Intelligent Management

Thermal Imaging &

Face Recognition Terminal

User Manual

Model :
EKIAD070

Catalog

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1. Product Overview

1.1. Product Introduction

Based on infrared thermal imaging technology, imported sensor is used to support face recognition, body temperature measurement, and upload captured pictures to the management platform. After face recognition passed, the access control function would be activated. The high temperature warning value can be preset, a warning window will pop up when high temperature is detected, and the captured picture will be uploaded to the platform. (It is supported to preset door open/close after warning, the default is not to open the door)

1.2. Product characteristics

- Thermal imaging resolution: 32*32/12um.
- Angle of field FOV: 33º*33º or 90º*90º (Confirm when ordering).
- Infrared Maximum Image Size:≥320*240 (Within 0.5m).
- Temperature measuring range: 30 ºC -45 ºC.
- Temperature measuring accuracy:±0.5ºC.
- Temperature alarm threshold: default 35.5 ºC ~ 37.5 ºC (Support customization).
- Passing mode when temperature over threshold: pass through or no pass.
- Man’s face mode: Alarm or no alarm.
- Voice prompt of authentication result: support.
- Face verification accuracy: ≥99%.
- Face recognition distance: 0.3m-1m.
- Max number of faces: 20000, JPG or JPEG format.
- Max numver of Event records:100000.
- Camera: 2MP,Hardware Wide Dynamic.
- Screen: 5 inch/7 inch
- CPU: Quad core A9 32bit.
- RAM: 1GB DDR3.

- ROM: 8GB eMMC.
- OS: Embeded linux os,or Android (Confirm when ordering).
- I/O port: 485 output, relay output; WG output is customizable.
- Communication: wired or wireless network(Confirm when ordering).
- Power input: DC 12V.
- Work temperature: 0℃ - 50℃ (For temperature measurement), -10 ℃ - 50℃(Only for Face recognition).
- Work humidity: <90% RH.
- work environment: indoor, no wind, no direct sunlight.
- Deployment mode: supporting offline operation, or managed by cloud platform, LAN Platform; web management; installation free.
- Working mode: identity recognition mode, only temperature measurement mode, full open recognition mode.

  1) Identity recognition mode: after the face + body temperature pass, the gate will automatically open and pass, and strangers will automatically warn and record; after the body temperature is judged successfully, they will enter the face recognition mode, and strangers will automatically recognize and upload, which is suitable for recognition and authentication scenarios.

  2) Only temperature measurement mode: face recognition doesn't word, only measure the temperature and record the photos of the measuring personnel. Applicable to large flow scenarios.

  3) Full open recognition mode: all pass through, automatically recognize face and measure the body temperature. Any person passing through the machine will be recorded face and body temperature. Can be used without platform.
- Installation mode: wall hanging, floor type (triangle support), desktop type, gate brake.

2. Instructions for use

- The thermal imaging sensor is imported from abroad. Please calibrate it after 10 minutes before use. Please calibrate in time after shutdown and site replacement. Our company is not responsible for the temperature measurement results. All technical standards and test conditions are subject to the specifications.
- Warm tips: the temperature measurement distance must meet the requirements of specifications and parameters, and be calibrated. The product shall be installed in the indoor environment. If it is installed outdoors or semi outdoors, it is recommended to add isolation channel and rainproof and

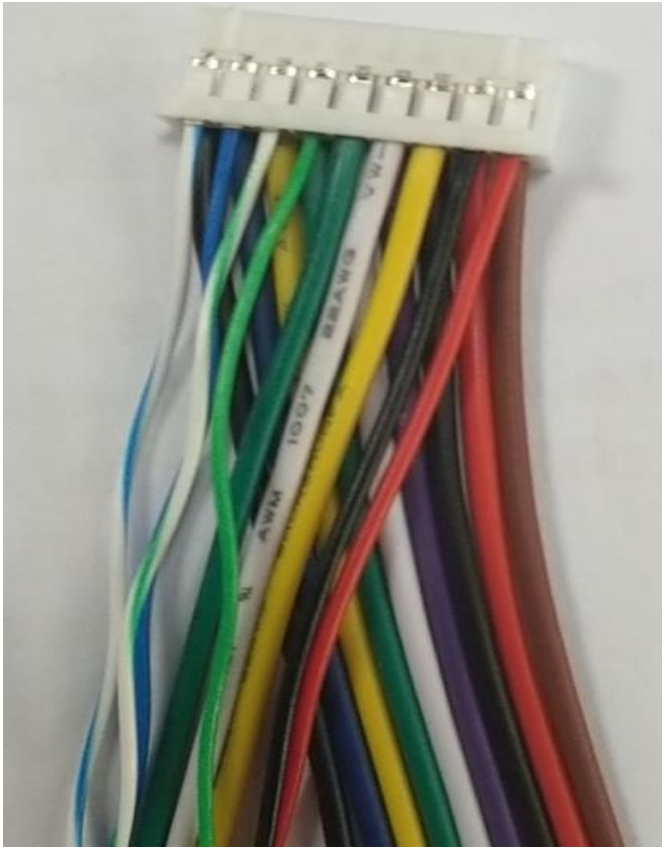
sunscreen shed. Ensure that there is no object with high heat source and strong sunlight within the detection range of the probe, including but not limited to direct sunlight, metal roof, etc.

- It is recommended to use Google browser to access the platform management system.

3. Equipment wiring diagram

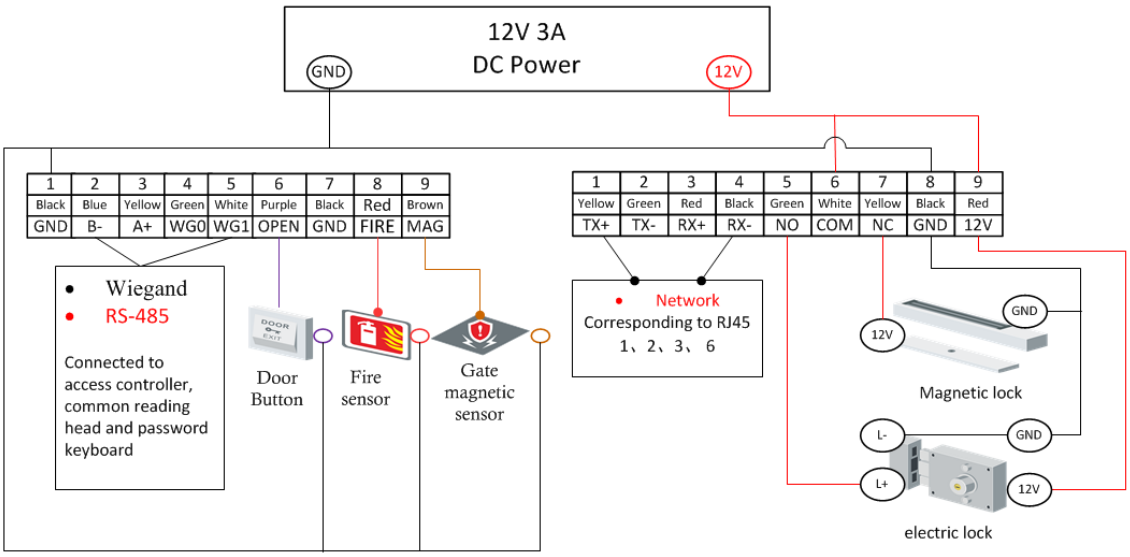
3.1. Port definition

NO	NAME	COLOUR	DETAIL	NOTE	NO	NAME	COLOUR	DETAIL	NOTE
9	12V	RED	POWER	I>500mA	1	GND	BLACK	GROUND	
8	GND	BLACK			2	B-	BLUE	RS485 B-	
7	NC	YELLOW	RELAY NC	to magnetic lock	3	A+	YELLOW	RS485 A+	
6	COM	WHITE	RELAY COM		4	WG0	GREEN	Wiegand 0	
5	NO	GREEN	RELAY NO	to Electronic control lock	5	WG1	WHITE	Wiegand 1	
4	RX-	NETWORK	RJ45-6	Connected to LAN	6	OPEN	PURPLE	OPEN DOOR	Effective to the ground
3	RX+		RJ45-3		7	GND	BLACK	GROUND	
2	TX-		RJ45-2		8	FIRE	RED	FIRE SINGNAL INPUT	
1	TX+		RJ45-1		9	MAG	BROWN	Gate magnetic signal	Effective to the ground

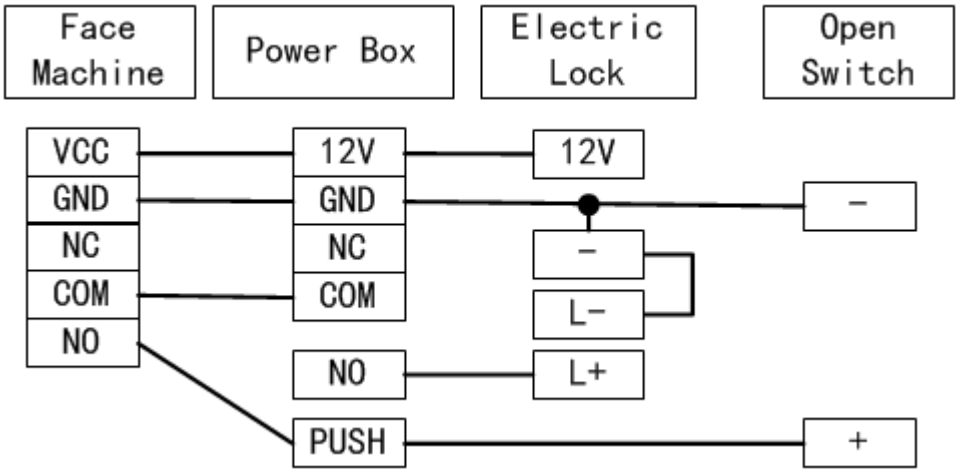


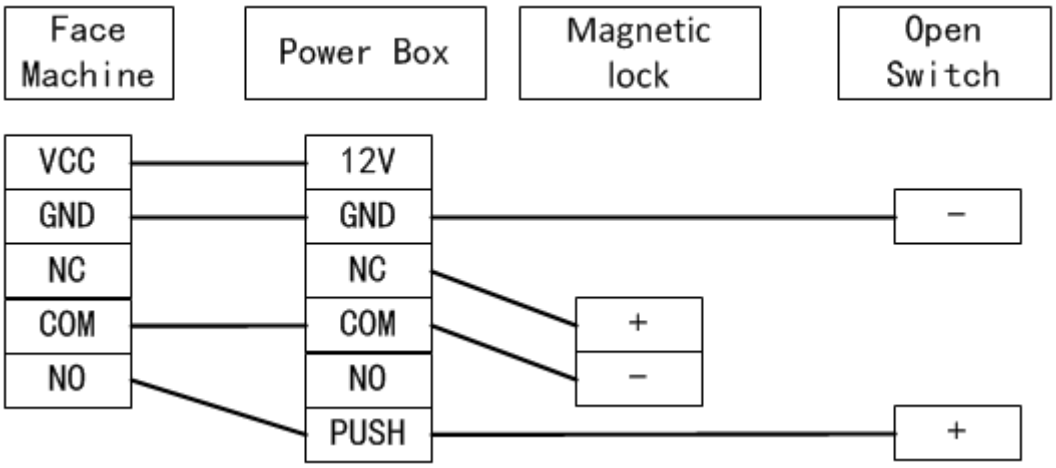
Wiring harness

3.2. Wiring diagram



3.3. How to control gate lock





3.4. If used to check body temperature only

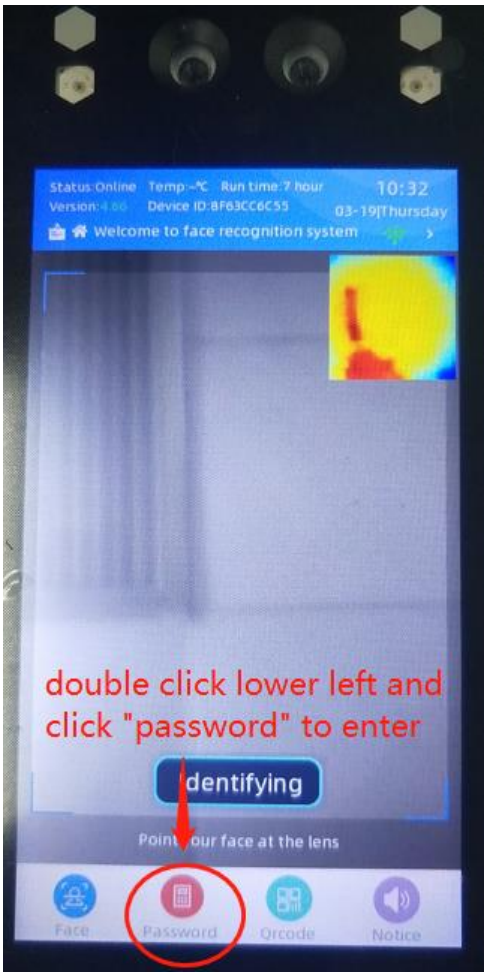
If used to check body temperature only (Factory default operating mode), just connect DC Power.

If you want to view records in real time or export all records, you should connect to the LAN of your company.

The default IP address of device is 192.168.1.249/255.255.255.0.

4. Local setting on the device

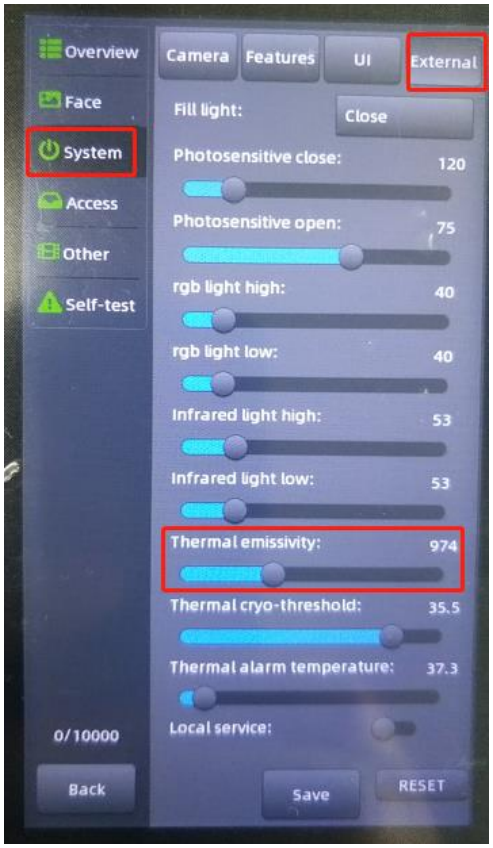
1. Click 3 times in the lower left corner of the device screen to display the bottom menu. Click the bottom menu, choose “Password”.



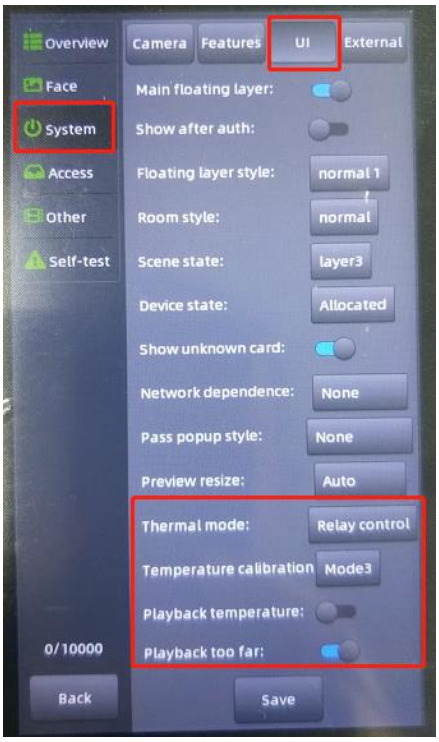
2. Click "Password", and input 666888#888888# to enter the device parameter setting interface.

3. After entering the setting interface, select the corresponding function options of the left menu bar to set the relevant parameters, click the left menu to select, and swipe the right option to switch.

4. For example, if you want to set the “thermal imaging emissivity”, select “system” in the left menu bar, and then select “External”, find “thermal emissivity”. After modifying or setting the relevant parameters, click “Save” and then “RESET” button.



5. if you want to set the temperature calibration mode, select “system” in the left menu bar, and then select “UI”, find “temperature calibratio”. After your choice, click the “Save” button.



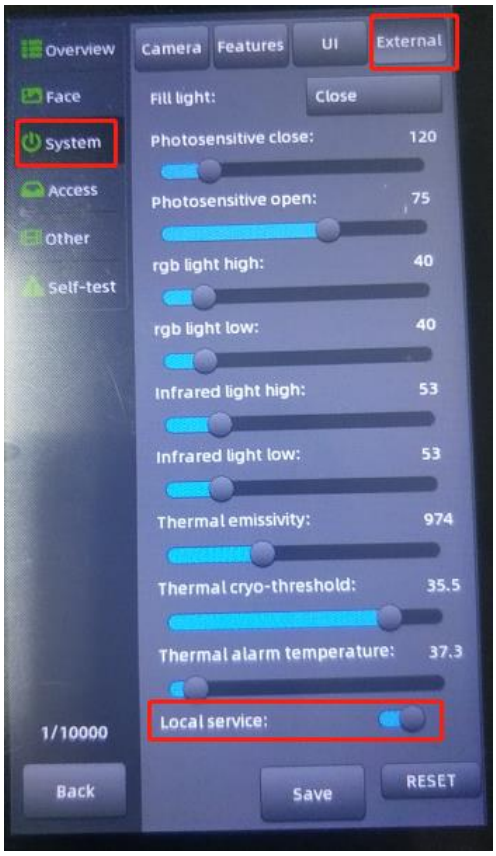
6. Other parameters can be set according to the menu bar instructions.

