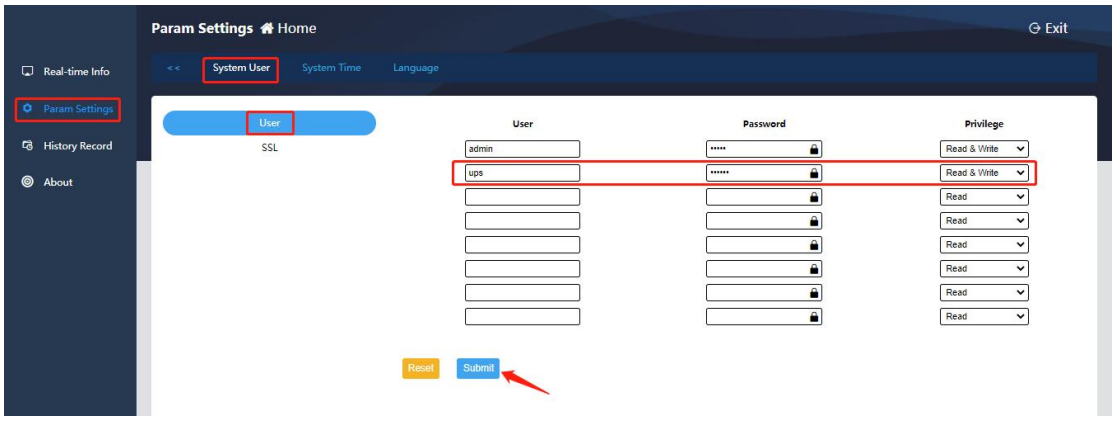
This item is to regularly receive the operating history data of the previous day (00:00 to 23:59) of the device. Enable this function by selecting “Yes”, selecting the sending time, and filling in the e-mail account that receives the data. After completing the settings, click [Submit] to confirm, as shown below:



4.2.6. System Users

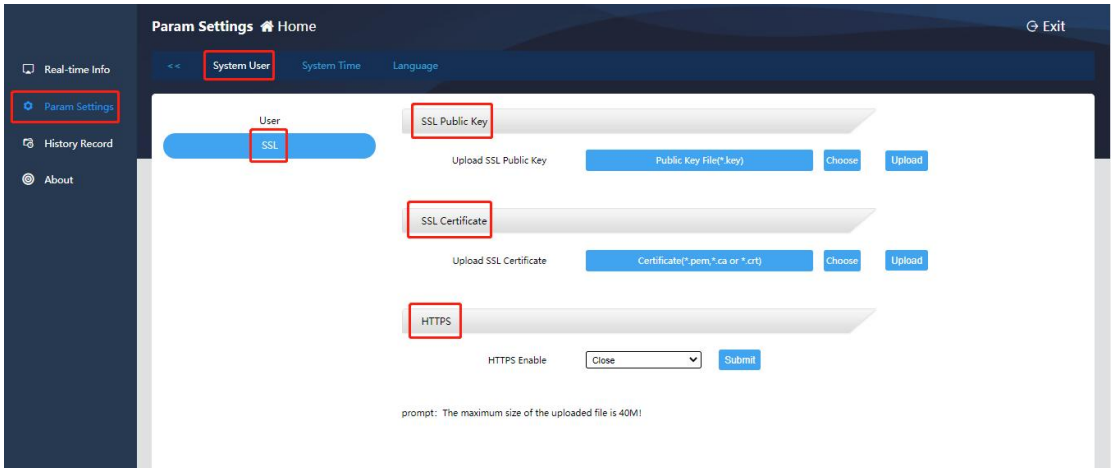
A. User Settings

This item allows adding users, filling in user name and password, and setting user permissions (read & write). After completing the settings, click [Submit] to confirm, as shown below:



B. SSL Settings

This setting enables HTTPS access mode, and SSL public key and SSL certificate need to be uploaded.



4.2.7. System Time

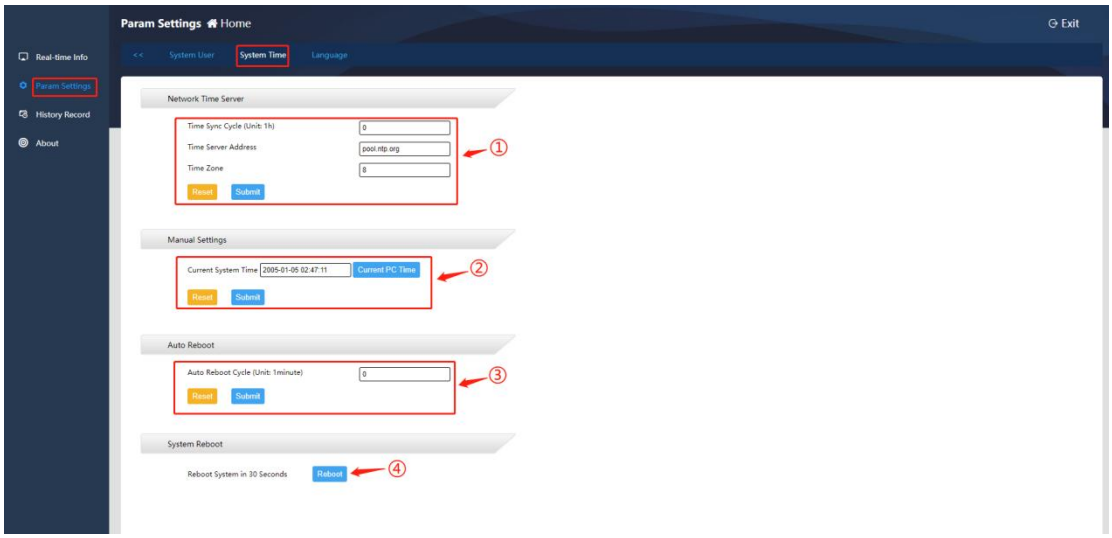
This item allows setting the system time and selecting the system restart method:

① Network time server settings: Fill in the time synchronization period, time server address, time zone, and click [Submit] to confirm;

② Manual setting: Click [Current PC Time], and then click [Submit] to manually synchronize the current computer time;

