

User Manual

ZKIVA-Edge X1

Date: May 2025

Doc Version: 1.0

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.



For further details, please visit our Company's website
www.zkteco.com.

Copyright © 2025 ZKTECO CO., LTD. All rights reserved.

Without the prior written consent of ZKTeco, no portion of this manual can be copied or forwarded in any way or form. All parts of this manual belong to ZKTeco and its subsidiaries (hereinafter the "Company" or "ZKTeco").

Trademark

ZKTeco is a registered trademark of ZKTeco. Other trademarks involved in this manual are owned by their respective owners.

Disclaimer

This manual contains information on the operation and maintenance of the ZKTeco equipment. The copyright in all the documents, drawings, etc. in relation to the ZKTeco supplied equipment vests in and is the property of ZKTeco. The contents hereof should not be used or shared by the receiver with any third party without express written permission of ZKTeco.

The contents of this manual must be read as a whole before starting the operation and maintenance of the supplied equipment. If any of the content(s) of the manual seems unclear or incomplete, please contact ZKTeco before starting the operation and maintenance of the said equipment.

It is an essential pre-requisite for satisfactory operation and maintenance that the operating and maintenance personnel are fully familiar with the design and that the said personnel have received thorough training in operating and maintaining the machine/unit/equipment. It is further essential for the safe operation of the machine/unit/equipment that personnel read and followed the safety instructions contained in the manual.

In case of any conflict between the terms and conditions of this manual and the contract specifications, drawings, instruction sheets or any other contract-related documents, the contract conditions/documents shall prevail. The contract specific conditions/documents shall apply in priority.

ZKTeco offers no warranty, guarantee or representation regarding the completeness of any information contained in this manual or any of the amendments made thereto. ZKTeco does not extend the warranty of any kind, including, without limitation, any warranty of design or fitness for a particular purpose.

ZKTeco does not assume responsibility for any errors or omissions in the information or documents which are referenced by or linked to this manual. The entire risk as to the results and performance obtained from using the information is assumed by the user.

ZKTeco in no event shall be liable to the user or any third party for any incidental, consequential, indirect, special, or exemplary damages, including, without limitation, loss of business, loss of profits, business interruption, loss of business information or any pecuniary loss, arising out of, in connection with, or

relating to the use of the information contained in or referenced by this manual, even if ZKTeco has been advised of the possibility of such damages.

This manual and the information contained therein may include technical, other inaccuracies or typographical errors. ZKTeco periodically changes the information herein which will be incorporated into new additions/amendments to the manual. ZKTeco reserves the right to add, delete, amend or modify the information contained in the manual from time to time in the form of circulars, letters, notes, etc. for better operation and safety of the machine/unit/equipment. The said additions or amendments are meant for improvement /better operations of the machine/unit/equipment and such amendments shall not give any right to claim any compensation or damages under any circumstances.

ZKTeco shall in no way be responsible (i) in case the machine/unit/equipment malfunctions due to any non-compliance of the instructions contained in this manual (ii) in case of operation of the machine/unit/equipment beyond the rate limits (iii) in case of operation of the machine and equipment in conditions different from the prescribed conditions of the manual.

The product will be updated from time to time without prior notice. The latest operation procedures and relevant documents are available on <http://www.zkteco.com>.

If there is any issue related to the product, please contact us.

ZKTeco Headquarters

Address ZKTeco Industrial Park, No. 32, Industrial Road,
Tangxia Town, Dongguan, China.

Phone +86 769 - 82109991

Fax +86 755 - 89602394

For business related queries, please write to us at: sales@zkteco.com.

To know more about our global branches, visit www.zkteco.com.

About the Company

ZKTeco is one of the world's largest manufacturers of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/Floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader door locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual is applicable to **ZKIVA-Edge X1** intelligent analysis box product. It describes all the functions of the intelligent analysis box and guides you to complete the boot configuration guidance and various function operations of the intelligent analysis box.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

Note: If your device has chosen to connect to https and has been accessed in a browser, when the protocol is switched to http, you need to clear the browser cache before accessing the device.

Table of Contents

1. PRODUCT OVERVIEW	1
1.1 Edge Computing Server Series	1
1.2 Product Feature	1
1.3 Application Scenarios.....	2
2. CONFIGURING WIZARD.....	3
3. WEB MANAGEMENT OPERATION	4
3.1 Device Activation and Login	4
3.2 Preview.....	6
3.3 Records	10
3.3.1 Recognition Record	10
3.3.2 Alarm Record	12
3.3.3 Capture	12
3.3.4 People Counting.....	14
3.4 Setting	15
3.4.1 Task Setting	15
3.4.2 Time Plan.....	23
3.4.3 Linkage Plan	25
3.5 Offline Parsing.....	27
3.5.1 1:1 Face Comparison	27
3.5.2 1:N Face Search	29
3.5.3 Structured Parsing.....	30
3.6 Resource	32
3.6.1 Personnel	32
3.6.2 Device Management	36
3.6.3 Algorithm Management.....	39
3.6.4 Authorization Management.....	40
3.6.5 Container Management	42
3.6.6 Audio File Management.....	43
3.6.7 False Positive Library Management	44
3.7 System	47
3.7.1 Logs.....	47
3.7.2 Setting.....	49
3.7.3 Data Integration.....	55
4. PERSONAL INFORMATION COLLECTION AND PROTECTION POLICY.....	62

1. Product Overview

1.1 Edge Computing Server Series

ZKIVA-EDGE X1 is an AI intelligent analysis product for edge side AI computing needs. It provides hundreds of high-quality self-developed algorithms. Designed based on the concept of algorithm-defined hardware, the algorithms can be flexibly loaded and distributed. Build your industry version of the computing box by carrying different industry algorithm packages. At the same time, the intelligent analysis box supports intelligent analysis of high numbers of routes, pedestrian and vehicle control, and intelligent guardian, providing users with cost-effective intelligent solutions.



1.2 Product Feature

Rich Algorithms Support: Equipped with built-in facial recognition and video structuring capabilities, the system supports a wide range of foundational algorithms. It can be extended with dedicated algorithm packages tailored to various industries, enabling on-demand configuration and flexible adaptation to diverse application scenarios.

Flexible and Intelligent Processing: Perimeter warning, behavior warning, people statistics, bright kitchen and bright stove, fire safety monitoring, smart community, gas station and other rich industry algorithms for you to choose and dynamically configured to respond to various scenarios.

High Performance: Supports up to 300,000 facial templates in the onboard database. A single device can handle up to 8 channels of 2MP video streams or 16 channels from capture devices, ensuring reliable performance in high-throughput environments.

Open Interface Integration: Offers a fully open platform with support for both RESTful API and private SDK, enabling seamless integration with third-party applications and platforms for flexible algorithm invocation and system interoperability.

Open Architecture: Supports containerized deployment, allowing users to package and deploy lightweight applications directly within the device. This enables greater customization and flexibility for a variety of use cases.

Seamless Integration & Intelligent Upgrade: It supports GA/T 1400, RTSP, GB/T 28181 and other standardized protocols, which can fully benefit the original camera to quickly complete the intelligent upgrade and transformation.

Simple Deployment: Support desktop placement and wall-mounted installation, easy to install and ready to use.

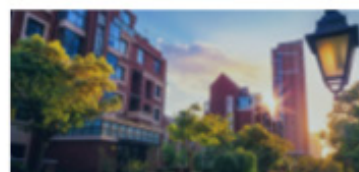
1.3 Application Scenarios



Building Park



School



Community



Petrol Station



City



Construction Site

2. Configuring Wizard

The configuration process is mainly used for the basic configuration process of a series of intelligent video analysis systems, please refer to the following steps for configuration.

Step 1 Power on the device.

Step 2 The network environment is built according to the minimum system, all devices are in the same network segment, and the default IP of the intelligent analysis box is used.

WAN port IP address: 192.168.1.100

LAN port IP address: 192.168.2.100

Step 3 [Device activation and login](#).

Open your browser and connect to your device. Use Chrome 7.1 and enter your login address.

Example: HTTPS://192.168.1.100

Note: If the device is connected to the LAN port, the login address is HTTPS://192.168.2.100; If the device is connected to the WAN port, the login address is HTTPS://192.168.1.100. Activation and login of the device to enter the intelligent video analysis system.

Step 4 Device Timing. Operation, please refer to [Time Configuration](#).

Step 5 (Optional) If you need to customize the record storage configuration, modify the record storage path, you need to do this operation, refer to [Storage Configuration](#).

Step 6 (Required) Add equipment, operation can refer to [Device Management](#).

Step 7 (Optional) When you need to use the face algorithm function, you need to carry out personnel storage and group management, the operation can be referred to [Personnel Management](#).

Step 8 (Optional) When you need to upgrade the algorithm warehouse, installation and other operations, the operation can be referred to [Algorithm Warehouse Management](#).

Step 9 (Optional) When you use the algorithm function that does not come with the device, you need to import the corresponding authorization. Please refer to the operation [Authorization Management](#).

Step 10 (Required) This operation is required when you need to control the algorithm, please refer to [Intelligent Management](#).

Step 11 After the above basic configuration is completed, you can perform intelligent preview, view intelligent records, view operation logs, etc.

3. Web Management Operation

3.1 Device Activation and Login

To enhance system and data security, some devices no longer provide a fixed initial password. Instead, device initialization must be completed through an activation mechanism. You must set a password to activate the device before it can be used.

Operating Steps

Note:

- This feature requires device support.
- The device supports two network ports: a WAN port (main network port), a LAN port; The default WAN IP address is 192.168.1.100. The default LAN port address is 192.168.2.100.

After the device is powered on for the first time, the LAN port of the computer in the box can be directly connected through the network cable, and the IP of the computer can be set to the same IP address segment as the LAN port (such as 192.168.2.105), and the subnet mask is 255.255.255.0.

Step 1 Open the browser, enter "HTTPS:// +IP address" in the address bar, click [Enter], the system will display the "device activation" screen. For the first time, the device must be activated before it can login to the Web interface.



Device activation

For the first login, please set a new password for the default account admin and activate the device

Please enter a new password  

Please confirm the new password 

activation

Step 2 Set a new password and confirm the password, (factory default account admin).

Step 3 Click "OK", the device is activated, and the system popup prompts "Login".



Welcome to login

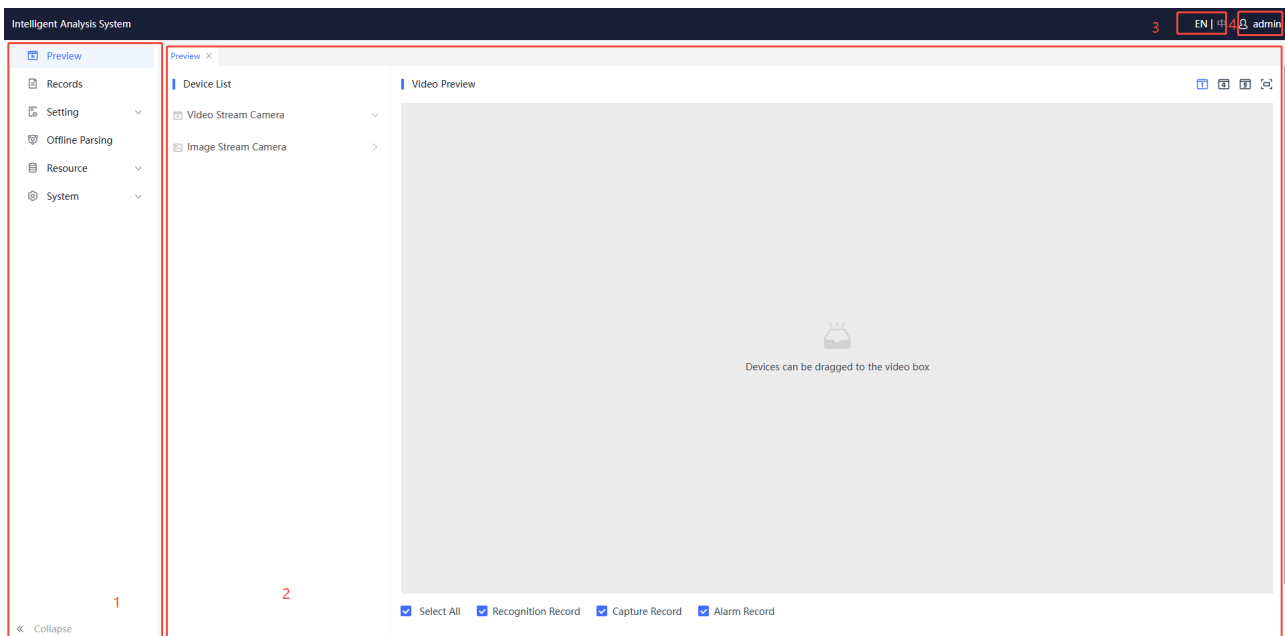
admin

Login

☒ remember password

Step 4 Enter the username and password, click "Login", the system enters the "intelligent preview" interface, for more information, please refer to the video structure.

Note: If the password is forgotten, please contact after-sales technical support to reset it.



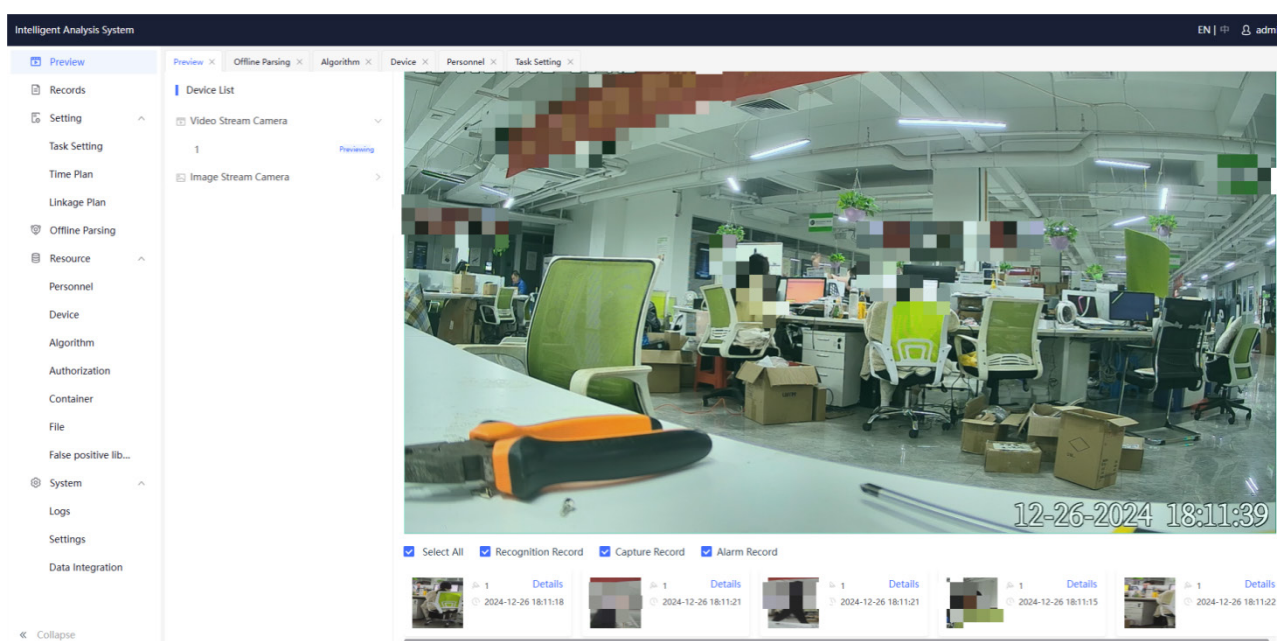
Intelligent analysis system interface description:

SN	Description
1	Preview: Users can view a real-time preview of the added monitoring points. Preview support for some basic operations, including channel selection, video recording, recording popup, screenshot and other basic operations. Records: Support user identification records, alarm records, capture records and people statistics recognition results. Settings: Support to configure intelligent analysis rules, time planning and linkage alarms. Offline Parsing: Support image parsing function (1:1,1: N image parsing, structured parsing). Resource: For input face base database, support device management, algorithm management, authorization management, container management and file management. System: Support log management, system configuration, data docking, operation and maintenance

	management.
2	Function display area, with the left menu switch.
3	Language switching area, can be line system language switching, support Chinese and English switching.
4	User Center, click Support to change password and logout operation.

3.2 Preview

Preview can remotely view the real-time monitoring screen corresponding to each channel, which is convenient for users to understand the field information in time. After the device is added to the system, the situation of the monitoring area can be understood in time by previewing the real-time picture of the monitoring point. As shown in the figure below, a list of all video streaming devices and a list of picture streaming devices are displayed on the left, while offline devices are shown in gray and cannot be dragged; The video preview window is displayed on the right, and the device is selected from the left device list and dragged to the right preview box for preview.