5. Independent use without platform

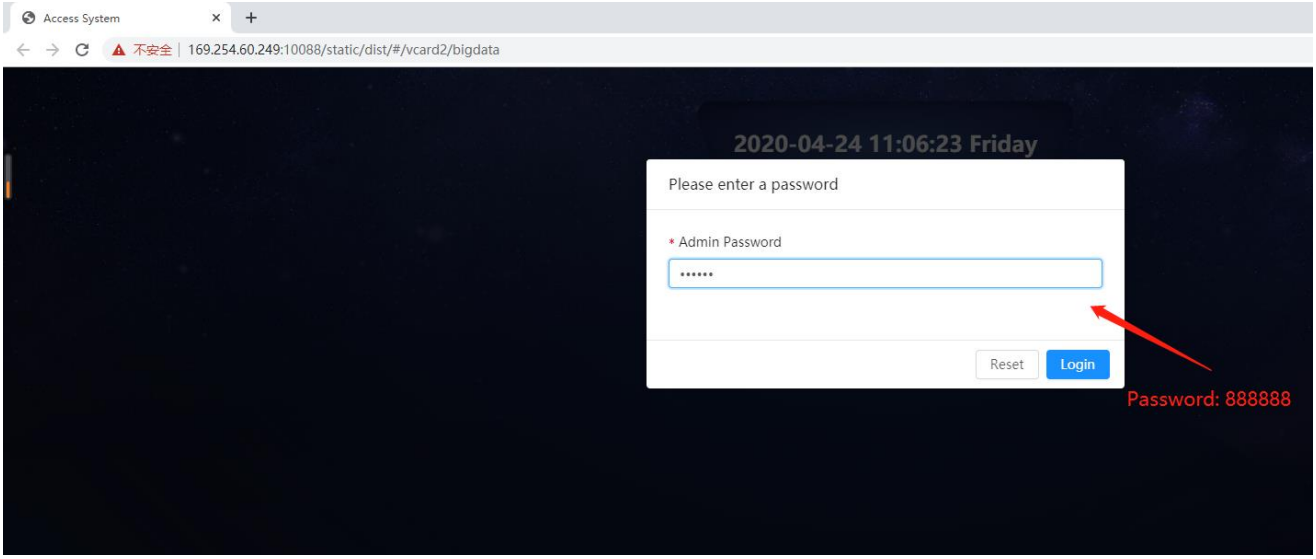
5.1. Open local service

1. This function is faster and more convenient for local deployment of customers, solves the problems of difficult wiring and network environment protection, and is completely independent of the platform function and does not affect each other. (only version 4.53 and above is supported)

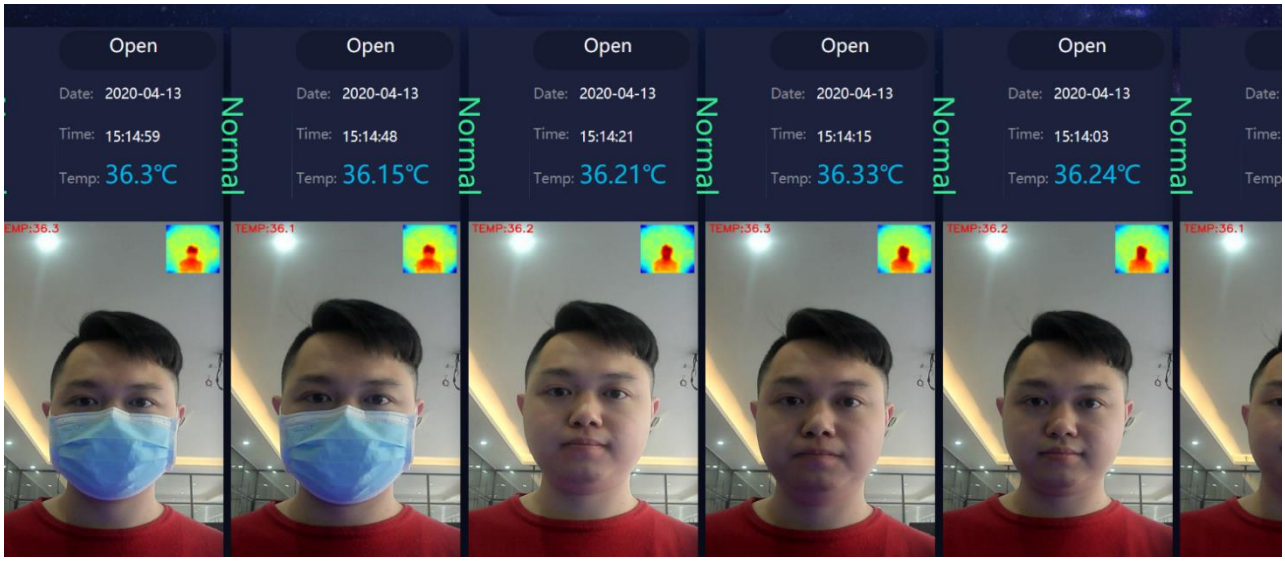
2. Enter local setting interface, select system->External, and find "local service", set to open and Save.)



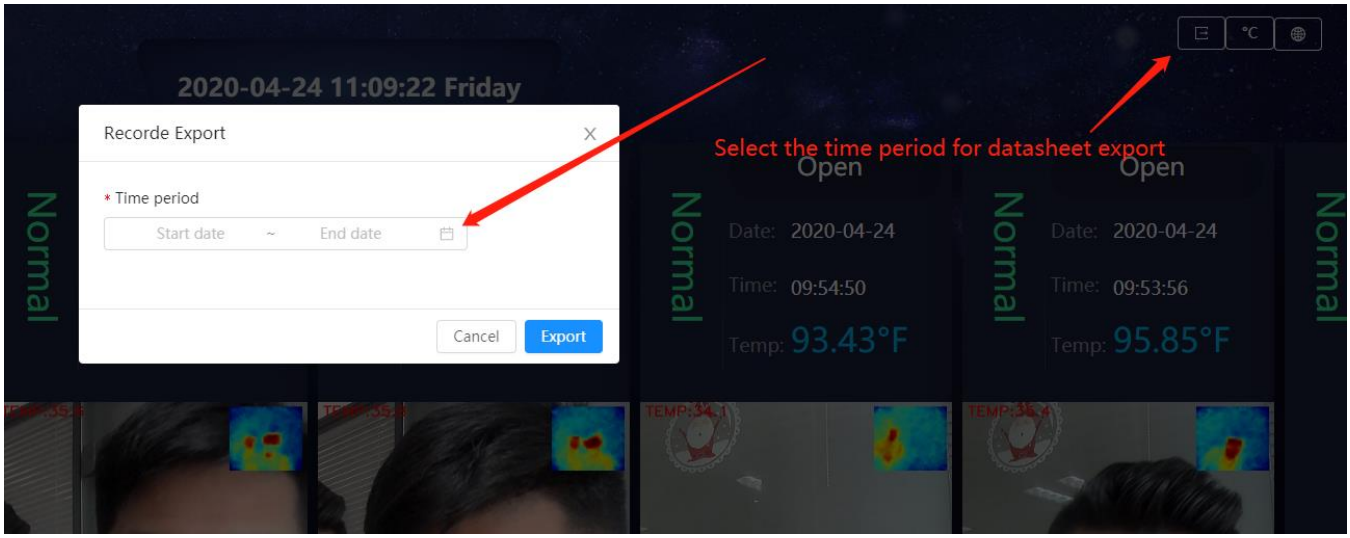
3. Browser access address: http: / / {device IP}: 10088 / (you can use the device search tool to search directly, double-click the list to pop up the login page.), and default login password: 888888



4. View record in real time: after login into the device , you will view all records, including the in and out records of body temperature detection in real time.



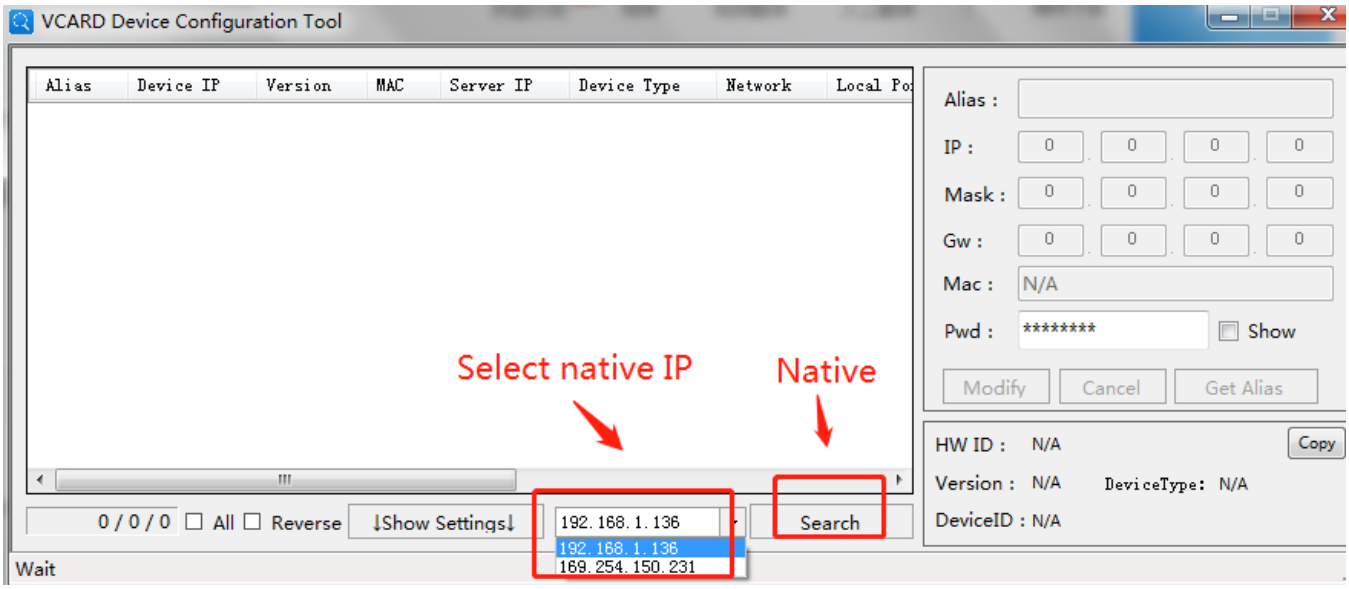
5. Record export: in the upper right corner of the interface, click the button to pop up the time interval selection box, click the Export button, select the time interval, and export the corresponding records. (the default retention policy of the device is: keep the records of the last month, and keep 500m pictures (about 8500).

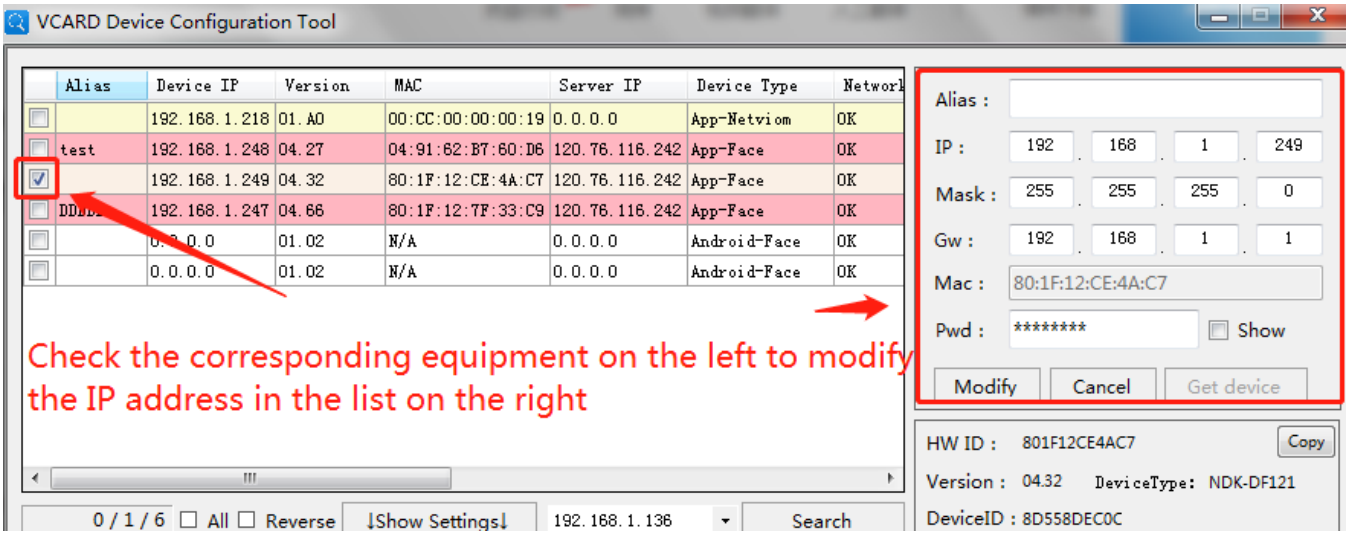


5.2. Modify Machine's IP

After the device is powered on and networked, open the "vCard device configuration tool" and click the "search" button to search. (the default network segment of the device is 192.168.1. X, if you can't find the IP address, please change the computer to the corresponding network segment first.)

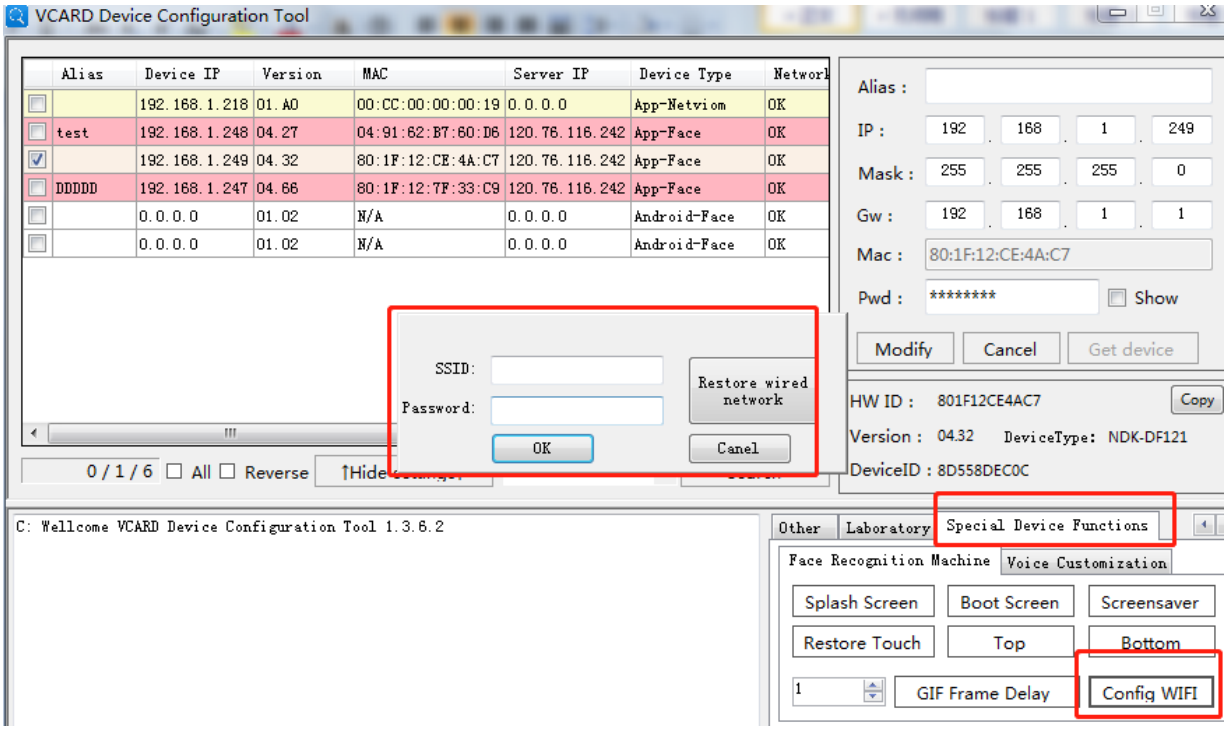
The default IP of the device is 192.168.1. 249.(mask 255.255.255.0)





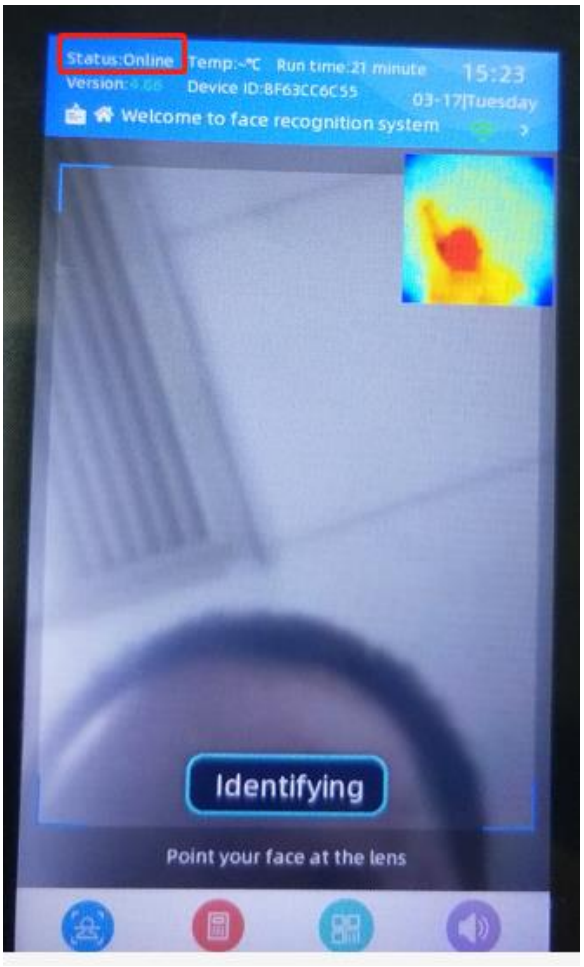
5.3. Configure WiFi

In "vCard device configuration tool", select "specific device functions" in the lower right corner, select "WiFi configuration", enter the SSID and password of WiFi in the pop-up window, and click "confirm" to configure WiFi. The device will automatically get the IP address.



5.4. Check whether the device is online

After the IP modification of the device is completed, check whether the device is connected to the network normally. Dobule click the lower left corner of the face recognition machine interface to check the operation status parameters of the device, check whether the "status" is online, and "online" means the device is connected to the network normally.

