GeoVision inc
The Vision of Security

GV-GNVR Series

User's Manual



- GV-GNVRC0810-P
- GV-GNVRC1620-P

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Scan the following QR codes for product warranty and technical support policy:

[Warranty]

[Technical Support Policy]

Notes

- Please read this user manual carefully to ensure that you can use the device correctly and safely.
- There may be several technically incorrect places or printing errors in this manual. The updates will be added into the new version of this manual. The contents of this manual are subject to change without notice.
- This device should be operated only from the type of power source indicated on the marking label. The voltage of the power must be verified before using the same. Kindly remove the cables from the power source if the device is not to be used for a long period of time.
- Do not install this device near any heat sources such as radiators, heat registers, stoves or other devices that produce heat.
- Do not install this device near water. Clean only with a dry cloth.
- Do not block any ventilation openings and ensure proper ventilation around the machine.
- Do not power off the device at normal recording condition.
- This machine is for indoor use only. Do not expose the machine in rain or moist environment. In case any solid or liquid get inside the machine's case, please turn off the device immediately and get it checked by a qualified technician.
- Do not try to repair the device by yourself without technical aid or approval.
- In this manual, the trademarks, product names, service names, company names, products that are not owned by our company are the properties of their respective owners.
- It is recommended to back up and clear the personal data stored in the device before the device is returned to us for repair or replacement except those data that are essential for purposes of repair or replacement. The device will be restored to the default factory settings and all personal data will be cleared after repair or replacement. Our company ensures that the customer's data is not made available to third parties if the device is exchanged.
- This manual is suitable for many models. All examples and pictures used in the manual are from one of the models for reference purpose.
- The local language versions of this manual will be provided to users in the corresponding regions and countries.

Disclaimer

- With regard to the product with internet access, the use of product shall be wholly at your own risks. Our company shall be irresponsible for abnormal operation, privacy leakage or other damages resulting from cyber attack, hacker attack, virus inspection, or other internet security risks; however, our company will provide timely technical support if necessary.
- Surveillance laws vary from country to country. Check all laws in your local region before using this product for surveillance purposes. We shall not take the responsibility for any consequences resulting from illegal operations. In the event of any conflicts between this manual and the applicable law, the later prevails.
- The storage of the personal data depends on the capacity of the storage devices the users use and all data stored in the device shall be handled by themselves. Our company shall not be responsible for the data loss.

Cybersecurity Recommendations

- Use a strong password. For login password requirements, including supported non-alphanumeric characters, length, and character categories, see this technical notice.
- Set the password expiration time and regularly change the passwords of your devices to ensure that only authorized users can access the system. (recommended time is 90 days).
- The system will automatically check the latest firmware version once a day. Once the latest version is checked, you'd better update it to ensure the system is current with the latest security patches and fixes.
- It is recommended to change the service default ports (like HTTP-80, HTTPS-443, etc.) to reduce the risk of outsiders being able to access.
- It is recommended to set the firewall of your router. But note that some important ports cannot be closed (like HTTP port, HTTPS port, Data Port).
- It is not recommended to expose the device to the public network. When it is necessary to be exposed to the public network, please set the external hardware firewall and the corresponding firewall policy.
- It is not recommended to use the v1 and v2 functions of SNMP.
- In order to enhance the security of WEB client access, please create a TLS certificate to enable HTTPS.
- Use black and white list to filter the IP address. This will prevent everyone, except those specified IP addresses from accessing the system.
- If you add multiple users, please limit functions of guest accounts.
- If you enable UPnP, it will automatically try to forward ports in your router or modem. It is really very convenient for users, but this will increase the risk of data leakage when the system automatically forwards ports. Disabling UPnP is recommended when the function is not used in real applications.
- Check the log. If you want to know whether your device has been accessed by unauthorized users or not, you can check the log. The system log will show you which IP addresses were used to log in your system and what was accessed.

Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1. FCC compliance

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2. FCC conditions:

- This device complies with part 15 of the FCC Rules. Operation of this product is subject to the following two conditions:
- This device may not cause harmful interface.
- This device must accept any interference received, including interference that may cause undesired operation.

CE Information

CE The products have been manufactured to comply with the following directives.
EMC Directive 2014/30/EU

RoHS

The products have been designed and manufactured in accordance with Directive EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



2012/19/EU (WEEE directive): The Directive on waste electrical and electronic equipment (WEEE Directive). To improve the environmental management of WEEE, the improvement of collection, treatment and recycling of electronics at the end of their life is essential.

Therefore, the product marked with this symbol must be disposed of in a responsible manner.

Directive 94/62/EC: The Directive aims at the management of packaging and packaging waste and environmental protection. The packaging and packaging waste of the product in this manual refers to must be disposed of at designated collection points for proper recycling and environmental protection.

REACH(EC1907/2006): REACH concerns the Registration, Evaluation, Authorization and Restriction of Chemicals, which aims to ensure a high level of protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. The product in this manual refers to conforms to the rules and regulations of REACH. For more information of REACH, please refer to DG GROWTH or ECHA websites.

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1 Introduction

1.1 Summary

Based on the advanced SOC technology and embedded system in the field, this series of the NVR adopt the new designed human interface and support the smart management of the IP camera and the record search of slice. This series of the NVR which are powerful and easy to use are provided with excellent image quality and stable system. They are centralized monitoring management products with high performance and high quality specially designed for network video monitoring field.

This series of the NVR can be widely used to security system of banks at home and abroad, schools, intelligent mansions, traffic, environmental protection, supermarkets, petrol service stations, residential quarters and factories and so on.

1.2 Features

Basic Functions

- Supports network device access including our company's and third-party IP cameras
- Some NVRs support the H.265S/H.265+/ H.265 and H.264S/H.264+/ H.264 IP cameras
- Supports standard ONVIF protocol
- Supports dual stream recording for each camera
- Supports the addition of IP cameras both automatically and manually
- Supports collective or individual configuration of the cameras' OSD, video parameters, mask, motion and so on
- Supports multiple smart detection access and linkage for IPC's, such as scene change, video color cast detection, video blur detection, intrusion detection (region entrance/exiting detection), target counting, abandoned object detection, missing object detection, crowd density detection, face detection, license plate detection, smart tracking, fire detection, temperature detection, video metadata, etc.
- Supports playback and backup
- Supports multiple user permission groups, including Administrator, Advanced and common, which are the default permission groups of the system
- Supports multiple web client logins by using one username at the same time and the ability to enable or disable user permissions
- Supports multiple web client logins at the same time
- Supports binding NVR to the account of the mobile APP
- Supports parking lot management

Live View

- Supports 4K×2K/1920×1080/1280×1024 HDMI and 1920×1080/1280×1024 VGA high definition synchronous display
- Supports multi-screen modes such as 1/4/6/8/9/13/16/25/36 (varies by model)
- Some models support face capture view, face match view, license plate recognition view, people/motor vehicle /non-motor vehicle view (face capture view and face match view only available for GV-GNVRC1620-P)
- Supports auto adjustment of the camera's image display proportion
- Supports enabling or disabling audio monitoring of a camera

- Supports manual snapshot of a camera live view
- Supports camera sequence adjustment
- Supports adding and saving display modes, and saved modes can be recalled directly
- Supports quick tool bar operation from the preview window
- Supports camera group view and scheme view in sequence, quick sequence view and dwell time setting
- Supports motion detection and video masking
- Supports multiple popular PTZ control protocols and setup of preset and cruise
- Supports direct mouse control of the IP dome including rotating, zoom, focusing and so on
- Supports the zoom of a single camera image by sliding the scroll wheel of the mouse
- Supports the zoom of any area of a camera image up to a maximum of 16 times of the current size
- Supports image and lens adjustment (only available with some cameras)
- Supports quick camera addition in the camera window of the live view interface
- The live camera sequence of the web client will stay consistent with the NVR after adjusting the live camera sequence of the NVR, but the live camera sequence of the NVR will not be changed if the web client is changed

Disk Management

- Supports up to 2 SATA HDDs in the 1U case and up to 1 SATA HDD in the small 1U case
- Each SATA interface (varies by unit) on the NVR supports HDDs with a max storage capacity of 10TB.
- Supports hot swap
- Supports disk group configuration and management and each camera can be added into different disk groups with different storage capacity
- Supports disk information and viewing of disk operating status
- Supports formatting disks in batches

Record Configuration

- Supports main stream and sub stream recording, as well as collective or individual configuration of the recording stream
- Supports custom and auto recording modes
- Supports schedule recording, sensor alarm recording and motion detection recording, etc
- Supports schedule recording and event recording setting with different recording streams
- Supports recording schedule setting and recycle recording
- Supports pre-recording and delay recording configuration of an event

Record Playback

- Supports time scale operation in quick playback and the playback date and time can be set randomly by scrolling the mouse; the time interval of the time scale can be zoomed
- Supports record searching by time slice/time/event/tag
- Supports smart playback by drawing grid, line or quadrilateral and vehicle smart playback (some models also support smart playback by face)
- Supports time view and camera view in searching by time slice mode
- Supports time slice searching by month, by day, by hour and by minute and time slice to be

displayed with camera thumbnail

- Supports a maximum of 4/8/16 cameras to be searched at a time (varies by unit channel size)
- Supports event search by manual/motion/sensor/intelligent events
- Supports tag searching by the manual added tags
- Supports instant playback of the selected camera in the live view interface
- Supports a maximum of 16 synchronous playback cameras
- Supports acceleration (to a maximum 32 times the normal speed), deceleration (to a minimum 1/32 times the normal speed) and 30s' addition or reduction to current playing time

Record Backup

- Supports backup of a recording through USB (U disk, mobile HDD)
- Supports backup of a recording by time/event/image search
- Supports record cutting for backing up when playing back
- Supports multiple backup tasks in background and backup status viewing

Event Management

- Supports alarm schedule setting
- Supports enabling or disabling of the motion detection, external sensor alarm input (only available for GV-GNVRC1620-P), combination alarm, intelligent alarm and exception alarms including IP address conflict alarm, disk IO error alarm, disk full alarm, no disk alarm, illegal access alarm, network disconnection alarm, camera offline alarm and so on, alarm trigger configuration supportable
- Supports camera offline alarm trigger configuration of PTZ, snap, pop-up video, etc.
- Supports event notification modes of alarm-out, pop-up video, pop-up message box, buzzer, e-mail and so on
- Captured images can be attached to an e-mail when an alarm is triggered
- Supports alarm status view of alarm-in, alarm-out, motion detection and exception alarm
- Supports triggering and clearing an alarm manually
- Supports auto-reboot of the system when an exception happens

Supports alarm linkage based on face detection, vehicle detection and license plate recognition

Face Recognition

- Supports face detection
- Supports face recognition (only available for GV-GNVRC1620-P)
- Supports face capture and face match (only available for GV-GNVRC1620-P)
- Supports image search by image, track playback and database management (only available for GV-GNVRC1620-P)
- Supports face information statistics
- Supports face match alarm (only available for GV-GNVRC1620-P)

Application

- Supports parking lot management (with GV-LPR4913 camera)
- Supports people flow statistics (with GV-3D People Counter V3)
- Supports face attendance and face check in (only available for GV-GNVRC1620-P)

Network Functions

- Supports TCP/IP and PPPoE, DHCP, DNS, DDNS, UPnP, NTP, SMTP protocol and so on
- Supports allow and block list function and the allow and block IP address/IP segment address can be set
- Supports multiple browsers including Firefox, Chrome, Edge, and Safari
- Supports remote configuration, import and export of the NVR parameters and other system maintenance operations including remote upgrading and system restart
- Supports remote camera configuration through the NVR including video parameters, image quality and so on
- Supports remote search, playback and backup through the NVR
- Supports triggering and clearing manual alarms remotely
- Motorized zoom cameras can be adjusted through the web client
- Supports NVMS or other platform management software to access the NVR and manage it
- Supports QR Code scanning by mobile phones and tablets
- Supports mobile surveillance by phones or tablets with iOS or Android OS
- If one camera recording is enabled or disabled manually through the web client, it will be simultaneously enabled or disabled on the NVR
- Supports direct jumping from NVR web client to IPC web client
- The installation mode and display mode of the fisheye camera can be set via Web client

Other Functions

- The NVR can be controlled and operated by the mouse
- Setup interfaces can be conveniently switched by clicking the main menus at the top
- Supports NVR information viewing including basic, camera status, alarm status, record status, network status, disk and backup status
- Supports factory restore, import and export of the system configuration, log view and export and local upgrading by USB mobile device
- Supports auto recognition of the displayer's resolution
- You can click the right mouse button at any interface to go back to the upper interface
- You can click the mouse wheel at any interface to go to the live view interface
- The display language and video format of the NVR will not be changed and the system logs will be preserved if you restore to the default parameters
- Press and hold the right mouse button for 5 seconds in any interface to switch the output cyclically.

1.3 Connections

- **Video Connections**

Video Output: Supports VGA/HDMI video output. You can connect to a monitor through these video output interfaces simultaneously or independently.

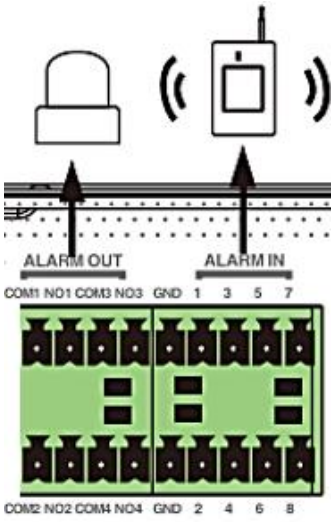
- **Audio Connections**

Audio Input: Connect to microphone, pickup, etc.
Audio Output: Connect to headphone, powered speaker (ex, ASPC20), amplifier, or other audio output devices.

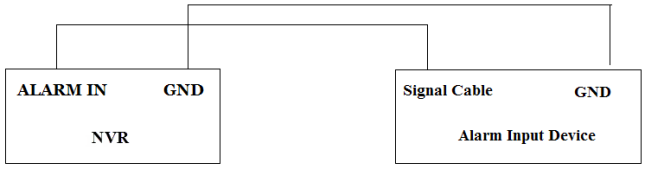
- **Alarm Connections**

Some models may not support this function. Take 8 CH alarm inputs and 4 CH alarm outputs for example.

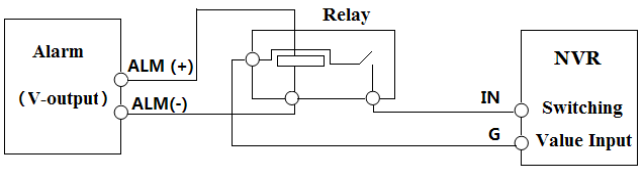
Note: This function is only available for GV-GNVRC1620-P.



Alarm Input:
Alarm IN 1~8 are 8 CH alarm input interfaces. There are no type requirements for sensors. NO type and NC type are both available.
The way to connect sensor and the device is as shown below:



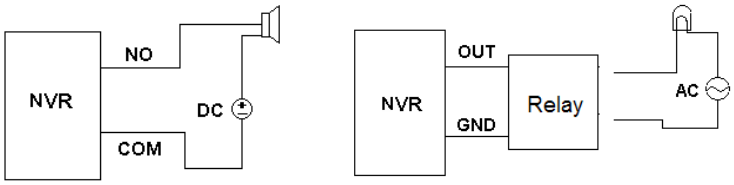
The alarm input is an open/closed relay. If the input is not an open/closed relay, please refer to the following connection diagram:



Alarm Output:

The way to connect alarm output device:

Pull out the green terminal blocks and loosen the screws in the alarm-out port. Then insert the signal wires of the alarm output devices into the port of NO and COM separately. Finally, tighten the screws. Provided that the external alarm output devices need power supply, you can connect the power supply as per the following figures.



- **RS485 Connection**

Some models may not support this function.

Note: This function is only available for GV-GNVRC1620-P.



Y and Z are used to connect PTZ cameras that support the RS485 protocol.

A and B are not functional.

2 Basic Operation Guide

2.1 Startup & Shutdown

Please make sure all the connections are done properly before you power on the unit. Proper startup and shutdown are crucial to extending the life of your device.

2.1.1 Startup

① Connect the output display device to the VGA/HDMI interface of the NVR.

② Connect the mouse and power. When powered on, the device will boot and the power LED would turn blue.

③ After you read the privacy statement, a WIZARD window will pop up (you should select the display language the first time you use the NVR). Refer to Startup Wizard for details.

2.1.2 Shutdown

You can power off the device by using a mouse.

By mouse:

① Click ***Start→Shutdown*** to open the Shutdown window. Select “Shutdown” in the window. The unit will power off after clicking the “OK” button and verifying the username and password.

② Disconnect the power according to the prompt shown on the screen.

2.2 Mouse Control

➢ **Mouse control in Live Display & Playback interface**

In the live display & playback interface, double click on any camera window to show the window in single screen mode; double click the window again to restore it to the previous size.

In the live display & playback interface, if the interfaces display in full screen, move the mouse to the top of the interface to have the tool bar appear. The tool bar will disappear automatically after you move the mouse away from it; move the mouse to the right side of the interface to pop up a panel and the panel will disappear automatically after you move the mouse away from it.

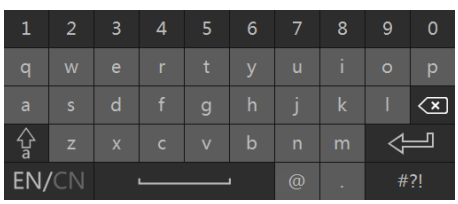
➢ **Mouse control in text-input**

Move the mouse to the text-input box and then click the box. The input keyboard will pop up automatically.

Note: Mouse is the default tool for all operations unless an exception is indicated.

2.3 Text-input Instruction





The interface has two types of input boxes. Refer to the above pictures. The left box is the number-only input box and the right box provides inputs of numbers, letters and punctuation characters. The introductions of keys on the input boxes are shown below.

Button	Meaning	Button	Meaning
	Backspace key		Switch keyboard to see more punctuation characters
	Delete Key		Enter key
	Switch between upper and lower letter		Space key
	Switch language		

2.4 Common Button Operation

Button	Meaning
	Click to show the menu list.
	Click to change the sequence of the list.
	Click to change the camera displaying mode.
	Click to close the current interface.
	Click to go to the earliest date of camera recording.
	Click to go to the latest date of camera recording.

3 Wizard & Main Interface

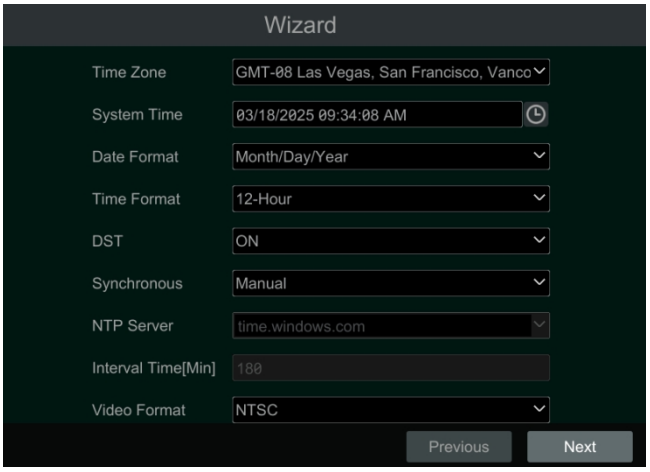
3.1 Startup Wizard

The disk icons will be shown on the top of the startup interface. You can view the number and status of each disk quickly and conveniently through these icons (: no disk; : unavailable disk; : RW available disk).

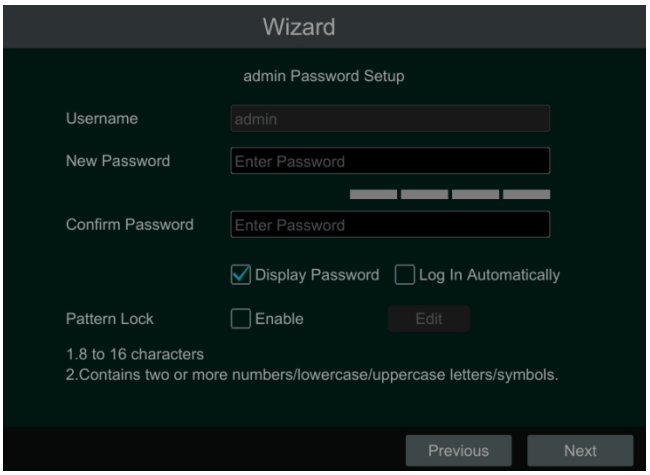
You can quickly configure the NVR by wizard setup to make the NVR work normally. You must configure the wizard if you start the NVR for the first time (or click “Skip” to cancel the wizard until the next time you login). Maybe different versions have different wizard steps. The following wizard steps are for reference only.

① Choose the language and locality as needed if it is the first time for you to use the wizard and then read the privacy statement, checkmark “***I have read and agree***” and click “OK”.

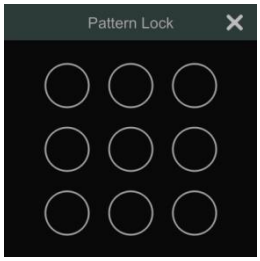
② ***Date and Time Configuration***. The date and time of the system need to be set up if you use the wizard for the first time. Refer to the following figure. Set the time zone, system time, date format, time format and video format. The DST will be enabled by default if the time zone selected includes DST. Click “Next” to continue.



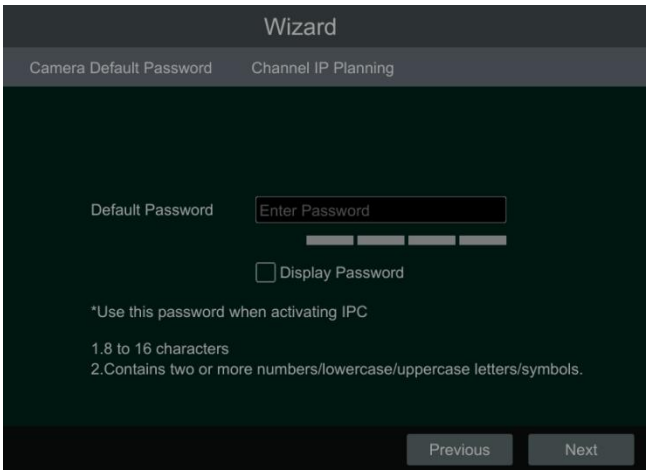
③ ***System Login***. Set your own password when you use the wizard for the first time (the default username of the system is ***admin***); select the login username and enter the corresponding password next time.



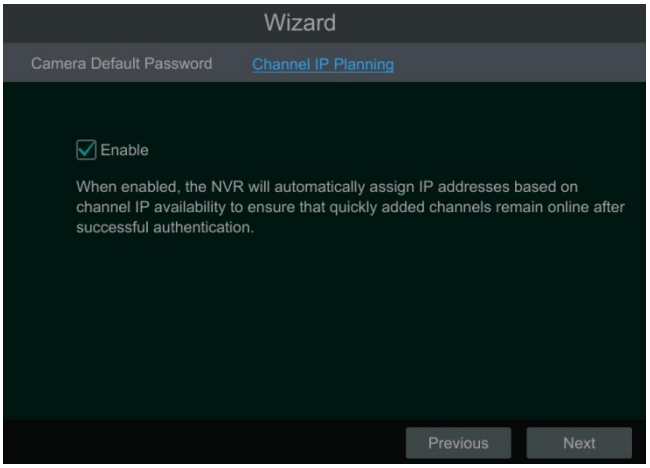
Enable pattern lock and click “Edit” to set the pattern lock.



Click “Next” to set the default password which is used to activate IPC.



Click “Channel IP Planning” to enable the channel IP planning as needed. If enabled, the NVR will automatically assign IP addresses to ensure quickly added cameras are online after successful authentication when the cameras and the NVR are not in the same network segment.

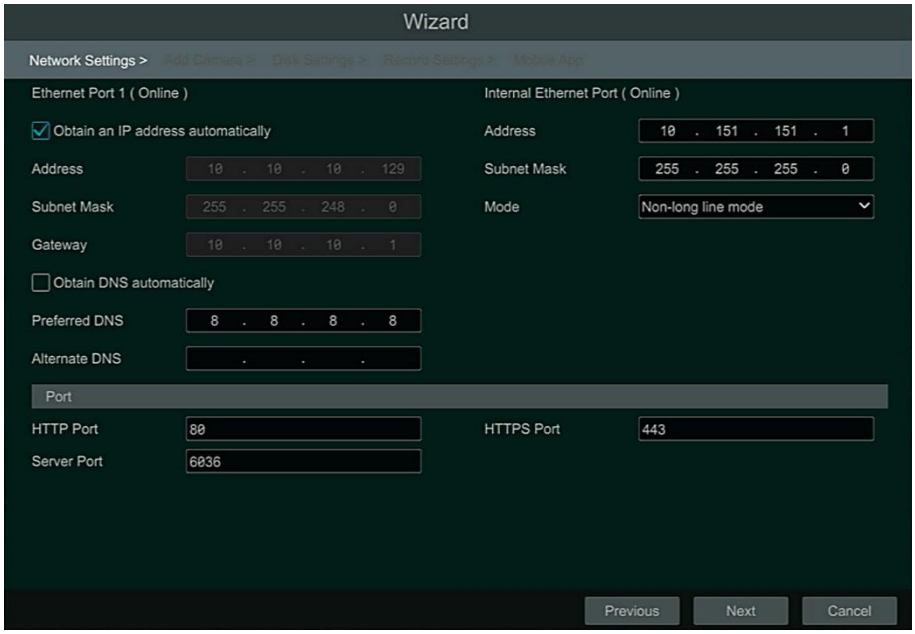


Click “Next” to set questions and answers for password reset of admin. If you forget the password, you can reset the password via security question or dynamic password. See Question 4 in *Appendix A FAQ* for details.

Click “Next” to continue. Then click “Wizard Setup”.

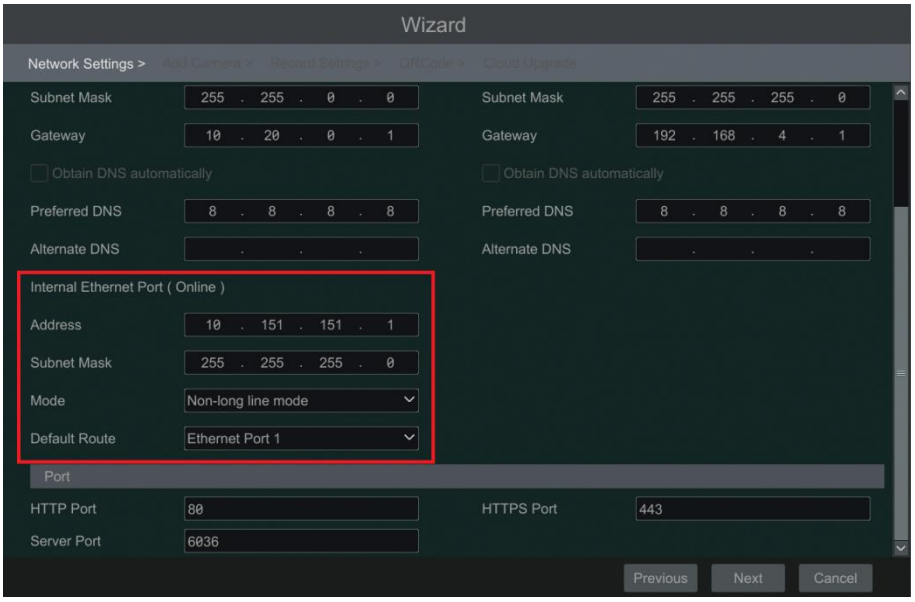
④ ***Network Settings***. Configure the network settings as required. By default, “Obtain an IP address automatically” and “Obtain DNS automatically” are enabled, allowing the NVR to obtain

the IP address and DNS settings automatically (the DHCP function of the router on the same LAN must also be enabled). Optionally disable these settings and fill in the network information manually. Configure the HTTP, HTTPS, and Server ports (see Port Configuration for details). Click “Next” to continue.

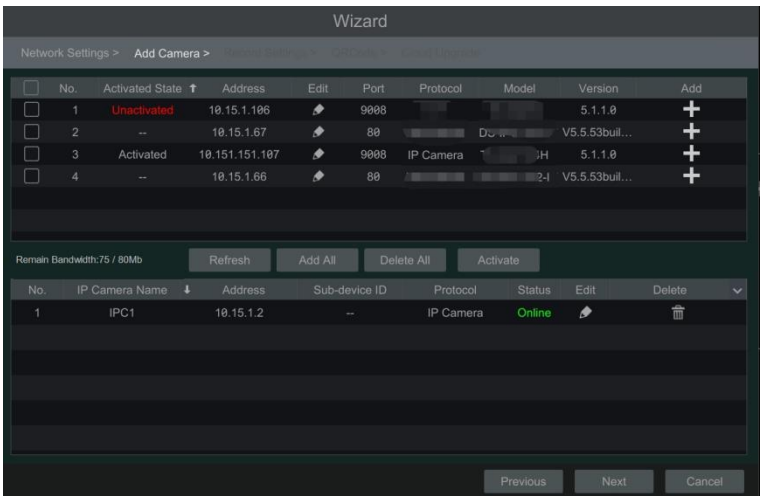


Note:

➢ If you use the NVR with the PoE network ports, the online state of the internal Ethernet port will be shown on the interface. Refer to the picture below. Please refer to TCP/IP Configuration for detail introduction of the internal Ethernet port.



⑤ ***Add Camera***. Click “Refresh” to refresh the list of online IP cameras which are in the same local network with NVR.



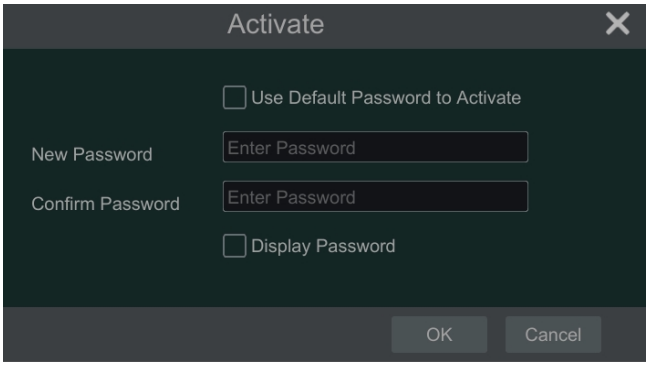
In the above interface, the device activation state can be viewed. For the activated device, you can click ➕ to add the searched camera. Click “Add All” to add cameras in batches.

If the IP addresses of the added IPCs are not in the same local network segment as the NVR’s, the NVR will automatically assign the IP addresses in the same local network segment for the added IPCs. Note that the prerequisite for successfully assigning IP addresses for IPCs and adding is that the password of the IPCs must be the same as the set default activation password in the NVR and the channel IP planning function is enabled.

If the default password is not used by the activated device, you need to modify it manually.

Click 🗑 to delete the added camera. Click “Delete All” to delete all the added cameras.

For the unactivated devices, you can activate one by one or in batches. Check the unactivated device and click “Activate” to pop up an activation box.



You can use default password to activate.

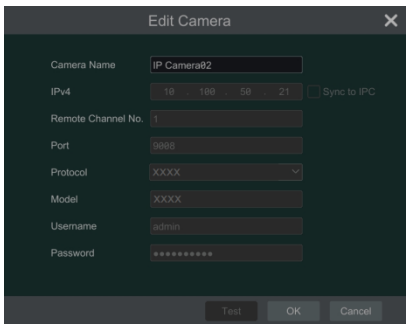
If your camera needs to be activated by self-defined password, you need to manually enter the password to activate.

For unactivated private protocol IPCs (not the third-party device), you can click ➕ to directly add and the IPCs will be automatically activated through the default password; If multiple IPCs have the same IP address and are not activated, you can also click “Add All” to automatically activate and add. In addition, the NVR will automatically assign IP addresses for them (IP channel planning should be enabled first).

Note: During the activation, the device cannot disconnect with the NVR, or the activation will fail.

Click ✎ to edit the searched IP camera as shown on the below left. Enter the new IP address, subnet mask, gateway, username and the password of the camera. Click “OK” to save the settings.



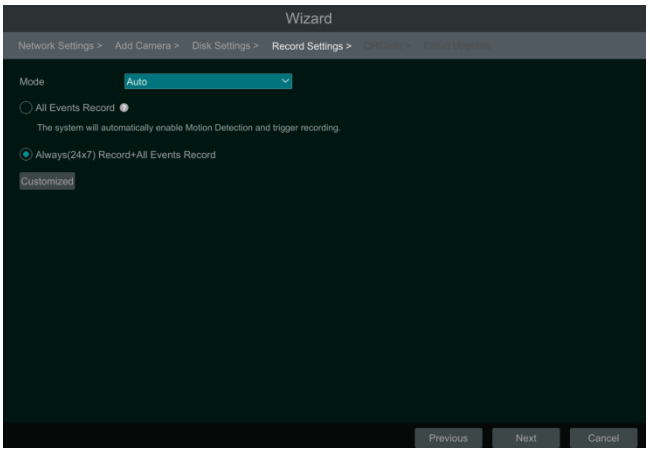


Click  to edit the added camera as shown on the above right. Enter the new camera name, IP address, port, username and the password of the camera. You can check “Sync to IPC” to modify the IP address of the IPC via different network segments for being in the same network segment with the NVR. Then click “Test” to test the connection. Click “OK” to save the settings. You can change the IP camera name only when the added camera is online. Click “Next” to continue.

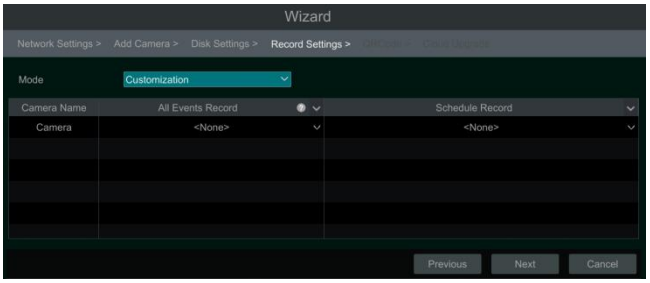
⑥ ***Disk Settings***. You can view the disk number, disk capacity of the NVR and serial number, R&W status of the disk. Click “Format” to format the disk. Click “Next” to continue.