Note:

When dragging the left device to the right to preview the video, the browser will detect whether the user has installed the video control, please note:

- If not, please click [Download] and follow the prompts to install the control.
- If the control has been installed, but the version is not correct, please update the latest control according to the prompts, and the preview can be normal after the installation.

Video Preview

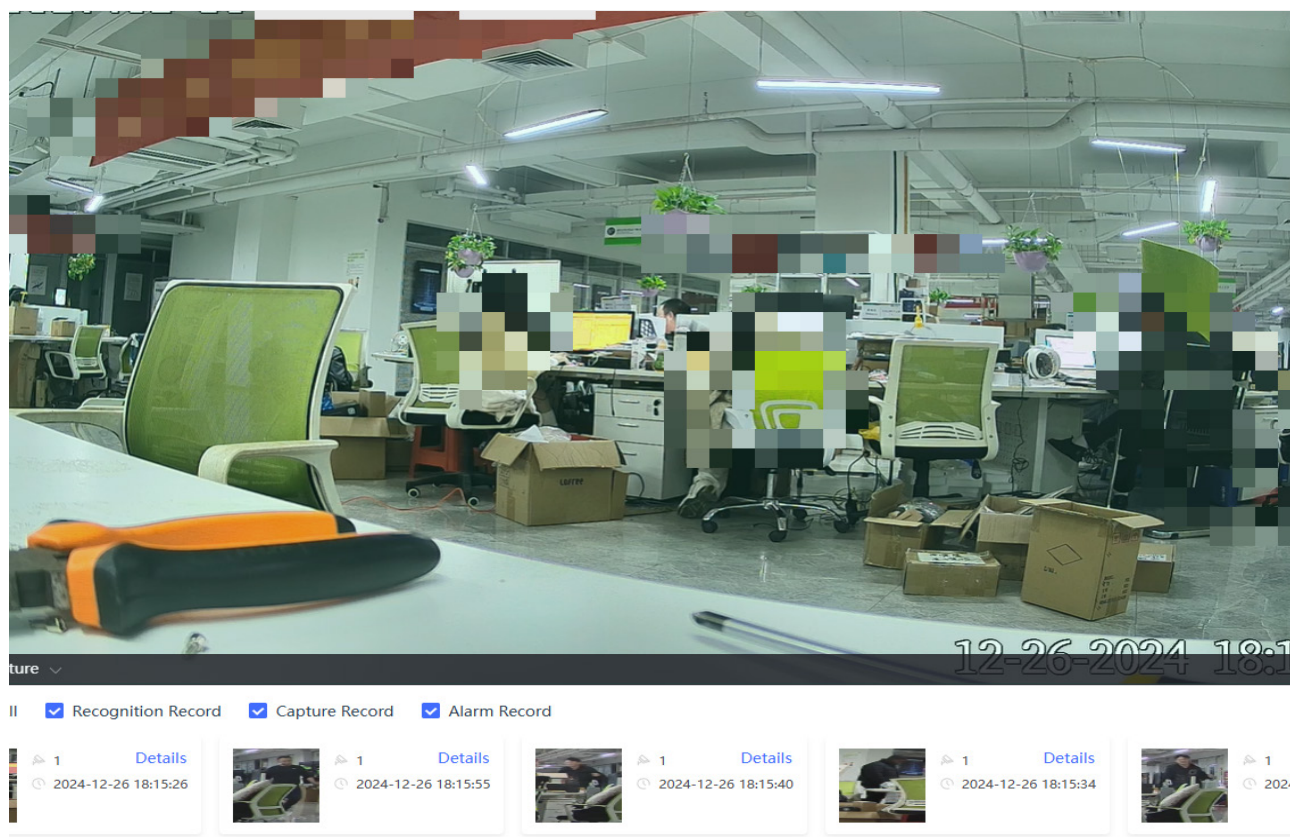
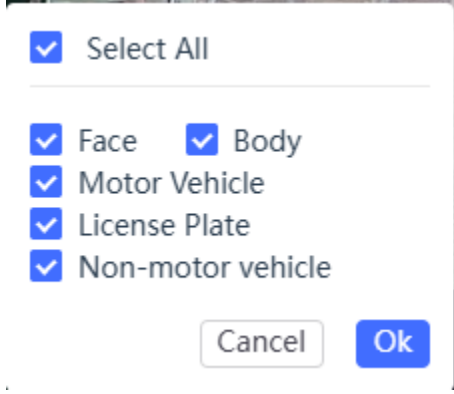
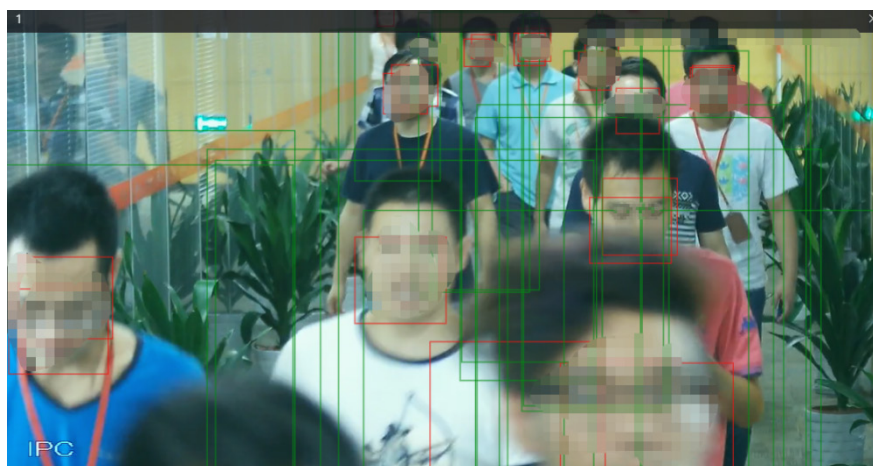
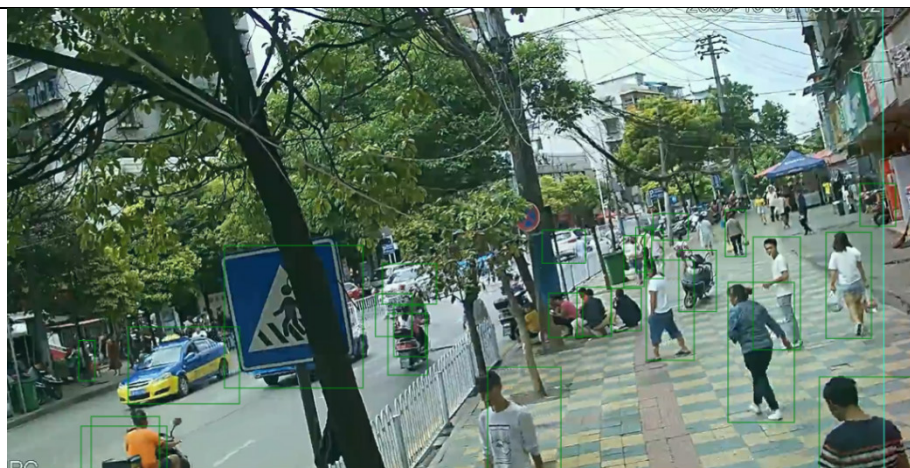


Figure 1 Intelligent preview interface

Table 1 Description of the video preview interface

SN	Ribbon/icon display	Description
1	 Video layout mode	Sets the layout mode of the video. The system supports the display of 1,4,9 or full screen video surveillance images.
2		Rule selection list, including all types that have been deployed, such as face, structured, out of bounds, etc. - The video will display the corresponding video stream, target box and rule box according to the selected rule - Video frames by face, structured, algorithm type 1, algorithm type 2,...The priority of algorithm type N shows the default video. For example, device A controls face and structure, real-time preview screen opens the default display face video stream, list display face and structure, and support switching. Device B is configured structured, algorithm type 1, algorithm type 2, real-time preview screen is opened to display structured video stream by default, list display structured, algorithm type 1, algorithm type 2, support switching.
3	 Screen	If you want to record the screen, click the button and store the video file in the C:\\Cubevideo folder.

	recording	
4		Full screen.
5	 The recognition results are displayed in a pop-up window	Recognition results display area, display recognition information. The captured face is compared with the face in the bottom database, and the person with the highest similarity is obtained. If the similarity exceeds the threshold, the person in the video and the person in the bottom database are considered to be the same person.
		Target Bounding Box Overlay: When the target box overlay function is enabled, you can select the detection target overlay box in the preview screen. The detection targets that support selection are face, human body, motor vehicle, license plate, non-motor vehicle. See the Target Box Overlay function below for a detailed description of the function.  Target Bounding Box Overlay Function Description: When the target box overlay function is enabled, the cube supports intelligent frame analysis of the target in the real-time screen and superposes the target box for the detected target in the screen. Different detection targets, target box color is different, face, license plate: red target box; Human body, vehicle: green target box. For the target box information, you can get the target box information of the current video through the protocol and support the customer to customize the target box overlay. Operation Instruction: Only the Web supports the opening and closing function of the target box overlay. In the "Setting" - "Task Setting" - "New Task" page, if a task has been created, click "Edit", check "Enable target bounding box overlay" after entering the task main interface, and then click "Submit"; If the task is not created, this option is checked when creating the task, and is not checked by default. Enable target bounding box overlay   After checking the target bounding box overlay function, you can view the real-time target box in the preview interface. At the same time, it supports custom overlay target box. The current version supports an overlay target box of face, human body, vehicle, license plate and non-vehicle. As shown below:

**Note:**

The function of target bounding boxes overlay is supported in the case of real-time analysis tasks only, and the target bounding boxes overlay is not supported in the round robin analysis.

Only face recognition, structured, alert algorithm supports the overlay of target boxes, but if the number of targets in the screen is too high, the overlay will fail. No more than 5 detection targets in a single channel is recommended.

Constraint Condition:

- Only Face recognition, structured, vigilance algorithm target bounding boxes

		overlay. - If the number of screen targets is too high, the overlay will fail. It is recommended to have no more than five targets on a single channel. - If the vigilance algorithm is enabled, the detection box is superimposed according to the target detected by the vigilance algorithm, and the real-time target box is not displayed after the face/structure and other algorithms are controlled at the same time. In the real-time preview interface, only single screen display target box superposition function is currently supported, 4 split screen, 9 split screen is not displayed temporarily, if you need to display other channel target box superposition function, you need to switch channels.
--	--	--

3.3 Records

3.3.1 Recognition Record

Display the recognition records from face recognition devices (including video and photo streaming), including success and failure events.

Description: Face comparison similarity lower than the lowest threshold (stranger) or higher than the highest threshold (employee) belongs to the recognition, between the low threshold and the high threshold, because it cannot be judged, so belongs to the capture.

Click [Records] - [Recognition Record] to display the recognition record interface, and the record list displays the capture map (face/human matting, capture panorama), capture equipment, recognition results, recognition details and other information. In the meantime, you can do the following:

Capture Device

All

Recognition Result

All

Capture Time

2024-12-27 00:00:00 → 2024-12-27 23:59:59

Search

Reset

Collapse

Name

Please input

Similarity

Deduplication

Batch Operation

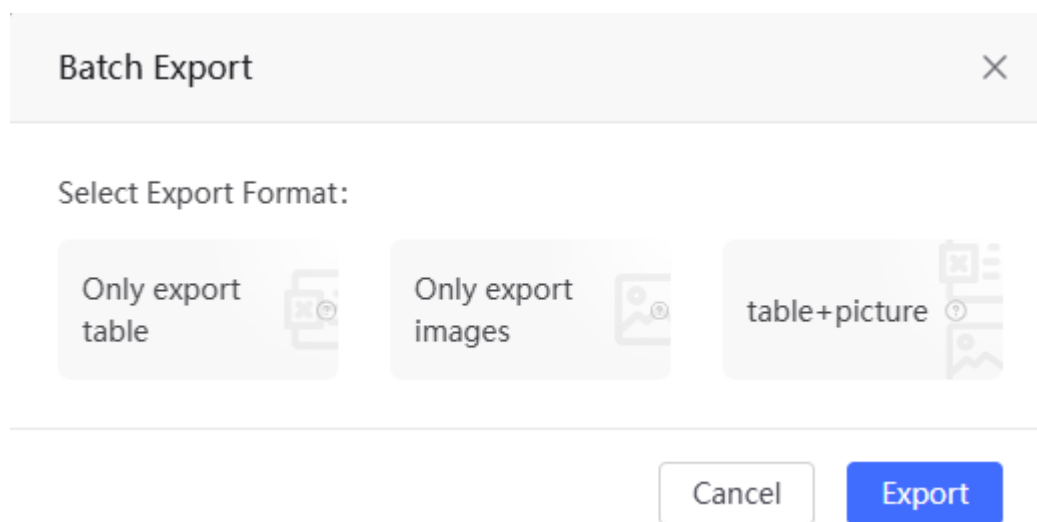
Capture Image		Capture Device	Capture Time	living fraction	Person				Operation
Face	Panoramic				Base Image	Name	Group	Similarity	
		1	2024-12-27 15:44:19	0		1	AllowList	82.7	Bind Query Details Delete
		1	2024-12-27 15:44:14	0		1	AllowList	82.8	Bind Query Details Delete

Search: Support fuzzy query of input filter conditions, filter conditions include capture equipment (multi-select), recognition results, capture time (default display day), person name, similarity (value: 0-100 integer, the higher the input similarity value, the closer the recognition results).

Deduplication: System supports deduplication of identification records. Click "Deduplication", and only the earliest identification result of the same person is retained.

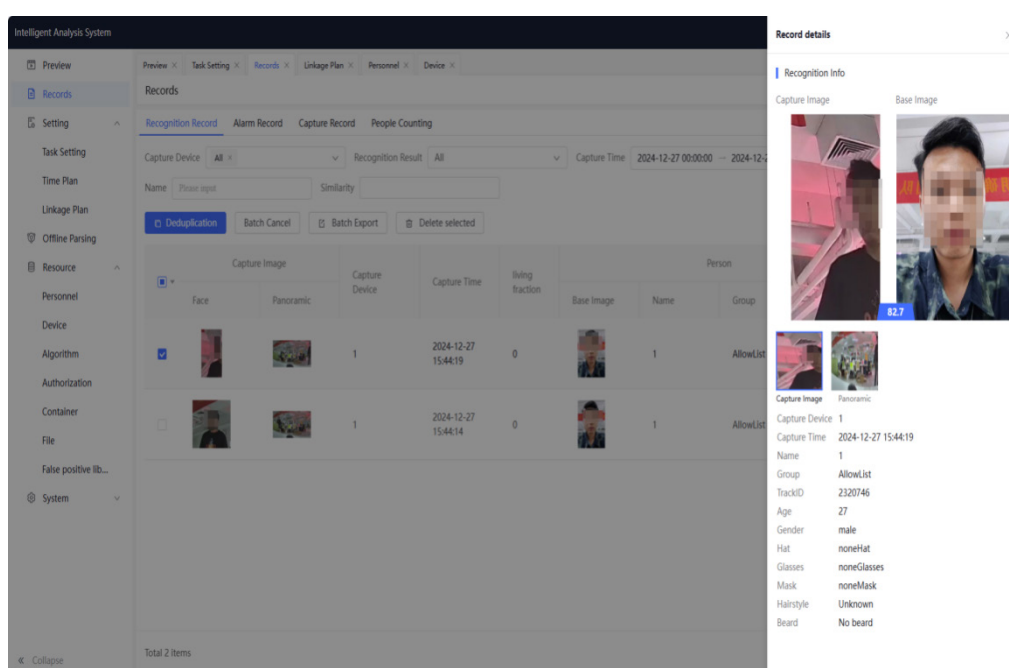
Batch operation: Click [Batch Operation] to export or select the recognition results in batch.

Export: It supports the export of identification records, which can be divided into the following three types:



- Only export table: Only contains identification records, no pictures, exported in the form of excel sheet, the file name is called identification record_ [Export timestamp].
- Only export images: Snapshots from the identification record are exported as a.zip package.
- table + picture: Records are exported in the form of excel sheet, and pictures are exported in the form of compressed package, where the excel table adds the picture address and displays the picture name in the compressed package.

Detail: Click "Details" to view the details of the captured photos.



Binding Query: Click "Bind Query".

Bind Query

Bind Body	Gender	Top color and style	Lower body color and style	Backpack Status	Helmet	Bind non motor vehicles	Non-motor vehicle type
	male	Blacklong sleeve	grayPants	YesBackpack Status	none		

Exit

3.3.2 Alarm Record

Displays alarms triggered by non-facial algorithms.