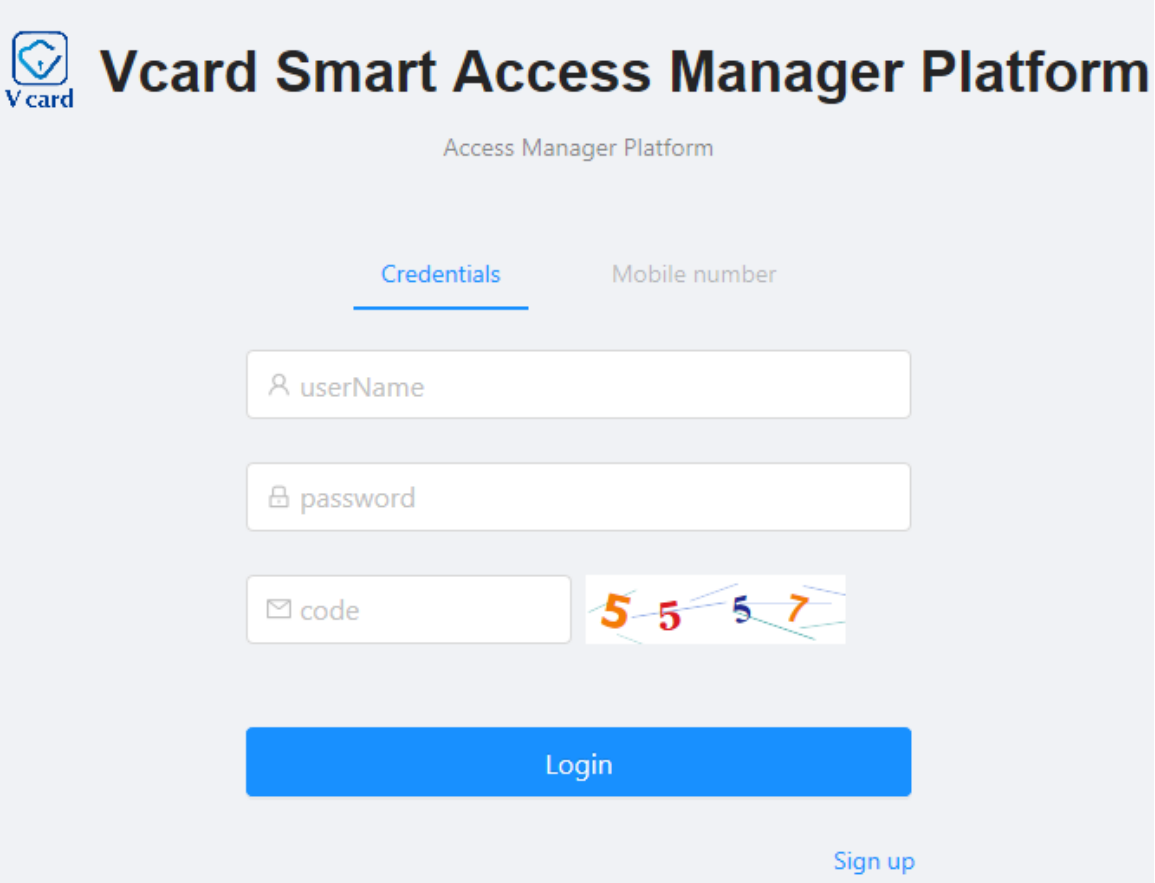


6. Use under support of management platform

6.1. Login to the cloud platform

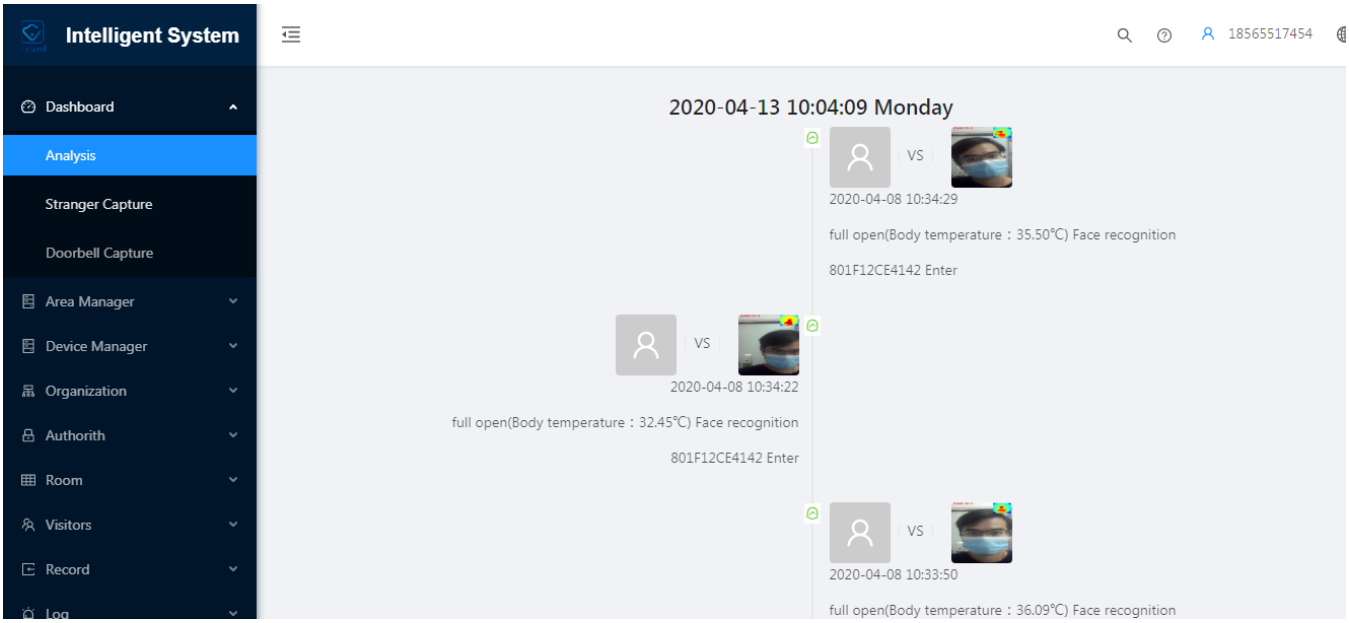
Open the browser (Google browser is recommended), enter the cloud platform (web page http://admin.erpaier.com:22345), and enter the corresponding account password to log in to the platform.

(if there is no platform account, please click "register account" to register. Enter the company name, mobile number (management account), password and confirm password to register. Click "register" to confirm.



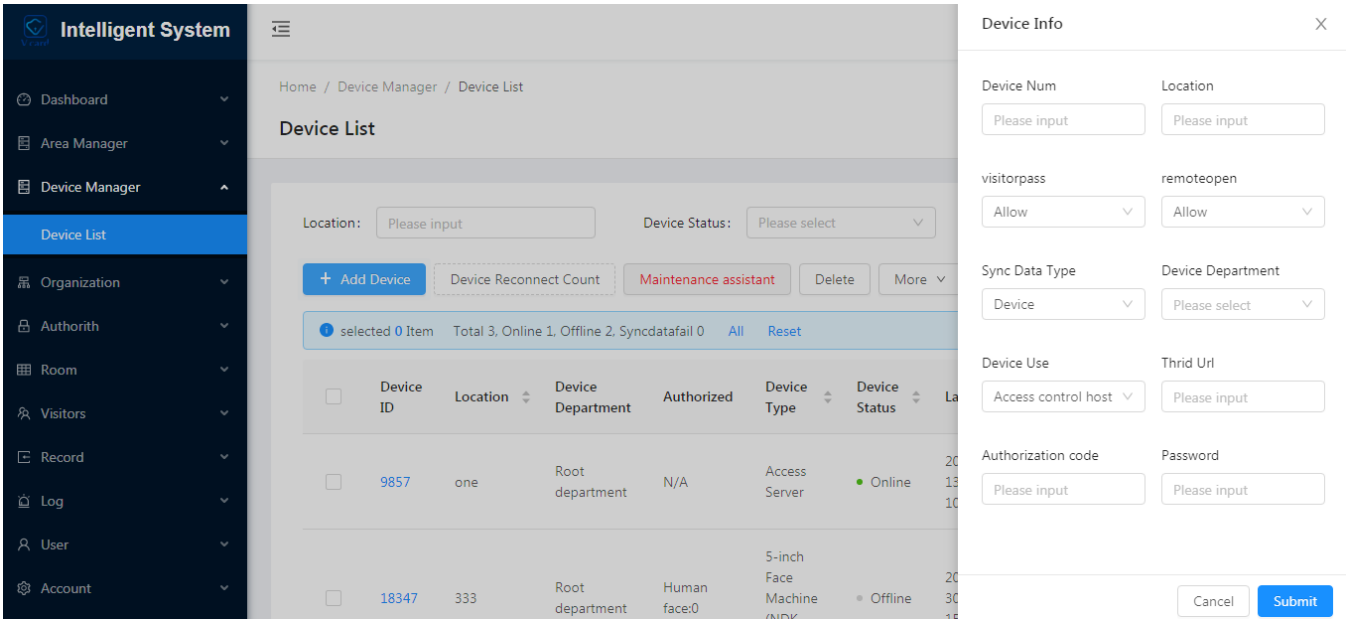
6.2. Platform interface

The interface is divided into menu bar on the left and content display area on the right, as shown in the following figure:

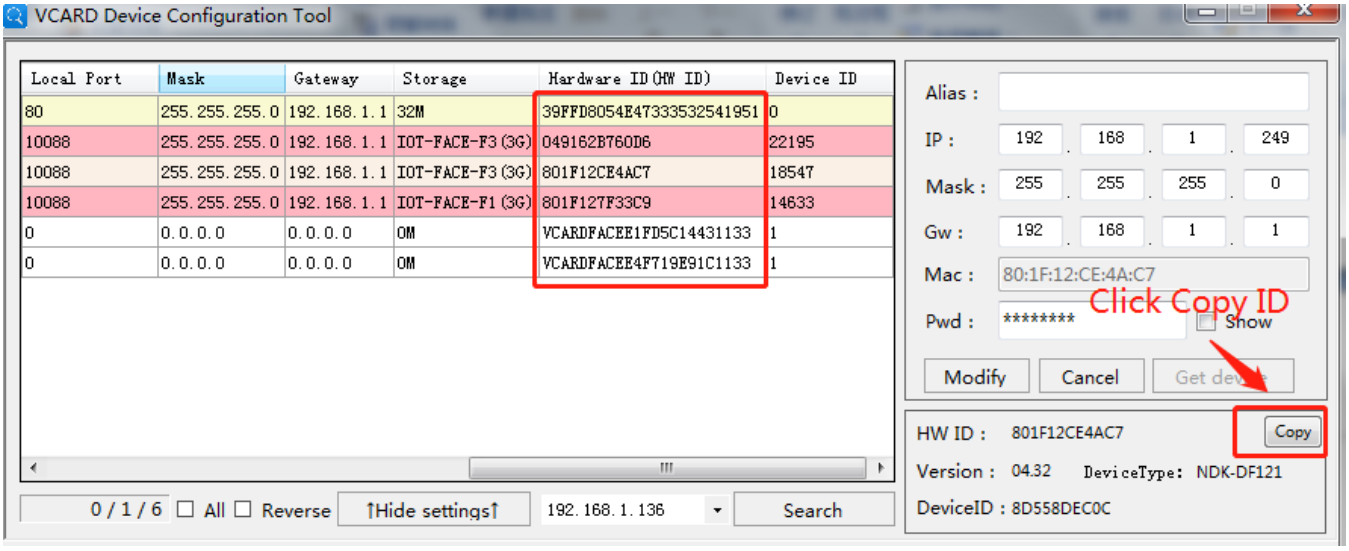


6.3. Add Device

Select the left menu bar, click "Device manager" - " Device list" - "add device ", enter "Device Num" (very important), fill in other relevant information freely, and then click "Submit" to add.

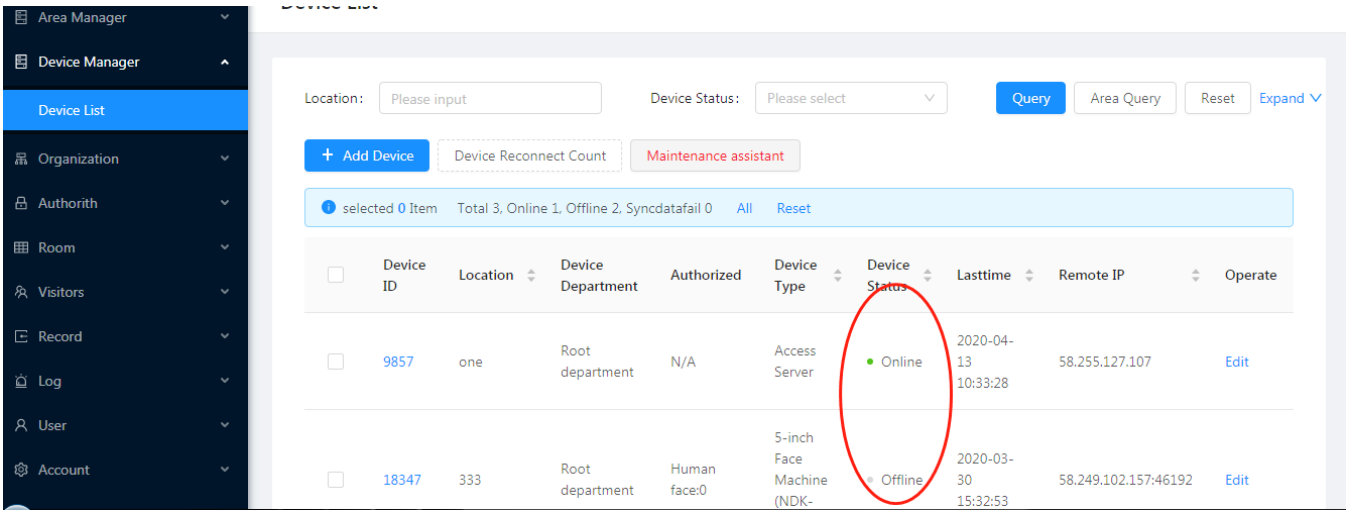


How to obtain the device number: open the "vCard device configuration tool", click "search", after the device list appears, pull the scroll bar to the right at the bottom, find the "hardware ID" list, and copy it.



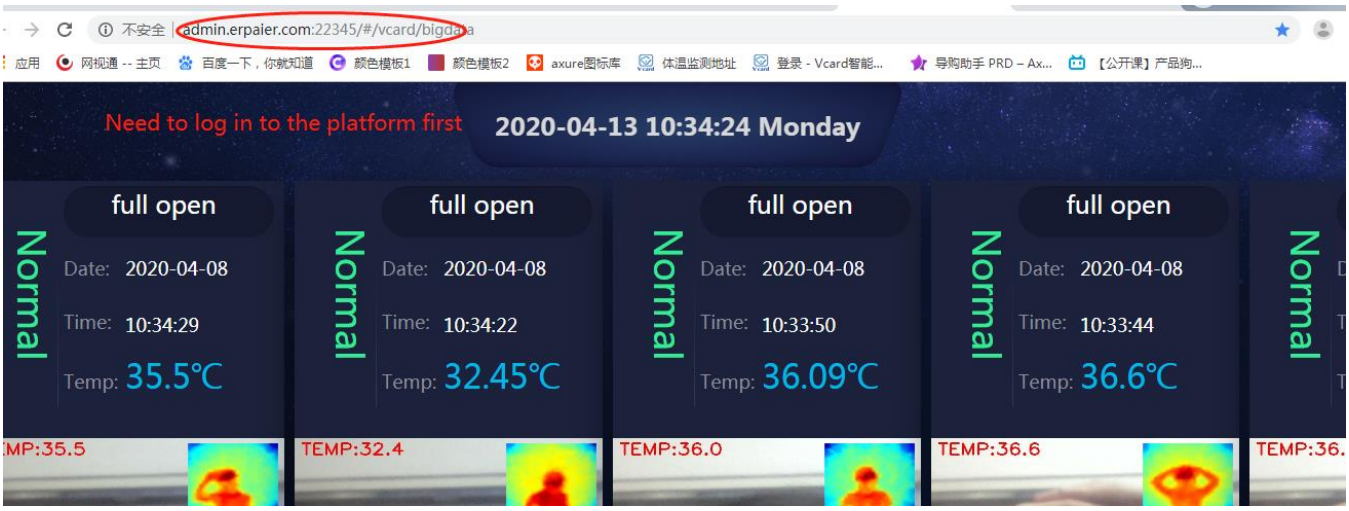
6.4. Observe device status

After the equipment is added, observe the "device status". When the device status is "online", the equipment can be configured. If the device status is offline, please refresh the browser several times or log in to the platform again. If the device displays "offline" all the time, please check whether the status of the machine's interface is "online". Offline reason: the device is not connected normally or the platform needs to be refreshed.



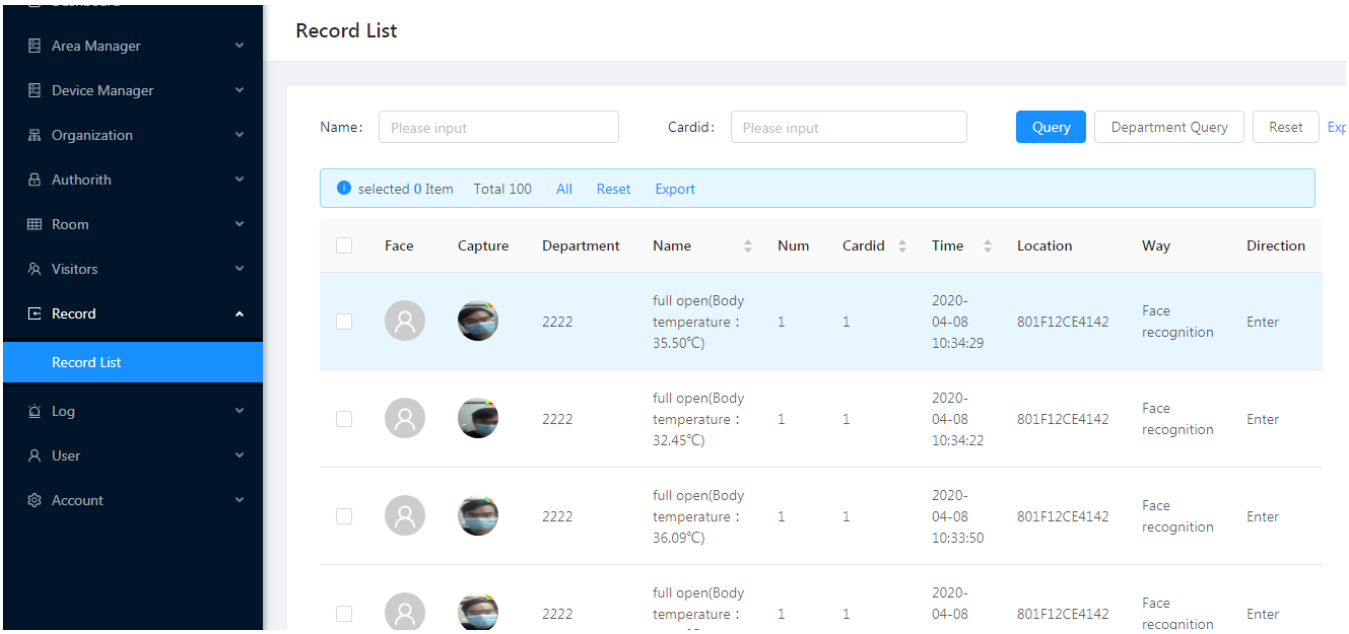
6.5. View records in real time.

After logging into the cloud platform, open the web page and input "http://admin.erpaier.com: 22345 / # / vCard / bigdata" to view the in and out records of body temperature detection in real time.

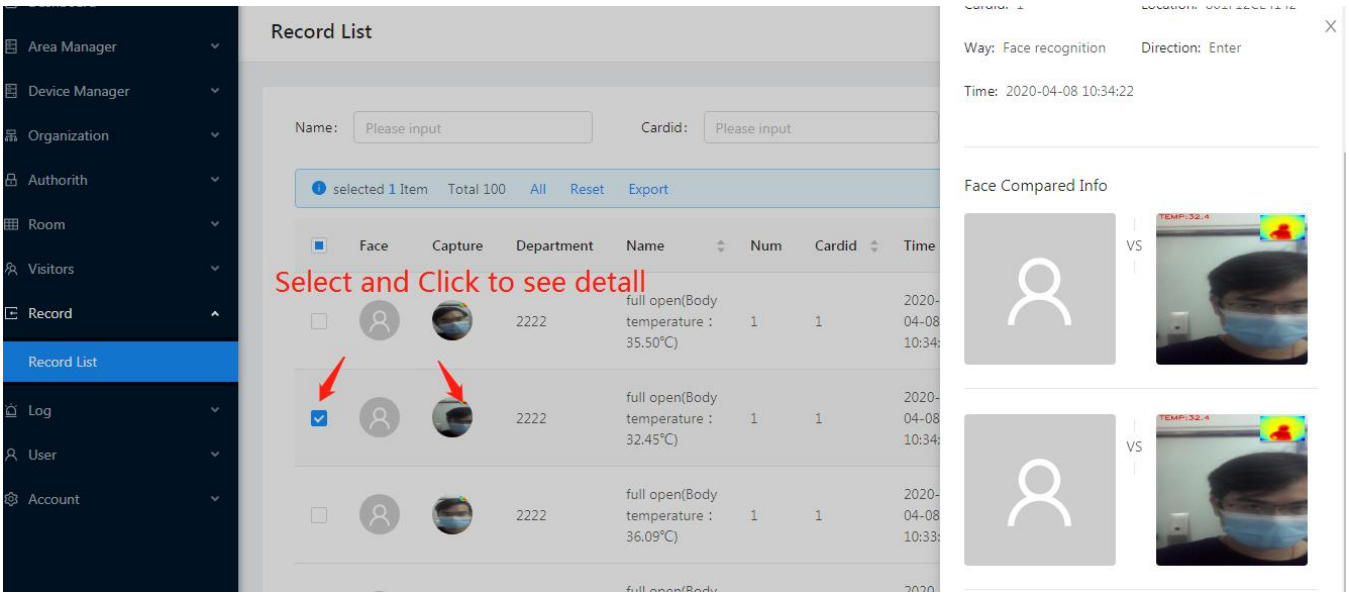


6.5.1. Record query

1. Pass (body temperature) record, including personnel information, body temperature information and snapshot pictures reported by each device.