⑦ ***Record Settings***. Two record modes are available: auto and customization.

Auto: Select one auto mode in the interface as shown below and then click the “Next” to save the settings. Click “Customized” to self-define record mode. See Mode Configuration for details.



Customization: Set the “All events record”, and “Schedule Record” of each camera. Click “OK” to save the settings. See Mode Configuration for details.

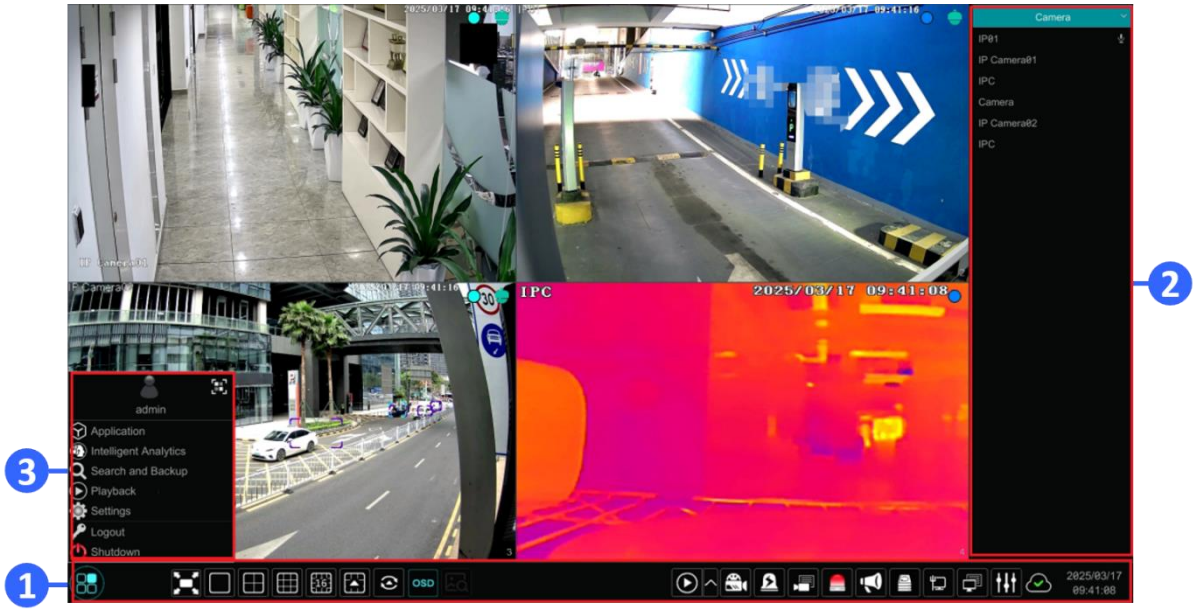


⑧ ***Mobile App.*** By default, the Mobile App function is enabled. Verify that it remains enabled, or

configure it later in the network settings after exiting the wizard (refer to Mobile App for details). You can scan this QR code with the GV-Eye mobile app to remote view the NVR. Click “OK” to save the settings.

3.2 Main Interface

3.2.1 Main Interface Introduction



No.	Name	Description
1	Live View Toolbar	Provides quick access to commonly used live monitoring functions, such as screen layout, playback, recording, alarms, system status, and display controls.
2	Navigation Panel	Displays cameras, camera groups, display modes, and target detection results. Use this panel to select cameras, switch display modes, and access related monitoring views.
3	Main Menu	Provides access to major system functions, including intelligent analytics, playback, search and backup, system settings, user management, and power options.

The buttons in area ① are described in the table below.

Button	Meaning
	Start button. Click to pop up area ③.
	Full screen button. Click to show full screen; click it again to exit the full screen.
	Screen mode button.
	Dwell button (see Quick Sequence View and Scheme View In Sequence for details).
	Click to enable OSD; click again to disable OSD.
	AcuSearch; you can search for specific targets of interest (human body or face) with one click. Refer to AcuSearch for details.

Button	Meaning
	Click to set the default playback time before starting instant playback (Instant Playback) or going to the playback interface for playback operations (Playback Interface Introduction); click to go to the playback interface. For instance, if you choose “5 minutes ago” as the default playback time, you can playback the recording from the past five minutes.
	Manual record button. Click to enable/disable record.
	Manual alarm button. Click to trigger or clear the alarm-out manually in the popup window.
	Record status button. Click to view the record status.
	Alarm status button. Click to view the alarm status.
	Voice broadcast button. Click to select the channel to broadcast.
	Disk status button. Click to view the disk status.
	Network status button. Click to view the network status.
	Information button. Click to view system information.
	RS485 button. Click to select the relevant operation as needed.

Note: Different models may have different buttons on the live view interface. All pictures in this manual are for reference only; the real product shall prevail.

Introduction of area ②:

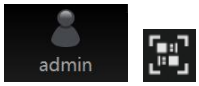
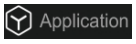
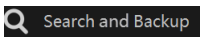
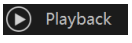
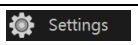
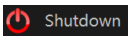
Area ② is hidden by default. Move the cursor to the right to reveal this area. Click “Camera” to view all the added cameras in the camera list. Select one camera window on the left side of the interface and then double click one camera in the list to preview the camera image in the selected window.

Click  on the top right corner and then select “Single Channel Sequences” to view all the added groups in the group list; click one group in the list to view all the added cameras in the group (refer to Add/Edit Camera Group for detail configuration of the camera group). Select one camera window on the left side of the interface and then double click one group in the group list to preview the cameras’ images one by one in the selected window.

Click  on the top right corner and then select “Customize Display Modes” to view all the display modes in the display mode list (refer to Preview by Display Mode for detail configuration of the display mode). Double click one display mode in the list to switch to the display mode for previewing.

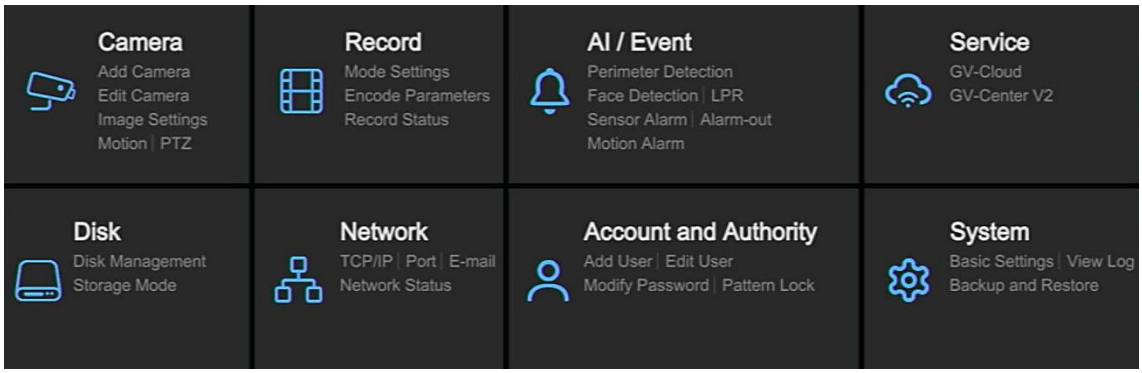
Click  on the top right corner and then select “Target Detection” to go to target detection interface. This tab will show the captured images of people, vehicles, and license plates. (This function is only available for some models). Note that only some models support multi-channel target detection display.

Introduction of area ③:

Icon / Button	Meaning
	It shows the current login user. Click the QR code icon to view the QR code and security code. User can quickly add the NVR to the server list of the mobile app by scanning this QR code.
	Click to go to the intelligent analytics interface.
	Click to access parking lot management, access control management, and people flow statistics (varies by models)
	Click to go to record search and backup interface, see Record Search, Playback & Backup for details.
	Click to go to playback interface (click on the tool bar at the bottom of the live view interface to set the default playback time), see Playback Interface Introduction for details.
	Click to open the setup panel, see Setup Panel for details.
	Click to log out of the system.
	Click it and then select “Logout”, “Reboot” or “Shutdown” in the popup window.

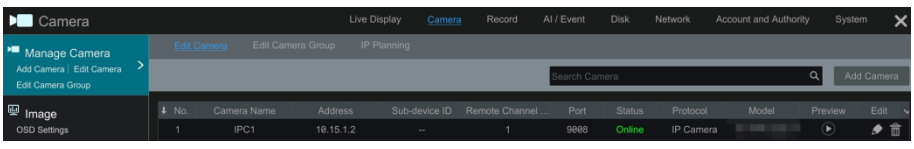
3.2.2 Setup Panel

Click ***Start→Settings*** to open the setup panel as shown below.

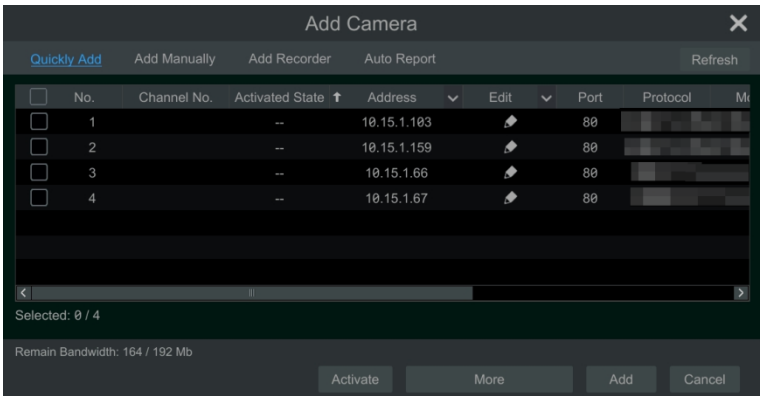


The setup panel includes eight modules. Each module provides some function entries with links for convenient operation.

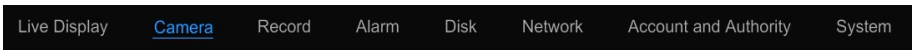
Here we take ***Camera*** module as an example. The ***Camera*** module provides convenient links such as “Add Camera”, “Edit Camera”, “Image Settings”, “Motion” and “PTZ”. Click ***Camera*** to go to the camera management interface as shown below.



There are some function items on the left side of the camera management interface. Click each item to go to corresponding interface or window. For instance, click “Add Camera” to open the window as shown below.



Click the main menus on the top of the camera management interface to go to corresponding interfaces. Refer to the picture below. For instance, you can go to system setup interface by clicking “System” tag.



3.2.3 Main Functions

➢ **Camera**

The module covers the functions such as ***Camera Management*** (see Camera Management for details), ***Image Settings*** (see Preview Image Configuration for details), ***Motion*** (see Motion Alarm for details), and ***PTZ*** (see PTZ for details) and so on.

➢ **Record**

The module covers the functions such as ***Encode Parameters*** and ***Record Schedule*** and so on. Please see Record & Disk Management for details.

➢ **AI/Event**

The module covers the functions such as ***Smart Event, Combination Alarm, Exception, Sensor and Motion Alarm Handling*** and ***Alarm Out Settings***. Please see AI Event Management and General Event Management for details.

➢ **Disk**

The module covers the functions such as ***Disk Management***, ***Storage Mode*** and ***Disk Information*** and so on. Please see Record & Disk Management for details.

➢ **Network**

The module covers the functions such as ***TCP/IP***, ***DDNS***, ***Port***, ***E-mail*** and ***Network Status*** and so on. Please see Network Configuration for details.

➢ **Account and Authority**

The module covers the functions such as ***Account Management*** (see Account Management for details) and ***Permission Management*** (see Permission Management for details) and so on.

➢ **System**

The module covers the functions such as ***Basic Configuration*** (see Basic Configuration for

details), ***Device Information*** (see View System Information for details), ***Log Information*** (see View Log for details) and ***Configuration File Import & Export*** (see Backup and Restore for details) and so on.

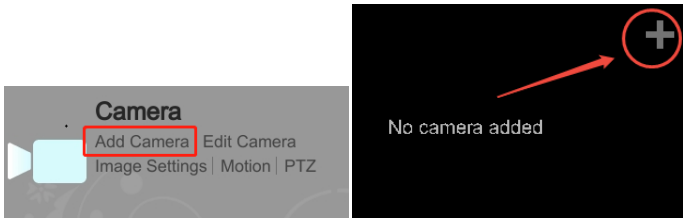
4 Camera Management

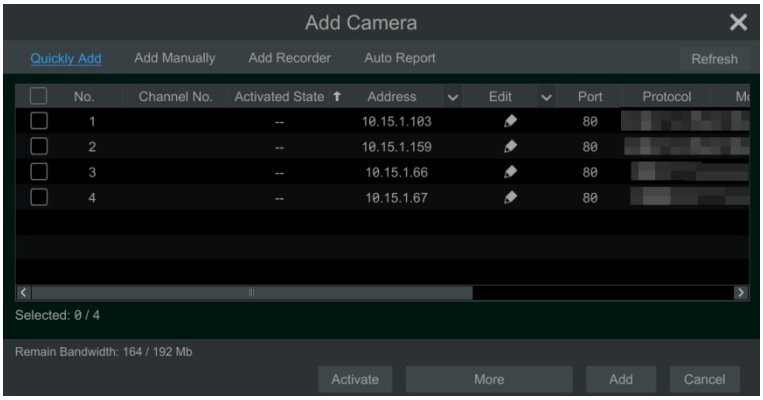
4.1 Add/Edit Camera

4.1.1 Add Camera

The network parameters of the NVR should be set before adding an IP camera (see TCP/IP Configuration for details).

Refer to the pictures below. Click ***Add Camera*** in the setup panel or ➕ in the top right corner of the preview window to open the “Add Camera” window as shown below. You can quickly add from a list, or add the IP camera manually.





➢ **Quickly Add**

Check the cameras and then click “Add” to add cameras. Click ✎ to edit the camera’s IP address, subnet mask and so on. Click “Refresh” to refresh the device list. If the activation state is “Unactivated”, you can check the device and click “Activate” to activate it. Click “More” and select “Camera Default Password” to set the default username and password of each camera. Click “More” and select “Channel IP Planning” to enable the channel IP planning as needed. If enabled, the NVR will automatically assign IP addresses to ensure quickly added cameras are online after successful authentication when the cameras and the NVR are not in the same network segment.

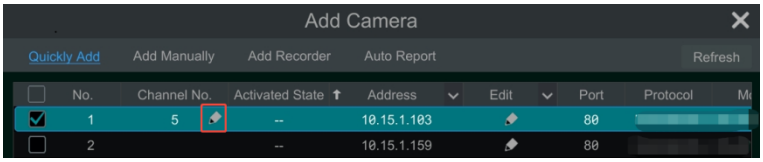
Descriptions of the Channel Numbers:

a. For PoE models, when quickly or manually adding cameras, the channel number will be started from No.1. If a channel number is occupied by a manually added camera and another PoE camera is connected to the PoE port whose port number is the same with the channel number, an occupied prompt will appear. You need to delete the manually added camera and then the PoE camera can be added successfully.

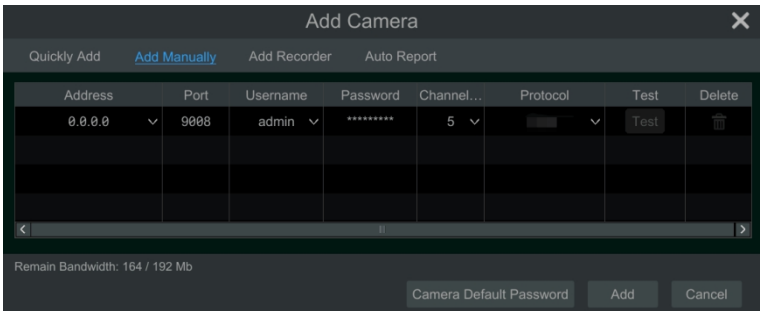
b. If the channel number is occupied by a PoE camera which is directly connected through PoE port of the PoE NVR, this channel number cannot be selected when manually adding other cameras.

c. The channel number will not be shown when quickly adding cameras. Only when a channel is

checked, can its channel number be viewed. You can click next to the channel number to change the channel number as needed.



For other detailed operations of quickly adding, see Startup Wizard.



Note: If you quickly add a network camera with multiple channels (eg. thermal and optical network cameras, fisheye cameras, dual-lens dome network cameras), you can only add one channel of the camera by default. If you want to add multiple channels of the camera, you must add them manually. See Add manually for details.

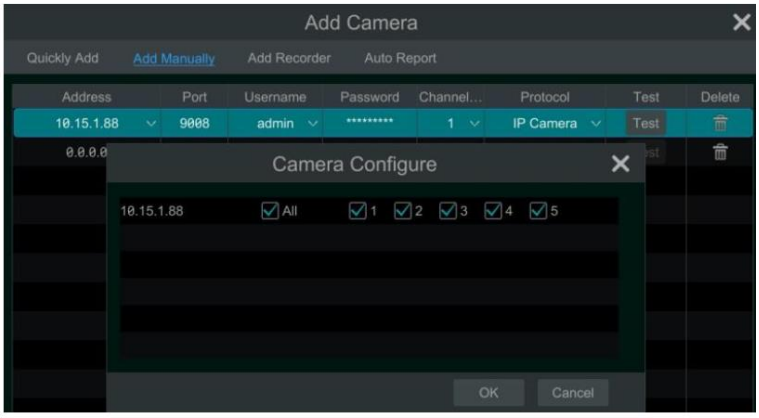
➢ **Add Manually**

Enter the IPv4/IPv6 address or domain name (click in the IP address column to open the IPv4/IPv6/domain name input window), port, username and password of the camera and then select the channel no. and the protocol. Click “Test” to test the accuracy of the input information and then click the “Add” button (you can input one camera’s information or above such as IP address, username and password before clicking the “Add” button). Click to delete the camera. Click “Default Password” to set the default username and password of each camera.

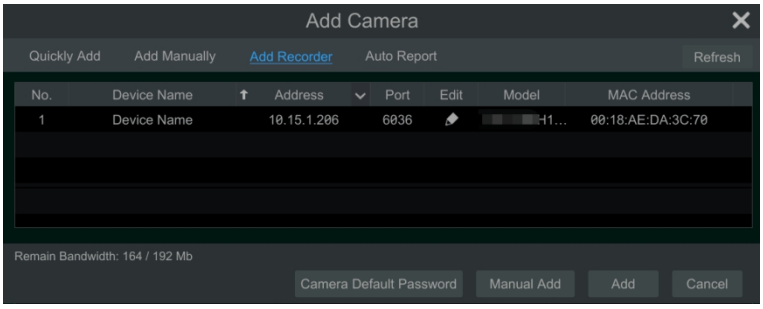
Note: Some models may not support this function.

Click ***Start→Settings→System→Basic→General Settings*** to check “Enable Add IPC by Zero Operation”. If the NVR has unoccupied channels, it can add IPC without any operation by restarting.

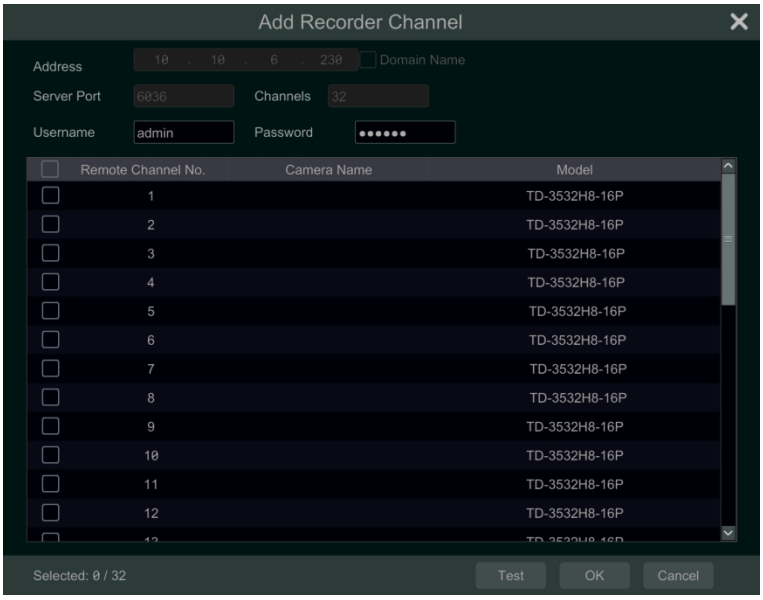
If you want to add a camera with multiple channels, you need to check the desired channels after entering the relevant information of the camera.



➢ **Add Recorder**



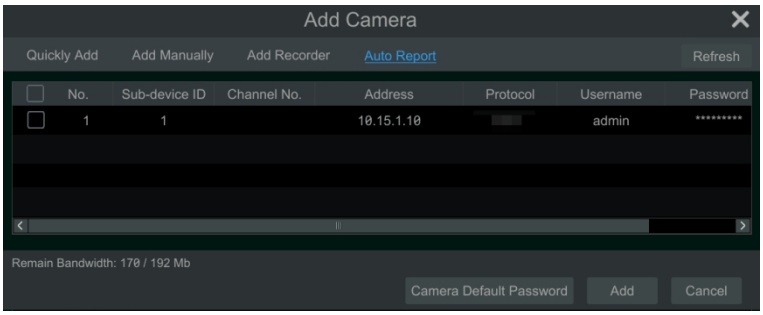
- Quickly Add：Select the searched NVR/NVR and the click “Add” to add NVR in the same local network.
- Manually Add：Click “Manual Add” and then enter the IP address or domain name, port, username and password of the NVR/NVR. Check the added remote channel number and click “Test”. Then click “OK” to return to the previous interface.



Note: IPC from other NVR/DVR on the same local network can only be added if your NVR has open channels and the added IPCs support previewing and recording.

➢ **Auto Report**

You can add IPCs in the NVR by auto report.

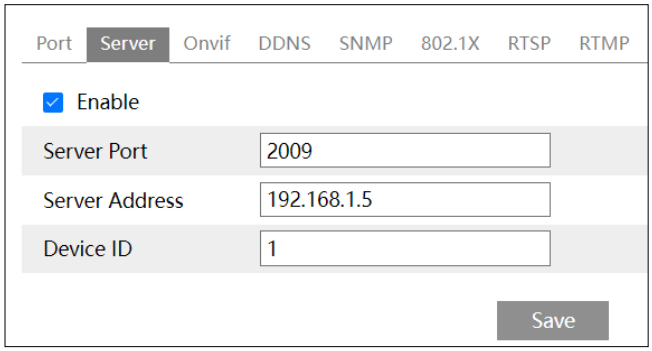


Click the “Auto Report” tab to enter auto report interface. You can view the IPCs reported automatically. Select a camera and click “Test” to test the connection. If the login password of the IPC is the same with the camera default password, you can directly click [Add] to add it. If the password is not the same one, you need modify the password and then add it.

IPC auto report settings:

Here taking the IPC of our company as an example.

1. Log in the web client of the IPC. Click ***Config→Network→Server*** to enter the server configuration interface.



2. Check “Enable”.

3. Enter server port, server address and device.

Server Port: the auto report port of NVR, 2009 by default. You can go to ***Start→Settings→Network→Port*** interface to view in the NVR.

Server Address: the IP address of NVR.

Device ID: set it as needed. It is the sub ID in the NVR.

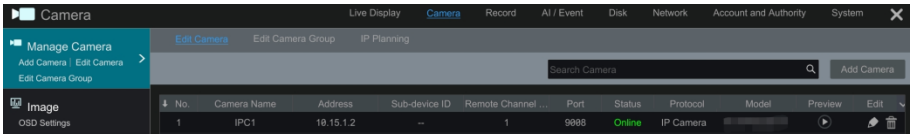
4. Click “Save” to save the settings.

After that, you can view the IPC in the auto report interface

4.1.2 Edit Camera

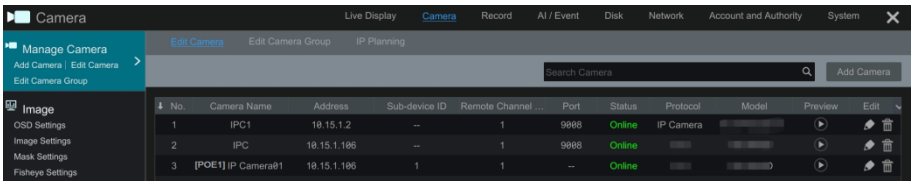
Click “Edit Camera” in the setup panel to go to the interface as shown below. Click to view the live image of the camera in the popup window. Click to edit the camera (see ***Add camera*** in Startup Wizard for details). Click to delete the camera. Click in the “Edit” header line and then click “Modify IPC Password” to open a window(check the IPCs in the window, set the new password and then click “OK”; only the online IPCs’ passwords can be modified and a

batch of IPCs' passwords can be modified at the same time). Click to upgrade an online IPC (or click in the "Upgrade" header line and then click "IPC Batch Upgrade" to upgrade a batch of IPCs), select the device which stores the upgrade file in the "Device Name" item of the popup window and the upgrade file in the list(you should select the upgrade IPC model in the window if a batch of IPCs' passwords need to be modified) and then click "Upgrade" to start upgrading(the IPC will restart automatically after the upgrade is completed successfully).



Note:

If you use the NVR with the PoE network ports, the IP cameras (with PoE function) which are directly connected to the PoE port of the NVR will be displayed automatically in the camera list. Refer to the picture below. The PoE camera directly connected to the PoE port has a prefix shown before its camera name. The prefix consists of PoE plus PoE port number. A PoE camera directly connected to the PoE port cannot be deleted from the camera list manually.



- An IP camera directly connected to the PoE port of the NVR through private protocol will be shown automatically in the camera list.
- One of the two conditions must be met if an IP camera directly connected to the PoE port of the NVR through ONVIF protocol to be shown automatically in the camera list.
  - ✓ The IP camera which is directly connected to the PoE port is in the same network segment with the internal Ethernet port.
  - ✓ The DHCP (obtain an IP address automatically) of the IP camera which is directly connected to the PoE port is enabled.

If the IP camera which is connected to the PoE port cannot be displayed automatically in the camera list, please refer to Q6 in Appendix A FAQ for details.

4.2 Add/Edit Camera Group

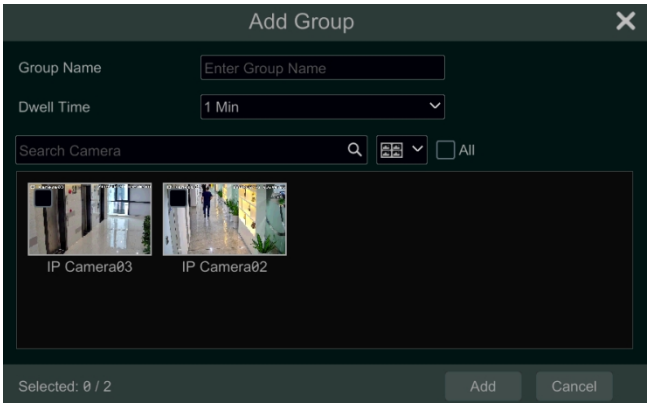
4.2.1 Add Camera Group

Click "Edit Camera Group" in the above interface to go to the interface as shown below.



Click "Add Group" to open the window as shown below. Set the group name and dwell time (the dwell time of the camera group sequence view) in the window. Check the cameras and then click

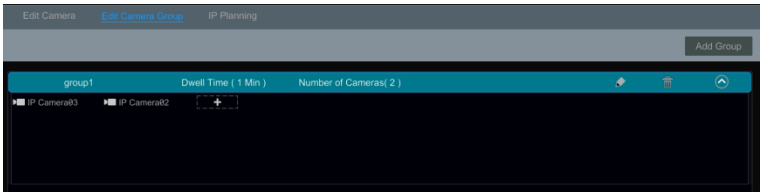
"Add" to add group. Click to view the cameras in the group after adding group.



You can also add the camera group in the live view interface. Click on the top right corner of the live view interface and then select "Single Channel Sequences". Click to add the camera group



4.2.2 Edit Camera Group



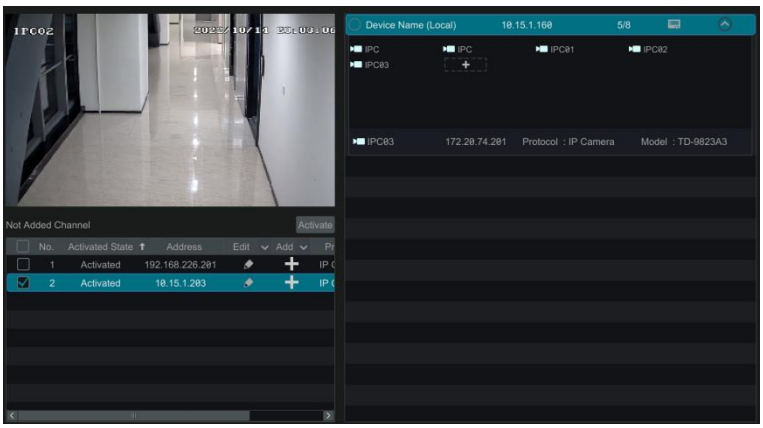
Click to modify the group information such as group name and dwell time. Click to delete the group. Click to add cameras to the group.

4.2.3 IP Planning

Some models may not support this function.

Click "IP Planning" to go to the interface as shown below. This function supports searching other NVRs/DVRs that is in the same local network as the local NVR. You may add the IPC of other NVRs/DVRs into the unoccupied channels of the local NVR.

For the searched channel, if its state is "unactivated", you can activate it first and then add it.



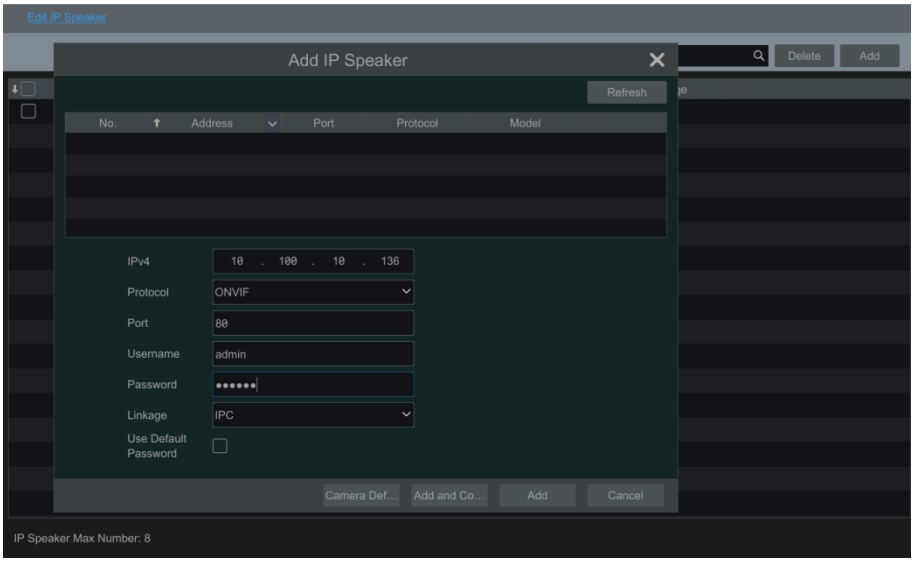
Click  to edit the IP address, user name or password and other information of the NVRs.

Click  behind the “Add” button to add the IPC selected and the user may edit the IP address, user name or password by clicking  behind the “Edit” button.

4.3 IP Speaker Management

You can add IP Speaker to the NVR via ONVIF protocol and bind the added IP speaker to the corresponding IPC or NVR for two-way talk or audio alarm. After enabling two-way talk or audio alarm, the built-in speaker or external audio output of the IPC or NVR will not take effect.
Go to ***Start→Settings→Camera→IP Speaker*** interface and click “Add” to add an IP speaker.

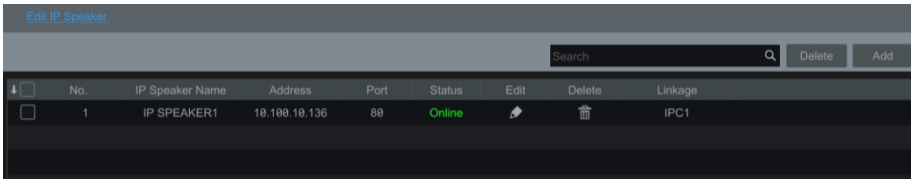
Note: IP Speaker Management is not supported for GV-IPSH30 V2.0 / IPSH30 V2.0 / IPSS40 V2.0.



IPv4: enter the IPv4 address of the IP Speaker you want to add.
Protocol: ONVIF
Port: 80 by default.
Username and Password: the login user name and password of the IP Speaker
Linkage: select the camera or NVR you want to link with the IP Speaker
After the IP Speaker is successfully added and linked, you can view it in the IP Speaker

interface.

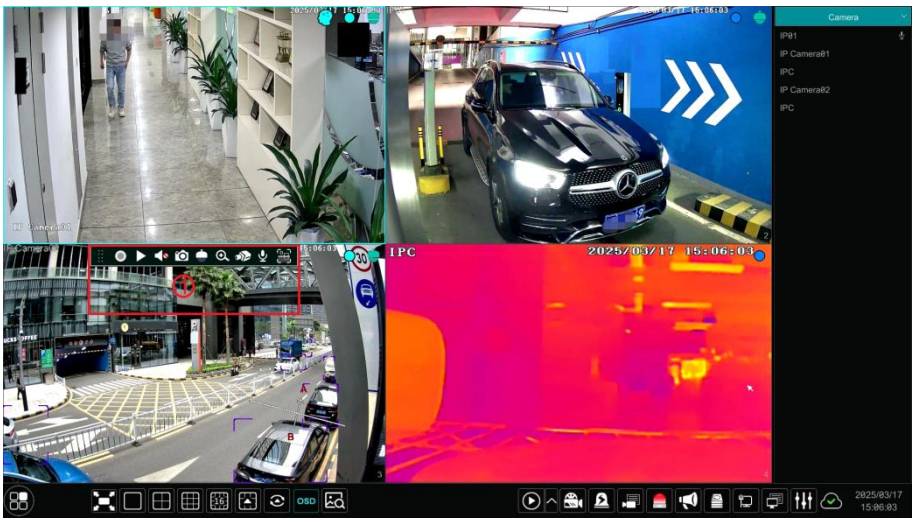
In addition, you can modify the IP Speaker name or change the linkage item as needed.