Click [Record] - [Alarm Record] to display the alarm record interface, and the record list displays the capture map (face/human matting, capture panorama), capture equipment, recognition results, recognition details and other information. At the same time, you can query alarm records, export, delete or view alarm records.

Recognition Record Alarm Record Capture Record People Counting

Capture Device All × Target Type all types × Capture Time 2025-01-21 00:00:00 → 2025-01-24 17:22:46

Search

Reset

Batch Operation

Capture Image		Capture Device	Capture Time	TrackID	Target Type	Operation
Target Image	Panoramic					
		device_4	2025-01-23 16:52:22	5682401	Body	Bind Query Delete Details
		device_4	2025-01-23 16:52:22	5682401	Body	Bind Query Delete Details
		device_4	2025-01-23 16:52:21	5682401	Body	Bind Query Delete Details
		device_4	2025-01-23 16:52:21	5682401	Body	Bind Query Delete Details
		device_4	2025-01-23 16:52:12	5682402	Face	Bind Query Delete Details

3.3.3 Capture

Display the comparison records between the full records reported by the [structured] controlled equipment and the [face person] algorithm between the high and low thresholds (the low threshold default is 0, the high threshold default is 68).

Recognition Record

Alarm Record

Capture Record

People Counting

Capture Device

All

Target Type

all types

Capture Time

2024-12-27 00:00:00 — 2024-12-27 23:59:59

Search

Reset

Batch Operation

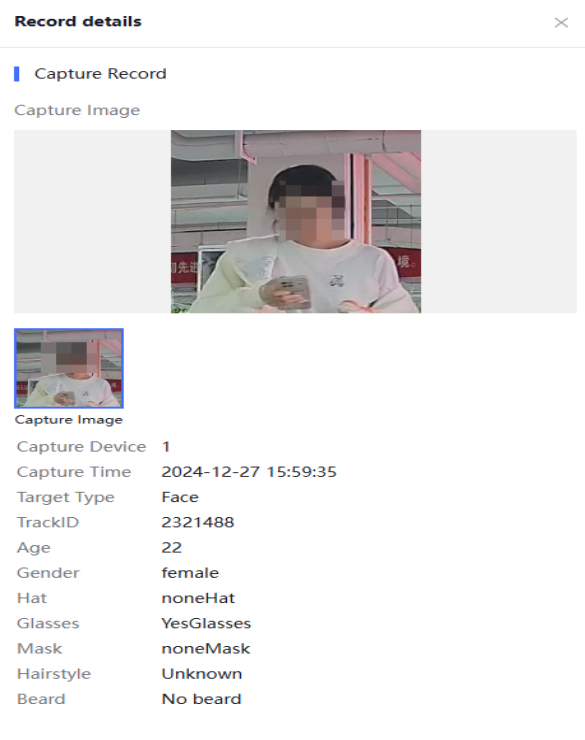
Capture Image		Capture Device	Capture Time	TrackID	Target Type	Operation
Target Image	Panoramic					
		1	2024-12-27 15:59:35	2321488	Face	Bind Query Delete Details
		1	2024-12-27 15:59:34	2321487	Body	Bind Query Delete Details
		1	2024-12-27 15:57:01	2321386	Face	Bind Query Delete Details

Click "Record" - "Capture Record" to display the interface as shown above. The record list displays the capture map, capture equipment, capture time and other information. In the meantime, you can do the following:

1. Record retrieval: Input filter criteria, click "Query".
2. Delete records: click "Delete".
3. Batch export or delete records: Click "Batch Operation".
4. To view binding information, click "Binding Query"

Bind Query ×							
Bind Body	Gender	Top color and style	Lower body color and style	Backpack Status	Helmet	Bind non motor vehicles	Non-motor vehicle type
	female	whitelong sleeve	light bluePants	noneBackpack Status	none		

5. To view the record details, click "Details".



3.3.4 People Counting

After the camera counts and controls the number of people and opens the control rules, you can view the real-time and historical statistical data, for instance the number of people, in each stage in this section.

Operating Steps

Step 1 Select "Records > People Counting" to enter the People statistics record interface.

Step 2 Check the real-time statistics. The system supports the display of real-time statistics, as shown in the figure below.

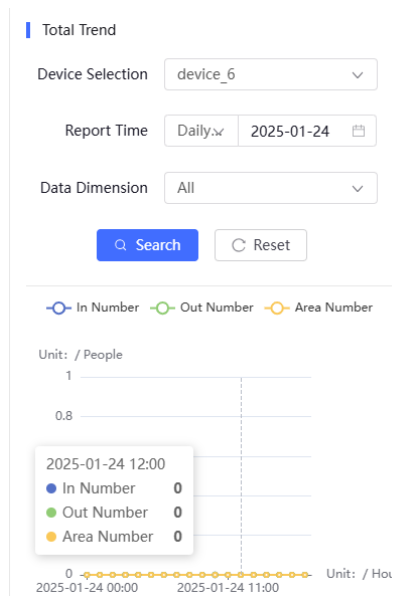
- Support displaying the real-time data of the number of people in and out of each channel. You can click "Refresh" to refresh manually.
- Support data reset, click "reset", then start to re-count data.

Recognition Record Alarm Record Capture Record <u>People Counting</u>												
Real-time Statistics Refresh												
Device	Area population statistics									Entrance and exit statistics		Operation
	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Total	In	Out	
device_6	0	0	0	0	0	0	0	0	0	0	0	Clear

Search

Step 3 Check the statistical trends. After setting the filter, click

It supports querying statistical data by time period, channel, and data dimension (area number statistics, entrance and exit number statistics).



3.4 Setting

3.4.1 Task Setting

Task setting is used to configure the distribution and control rules, supported algorithms: face algorithm, structured algorithm, video occlusion algorithm, object class algorithm, people counting class, bright kitchen and bright stove, production safety supervision, community fire control, urban management, perimeter alert, behavior alert algorithm.

Note: The intelligent analysis box model is different, and the supported algorithms are slightly different. Some algorithms need to purchase authorization to use, please configure the task according to the actual purchase of the authorization package.

Operating Steps

Step 1 Select "Setting" - "Task Setting", click "New Task".

The screenshot shows the 'Basic Configuration' form. It includes the following fields:

- * Task Name:** A text input field with the placeholder 'Please enter'.
- * Task schedule:** A dropdown menu with the placeholder 'Please Select'.
- * TaskType:** Two radio button options: 'Single task' (selected) and 'Polling task'.
- * Select Device:** A dropdown menu with the placeholder 'Please Select'.

Step 2 Enter the task name, select "Task schedule", task type, and device.

Description:

Task Name: Custom task names, such as structured task 1.

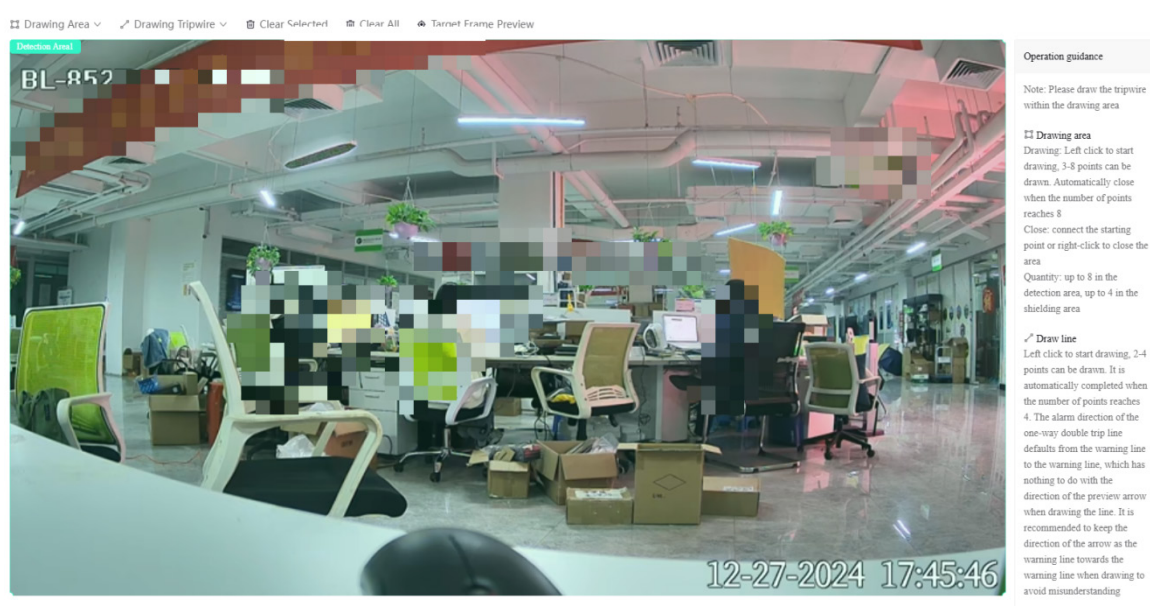
Task schedule: System supports the default time plan (to execute the task throughout the day) and supports the custom time plan. Click "Setting" - "Time Plan" to create a time plan.

Task Type: Support to select "Single task" or "polling task", currently only "Single task" is supported.

Select device: To select the camera or IP camera to perform this task, you need to add the device in Resource Management - Device Management. Note that if the image streaming device is selected, only the face algorithm type is allowed to be configured (the description of the drawn area is not shown in the operation guide). The device that has configured the task is displayed in ash, not selectable.

Step 3 After the task configuration is completed, click "Submit".

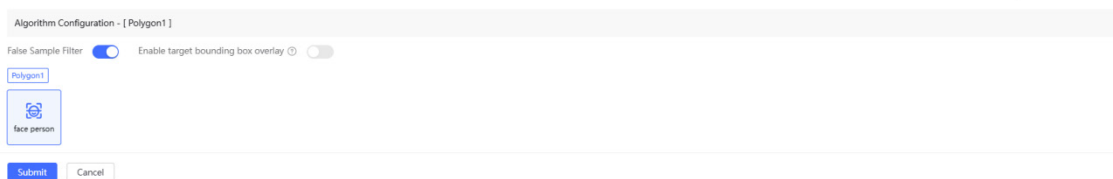
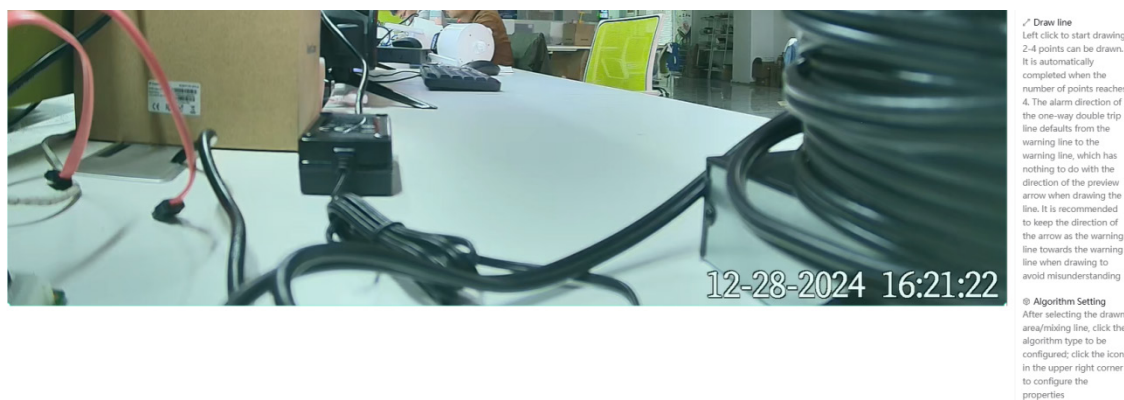
Step 4 starts with the algorithm configuration. The selected device in the following figure is used as the picture stream.



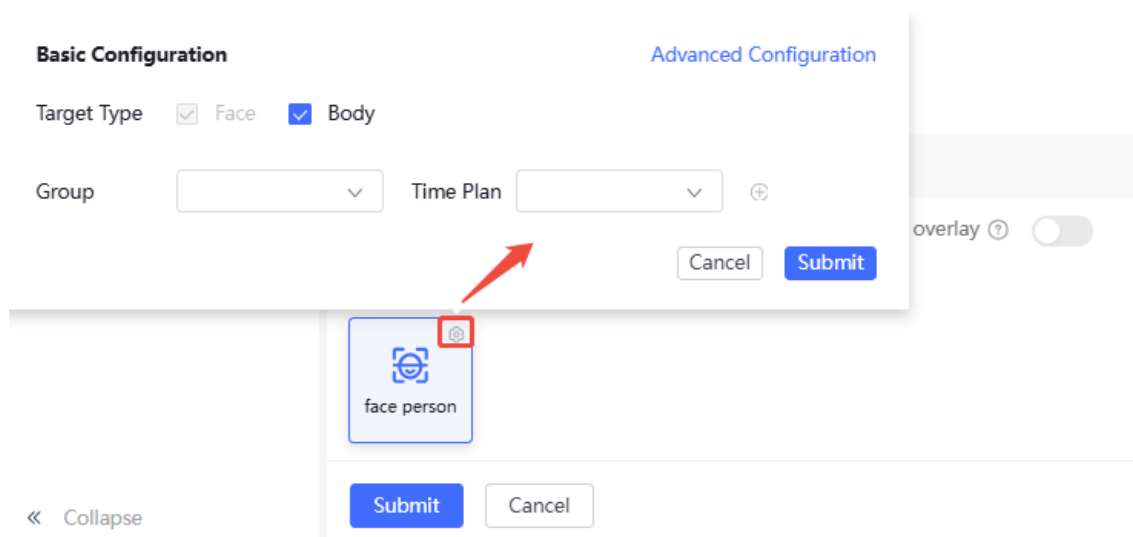
Step 5 Operate according to the "operation guidance" on the right, first draw the alert area or mix line.

Note: The supported algorithm types are related to the drawn guard area or mixed line. You need to draw the guard area or mixed line before you can select and configure the algorithm type (except face, structured, and video occlusion algorithm types).

Step 6 After the drawing is completed, select the alert area or the line, configurable algorithm appears, and the configuration can be completed by selecting the algorithm according to the need (the blue border indicates that it has been selected after clicking, as shown in the following figure).



Step 7 After the selection of the rule area and algorithm is completed, click the setting icon of algorithm configuration to carry out basic Settings and advanced configuration, as shown in the following figure.



Note: The basic configuration and advanced configuration of face and structure are described as follows. For the basic configuration and advanced parameters of other algorithm types, please check the corresponding engineering survey documents.

a) Face

i. Basic Configuration

Basic Configuration[Advanced Configuration](#)

Target Type ☐ Face ☒ Body

Group Time Plan

ii. Advanced Configuration

Algorithm Configuration

Basic Configuration

Target Type

☒ Face
☒ Body

Group

▼

Time Plan

▼

⊕

Advanced Configuration

Attribute Analysis

☒ Enabled

Push Strategy

☒ Fast Push
☐ Best Push

whether to report

☐ Do not report the global best stranger

Recognition times

5

(0-5000)

Secondary identification interval

5

S (0-60)

Stranger retries

2

(0-5)

Minimum push interval

500

milliseconds (500-10000)

Capture Mode

☐ All
☒ High Quality
☐ Custom

* Roll rotation

45

(0-180)

* Yaw

35

(0-100)

* Pitch

45

(0-100)

* Blur

60

(0-100)

* Minimum face

50

(5-380)

* Minimal human body

80

(20-380)

Liveness Detection

☐ Disabled

Recognition High Threshold

68

(0-100)

Identify Low Threshold

0

(0-100)

Cancel

Submit

iii. Parameter Specification

Parameter	Description
Basic configuration	
Target Type	Support single or multiple selection, can choose face, body.
Group	Select from the drop-down menu.
Time plan	Select the time plan for the device to work from the drop-down menu.
Advance configuration	
Attributive Analysis	When enabled, the attribute analysis results are output at the same time when pushing the graph.
Push Strategy	Fast push: When the face meets the capture filtering conditions, it is immediately pushed to the back of the Search module for comparison until it captures a face that is better than the previous face and then pushed to the back end for comparison. The number of comparisons is set in retryCount (second recognition times). Best push: When the face enters the video, as long as it is tracked, it will push out a best quality (Angle, clarity, resolution comprehensive judgment score) in this process after breaking tracking (leaving the screen).
Capture Mode	Support radio selection, default high quality capture mode. All: When the algorithm detects the target, it does not use the quality judgment model to filter the target and pushes out all the caught targets. High Quality: Only the capture meets the goal of "quality threshold". In high quality mode, the parameter values are set as follows: Capture Mode ☐ All ☒ High Quality ☐ Custom * Roll rotation 45 (0-180) * Yaw 35 (0-100) * Pitch 45 (0-100) * Blur 60 (0-100) * Minimum face 50 (5-380) * Minimal human body 80 (20-380) Custom: You can customize the face comprehensive quality score and the human shape comprehensive quality score. If the comparison result is greater than or equal to the set face/human shape comprehensive quality score, the capture will be uploaded. Value: 0-100, the recommended value is 50, the higher the value of the parameter, the higher the quality of the capture.
Roll rotation	The value is 0-180. < = 45 is recommended
Yaw	The value is 0-100. < = 35 is recommended
Pitch	The value is 0-100. < = 45 is recommended
Blur	Value: 0-100. It indicates the blur degree of the captured image. The larger the value, the more blurred it is.