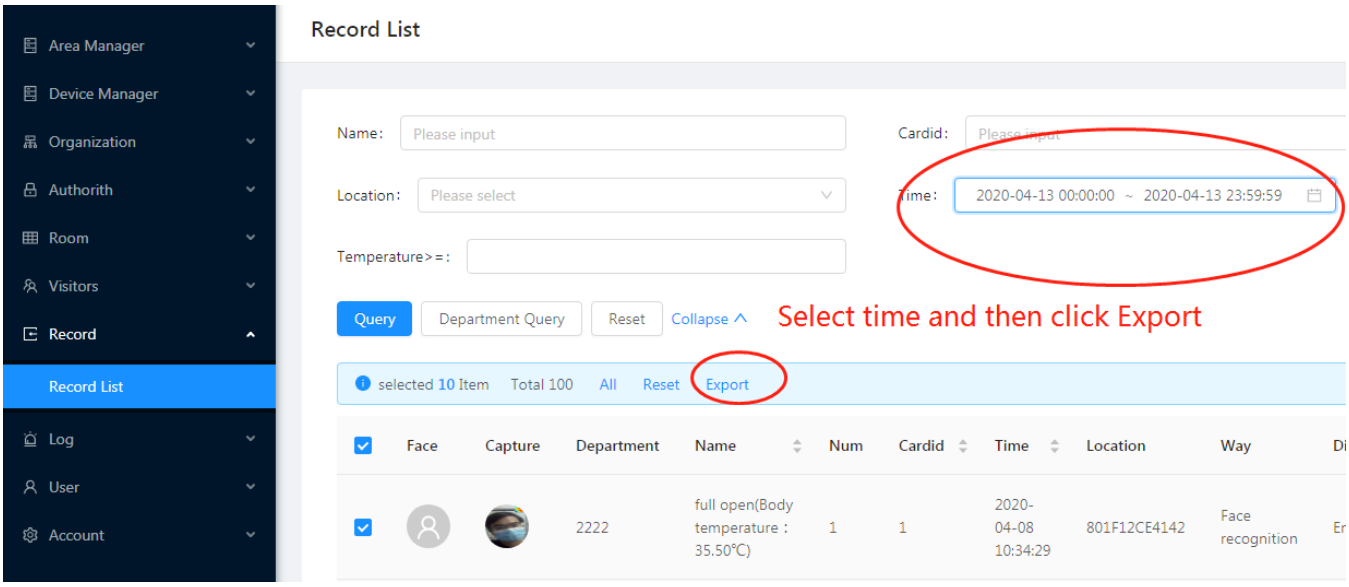


2. Click the corresponding record list to display the record details.



6.5.2. Record export

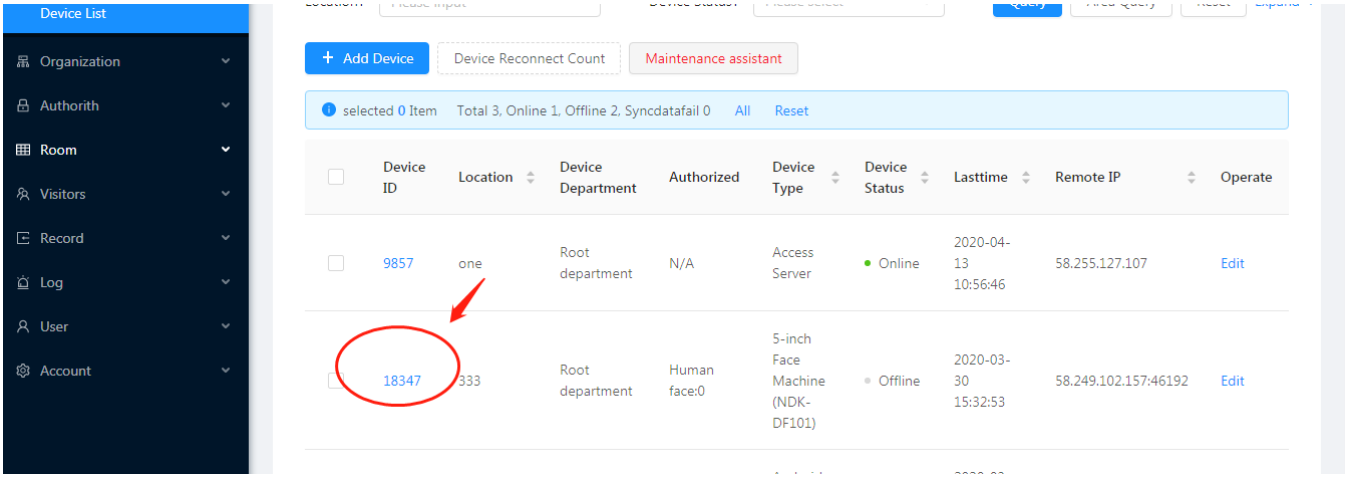
After clicking “expand”, the access time will appear. Select the time period to export records. After clicking export, the corresponding data table will be downloaded. (some browsers may block the redirection window. In this case, if you cannot download the report, you need to close the browser's blocking settings.)



6.6. Main parameter setting

6.6.1. Enter parameter setting

Find the corresponding equipment list, click the corresponding "hardware ID" to enter the device parameter setting interface.

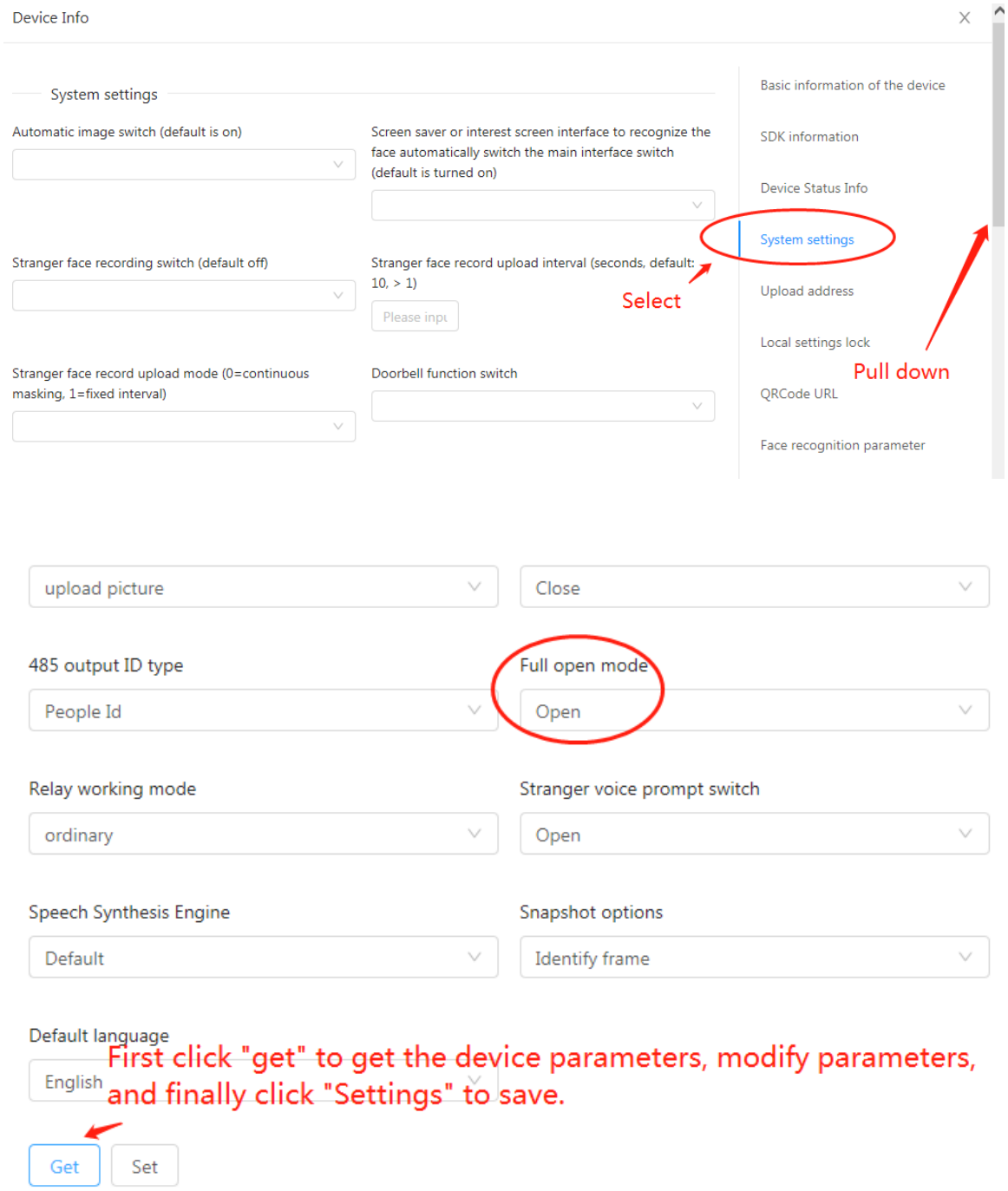


6.6.2. Set pass mode

"Full open" mode is on: only body temperature is detected, and face recognition is not performed.

"Full open" mode off: face recognition + body temperature detection is required for passing.

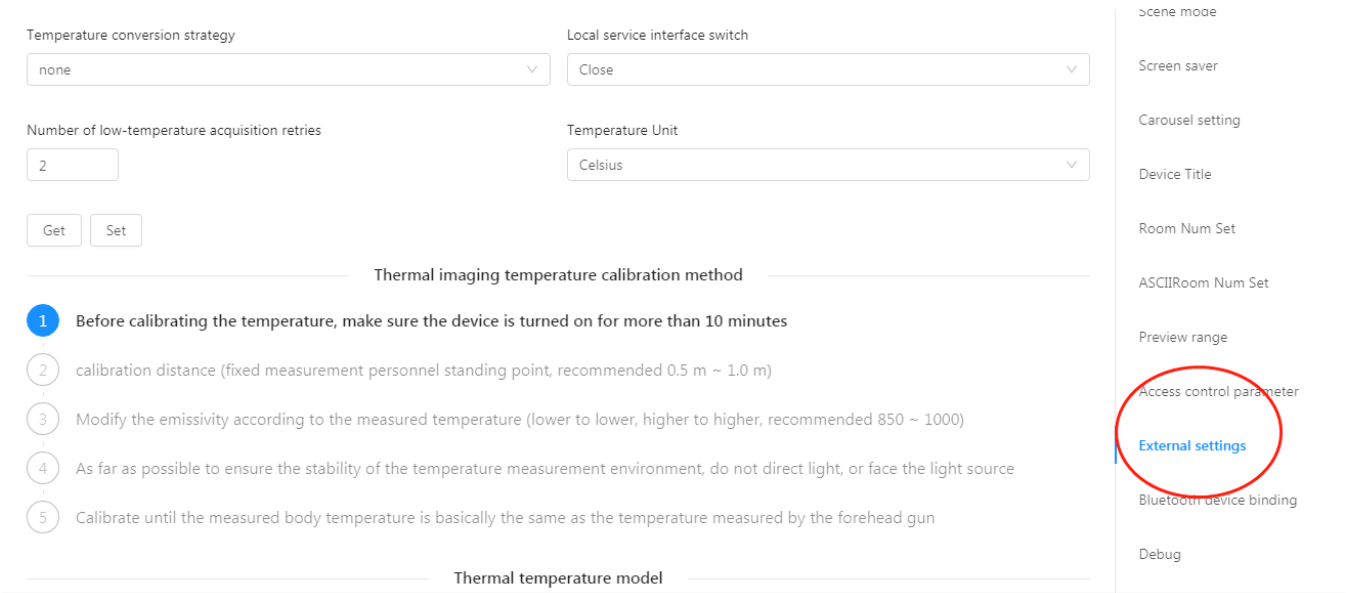
After entering the parameter setting interface, click "System settings" and pull down the scroll bar. First click "get". After obtaining the equipment parameters, find the "full open mode", modify the parameters, and finally click "Set" to save.

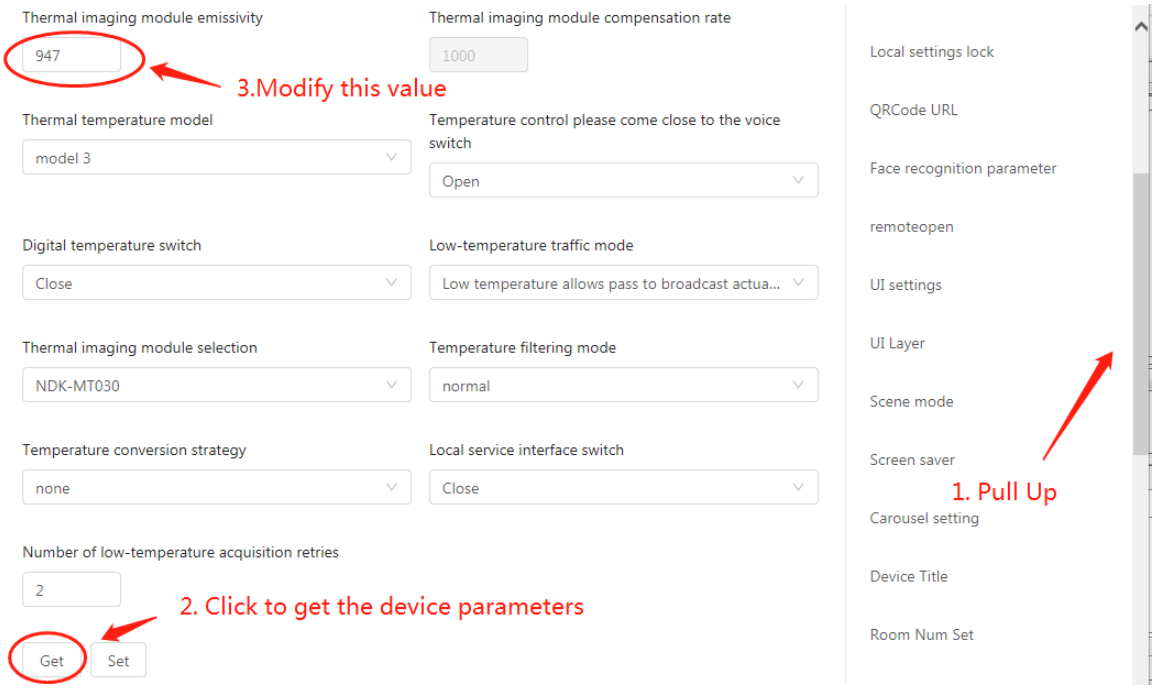


6.6.3. Thermal imaging emissivity

1. Thermal imaging emissivity: adjust the accuracy of body temperature detection (tune number less if temperature is lower, and tune number more if temperature is higher. 850-1000 recommended). The thermal imaging emissivity shall be fine-tuning tested according to the actual application environment until the value is normal.

2. After entering the parameter setting interface, pull down the scroll bar to find the " External settings", click to enter, first click "get", after obtaining the device parameters, find "radiation rate of thermal imaging module", then modify the parameters, and finally click "Set" to save.





6.6.4. Thermal temperature model

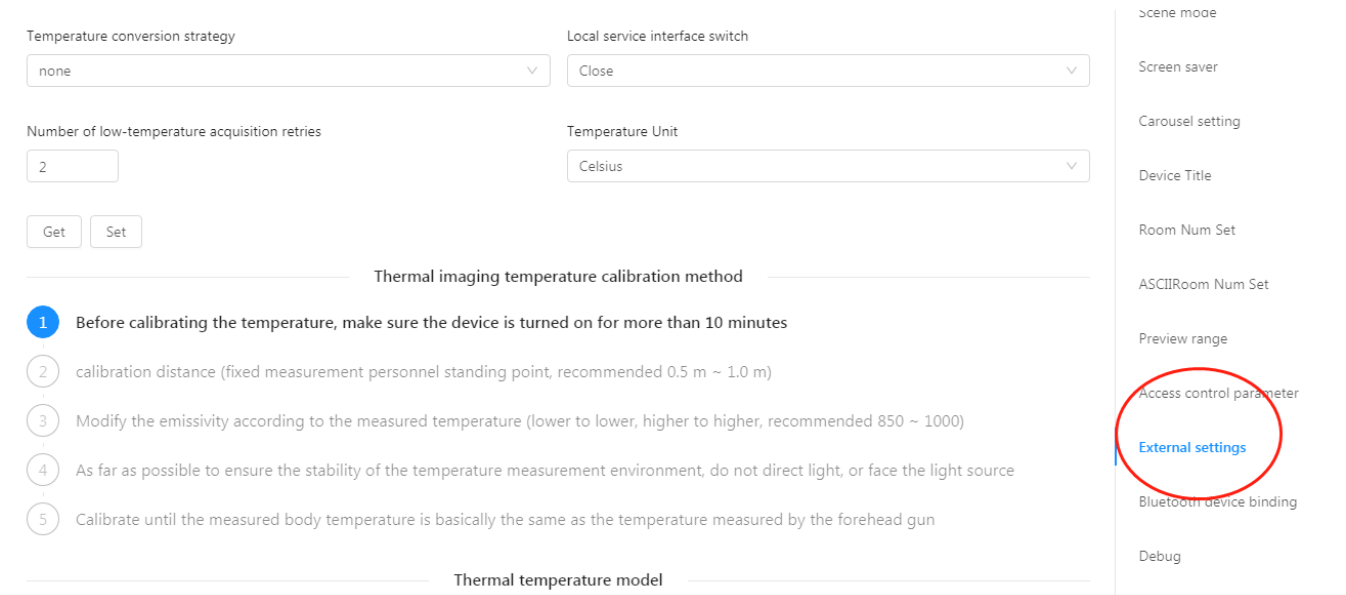
Model 1: applicable to the scenes with better environment

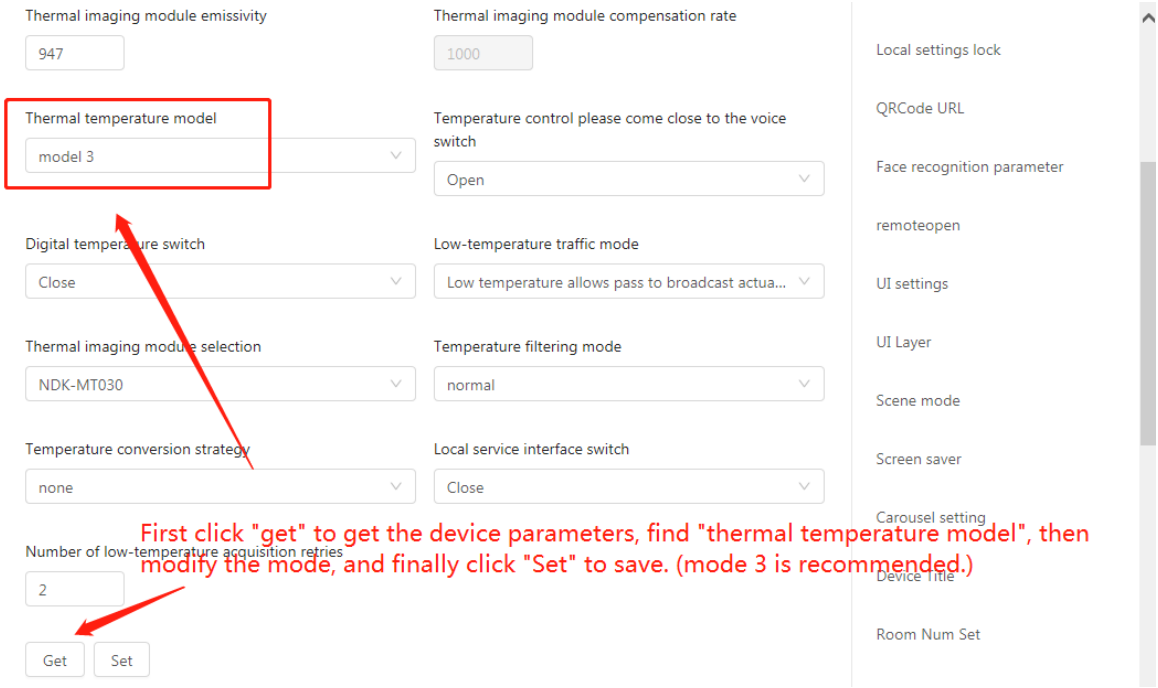
Model 2: suitable for the scene with large interference

Model 3: coarse precision model, can not be used for parameter optimization. This model should be selected after the parameters has been adjusted.