5 Live View Introduction

5.1 Live View Interface Introduction

You should add a camera when first logging on to the system (see Add Camera for details). Refer to the interface as shown below and drag one camera in the preview window to another window to exchange windows. Click OSD button and then you can view the record symbols. The record symbols with different colors in the live view window refer to different record types when recording: green stands for manual record, red stands for sensor based record, yellow stands for motion-based record, blue stands for schedule record and cyan stands for AI record.



Click the preview window to show the tool bar as shown in area ①; right click the preview window to show the menu list. The tool bar and menu list are introduced in the table below.

Button	Menu List	Meaning
	--	Move tool. Click to move the tool bar anywhere.
	Manually Record On	Click to start recording.
	Instant Playback	Click to playback the record; click “Instant Playback” to select or self-define the instant playback time. See Instant Playback for details.
	Enable Audio	Click to enable audio. You can listen to the camera audio by enabling audio.
--	**Original Proportions/ Overspread window**	Click to select the display proportion of the window.
	Snapshot	Click to pop up the snap window. Click “Save” in the window to save the image. Click “Export” to export the image.
	PTZ Control	Click to go to PTZ control interface. See PTZ for details.
--	**Wiper**	Click to start or stop wiper for some PTZ cameras
	Zoom In	Click to go to single channel amplification interface.
	--	Click to go to image adjustment interface. Refer to Image Adjustment for details.

Button	Menu List	Meaning
	**Start/Close Talk**	Click to start talk.
	**Target detection**	Click to go to single channel target detection interface; the target includes faces, people and vehicles. (**only some models support**)
--	**Camera Info**	Click to view the camera information.

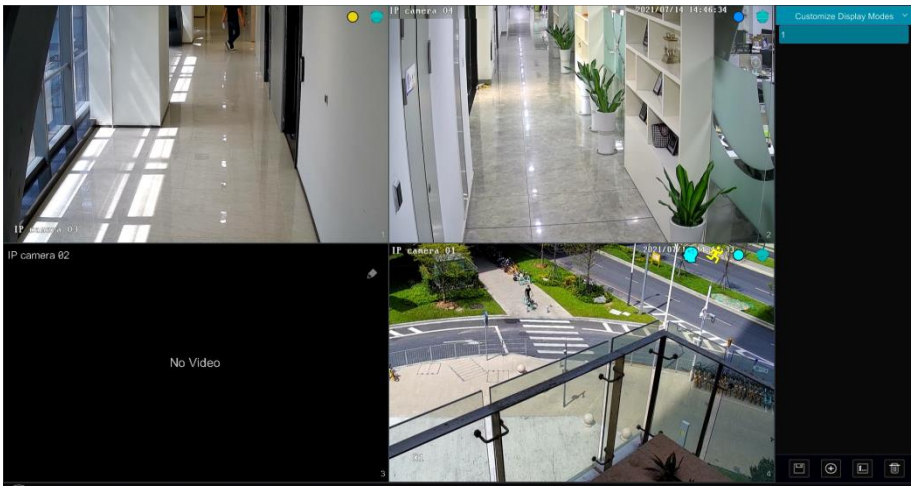
The single channel zoom amplification interface is as shown below. Press and drag the blue box to select the area to zoom in. Click  /  to zoom the image. Click the camera selection box to select other cameras for amplification. Click “Back” to return to the live view interface.



5.2 View Mode

5.2.1 Preview by Display Mode

Set different screen modes and camera display sequences as needed and then save the display modes classified by surveillance areas, priorities and so on. Refer to the picture below. Double click one display mode in the display mode list to view the live images in this mode.



➢ **Add Display Mode**

Method One:

① Click “Customize Display Modes” in the above interface

② Click to add a display mode name and then set the screen mode.
③ Add the cameras and adjust the cameras' display sequence as required.
④ Click under the display mode list.

Method Two:

① Click ***Start→Settings→System→Basic→Output Settings*** to go to the interface and then set the screen mode.
② Double click the camera or camera group in the list to add them to the selected window.
③ Click to save the current display mode (refer to Scheme View In Sequence for detail configurations). The display mode will be saved and displayed in the display mode list in the live view interface.

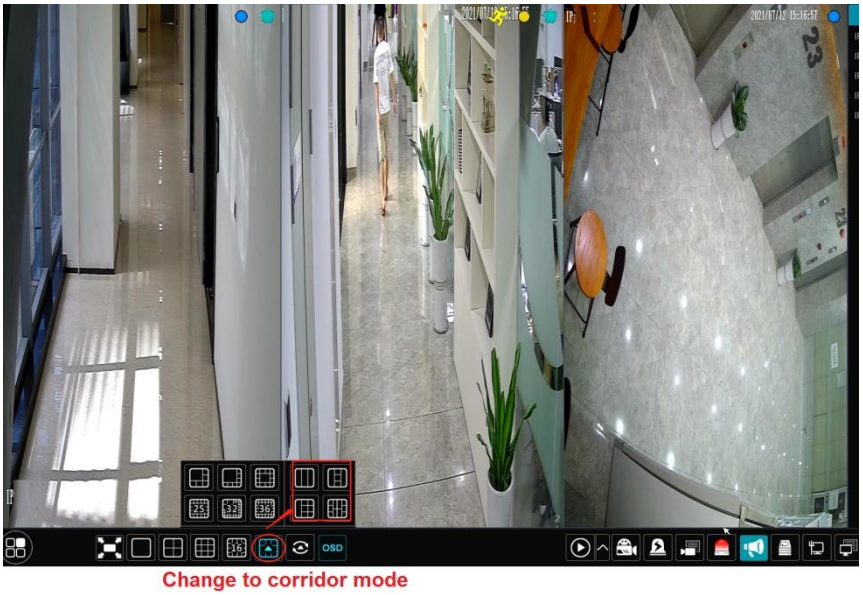
➢ Edit Display Mode

Click "Customize Display Modes" tab in the live view interface and then select one display mode in the list. Click to edit the display mode name; click to delete the display mode.

➢ Corridor Pattern

Some models may not support this function.

Select corridor pattern in display mode. You can change the direction of the video image by using this function. Please refer to User Manual of relevant camera.



Change to corridor mode

➢ Fisheye Mode

Some models may not support this function.

Note: Local fisheye dewarping is not supported, but dewarping is available through the Web Client.

In the live view interface, select the view mode according to the installation mode and display mode of the fisheye camera. Please refer to User Manual of the relevant fisheye camera.

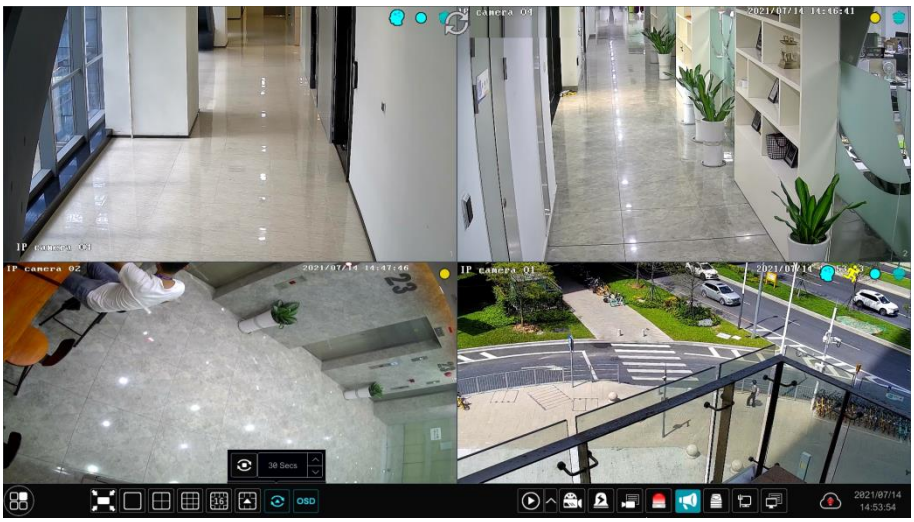
Note: If multiple channels of one fisheye camera are added, only fisheye channel supports the adjustment of installation mode and display mode.



In addition, if this function is unavailable in the device, you can set the display mode and the installation mode via Web Client. To log in the web client, please refer to Remote Surveillance for details.

5.2.2 Quick Sequence View

You can start quick sequence view if the scheme has not been created. If the scheme has been created, please refer to Scheme View in Sequence for details.

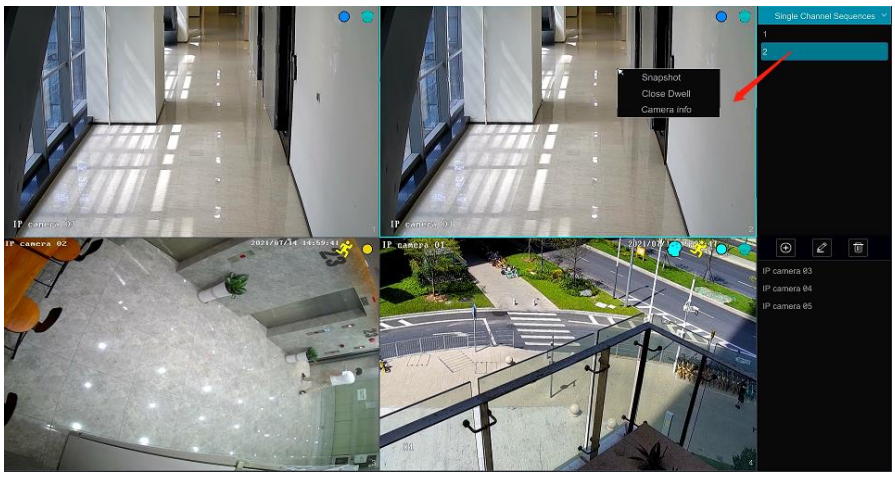


Go to the live view interface and then click  to open a small window. Set the dwell time in the window and then click  to view the live group by group according to the camera number of the current screen mode. Double click the sequence view interface to pause the view; double click again to restore the view. Click  to stop the view.

5.2.3 Camera Group View in Sequence

You can start camera group view in sequence if camera group has been created (see Add Camera Group for details).

① Go to the live view interface and then select a camera window.



② Double click one camera group on the right side of the interface. The cameras in the group will start camera group view one by one in the selected camera window.

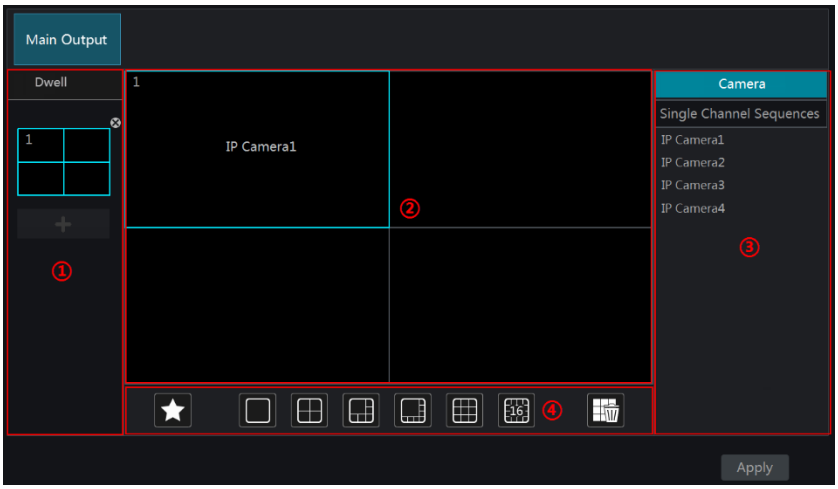
You can also drag the group directly to any preview window. Right click on the group view window and then click “Close Dwell” to stop the view.

Click to add camera group. Select a group and click to modify the group name and dwell time; Select a group and click to delete the group.

5.2.4 Scheme View in Sequence

Click ***Start→Settings→System→Basic→Output Settings*** to go to the interface as shown below.

Area ① displays all the dwell schemes; area ② shows the detailed information of the scheme; area ③ displays all the cameras and groups; area ④ is the tool bar (: clear button; : favorite button, click to open a window, enter the display mode name in the window and then click “OK” to save the current display mode; other buttons are screen mode buttons).



➢ **Add Scheme**

Click in area ① to create a new scheme. Click on the top right corner of the scheme to delete it.

➢ **Configure Scheme**

a) Select a scheme in area ① and then click the screen mode button on the tool bar to set the

screen mode of the scheme.

b) Select a camera window in area ② and then double click the camera or group in area ③. The camera or group will be added into the selected window. You cannot repeat a camera in the same scheme. You can click the right-click menu “Clear” in area ② to remove a single camera or click to remove all the cameras.

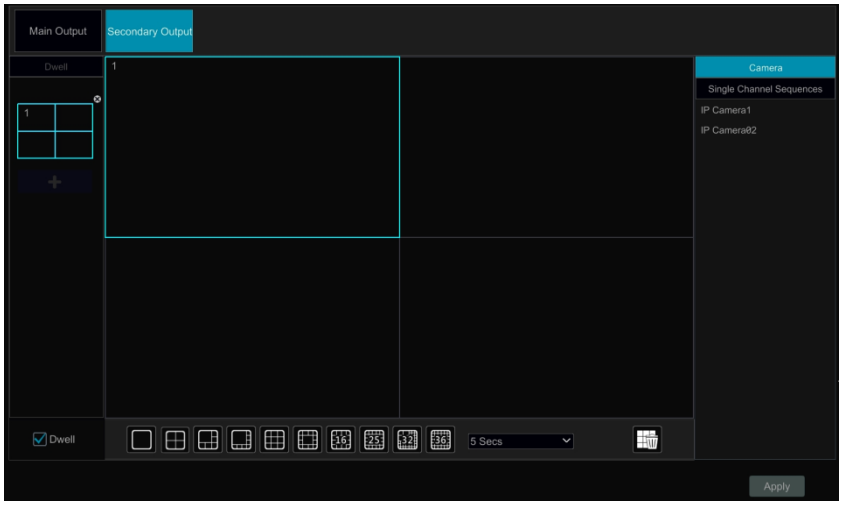
c) Click “Apply” to save the settings.

➢ **Start Sequence View**

Go to the live view interface and then click to open a window. Set the dwell time in the window and then click to start scheme view in sequence. Double click the sequence view interface to pause the view; double click again to restore the view. Click to stop the view.

Note:

You can set the secondary output preview if the NVR has dual outputs. Refer to the interface as shown below.



Check “Dwell” and then set scheme view in sequence of the secondary output. The setting steps are similar to that of the main output.

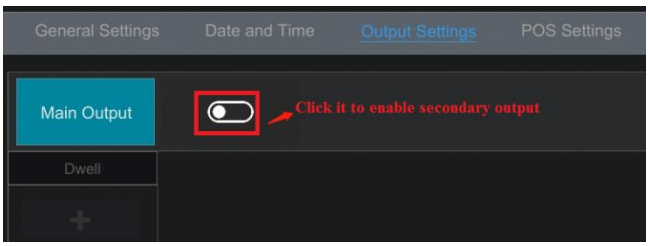
Set quick sequence view if “Dwell” is not checked. The setting steps are as follows:

① Set screen mode by clicking the relevant buttons on the tool bar.

② Select one window and then double click one camera or group in the list.

③ Click “Apply” to save the settings after adding cameras or groups to the windows.

For some devices with multi-output mode and AI mode, the secondary output may be unavailable after AI mode is enabled. If you want to enable secondary output, please click ***Start→System→Output Settings***.



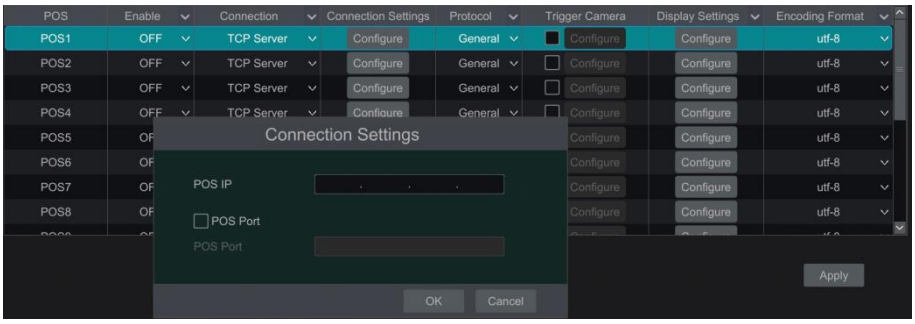
5.3 POS Settings

① Click ***Start→Settings→Basic→POS Settings*** to go to the interface.

② Enable POS and click “Configure” under “Connection Settings” to go to the following interface. The connection way includes TCP Server, TCP Client, UDP and Multicast.

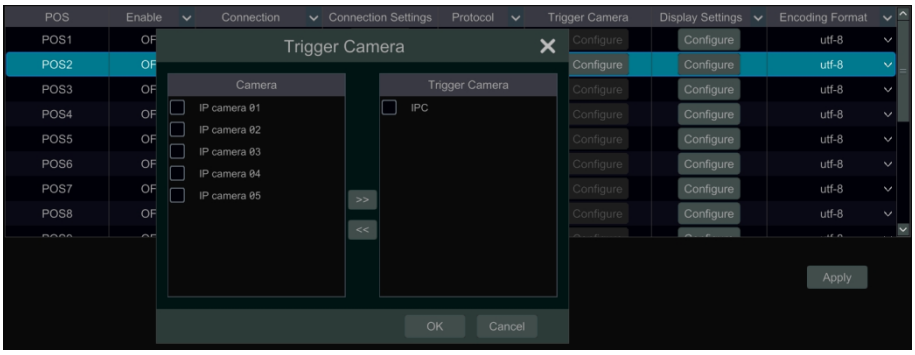
③ Enter IP address of the POS you want to add.

④ Check “POS port” and then enter POS port.

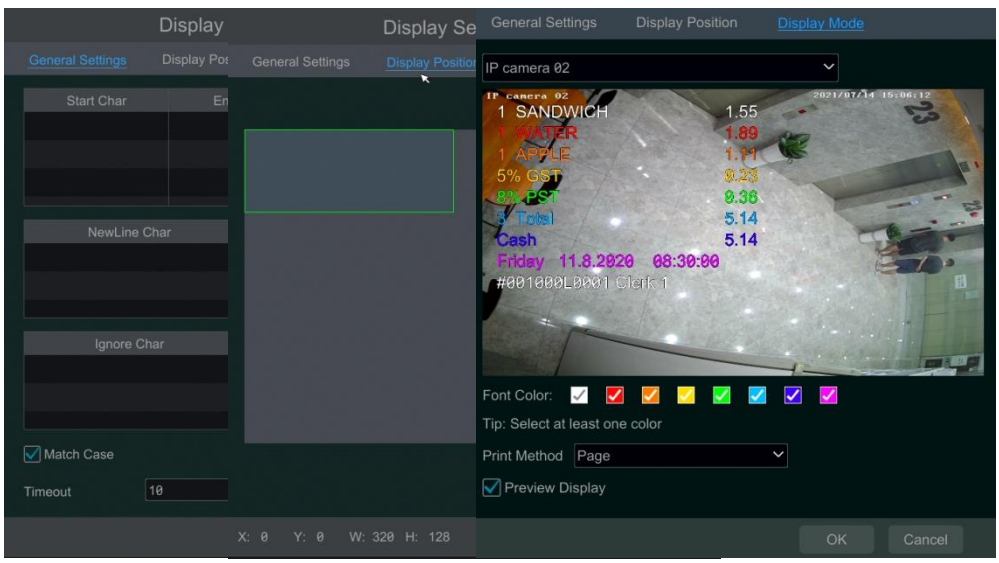


⑤ Select the POS protocol.

⑥ Check “Trigger Camera” and click “Configure” under it to bind POS to the camera. One POS can be bound to multiple channels, but one channel can only be bound to one POS.



⑦ Click “Configure” under “Display Settings” to set the general settings, the position and display color of the POS information. Set the start character and the end character and display time-out period in the general settings interface. Drag your mouse to set the position of the POS information in the display position interface. Then click “OK” to confirm your settings.



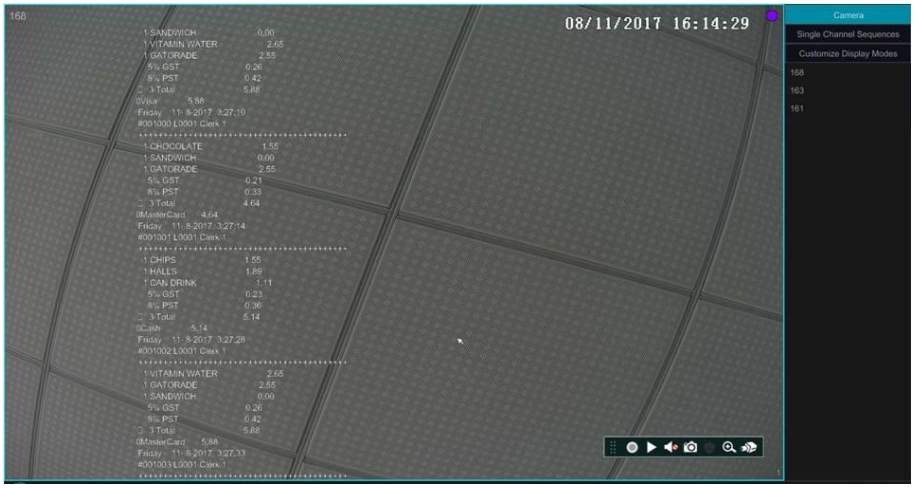
Click the “Display Color” tag and then choose the color you want to display on the screen. Multi-color can be selected at the same time. In addition, print method and preview display can be set here. If “Preview Display” is enabled, the POS contents can be displayed on the live view/playback interface.

⑧ Select the encoding format as needed.

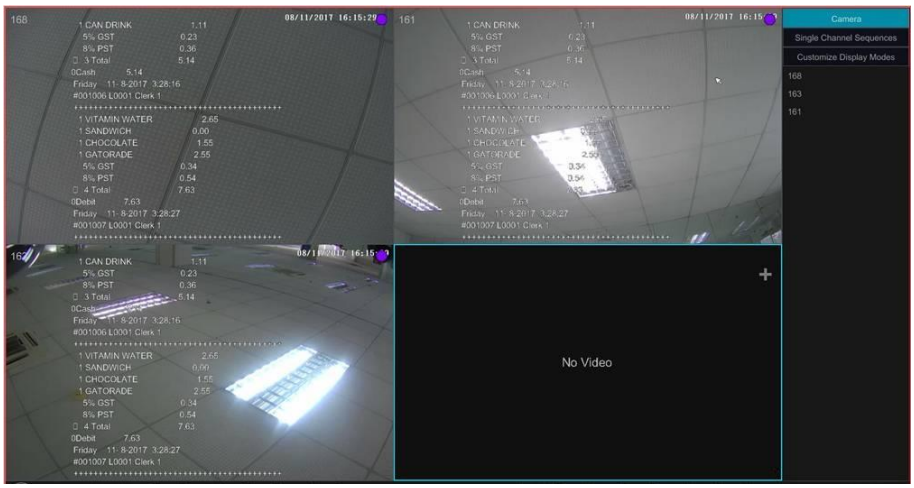
⑨ Choose the manufacturer of the POS device.

⑩ Click “Apply” to save the settings and then the transaction information will be displayed on the preview image in real-time.

One POS is bound to one camera:



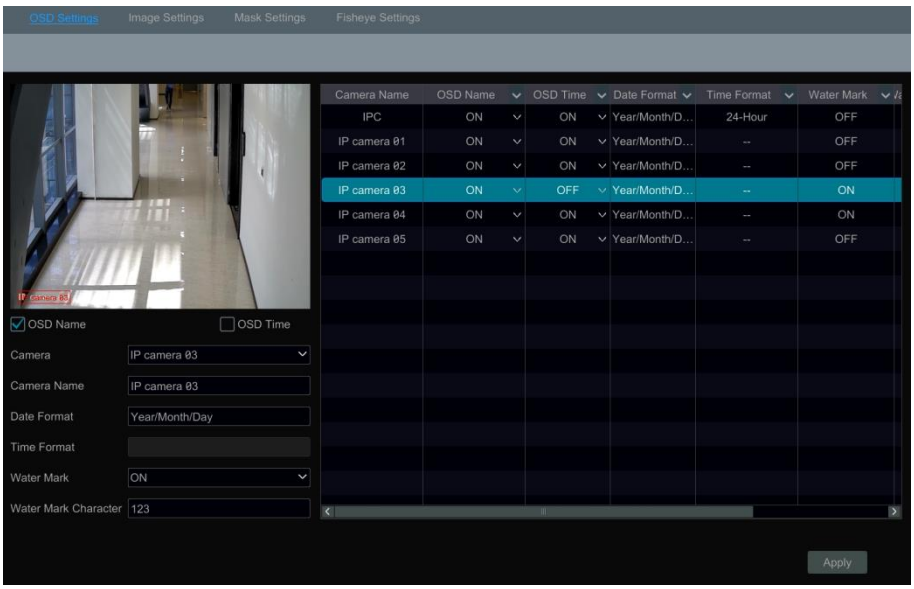
One POS is bound to multiple cameras:



5.4 Preview Image Configuration

5.4.1 OSD Settings

Click ***Start→Settings→Camera→Image→OSD Settings*** to go to the interface as shown below.



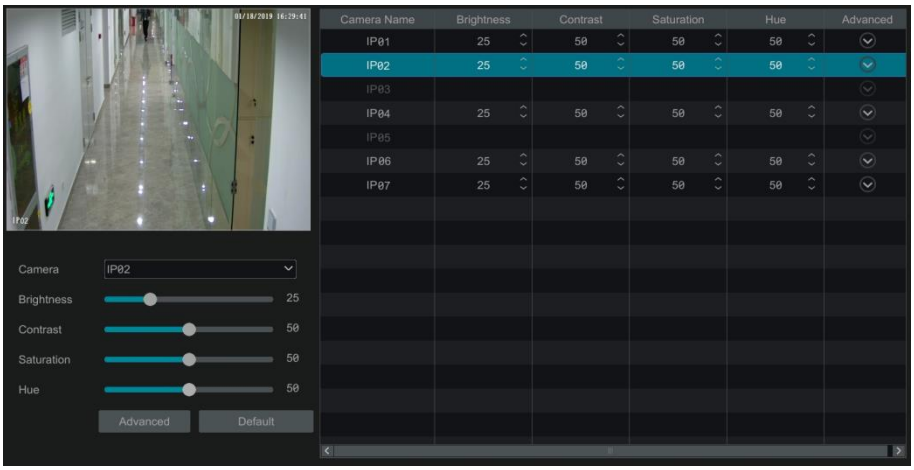
Select the camera, enter the camera name (or double click the camera name in the camera list to change the camera name), enable or disable the name and time OSDs (if enabled, drag the red name and time OSDs directly in the image view area to change the OSDs' display position) and select the date and time format (24h or12h is optional). Additionally, water mark can be enabled or disabled here. Having enabled the water mark function, you can enter the information of the water mark as needed. Finally, click "Apply" to save the settings.

5.4.2 Image Settings

Click ***Start→Settings→Camera→Image→Image Settings*** to go to the following interface.

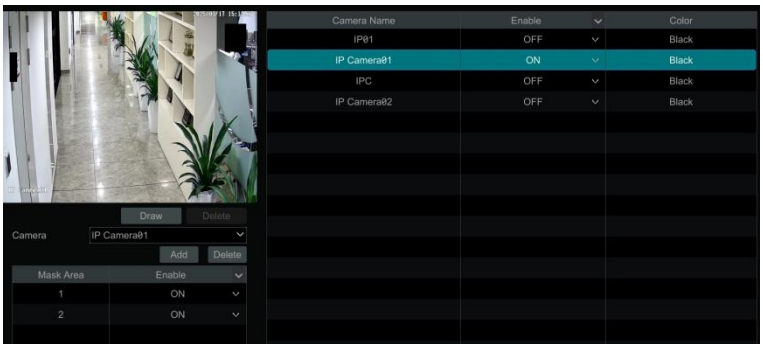
Select the camera and then set the brightness, contrast, saturation and hue of the camera. Click the "Advanced" button or  in the camera list on the right side of the interface to open the "Image Adjust" interface and then set the relevant setting items. Please refer to Image Adjustment for detailed introductions of these items.

You can click "Default" to restore the image settings to the default factory settings.



5.4.3 Mask Settings

Some areas of the image can be masked for privacy. Up to four mask areas can be set for each camera. Click ***Start→Settings→Camera→Image→Mask Settings*** to go to the interface as shown below.



Select the camera and click the “Draw” button and then drag the mouse on the image area to set the mask area; if the mask area is not satisfactory, you can click the “Delete” button to delete the mask areas. After the mask area is set successfully, click “Add” to add the mask area. In the mask area table, you can enable or disable the mask area as needed. Choose a mask area and click “Delete” to delete the mask area.

5.4.4 Fisheye Settings

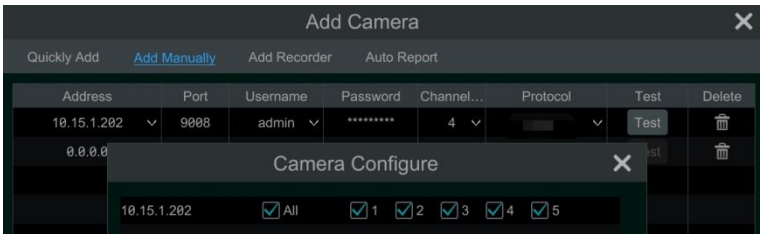
Some models may not support this function.

Note: This function is only available for GV-GNVRC1620-P.

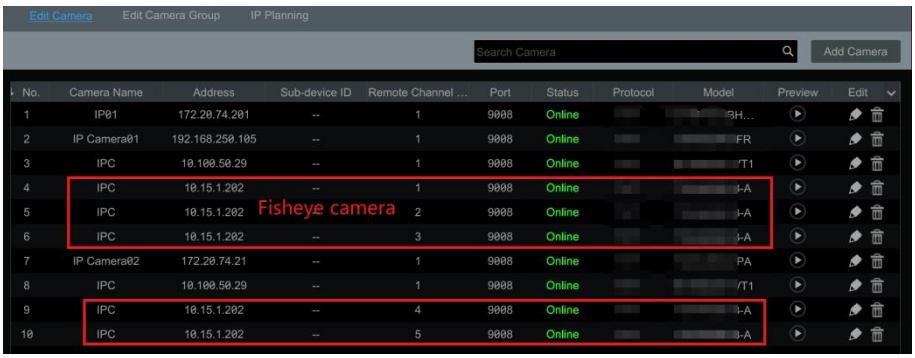
➢ **Add Fisheye Camera**

You can add a fisheye camera through quickly adding/manually adding/auto report/POE direct connection (only PoE NVR supported).

If you add a fisheye camera through quickly adding/auto report/POE direct connection, the first channel under the current stream mode of the fisheye camera will be added by default.



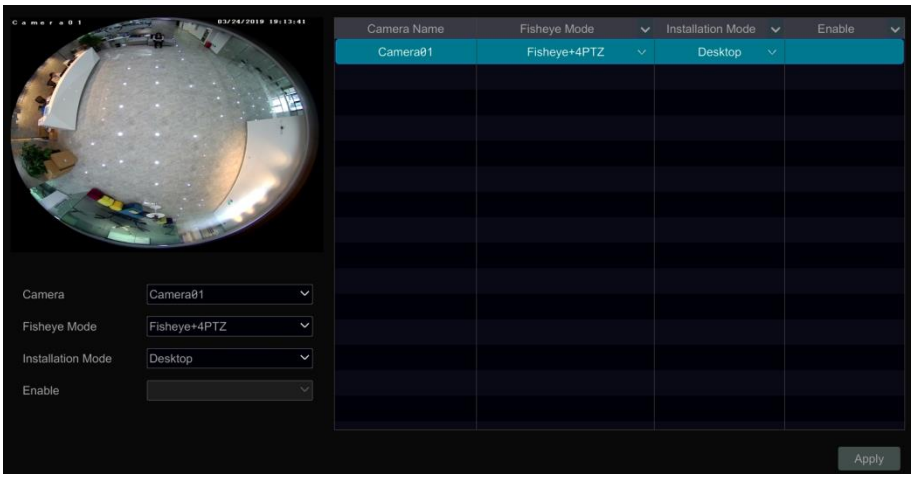
You can add a fisheye camera through manually adding as shown above. For example, the current stream mode of the fisheye camera is “Fisheye + panoramic view + 3PTZ” mode, so the channel 1 is fisheye channel, the channel 2 is panoramic view and the remaining channels are PTZ channels. After it is added successfully, it will show as below.



Remote Channel: if a network camera you have added has multiple channels, the system will automatically assign the remote channel number for each channel of this camera. If a network camera you have added has only one channel, the remote channel is “1” by default.

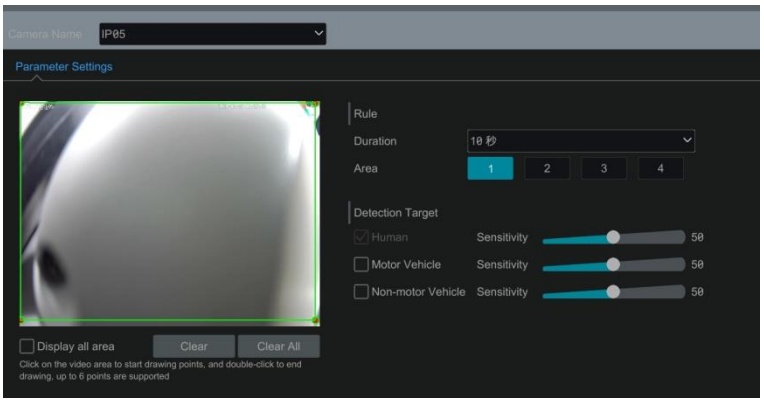
➢ Fisheye Settings

Click ***Start→Settings→Camera→Image→Fisheye Settings*** to go to the interface as shown below. Select the camera and the mode of fisheye and installation.



5.4.5 Smart Supplement Light

After you add the camera with smart supplement light function, you can go to the smart supplement light interface by clicking ***Start→Settings→Camera→Smart Supplement Light***.