Parameter	Description
Minimum face	The value 5-380 indicates the minimum area of the face that can be detected; the smaller the value is, the easier the face is to be detected and the worse the recognition effect is. Recommended ≥ 80 .
Minimum human body	The value 20-380 indicates the minimum area of the human body that can be detected; the smaller the value is, the easier the human body is to be detected and the worse the recognition effect is. Recommendation ≥ 80
Liveness Threshold	The value of 1-100 is used to determine whether the living body has passed, and the higher the threshold, the closer to the living body. Suggestion = 60.
Recognition High Threshold	According to the judgment basis of face comparison similarity, if the captured face is compared with the bottom database face, the face comparison similarity is lower than the lowest threshold (stranger) or higher than the highest threshold (bottom database personnel), it belongs to the recognition, and between the low threshold and the high threshold, it belongs to the capture. The higher the high threshold is set, the closer the detected face target is to the same person as the bottom library person.
Recognition Low Threshold	

b) Structured

i. Basic

Basic Configuration

Advanced Configuration

Target Type
☒ Face
☒ Body
☒ Motor Vehicle
☒ Non-Motor Vehicle
☒ License Plate

Cancel

Submit

ii. Advance Configuration

Algorithm Configuration

×

Basic Configuration

Target Type

☒ Face
☒ Body
☒ Motor Vehicle
☒ Non-Motor Vehicle
☒ License Plate

Advanced Configuration

Attribute Analysis

☒ Enabled

Push Strategy

☐ Fast Push
☒ Best Push
☐ Interval Push

Maximum Number of Push(1~10)

(1-10)

Capture Mode

☐ All
☒ High Quality
☐ Custom

Cancel

Submit

iii. Parameter Specification

Parameter	Description
Basic Configuration	
Target Type	Support single or multiple selections. You can choose face, body, motor vehicle, non-motor vehicle, license plate.
Advance Configuration	
Attributive Analysis	When enabled, the attribute analysis results are output at the same time when pushing the graph.
Push Strategy	Fast push: When the face meets the capture filtering conditions, it is immediately pushed to the back of the Search module for comparison until it captures a face that is better than the previous face and then pushed to the back end for comparison. The number of comparisons is set in retry Count (second recognition times). Best Push: When the face enters the video, as long as it is tracked, it will push out a best quality (Angle, clarity, resolution comprehensive judgment score) in this process after breaking tracking (leaving the screen). Interval Push: If the same trajectory satisfies the tweet interval, a small face image with the highest quality score will be pushed out. Until the set number of tweets is reached, the tweet will not be pushed anymore. The custom tweet interval (500-10000 milliseconds) is supported, and the default is 500.
Maximum Number of Push	Recommended value: 1
Capture Mode	Support radio selection, default high quality capture mode. All: When the algorithm detects the target, it does not use the quality judgment model to filter the target and pushes out all the caught targets. High quality: Only capture targets that meet a "quality threshold", where the definition of the quality threshold includes different dimensions for different targets. Custom: Only the capture meets the goal of "user-defined quality threshold", you can customize the comprehensive quality score of face and human shape. If the comparison result is greater than or equal to the set comprehensive quality score of face/human shape, then upload the capture. Value: 0-100

Step 8 After the configuration is completed, click "Submit", and the created task will be displayed in the task list.

Task Name	TaskType	Device Name	On/Off	Operation
2	Single task	1		Edit Details Delete
3	Single task	device_6		Edit Details Delete

Step 9 Optional action. You can view task details, edit a task, or delete a task.

Note: Edit: It does not support reassigning distribution control device. If you need to reselect the distribution control device, you need to delete and re-operate.

Task Name: **3**

TaskType: **Single task**

Device Name:

Task schedule:

Algorithm Type

structured

3.4.2 Time Plan

Support the configuration of regular deployment time plan and holiday deployment time plan.

Operating Steps

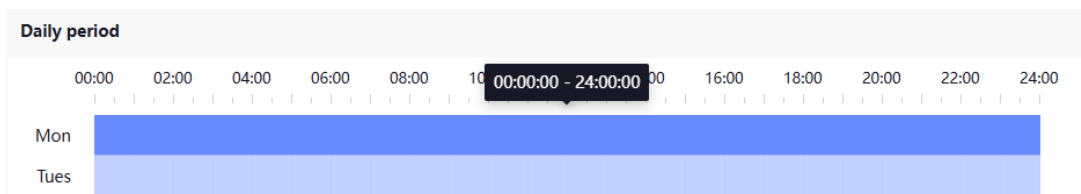
Step 1 Select "Intelligent Configuration" - "Time Plan" to enter the configuration interface. You can configure the regular plan and festival plan according to your needs and click the menu to switch.

Step 2 Configure the regular plan. After the configuration is completed, click [Save]. The regular time schedule is displayed in the list on the left, and the details are displayed on the right after clicking. You can edit or delete the time schedule.

Under the "General Plan" menu, click "New Time Plan" to start the configuration. You can customize the time plan name. If you want to associate a holiday plan, you can select it from the drop-down menu. (**Note:** If the holiday plan is related, it is necessary to make a holiday plan in advance, please see the operation steps of [Configuring Holiday Plan]).

Operating Instructions:

1. The system supports up to eight time period plans.



2. Support left mouse button drag to create time period.
3. Support to copy time period, such as Monday time period set, click the "Copy" button, select the date to copy, and finally click "Confirm".
4. The system supports modifying the default time schedule.

Step 3 Configure the holiday plan. After the configuration is completed, click [Save]. The set holiday schedule is displayed in the left list, click on the right to show the details, you can edit or delete the time schedule.

Under the "Festival Plan" menu, click "New Festival Plan" to start the configuration. You can customize the time schedule name and choose not to repeat or repeat the schedule by year.

Description:

1. Holiday plan, empty by default, can select a certain period of a certain date, can select 16 periods of date, support by dragging the mouse or manually input time period configuration, a maximum of 8 periods can be configured in a period of time.
2. The number of holiday plans can be configured to be up to 50. Priority: Holiday plan > Weekly plan.
3. The used time schedule is not delectable, but editable.

3.4.3 Linkage Plan

Support configuration task linkage plan. When configuring the task, you can configure the linkage according to your needs. The linkage mode includes audio linkage, relay configuration, RS485 configuration and alarm output. According to the needs of different scenarios, the network relay can be used to realize the door opening function.

Step 1 Click "Setting" - "Linkage Plan" to enter the linkage plan interface.

Step 2 Click "New Plan".

* Linkage plan

* Select Device

Linkage action

[Audio Linkage](#) [Network Relay](#) [RS485](#) [Alarm Out](#)

On/Off ☒ Enabled ☐ Disabled

Algorithm Type

Audio File

* Number of alarms (1-1000)

* Trigger Interval milliseconds (500-50000)

Priority ☒ High ☐ Middle ☐ Low

Step 3 Input information according to the interface prompts, such as the name of the linkage plan, select the device of the linkage plan, and start to configure the linkage action after selecting the algorithm. Click the menu to toggle the linkage action.

Description: The scope of the [Selection Algorithm] module depends on the type of intelligent analysis task configured by the corresponding device. For example, if device 1 is configured with the [structured detection] task, the [Selection Algorithm] module supports the [structured] algorithm type.

* Linkage plan

* Select Device ▼

Linkage action

Audio Linkage Network Relay RS485 Alarm Out

On/Off ☒ Disabled

Algorithm Type ▼ Audio File ▼ ⊕

* Number of alarms (1-1000)

* Trigger Interval milliseconds (500-50000)

Priority ☒ High ☐ Middle ☐ Low

Parameter Description:

Audio Linkage	
On/Off	Enable: Enable linkage voice broadcast alarm. Off: Not enabled.
Algorithm Type	Support single selection and multiple selection, if more than one is selected, the default configuration linkage rule will be effective for the selected type. If selected singly, the configured linkage rule is only valid for the current type.
Audio File	Select from the drop-down menu, you need to add audio files in Resource Management - File Management first.
Alarm times (times)	1-1000
Trigger Interval (ms)	500-50000
Priority	Optional high, medium and low.
Network Relay	
On/Off	After enable, it means that the relay can be linked to open the door.
Bind Device	Select the added relay equipment from the drop-down menu. You need to add the relay equipment first. You can refer to [Resource Management] - [Device] - [External Device] for operation.
Triggering Condition	Single select Capture, Recognition, or Recognition + Capture
Validity Passage	On-demand setup
Time Plan	Drop down menu to select time plan, you need to add time plan in "Setting" - "Time Plan" first
RS485	
Ports	Select interface on demand, support multiple selection.

	Linkage action Audio Linkage Network Relay RS485 Alarm Out Algorithm Type Please Select RS485 Please Select ⊕ Command Config: RS485 1 ☐ Instruct1 FF 01 01 05 0F 01 01 18 ☐ Instruct2 FF 01 01 05 0F 02 01 19 ☐ Instruct3 FF 01 01 05 0F 03 01 1A ☐ Instruct4 FF 01 01 05 0F 04 01 1B ☐ Instruct5 FF 01 01 05 0F 05 01 1C ☐ Instruct6 FF 01 01 05 0F 06 01 1D ☐ Instruct7 FF 01 01 05 0F 07 01 1E ☐ Instruct8 FF 01 01 05 0F 08 01 1F ☐ Instruct9 FF 01 01 05 0F 09 01 20 ☐ Instruct10 FF 01 01 05 0F 0A 01 21 ☐ Instruct11 FF 01 01 05 0F 0B 01 22 ☐ Instruct12 FF 01 01 05 0F 0C 01 23 ☐ Instruct13 FF 01 01 05 0F 0D 01 24 ☐ Instruct14 FF 01 01 05 0F 0E 01 25 ☒ Instruct15 FF 01 01 05 0F 0F 01 26 ☐ Instruct16 FF 01 01 05 0F 10 01 27
--	---

Step 4 Click "Confirm" after the configuration is completed, and the plan will be displayed in the list. You can enable, edit, and delete actions on demand.

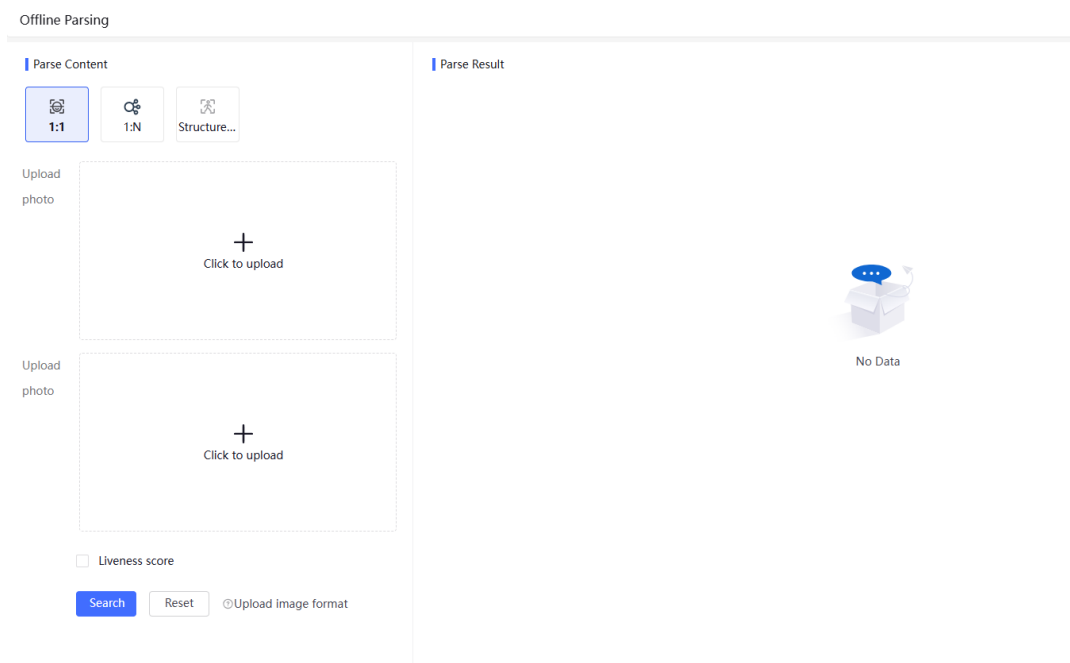
Plan Name	Device Name	Linkage action	On/Off	Operation
1	1	Audio Linkage	☒ Enabled	Edit Delete

3.5 Offline Parsing

Provide 1:1 face similarity score comparison, provide a person and face database search comparison, provide structured analysis function.

3.5.1 1:1 Face Comparison

This feature is used to determine how likely it is that two faces are the same person. Typical application scenarios: such as human witness verification, user authentication, etc., can be compared with your existing face database.



Operating Steps

Step 1 Click Offline Parsing and select 1:1.

Step 2 Select two photos and feed the two photos into the alignment area.

Images Caption:

Image type: JPG, JPEG, PNG, or BMP

Image size $\leq 4\text{MB}$

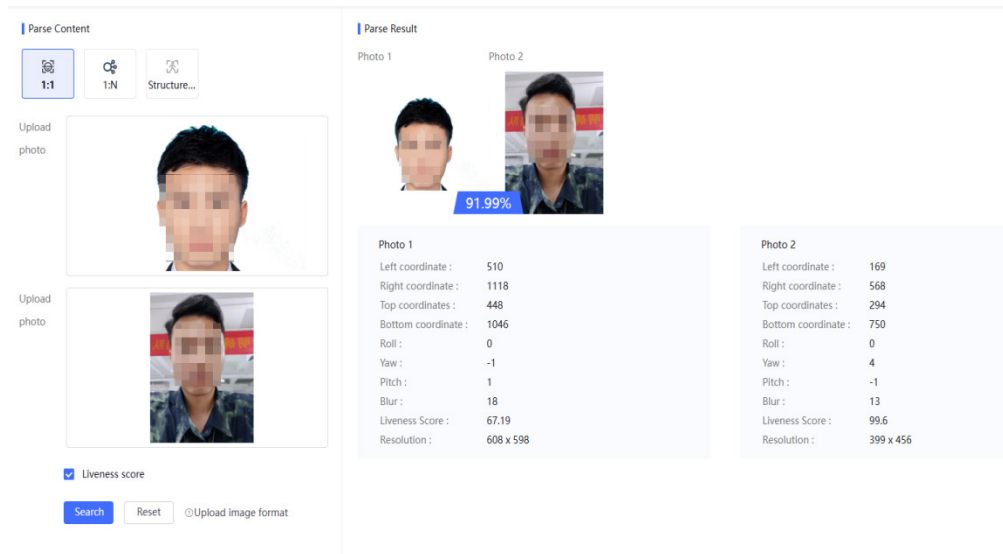
The maximum size of the picture is $\leq 4096*4096$

Minimum image size $\geq 50*50$

There can only be one face in each image, and if there are multiple faces, take the maximum.

Step 3 Click "Search" and if you need live score, check "Liveness Score".

Step 4 After the alignment is completed, the alignment results are displayed on the right, where a higher score indicates a higher similarity.



3.5.2 1:N Face Search

1: N search, also known as face search, aims to find the most similar faces in a given set of faces. It means that the face recognized by the monitoring point is compared with the face map of the bottom database, and whether it is the same person is judged by calculating the face similarity. When the similarity between the two reaches the set threshold, the comparison is successful, otherwise it fails.

Operating Steps

Step 1 Click "Offline Parsing" and select "1:N".

Step 2 Drag or click to upload the photo.

Images Caption:

Image type: JPG, JPEG, PNG, or BMP

Image size $\leq$ 4MB

The maximum size of the picture is $\leq$ 4096*4096

Minimum image size $\geq$ 50*50

There can only be one face in each image, and if there are multiple faces, take the maximum.

Step 3 Upload photos according to the interface prompts, and select the specified face set, that is, face group (you need to input people in the face library and do face grouping, you can see [Resource] - [Personnel] for operation).

Step 4 (optional) Check "Liveness Score", "Target thumbnail".