Customers need to choose the best according to the actual scenario and test results. By default, the machine uses the coarse accuracy mode, which is compatible with the human body temperature detection of each scene. However, if the sensitivity is not high, and the temperature accuracy requirements are high, please calibrate the parameters according to the actual deployment environment.

After entering the parameter setting interface, pull down the scroll bar to find "External settings". First click "get". After obtaining the device parameters, click "enter" to find "thermal temperature model", then modify the mode, and finally click "Set" to save. (mode 3 is recommended.)

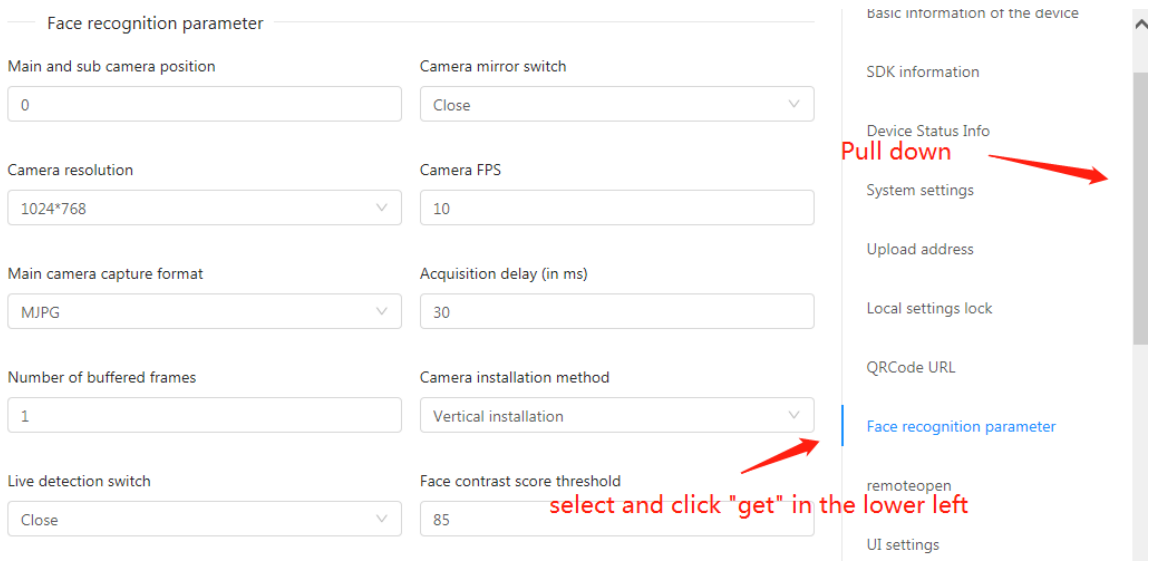


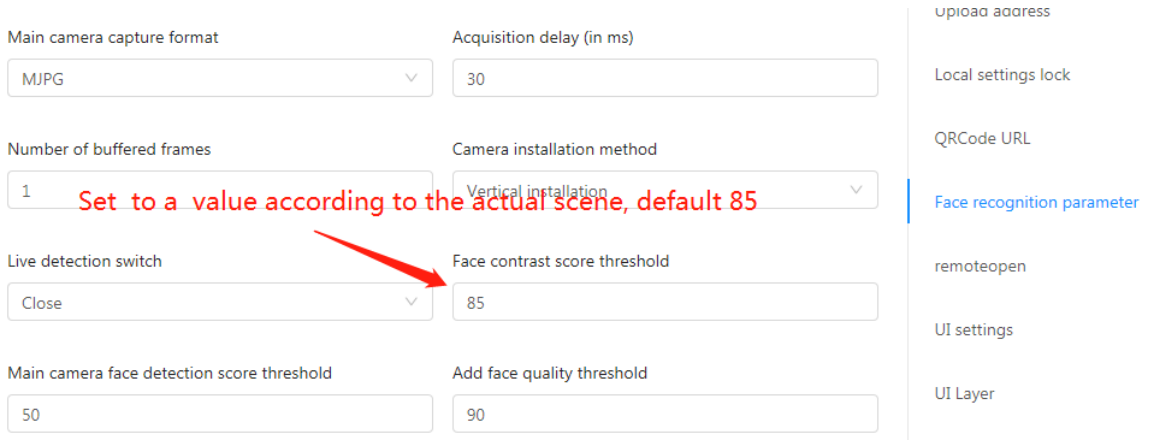


6.6.5. Face comparison score threshold

1. Face contrast score threshold: affects face recognition value, such as wearing mask recognition, can be adjusted down appropriately. (recommended 75-90)

2. After entering the parameter setting interface, pull down the scroll bar to find the "face recognition parameters", click to enter, first click "get", after obtaining the device parameters, find the "face comparison score threshold", then modify the parameters, and finally click "set" to save.





6.7. Secondary parameter setting

6.7.1. Temperature check mode

There are four modes:

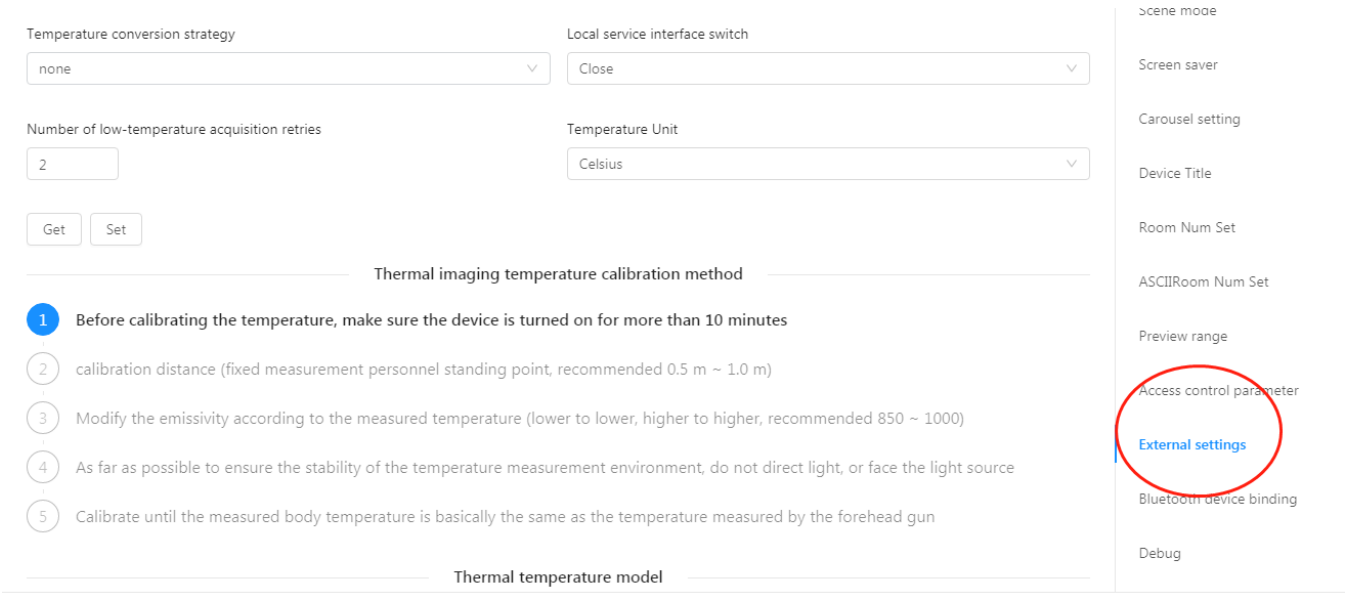
Shutdown: doesn't detect and check body temperature.

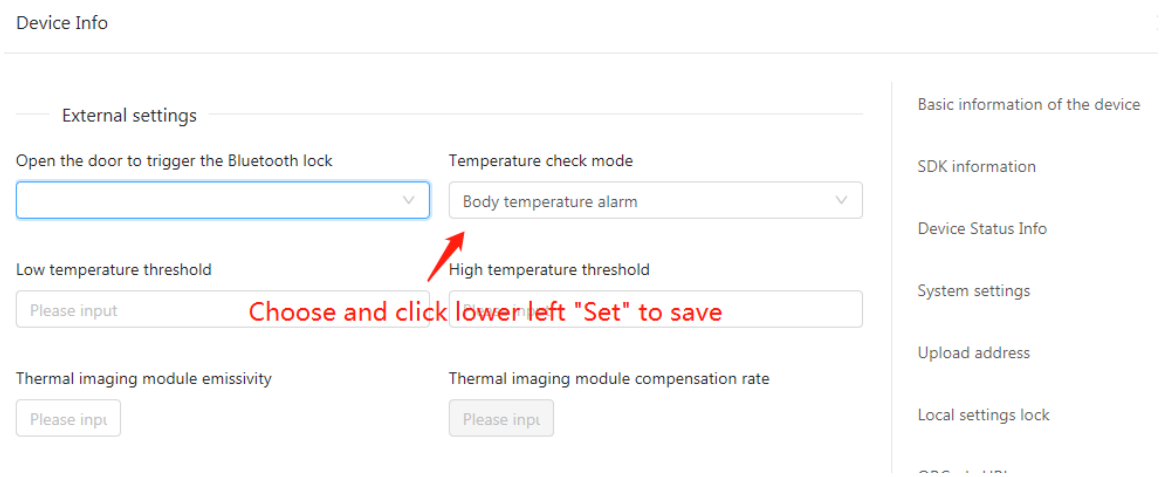
Body temperature alarm: detect body temperature, and when the body temperature exceeds the high temperature threshold, alarm the abnormal body temperature.

Exception does not unlock: detect body temperature, and when the body temperature exceeds the high temperature threshold, the machine won't send signal to open door.

Temperature priority: only detect temperature, no alarm, and no signal to open door.

After entering the parameter setting interface, pull down the scroll bar, find and select "External settings", first click lower left "get" to get the device parameters, find "temperature check mode", then modify the parameters, and finally click "Set" to save.

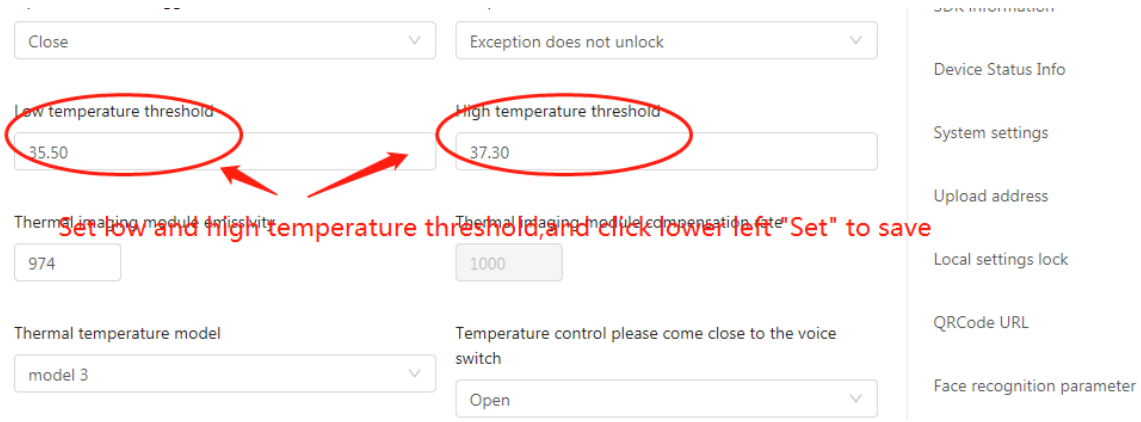




6.7.2. Temperature alarm threshold

Temperature alarm threshold: alarm when the temperature threshold range is exceeded. (35.5 ℃ ~ 37.3 ℃ is recommended by default)

After entering the parameter setting interface, pull down the scroll bar, find and select "External settings", first click lower left "get" to get the device parameters, then find "low temperature threshold" and "high temperature threshold" after obtaining the device parameters, then modify the parameters, and finally click "set" to save.



6.7.3. Low temperature traffic mode

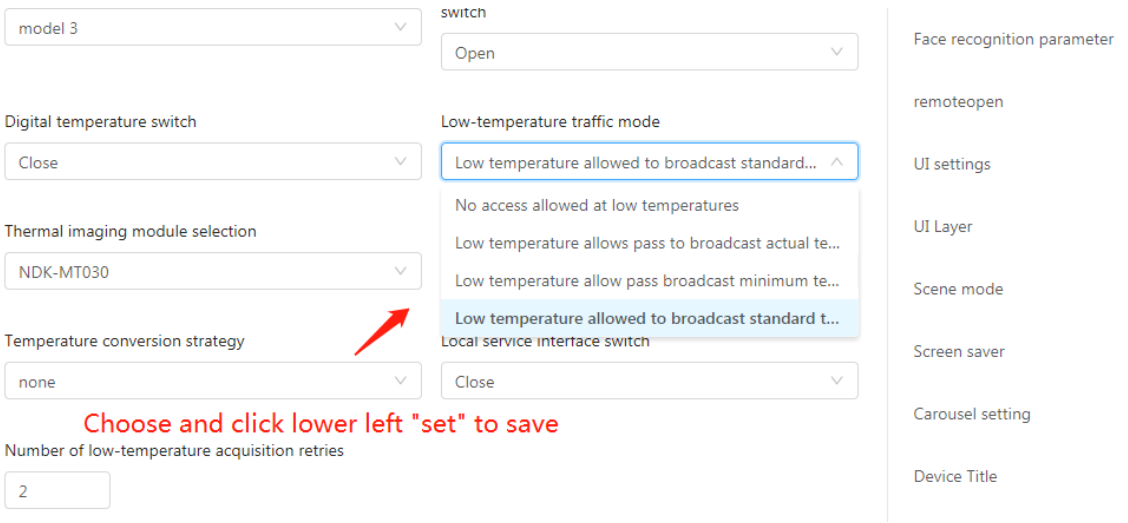
1. No access at low temperatures: when detect low temperature, the device won't send signal to open door.

2. Low temperature allows pass to broadcast actual temperature: when detect low temperature, the device send signal to open door and broadcast actual temperature.

3. Low temperature allow pass broadcast the minimum temperature threshold: when the temperature detection exceeds the low temperature threshold, the device send signal to open door, but the broadcast temperature value is the set fixed low temperature threshold.

4. Low temperature allowed pass broadcast the standard temperature: if the temperature detection exceeds the low temperature threshold, the device send signal to open door,but the broadcast temperature value is a fixed standard normal temperature value.

After entering the parameter setting interface, pull down the scroll bar, find and select "External settings", first click lower left "get" to get the device parameters, find "low temperature traffic mode", then modify the parameters, and finally click "Set" to save.

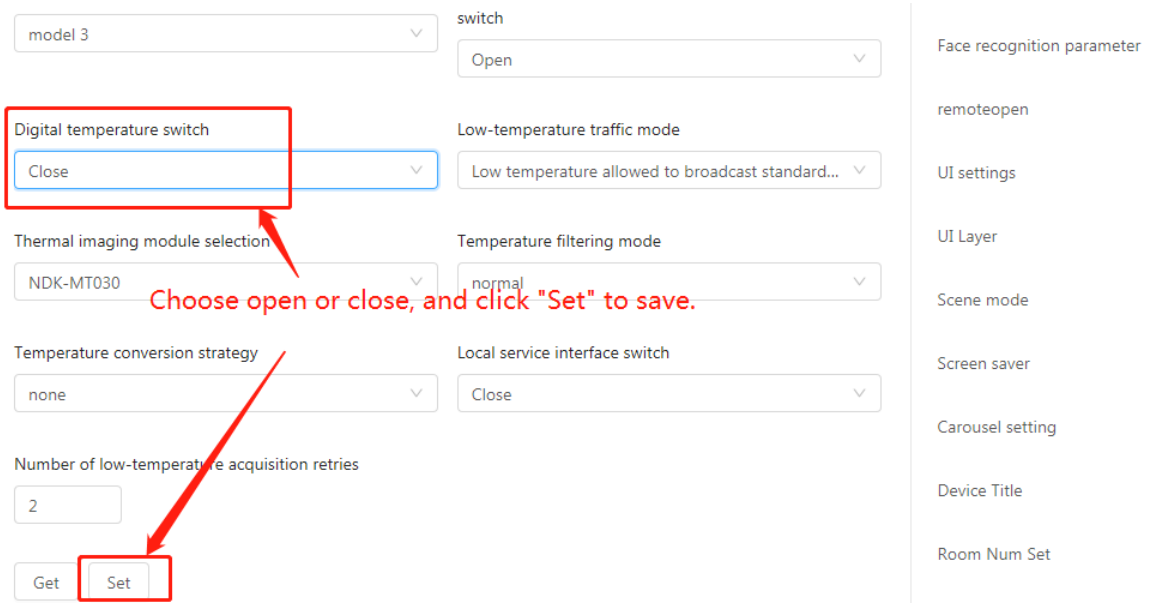


6.7.4. Broadcast temperature value switch

1. Close: only indicates that the temperature is normal, and does not broadcast the specific temperature value.

2. Open: prompt that the temperature is normal, and broadcast the specific temperature value.

After entering the parameter setting interface, pull down the scroll bar, find and select "External settings", first click lower left "get" to get the device parameters, find "Digital temperature switch", then modify the parameters, and finally click "Set" to save.