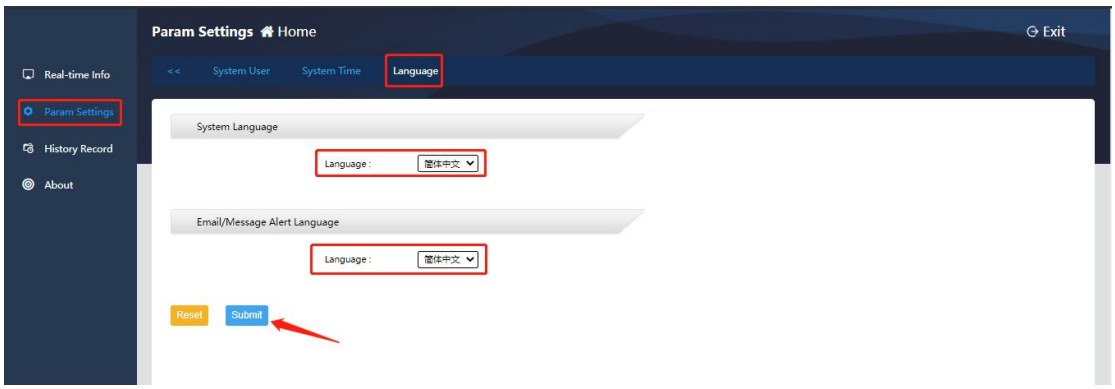
③ Automatic restart: "Cyclec reboot" means that the restart action is performed according to the set period. “Reboot After Net Out”means that the SNMP card restarts at the specified period when it detects that the network port has no data communication.

④ System restart: Click [Reboot] for 30 seconds to restart the device.



4.2.8. Language

This item allows setting the system language (Simplified Chinese/English) and the message language (Simplified Chinese/English). After completing the settings, click [Submit] to confirm, as shown below:

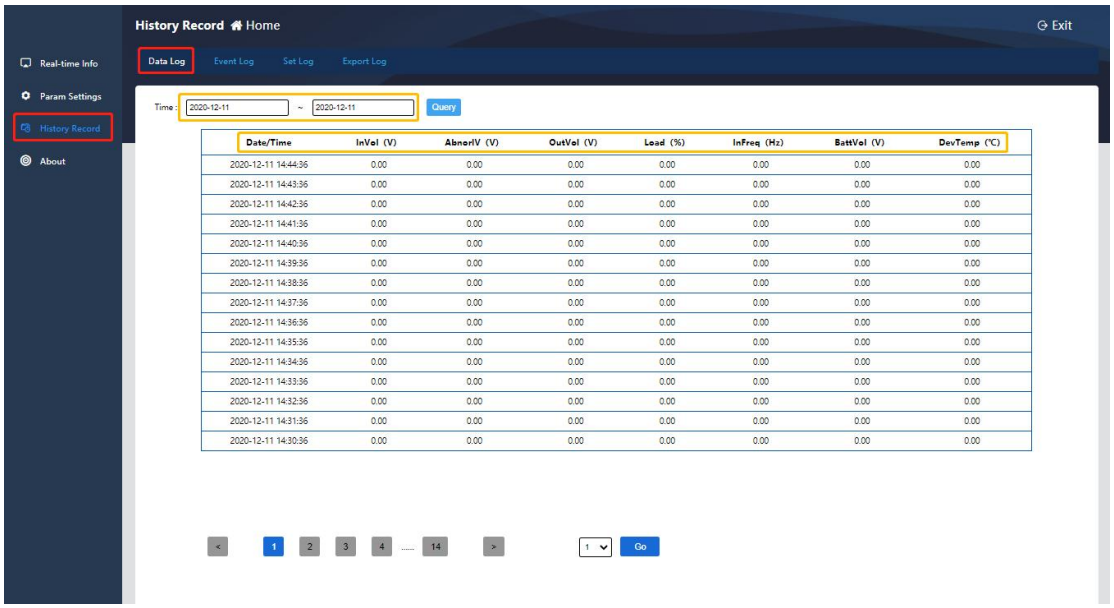


4.3. History

Historical record capacity: 60, 000 data logs (if the historical data recording interval is 1 minute, the historical data can be saved for 40 days), 5, 000 event logs and setting logs.

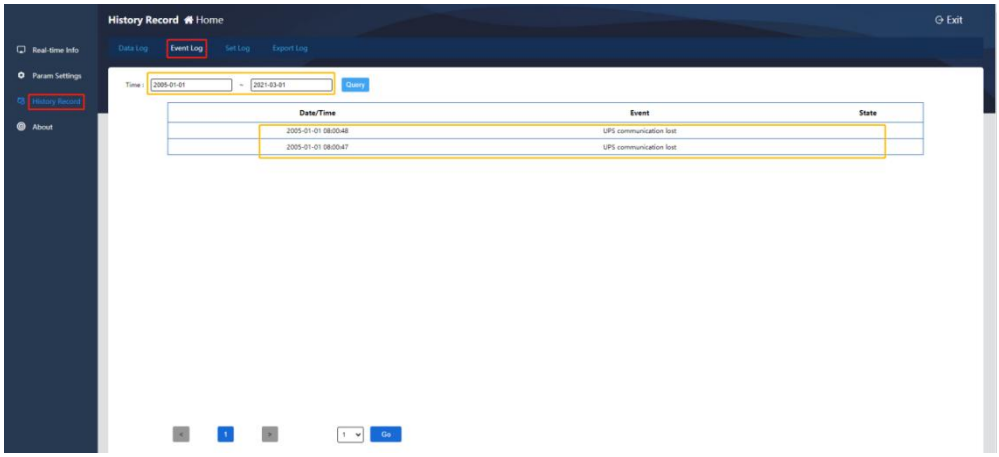
4.3.1. Data Log

By filtering the time period, you can query the equipment running data log.