Step 5 Click "Search" after the above operations are completed, and the parsing results are displayed on the right.

Offline Parsing

Parse Content

1:1

1:N

Structure...

Upload photo



Person Group

Strange List

Pass List

+ 3

☒ Liveness score
 ☒ Target thumbnail

Search

Reset

Upload image format

Parse Result

Face Information

Target thumbnail



Left coordinate : 159
Right coordinate : 568
Top coordinates : 304
Bottom coordinate : 738
Roll : 0
Yaw : 4
Pitch : -2
Blur : 7.92
Liveness Score : 97.37
Resolution : 409 x 434

Similarity result TOP5



53.35%

916703794

Strange LL...



51.78%

991290700

Strange LL...



49.85%

999837709

Strange LL...



48.76%

912761314

Strange LL...



48.1%

Pass List

3.5.3 Structured Parsing

The system supports parsing a single photo and output structured parsing results.

When the input image is a face or a human image, the parsing results include face information (such as face attribute analysis: whether to wear a hat, wear a mask, etc.) and body information (such as body attribute analysis: shirt style and color, etc.).

When the input image is a motor vehicle/non-motor vehicle, the parsing results include the license plate recognition results.

Operating Steps

Step 1 Select "Offline Parse" > "Structured Parse".

Parse Content

1:1

1:N

Structur...

Target type

☒ Face
 ☒ Body
 ☐ Motor vehicle
 ☐ Non-motor vehicle
 ☐ License Plate

Upload photo



☒ Target thumbnail

Search

Reset

Upload image format

Step 2 Select the target type and support multiple selection.

Step 3 Upload the photo.

Step 4 According to the actual needs, check "Target thumbnail", click "Search", view the analysis results.

1:1

1:N

Structur...

Target

☒ Face
 ☐ Body
 ☐ Motor vehicle

type

☐ Non-motor vehicle
 ☐ License Plate

Upload photo



☒ Target thumbnail

Search

Reset

Upload image format

Parse Result

FacelInformation 1

Target thumbnail



Left coordinate :

159

Right coordinate :

568

Top coordinates :

304

Bottom coordinate :

738

Resolution :

409 x 434

Gender :

male

Age :

27

Hat

Not wearingHat

Glasses

Not wearingGlasses

Mask

Not wearingMask

Figure 1 Target type: Face

1:1

1:N

Structur...

Target

☒ Face
 ☒ Body
 ☐ Motor vehicle

type

☐ Non-motor vehicle
 ☐ License Plate

Upload photo



☒ Target thumbnail

Search

Reset

Upload image format

Parse Result

FacelInformation 1

Target thumbnail



Left coordinate :

159

Right coordinate :

568

Top coordinates :

304

Bottom coordinate :

738

Resolution :

409 x 434

Gender :

male

Age :

27

Hat

Not wearingHat

Glasses

Not wearingGlasses

Mask

Not wearingMask

BodyInformation 1

Target thumbnail



Left coordinate :

0

Right coordinate :

799

Top coordinates :

0

Bottom coordinate :

1079

Resolution :

799 x 1079

Gender :

male

hairstyle :

short hair

Coat color :

color

pants type :

Pants

pants color :

Unknown

Lower

pants

Figure 2 Target type: Face + Body

Page | 31

Copyright©2025 ZKTECOCO., LTD. All rights reserved.

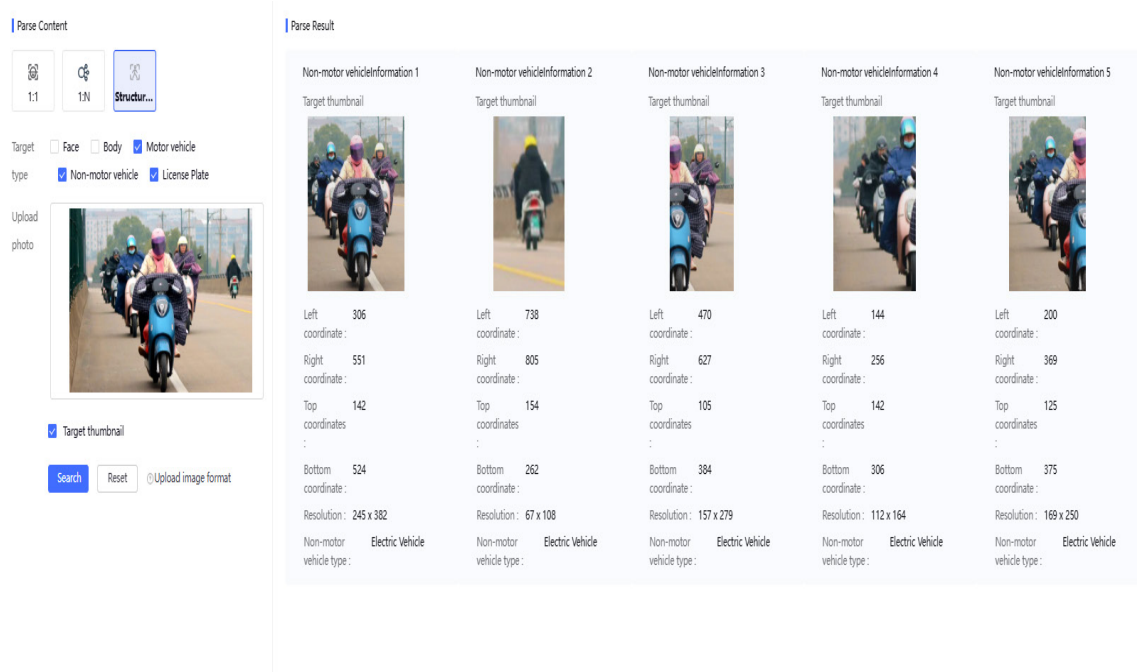


Figure 3 Target types: Motor vehicle, non-motor vehicle, license plate

3.6 Resource

3.6.1 Personnel

3.6.1.1 Personnel Management

If you need to use the face recognition function, you need to establish the face database first. It supports single face loading, batch face loading, query failure list of loading and other operations.

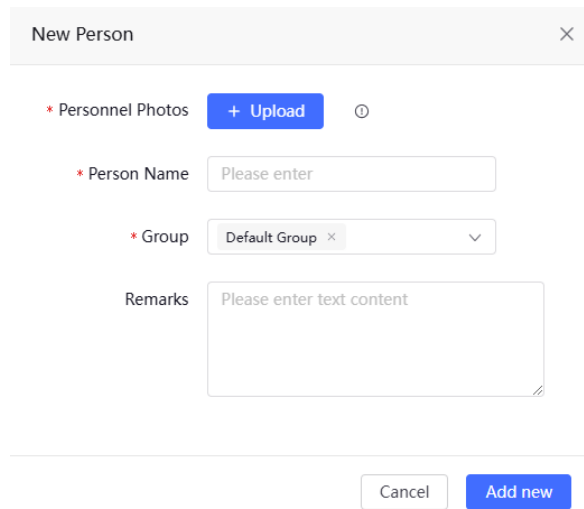
3.6.1.1.1 Single Face Upload

Operating Steps

Step 1 Click "Resource" - "Personnel Management" to enter the "Personnel management interface.

Personnel Management			
Person Group			
Name	Please enter	Group	Please Select
	Search		Reset
	New Person		Batch Operation
			Import
Photo	Name	Group	Operation
	947409697	Strange List	Face Photo Edit Delete
	916703794	Strange List	Face Photo Edit Delete
	912761314	Strange List	Face Photo Edit Delete
	991290700	Strange List	Face Photo Edit Delete

Step 2 Click "New Person" and fill in the information according to the prompts. If the face group has been created, select the Group under the "Group" (the person group can be created in the Person Group menu), if not, select the default group or create the person group first.



New Person

* Personnel Photos [+ Upload](#) ⓘ

* Person Name

* Group Default Group × ▾

Remarks

[Cancel](#) [Add new](#)

Step 3 After the information is confirmed, click "Add new". The new person will be displayed in the person list, you can search, view face map, edit, delete and other operations

If the upload fails, click [List of failures in storage] to view the reasons for the failure.

3.6.1.1.2 Batch Face Upload

Operating Steps

Step 1 Click "Resource" - "Personnel Management" to enter the "Personnel management interface

Step 2 Click on the upper right corner [Import].

Step 3 Select the folder of prepared face photos.

Step 4 If a face group has been created, check the group name under "Related Group".

Step 5 Click "OK" to start the storage.

Step 6 After uploading, the newly added face photo will be displayed in the face library list. You can search, view face maps, edit, delete, and more. If the storage fails, click [List of failures in storage] to view the reasons for the storage failure.

Note: Duplicate photos are not allowed to import.

Photo	Name	Group	Operation
	947409697	Strange List	Face Photo Edit Delete
	916703794	Strange List	Face Photo Edit Delete
	912761314	Strange List	Face Photo Edit Delete

Personnel List

Import



Upload progress
100.00%



Processing progress
100.00%

Upload successful	Upload failed	Total number of images	Time Used	Remaining time
2	0	2	00:00:00	00:00:00

Total number of pre uploads	Actual number of received items	Received successfully	Warehousing failed	Time Used	Remaining time
2	2	2	0	00:00:01	00:00:00

Ok

Batch import successfully

3.6.1.1.3 Other Operation

Delete in batches

Click "Batch Operation" to perform batch deletion operation.

Search the list of import failures

Click [List of failures in storage] in the upper right corner of the face library interface, and the system displays the "failure List of admission" interface. Users can view the relevant information.

Resource / Personnel / List of failures in storage Clear the list

Image name	Failure reason	Time
haFMf3ybFWqSG4a78a2w==	The face does not exist	2025-01-16 15:31:27
RcIPim353ezAoOyEI-meTQ==	The face does not exist	2025-01-16 09:22:10
Bs2G65C2iN249aG6N92oqw==	The face does not exist	2025-01-15 18:34:21
l1aXmceFk85yH9tn7AQh6w==	The face does not exist	2025-01-15 17:23:13
matCq6RfPMERnbMDv3SQ==	The face does not exist	2025-01-15 15:11:17
qSPhtUKucvmf_MOhmNFPQw==	The face does not exist	2025-01-15 15:02:51
IW4wh7uHjPABtbPyR9KEcQ==	The face does not exist	2025-01-15 12:22:41

View a large photo of face

Click [Face Photo], the detailed image and details of the face will be displayed.

Delete

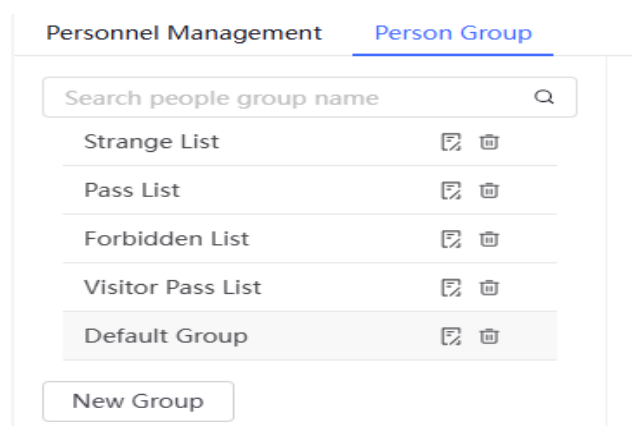
Click Delete to delete the face photo.

3.6.1.2 Person Group

The face grouping was set to establish a binding relationship between the face and the face database, which was convenient for the subsequent unified management of faces. Support adding face groups one by one by customizing the group name. Supports creating up to 64 person groups.

Operating Steps

Step 1 Click "Resource" - "Personnel Management" - "Person Group".



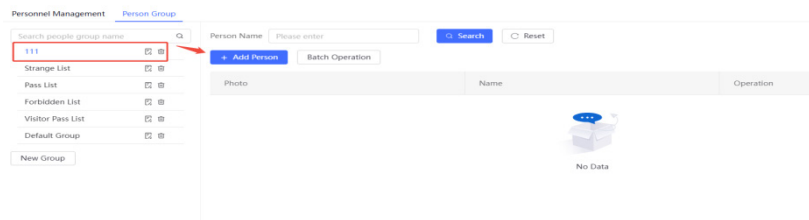
Step 2 Click "New Group".

Step 3 Enter the name of the group and click "Add new".

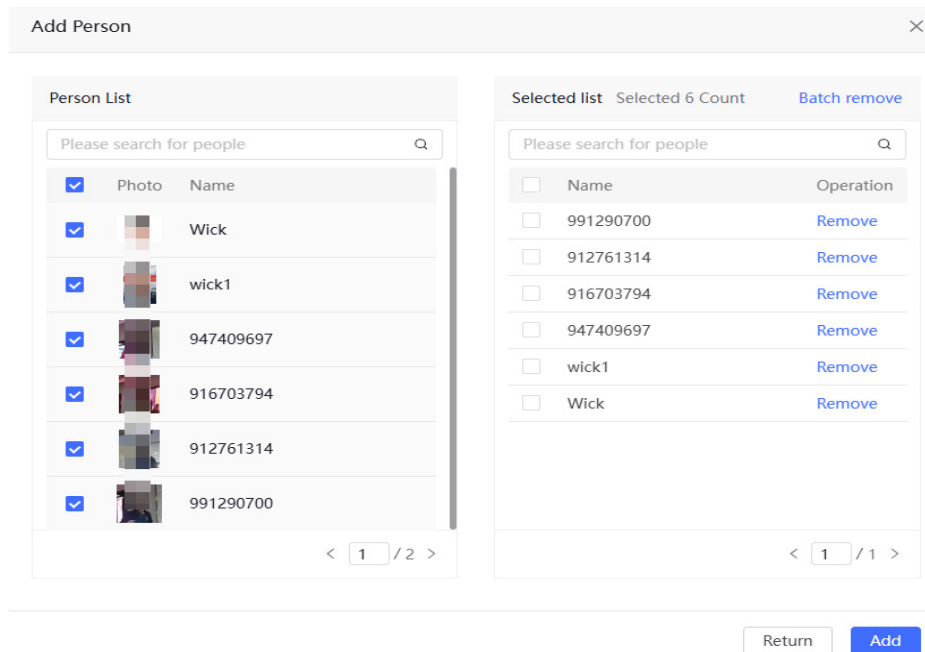
The newly added group is displayed in the group list.

Step 4 Once the group has been added, you need to add a person to the group.

1. After clicking the name of the group with the left mouse button, click "Add person" in the right area.



2. Select the person in the person list and click "Add" after the selection is completed.



Step 5 Optional Actions: After grouping is added, the following actions can be performed if necessary.

Searcher Group: Support input filter criteria to retrieve a searcher group.

View the group details: Click "Person Group", you can view the group details in the right area, you can [remove] the group of personnel operation

Delete a person group: Click "Delete" to delete the group.

To view the list of failures in storage: Click [List of failures in storage].

3.6.2 Device Management

Devices supported: video streaming and picture streaming devices are included. The maximum number of video streaming devices added is 16 (the maximum number of access channels is 4/8/16 according to the device model), and the maximum number of capture device added is 32 (the maximum number of access channels is 8/16/32 according to the device model).

Support access to external device relays, relay devices added to the upper limit of 48.

Operating Steps

Step 1 Click "Resource" - "Device" to enter the device management interface.

Device ID	Device name	Device type	Agreement Type	Device address	Device Status	Operation
1	1	Video	rtsp	rtsp://192.168.130.241:554/ch01	Offline	Edit Delete
2	device_6	Video	rtsp	rtsp://192.168.130.180:554/ch01.264?dev=1	Offline	Edit Delete
3	device_5	Video	rtsp	rtsp://192.168.130.180:554/ch01.264?dev=1	Offline	Edit Delete
4	device_4	Video	rtsp	rtsp://192.168.130.178:554/ch01.264?dev=1	Online	Edit Delete

Step 2 Add devices as needed.

- To add a video streaming or picture streaming camera, select "Basic device".

If add a device manually, click "New device", and add it according to the prompts. When the device type is network camera (video streaming), the protocol type supports ONVIF, RTSP, GB/T 28181; When the device type is selected smart camera (picture stream), the protocol supports private protocol, GA/T 1400.

New device

Device ID: 5

* Device name: 1

* Device type: Video

* Agreement Type: rtsp

Username: Please enter

password: Please enter

* RTSP stream address: Please enter

Cancel New

If the device supports active registration on the web, click "Search", select the device, click "Add", then enter the device username and password to obtain the RTSP address, and click "Add" again.

设备名称	设备类型	协议类型	设备地址	操作
device_1	网络摄像机	onvif	http://10.17.1.100/onvif/device_service	添加
device_2	网络摄像机	onvif	http://10.17.1.100/onvif/device_service	添加
device_3	网络摄像机	onvif	http://10.17.1.100/onvif/device_service	添加

- If a relay device is added, select "External Device".