1. Set the duration of the white light. In low ambient light, the system will automatically turn on the visible infrared light. Once there are people/vehicles appearing in the set alarm area, it will

automatically switch to full-brightness visible white light. When people/vehicles leaving the alarm area exceed the set duration and no other persons/vehicles are detected during the period, it will resume to infrared light.

Note: If the people/vehicles staying and not moving in the detection area exceed the set duration, it will resume to infrared light too.

2. Set alarm areas. Select the alarm area number. Four alarm areas can be added.

Click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area). Click “Clear” to clear the set area; click “Clear All” to clear all set areas.

3. Set the detection target and sensitivity. “People” is selected by default. You can also select “Motor Vehicle” or “Non-motor Vehicle” as needed.

Sensitivity: The higher the value is, the easier the white light will be triggered by targets.

4. Click “Apply” to save the settings.

5.4.6 Splicing

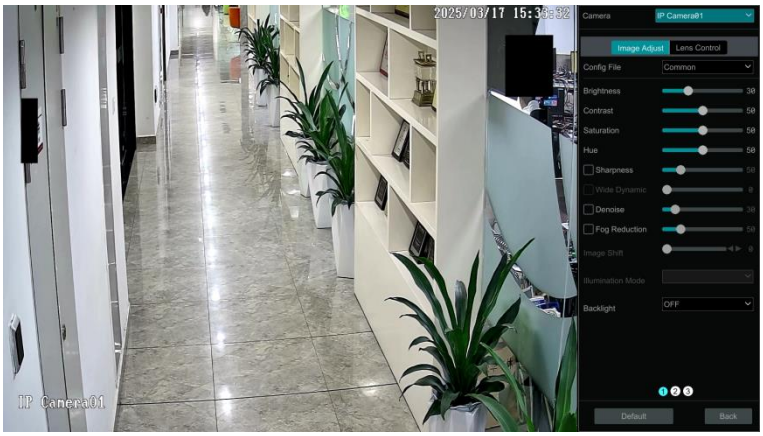
After a splicing network camera is added to the NVR, you can set the splicing parameters as needed by going to ***Start→Settings→Camera→Splicing***.



1. Select the type. The default setting is “Splice by Distance”.
2. Set the slicing distance. Please set it according to the actual situation.
3. Click “Apply” to save the settings.

5.4.7 Image Adjustment

Go to the live view interface and then click button on the tool bar under the camera window to go to the image adjustment interface.



➢ **Image Adjustment**

Select the camera and then click “Image Adjustment” to go to image adjustment tab. Refer to the picture above. Drag the slider to set the camera’s brightness, contrast, saturation and hue value. Check sharpness, wide dynamic and denoise and then drag the slider to set the value. Click “Default” button to set these parameters to default values.

Note: For some IPCs, if you have set HWDR in the NVR, these IPCs will automatically reboot after setting the following image parameters, including exposure/shutter mode, gain mode, gain, corridor pattern or smart IR. After these IPCs successfully reboot, HWDR will be disabled.

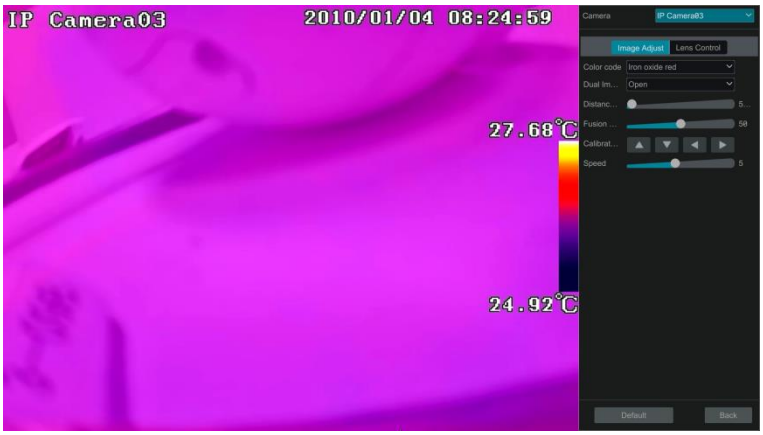
The introductions of these parameters are as follows:

Parameter	Meaning
Brightness	The brightness level of the camera’s image.
Contrast	The color difference between the brightest and darkest parts.
Saturation	The degree of color purity. The image appears brighter the purer the color is.
Hue	Relates to the total color degree of the image.
Sharpness	Relates to the resolution level of the image plane and the sharpness level of the image edge.
Wide Dynamic	The wide dynamic range (WDR) function helps the camera provide clear images even under back light circumstances. When there are both very bright and very dark areas simultaneously in the field of view, WDR balances the brightness level of the whole image and provide clear images with details.
Denoise	Decrease the noise and make the image more thorough. Increasing the value will make the noise reduction effect better but it will reduce the image resolution.
White Balance	Adjust the color temperature according to the environment automatically.
BLC	HLC: lowers the brightness of the entire image by suppressing the brightness of the image’s bright area and reducing the size of the halo area. BLC: If enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.
Corridor Pattern	0°, 90°, 180° or 270° can be selected. (Only some cameras support this pattern)
Image Mirror	Turn the current video image horizontally.
Image Flip	Turn the current video image vertically.
High FPS Mode	High frame rate mode, if is it enabled, the frame rate of the camera’s main stream can be set to 1080P/720P @60fps/50fps. (Only some cameras support this mode)
Gain Mode	Choose “Auto” or “Manual”. If “Auto” is selected, the gain value will be automatically adjusted according to the actual situation. If “Manual” is selected, the gain value shall be set manually. The higher the value is, the brighter the image is.
Infrared Mode	Choose “Auto”, “On” or “Off” as needed.
Shutter Mode	Choose “Auto” or “Manual”. If manual is chosen, the digital shutter speed can be adjusted.
Day & Night Mode	Choose “Auto”, “Day”, “Night” or “Timing” as needed.
White Light Mode	“Auto”, “Manual” or “Off” can be selected. (Only some cameras support this

Parameter	Meaning
	mode).
EIS	Electronic image stabilization; increase the stability of video image by using jitter compensation technology (only some IPCs support this function)
Digital Zoom	Please select it as needed (only some PTZ cameras support this function)
Supplement Light Mode	Choose “White Light”, “Infrared Light” or “Smart Supplement Light” as needed (this function is only available for dual-illumination cameras)

Note: The above-mentioned descriptions of the image parameters are for reference only. The cameras made by different manufacturers may have different parameter settings.

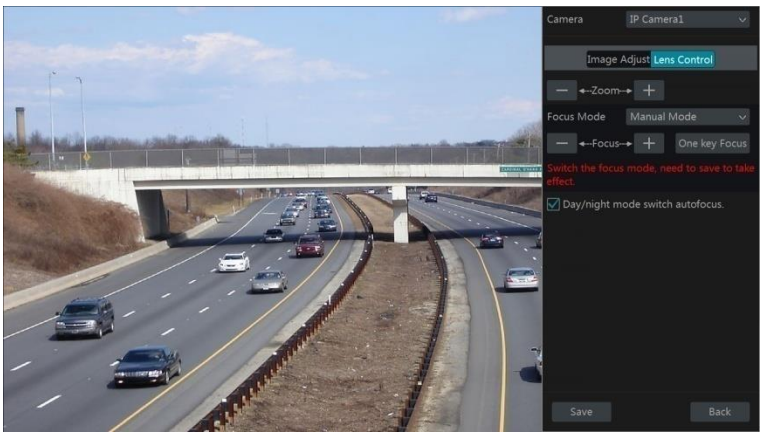
Thermal image adjustment: click  on the toolbar of the thermal camera window to enter the image adjustment interface.



Color code: set the display color of the thermal image as needed. The thermal colors vary by models.
Dual image fusion: overlay the images of two channels (thermal and optical image channels).
Distance: set the value according to the distance between the lens of the camera and the main target. The fusion distance between optical image and thermal image will be adjusted along with the adjustment of the distance. The system will automatically adjust the image effect of fusion according to the fusion distance.
Fusion Level: the lower the value is, the clearer the optical image is. The higher the value is, the clearer the thermal image is.
Calibration Adjustment: correct the distance between optical image and thermal image by clicking the direction buttons.
Speed: the speed of image movement after clicking a direction button.

➢ **Lens Control**

Select the camera and then click “Lens Control” to go to lens control tab. Click  or  to adjust the zoom and focus parameters of the camera’s lens. Click “Save” to save the settings.



The introductions of these parameters and buttons are as follows.

Button/Parameter	Meaning
− Zoom +	Click + / − to zoom in/out the image.
Focus Mode	If manual mode is selected, focus button & “One Key Focus” & “Day/night mode switch autofocus” will be available; if auto mode is selected, the time interval setup will be available.
− Focus +	Click + / − to increase/decrease the focal length.
One key Focus	Click to focus instantly.
Day/night mode switch autofocus	If checked, the lens will focus automatically when the camera is switching day/night mode.
Time Interval	It is the time interval when camera lens is auto focusing. The interval can be set in the drop-down list.

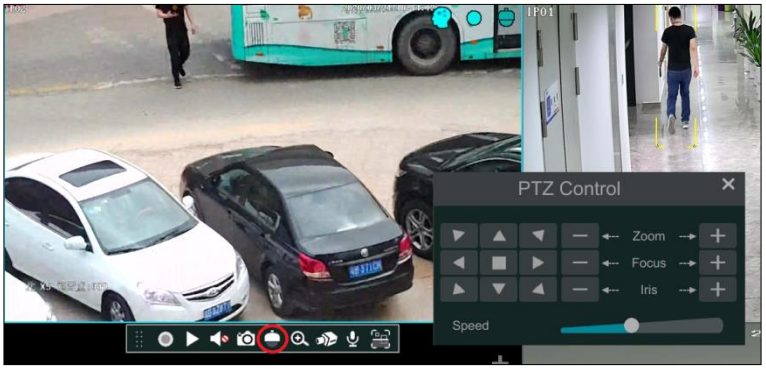
Note: This function is only available for motorized zoom cameras.

6 PTZ

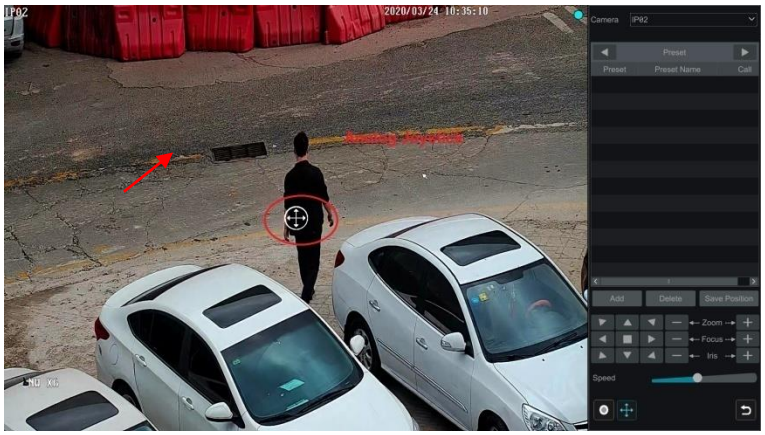
6.1 PTZ Control Interface Introduction

You can control the IP dome or PTZ connected to the IP camera for PTZ control.

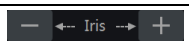
Click  on the tool bar at the bottom of the live preview window to go to the PTZ control interface as shown below.



The direction, zoom, focus, iris and speed can be controlled in the small PTZ control window. Right click the PTZ/speed dome camera window and select “PTZ Control” to go to the PTZ control panel as shown below.



Introductions of the buttons on the bottom right of the interface:

Button	Meaning
	Click ▲ / ▶ / ◀ / ▼ / ◀ / ▶ / ◀ / ▶ to rotate the dome. Click ■ to stop rotating the dome.
	Click + / − to zoom in / out the camera image.
	Click + / − to increase / decrease the focal length.
	Click + / − to increase / decrease the iris of the dome.
	Drag the slider to adjust the rotating speed of the dome.

Button	Meaning
/	Click / to start / stop recording.
/	Click / to hide / show the analog joystick.
	Click to return to the live view interface.

➢ **Analog Joystick Control**

The analog joystick on the left side of the interface provides quick PTZ control. The dome or PTZ will rotate when you drag the analog joystick. The farther you drag the analog joystick from the middle of the image, the faster the dome or PTZ rotates. The dome or PTZ will stop rotating when you stop dragging the analog joystick.

➢ **3D Control**

Click the camera image on any area and then the image will be centered on the clicked point. Refer to the picture as shown below. Drag the mouse from A to B to get a green rectangle and the rectangle area will be zoomed in.



Refer to the picture as shown below. Drag the mouse from C to D to get a green rectangle and the rectangle area will be zoomed out.



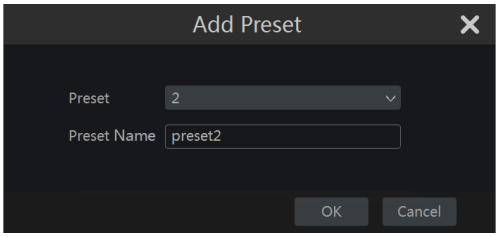
➢ **Advanced 3D Control**

Double click the left button of the mouse on any area of the camera image and then the image size will be doubled and centered on the clicked point.

Press and hold the left button of the mouse on any area of the camera image to zoom in the image; press and hold the right button to zoom out the image.
Move the cursor of the mouse to the camera image and then slide the scroll wheel of the mouse forward to zoom in the image, slide the scroll wheel of the mouse backward to zoom out the image.

➢ Preset Settings

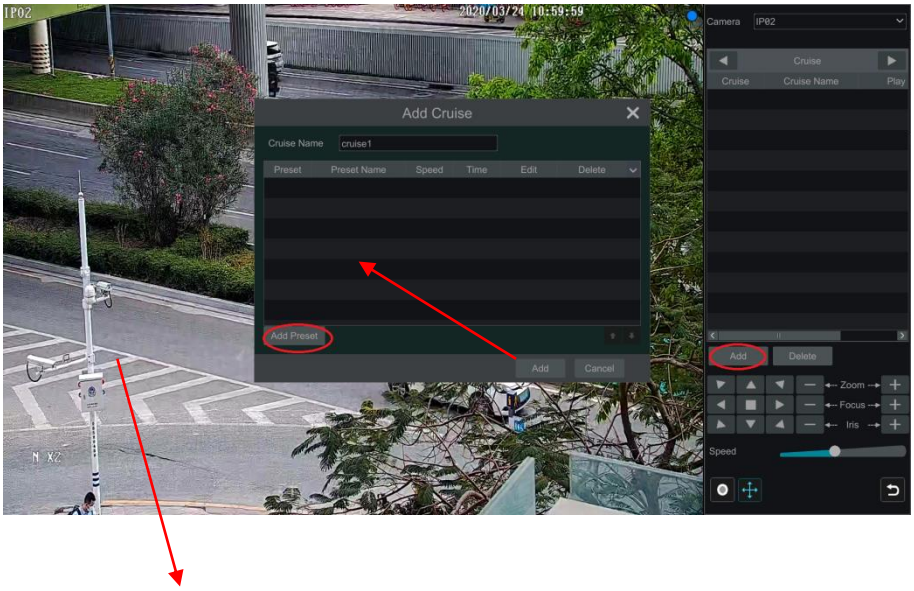
Click “Preset” to go to preset operation tab and then click “Add” to open the window as shown below. Select the preset and then enter the preset name in the window; finally click “OK” to save the settings.

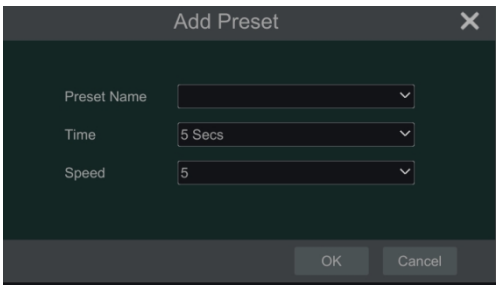


Adjust the dome’s direction and then click “Save Position” to save the current preset position (you can also click another preset in the preset list and then save the preset position after adjusting the dome’s direction); click  in the preset list to call the preset; click “Delete” to delete the selected preset.
You can also go to preset setting interface for preset setting, see Preset Setting for details.

➢ Cruise Settings

On the right panel, click  to go to cruise operation tab and then click “Add” to open the window as shown below. You can add up to 8 cruises for each dome.



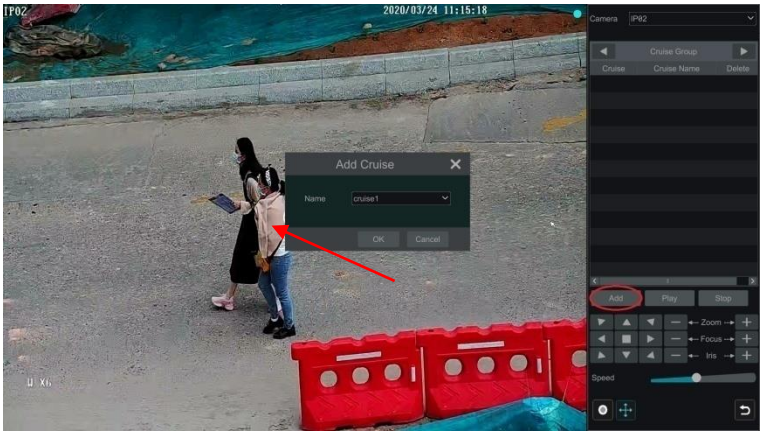


① Enter the cruise name in the “Add Cruise” window and then click “Add preset” to open the “Add Preset” window (Before adding preset to the cruise, please add preset of the dome first).
② In the “Add Preset” window, select the preset name, preset time and preset speed and then click “OK”.
③ In the “Add Cruise” window, you can click to reselect the preset, then change the preset time and speed. Click to delete the preset. Click “Add” to save the cruise.

Click to start the cruise and click to stop the cruise in the cruise list of the cruise operation tab; click “Delete” to delete the selected cruise.
You can also go to cruise setting interface for cruise setting, see Cruise Setting for details.

➢ **Cruise Group Settings**

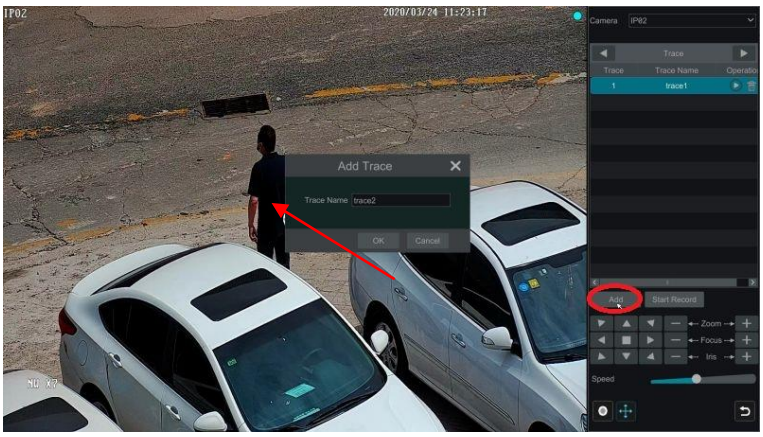
On the right panel, click to go to the cruise group setting tab. Click “Add” to add a cruise group as shown below.



In the “Add Cruise” window, select the cruise group name. After that, click “Play” to play the cruise groups in sequence.

➢ **Trace Settings**

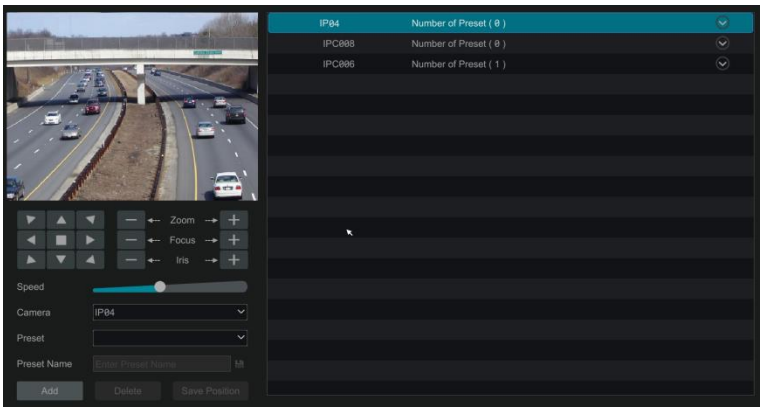
On the right panel, click to go to the trace setting tab. Click “Add” to add the trace name. Then click “OK” to save this name. Please refer to the following picture.



After that, click “Start Record” to record the trace. Then click “Stop Record” to finish recording. Click  to play the recorded trace. Click  to delete the trace.

6.2 Preset Settings

Click ***Start→Settings→Camera→PTZ→Preset*** to go to the interface as shown below.



➢ **Add preset**

Select camera and then click “Add” to add preset; or click  in the camera list on the right side of the interface to display the preset information of the dome and then click  to add preset. The operations of the “Add Preset” window are similar to that of the PTZ control interface; please see PTZ Control Interface Introduction for details.

➢ **Edit preset**

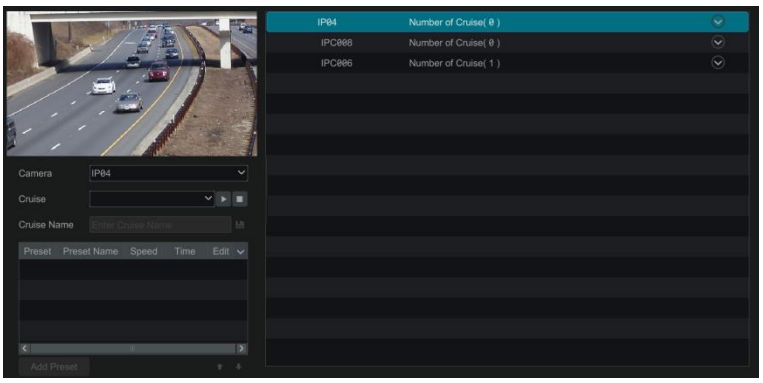
Select camera and preset. You can enter the new name of the preset and then click  to save the new preset name. Adjust the rotating speed, position, zoom, focus and iris of the preset and then click “Save Position” to save the preset.

➢ **Delete Preset**

Select camera and preset and then click “Delete” to delete the preset.

6.3 Cruise Settings

Click ***Start→Settings→Camera→PTZ→Cruise*** to go to the interface as shown below.



➢ **Add Cruise**

Click in the camera list on the right side of the interface to display the cruise information of the dome and then click to add cruise. The operations of the "Add Cruise" window are similar to that of the PTZ control interface; please see PTZ Control Interface Introduction for details.

➢ **Edit Cruise**

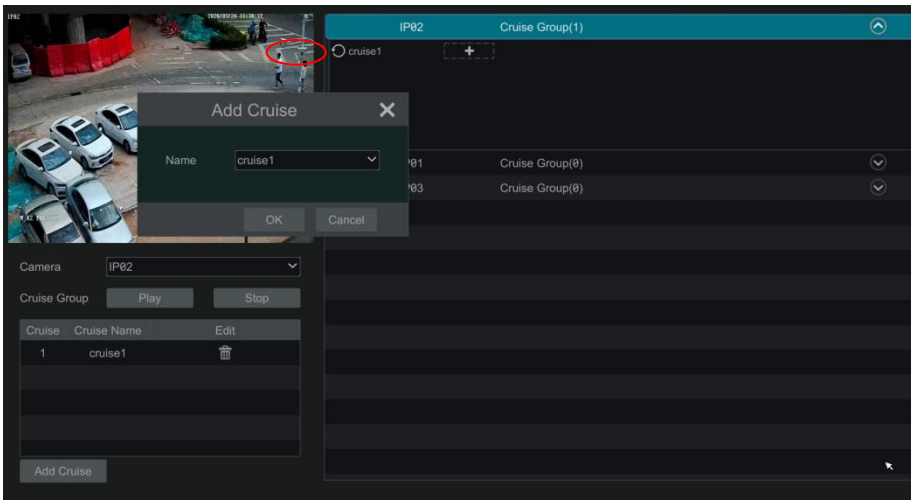
Select the camera and cruise in the "Cruise" interface. Enter the new cruise name and then click to save the cruise name. Click "Add Preset" to add preset to the cruise. Click to edit the preset. Click to delete the preset from the cruise. Click one preset in the preset list and then click to move down the preset and click to move up the preset. Click to start the cruise and click to stop it.

➢ **Delete Cruise**

Click in the camera list on the right side of the interface to display the cruise information of the dome and then click on the top right corner of the cruise to delete the cruise.

6.4 Cruise Group Settings

Click ***Start→Settings→Camera→PTZ→Cruise Group*** to go to the interface as shown below.



➢ **Add Cruise Group**

Click "Add Cruise" to add the cruise, or click to extend the cruise list and then click to add the cruise. After that, click "Play" on the left panel as shown below to play the cruise lines in sequence.

➢ **Delete Cruise**

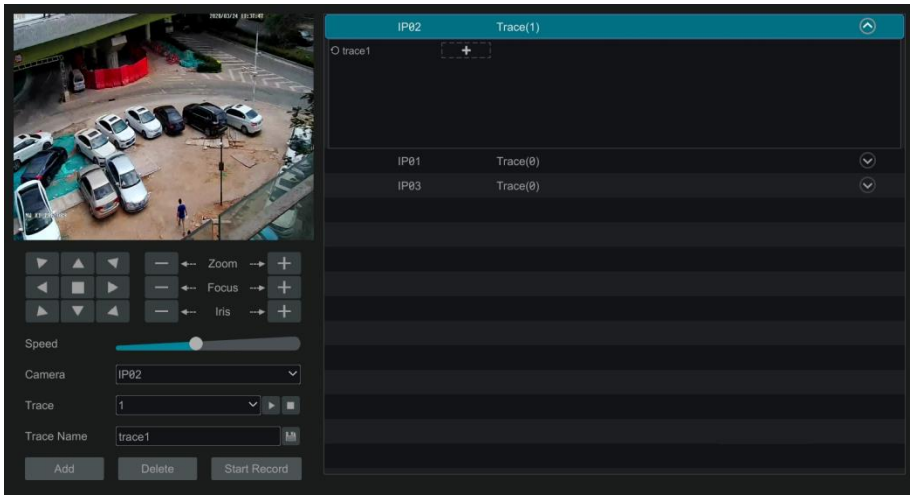
In the cruise list, click  to delete the cruise.

6.5 Trace Settings

Click ***Start→Settings→Camera→PTZ→Trace*** to go to the interface as shown below.

➢ **Trace Record**

Select the PTZ camera and then click “Add” or extend the IPC information by clicking  and then click  to add a trace name. After that, click “Start Record” and move the speed dome to change its position and set its trace. Then click “Stop Record” to complete the trace record.



➢ **Play or Stop Trace**

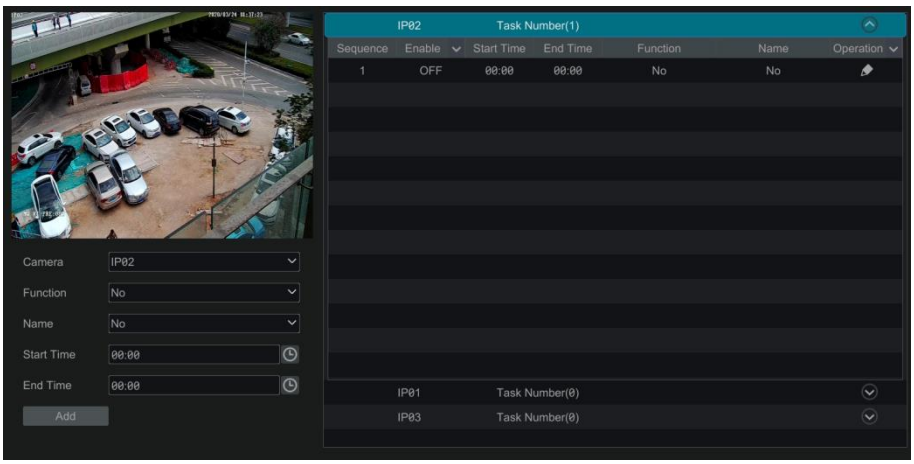
Select the trace and click  to play the trace; click  to stop the trace.

➢ **Delete the Trace**

Click  to delete the trace. Or put the cursor on the trace name (right panel) and then  will appear on the right corner of the trace name; click to delete this trace.

6.6 Task Settings

Click ***Start→Settings→Camera→PTZ→Task*** to go to the interface as shown below.



① Select a PTZ camera.

② Select function, such as preset, cruise, trace, random scanning, etc.

③ Select a name, such as preset name, cruise name, etc.

④ Select the start and end time.

⑤ Click “Add” to add the task.

⑥ Click to extend the tasks of the PTZ camera. Click beside “Enable” to enable the task. After the task is enabled, the PTZ camera will start the specific task at the specified time.

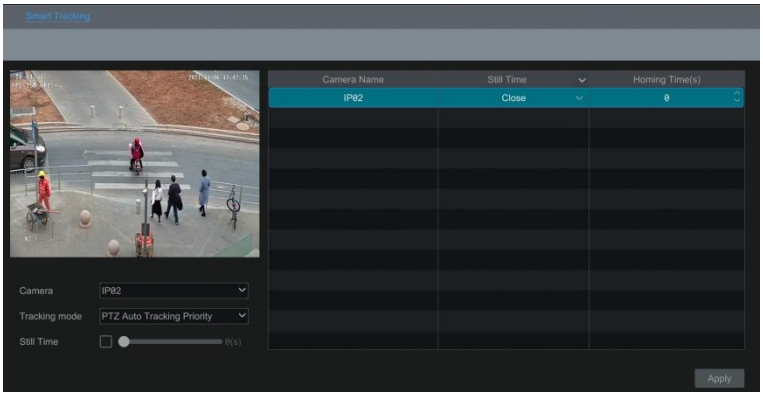
6.7 Smart Tracking Settings

This function is only available for AI PTZ camera. Please add an AI PTZ camera to the NVR for this function to take effect.

Smart Tracking: When people or vehicle cross the alarm line or intrude the predefined area, the PTZ camera can automatically track them and the target image will be automatically zoomed in and centered on the screen until the target disappears from the screen. After that, the PTZ camera will return to the tracking start position.

To set smart tracking:

1. Click ***Settings→Camera→Smart Tracking*** to go to the smart tracking interface.



2. Select the tracking mode and set the “still time” as needed.

Tracking Mode: choose **“**PTZ Auto Tracking Priority” or “Manual PTZ Control Priority”

PTZ Tracking Priority: if this mode is selected, after enabling “Trigger track” in one of the

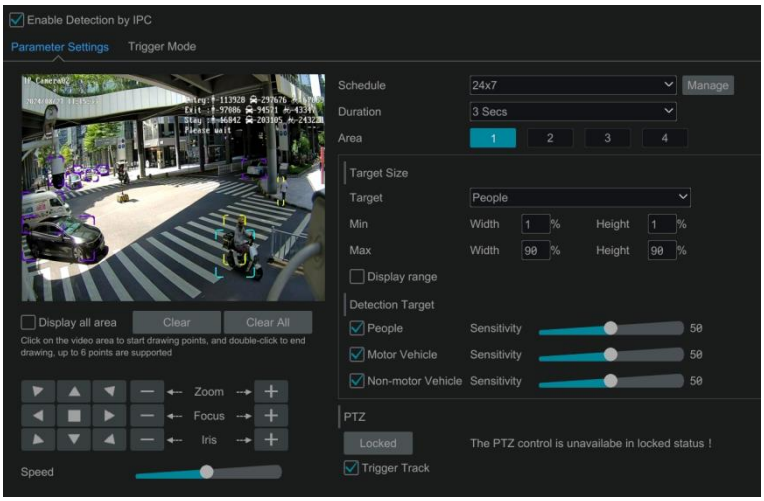
following events, you cannot control PTZ by clicking the buttons on the PTZ control panel in the live view interface.

Manual PTZ Control Priority: if this mode is selected, after enabling “Trigger track” in one of the following events, you can control PTZ by clicking the buttons on the PTZ control panel in the live view interface during the process of smart tracking. After you stop controlling for 5 seconds, the PTZ camera will return to the pre-defined detection area and start tracking again when detecting a target.

Still time: If it is enabled and the time is set, when the target stops, the PTZ camera will return to the tracking start position after the set time expires. During this time, if the target moves, the PTZ will continue tracking. If it is not enabled, when the target stops for 5 seconds, the PTZ camera will return to the start tracking position.

For example: At the stoplight, if a car is waiting for the red light for 30 seconds, and the still time is set as 20 seconds, the tracking will stop following; however, if the still time is set as 40 seconds, when the red light changes to green and the car starts to move, the PTZ will continue tracking this car.

3. Click ***Settings→AI/Event→AI Event***. Select the AI PTZ camera and the event as needed For example: Region intrusion.



4. Enable the event, set the rule and then click “Locked”. This button will be changed to “Unlock”. Now the PTZ control panel in the above interface will be activated. Set the detection area by clicking the directional buttons in the above interface. After that, click “Unlock” to lock the detection area.

Note: The home position of the PTZ must be locked, or the smart tracking cannot take effect.

5. Click “Draw area” and then draw the area of the region intrusion on the screen.

6. Set the detection target and target size.

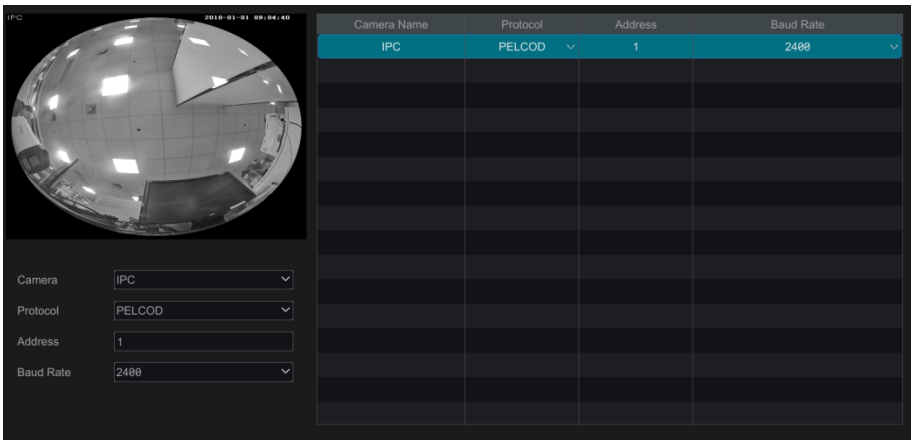
7. Check “Trigger Track”.