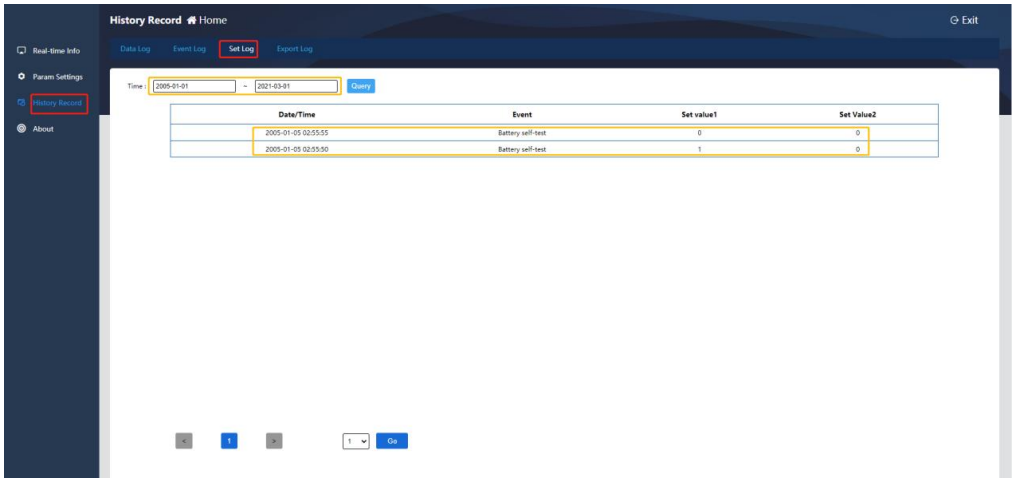
4.3.2. Event Log

By filtering the time period, you can query the equipment event log.



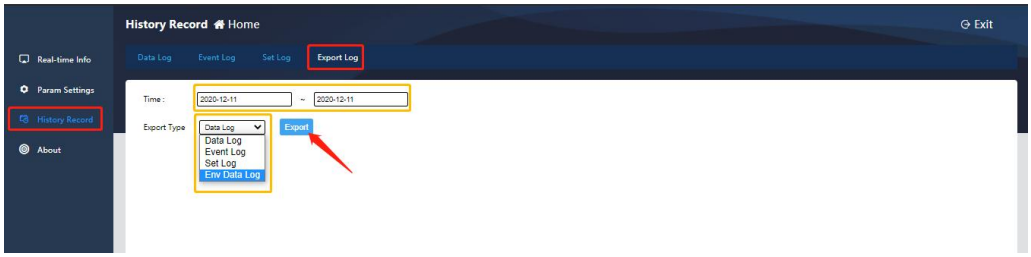
4.3.3. Set Log

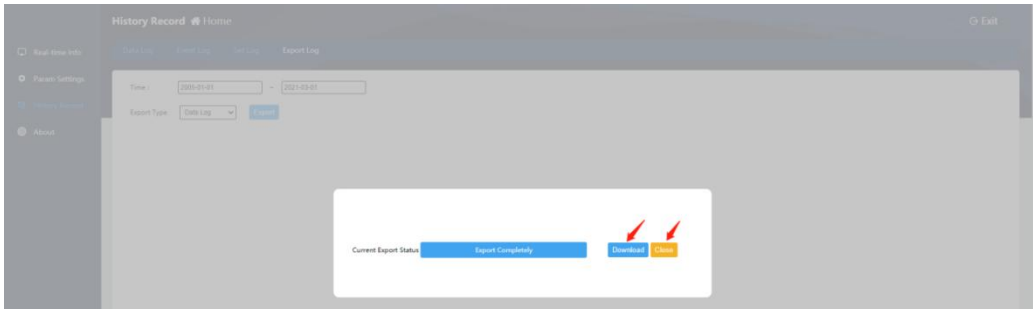
By filtering the time period, you can query the equipment setting log.



4.3.4. Export Log

By filtering the time period, select the log type to be exported, and click [Export] to download the log file in Excel format. After the download is successful, click [Close] to complete the log export.





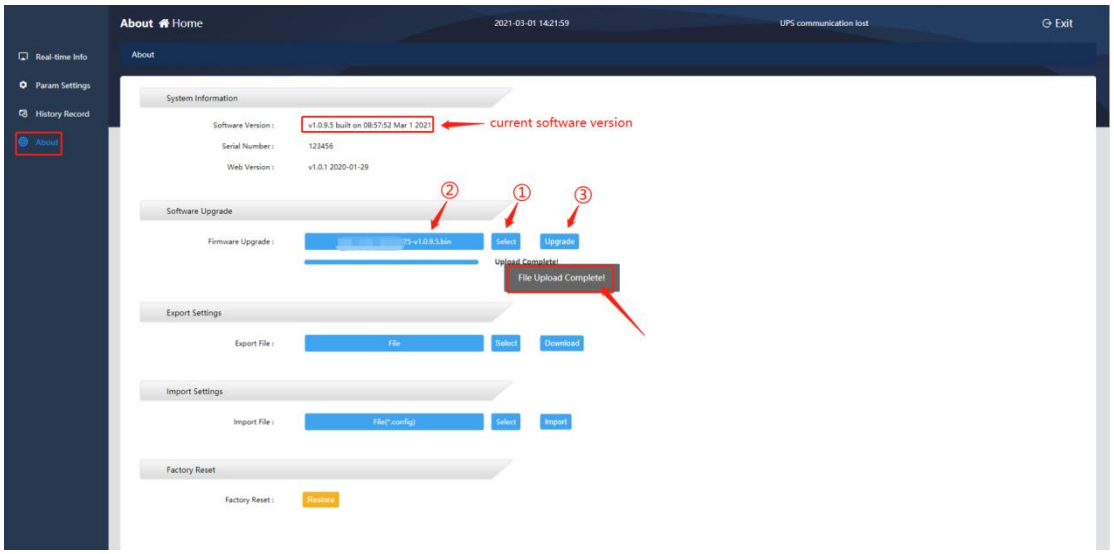
4.4. About

4.4.1. Web Page Upgrade

[System Information] allows viewing the current software version. When there is a version update, ① Click [Select];

② Select the upgrade file named snmp-mini-2020xxxx-v1.0.x.bin;