Basic device External device

Device name Device type Relay IP Expand

☐	Device ID	Device name	Device type	Agreement Type	Relay IP	MAC	work mode	Output channel	Device Status	Enable	Operation
 No Data											



Then click "New Device" and fill in the information according to the prompts. After filling in, click "New".

New device ✕

* peripheral type

peripheral ID

* Device name

Enable switch ☒

* Relay IP

MAC

* Output channel

* work mode

Trigger Interval (0-50000ms)

Trigger duration (100-50000ms)

Trigger delay (0-10s)

Step 3 After the device is added, it is displayed in the device list.

Support batch delete, retrieve, view device information, edit and delete operations.

3.6.3 Algorithm Management

Algorithm Management: It is used to configure the algorithm warehouse. After the user uploads the algorithm warehouse file, the relevant algorithm can be controlled. The system supports uploading, deleting, installing, upgrading, restoring and uninstalling algorithm warehouse operations.

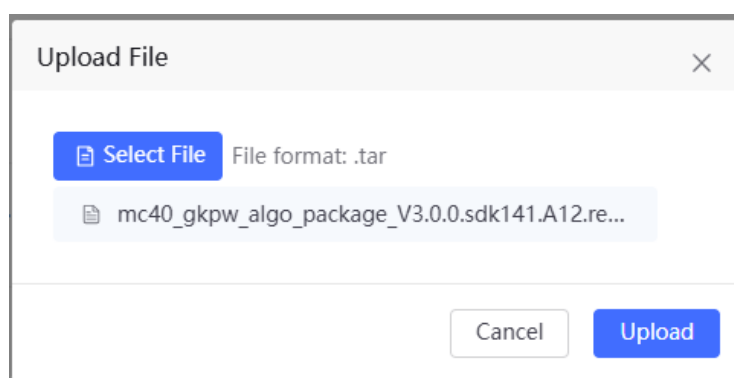
Description:

The supported algorithm charts are Face, Video Structuration, Perimeter Alert, Behavior Alert, Object Detection, People Counting, Kitchen Scenario Surveillance Algorithms, Production Safety Scenario, Petrol Station Scenario.

Operating Steps

Step 1 Go to **【Resource】** - **【Algorithm Management】** .

Step 2 Click **【Upload File】** , upload the prepared algorithm file and click Upload.



Step 3 After uploading, the algorithm chart file is displayed in the list.

Resource / Algorithm				
Name Please enter Upload File Reset				
Name	Algorithm package version	License Description	Update Time	Operation
Face-human & Recognition	V1.2.1.sdk141.A07	face detect, human detect, face bind, recognition	-	Delete Install Upgrade Uninstall Refresh View
Structure Analysis	V1.1.2.sdk141.B02	face, human, vehicle, cycle, plate	-	Delete Install Upgrade Uninstall Refresh View
General False Alarm Package	V1.0.0.sdk141.A03.build20231205150909	extract any feature	-	Delete Install Upgrade Uninstall Refresh View
alert_alarm	V2.2.4.sdk141.A01.release.build20240201180053	LEAVE_POST, FIGHT, ELECTRIC_BIKE_IN_ELEVATOR, EXIT, PARK, PERSON_OVER_QUERYING, PERSON_LESS_QUERYING, GATHERING, SMOKING, RUN, CALL, FALL, WATCH_PHONE, SLEEP, HOLDWEAPON, INTRUSION, TRIPWIRE, OVERWALL, CLIMB, WANDER, STAY_ALONE	-	Delete Install Upgrade Uninstall Refresh View

Step 4 Optional Operation.

Install: After uploading the algorithm chart, click Install. After installation, the relevant distribution control operation can be carried out.

Note: Before uploading the algorithm warehouse, the authorization file needs to be imported first, and the algorithm package can be uploaded after the authorization is activated. The algorithm package can be installed after uploading.

Upgrade: If you need to upgrade the "installed" algorithm package file, click "Upgrade", upload the upgrade file, and then click "Upgrade".

Uninstall: Uninstall the "installed" algorithm package. After uninstalling, the algorithm does not take effect, and the algorithm warehouse cannot be selected during task configuration.

Refresh: The "installed" algorithm package is restored, and the algorithm version is restored to the original version.

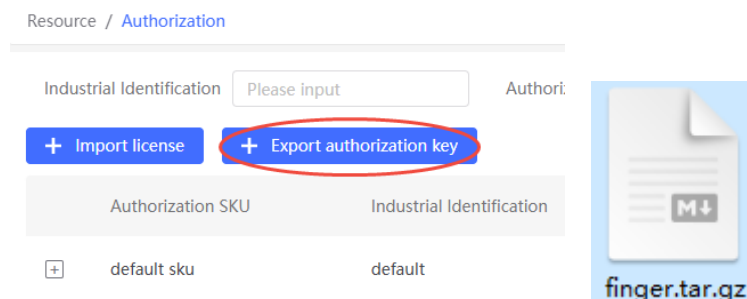
Delete: Delete the "uninstalled" algorithm package to remove the algorithm package.

Reset: Support restoring all the algorithm package factories, after restoring the factory all algorithm package version to restore the firmware version.

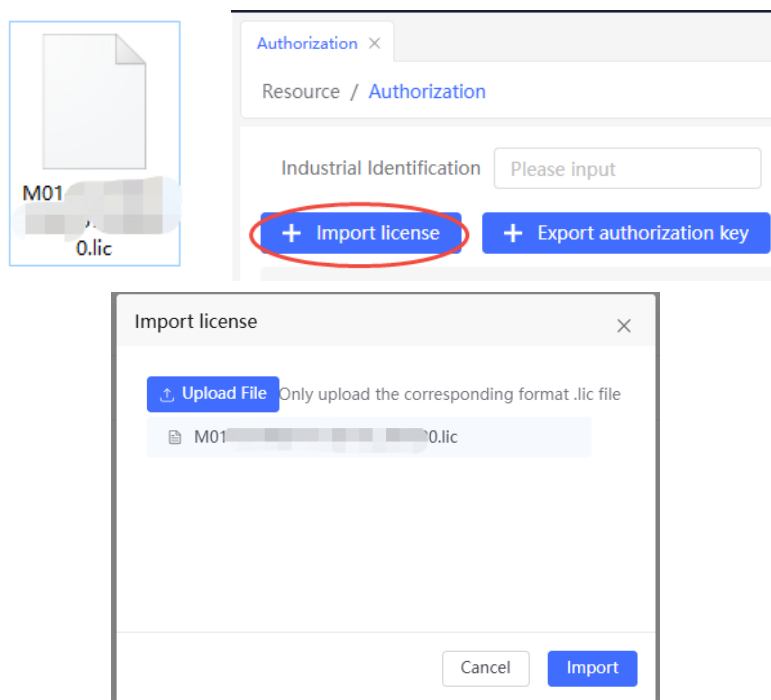
3.6.4 Authorization Management

Authorization Management: Used to increase the authorization of the update algorithm, support import license and export authorization key.

When you need to increase the algorithm store, please export the authorization key (finger.tar.gz file) to the sales staff and tell the algorithm store to increase.



Then import the .lic file provided by the business personnel into ZKIVA-Edge X1.



After the import is complete, click the details in the new authorization to check if you missed it.

Industrial Identification

Please input

Authorization Status

Please input

Search

Reset

+ Import license

+ Export authorization key

Current authorization:Standard Authorization

switch

Standard Authorization

customAuthorization

Authorization SKU	Industrial Identification	Authorization Algorithm	No. of licensed channel	Authorization Status	expiration time	Operation
default sku	default	face detect, human detect...	16	Valid	Permanent	Activate
00010000		Occlusion,Sundry Detect, G...	16	Valid	2025-04-10 10:11:14	Activate
License file Industry version License activate time License expiry time Operation M014101082411120157_245020.lic 1.1.4 2025-01-10 10:11:14 76Days8Hours Details						

Authorization file details
License file: M01...0.lic
[Video Inspection] No. of licensed channel: 16Path License Description: Occlusion
[Goods Alarm] No. of licensed channel: 16Path License Description: Sundry Detect, Goods Forget, Goods Guard, New Goods Detect
[Headcount Alarm] No. of licensed channel: 16Path License Description: Max Number People, Cross Line

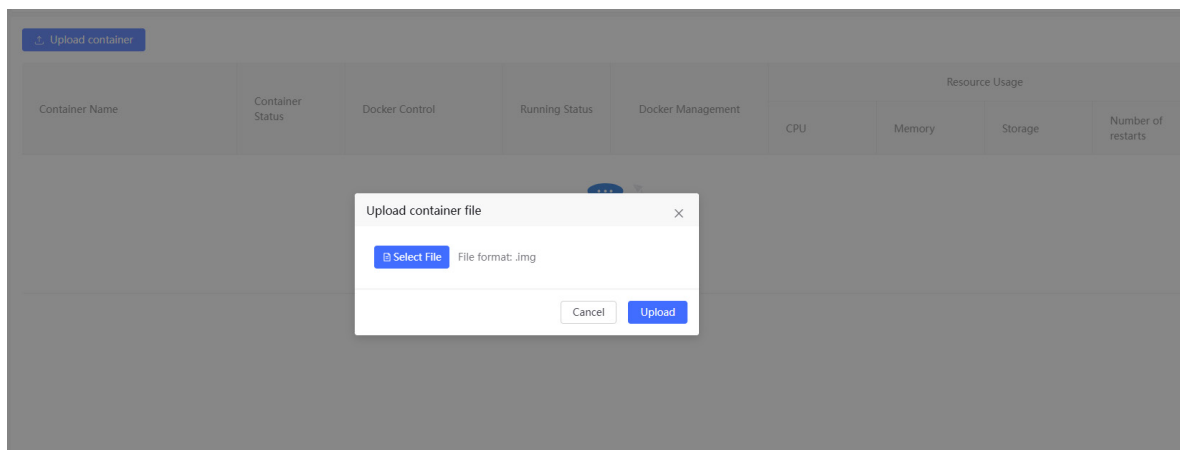
3.6.5 Container Management

It is suitable for customers with development ability, supports users to run the program developed according to the actual scene in the container, and solves the problem of closed loop of business in various scenarios. Container image upload: Supports uploading container images via import.

Note: Please contact technical support engineer for specific container debugging and installation.

Operating Steps

Step 1 Select **【Resource】 - 【Container】** , click **【Upload Container】** .



Step 2 Select the prepared container file and click "Upload".

Step 3 Operation

Set: After uploading the container, click the Set button, Configure CPU usage, memory, storage space, all containers share 20%CPU, 500MB memory, 1024MB storage.

Install: After uploading the container, the installation operation is required to start the container program.

Installation Instructions:

- Support the installation of "uninstalled" containers, after successful installation, the container status is given by "uninstalled" to "installed".
- Optional actions: After the container file is installed, upgrade, start and stop operations can be performed.

Upgrade: When you need to update an application in the container, you can repackage and change the version number of the second half of the image name, which will unpack the original container file system and overwrite the file of the same name. It is recommended that all operations that modify the files inside the container be done in this way, otherwise the accuracy of the resource usage inside the container is not guaranteed.

Start: Support for starting "installed" containers. After starting, the container will automatically execute the packaged startup script to run third-party programs, and the running state is more "normal".

Stop: Support to stop "running" containers, after stopping, the system will kill all the programs in the container, running state is more "stopped running".

Delete: Support the removal of stopped containers after installation.

Abnormal popovers and countermeasures

Exception 1: Error in receiving upgrade file

Measure: Check whether the image file name is not compliant, length, suffix, Chinese symbol, special symbol, etc.

Exception 2: Insufficient container allocatable resources

Measure: Reduce resources allocated by other containers, cpu usage, memory, storage, shared by all containers.

Exception 3: Container setup failed

Measure: Resources cannot be set while the container is running-they need to be stopped, set, and started.

Exception 4: Container image name is not compliant

Measure: Check the mirror name for non-compliance, length, suffix, Chinese symbol, special symbol, etc.

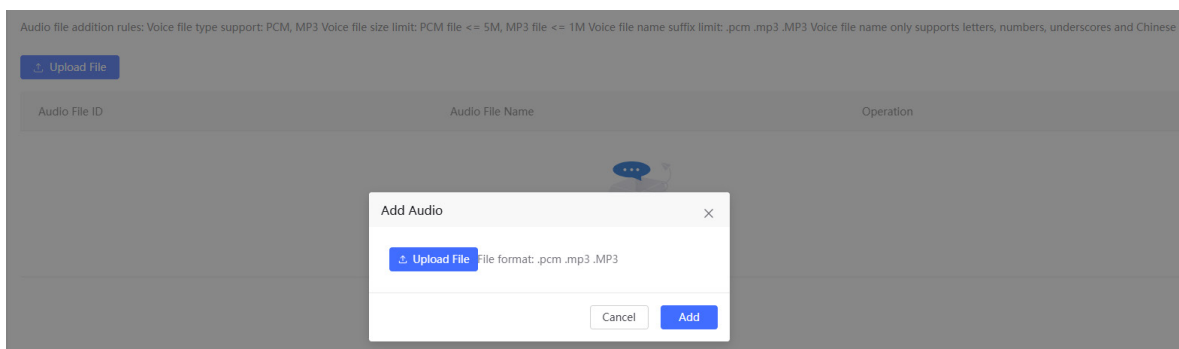
Exception 5: Container manager exception

Measure: This error is an internal program exception. It is recommended to keep the environment and contact technical support to export log analysis as soon as possible.

3.6.6 Audio File Management

Audio File: It is used to trigger alarms by linkage alert rules. When the camera is controlled and alert rules are deployed, if the set event alarm is triggered, the alarm will be linked through Audio Output interface, and the playback device will be connected for voice broadcast. The system supports uploading, modifying or deleting audio files.

Step 1 Select **【Resource】** - **【File】** ,Enter the file management interface, click **【Upload File】** , upload the prepared audio files, the system supports uploading up to 20 audio files. Supports Edit/Play/Delete audio files.



Step 2 Select the voice file and click "Add".

Descriptions: Audio file addition rules: Voice file type support: PCM, MP3 Voice file size limit: PCM file <= 5M, MP3 file <= 1M Voice file name suffix limit: .pcm .mp3 .MP3

Step 3 Operation

Edit: If you need to change audio file, click "Edit".

Play: If you want to play audio file, click "Play".

Delete: If you need to delete audio file, click "Delete".

3.6.7 False Positive Library Management

Definition: To reduce false alarms by creating a negative sample library of known false positives. With the negative sample, you can set the comparison threshold, and the alarm record generated by the intelligent analysis will be compared with the negative sample. If the comparison result is greater than the threshold, the alarm record will be considered as a false positive record and will be displayed in the Filter Record, and will not be displayed in the "Record-Alarm Record".

Service Logic: When the alarm is triggered, the system will determine the type of alarm by checking against the false sample library.

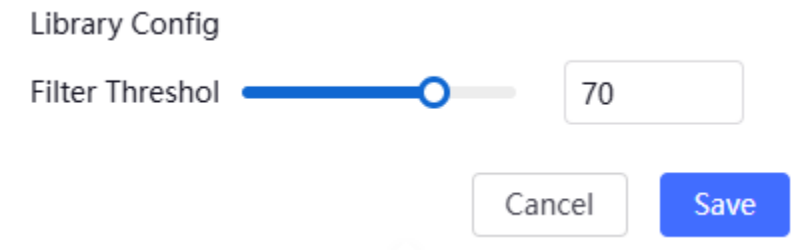
If the negative sample filtering function is configured, the data will be compared with the negative sample library twice:

- If the comparison score of the new alarm record exceeds the threshold, no alarm record is generated, and the new alarm record is added, **【False Positive Library Management】 - 【Filter Record】** .
- If the comparison score of the new alarm record is lower than the threshold, the alarm will be normal, **【Alarm Record】** generate a new alert record.

If the negative sample filtering function is not configured, no secondary filtering will be performed, and alarm records will be generated normally.

Configuration Description:

As shown below, this version only supports the false positive library functionality for the following algorithm types (shown below), click on the upper right corner for the settings , can set the matching threshold.