8. Click “Apply” to save settings. After that, the PTZ can start smart tracking when detecting a target.

6.8 Protocol Settings

This series of products support remote configuration of the PTZ protocol of the added IPC.

Note: Only when the added camera supports PTZ protocol settings, can this function be available.



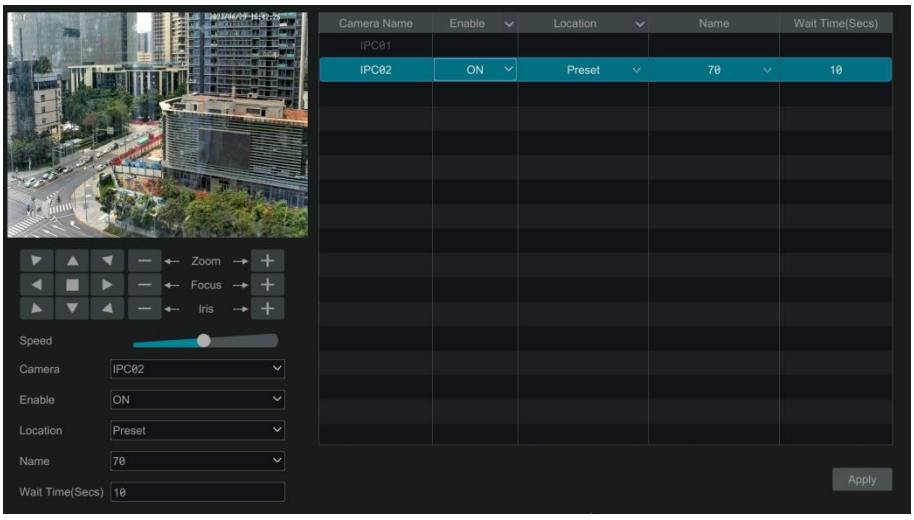
6.9 Home Position Settings

Click ***Settings→Camera→Home Position*** to go to the home position setup interface.
The setup steps are as follows:

① Select “On” to enable the home position and select the location (like preset) and name.

② Select the wait time (range from 007s to 180s) and apply the settings.

When the stand-by time of the PTZ camera exceeds the wait time, the camera will automatically execute the command to monitor the selected home position.

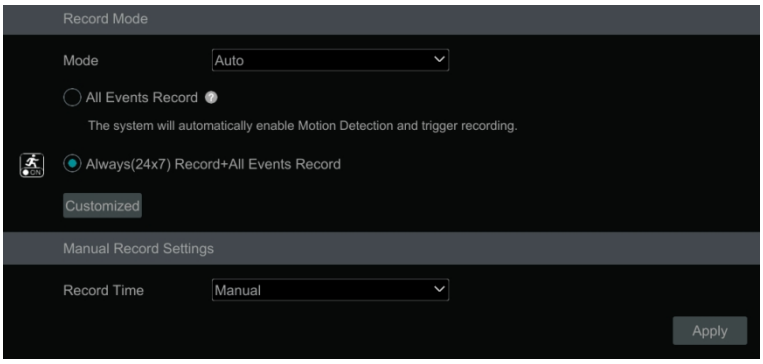


7 Record & Disk Management

7.1 Record Configuration

7.1.1 Mode Configuration

Please format the HDDs before recording (refer to Disk Management for details). Click ***Start→Settings→Record→Mode Settings*** to go to the mode settings interface. You can set the record time under the “Manual Record Settings” and then click “Apply” to save the settings. There are two record modes: auto mode and customization mode.

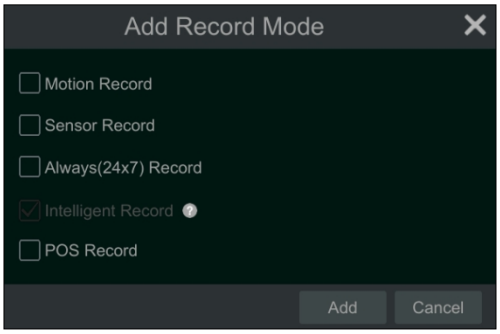


➢ **Auto Mode**

All Events Record: motion/sensor/AI events record will be enabled when motion/sensor/AI event alarm happens.

Always(24ₓ7) Record + All Events Record: Normal record is enabled all the time; motion/sensor /AI event alarm record will be enabled when motion/sensor/AI event alarm happens.

You can add more auto record modes. Click “Customized” to pop up a window as shown below. Check the modes in the window and then click “Add” to show the modes in the record mode list (in the window, the checked modes can be shown in the record mode list while the unchecked modes cannot). The intelligent record is checked by default.



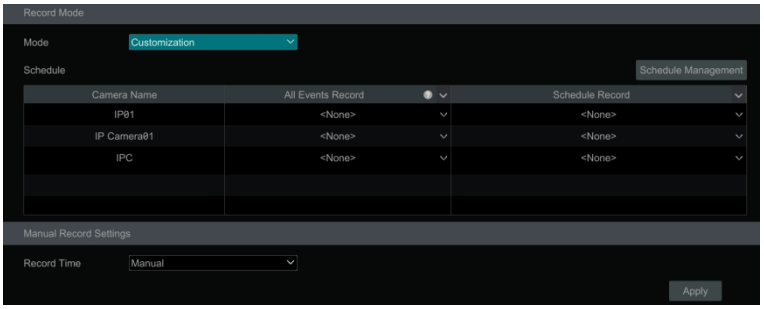
Select one auto mode for the corresponding window to open. Set the encode, GOP, resolution, FPS, bitrate type, quality, max bitrate and audio of each camera and then click “OK” to save your settings. Please adjust the parameters according to the actual condition.



Video Encode: the available options will be H.265S, H.265+, H.265 and H.264 depending on what the camera supports.
Resolution: the higher the resolution is, the clearer the image is.
FPS: the higher the frame rate is, the more fluency the video has, with the tradeoff of using more storage.
Bitrate Type: CBR and VBR are optional. CBR means that no matter how much change is seen in the video scene, the compression bitrate will be kept constant. VBR means that the compression bitrate will be adjusted according scene changes. For example, for scenes that do not have much movement, the bitrate will be kept at a lower value. This will help to optimize the network bandwidth.
Quality: when VBR is selected, you need to choose image quality. The higher the image quality you choose, the more bitrate will be required.
Max Bitrate: 32Kbps ~10240Kbps are optional.
GOP: group of pictures.

➢ **Customization Mode**

If the customization mode is selected, you need to set the schedule of AI events record and schedule record for each camera. See Schedule Settings for details.

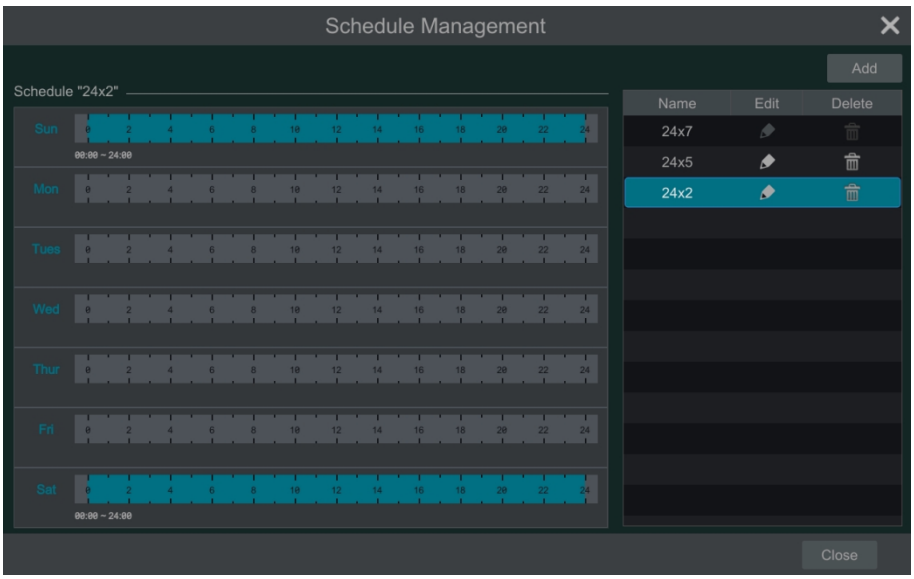


In this interface, you can also set the record period of the manual record in the live view interface.

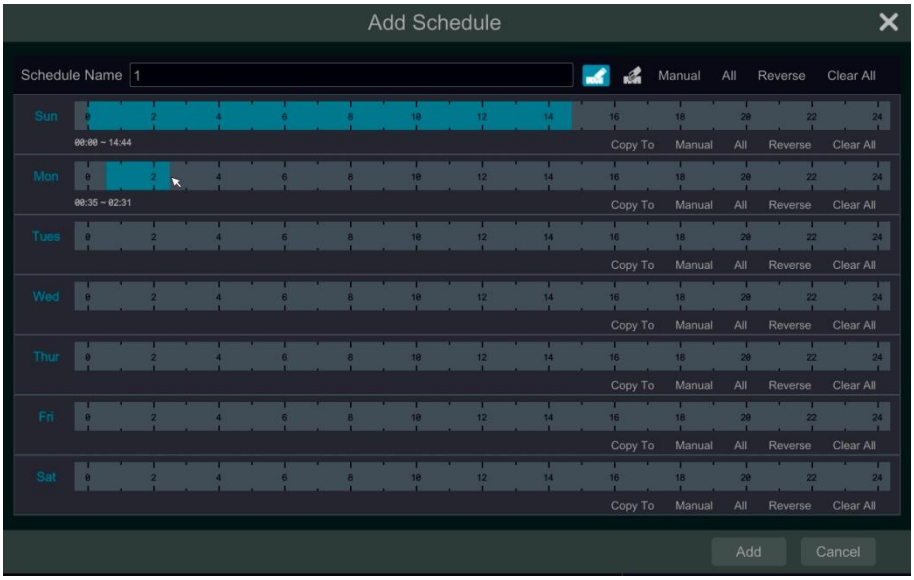
7.1.2 Schedule Settings

➢ **Add Schedule**

Click ***Start→Settings→Record→Mode Setting*** to go to the mode setting interface. Then select "Customization" mode and click "Schedule Management" to set the schedule as shown below. "24 x 7", "24 x 5" and "24 x 2" are the default schedules; you cannot edit or delete "24 x 7" while "24 x 5" and "24 x 2" can be edited and deleted. Click the schedule name to display the detailed schedule information on the left side of the interface. The seven rows stand for the seven days in a week and each row stands for 24 hours in a day. Blue stands for the selected time and gray stands for unselected time.



Click “Add” to add a new schedule. Refer to the picture below.

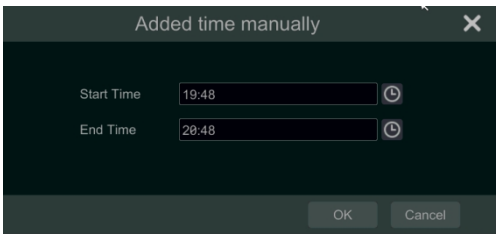


Set the schedule name and schedule time and then click “Add” to save the schedule. You can set day schedule or week schedule. : add button; : delete button.

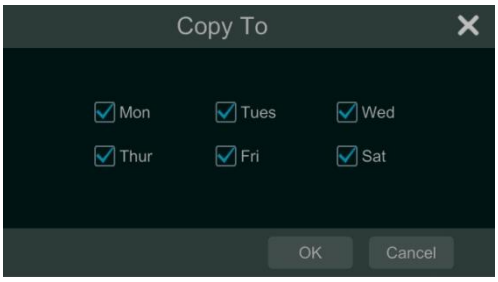
➢ **Set Day Schedule**

Click and then drag the cursor on the time scale to set record time; click and then drag the cursor on the time scale to delete the selected area.

You can manually set the record start time and end time. Click or and then click “Manual” on each day to open a window as shown below. Set the start and end time in the window and then click “OK” to save the settings.

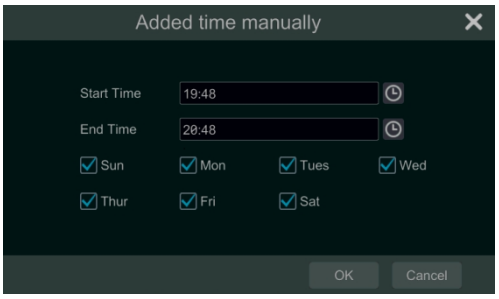


Click “All” to set all day recording; click “Reverse” to swap the selected and unselected time in a day; click “Clear All” to clear all the selected area in a day.
Click “Copy To” to copy the schedule of the day to other days. Refer to the picture below. Check the days in the window and then click “OK” to save the settings.



➢ **Set Week Schedule**

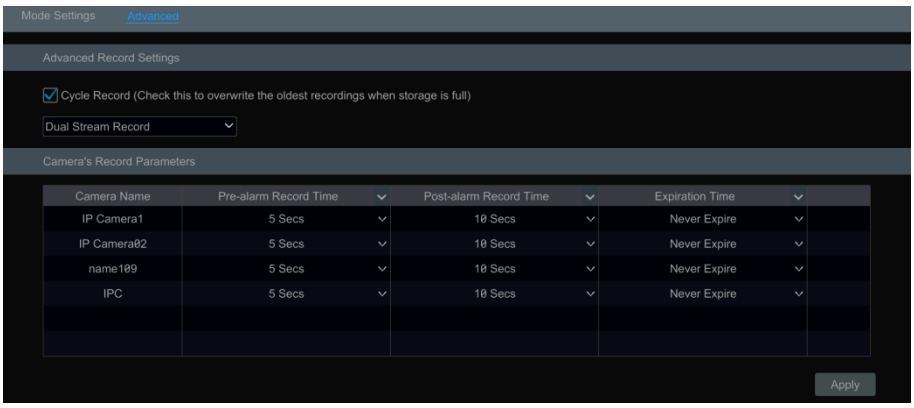
Click  or  and then click “Manual” beside  to set the week schedule. Refer to the picture below. Set the start and end time, check the days in the window and then click “OK” to save the settings.



Click “All” to set all week recording; click “Reverse” to swap the selected and unselected time in a week; click “Clear All” to clear all the selected area in a week.

7.1.3 Advanced Configuration

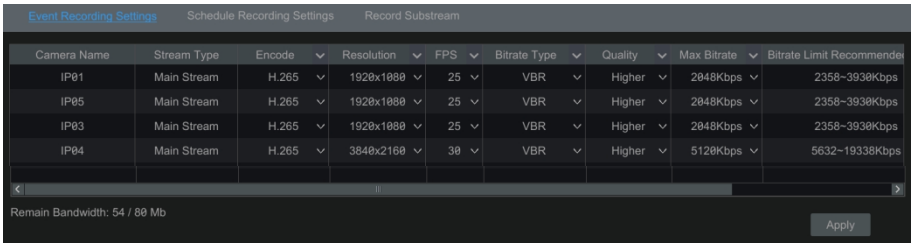
Click ***Start→Settings→Record→Advanced*** to go to the following interface. Enable or disable cycle record (cycle record: the earliest record data will be replaced by the latest when the disks are full). Choose the record stream. Set the pre-alarm record time, post-alarm record time and expiration time of each camera and then click “Apply” to save the settings.



Pre-alarm Record Time: set the time to record before the actual recording begins.
Post-alarm Record Time: set the time to record after the actual recording is finished.
Expiration Time: set the expiration time for recorded video. If the set date is overdue, the recorded data will be deleted automatically.

7.2 Encode Parameters Settings

Click ***Start→Settings→Record→Encode Parameters*** to go to the interface as shown below. Set the encode, resolution, FPS, GOP, bitrate type, quality, max bitrate and audio of main stream for each camera in "Event Recording Settings" and "Schedule Recording Settings" interfaces. Additionally, the record sub stream of each camera can be viewed. Click "Apply" to save the settings. You can set the record stream of each camera one by one or set them in batches for all cameras.



7.3 Record Mode

7.3.1 Manual Recording

Method One: Click  on the tool bar at the bottom of the live view interface to enable recording of the camera.

Method Two: Go to the live view interface and then click the right-click menu "Manually Record On" in the camera window or click  on the tool bar under the camera window to start recording.

Note: Click Start→Settings→Record→Mode Settings and then set the manual record time in the interface. Click "Apply" to save the settings.

7.3.2 Timing Recording

Timing Recording: the system will record automatically according to the schedule.
Set the timing record schedule of each camera. See Schedule Settings for details.

7.3.3 Motion-based Recording

Motion-based Recording: the system will start motion-based recording when the motion object appears in the setup schedule. The setup steps are as follows:

① Set the motion-based recording schedule of each camera. See Schedule Settings for details.

② Enable the motion and set the motion area of each camera. See Motion Alarm for details.

The camera will start motion-based recording once you finish the above settings.

7.3.4 Sensor Based Recording

① Set the sensor based recording schedule of each camera. See Schedule Settings for details.

② Set the NO/NC type of the sensor, enable the sensor alarm and then check and configure the "Record". See Sensor Alarm for details.

7.3.5 AI Event Recording

① Set the analytics recording schedule of each IP camera. See Schedule Settings for details.

② Enable the intelligent alarm detection (object detection, exception, line crossing, intrusion or face detection) and draw alert surface or warning area of each IP camera. See AI Event Management for details.

The camera will start analytic recording once you finish the above steps. This function is only available for some IPCs.

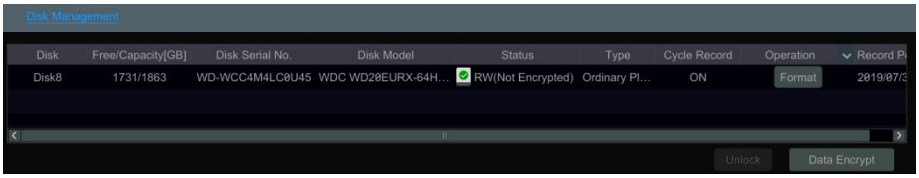
7.4 Disk

7.4.1 Disk Management

The HDD can be plugged in or pulled out when the NVR is on. When the HDD is in abnormal status, the abnormal information will be prompted on the screen (such as "No HDD", "Only read", "Unformatted", "The HDD is unavailable", etc.)

➢ Disk Management

Click ***Start→Settings→Disk→Disk Management*** to go to disk management interface. You can view the NVR's disk number and disk status and so on in the interface. Click "Format" to format the HDD.



Data Encryption:

① Click "Data Encrypt".

② Enter the username and password used to log into the NVR. This username and password must have the permission of disk management.

③ Check the disk you want to encrypt and then enter the password.

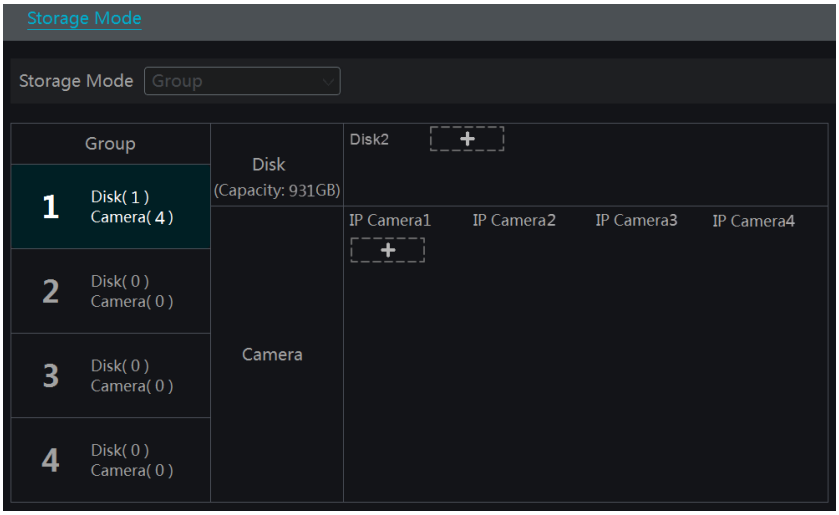
After you encrypt the data of a disk, this disk cannot be read by other NVRs unless it is unlocked.

Data Decryption:
① Click “Change Encryption”.
② Enter the username and password used to log into the NVR. This user must have the permission of disk management.
③ Check the disk you want to decrypt and then clear the password.
④ Click “Close Encryption”.

Unlock the disk: when one encrypted disk is transferred from another NVR to this NVR, it will be locked. You can select this locked disk and click “Unlock”. After you enter the password of its data encryption, its status will be “Read Only”. Now you can read the data of this disk but nothing can be written to it.

7.4.2 Storage Mode Configuration

Click ***Start→Settings→Disk→Storage Mode*** to go to the interface as shown below.



By using disk group, you can correspond a camera to disk (the record data of the camera in the group will be stored into the disks in the same group). The NVR with e-SATA interface supports e-SATA recording.

The added disks and cameras will be added into group one automatically. The disks and cameras in the groups can be deleted except group one (select a disk group and then click ⊗ on the top right corner of the added disk or camera to delete it from the group). The deleted disks and cameras will be moved into group one automatically.

Each group can add disks and cameras from other groups. Each disk and camera can only be added into one group. Select a disk group and then click + in the disk or camera row to open a window. Check the disks or cameras in the window and then click “Add”.

BK Group (Backup Group)

For the model with 2 or 4 HDD slots, the BK group can be added as shown below.



Click + to add the backup HDD. After account verification, select a HDD and then this HDD will be removed from the normal group to the backup group. Simultaneously, it will be formatted. Please back up all data of this HDD in advance when you want to remove it to the backup group.

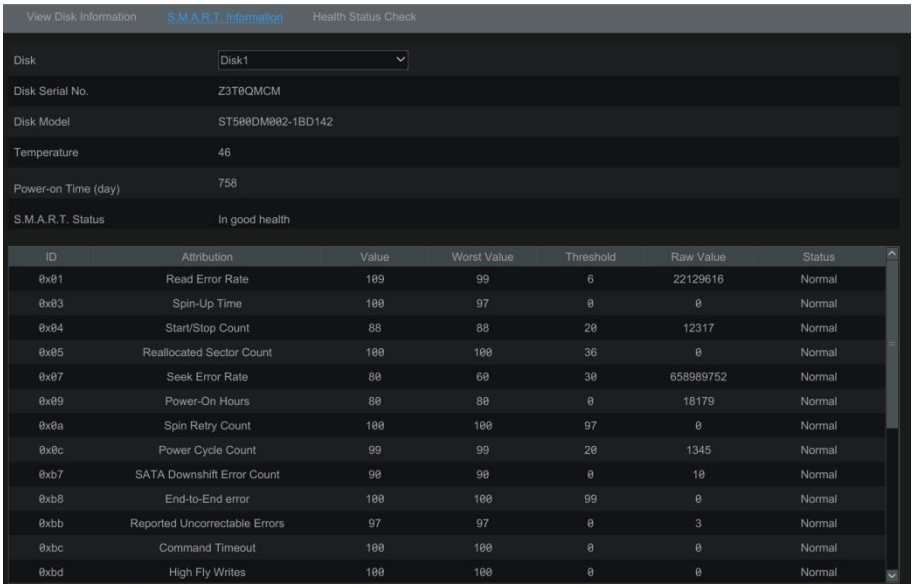
You can add cameras to this HDD. The added cameras can exist and be recorded both in one HDD of the normal group and the backup group.

Note:

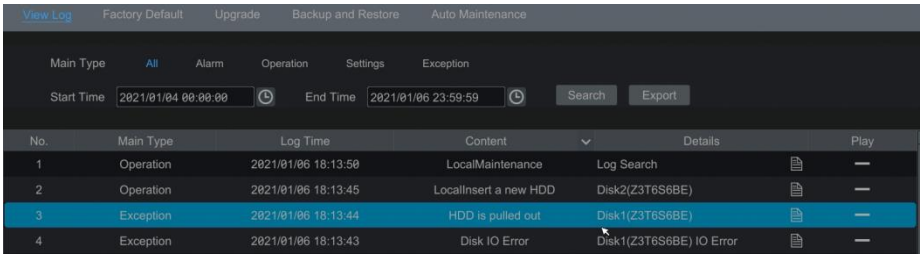
1. Each HDD can only exist in one group.
2. The BK group is only available for GV-GNVRC1620-P.

7.4.3 View Disk Information

Click ***Start→Settings→Disk→View Disk Information*** to view the HDD information; click "S.M.A.R.T. Information" to view the working status of the HDD (refer to the picture below); click "Health Status Check" to check the western digital purple disks' health status.



In addition, you can view the plug-in or pull-out details of the HDD from the logs to check whether someone moves your HDD or not. Click ***Start→Settings→System→View Log***.



8 Playback & Backup

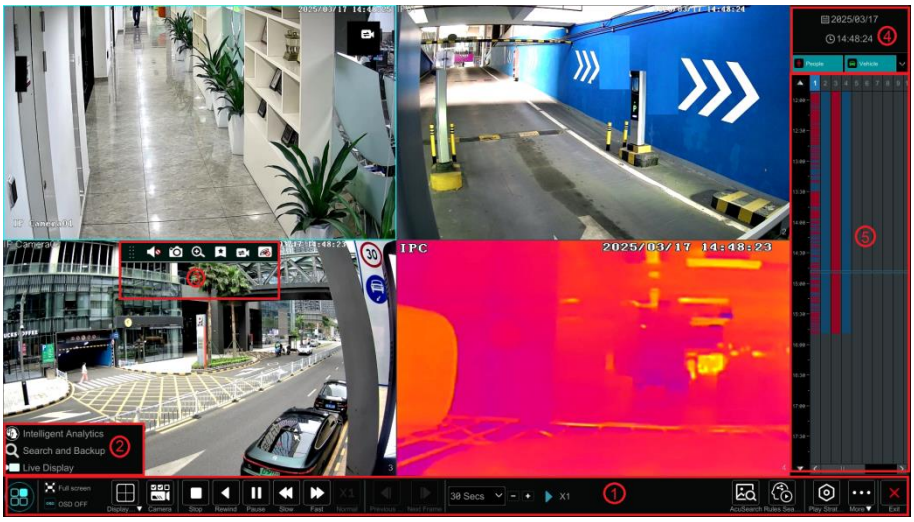
8.1 Instant Playback

Click on the tool bar at the bottom of the preview camera window to play back the record (click on the tool bar at the bottom of the live view interface to set the default playback time). Refer to the picture below. Drag the playback progress bar to change the playback time. You can also click the right-click menu “Instant Playback” in the camera window and then set the instant playback time to play back the record.



8.2 Playback Interface Introduction

Click on the tool bar at the bottom of the live view interface or click ***Start→Playback*** to go to the playback interface as shown below (click on the tool bar at the bottom of the live view interface to set the default playback time).



The panel on the right will show you the channel number and the recorded data coded by color. The bar that runs across them represents the playback time being viewed. You can move this bar around. To export, highlight a section of the desired recording, click export and follow the prompts. You can export single or multiple channels at the same time.

The added cameras will playback their recordings in the playback interface automatically. You can also add the playback camera manually. Click in the playback window to open the “Add

Camera" window. Check the cameras in the window and then click "Add" to add playback camera. The system supports a maximum of 16 synchronous playback cameras.

The buttons on the tool bar (area ①) at the bottom of the playback interface are introduced in the table below.

Button	Meaning
	Start button. Click to pop up area ②.
	Full screen button. Click to show full screen; click again to exit the full screen.
	Screen display mode button. 1/4/9/16 screen display mode can be selected (depending on models); in addition, the playback channel will be switched by continuous selection of the same screen display mode, for example, after selecting 1-screen display mode, click this mode again and then the current playback channel will switch to the next playback channel.
	OSD ON button. Click to enable OSD; click again to disable OSD.
	Quick channel selection button
	Stop button.
	Rewind button. Click to play video backward.
	Play button. Click to play video forward.
	Pause button.
	Slow Play button. Click to decrease the playing speed.
	Fast Play button. Click to increase the playing speed
	Normal speed. Click to restore the normal speed after fast forwarding or rewinding.
	Previous frame button. It works only when the forward playing is paused in single screen mode.
	Next frame button. It works only when the forward playing is paused in single screen mode.
	Select the time, for example 30s, and click  to step backward 30s
	Select the time, for example 30s, and click  to step forward 30s.
	AcuSearch (See AcuSearch for details)
	Click to enter the rules search interface
	Play strategy button. You can enable "Play filtered recording only".
	 Tag button. Click to view the tag information.
	 Watermark button. Click to enable watermark; click it again to disable watermark.
	 Open/close POS information
	 Backup status button. Click to view the backup status.
	 Backup button. Drag the mouse on the time scale to select the time periods and cameras, and then click the button to back up the record.
	 Back button. Click to return.

Introduction of area ②:

Button	Meaning
Intelligent Analytics	Click to go to the intelligent analytics interface.
Search and Backup	Click to go to record search and backup interface; see Record Search, Playback & Backup for details.
Live Display	Click to go to the live view interface; see Live View Introduction for details.

Click on the playback window to show the tool bar as shown in area ③; right click on the window to show the menu list. The tool bar and menu list are introduced in the table below.

Button	Menu List	Meaning
	--	Move tool. Click to move the tool bar anywhere.
	Enable Audio	Click to enable audio. You can listen to the camera audio by enabling audio.
	Snap	Click to take a snapshot.
	Zoom In	Click to go to the zoom in interface. The zoom in interface is similar to that of the camera window in the live view interface. Click to pause the record playing; click to play the record. When the record is paused in forward playing mode, you can click to view the previous frame and click to view the next frame.
	Add Tag	Click to add tag. You can play back the record by searching the added tag. Click and then enter the tag name in the popup window. Click “Add” to add tag.
	Switch Camera	Click to switch the playback camera. Click it and then check the camera in the popup window. Click “OK” to change the camera.
	Close Camera	Click to close the playback camera.

Introduction of area ④:

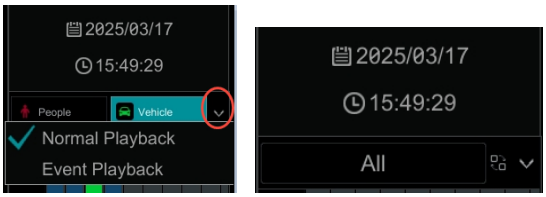
Click to set the date; click to set the time and then the playback camera will play the record from the time you set.

There are two type of playback: Normal Playback and Event Playback.

- Normal Playback

Normal playback is the default playback type. In normal playback mode, you can play the recorded videos by filtering people or vehicle. The record time scale shows different record types with different colors. Red stands for AI record based on people; Green stands for AI record based on vehicle; Blue stands for other records (without people/vehicle classification).

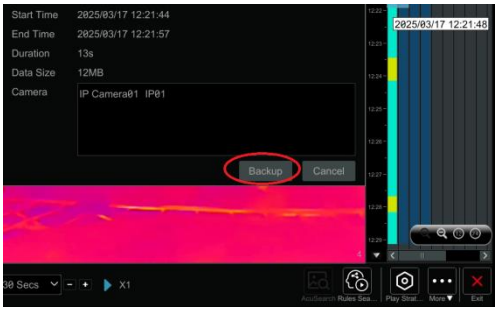
- Event Playback:



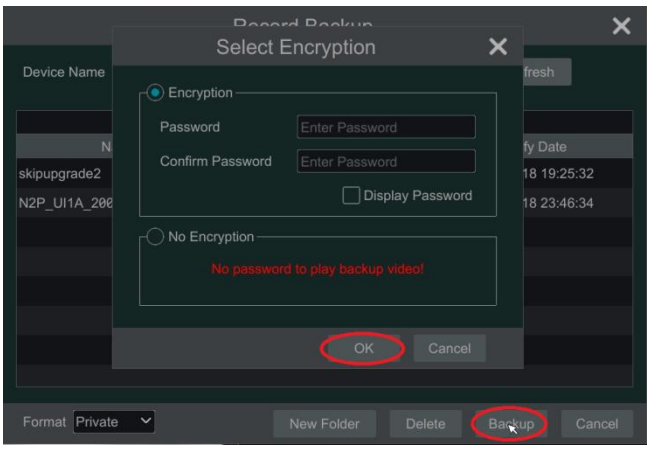
Click as shown above and select “Event Playback”. In event playback mode, you can choose different event type as needed. All events are selected by default. Click “All” to display an event filtering window. Select the desired event type (for example, general events, perimeter detection, etc.). Click to view the color meanings. Different event types have different colors. In addition, you can choose view records by event or by category.
Finally, click in the playback window to add camera for playback (the record time scale will show the record data of the checked record type only after the above operations).

Introduction of the record time scale (area ⑤):
A tool bar will appear after moving the mouse to the record time scale. Click / to zoom the timeline; click to recover the timeline to 24 hours’ ratio. Drag the timeline or slide the scroll wheel of the mouse on the time scale to show the hidden time on the top or bottom of the timeline. You can also click to show the hidden time on the top of the timeline or click to show the hidden time on the bottom of the timeline. Drag the slider at the bottom of the time scale to show the hidden playback cameras.
The record time scale shows different record types with different colors. Click the record block to set the time and then the playback camera will play the record from the time you set.

Backup Introduction:
Insert the storage device into the device. Drag the color block on the time scale to select the backup area and then right click the area or click and select to pop up a backup information window. Click the “Backup” button in the window to pop up the backup window. Select the device, backup path and backup format and then click the “Backup” button.



In the backup window, you can select backup path and format. Then click “Backup”.
Backup format: Private, AVI or MP4.
Please select “Encryption” or “No Encryption” as needed. After that, click “OK”.