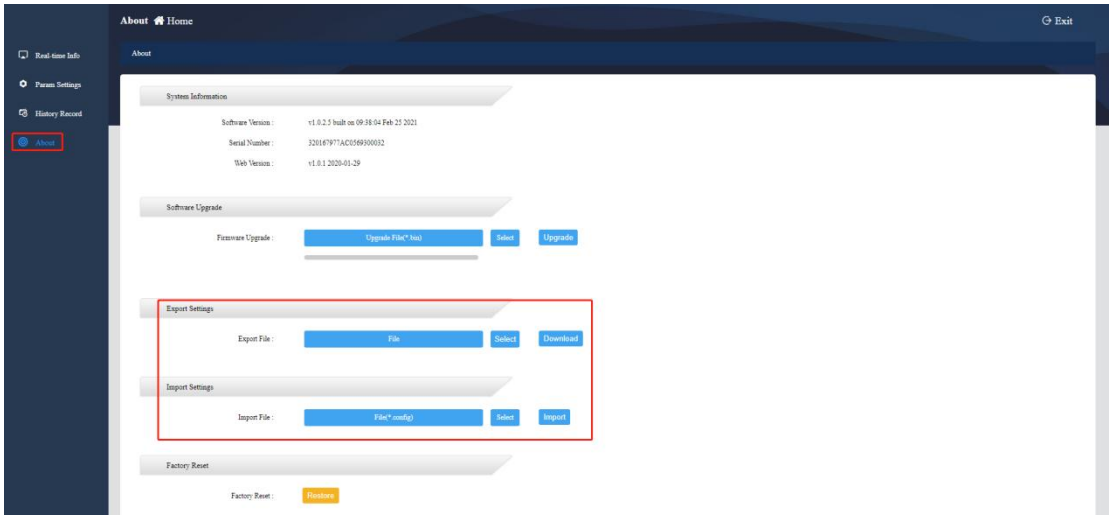
③ Click [Upgrade].It will prompt "File Upload Complete!".



4.4.2. Export/Import Settings

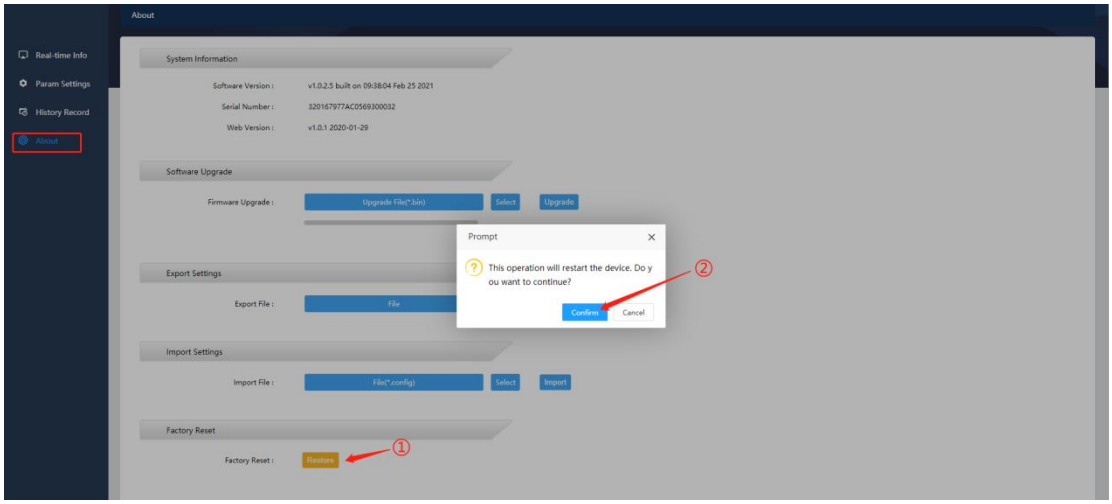
Export settings file: Export a file containing all the configuration information of the current equipment (suffix format .config);

Import settings file: Import a file containing equipment configuration information (suffix format .config);



4.4.3. Reset

About -- Factory Reset, ① click [Restore], ② when a confirmation box pops up, click [Confirm] to restart the equipment and restore the factory settings.



5. Shutdown Software--SNMP_Protector

SNMP_Protector is a shutdown protection software used in conjunction with SNMP cards. When UPS encounters an "abnormal main circuit, low battery voltage" alarm, SNPP_Protector will shut down the computer or server according to the set shutdown conditions.

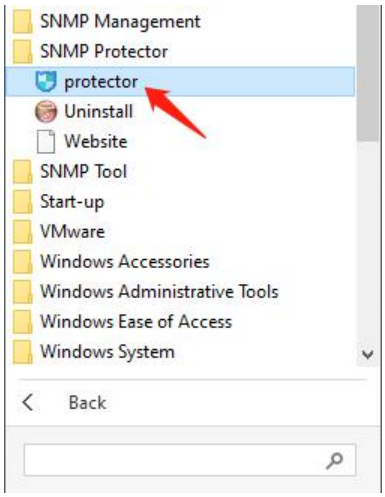
The accompanying shutdown protection software for Linux systems can be downloaded from the following link as the "UPS Shutdown Software for Linux" installation package, which includes operating instructions.

https://www.hikvision.com/en/support/download/software/ups-software/

5.1. SNMP_Protector Installation

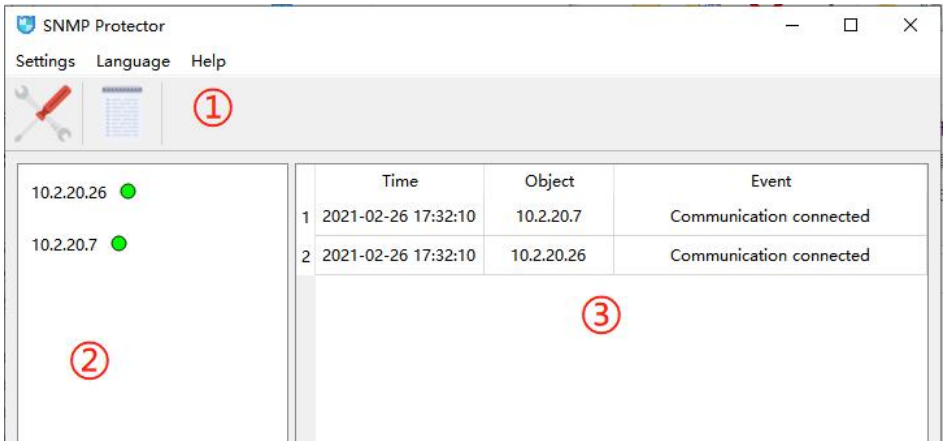
A. Download the installation file from https://www.hikvision.com/en/support/download/software/ups-software/, execute “SNMP_Protector_V1.xxxx.exe” to install the SNMP_Protector;