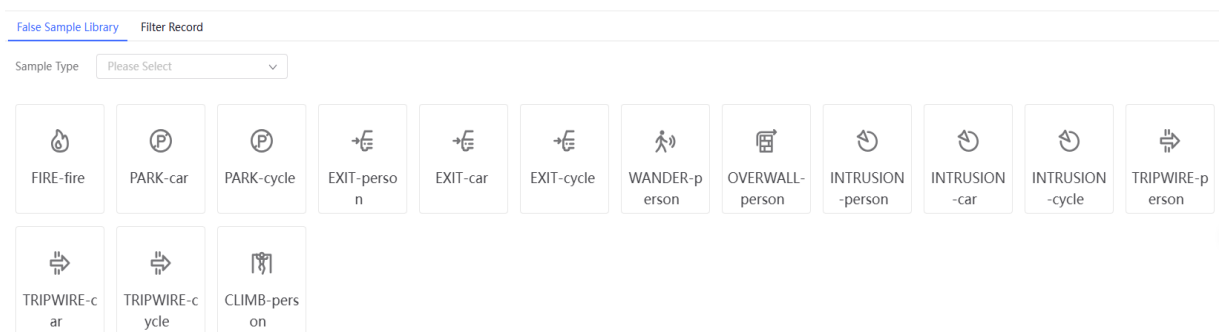


Library Config

Filter Threshold 70

Cancel Save

The threshold range can be 0-100, and the default threshold is the recommended threshold in the corresponding negative sample library, which is automatically loaded by the system.



False Sample Library Filter Record

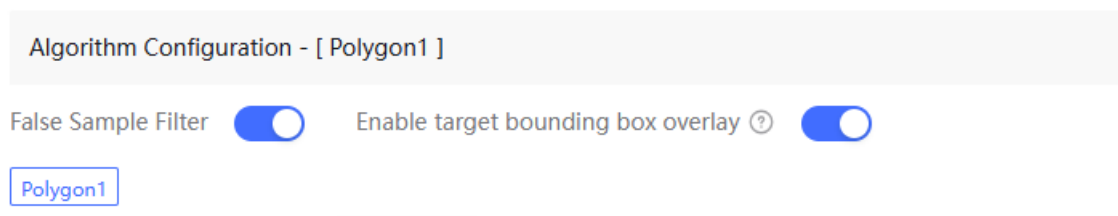
Sample Type

FIRE-fire	PARK-car	PARK-cycle	EXIT-person	EXIT-car	EXIT-cycle	WANDER-person	OVERWALL-person	INTRUSION-person	INTRUSION-car	INTRUSION-cycle	TRIPWIRE-person
TRIPWIRE-car	TRIPWIRE-cycle	CLIMB-person									

Operation guidance: When using the False Sample Library function, you need to turn it on in the task configuration **【False Sample Filter】** .

Examples:

Take **【Intrusion】** as an example, when configuring the task, need to enable **【False Sample Filter】** .



Algorithm Configuration - [Polygon1]

False Sample Filter ☒ Enable target bounding box overlay  ☒

Polygon1

A. Enter the "Record-Alarm Record" to view the alarm record. Take the second record as an example. If the record is considered to be a false positive, click **【False Alarm】** to add the record to **【False Sample Library】** as a negative sample.

Recognition Record Alarm Record Capture Record People Counting

Capture Device All x Alarm Type All Alarm Type Capture Time 2025-01-22 00:00:00 → 2025-01-22 23:59:59 Search Reset

Batch Operation

Capture Image		Capture Device	Capture Time	TrackID	Alarm Type	Alarm Area	Operation
Target Image	Panoramic						
		device_4	2025-01-22 10:04:12	2098904	INTRUSION	Area1	Details False Alarm Delete
		device_4	2025-01-22 10:03:59	2098901	INTRUSION	Area1	Details False Alarm Delete
		device_4	2025-01-22 10:03:57	2098902	INTRUSION	Area1	Details False Alarm Delete

B. Enter “Resource-False Sample Library-Intrusion-Person”, will query to the negative sample. This interface supports the batch operation of the negative samples, click **Batch Operation** , you can perform it as needed **Batch Cancel** , **Batch Export** , **Delete Selected** , **Batch Cancel** .

Batch Operation							
Capture Image		Capture Device	Capture Time	TrackID	Alarm Type	Alarm Area	Operation
Target Image	Panoramic						
		device_4	2025-01-22 10:35:34	2099075	INTRUSION	Area1	Cancel Delete

At the same time, in this interface, you can perform **Cancel** or **Delete** operations on the negative samples.

Cancel: Click **Cancel** , the record is withdrawn from False Sample Library and is no longer used as a negative sample alignment:

- c) If the data source **Alarm Record** , the record is restored to **Alarm Record** , and the filter record associated before deleting the sample is not affected.

Note: If the device that generated the alarm has been deleted, the alarm cannot be restored to **Alarm Record** . Error prompts in the popup window: **The device does not exist and cannot be revoked** .

- d) If the data source **Filter Record** , the record is restored to **Filter Record** , and the filter record associated before deleting the sample is not affected.

Note: If the device that generated the alarm has been deleted, the alarm cannot be restored to **Filter Record** . Error prompts in the popup window: **The device does not exist and cannot be revoked** .

Delete: Click **Delete** , the record is withdrawn from False Sample Library and is no longer used as a negative sample alignment, removing false positive records that were previously associated with the sample is not affected.

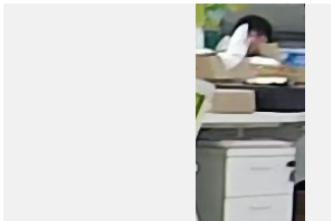
C. With the negative sample data, if the comparison score of the new alarm record exceeds the threshold, no alarm record will be generated, and the alarm record will be added to **False Positive Library Management** - **Filter Record** . You can **Link False Sample** , **Add Sample** , **Remove** .

False Sample Library		Filter Record						
Capture Device		All ×	Alarm Type	All Alarm Type	Capture Time	2025-01-23 00:00:00 — 2025-01-23 23:59:59	Search	Reset
Batch Operation								
Capture Image		Capture Device	Capture Time	TrackID	Alarm Type	Alarm Area	Filter Score	Operation
Target Image	Panoramic							
		device_4	2025-01-23 14:48:05	5680053	INTRUSION-person	Area1	72.94	Link false sample Add Sample Remove
		device_4	2025-01-23 09:29:38	2103582	INTRUSION-person	Area1	68.69	Link false sample Add Sample Remove

Link False Sample: Click **Link False Sample** , which associates the filtered record with the negative sample with the highest alignment score in False Sample Library.

Sample Info

Capture Image




Capture Image

Capture Device device_4

Capture Time 2025-01-22 10:35:34

TrackID 2099075

Alarm Type INTRUSION

Target Type person

Alarm Area Area1

Add Sample: If the current filtering record can be used as a typical negative Sample, you can click **Add Sample** to join False Sample Library. After adding a negative sample, the record is not displayed in the filtered record at this time, and is displayed in False Sample Library.

Remove: Click **Remove** the corresponding filtered alarm record can be added as a negative sample to False Sample Library of the corresponding alarm.

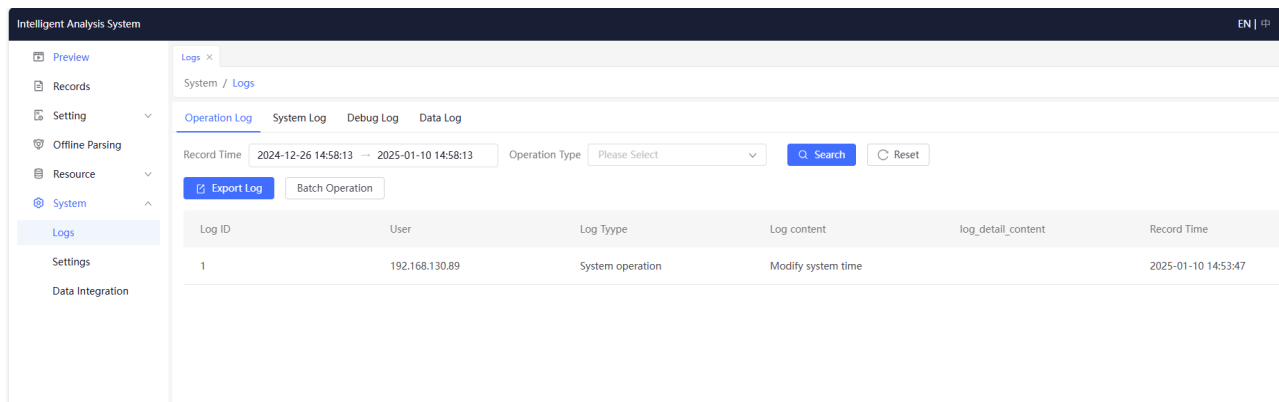
3.7 System

3.7.1 Logs

Support querying or exporting operation log, system log, debug log and data log. If you need to query or export the logs, click **System** - **Logs** , according to the interface display according to the demand operation.

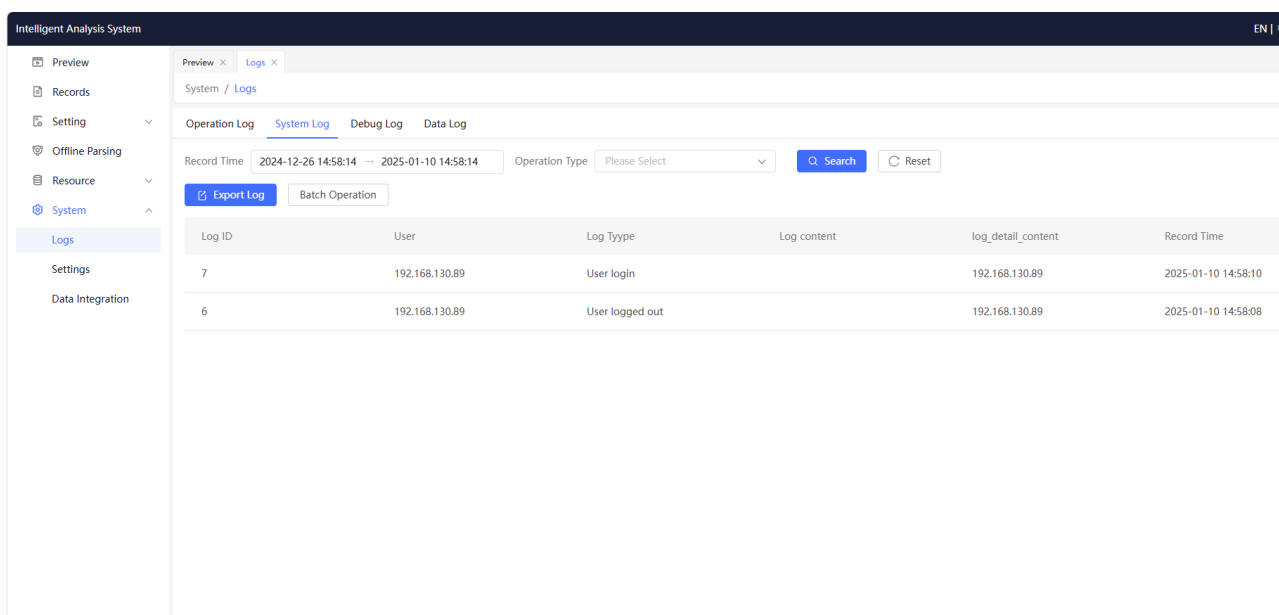
Operation Log

Support user operations, including all modules to add, delete, modify and check. Including web operation and operation through the interface.



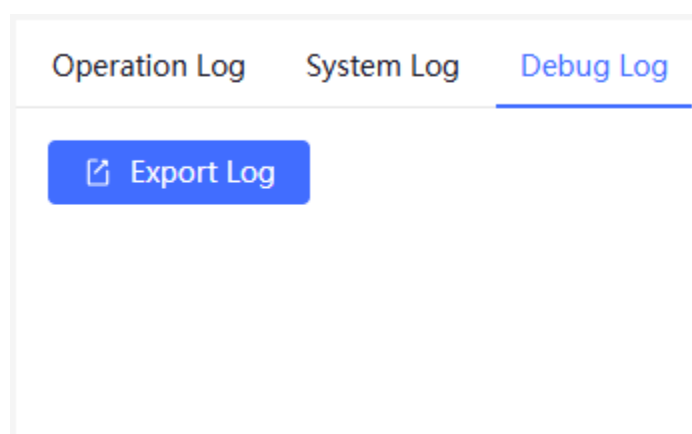
System Log

Including system upgrade, restart and other operations.



Debug Log

Developer system debug print log for problem troubleshooting.



3.7.2 Setting

3.7.2.1 Basic Setting

Device Model: PTLCube-B4X16-311			
Hardware Version: 000_03_000	Firmware Version: 3.2.1-RLhf.3.NE	Device No.: M014101082411120139	CPU Usage: 5 %
CPU Temp.: 38 °C	Device SN: M014101082411120139	Alotap Version: V2.3.3.B25	RAM Size: 8192 MB
RAM Used: 5694 MB	Storage Space: 32768 MB	Storage Used: 2141 MB	System Time: 2024-12-30 15:30:40
Web Version: v3.2.1_20240725	Device Model: PTLCube-B4X16-311		

Config Operation

Config System

LOGO
 Upload suggestion: .jpg .png and the size does not exceed 5M

System

name

- Support to display the equipment basic information.
- Support for custom system styles. As shown above, 【Config System】 , you can upload the system logo and change the system name.
- Support for system upgrades, upgrade methods include Manual Upgrade and Auto Upgrade. Click 【System Upgrade】 , you can choose the upgrade mode.

System Upgrade

Upgrade Method

☒ Manual Upgrade
 ☐ Auto Upgrade

system upgrade file

Algorithm Pack Upgrad ☒ Enabled

System Upgrade

Upgrade Method

☐ Manual Upgrade
 ☒ Auto Upgrade

Enable Status ☐

Time plan

Server IP

Server Path

Username

Password

Manual Upgrade: Support for uploading system files to upgrade.

Auto Upgrade: Configure the upgrade server and upgrade time, upgrade path, user name, and password, click **【Save】** timed automatic upgrade.

Device upgrade support selection **【Algorithm Pack Upgrade Synced】** , default enabled, When enabled, the algorithm warehouse version will be upgraded to the corresponding algorithm warehouse version of the latest firmware package by default.

- Support for device restart, click **【Restart】** .
- Support for restoring the factory settings, click **【Reset】** .

3.7.2.2 Network Setting

Support IP configuration, dual network card configuration, communication security configuration. Due to security requirements, the default communication of the system is HTTPS. If there is no special requirement on the scene, it can be modified to HTTP.

The screenshot displays the 'Network Setting' configuration page. It is divided into three main sections: 'Communication security', 'WAN Setting', and 'LAN Setting'.

- Communication security:** Features a toggle for 'Communication security' with two options: 'HTTP' (unselected) and 'HTTPS' (selected).
- WAN Setting:** Includes a 'DHCP' toggle set to 'Disabled'. Below it are input fields for 'IP Address' (192.168.130.50), 'Subnet Mask' (255.255.255.0), and 'Gateway' (192.168.130.1). To the right, there are fields for 'DNS' (8.8.8.8) and 'MAC' (78:ca:83:41:6c:d5).
- LAN Setting:** Also has a 'DHCP' toggle set to 'Disabled'. It includes input fields for 'IP Address' (192.168.2.100), 'Subnet Mask' (255.255.255.0), and 'Gateway' (192.168.2.1). To the right, there are fields for 'DNS' (8.8.8.8) and 'MAC' (78:ca:83:41:6c:d6). A 'Bond Mode' dropdown menu is set to 'Dual NIC independent'. A red note above the MAC and Bond Mode fields states: 'Active/standby mode and balanced mode, only WAN takes effect'.

Note:

1. If **【Communication Security】** is HTTPS, when the browser input, if the input HTTP will automatically jump to the HTTPS mode, on the contrary, the communication HTTPS cannot jump to HTTP.
2. Bond Mode:
 - a) Balance Mode: Both links are in use at the same time.
 - b) Active-standby Mode: One link is in use and the other link is in unused backup state.

3.7.2.3 Time Setting

Support manually and automatically synchronize time. When the device is used for the first time, the temporary authorization will be unavailable because the time of the device is not consistent with the time of the computer. At the same time, the system time of the device will be prompted to be incorrect, so it needs to be calibrated manually.

NTP Server

NTP On/Off ☐ Disabled

Domain name or IP

The number of retries for verification time failure 0

Time Calibration Interval

Set Timezone

Manual Set Time

3.7.2.4 Login Setting

Supports the password modification operation, setting the login timeout time, setting the login number limit, and setting the unlock time.

Setting Info

account name

Old password

New password

Confirm the new password

login timeout minutes 1-1440

login limit count 3-10

Unlock time minutes 5-30

Parameter	Descriptions
Login Timeout	Configuration range 1-1440 minutes (24 hours) with default 30 minutes. It means that the current user automatically logs out when the login state is not operated for 30 minutes, and the operation needs to log in again.
Login Limit	Configuration range is 1-10 times, default 5 times. Indicates that the account is locked after the user logs in correctly (user name or password is wrong) 5 times.
Unlock Time	Configuration range of 1-60 minutes, default is 10 minutes. It means that the user can log in the account after 10 minutes to log in again.