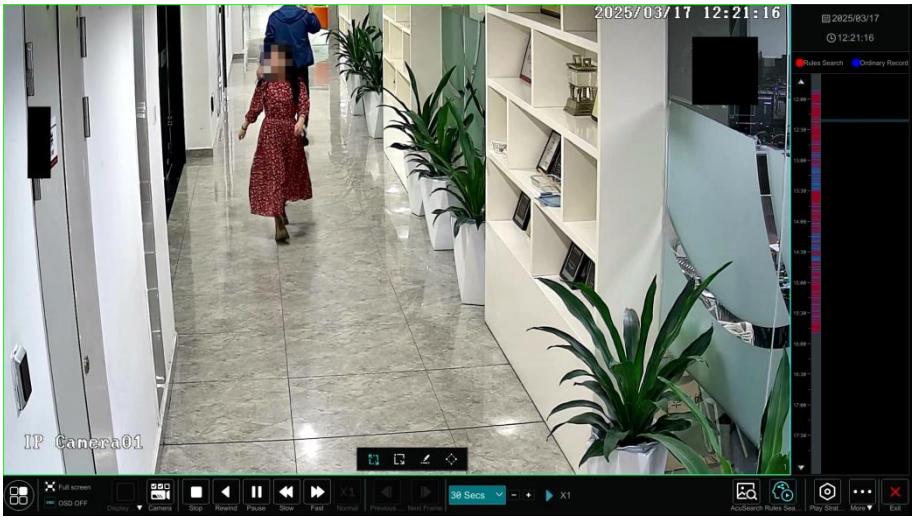
After that, you can click “More” and select the “Backup Status” to view the backup progress.

Delete the video record of backup disk group

In the playback interface, click  to select the backup disk group. Then use the left mouse button to drag on the timetable to select the records you want to delete. Then right click and select [Delete] to delete it.

8.3 Rules Playback

In the playback interface, click  to go to the smart playback interface as shown below.



The descriptions of buttons in the smart playback interface

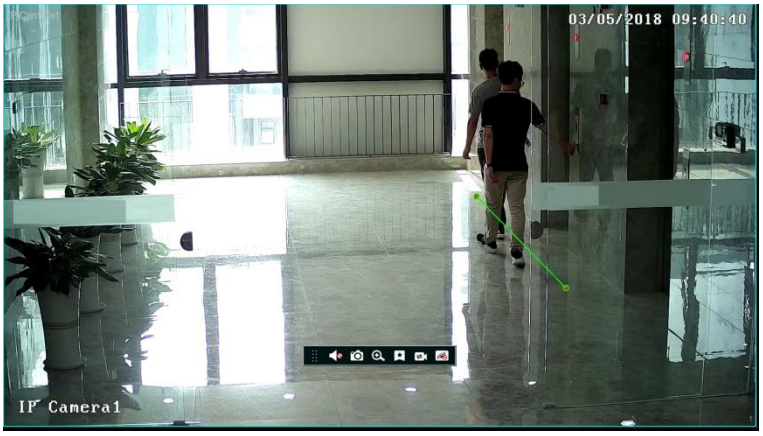
Button		Description
		Full screen motion button.
		Draw grid. You can search the record of motion detection in the pre-defined area.
		Draw line. You can search the record of crossing the line after drawing the line.
		Draw quadrilateral. You can search the record in this quadrilateral after drawing it.

- **Smart Playback by Drawing Grid**

Click and draw a rectangle in the desired area. The system will automatically search the record files of this area. The cyan blocks indicate that there are intelligent recording files. Move the cursor to such block and click to play the recording.

- **Smart Playback by Drawing Line**

Click and draw a line in the desired area. Then the system will automatically search for the record files where this line was crossed. The cyan blocks indicate that there are intelligent recording files. Move the cursor to such block and click to play the recording.



- **Smart Playback by Drawing Quadrilateral**

Click and draw a quadrangle in the desired area. Then the system will automatically search the record files of this area. The cyan blocks indicate that there are intelligent recording files. Move the cursor to such block and click to play the recording.



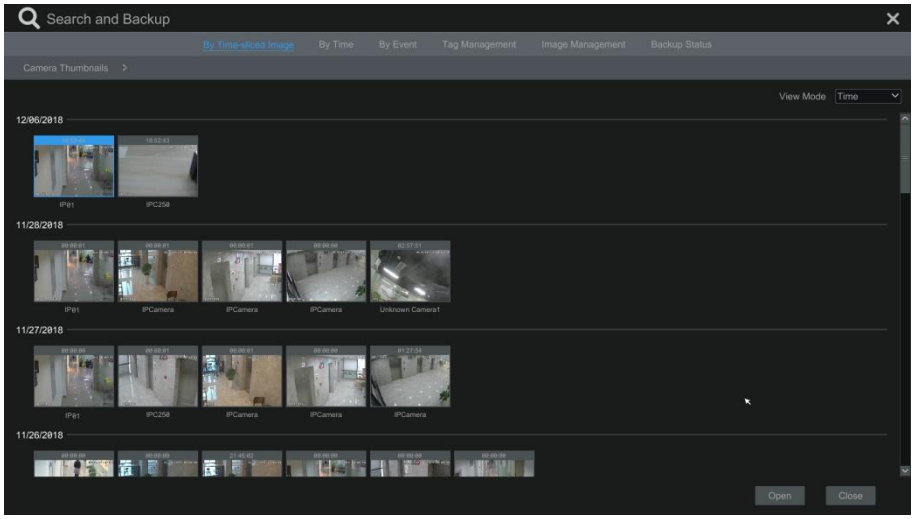
8.4 Record Search, Playback & Backup

The record data and the captured pictures can be backed up through the network or USB (U disk or USB mobile HDD). The file system of the backup devices should be FAT32 format.

8.4.1 Search, Playback & Backup by Time-sliced Image

① Click ***Start→Search and Backup→By Time-sliced Image*** to go to “By Time-sliced Image” tab. There are two view modes: by time and by camera. In the time view mode, a maximum of 64

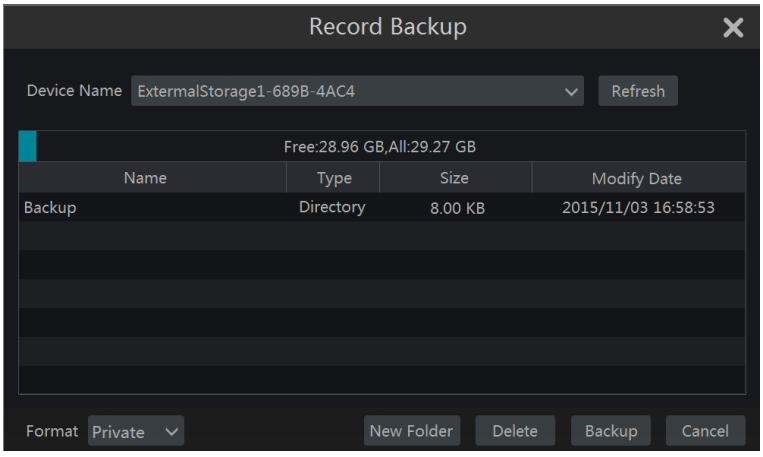
camera thumbnails can be shown. If the camera thumbnail number is more than 64, the cameras will be listed directly by their camera name, not the thumbnail. A maximum of 196 camera names can be listed. If the camera names exceed 196, the time view mode will be disabled and only the camera view mode will be available.



② Select one camera in the interface and then click the “Open” button.

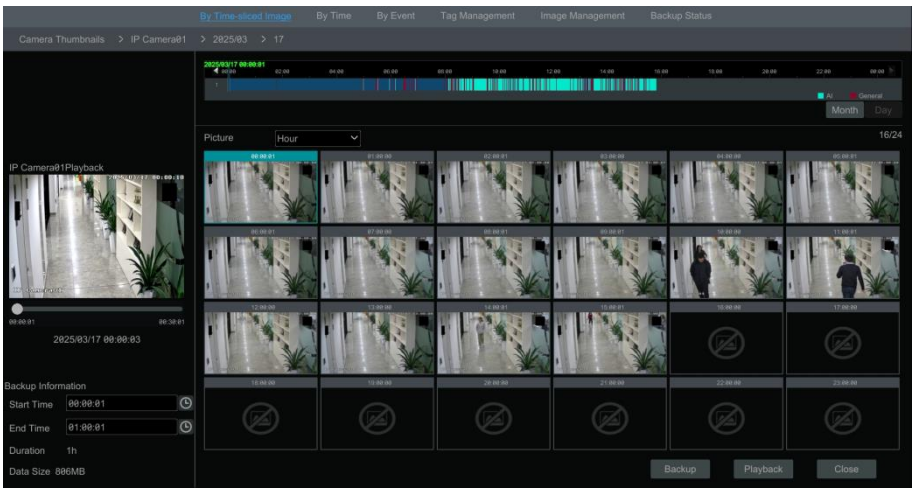
③ Click the image box to play the recording in the small playback box on the left side of the interface (the box which has image inside indicates that the recording data exist).

④ Refer to the picture below. Drag the color blocks on the time scale to select the recording data and then click the “Backup” button to open the “Record Backup” window as shown below. Select the device name, backup format and path and then click the “Backup” button to start the backup.



Note: If you back up the record in private format, the system will back up a RPAS player to USB device automatically. The private format record can be played by RPAS player

⑤ Click “Playback” to play the record in the playback interface (refer to Playback Interface Introduction for details). Click “Close” to close the interface.



Time Slice Search:

Method One: Click “Year”, “Month” or “Day” button under the record time scale to select the time slice mode. In “Day” mode, click ◀ / ▶ on the left/right side of the time scale to view the record of the last/next day; click “Minute” in the “Picture” option under the time scale to select “Minute” mode (in “Minute” mode, click the time scale to change the time of the 60 display windows) and click “Hour” to select “Hour” mode.

Method Two: Click › beside “Camera Thumbnail” on the left top corner of the interface to select the time slice mode.

Method Three: Right-click the mouse on any area of the time-sliced interface to go back to the upper interface.

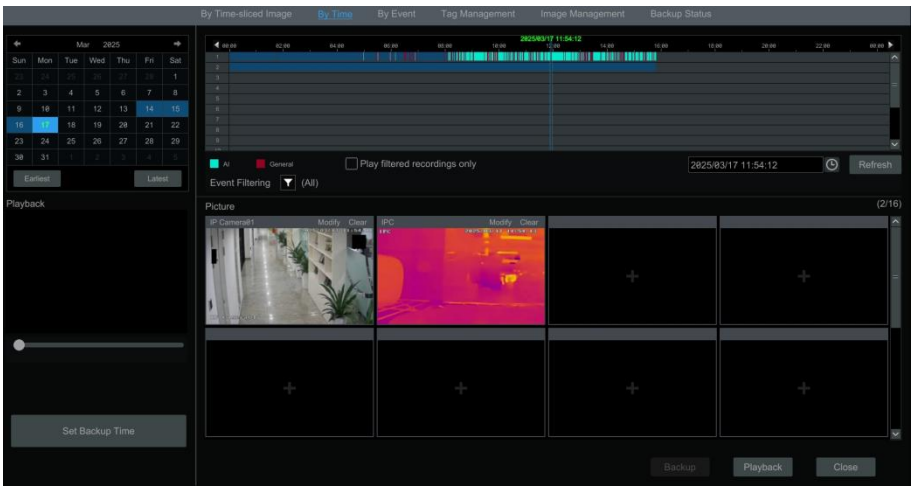
8.4.2 Search, Playback & Backup by Time

① Click ***Start→Search and Backup→By Time*** to go to “By Time” tab as shown below.

② Click ➕ on the bottom of the interface to add playback camera. A maximum of 16 cameras can be added for playback. Click “Modify” on the top right corner of the camera window to change the camera and click “Clear” to remove the camera.

③ Click the camera window to play the recording in the small playback box on the left side of the interface. You can set the date on the top left of the interface, check the event type as needed and click the time scale or click 🕒 under the time scale to set the time. The camera window will play the recording according to the time and event type you set.

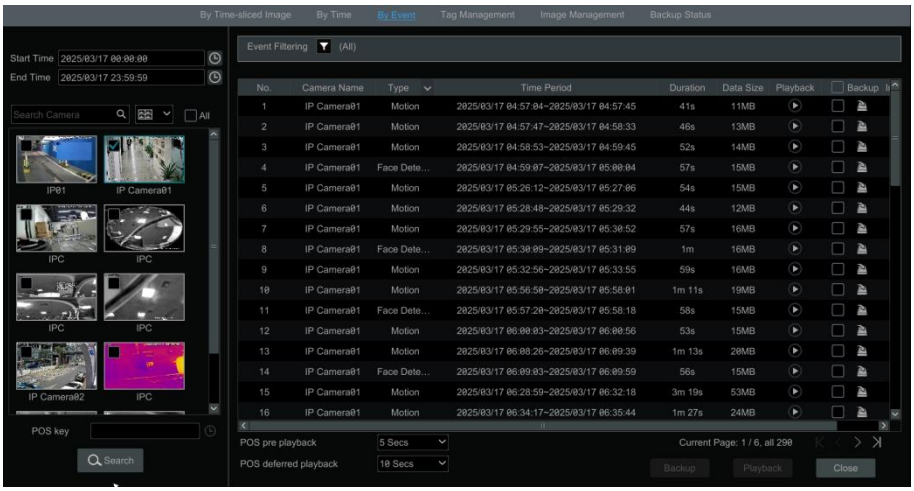
④ Drag the color blocks on the time scale to select the record data (or click “Set Backup Time” on the bottom left corner of the interface to set the backup start time and end time) and then click “Backup” for record backup. Click “Playback” to play the recording in the playback interface. Click “Delete” to delete the selected record file.



8.4.3 Search, Playback & Backup by Event

Some models may support searching POS event.

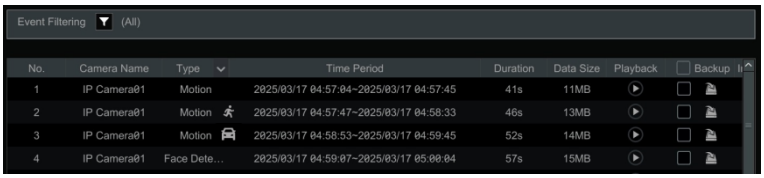
① Click ***Start→Search and Backup→By Event*** to go to “By Event” tab as shown below.



② Check the event type in the interface as needed.

③ Click  to set the start time and end time on the top left of the interface. Click  to filter events. Click  next to “Type” to select “People” or “Motor Vehicle” to show motion (people) or (motor vehicle) as shown below. If “None” is selected, all events will be searched except motion (people) or (motor vehicle).

Note: Only the camera with SMD function has the data of motion (people/vehicle classification).



④ Check cameras on the left side of the interface or check “All” to select all the cameras and then click  to search the record. The searched record will be displayed in the list.

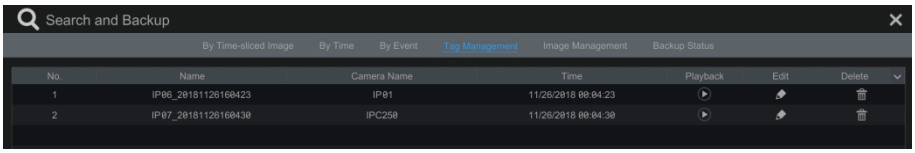
⑤ Click  in the list to play back the record in the popup window. Click  to back up one record data or check multiple record data in the list and then click “Backup” for record batch backup.

⑥ Select one record data in the list and then click “Playback” to play the record in the playback interface.

8.4.4 Search & Playback by Tag

Only if you add the tags can you play the record by tag search. Click ***Start→Playback*** to go to the playback interface and then click on the bottom of the camera window to add tag when you want to mark the playback time point of the selected camera.

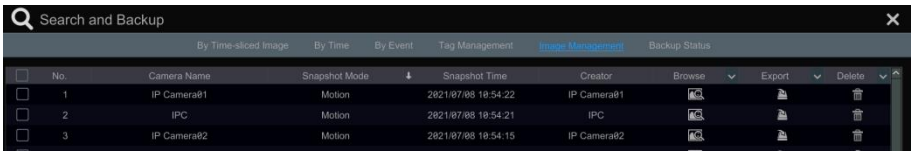
Click ***Start→Search and Backup→Tag Management*** to go to “Tag Management” tab.



Click in the interface to play the record. Click to edit the tag name. Click to delete the tag.

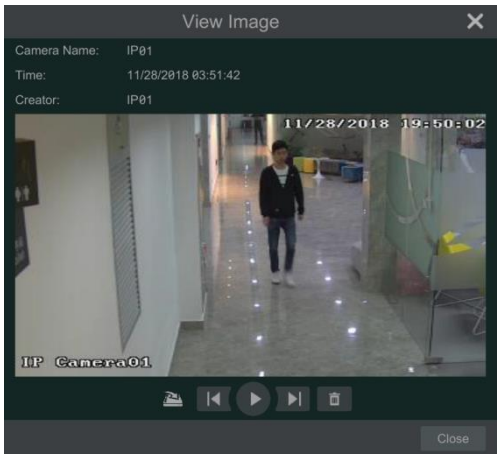
8.4.5 Image Management

Click ***Start→Search and Backup→Image Management*** to go to “Image Management” tab. The system will display all the snapped images automatically in the list.



Click to delete the image. Click to open the “Export” window. Select the device name and save path in the window and then click the “Save” button.

Click to pop up the “View Image” window. Click to export the image. Click to view the previous image; click to view the next image; click to delete the image; click to play all the images.



8.4.6 View Backup Status

Click ***Start→Search and Backup→Backup Status*** or click  on the tool bar at the bottom of the playback interface to view the backup status.

9 AI Event Management

For compatible AI cameras, the enabled event category (Face or Smart Event) is processed directly by the camera, while the non-enabled category falls back to the NVR AI engine. For compatible non-AI cameras, all AI features are processed by the NVR AI engine.

NVR AI Engine Resource Usage

The percentages in the following table indicate the NVR AI engine resources used. To free AI resources, go to the desired AI Event page, click  next to the AI Resource percentage at the top right, and then click  next to the AI by NVR function to free its AI resources.

<table>
<tr><th></th><th colspan="2">NVR Engine Enabled***</th><th colspan="2">NVR Engine Disabled</th></tr>
<tr><td rowspan="2">Compatible AI Cameras*</td><td>Face Event Enabled**</td><td>Face Detection: AI by Camera
Face Recognition: AI by NVR (16.67%)
Perimeter Detection: AI by NVR (50%)
Picture Comparison: AI by NVR (50%)</td><td>Face Event Enabled</td><td>Face Detection: AI by Camera
Face Recognition: No Function
Perimeter Detection: No Function
Picture Comparison: No Function</td></tr>
<tr><td>Smart Event Enabled**</td><td>Perimeter Detection and Other Smart Events* (e.g., Video Metadata): AI by Camera
Face Detection: AI by NVR (50%)
Face Recognition: AI by NVR (0%)
Picture Comparison: AI by NVR (50%)</td><td>Smart Event Enabled</td><td>Perimeter Detection and Other Smart Events* (e.g., Video Metadata): AI by Camera
Face Detection: No Function
Face Recognition: No Function
Picture Comparison: No Function</td></tr>
<tr><td>Compatible Non-AI Cameras</td><td colspan="2">Face Detection: AI by NVR (50%)
Face Recognition: AI by NVR (0%)
Perimeter Detection: AI by NVR (50%)
Picture Comparison: AI by NVR (50%)</td><td colspan="2">No Function</td></tr>
</table>

* For the complete list of compatible AI cameras and the Smart Events supported by AI by Camera, see the datasheets.

** For details on enabling event categories, see *9.1.1 Face Detection Settings* below.

*** For details on enabling the NVR engine, see *10.4 Enabling AI Mode*.

Note: For compatible non-AI cameras, some AI by NVR features may not be fully supported at this stage. Additional support will be provided in future releases.

NVR AI Engine Channel Limitations

The following AI by NVR functions each count as **1 instance**:

1. Face Recognition by NVR for Compatible AI Cameras × 3 CH
2. Face Detection by NVR × 1 CH
3. Perimeter Detection by NVR × 1 CH

The number of instances that can be used simultaneously depends on the resolution and Picture Comparison setting:

Resolution	Picture Comparison Disabled	Picture Comparison Enabled
2 MP	Up to **2** instances simultaneously	Up to **1** instance
4 MP	Up to **1** instance	
Over 4 MP	To use any AI by NVR function, manually lower the resolution to 4 MP or below in **Settings** > **Record** > **Encode Parameters**.	

Examples:
At 2 MP resolution with Picture Comparison disabled, up to 2 instances can be used simultaneously. The 2 instances can be the same or different AI by NVR functions. For example:

- Face Recognition by NVR for Compatible AI Cameras × 3 CH
  + Face Recognition by NVR for Compatible AI Cameras × 3 CH
  = **Face Recognition by NVR for Compatible AI Cameras × 6 CH**
- Face Detection by NVR × 1 CH
  + Face Detection by NVR × 1 CH
  = **Face Detection by NVR × 2 CH**
- Face Recognition by NVR for Compatible AI Cameras × 3 CH
  + Perimeter Detection by NVR × 1 CH
  = **2 AI by NVR functions used simultaneously**

9.1 Face Recognition

Only some models support alarm trigger based on face comparison. Some models under AI mode support face comparison. If your device doesn't support face recognition function, skip the face database and face recognition instructions.

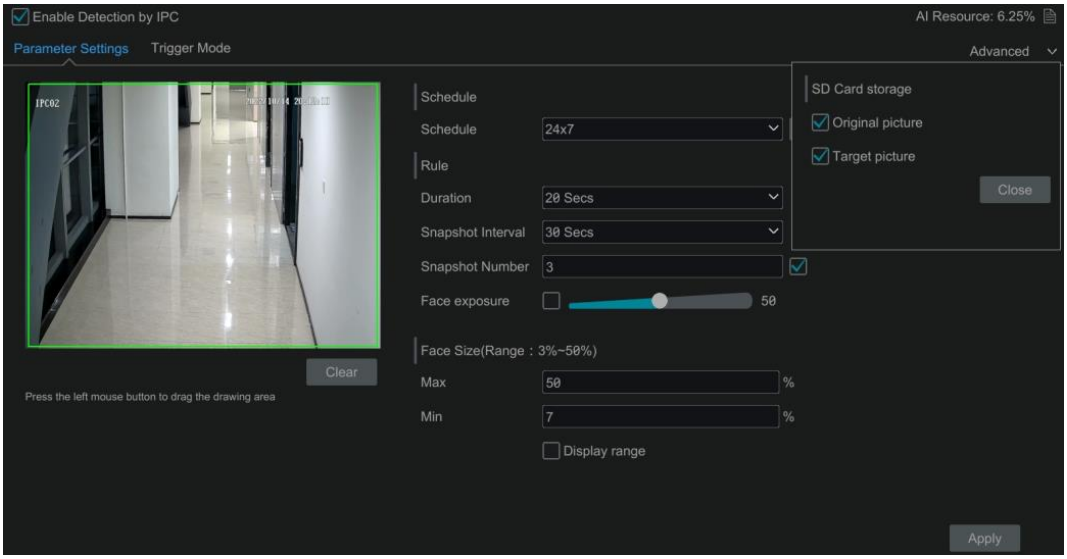
The following are instructions on how to set up the Face Recognition function for the first time:

Set face detection and alarm linkage → Add face group → Add faces to the face group → Enable and set successful recognition (or stranger) → Set successful recognition (or stranger) alarm linkage

9.1.1 Face Detection Settings

Face Detection: Alarms will be triggered if someone intrudes into the pre-defined alarm areas.

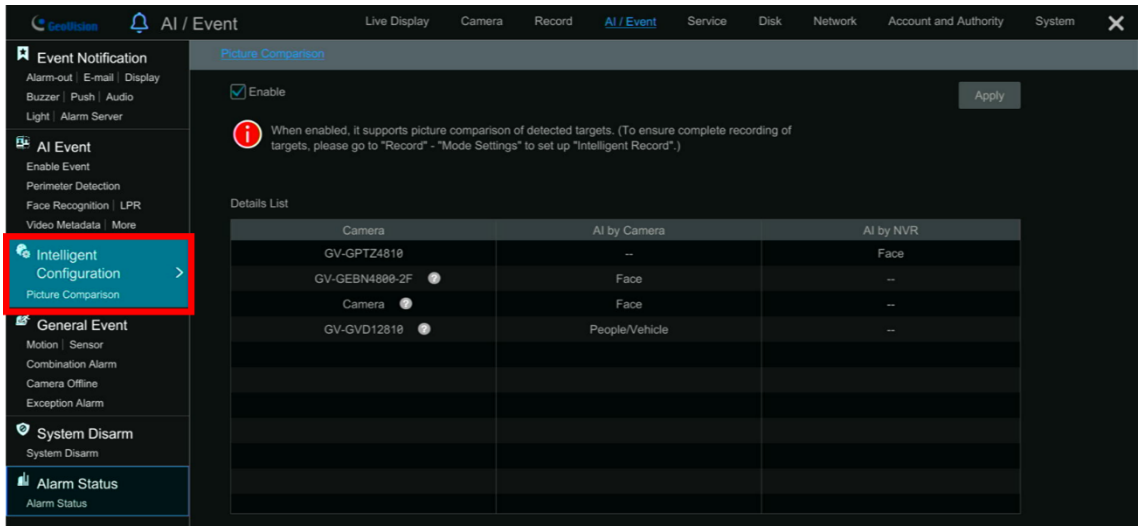
① Click ***Start→Settings→AI/Event→AI Event→Face Recognition→Detection*** to go to the following interface.



② Select the camera, check “Enable Detection by IPC” and set the duration.

Note: 1. Some models may support face detection by NVR. For these models, cameras without AI function can also be added and used to detect faces through NVR. However, face detection by NVR and people/vehicle perimeter detection can only be enabled simultaneously under certain conditions. See *NVR AI Engine Channel Limitations* earlier in this chapter.

After enabling detection by NVR, go to ***Start→Settings→AI/Event→Intelligent Configuration →Picture Comparison*** to view the details of picture comparison as shown below.

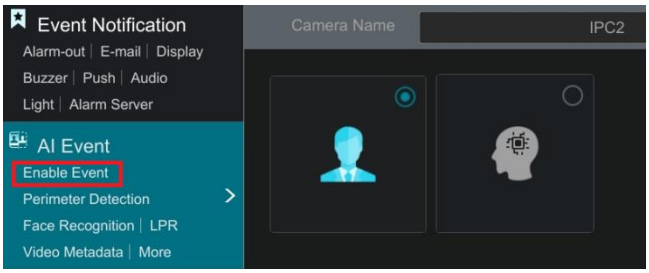


You can view which cameras have AI enabled by the NVR.

- AI by Camera: Enable AI function by camera.
- AI by NVR: Enable AI function by NVR.

Note: Picture Comparison is available only when the NVR engine is enabled.

2. Some AI cameras support event type classification. If the event type is not face event, you need to select face event by clicking ***Start→Setting→AI/Event→Enable Event***. After the camera restarts, face detection of the IPC can be enabled.



③ Set the schedule. Click “Manage” to set the desired schedule. Please refer to Schedule Settings for details.

④ Set the snapshot interval and snapshot number. The snapshot interval refers to the time interval that the camera captures the same face during its continuous tracking period. The snapshot number refers to the picture number of the same face captured during its continuous tracking period (For example: the snapshot interval is set to “30 seconds” and the snapshot number is set to “3”; then the camera will capture the same face once every 30 seconds and it will capture this face 3 times at most during its continuous tracking period).

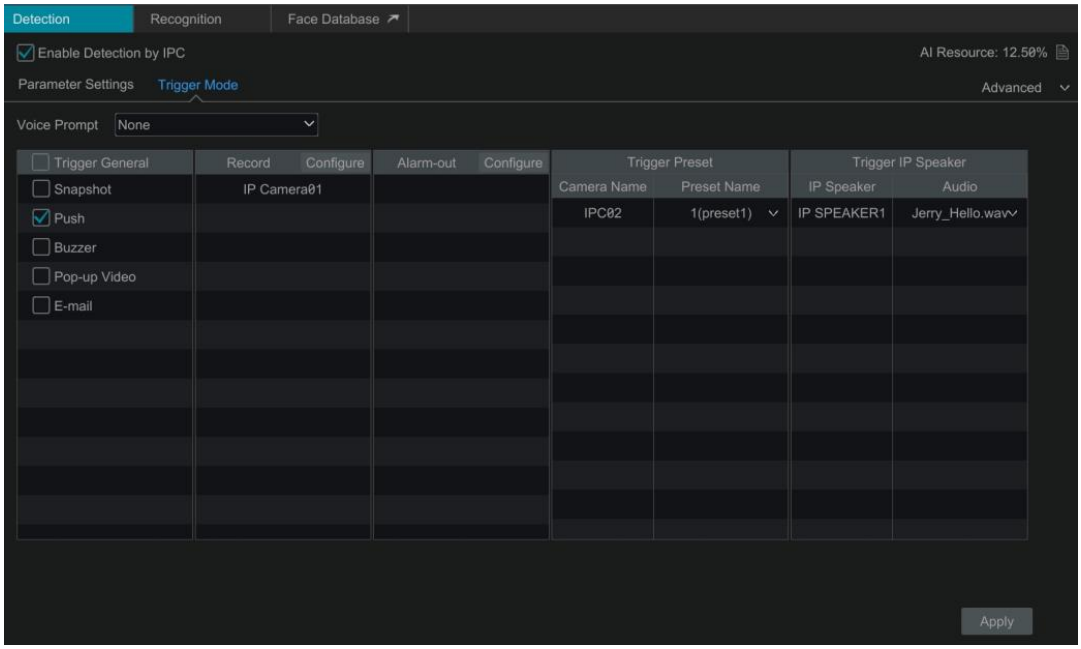
⑤ Enable face match exposure as needed. When the brightness of the captured face is not enough, it can be enabled. (Only some IPCs support this function)

⑥ Set the alarm area. Drag the mouse to draw a detection area. Click “Clear” to delete the alarm area. Then set the detectable face size by defining the maximum value and the minimum value (The default size range of a single face image occupies from 3% to 50% of the entire image).

⑦ Enable “Original picture” or/and “Target picture” as needed. If enabled, the system will automatically save the corresponding images on the SD card.

⑧ Click “Apply” to save the settings.

⑨ Click “Trigger Mode” to go to face detection alarm linkage setting interface:



Face Detection Alarm Linkage Configuration:

- Trigger “Voice Prompt”, “Record”, “Snapshot”, “Push”, “Alarm-out”, “Preset”, “Buzzer”, “Pop-up Video” , “E-mail”, and “IP Speaker” as needed.

Voice Prompt: Please upload the audio file in local audio alarm interface first (click Start→Settings→AI/Event→Event Notification→Audio). Please see Audio for details.

Record: Click the “Configure” button to open the window. Select a camera on the left side and then click  to set the camera as the trigger camera. Select a trigger camera on the right side and then click  to cancel the trigger camera. Click “OK” to save the settings. The trigger cameras will record automatically when faces are detected.

Alarm-out*:* Click the “Configure” button to open the window. Then the “Trigger Alarm-out” window will pop up automatically. Configure the trigger alarm-out in the window. The system will trigger the alarm-out automatically when faces are detected. You need to set the delay time and the schedule of the alarm outputs. See Alarm-out for details.

Preset*:* Click  and then select the preset for each camera. To add presets, please see Preset Setting for details.

Snapshot: If it is enabled, the current camera will capture images automatically when faces are detected.

Push: If it is enabled, the system will send messages when faces are detected.

Buzzer*:* if it is enabled, the system will begin to buzz when faces are detected. To set the delay time of the buzzer, please see Buzzer for details.

Pop-up Video*:* if it is enabled, the system will open the corresponding video automatically when faces are detected. To set the duration time of the video, please see Display for details.

E-mail*:* if it is enabled, the system will send an e-mail when faces are detected. In the meanwhile, it will attach the captured face picture and the original picture so that you can view the whole scene when the alarm occurs. Before you enable the email, please configure the recipient’s e-mail address first (see E-mail Configuration for details).

IP-Speaker: After you add IP speaker to the NVR and link the corresponding camera, you can select the IP speaker to play the selected local audio file. See IP Speaker Management for IP speaker adding and camera linkage. See Audio for local audio import setup.

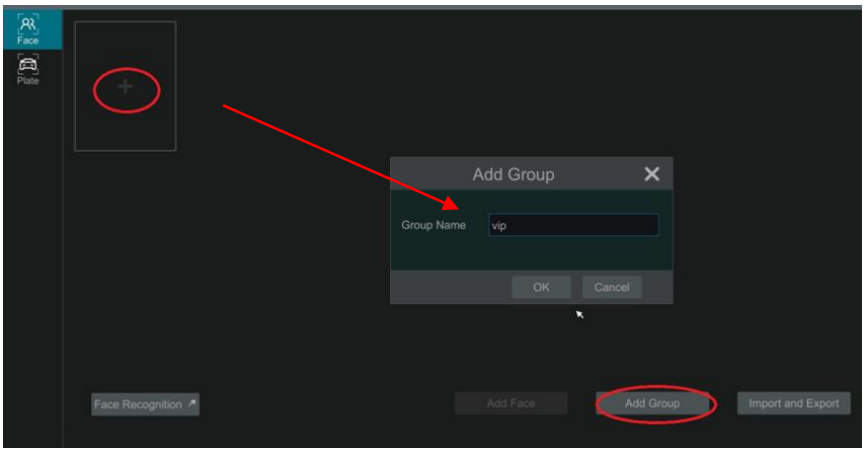
Enable “**IPC_Audio**” or “**IPC_Light**” as needed (only some IPCs support these two functions). To set the IPC voice and its times and volume, please refer to Audio for details. To set the light flashing time and frequency of the IPC, please refer to Light for details.

⑩ Click “Apply” to save the settings.

9.1.2 Face Database Management

Note: This function is only available for GV-GNVRC1620-P.