6.7.5. Upload stranger record

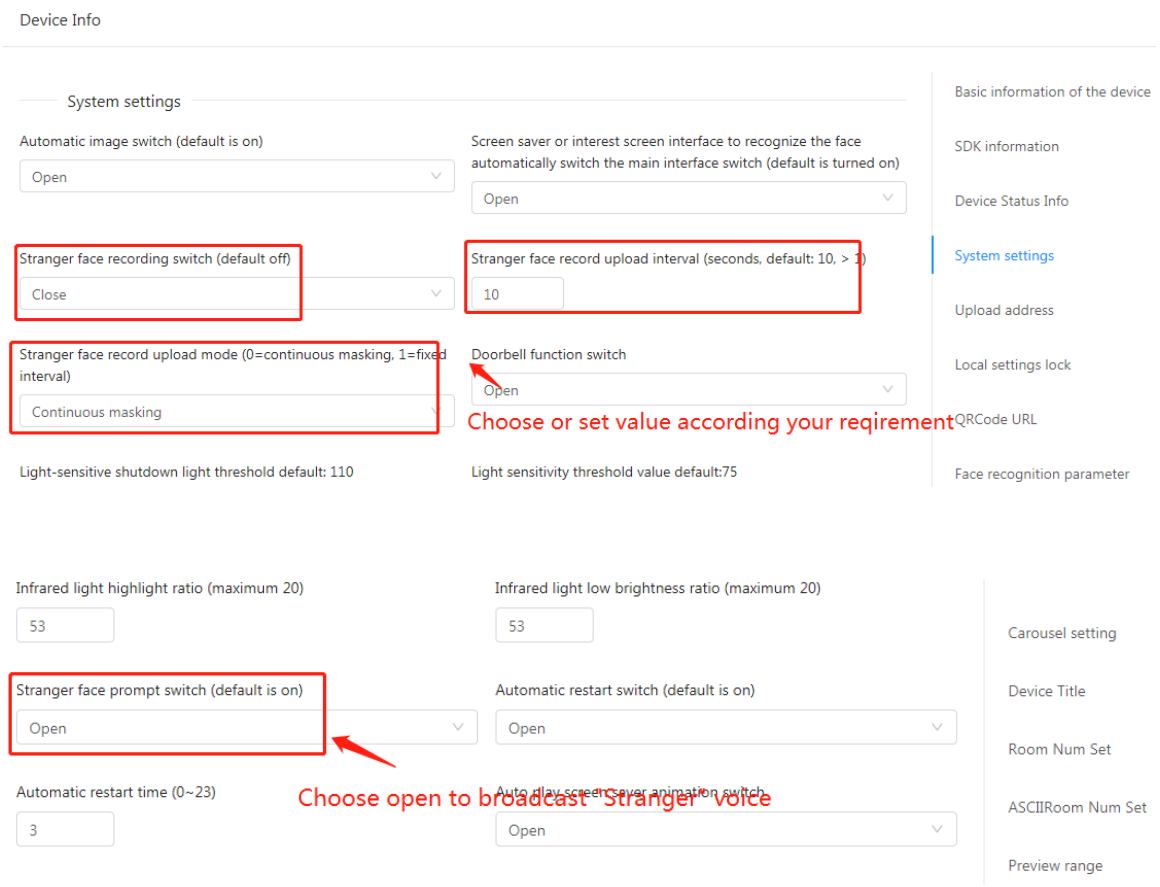
1. Stranger face recording switch: ①Open: stranger passes, upload access record to platform ② Close: stranger passes, do not upload access record to platform.

2. Stranger face record upload interval: 10s by default. (setting interval 1-10)

3. Stranger face record upload mode: ① fixed interval: set to this parameter, and the parameter " Stranger face record upload interval" will take effect. ② Continuous masking: do not upload stranger records.

4. Stranger face prompt switch: choose open to broadcast "stranger" voice, and choose close to stop.

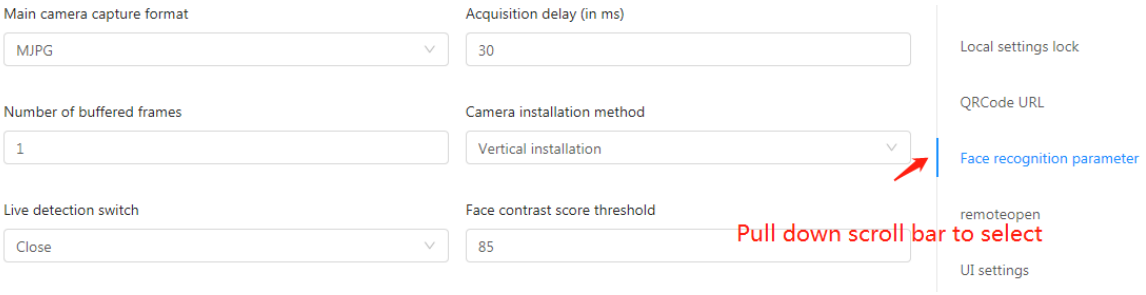
After entering the parameter setting interface, pull down the scroll bar, find and select "System settings", first click lower left "get" to get the device parameter Stranger face recording switch s, find "Stranger face recording switch", “Stranger face record upload interval”, “Stranger face record upload mode” and then modify these parameters according your requirement, and finally click "Set" to save.

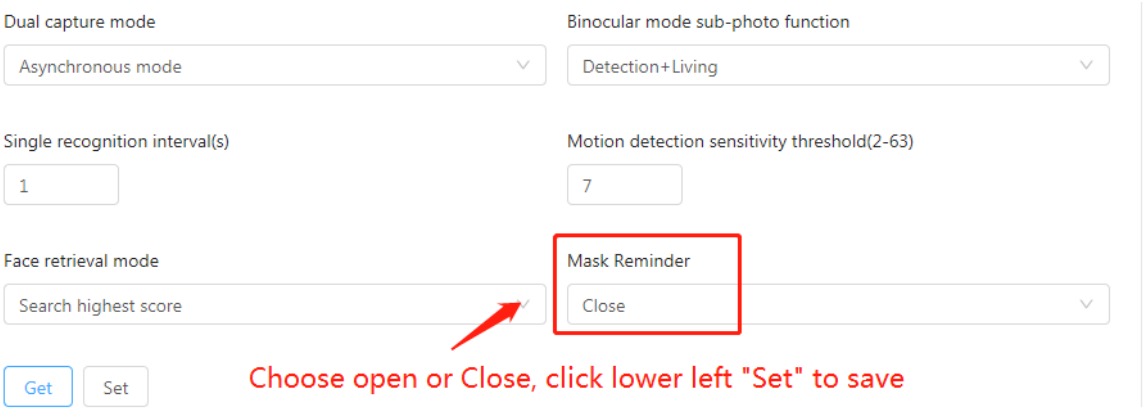


6.7.6. Mask alarm

Mask reminder: ① Open: alarm if the passers-by doesn't wear mask; ② Close: do not identify the mask

After entering the parameter setting interface, pull down the scroll bar to find the "face recognition parameters", click to enter, first click "get", after obtaining the device parameters, find "mask reminder", then modify the parameters, and finally click "set" to save.

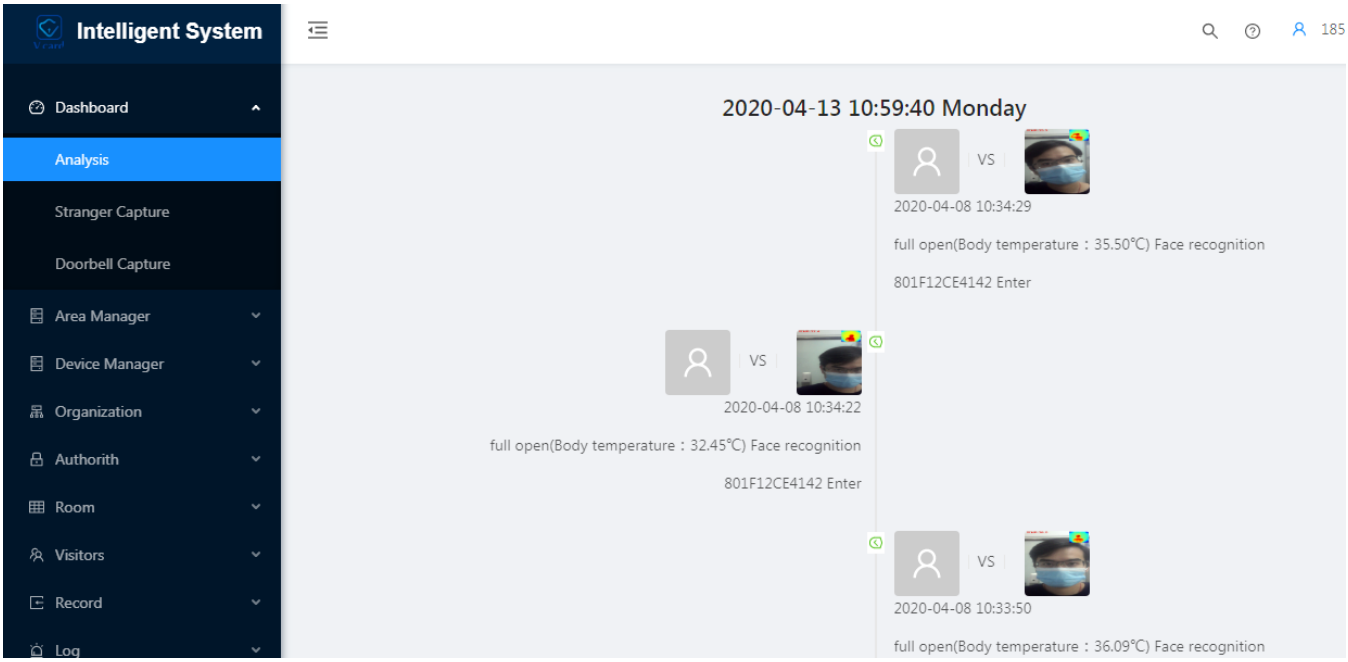




6.8. Functions of management system

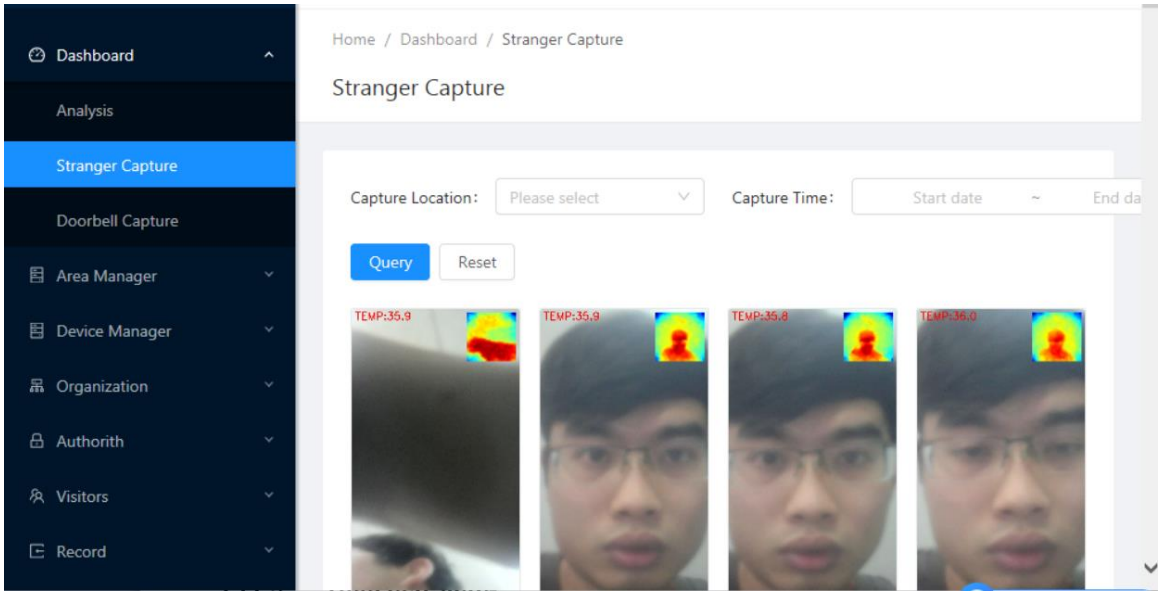
6.8.1. In and out analysis

In and out analysis: display the detailed information of the latest 50 in and out records, including in and out personnel name, in and out time, personnel face information, in and out snapshot pictures, in and out temperature information lamp information of personnel tested.



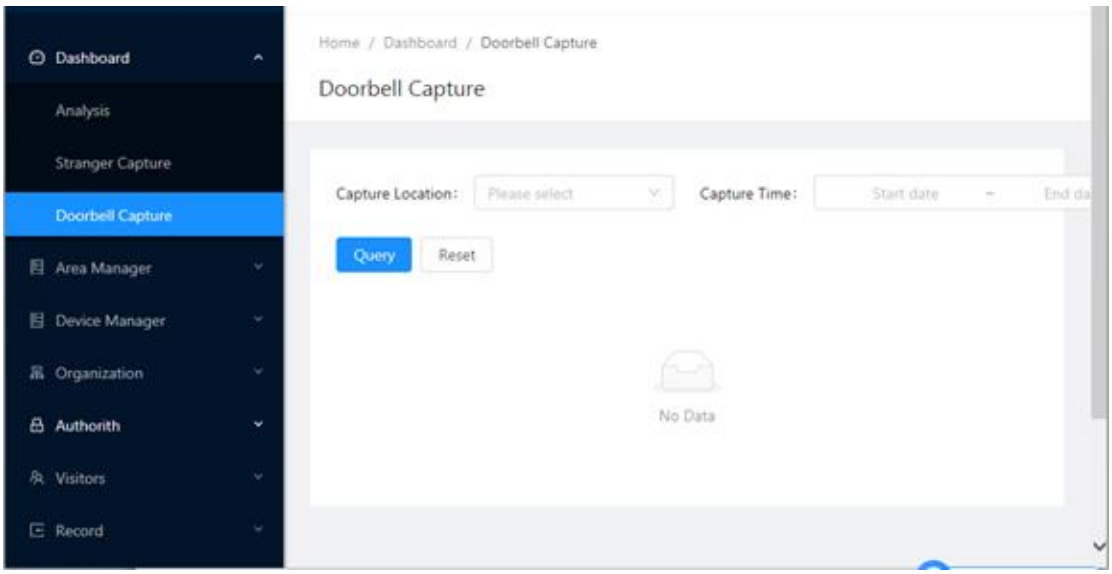
6.8.2. Stranger capture

After the device starts the stranger capture upload, all stranger capture information of each device will be shown. It supports querying any snapshot according to the device and time period.



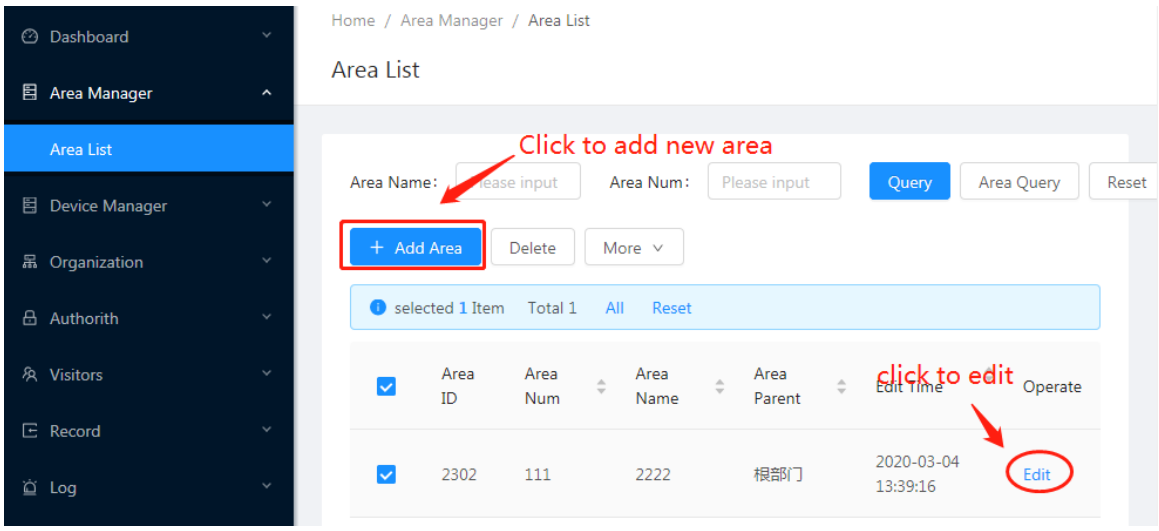
6.8.3. Doorbell capture

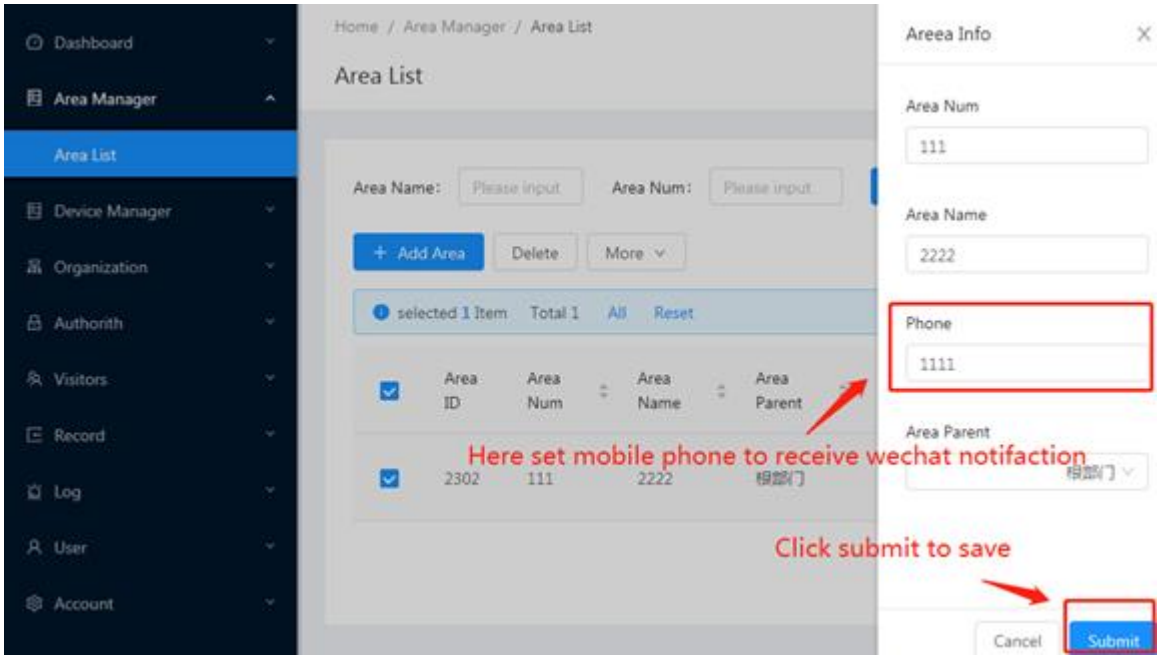
When doorbell capture is set on, the device will take a picture of the visitor and upload it when the doorbell is pressed.



6.8.4. Area manager

By setting the mobile phone of the person in charge of the area and corresponding to the mobile phone number bound with wechat, wechat message notifications of the device can be received.