B. After installation, users can find "SNMP_Protector" in Windows "Start", click"protector" to start.



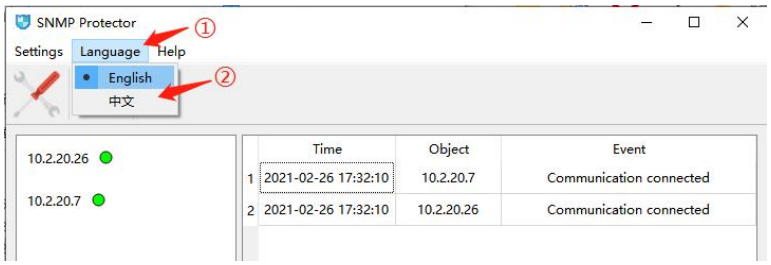
5.2. SNMP_Protector Usage

The software interface is mainly divided into three parts: ①Menu setting bar, ②Device list, ③Alarm information list; as shown below:



A. Language Setting

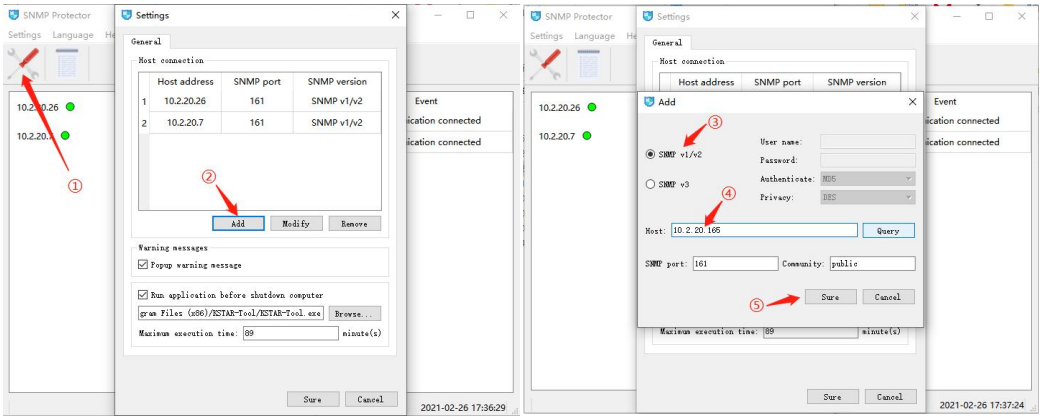
The default language is English, users can, ①Click [Language], ②Select the interface language type as English or Chinese.



B. Host Addition

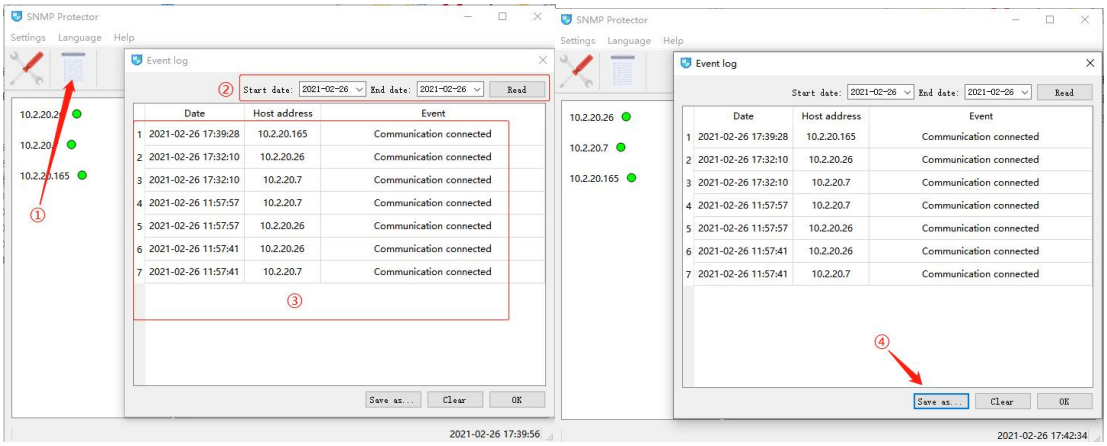
①Click Setting icon, ②Click [Add], ③Select SNMP v1/v2(default), ④Fill in the host(SNMP card)IP address, Other information remains default,⑤Click [Sure] to complete the device addition.

Note: Because the software achieves shutdown protection by obtaining the UPS's operating status changes from the SNMP card, it is necessary to save the operating status of the SNPP_Protector on the server or computer; After exiting the software, the shutdown protection function cannot be implemented.



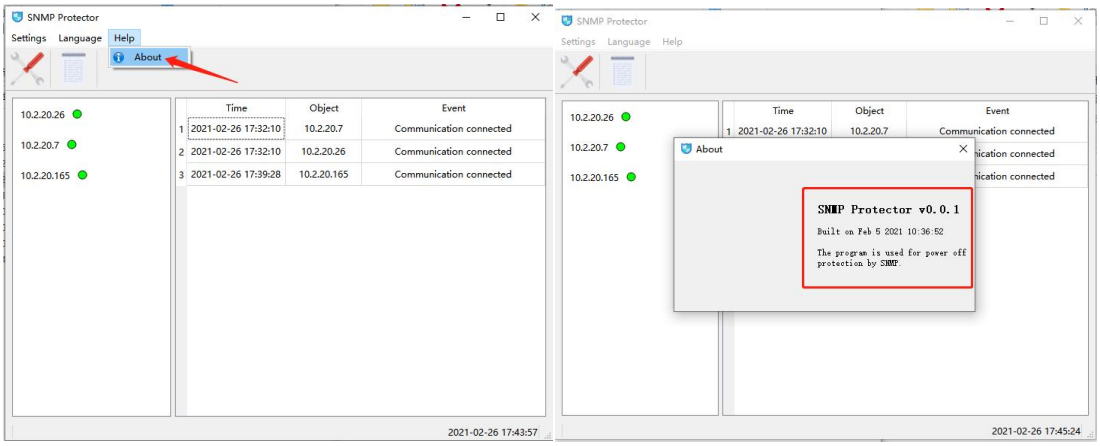
C. Log Query and Export

①Click Log icon, ②Select the query time, click [Read], ③Display the query results,④Click [Save as] to Excel file.



D. Version Information

Click [Help]--[About], software version will be shown in the pop-up window.