3.7.2.5 Storage Setting

Record storage ☒ Enabled

Whether to save the panorama ☐ Disabled

Target frame drawing ☒ Enabled

Background image quality coefficient 60 ⓘ

Recognition record storage number strip 0-10000

Number of non-identifying record storage strip 0-50000

Video storage address

Parameter	Descriptions
Record Storage	All intelligent records, including Recognition Record, Alarm Record and Capture Record. Default enable.
Panoramic View Storage	Default enable.
Target Frame Drawing	Default enable.
Background Image Quality Coefficient	Default 100, Value: 10-100, int. When the series is set to 100, the background picture is the original picture. The smaller the coefficient setting, the less blurred the quality is, and the smaller the storage space is.
Recognition Record Storage Number	Default 10000, the configuration range is 0-10000 / bar.
Number Of Non-identifying Record Storage	Including Capture Record, Alarm Record and People Counting. Default 50000, config range of 0-50000 / bar.
Video Storage Address	The path to store the video, immutable paths. Default storage path: C:\\Cubevideo.

3.7.2.6 Hardware Setting

Supports RS485, Relay, and Alarm IO configuration.

485 Configuration

mode 485-1

whether to enable ☐ Disabled

Baud rate 9600

Data bits 8

Stop bits 1

Parity digit Even parity

timeout 500 milliseconds

Number of timeout retransmissions 3 count 1-3

heartbeat packet 5 second

heartbeat command information FF 01 01 01 0F EE EE EE

heartbeat response information FF 01 02 01 0F EE EE EF

Relay Settings

Network Mode udp

Time Unit 100 milliseconds

Password Please enter

RS485 Configuration:

Parameter	Descriptions
Mode	485-1
Whether to enable	Enable RS485 mode as demand.
Baud Rate	The number of symbol symbols transmitted in bit time.
Data Bits	Value: 7/8
Stop Bits	Value: 1/2
Parity Digit	The default is not parity, Value: no parity, odd parity, even parity, mark, space.
Timeout	0-500 ms
Number of timeout retransmissions	Value: 1-3

Relay Settings:

Parameter	Descriptions
Network Mode	UDP/TCP, default is UDP, support switching.
Time Unit	100ms/1s, default 100ms. Modifying the time units causes the relay status to change.
Password	Please enter a 16-bit password.

Alarm IO:

Parameter	Descriptions
Output Port	Hardware IO selection
Mode	Off, Normally Open, Normally Close
Alarming Duration	0-2000ms

3.7.2.7 Software Setting

rtsp streaming ☐ Disabled ⓘ

Dynamic base library ☐ Disabled ⓘ

Device Status Report 5-3600s ⓘ

External screen real-time preview configuration ☐ Disabled

Parameter	Descriptions									
RTSP Steaming	After Enable, the box supports pulling streams through the RTSP stream address. RTSP address example: rtsp://username:password@IP:port/channel number Default disable.									
Dynamic Base Library	After Enable, the base library capacity is reduced to 15W, group unchanged. Enable/Disable Dynamic Base Library, the base data will be emptied and the device restarted.									
External Screen Real-Time Preview Configuration	After Enable, it can configure the number of Windows and video channels. According to the selected window, it can associate the corresponding video streaming device and select the device in the drop-down box. Number of windows9 Video channel corresponds to the window <table><tr><td>Window 1 Empty</td><td>Window 2 Empty</td><td>Window 3 Empty</td></tr><tr><td>Window 4 Empty</td><td>Window 5 Empty</td><td>Window 6 Empty</td></tr><tr><td>Window 7 Empty</td><td>Window 8 Empty</td><td>Window 9 Empty</td></tr></table>	Window 1 Empty	Window 2 Empty	Window 3 Empty	Window 4 Empty	Window 5 Empty	Window 6 Empty	Window 7 Empty	Window 8 Empty	Window 9 Empty
Window 1 Empty	Window 2 Empty	Window 3 Empty								
Window 4 Empty	Window 5 Empty	Window 6 Empty								
Window 7 Empty	Window 8 Empty	Window 9 Empty								

3.7.2.8 Algorithm Setting

Supports configuring image stream parameters.

Image stream(Capture Cam) parameter configuration

Image stream recognition retry times count 0-5000

Min recognition interval second 0-60

Strangers in the picture stream judged multiple times count 0-5

Image Stream (Capture Cam) Parameter Configuration:

Parameter	Descriptions
Retry Recognition Times	Default 5 times, configuration range 0-5000 / time. The number of times the camera recognizes the face during the entire image stream TRACK.
Min Recognition Interval	Default 5 seconds, configuration range 0-60 / second. The recognition interval of the face during the entire image stream TRACK.

Stranger Repeat Recognition Times	Default 0 times, configuration range 0-5 / time. The number of times the camera pairs determine strangers during the whole image stream TRACK.
--------------------------------------	---

3.7.3 Data Integration

Platform

Support for docking to the following platforms:

Client GB/T 28181, GA/T1400, Private SDK, PDNS terrace.

Server GB/T 28181, GA/T1400 terrace.

Click **【System】** - **【Data Integration】** - **【Platform】** enter the platform access interface, configure it as required.

Alarm Push

Support reporting alarm data through FTP transmission, WebSocket and HTTP.

3.7.3.1 Platform

3.7.3.1.1 GB/T 28181

The system supports use GB / T 28181 protocol offline docking NVR (NVR support access to RTSP stream and IPC), video streaming camera (support GB / T 28181).

Operation Step

Step 1: Click **【System】** - **【Data Integration】** - **【Platform】** .

Step 2: Select the protocol type of **【GB/T 28181】** , Enter the GB/T 28181 configuration interface.

Step 3: Configure the Client and Server on demand.

Client

Protocol Type GB/T28181 GA/T1400 Private SDK PDNS

On/Off ☐ Disabled

SIP Server Code

SIP Domain

SIP Server IP

SIP Server Port

Administrative division code

Device Code

NIM WAN:192.168.130.50 ▼

Signaling Transport Protocol UDP ▼

Registered user name

Registered password

Registration Validity Period (3600~65535 s)

Heartbeat Interval (30~180 s)

Maximum Heartbeat (3~5)

Whether to enable school time ☐ Disabled

Connection Not connected

Device List

ID	Device Code ID
1	Please enter

Client Configuration

Server

Protocol Type GB/T28181 GA/T1400

On/Off ☐ Disabled

SIP Server Code

SIP Domain

SIP Server Port

SIP Server IP WAN:192.168.130.50 ▼

Heartbeat Interval (30~180 s)

Heartbeat Count (3~5)

Signaling Transpo udp&tcp ▼

Stream Transport udp ▼

Service Configuration

Parameter Description:

Parameter	Descriptions
Client	
Enable/Disable GB/T28181	After Enable, it can access the platform through GB / T 28181 protocol.
SIP Server Code	System default, change according to the GB / T 28181 protocol standard.
SIP Domain	System default, change according to the GB / T 28181 protocol standard.
SIP Server IP	System default, change according to the GB / T 28181 protocol standard.
SIP Server Port	System default, change according to the GB / T 28181 protocol standard.
Device Code	System default, change according to the GB / T 28181 protocol standard.
NIM	System default, change according to the GB / T 28181 protocol standard.
Administrative Division Code	Fill in as needed.
Registered Username	Fill in as needed.
Registered Password	Fill in as needed.
Registration Validity Period	Fill in as needed.

Enable Synchronize Time	Fill in as needed.
Heartbeat Cycle	Fill in as needed.
Signaling Transport Protocol	UDP/TCP
Maximum Heartbeat	Fill in as needed.
Registration Status	Fill in as needed.
Device List	Fill in as needed.
Server	
Enable/Disable GB/T28181	After Enable, it can access the platform through GB / T 28181 protocol.
SIP Server Code	Fill in as needed.
SIP Domain	Fill in as needed.
SIP Server IP	Fill in as needed.
SIP Server Port	Fill in as needed.
Maximum Heartbeat	Fill in as needed.
Heartbeat Interval	Fill in as needed.
Signaling Transport Protocol	UDP/TCP/UDP&TCP
Stream Transport	UDP/tcp active/tcp passive

Step 4: After configuration is complete, click "Save".

3.7.3.1.2 GA/T 1400

The system supports the use of GA / T1400 protocol to dock the upper platform and acquisition equipment.

- Client

Note:

Through the intelligent analysis box as the client, through the GA / T1400 protocol, the capture / identification data is uploaded to the "upper platform".

The configuration is shown in the figure and is set up according to the prompt.

Platform
Alarm Push

On/Off ☐ Disabled

Server IP
Resend Times 0~3

Port number
Resend interval 1~5

Username
Media Library ID 1~100

Password
Keepalive Interval (30~300 s)

Sync Interval 1~65535
Upload Background ☒ Yes ☐ No

Whether to enable school time ☒ Enabled
Connection ☐ Connection Failure

Device List

ID
Device Code ID

- Server

Note:

Through the intelligent analysis box as a server, support GAT1400 protocol access camera. The configuration is shown in the figure and is set up according to the prompt.

Server

Protocol Type GB/T28181 GA/T1400

On/Off ☒ Enabled

SIP Server Code Heartbeat Interval (30~180 s)

SIP Domain Heartbeat Count (3~5)

SIP Server Port Signaling Transpo udp&tcp ▾

SIP Server IP WAN:192.168.130.50 ▾ Stream Transport udp ▾

3.7.3.1.3 Private SDK

Note: The intelligent analysis box acts as the client to access the upper management platform through Private SDK.

Click **【System】** - **【Data Integration】** - **【Platform】** , select **【Private SDK】** , fill in the relevant information according to the prompts, and after the completion, click **【Save】** .

Platform Alarm Push

Client

Protocol Type GB/T28181 GA/T1400 Private SDK PDNS

Whether active mode is enabled ☐ Disabled

Active mode access method ☒ C-SDK ☐ WSAPI

Start SSL or not ☐ Disabled

Active Mode Address For example: tcp://127.0.0.1:34567

Passive Mode Port

password 

Connection Not Connected

3.7.3.1.4 PDNS

Note: The intelligent analysis box acts as the client to access the upper management platform through PDSN.

Click **【System】** - **【Data Integration】** - **【Platform】** , select **【PDSN】** , fill in the relevant information according to the prompts, and after the completion, click **【Save】** .

Platform Alarm Push

Client

Protocol Type ☐ GB/T28181 ☐ GA/T1400 ☐ Private SDK ☒ PDNS

On/Off ☐ Disabled

Server IP

Device Name

Server Port

Device SN

APP_ID

Connection

APP_KEY

Link Mode

3.7.3.2 Alarm Push

3.7.3.2.1 FTP

Note: When storing data to the FTP server, FTP push configuration is required.

Click **【System】** - **【Data Integration】** - **【Alarm Push】** , select **【FTP】** , according to the prompts, set the FTP push rules, after the configuration is completed, click **【Test】** and **【Save】** .

Platform Alarm Push

Push Mode ☒ FTP ☐ WebSocket(s) ☐ HTTP(s)

On/Off ☐ Disabled

Upload Background ☐ Disabled

Server IP

Server Port

Username

Password

remote directory

First-level directory

Secondary directory

third-level directory

Custom Directory

connection state test

Parameter Description:

Parameter	Descriptions
Enable	Enable: Indicates using the FTP push settings. Disable: Indicates that the FTP push settings are not used.
Upload Background	Enable: Represents upload the background image. Disable: Represents not upload the background image.
Server IP	FTP server address, 64 characters (Support English + number + special character) .
Server Port	FTP server port. 0-65535
Username	The username of the user logging in to the FTP server. 32 regular characters
Password	The password of the user logging in to the FTP server. 64 characters (English + number + special character)

Parameter	Descriptions
Remote Directory	Customized definition.
First-level Directory	As needed, select the directory type in the drop-down menu.
Secondary Directory	As needed, select the directory type in the drop-down menu.
Tertiary Directory	As needed, select the directory type in the drop-down menu.
Custom Directory	User-defined directories.

3.7.3.2.2 Alarm Push (Websocket Mode)

Note: According to user needs, if you need to push pictures to the upper platform, you should configure Websocket mode and HTTP protocol. The two servers of capture and alarm can use the same server port in the intelligent video analysis system provided.

It should be noted that if there is no option to transfer images, there will be no image upload.

Platform
Alarm Push

Push Mode
FTP
WebSocket(s)
HTTP(s)

Active reporting of identification information
☐ Disabled

Server address (separate ports with ':')
ws(wss)://domain(ip):port/ws

Upload Image
☐ Disabled

Upload capture thumbnail
☐ Disabled

Upload capture background
☐ Disabled

Actively report the capture information
☐ Disabled

Server address (separate ports with ':')
ws(wss)://domain(ip):port/ws

Upload Image
☐ Disabled

Upload capture thumbnail
☐ Disabled

Upload capture background
☐ Disabled

3.7.3.2.3 Alarm Push (HTTP Mode)

Information is actively reported through http protocol, there are two modes: primary and secondary, There are three types of reported data: capture, identification and capture + identification data. The primary server is preferred to the secondary server, and the function of resending the failed data is provided, for the failed data reported, retransmission is attempted every 30 minutes until successful transmission.

Platform **Alarm Push**

Push Mode ☐ FTP ☐ WebSocket(s) ☒ HTTP(s)

Message Push ☐ Disabled

Main server address (separate ports with ':')

User Name

Password

Resend Interval(1-5s) 0-60

Resend Times (0-3) 0-3

Data Type

Feature value transmission ☐ Disabled

Upload Image ☒ Enabled

Upload capture thumbnail ☒ Enabled

Upload capture background ☒ Enabled

Upload failed, data resent ☒ Enabled

Heartbeat Message ☐ Disabled ⓘ

Address of slave server (separate ports with ':')

User Name

Password

Resend Interval(1-5s) 0-60

Resend Times (0-3) 0-3

Data Type

Feature value transmission ☐ Disabled

Upload Image ☒ Enabled

Upload capture thumbnail ☒ Enabled

Upload capture background ☒ Enabled

Heartbeat Message ☐ Disabled ⓘ

4. Personal Information Collection and Protection Policy

The **ZKIVA-Edge X1** system is designed to provide intelligent video analytics and biometric recognition technologies, including facial recognition, people counting, behavioural analysis, and other AI-powered features. These functions may involve the collection, processing, and storage of **personal identifiable information (PII)** and **biometric data** such as face photo and body photo.

ZKTeco is committed to complying with applicable data protection laws and promoting responsible data usage. To ensure proper handling of personal data, all users, administrators, system integrators, and operators of the ZKIVA-Edge X1 system are required to adhere to the following privacy principles:

Data Collection & Usage

- The system may collect and process biometric data (e.g., face photo, body photo) for security, access control, and analytics purposes.
- Personal data shall only be collected for legitimate, specified, and clearly communicated purposes, and shall not be processed further in a way that is incompatible with those purposes.

User Consent

- Prior to collecting any biometric or personal data, explicit and informed consent must be obtained from individuals, unless otherwise permitted by applicable law.
- Users should be informed of the data being collected, the purpose of collecting, how it will be used, and their rights regarding that data.

Data Protection & Security

- All biometric and personal data must be encrypted and stored securely, with appropriate access controls in place.
- Communication interfaces (such as RS485 or Wiegand) must be configured with safeguards to prevent unauthorized access, interception, or tampering.

Data Retention

- Personal and biometric data shall not be retained longer than necessary for the purpose for which it was collected.
- Organizations must establish clear and compliant data retention and deletion policies.

User Rights

- Individuals have the right to request access to, correction of, or deletion of their personal data, in accordance with applicable data protection laws.

- Individuals may withdraw consent at any time, subject to contractual or legal obligations.
-

Disclaimer

ZKTeco provides the ZKIVA-Edge X1 system as a platform to support intelligent security applications. However, ZKTeco is not responsible for how end-users or system integrators configure, collect, store, or manage personal or biometric data.

It is the responsibility of the deploying organization to:

- Ensure compliance with all applicable local and international privacy and data protection laws.
 - Properly configure the system to protect user privacy.
 - Provide appropriate notices, obtain consent, and implement internal controls.
-

For more information about best practices in biometric data privacy or secure system configuration, please visit our website at www.zkteco.com or contact our support team at sales@zkteco.com.

ZKTeco Industrial Park, No. 32, Industrial Road,
Tangxia Town, Dongguan, China.

Phone : +86 769 - 82109991

Fax : +86 755 - 89602394

www.zkteco.com