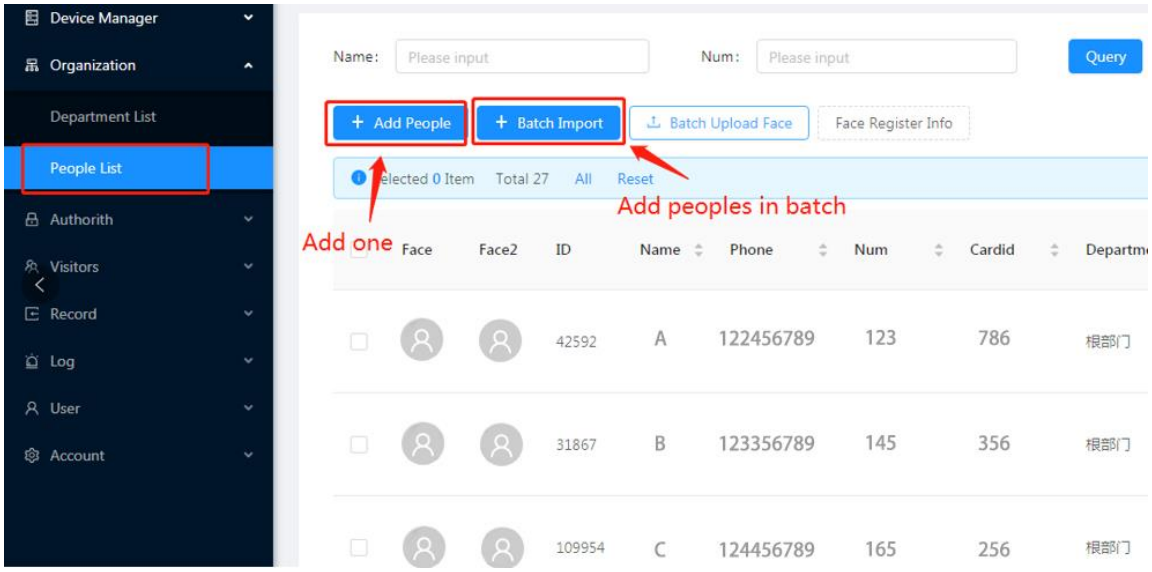


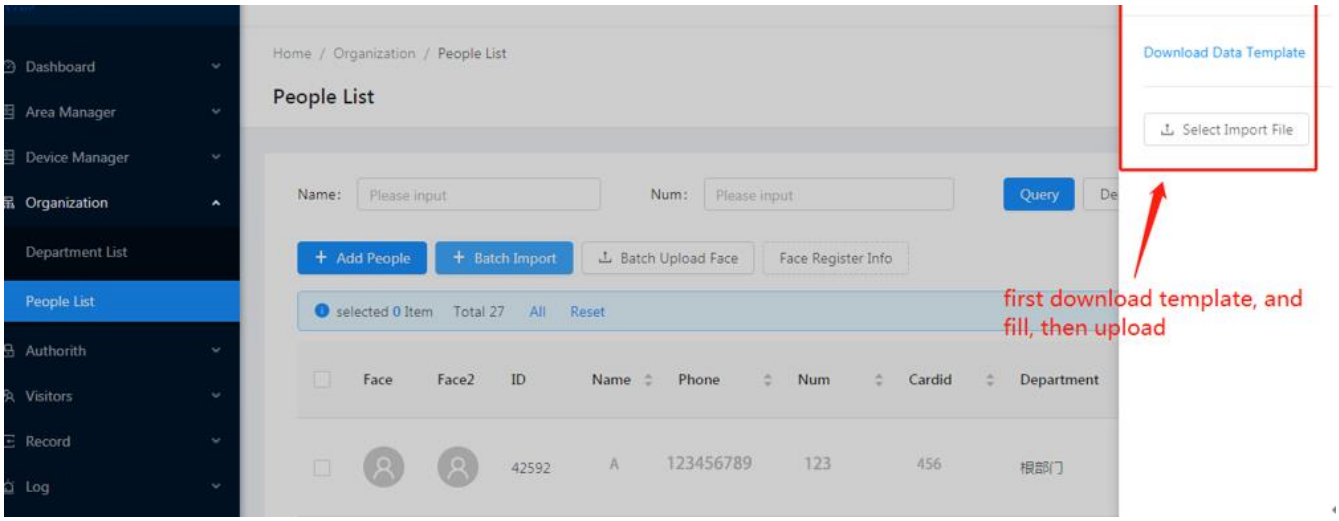
6.8.5. Organization management

Personnel management is available. New personnel can be added through personnel management. Personnel information can be imported in batches and faces can be uploaded in batches.

6.8.5.1. Add personnel information

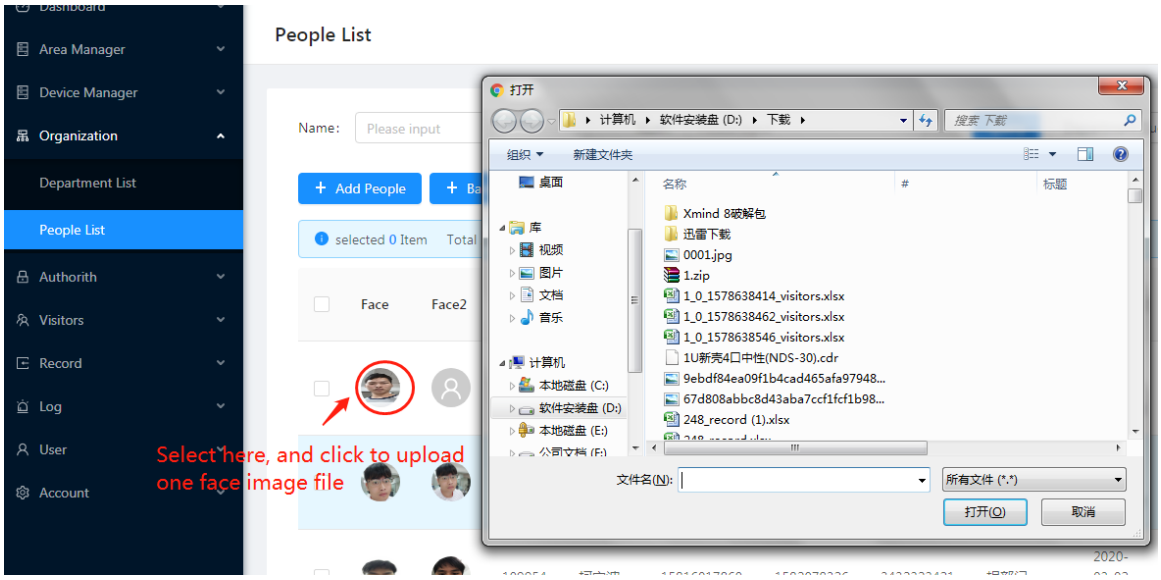
Select Organization->People List, and click “+Add People” to add one by one, click “+Batch Import” to add peoples in batch.





6.8.5.2. Face uploading

1. Upload one face: click the corresponding "face" head image, and select the corresponding face photo after pop-up. (Photo format: less than 1m, JPG format) ("face" refers to the face image uploaded through the management platform, "sub face" refers to the face image uploaded by the end user through the applet.)



2. Upload faces in batch:

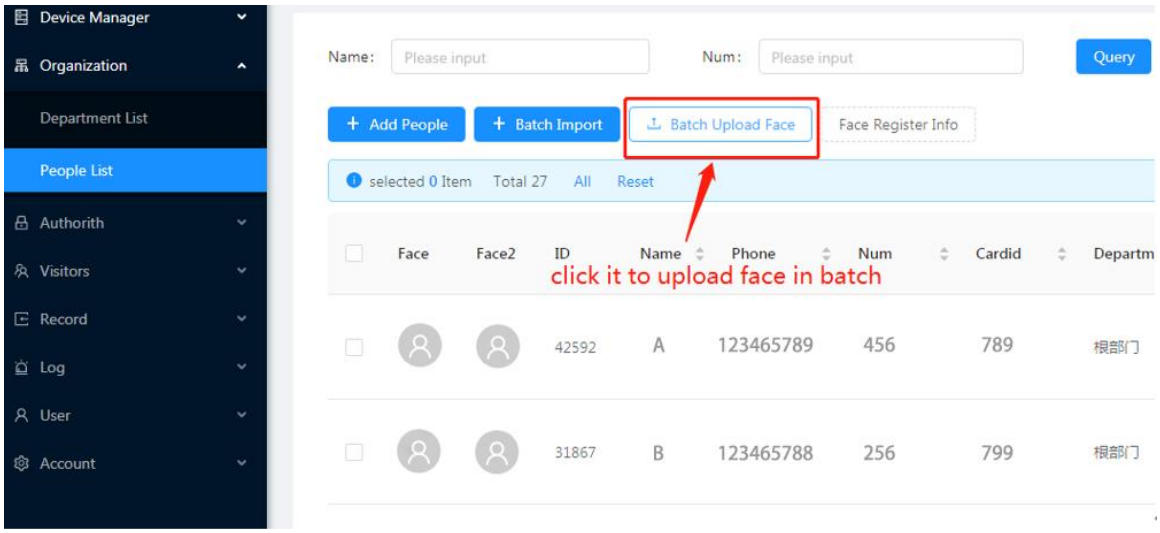
① After the face photos are named according to the rules, they are uniformly compressed into a zip file, with each package no more than 50m. (Note: directly select all photos for compression)

② Put the compressed file in a folder, and select the folder when uploading.

③ Click the "upload face in batch" button, and select the folder where the face photos need to be uploaded.

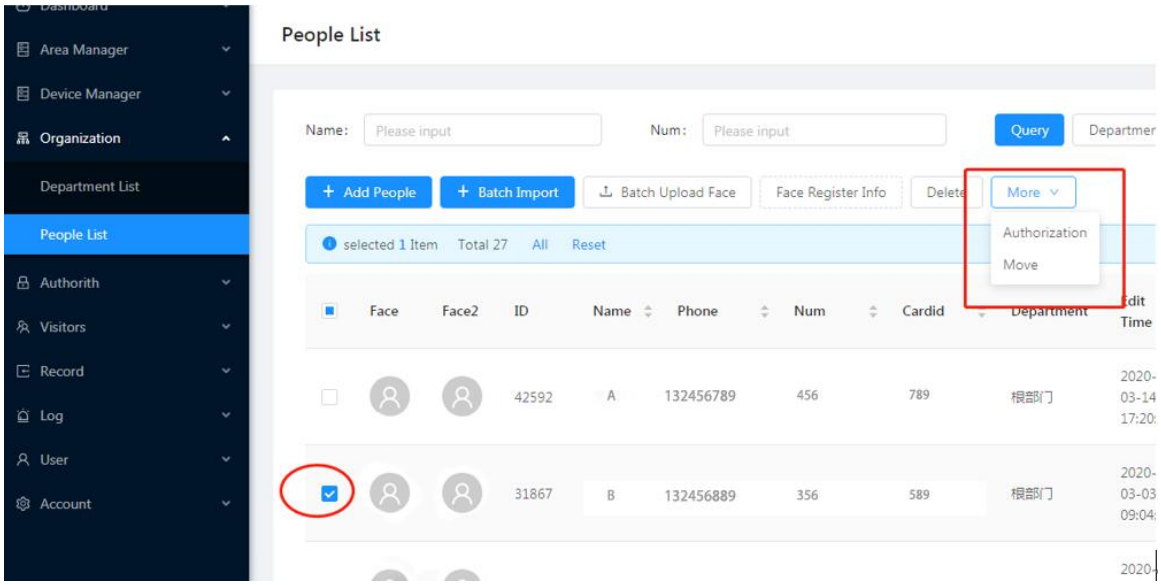
Naming rules for face photos:

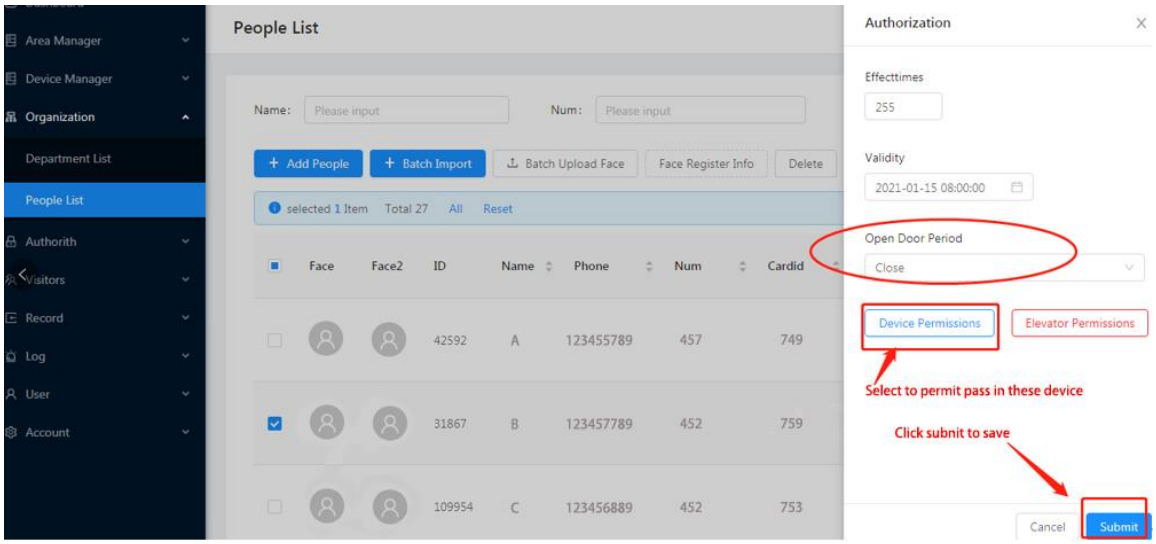
Naming rules for face photos	Subject-ID_Person-Number.jpg: for example, if the subject ID (can be viewed through system settings - subject settings) is 1, and the person number is 2020, so the corresponding face picture name can be: 1_2020.jpg
Naming rules for sub face photos	Mobile-number.jpg,:if the mobile number of the corresponding person is 13100000000, the face picture of the changed person should be named 13100000000.jpg



6.8.5.3. Face authorization

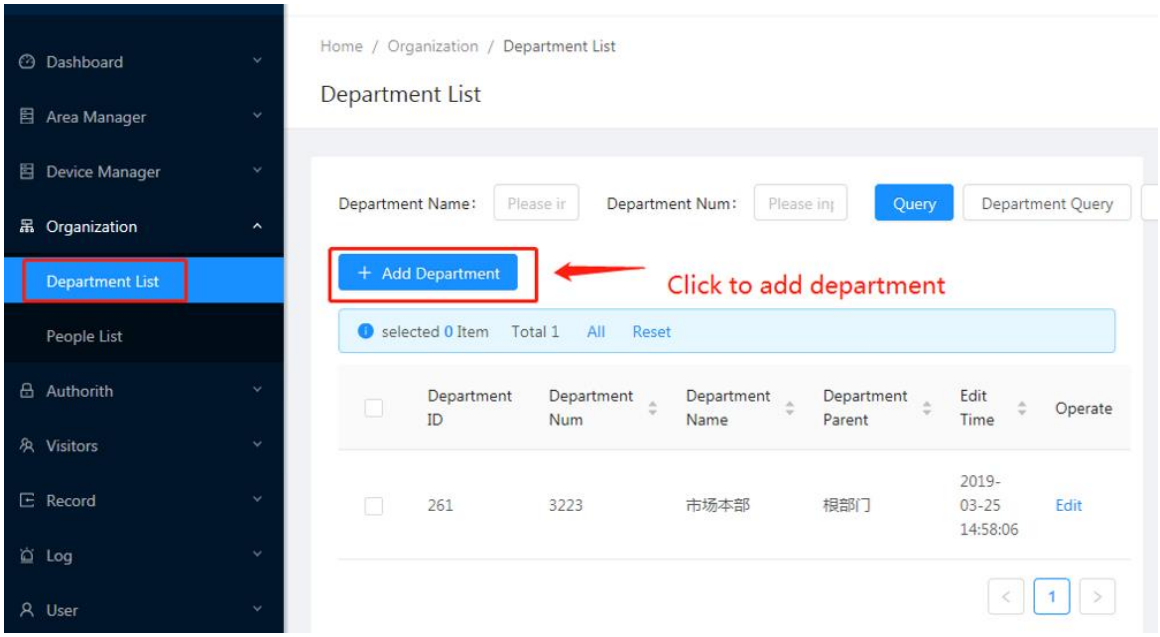
Check (single selection directly corresponds to the face list item, select all and click "select all") the personnel to be authorized. Select "Authorization" from “More” pull-down menus, and select the device to be authorized. After confirmation, click OK to prompt that the operation is successful, indicating that the authorization is successful.

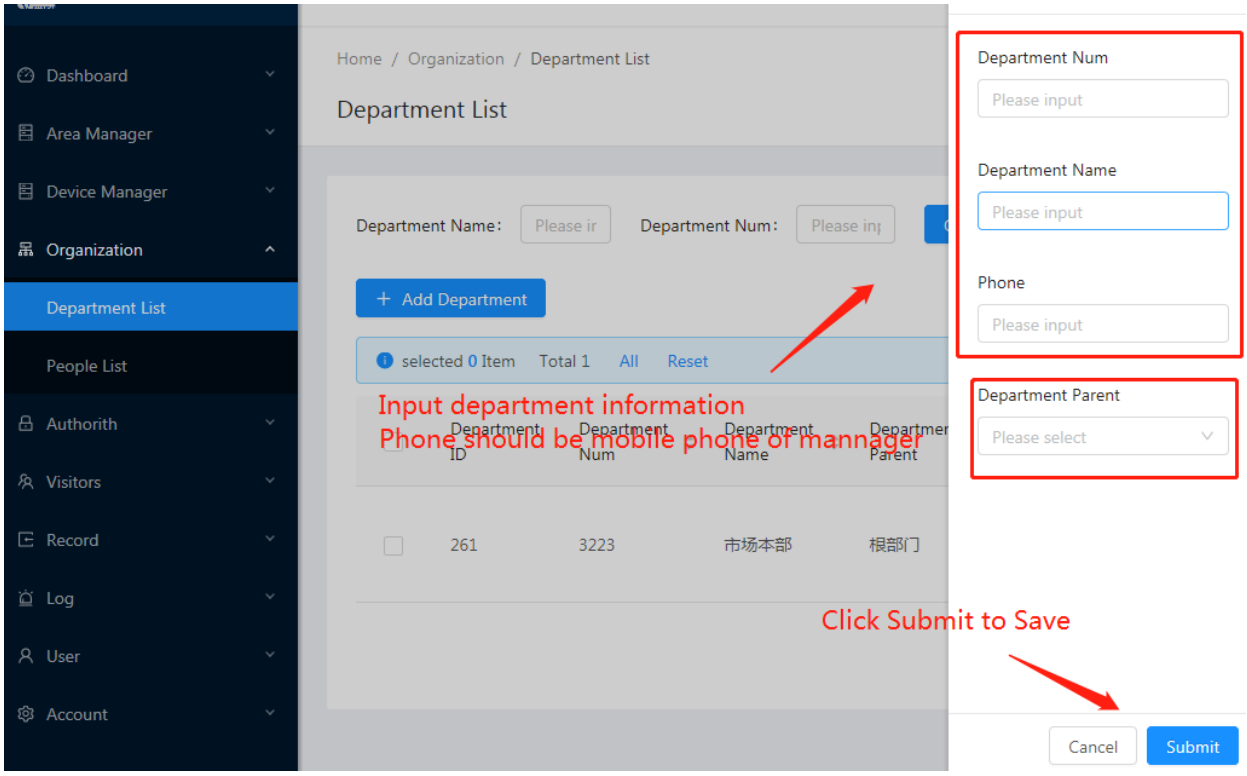




6.8.5.4. Department management

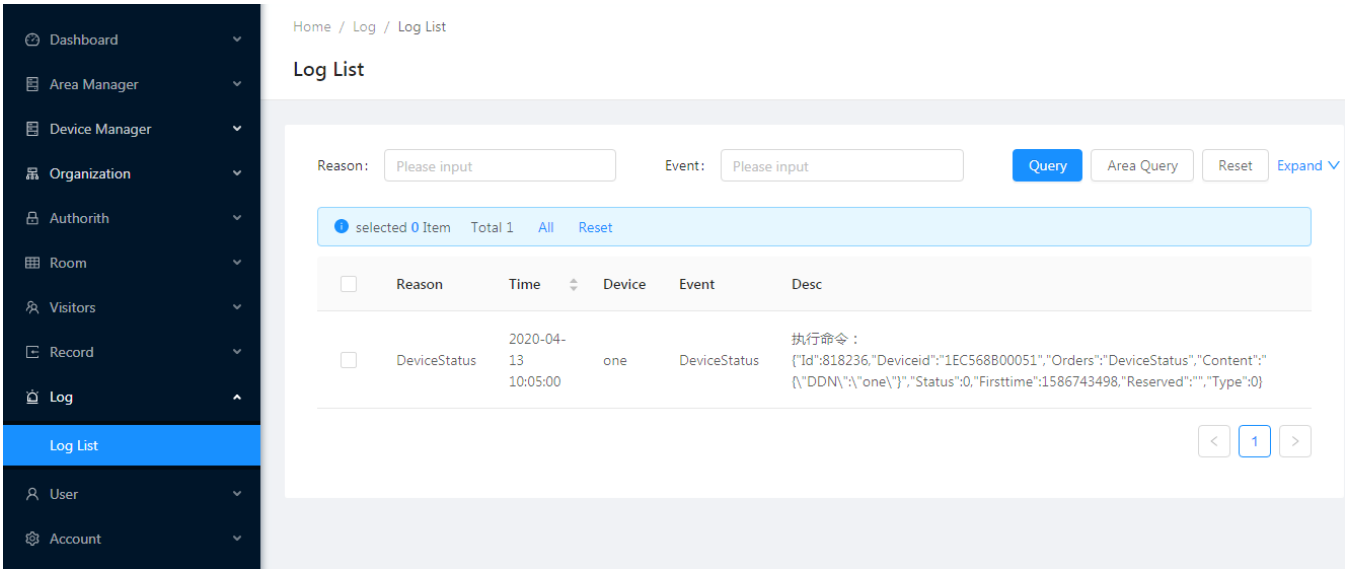
Department management is used for the management of personnel information in different departments. Through the mobile phone of the department head and the corresponding mobile phone number bound with wechat, you can receive the wechat message notification of the access (temperature) data of personnel under the corresponding department.