6. Centralized Monitoring Software--SNMP Management

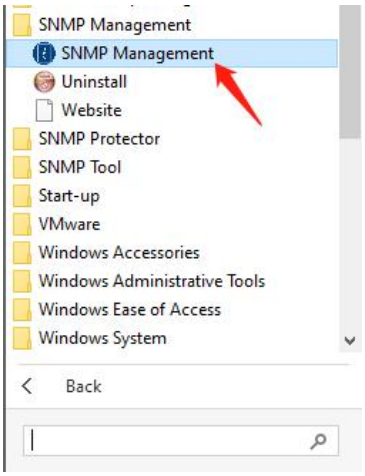
SNMP Management is a software for batch unified management of SNMP devices. After adding SNMP devices, the software can record the running data and configuration of the UPS, and can perform remote control such as shutdown and self-checking of the UPS.

6.1. SNMP Management

A. Download installation file from https://www.hikvision.com/en/support/download/software/ups-software/, execute “SNMP_Management_20xxxxxx_V1.xxxxx.exe”;

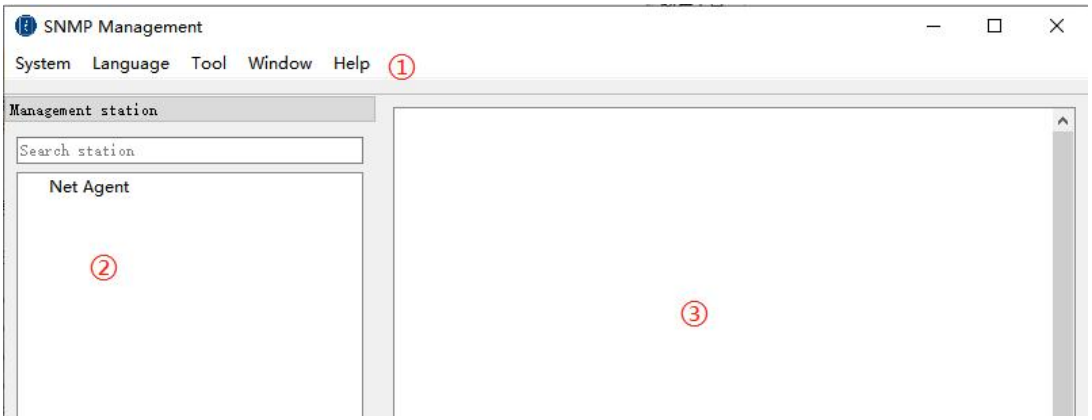
B. After installation, users can find ”SNMP_Management” in Windows “Start”, click “SNMP Management” to start.

C. Default login username (admin) and password (admin).



6.2. SNMP Management Usage

The software interface is mainly divided into three parts:①Menu bar, ②Management station ③Main data interface, as shown in the figure:



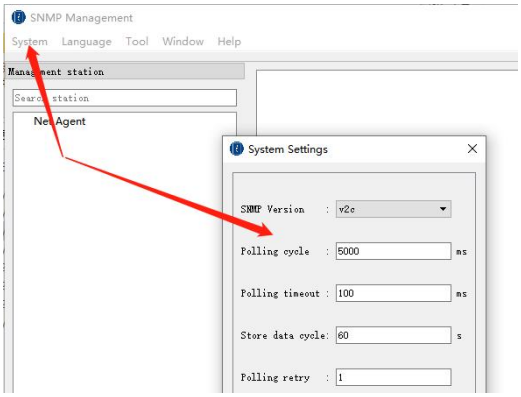
A. Language Setting

The default language of the software is English, and the user can choose from the menu bar, "Language" , to select the language type displayed on the interface.

B. System Setting

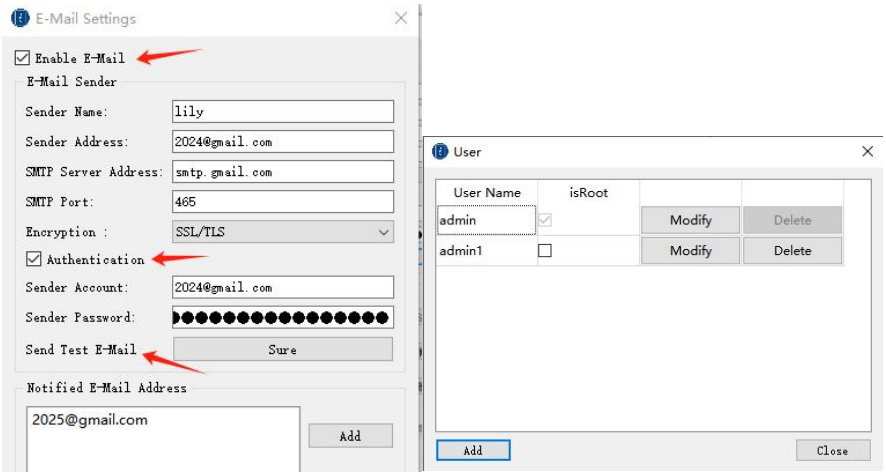
1) System settings are used to set the communication parameters of the software and SNMP devices:

- SNMP Version: SNMP protocol version,this software supports SNMP v1 and SNMP v2c;
- Polling cycle: Cycle of software polling device data;
- Polling timeout: Timeout of polling single device;
- Store data cycle: Cycle of storing device data;
- Polling retry: Number of retries after polling failed.



2) Email Settings

- **Enable E-Mail**: Only after selecting it can information be entered in the settings box below. Please note that using this feature requires SNMP Management software version not lower than v1.3.2. Email notifications will be sent for two situations: power interruption and low battery voltage.
- **Sender Name**: Custom Name.
- **Sender Address**: The sender's email address.
- **SMTP server address**: The sender email server address, for example, the sender email address for Gmail is smtp.Gmail.com. Only SMTP mail servers are supported,POP3 and IMAP are not supported.
- **SMTP Port/Encryption** : The non encrypted email port number corresponds to 25, the SSL/TLS encrypted email port number corresponds to 465, and the STARTTLS encrypted email port number corresponds to 587.
- **Authentication**: Only after selecting this option can the sender's account and password be filled in below;
- **Sender Account**: sender email address
- **Sender password:** Fill in the authorization code, not the mailbox login password. For instructions on how to obtain an authorization code,The method of obtaining the authorization code here is the same as the method of obtaining the authorization code set by email in 4.2.5-A.
- **Send Test E-Mmail**: Note that the test email is sent to the sender's account filled in earlier.
- **Notified E-mail Address**: refers to the email address that receives alert emails, with no limit on the number of recipients.