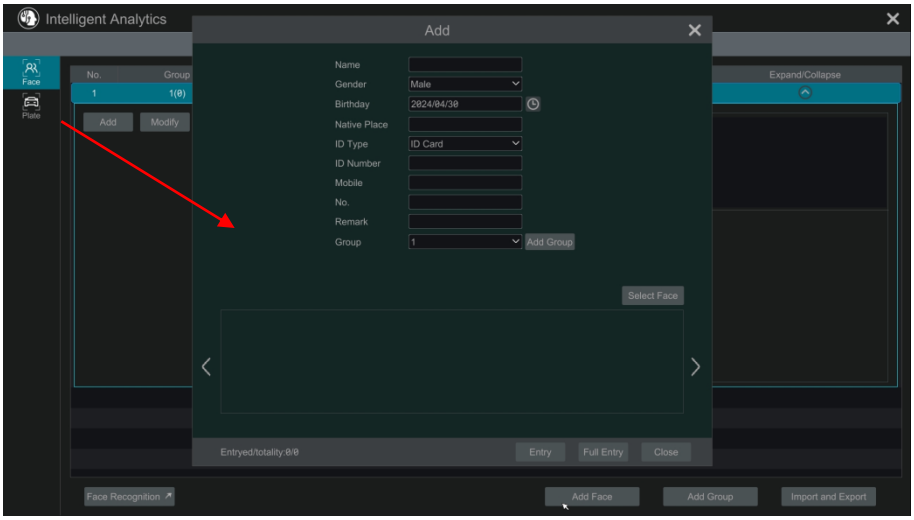
① Click ***Start→Settings→AI/Event→AI Event→Face Recognition→Face Database*** to go to the following interface as shown below.



For the first time, you can click "+" or "Add Group" to add groups.

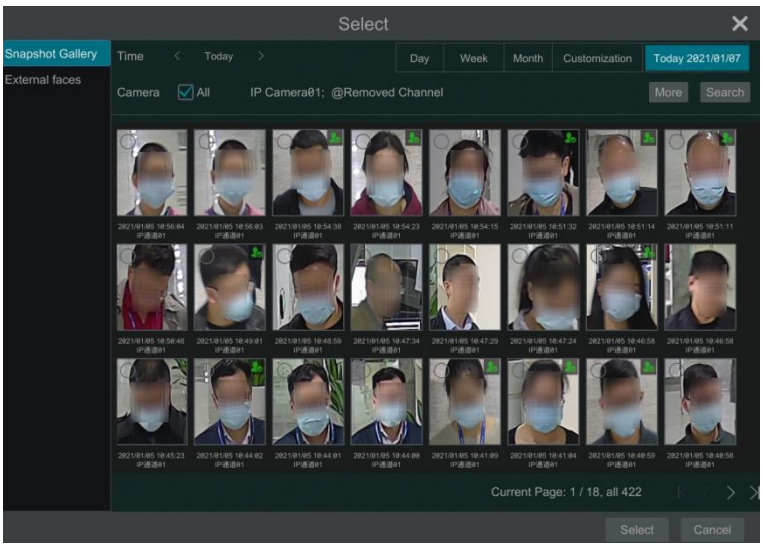
② To add targets for each group.

- Select a list and then click "Expand/Collapse" to expand the list as shown below.



- Click "Add" and then click "Select Face" to add face images. You can add faces from snapshot gallery or external faces.

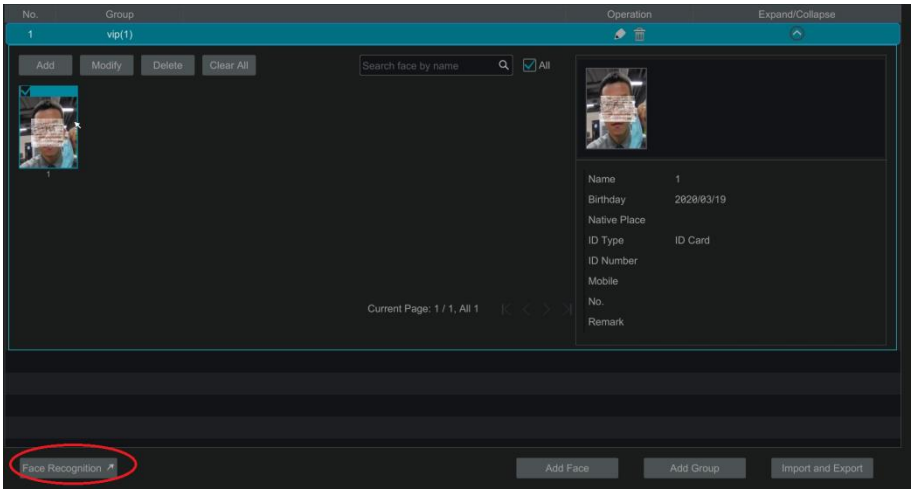
  Adding faces from snapshot gallery: Select search time or self define the search time and then click "Search" to search target faces. Then select the desired faces and click "Select".
  Note: The picture marked with a green icon can be added to the face database. Those pictures can't likely have resolution issues.



Add external faces

1. Save the face pictures on your USB storage device and then insert the USB storage device into the USB port of the NVR.
2. Go to the face database interface (***Start→Settings→AI/Event→AI Event→Face Recognition→Face Database***).
3. Click “Expand/Collapse” to expand the group, and then click “Add”.
4. Click “Select Face” > “External Faces” > “Import” to select face pictures. You can select one face to add or multiple faces to add.
5. To add multiple faces: a. put face pictures and the description file (.csv or .txt) to one specific folder (please edit the detailed descriptions of these pictures according to the personal information description); b. click “All” to select all face pictures; c. click “Full Entry”.
   Note: The image format of the added image must be “.jpg” or “.jpeg”.
6. After that, add the corresponding information, like name, gender, birthday, ID number, phone number and so on.
7. Click “Add”, and then click “Close”. The target image is added to the group.

After adding the target image to the group, select the image. The detailed information will appear on the right.



- Import and Export Face database

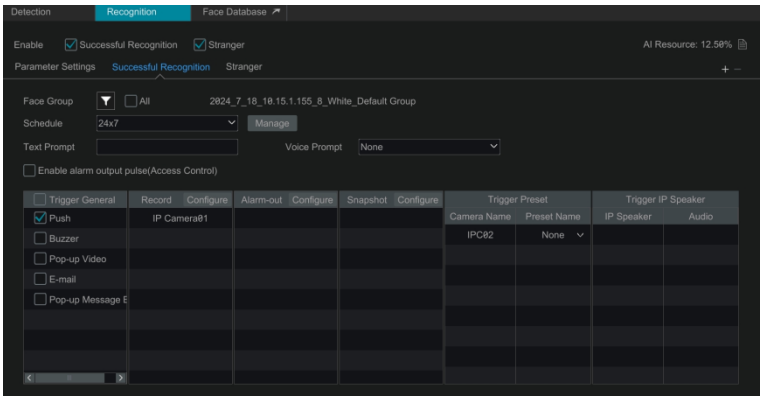
Insert your mobile storage device into the USB interface of the NVR and then click “Import and Export” to import or export the face database settings.

The exported face database file (cvs+jpg) can be directly imported to the face database to make it very convenient for you to transfer one NVR's face database file to other NVRs.

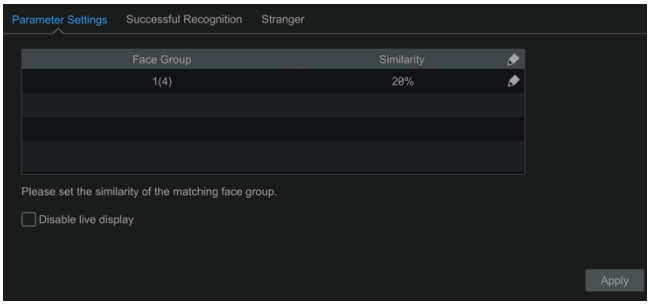
9.1.3 Face Recognition Settings

Note: This function is only available for GV-GNVRC1620-P.

After the face database and face pictures are added, click “Face Recognition” to return to the face recognition setting interface. Click the “Recognition” tab to go to the following interface.



① Enable “Successful Recognition” or “Stranger”. Click “Parameter Settings” to set the similarity of the matching face group.



Disable live display: if checked, the live view interface (target detection tab) will not display captured faces in real time.

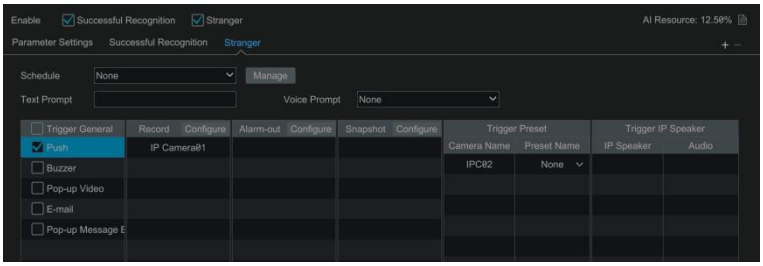
② Set the alarm linkage items for successful recognition.

- Select one or more face groups and then choose the schedule. Click “Manage” to set the schedule.
- Set the text prompt and voice prompt. When the captured face is matched successfully, the text will appear on the right of the live view interface and broadcast the audio.
- Enable alarm output pulse (access control) as needed. Should you wish to enable alarm output pulse, you must configure the corresponding alarm output of NVR/IPC (you can

choose the alarm output of NVR or IPC according to the actual application scenario). Once a human face is successfully matched, the pulse signal will be sent via the corresponding alarm output.

- Trigger record, snapshot, alarm-out, buzzer, push, pop-up video, E-mail, pop-up message box, and IP speaker as needed. The alarm linkage settings are similar to the face detection alarm (see Face Detection Settings for details).
- Click “Apply” to save the settings.

③ Set the stranger alarm linkage items. When the captured face picture doesn’t match the face pictures in the face database or their similarity is lower than the set value, the captured person will be regarded as a stranger.



- Configure the schedule
- Set the text prompt and voice prompt. The text will show on the captured picture and the voice will be broadcasted when detecting a stranger.
- Trigger record, snapshot, alarm-out, buzzer, push, pop-up video, E-mail, Preset, pop-up message box, and IP speaker as needed. The alarm linkage settings are similar to the face detection alarm (See Face Detection Settings for details).
- Click “Apply” to save the settings.

④ Click “+” to add more successful recognition tasks. Select the added task and then click “–” to delete it.

9.2 License Plate Recognition

Please add an ANPR camera before you using this function. If your camera doesn’t support this function, please skip the following instructions.

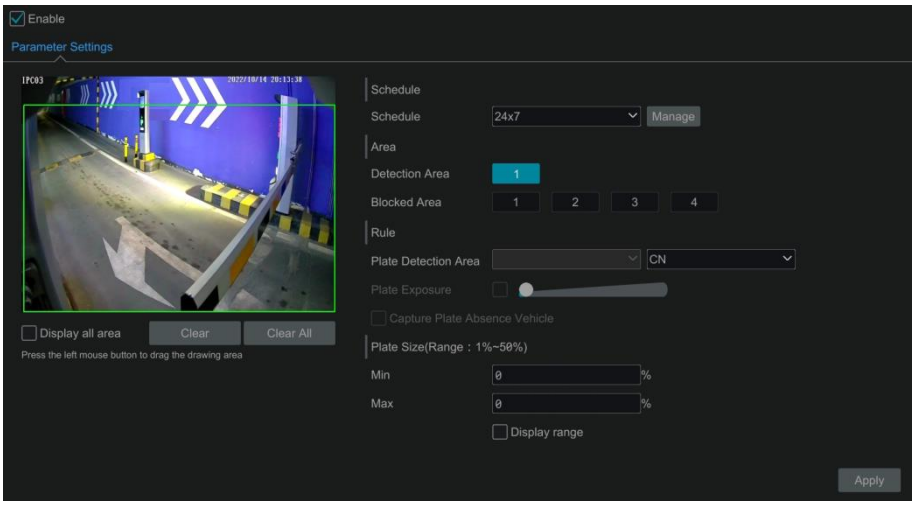
Note: License Plate Recognition only works with GV-LPR4913 (coming soon).

When setting up an LPR for the first time, please use the following procedures:

Enable and set plate detection → Add plate group → Add plates to the plate group → Enable license plate recognition → Set successful recognition (or strange plate) alarm linkage

9.2.1 License Plate Detection Settings

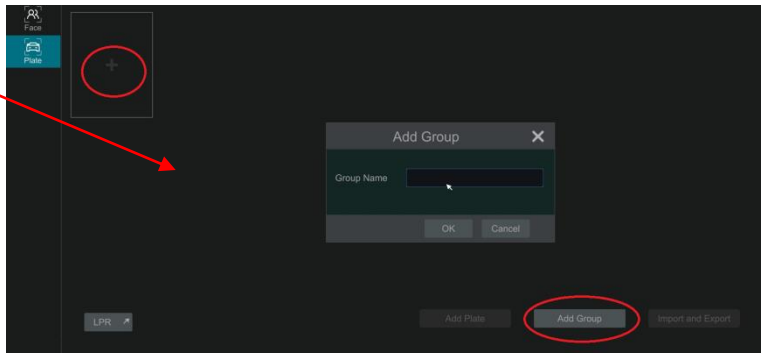
Click ***Start→AI/Event→AI Event→LPR*** to go to the following interface. Select an ANPR camera and click the “Detection” tab as shown below.



- Set the schedule.
- Set the area and plate exposure as needed.
  Set the alarm area. Drag the mouse to draw a detection area. Click “Clear” to delete the alarm area.
  Set the blocked area. Select the number and then draw a blocked area. Up to 4 areas can be set up. After you set the blocked area, this area will not be detected.
  Click “Display all area” to view all blocked and detection areas.
  Click “Clear All” to clear all blocked and detection areas.
- Check “Capture plate absence vehicle” as needed.
- Set the plate size by defining the maximum value and the minimum value (The default size range of a single plate occupies from 5% to 50% of the entire image).
- Display range: if enabled, the set maximum detection box and the minimum detection box can be displayed on the left window.
- Click “Advanced” to set the recognition mode as needed (only some LPR cameras support).

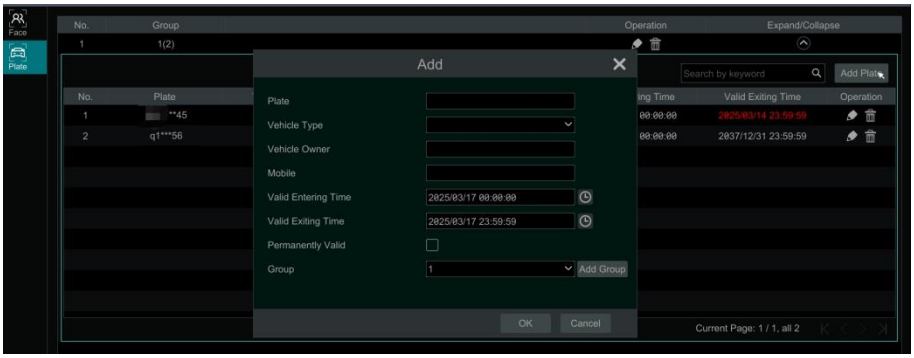
9.2.2 Plate Database Management

In the LPR interface, click the “Plate Database” tab to go to the plate database management interface as shown below.
For the first time, you can click “+” or “Add Group” to add groups.



Add plates to each group:

① Click to extend the group. Click “Add Plate” to display the following window.



② Enter the plate, vehicle owner, valid entering/exiting time and mobile phone number.

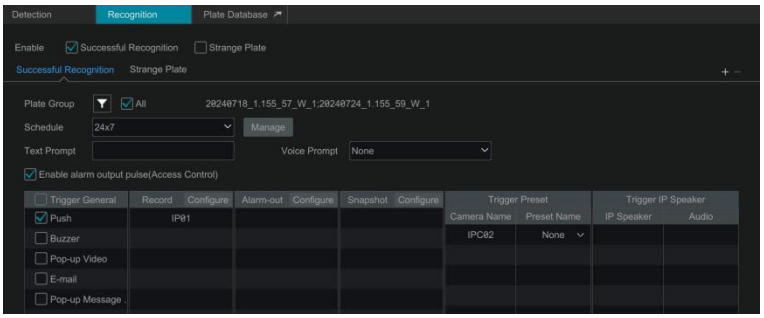
③ Select the vehicle type and group.

④ Finally, click “OK” to complete.

Select the added plate and then click to modify its information; click to delete this plate. The plates can be imported and exported in bulk by clicking “Import and Export”. You can click “Plate Information Description” to view the detailed information about how to import or export the plate list.

9.2.3 License Plate Recognition Settings

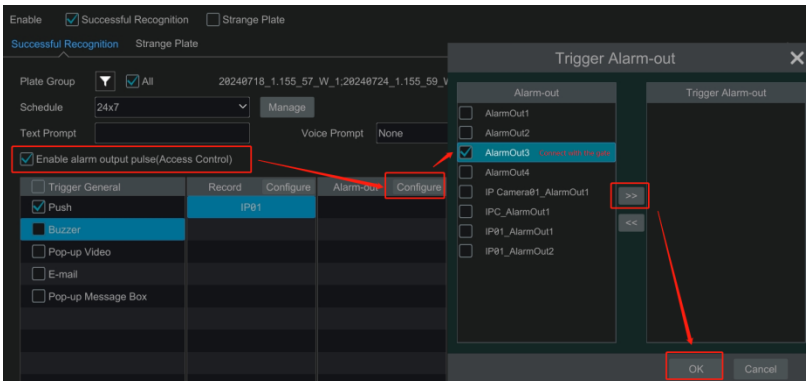
① In the LPR interface, click the “Recognition” tab. Then enable “Successful Recognition” or “Strange Plate”.



② Set the successful recognition alarm linkage.

- Select one or more plate groups and then choose the schedule. Click “Manage” to set the schedule.
- Set the text prompt. When the captured plate is matched successfully, the text will appear on the right of the live view interface.
  Enable alarm output pulse (access control). Enable alarm output pulse (access control) as needed. Should you wish to enable alarm output pulse, you must configure the corresponding alarm output of NVR/IPC (you can choose the alarm output of NVR or IPC according to the actual application scenario). Once a license plate is successfully matched, the pulse signal will be sent via the corresponding alarm output. Take the NVR with four

alarm outputs for example: The gate can connect with one of 4 alarm outputs. Configure Alarm-out, choose the alarm out that is connected by the gate. When the license plate is detected in front of the gate, the gate should open immediately.



- Trigger record, snapshot, alarm-out, buzzer, push, pop-up video, E-mail, pop-up message box, and IP speaker as needed. The alarm linkage settings are similar to the face detection alarm (See Face Detection Settings for details).

③ Set the strange plate alarm linkage. When the captured plate picture doesn't match the plates in the plate database or their similarity is lower than the set value, the captured plate will be regarded as a strange plate.

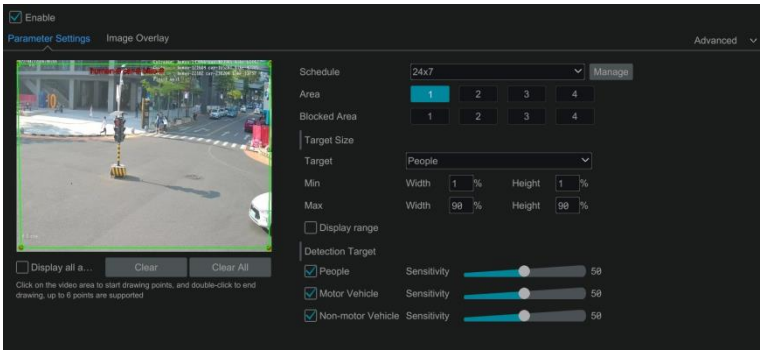
9.3 Video Metadata

Only some IPCs support this function. If the camera you added doesn't support this function, please skip the following instructions.

Video Metadata: People, motor vehicle and non-motor vehicle in the video can be classified, counted and captured and the relevant features can be extracted and displayed on the live interface.

Note: Video Metadata only works with compatible AI GV-IP cameras that provide video metadata. For the list of supported cameras, see this document.

① Click ***Start→Settings→AI/Event→AI Event→Video Metadata*** to go to the following interface.



② Enable video metadata and then set the schedule.

③ Set the detection area and blocked area.

Detection Area: 4 detection areas can be set. Targets that enter the pre-defined detection area

will be counted and captured.

Blocked Area: 4 blocked areas can be set. Targets that enter the pre-defined blocked area will not be counted and captured.

To set detection area: Select the number and then set the detection area. Then click around the area where you want to set as the alarm area on the image (the alarm area should be a closed area).

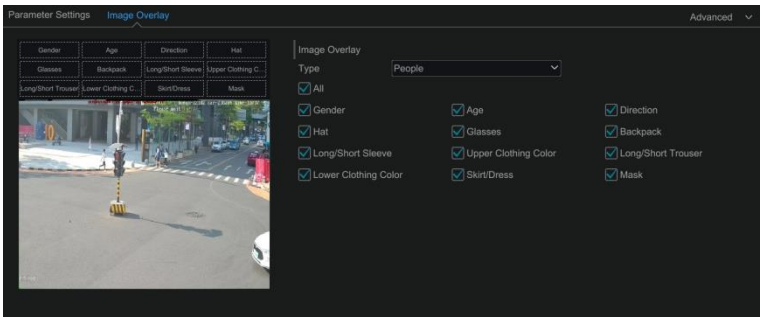
To set blocked area: Select the number and then set the blocked area. The setting steps are the same as detection area settings.

④ Advanced settings. Click “Advanced” to enter the advanced setting interface. Select SD card storage type and the reset information. Auto reset or manual reset can be set as needed.

⑤ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn’t support this function, please skip this step.

⑥ Set the detection target and sensitivity.

⑦ Select the attribute information of the target. Click “Image Overlay” to select the attributes of people/motor vehicle/non-motor vehicle.



For people, you can select the above attribute information.

For Motor Vehicle, color, type and brand can be selected.

For Non-motor Vehicle, only type can be selected.

When a target is detected, the information you select will be displayed beside the captured image.

⑧ Click “Apply” to save the settings.

9.4 Perimeter Detection

Note:

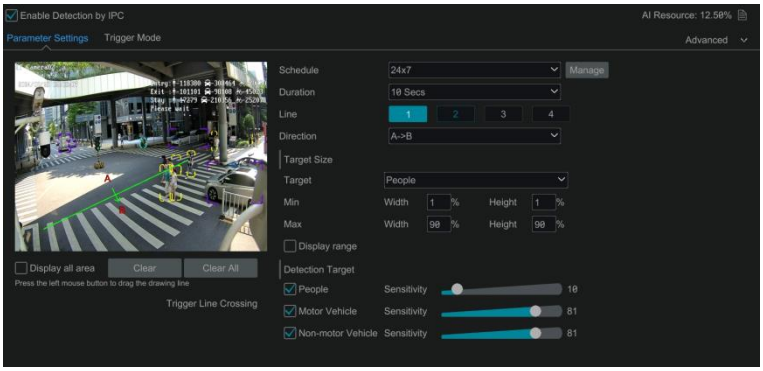
1. Some models may support perimeter detection (line crossing, region intrusion/entrance/exiting) by NVR. For these models, the camera without AI function also can be added and used to detect line crossing, region intrusion, region entrance and region exiting events through NVR. However, if perimeter detection by NVR is enabled for a camera (without AI), face detection cannot be enabled simultaneously, and vice-versa.
2. Some AI cameras support event type classification. If the event type is face event, you need to select  by clicking Start→Setting→AI/Event→Enable Event. After the camera restarts, perimeter detection of the IPC can be enabled.

9.4.1 Line Crossing Detection

Tripwire/Line Crossing Detection Configuration:

Alarms will be triggered if the people or vehicles cross the pre-defined alarm line.

① Click ***Start→Settings→AI/Event→AI Event →Perimeter Detection→Line Crossing*** to go to the following interface.



② Select the camera, enable line crossing detection by IPC and set the duration (alarm holding time).

Note: Some models may support line crossing detection by NVR.

③ Set the schedule.

④ Select the direction.

Direction: A<->B, A->B and A<-B optional. It is the crossing direction of the target that crosses over the alert line.

A<->B: the alarm triggers when the target crosses over the alert line from B to A or from A to B.

A->B: the alarm triggers when the target crosses over the alert line from A to B.

A<-B: the alarm triggers when the target crosses over the alert line from B to A.

⑤ Draw line. Refer to the interface as shown above. Drag the mouse in the image to draw an alert line. Click the “Clear” to delete the alert line.

⑥ Set target size. Check “Display range” and then select target. Enter the width and height value to set the size; click the set min./max. box and then four dots will be shown at the four corners of the min./max. box. Now, drag one of the four lines of the min./max to change its position. Note that only some IPCs support target size settings. If the added camera doesn’t support this function, please skip this step.

⑦ Click “Detection Target” to choose the detection target and the sensitivity. The detection target

includes people, motor vehicle and non-motor vehicle. Only some IPCs can detect people or vehicle separately. If the camera doesn't support this function, please skip this step.

⑧ Click "Advanced" to choose "Save original picture" or "Save target picture" on the SD card of the camera. (If your camera doesn't support this function, please skip this step).

⑨ Click "Trigger Mode" to configure line crossing alarm linkage items.

● The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

● Enable "IPC_Audio" or "IPC_Light" as needed (only some IPCs support these two functions). To set the IPC voice and its times and volume, please refer to Audio for details. To set the light flashing time and frequency of the IPC, please refer to Light for details.

⑩ Click "Apply" to save the settings.

9.4.2 Region Intrusion Detection

Region Intrusion Detection Configuration:

Alarms will be triggered if the people or vehicles intrude into the pre-defined area.

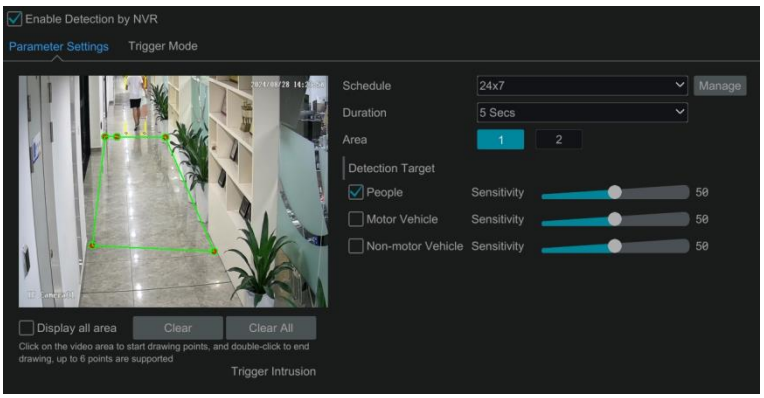
① Click ***Start→Settings→AI/Event →AI Event→Perimeter Detection→Region Intrusion*** to go to the following interface.

② Select the camera, enable region intrusion detection by IPC and set the duration.

Note: Some models may support region intrusion detection by NVR.

③ Set the schedule.

④ Select the alarm area. Up to 4 alarm areas can be set up. Draw the alarm area of region intrusion detection. Refer to the interface as shown below. Click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area).



Note: Some thermal network camera supports blocked area settings (a maximum 4 block areas can be set.

⑤ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn't support this function, please skip this step.

⑥ Click "Detection Target" to choose the detection target and the sensitivity. The detection target includes people, motor vehicle and non-motor vehicle.

⑦ Click "Trigger Mode" to configure intrusion detection alarm linkage items.

● Trigger "Record", "Snapshot", "Push", "Alarm-out", "Preset", "Buzzer", "Pop-up Video" "E-mail" and "IP Speaker" as needed. The alarm linkage settings are the same as the face detection alarm

(see Face Detection Settings for details).

● Enable “IPC_Audio” or “IPC_Light” as needed. (only some IPCs support these two functions). To set the IPC voice and its times and volume, please refer to Audio for details. To set the light flashing time and frequency of the IPC, please refer to Light for details.

⑧ Click “Copy To” to copy all settings to other cameras.

⑨ Click “Apply” to save the settings.

9.4.3 Region Entrance Detection

Region Entrance: Alarms will be triggered if the target enters the pre-defined areas.

Click ***Start→Settings→AI/Event→AI Event →Perimeter Detection→Region Entrance .*** The setup steps are the same as Region Intrusion. See Region Intrusion Detection for details.

9.4.4 Region Exiting Detection

Region Exiting: Alarms will be triggered if the target exits from the pre-defined areas.

Click ***Start→Settings→AI/Event→AI Event →Perimeter Detection→Regional Exiting.*** The setup steps are the same as Region Intrusion. See Region Intrusion Detection for details.

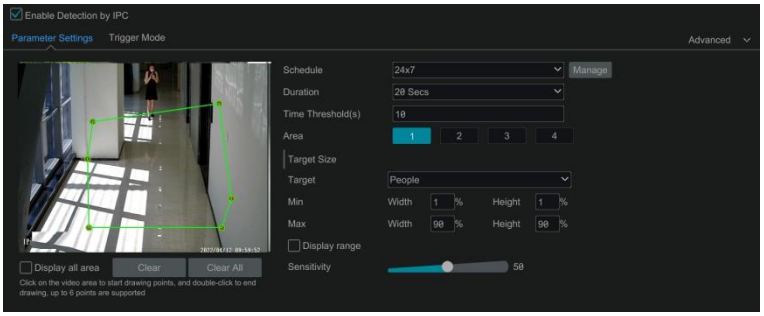
9.5 Loitering Detection

Only some IPCs support this function. If the camera you added doesn’t support this function, please skip the following instructions.

Loitering Detection: When someone entering and loitering in a pre-defined area exceeds the threshold, alarms will be triggered until the object leaves this area.

Note: Loitering Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→Loitering Detection*** to go to the following interface.



② Set the schedule, duration, time threshold and sensitivity. (Some cameras support trigger mode setup)

Sensitivity: The higher the value is, the easier the alarm can be triggered.

Time Threshold: the time that a person is allowed to stay in the area. If a person staying and moving in the specified area exceeds the threshold, alarms will be triggered until this person leaves or stops moving.

For example: Set the threshold to “60seconds; when a person staying and moving in the

specified area exceeds 60seconds, an alarm is triggered and continues. 2 minutes later, this person stops moving in the specified area, and then the alarm stops. However, the alarm will continue once this person moves again in the specified area unless the person leaves this area.

③ Set the alarm area. Up to four alarm areas can be set. Click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area).

④ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn't support this function, please skip this step.

⑤ Click "Trigger Mode" to configure loitering detection alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑥ Click "Apply" to save the settings.

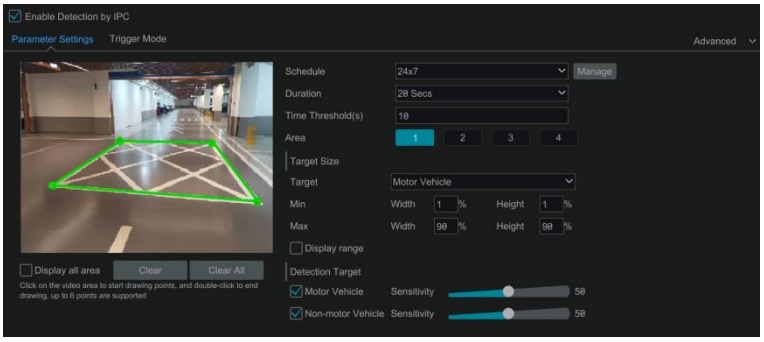
9.6 Illegal Parking Detection

Only some IPCs support this function. If the camera you added doesn't support this function, please skip the following instructions.

Illegal Parking Detection: When a vehicle (like a car, truck, motorcycle, etc.) staying in a no-parking zone exceeds the threshold, alarms will be triggered until the vehicle is driven away.

Note: Illegal Parking Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→ Illegal Parking Detection*** to go to the following interface.



② Set the schedule, alarm duration and time threshold.

Duration: it is the time that the alarm extends after the overstaying vehicle leaves.

Time Threshold: the time that a vehicle is allowed to stay in the specified area. If a vehicle staying in the area exceeds the threshold, alarms will be triggered until it is driven away. For example, the time threshold is set to 30s. When the system detects a vehicle stopping in the set no-parking zone, it will start counting. Alarms will be triggered after it stays for more than 30s. And the illegal parking alarm will not stop until the vehicle is driven away from the non-parking zone.

③ Set the alarm area. Up to four alarm areas can be set. Click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area).

④ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn't support this function, please

skip this step.

⑤ Click “Trigger Mode” to configure exception alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

9.7 Target Counting by Line

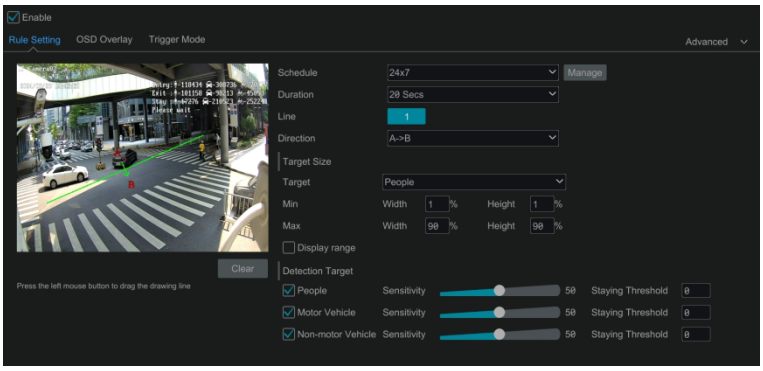
Only some IPCs may support this function.

Note: Target Counting by Line only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

- **People/Motor Vehicle/Non-Motor Vehicle Counting**

The information of people/motor vehicle/non-motor vehicle can be calculated and sent by day, by week and by month, so that you can receive and analyze these statistics on time.
Only some IPCs support this function. If your camera doesn’t support this function, please skip the following instructions.

① Click ***Start→Settings→AI/Event→AI Event→More→Target Counting by Line*** to go to the following interface.



② Enable target counting by line and set the duration.

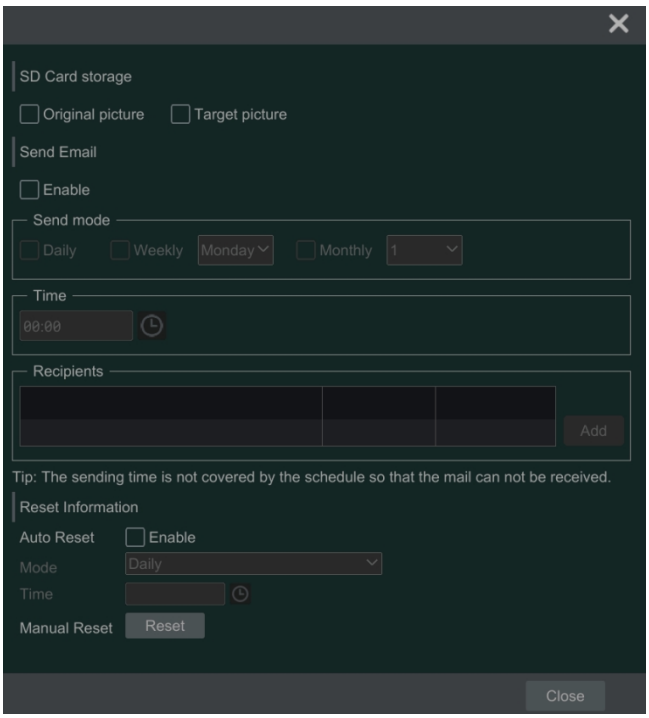
③ Set the schedule.