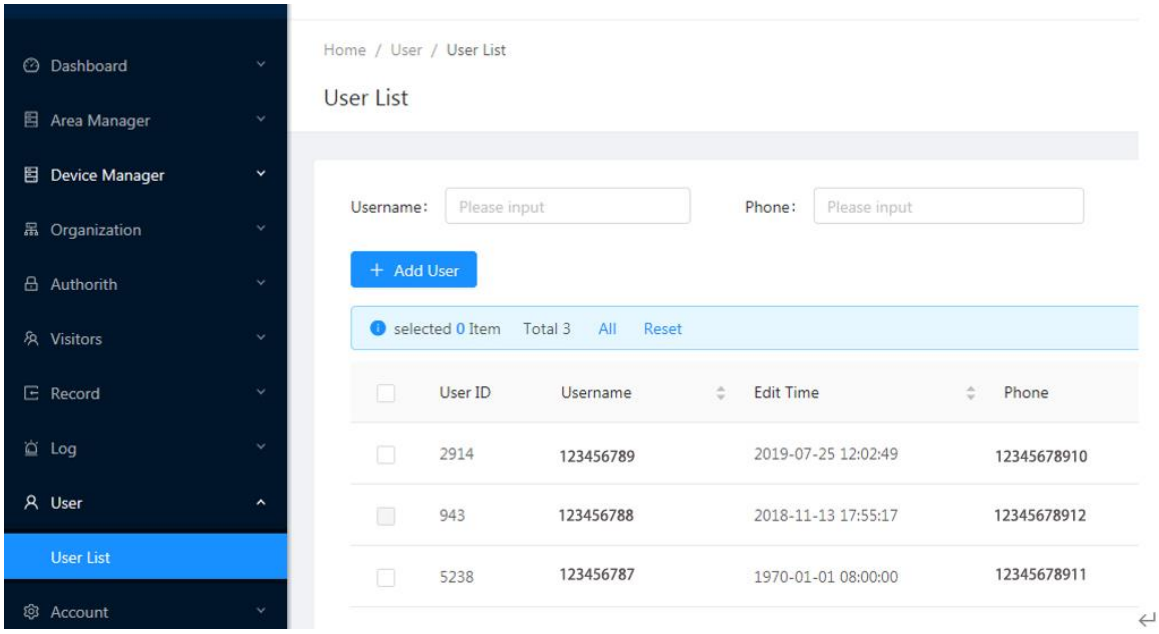
6.8.6. Log list

"Log list": you can view the records of various operation steps, check the success of parameter distribution, face authorization, etc.



6.8.7. User management

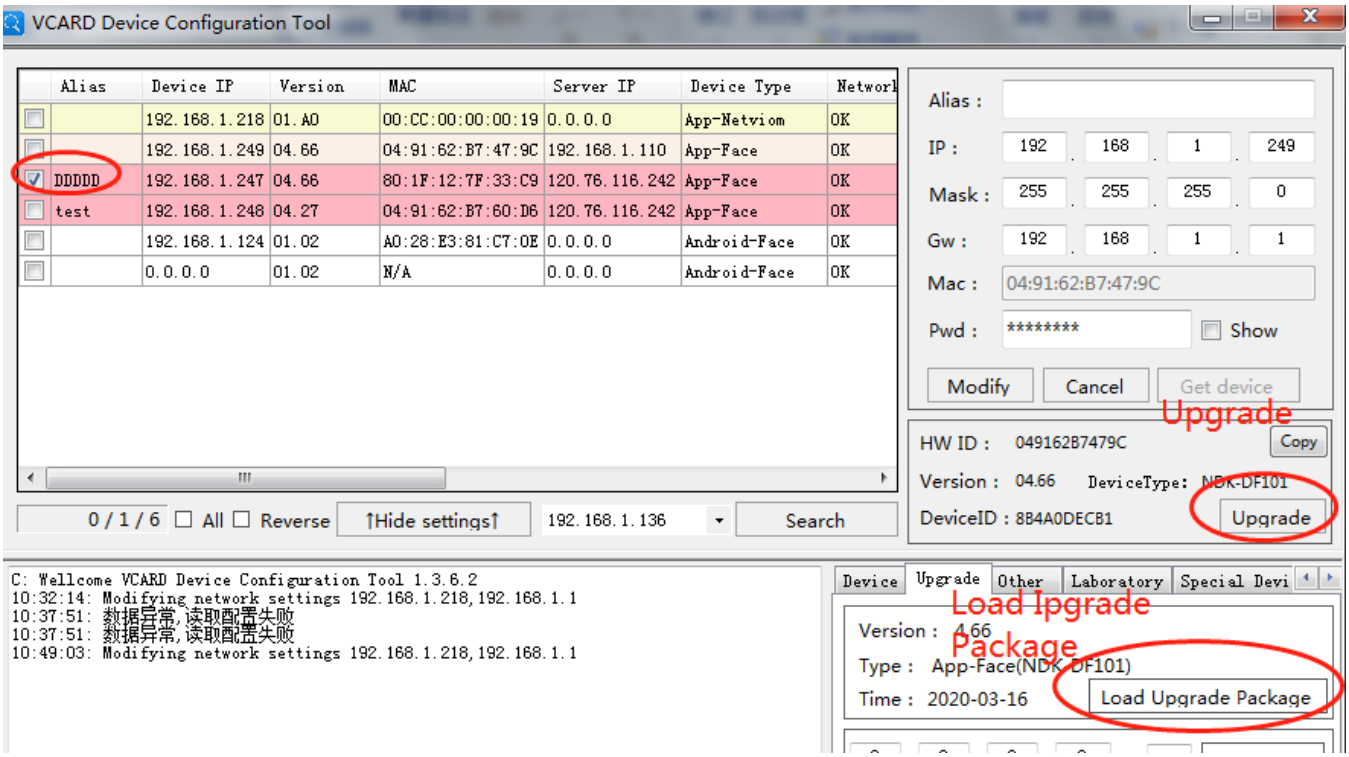
"User management": multiple sub users can be added to help management.



7. System upgrade of the device

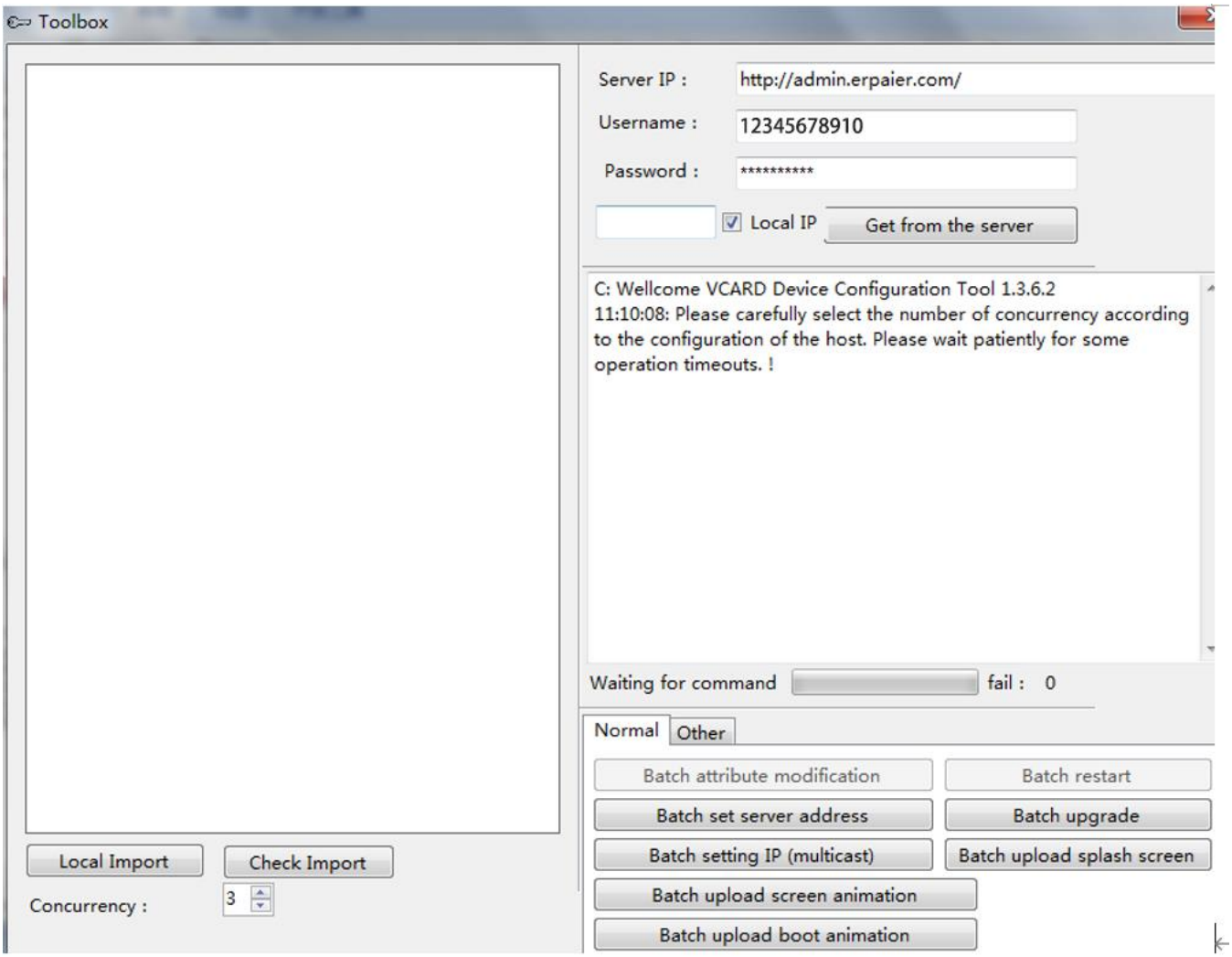
7.1.1. Local upgrade

Open "vCard device configuration tool" - click "display advanced settings" - click "upgrade" - click "load upgrade package" - select upgrade file - display "loading succeeded" later - check the corresponding device - click "upgrade" to upgrade.



7.1.2. Remote upgrade

Open "vCard device configuration tool" - click "toolbox" - click "upgrade" - enter platform "user name" and "password" - click "get from server" - display loading information later - check the corresponding device - click "batch upgrade" to upgrade.

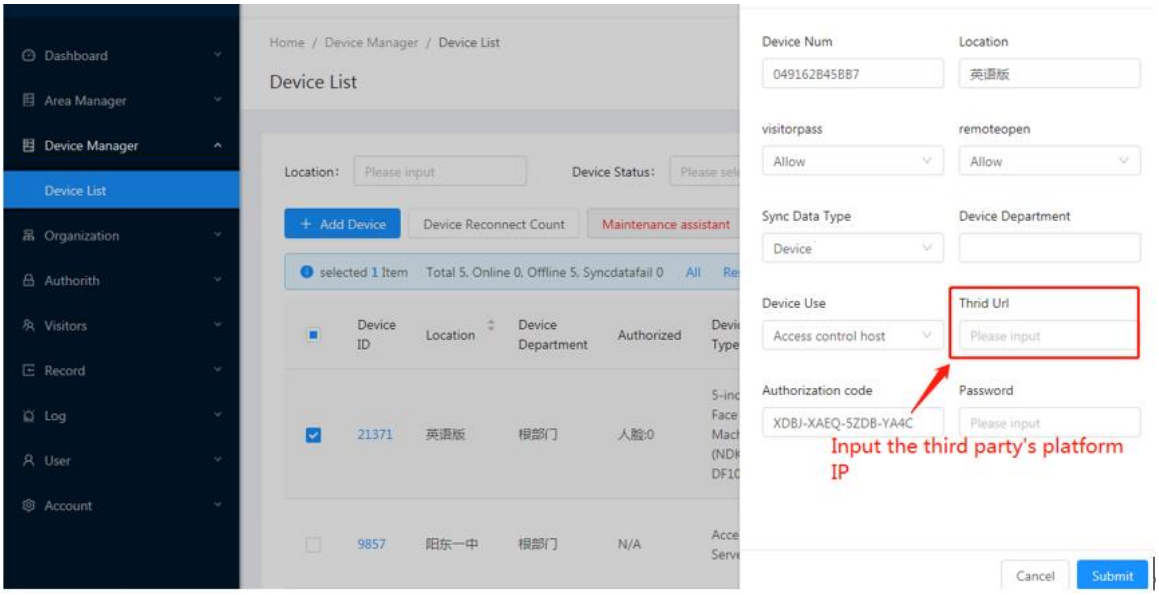


8. Third party access

8.1. Third party platform address

1. Third party address: the address of the third party can be set as the address of the user platform. After the setting is successful, the traffic (body temperature) is recorded, and the device log will be actively sent to the user platform through the address. (it is used for the customer docking equipment protocol with development ability, and the address here can be modified as the customer platform connection address.)

2. Click "device list", select the device to be modified, click Edit, input the corresponding callback interface address information in the third party address input box, and click Submit.



8.2. Change logo

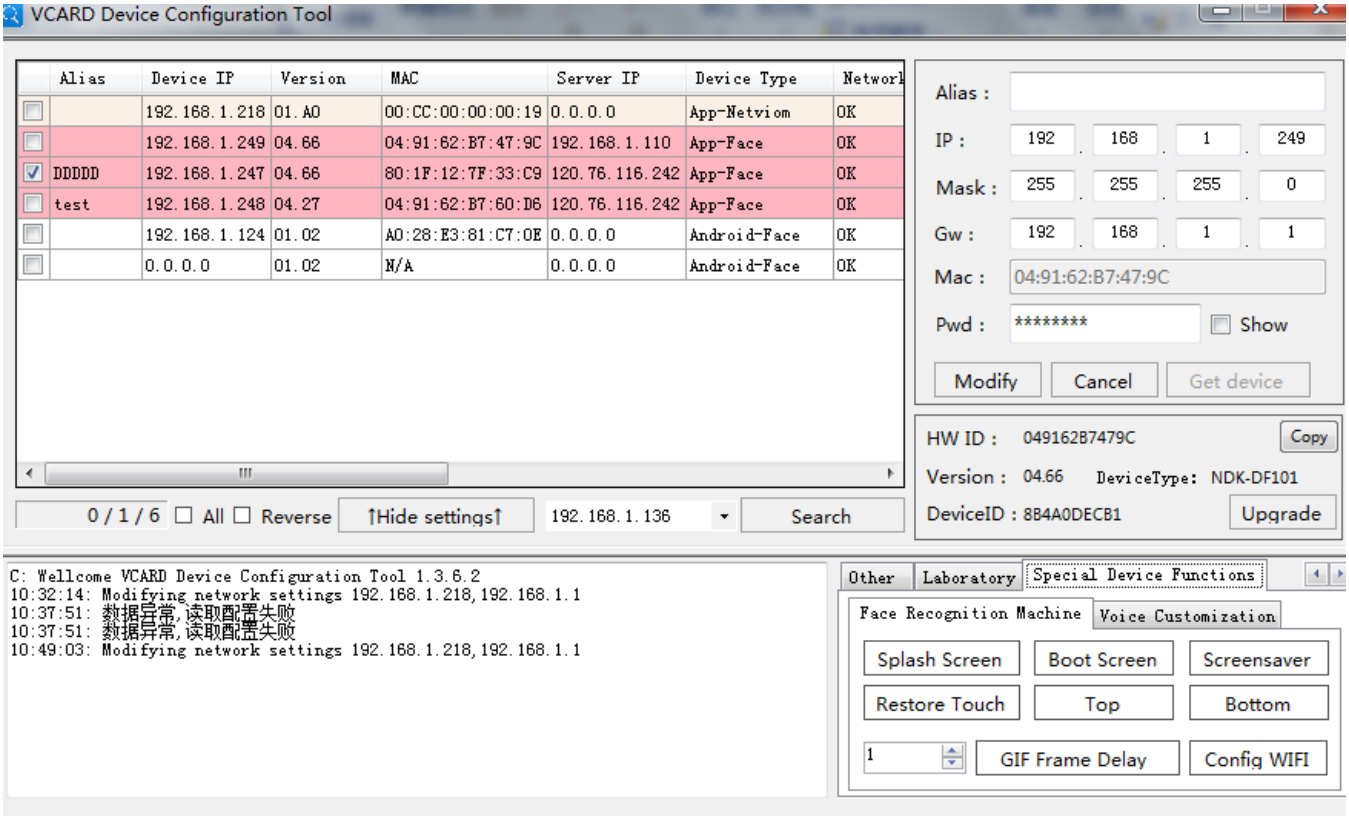
1. Start screen: the static picture displayed at startup, format: BMP, resolution: 480 * 854, file size: unlimited.

2. Power on animation: accept the start screen. Format: BMP, GIF, avi, resolution: 480 * 854, file size: unlimited.

3. Screen saver animation: during the operation of the machine, in the idle state, the displayed screen is in the format of BMP, GIF, avi, resolution: 480 * 854, file size: unlimited. (a static picture (BMP) can be imported into multiple images and become a continuous animation, without limiting the number of images.)

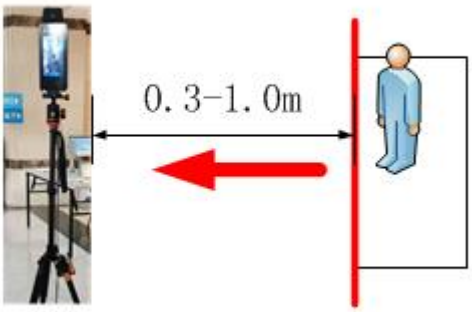
4. Floating layer at the top of main interface: Top 480 * 96 png32.

5. Floating layer at the bottom of main interface: bottom 480 * 80 png32.



9. Deployment scenario

9.1. Distance



It is recommended to draw a yellow line on the ground, 0.3-1m away from the device.

FCC STATEMENT :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.