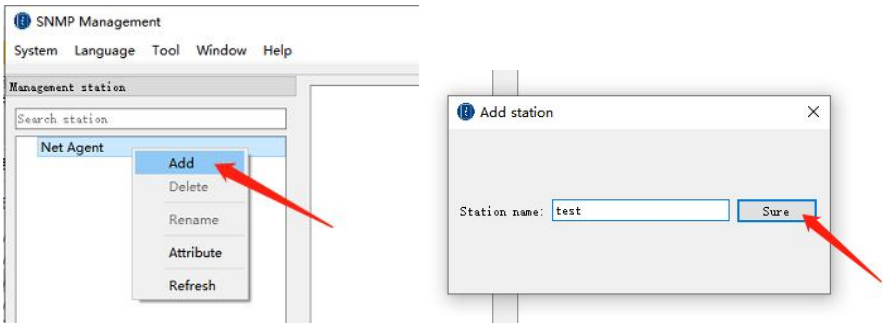


3) User Management

- **Administrator settings**: The default admin user is the administrator user. The admin user can set other users as administrators, but only one administrator can exist. Administrators can manage users, such as adding, deleting, and setting administrator settings;
- **Password modification**: Administrator users can modify the passwords of all users, while non administrator users do not have permission to change passwords;
- **Add User**: After adding a new user, they can log in for device management.

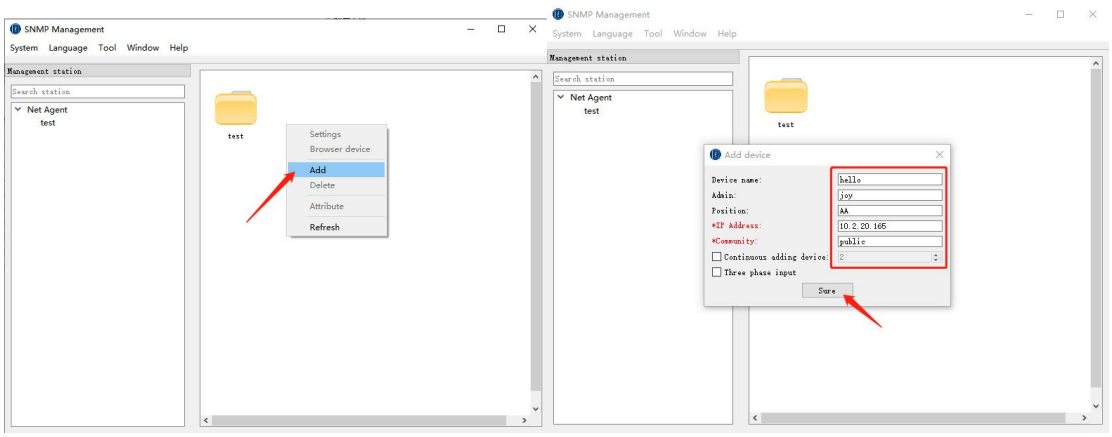
C. Station Addition

When using, firstly need to add the corresponding station in the Net Agent category: right-click the Net Agent item on the left side of the interface, select "Add", after completing the station name, click the "Sure" to complete the addition of the main station;



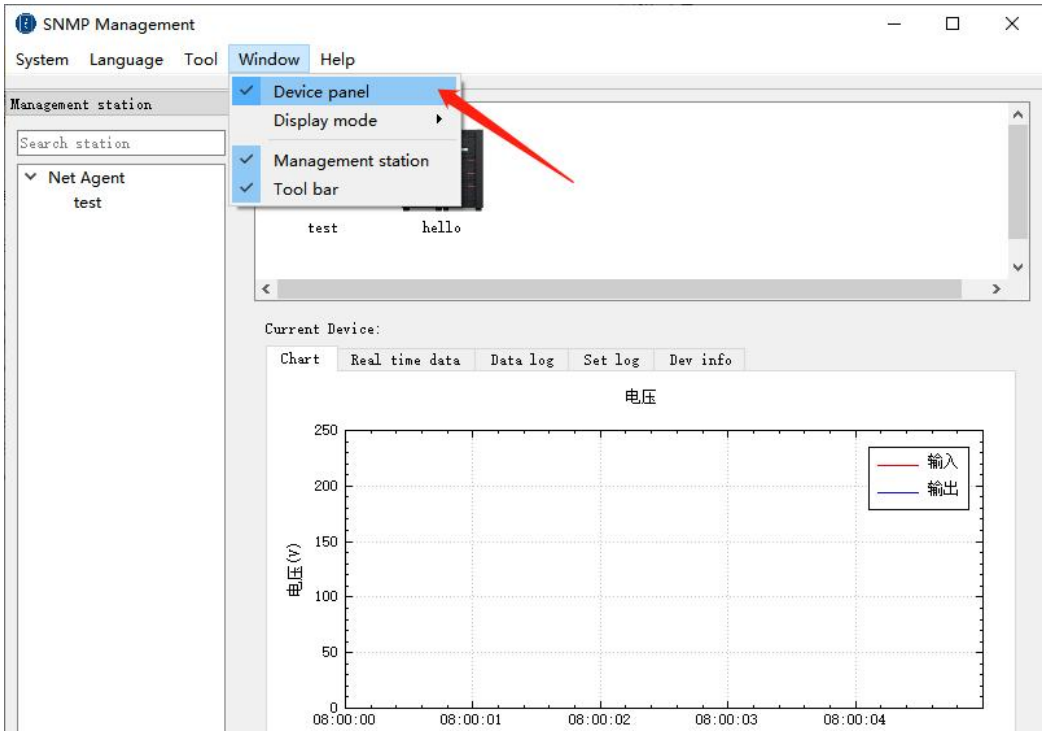
D. Device Addition

After completing the addition of the master station, you need to add the device under the corresponding station, click the name of the added station, right-click on the device data interface on the right, and then select "Add", the software will pop up the device addition interface, fill in.Then, click "Sure", the device will be added to the corresponding station, and the software can monitor the device in real time.

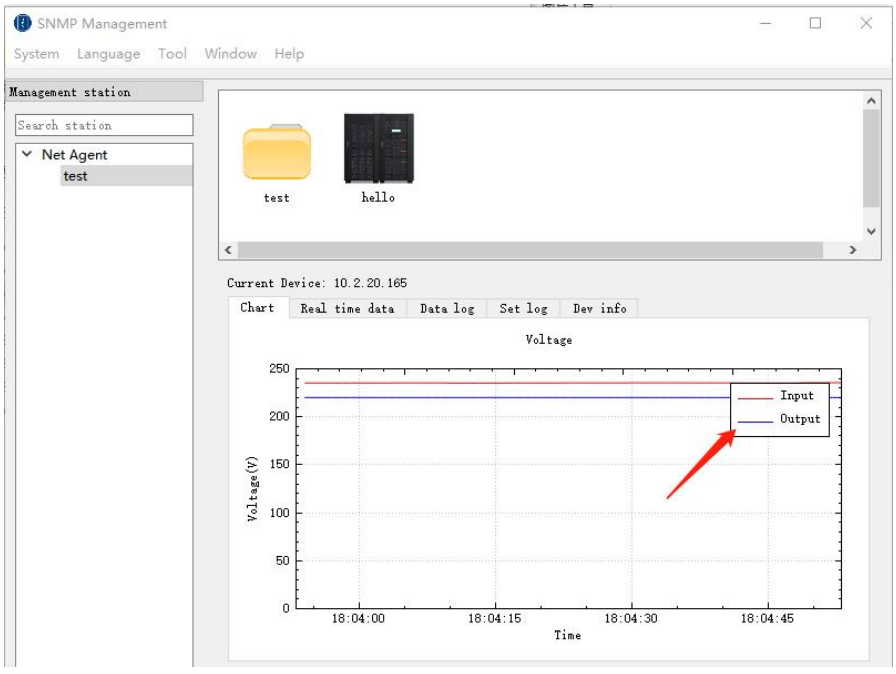


E. Device Panel

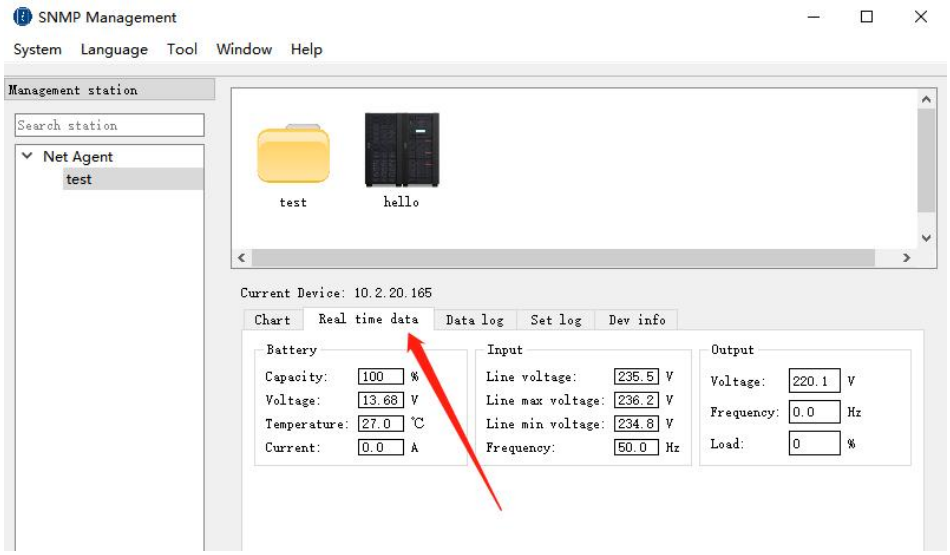
Click“Window--Device panel” to open the data panel, select the device to view the related data;



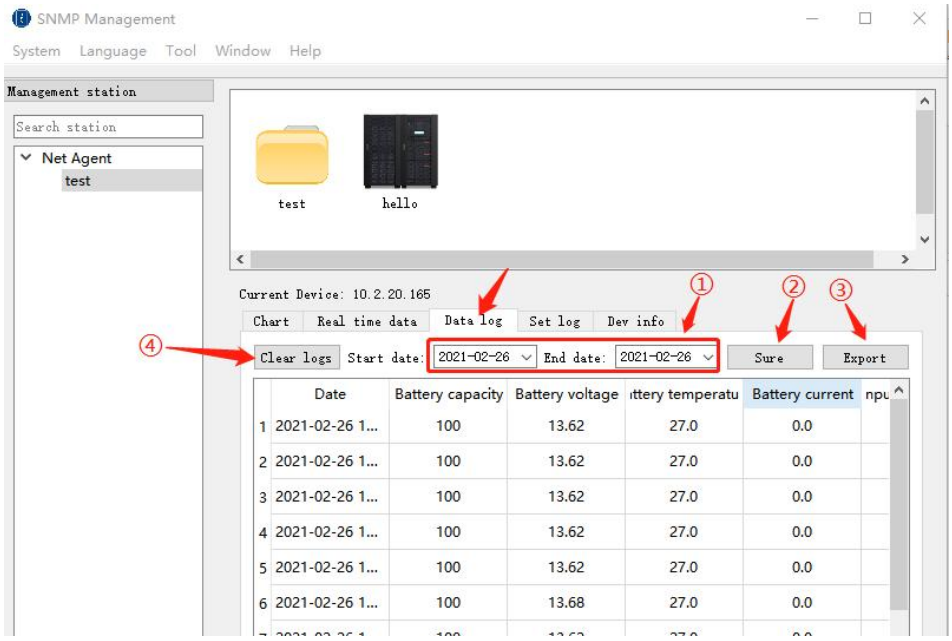
1) Chart: Display the dynamic curve diagram of the input and output voltage of the device, and can visually observe the changes of input and output voltage in real time.



2) Real time data: Display specific data of battery、input and output information of the device.



3) Data log: Users can choose to read the data records within the time range by themselves. First select the start date and end date of the data record to be queried, and then click the "Sure" button to query the data records within the selected date range. The software supports exporting data records to various types of Excel files. Click the "Export" button to export the currently read data records. Click the "Clear Logs" button to clear all data records of the currently selected device.



4) Set log: Record software settings record.

5) Dev info: Display current device information connected to SNMP card.

- Model: Device model connected to SNMP card;
- Name: Device name connected to SNMP card;
- UPS firmware version: UPS connected to SNMP card;
- Date of manufacture: Device's date of manufacture;
- Serial number: Device's manufacture serial number;
- Agent firmware version: Agent version number of SNMP card.

F. Version Information

Click [Help]--[About], can view the software version information in the pop-up window, including software name, version number, buid date of the program, copyright attribution and application introduction.