④ Select the direction and drag the mouse on the small window to draw the crossing line. Click “Clear” to delete the alert line.
Direction: A->B and A<-B are optional. It is the crossing direction of the target that crosses over the alert line.

⑤ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn’t support this function, please skip this step.

⑥ Click the “Detection Target” tab to set the detection target, including people, motor vehicle and non-motor vehicle.

⑦ Click “Advanced” to open a window. You can select “Original picture” or “Target picture”, and set reset information manually or enable “Auto Reset” as needed.



In the above interface, you can send Email to a specified person on a daily/weekly/monthly basis regarding the target counting. Click “Add” to add the recipient”, and then enable “Send Email” and select “Send mode” and time.

⑧ Click “OSD Overlay” to set the OSD information. If enabled, the statistical information will be displayed on the live view interface.

⑨ Configure the alarm linkage items for target counting. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑩ Click “Apply” to save the settings.

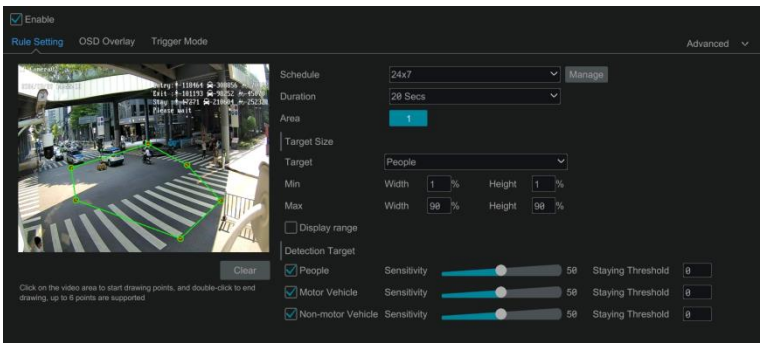
9.8 Target Counting by Area

Only some IPCs may support this function.

Target Counting by Area: This function is used to detect, track and count the number of people or vehicles intruding into a pre-defined area.

Note: Target Counting by Area only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→Target Counting by Area*** to go to the following interface.



② Enable target counting by area and set the duration.

③ Set the schedule.

⑩ Draw the area. Refer to the interface as shown above. Click around the area where you want to set as the counting area in the image (the area should be a closed area).

④ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn't support this function, please skip this step.

⑤ Click the "Detection Target" tab to set the detection target, including people, motor vehicle and non-motor vehicle.

⑥ Click "Advanced" to open the following window. You can select "Original picture" or "Target picture", and set reset information manually or enable "Auto Reset" as needed.

⑦ Click "OSD Overlay" to set the OSD information. If enabled, the statistical information will be displayed on the live view interface.

⑧ Configure the alarm linkage items for target counting. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑨ Click "Apply" to save the settings.

9.9 Fire Detection

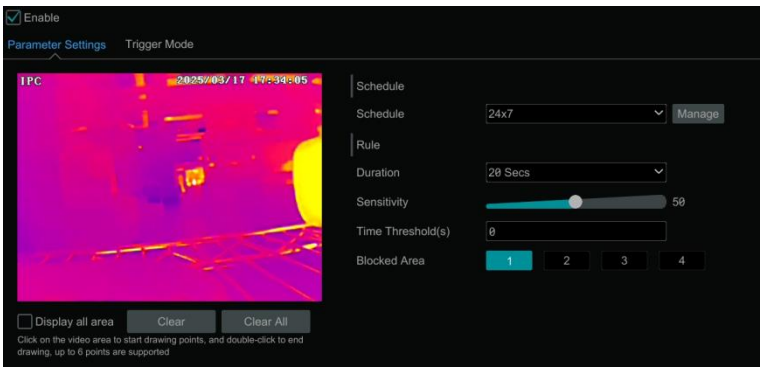
Only when the security thermal cameras are connected, can the fire detection be available.

Please note this is only intended as a supplement to official fire detection methods and should not be relied on as a primary alert source.

Fire Detection: Alarms will be triggered when the camera detects a fire source through the thermal imaging.

Note: Fire Detection only works with compatible thermal GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→Fire Detection*** to go to the following interface.



② Set the schedule and the alarm duration time.

③ Set the sensitivity and time threshold.

Some models may support fire point detection or flame detection.

Sensitivity: the higher the value is, the easier a fire can be detected, but the false rate is higher. Please adjust the sensitivity as needed.

Time threshold: For example: set it to“2 seconds”；Alarms will be triggered when the fire source is detected for 2 seconds, or alarms will not be triggered.

④ Set the block area as needed. A maximum of 4 block areas can be set. (Only some thermal network cameras support this function).

⑤ Click “Trigger Mode” to configure alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑥ Click “Apply” to save the settings.

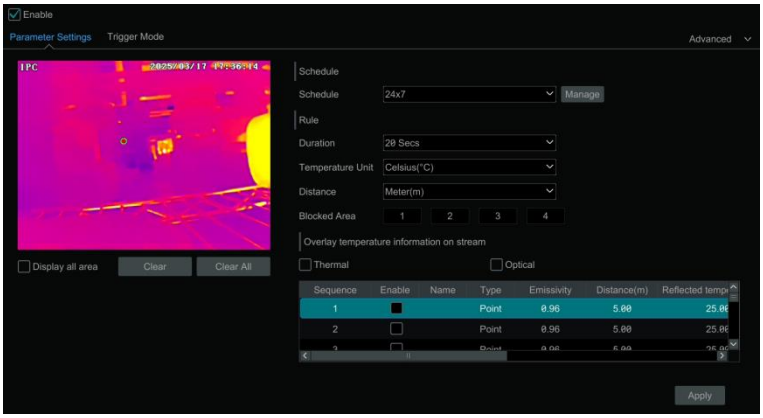
9.10 Temperature Detection

Only when the security thermal cameras are connected, can the temperature detection be available.

Temperature Measurement: When a temperature of the pre-defined point/line/area exceeds the temperature threshold value, alarms will be triggered.

Note: Temperature Detection only works with compatible thermal GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→Temperature Detection*** to go to the following interface.



② Set the schedule, the alarm duration time, temperature unit and distance.

③ Set the block area as needed. A maximum of 4 block areas can be set. (Only some thermal network cameras support this function).

④ Overlay temperature information on stream.

Thermal/optical: if enabled, the temperature information will overlay on the video stream. When playing the live video or the recorded video, you can view the temperature information.

⑤ Advanced settings. Click “Advanced” on the top right corner.

Temperature Bar: if enabled, a color reference temperature bar will appear on the right of the thermal image.

Enable Temp Reading by Clicking: if enabled, you can read the real-time temperature of any point you click on the thermal image in the single channel display mode.

Emissivity: Set the emissivity of the target. The emissivity of each object is different.

Distance: The distance between the target and the camera.

Reflected temperature: If there is any object with high emissivity in the scene, set the reflective temperature to correct the ambient temperature. The reflective temperature should be set the same as the temperature of the high emissivity object.

Highest temperature: if checked, the Max. Temperature in the set area/line will be displayed in real time.

Average temperature: if checked, the Avg. Temperature in the set point/area/line will be displayed in real time.

Lowest Temperature: if checked, the Min. Temperature in the set area/line will be displayed in real time.

⑥ Set thermography rule. Select the rule type, including Point, Line and Area.

Set the point, line or area on the small window.

Point setup: After the type is set to “Point”, click on the image to set the point. Up to 10 points can be set in the above interface.

Line setup: After the type is set to “Line”, drag the mouse on the image to draw a line. To ensure the accuracy of temperature measurement, it is recommended to set not more than two lines at the same time.

Area setup: Click around the area where you want to set as the alarm area on the image (the alarm area should be a closed area). To ensure the accuracy of temperature measurement, it is recommended to set not more than two areas at the same time.

Set the alarm rule, alarm temperature and alarm output. For example, select Alarm Rule as Above (Average Temperature), set the alarm temperature to 100°C and check alarm output. Alarms will be triggered when the average temperature of the target is higher than 100°C.

⑦ Click “Trigger Mode” to configure alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑧ Click “Apply” to save the settings.

9.11 Abandoned/Missing Object Detection

Only some IPCs may support this function.

Note: Abandoned/Missing Object Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→ More→ Object Abandoned/Missing*** to go to the following interface.

② Set the schedule.

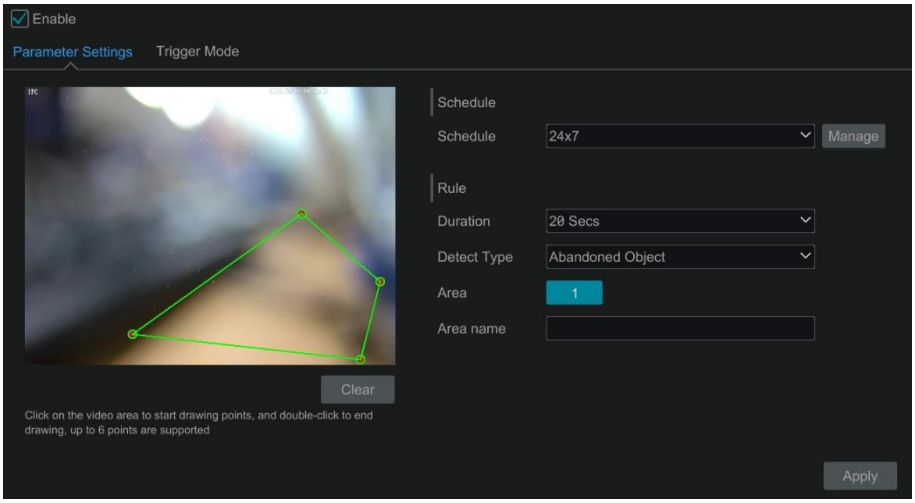
③ Select the camera, enable the object detection and set the duration and detect type. There are two detection types: Abandoned object and missing object.

Abandoned object: Alarms will be triggered if there are items left in the pre-defined detection area.

Missing object: Alarms will be triggered if items are missing in the detection area drew by the users.

④ Select the alarm area and area name. A maximum of 4 alarm areas can be set.

⑤ Draw the alarm area of the object detection. Refer to the interface as shown below. Click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area). Click the “Clear” to delete the alarm area.



⑥ Click “Trigger Mode” to configure abandoned/missing object detection alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑦ Click “Apply” to save the settings.

9.12 Crowd Density Detection

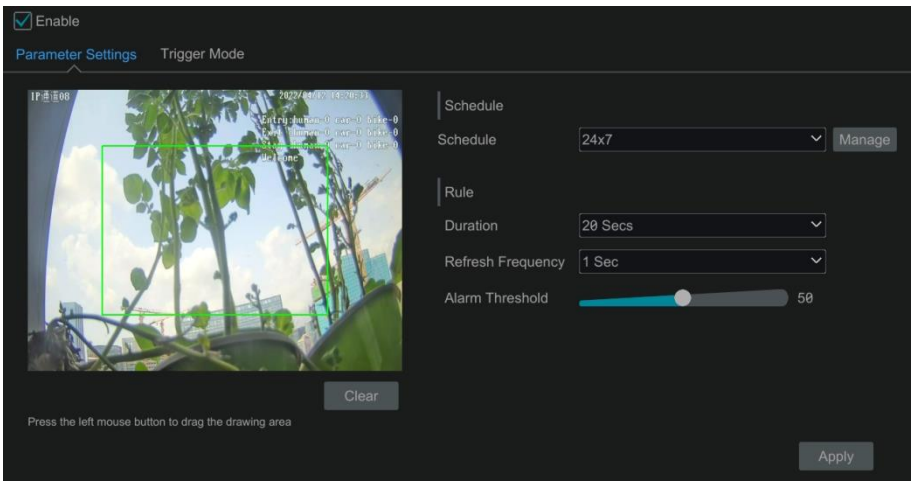
Only some IPCs may support this function.

Note: Crowd Density Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

Crowd Density Configuration:

Alarms will be triggered if the crowd density exceeds the set threshold value in the pre-defined area.

① Click ***Start→Settings→AI/Event→AI Event→More→Crowd Density*** to go to the following interface.



② Select the camera, enable crowd density detection and set the schedule, duration, refresh frequency and alarm threshold.

Refresh Frequency: Refers to the refresh time of the detection result report.

Alarm Threshold: Alarms will be triggered once the percentage of the crowd density in a specified area exceeds the pre-defined threshold value.

③ Select the alarm area. Draw the alarm area for the crowd density detection. Refer to the interface as shown above. Drag the mouse to draw a rectangle area. Click the “Clear” to delete the alarm area.

④ Configure crowd density detection alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑤ Click “Apply” to save the settings.

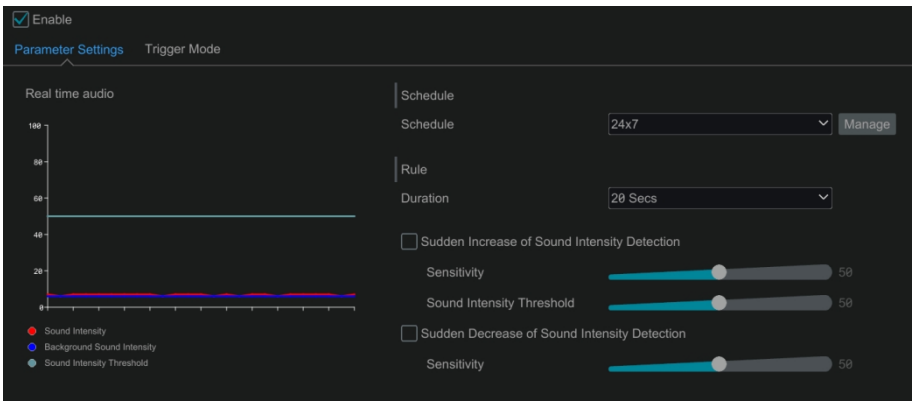
9.13 Audio Exception

Only some IPCs support this function. If the camera you added doesn’t support this function, please skip the following instructions.

Audio Exception: Alarms will be triggered when the abnormal sound is detected in the surveillance scene, such as the sudden increase/decrease of the sound intensity.

Note: Audio Exception only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→AI Event→More→ Audio Exception*** to go to the following interface.



② Set the schedule and alarm duration.

Sudden Increase of Sound Intensity Detection: Detect sudden increase of sound intensity. If enabled, sensitivity and sound intensity threshold are configurable. Alarms will be triggered when the detected sound intensity exceeds the sound threshold.

Sensitivity: The higher the value is, the easier the alarm will be triggered.

Sound Intensity Threshold: It is the sound intensity reference for the detection. The lower the value is, the easier the alarm will be triggered. It is recommended to set the average sound intensity in the environment. The louder the environment sounds, the higher the value should be. Please adjust it according to the actual environmental condition.

Sudden Decrease of Sound Intensity Detection: Detect sudden decrease of sound intensity. Please set the sensitivity as needed. The higher the value is, the easier the alarm will be triggered.

Real-time audio graphic:

Red wavy line stands for the current detected sound intensity.

Navy blue line stands for the environment (background) sound intensity.

Green line stands for the sound intensity threshold.

In order to reduce false alarms, it is recommended to set the sensitivity and sound intensity threshold according to the real-time audio graphic.

③ Click “Trigger Mode” to configure audio exception alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

④ Click “Apply” to save the settings.

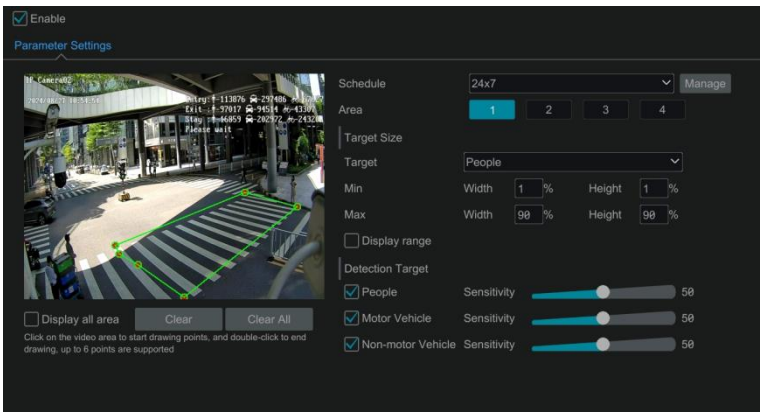
9.14 Heat Map

Only some IPCs support this function. If the camera you added doesn’t support this function, please skip the following instructions.

Heat Map: This function is to display the flow distribution of people/vehicles in pre-defined areas by different colors.

Note: Heat Map only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

① Click ***Start→Settings→AI/Event→More→Heat Map*** to go to the following interface.



② Set the schedule.

③ Select the area. Up to 4 alarm areas can be set up. Click around the area where you want to set as the detection area in the image (the detection area should be a closed area).

④ Set target size. Please refer to the target size setup of line crossing for details. Note that only some IPCs support target size settings. If the added camera doesn't support this function, please skip this step.

⑤ Click "Detection Target" to choose the detection target and the sensitivity. The detection target includes people, motor vehicle and non-motor vehicle.

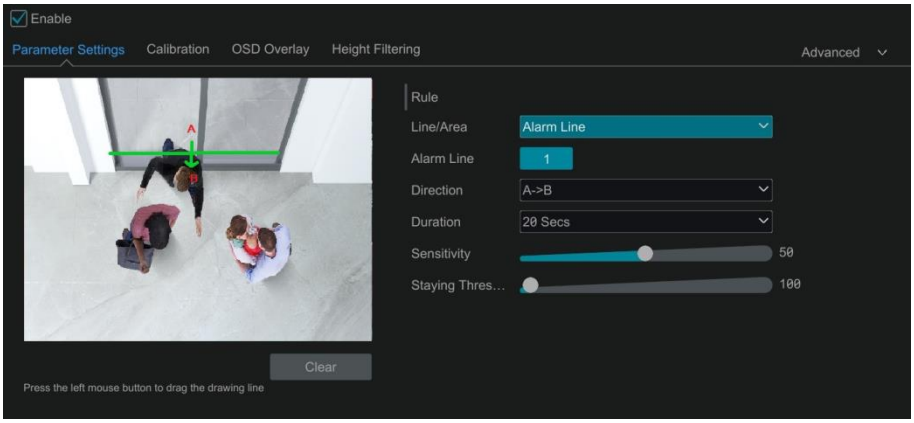
9.15 People Counting

Only some IPCs support this function. If the camera you added doesn't support this function, please skip the following instructions.

People Counting: This function is to calculate the number of the people entering or exiting from the detected area through detecting, tracking and counting the head shapes of the people.

Note: People Counting only works with GV-3D People Counter V3.

① Click ***Start→Settings→AI/Event→More→People Counting*** to go to the following interface.



② Enable people counting and click "Advanced" to set the SD card storage information and the reset information.

Original picture: If it is enabled, the detected original pictures will be captured and saved to the

SD card when the staying threshold exceeds the set value.

Auto Reset: The current number of the people counting can be reset. You can choose to reset the counting daily, weekly or monthly. Click “Reset” to manually reset the current number of people counting.

③ Set detection rule. Two detection rules can be selected. Please select one of them as needed.

- **To set alarm line**

Set the alarm line number and direction. Only one line can be added.

Direction：A->B and A<-B can be optional. The direction of the arrow is entrance.

Drag the mouse in the image to draw a line. Click the “Clear” button to delete the line. Click the “Apply” button to save the settings.

If the target crosses the line along the direction of the arrow, it is counted as one entering target. If the target crosses the line along the reverse direction of the arrow, it is counted as one exiting target.

- **To set detection area**

Select the area number and direction.

Direction: A->B and A<-B can be optional. For example: “A->B” is selected. If the target enters from area A to area B, it is counted as one entering target. If the target enters from area B to area A, it is counted as one exiting target.

Click the “Draw A Area” or “Draw B Area” button and then click around the area where you want to set as the detection area in the image on the left side (the area should be a closed area). Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the alarm area. After both area A and B are set and make sure these two areas don’t overlap, click the “Save” button to save the settings.

Sensitivity: The higher the value is, the easier the false detection will occur. The lower the value is, the camera is easier to miss the target.

Staying Threshold: When the targets staying in the specified area exceed the threshold, alarms will be triggered.

④ Set the camera calibration. Auto calibration and manual calibration are selectable.

- **Auto Calibration**

Select “Auto” and draw a box in the middle of the image. After that, click “Calibrate”. The camera will return the lens height automatically. Compare the returned lens height with the actual measurement height. If the height from the lens to the ground is within 4m, the margin of error within ±15cm is allowed. If the height from the lens to the ground is 4m ~6m, the margin of error within ±25cm is allowed. If exceeding the above-mentioned value, repeat the above steps or use manual calibration.

⚠ Caution:

✓ Please select the flat ground as the calibration area.

✓ The calibration area with adequate and even light is recommended, avoiding overexposure area or reflective surface.

✓ Please select the middle of the image as the calibration area.

- **Manual Calibration**

Manually measure the height from the lens to the ground.

Select “Manual”, enter the lens height value and click “Calibrate”.

⑤ **OSD overlay.** If disabled, the statistical information will not be displayed in the live view

interface.

Check “Display OSD” and move the red OSD to change the position of the statistical information displayed on the screen. The statistical OSD information can be customized as needed.

Children counting: Please set its name as needed. Before using this function, please enable children counting and set the height of children counting first

⑥ Height filtering settings.

Height Filtering: Enable the function and set a height value. The target whose height is lower than the set value will not be counted.

Children Counting: Enable the function and set a height value. The target whose height is higher than the set value will not be counted.

Note: In order to get more accurate statistics, it is suggested to disable height filtering and children counting if the installation height of the camera ranges from 210 to 250cm. When the installation height of the camera ranges from 251~600cm, it is recommended to check height filtering and children counting.

⑦ Click “Apply” to save the settings.

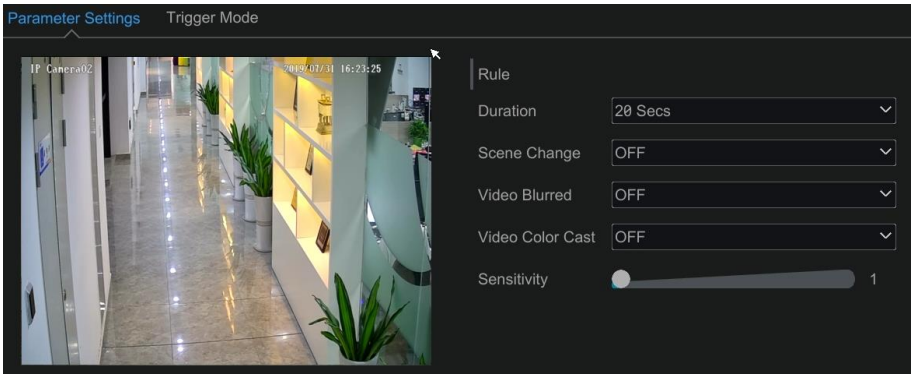
9.16 Video Exception

Only some IPCs may support this function.

Note: Exception Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

Video Exception Configuration:

① Click ***Start→Settings→AI/Event→AI Event→More→Video Exception*** to go to the following interface.



② Select the camera and detection duration and then enable the relevant detection as needed.

Scene Change: Alarms will be triggered if the scene of the monitor video has changed.

Video Blurred: Alarms will be triggered if the video becomes blurry.

Video Color Cast: Alarms will be triggered if the image is abnormal caused by color deviation.

③ Set the sensitivity of the exception detection.

④ Click “Trigger Mode” to configure exception alarm linkage items. The alarm linkage settings are the same as the face detection alarm (see Face Detection Settings for details).

⑤ Click “Apply” to save the settings.

10 Intelligent Analytics

10.1 Target Detection View

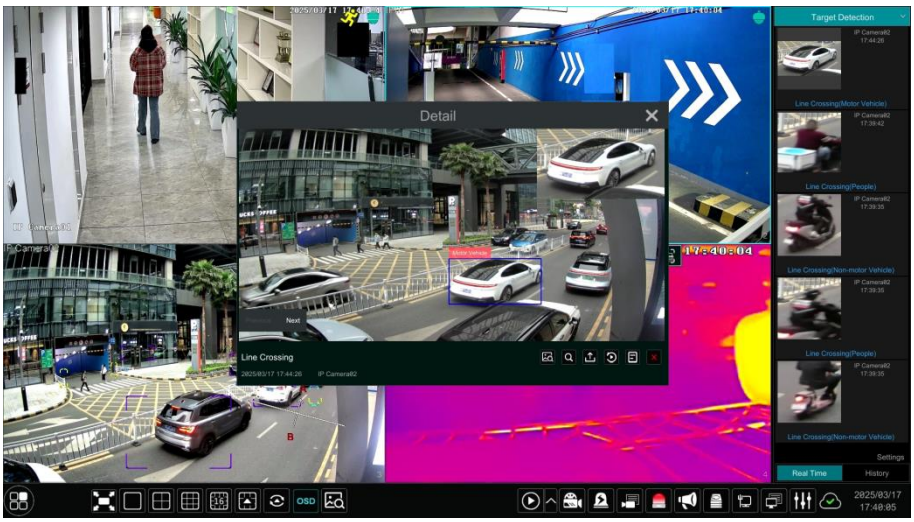
Only some models support target detection view. If your device doesn't support it, please skip the following instructions.

10.1.1 People/Vehicle Detection View

Only when the camera supports people/vehicle detection, can you view the real-time captured pictures of people or vehicles. The setting steps are as follows:

① Enable the Line crossing/Region Intrusion/Region Entrance/Region Exiting/Loitering Detection/Target counting/Video Metadata function of IPCs/NVR, draw the line or area and choose the detection target (see the corresponding sections for details).

② Go to live view interface and then click to go to the target detection interface of this channel. In this interface, you can switch the channel on the top right. You can also click on the top right corner of the live view interface and then choose the target detection tab to go to the target detection interface of multi-channel as shown below. Note that only some models support multi-channel target detection function. Click the captured picture on the right of the live interface to see the snapshot detailed information.



In the above detail window, you can view captured people/vehicle pictures, original picture, snapshot time, camera, event type, target type, etc. Move the mouse to the detailed image window. The target snapshot will be shown on the left/right top of the detail window and "Previous/Next" will appear. Click "Previous/Next" to view the previous/next snapshot.

Click to perform AcuSearch (only human face/body supports AcuSearch). See AcuSearch for details. Click to go to the people/vehicle search interface; click to export the captured original picture and target picture; click to go to the playback interface; click to view the target ID information; click to exit the detail window.

10.1.2 Face Detection/Match View

Only the face recognition NVR supports the following functions. If your NVR doesn't support them, please skip the following instructions.

Note: This function is only available for GV-GNVRC1620-P.

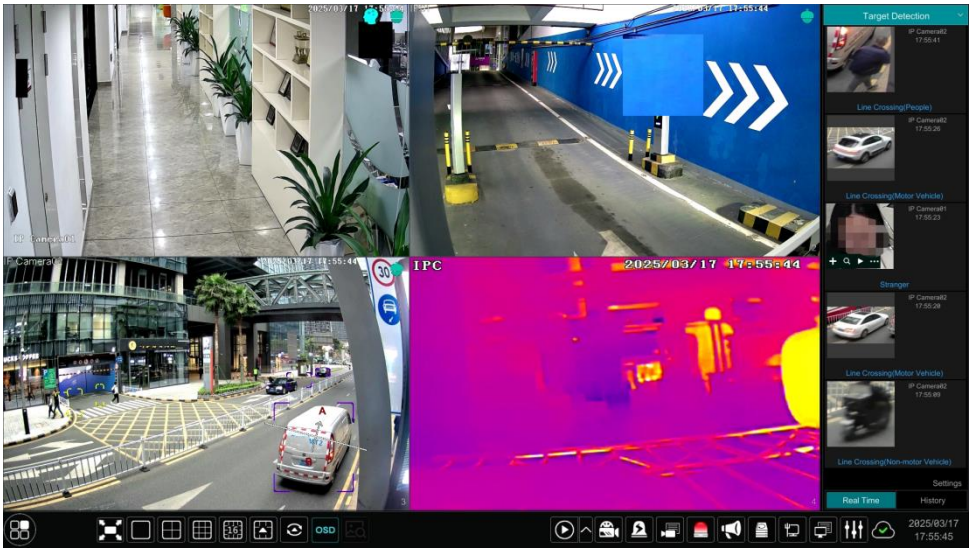
The setting steps are as follow:

① Enable face detection function (see Face Detection Settings for details).

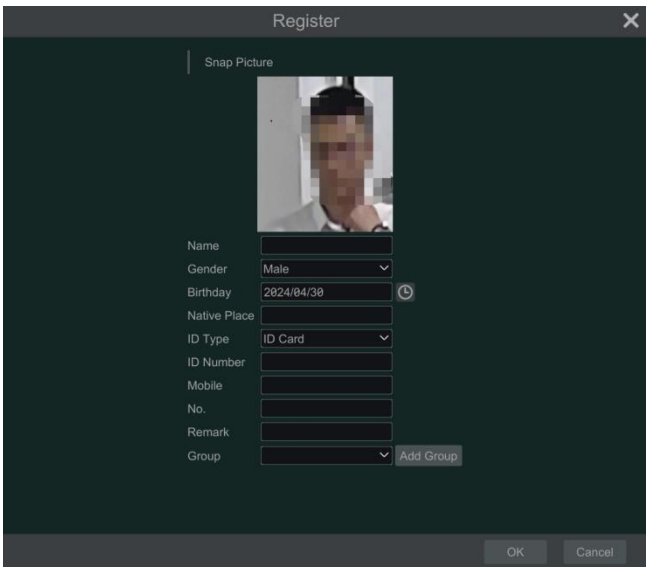
② Enable face recognition function and set the alarm linkage items (see Face Recognition Settings for details).

③ Go to live view interface and click on a face detection channel. This will bring a toolbar under the channel. Then click to go to the target detection interface of this channel. In this interface, you can switch the channel on the top right. You can also click on the top right corner of the live view interface and then choose the target detection tab to go to the target detection interface of multi-channel as shown below.

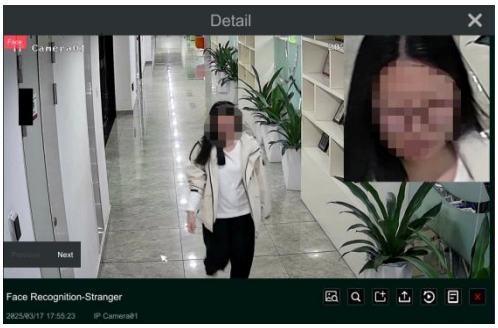
Note: Multi-channel target detection function is only available for some models.



For unknown faces, you can select this face and click under the captured face to register this face (see the following picture); click to quickly go to the smart face search interface where you can search the matching facial information; click to quickly go to the smart face playback interface; click to view snapshot details.

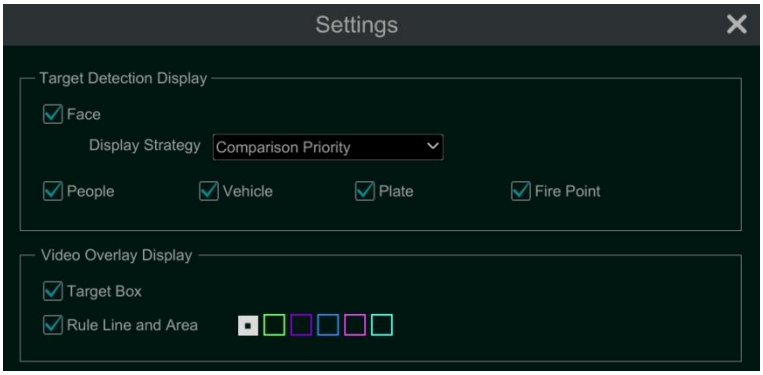


Before registering face pictures, please add groups for them in advance (see Face Database Management for details).
After the face pictures are registered, the system will compare them automatically the next time the corresponding faces are captured.



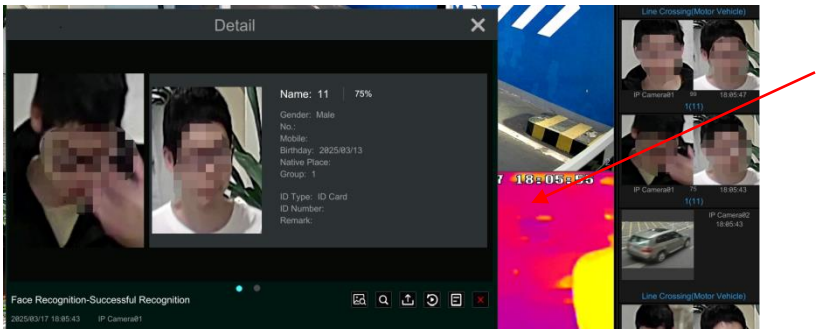
Click a captured face picture to see the snapshot details, such as snapshot picture, original picture, snapshot time and camera. Click to register the current snapshot; click to perform AcuSearch; click to go to face search interface. Click to go to the playback interface. Click to export this snapshot picture and the original picture; click to view target ID and face score; click to exit the detail window.

In the face match interface, click “Settings” to open the following window.



Target Detection Display: Face, people, vehicle, plate or fire point can be enabled. If disabled, the captured target picture will not be displayed under the target detection tab in the live view interface.
Display Strategy: Two options: Comparison priority and only comparison

Video Overlay Display:
If “Target box” is clicked, you will see the target traced by a little red box.
If “Rule Line and Area” is checked, you will see the rule line of line crossing detection and detection area of intrusion detection displayed on the screen. You can select the color of the rule line and area as needed.



When a captured face picture is successfully recognized, click the picture on the right to open a face detail window as shown above. In this window, you can see the captured face picture, the matched picture from face library and the relevant information. You also can view the original image, search image by snapshot, play back by snapshot and export the face details, etc.

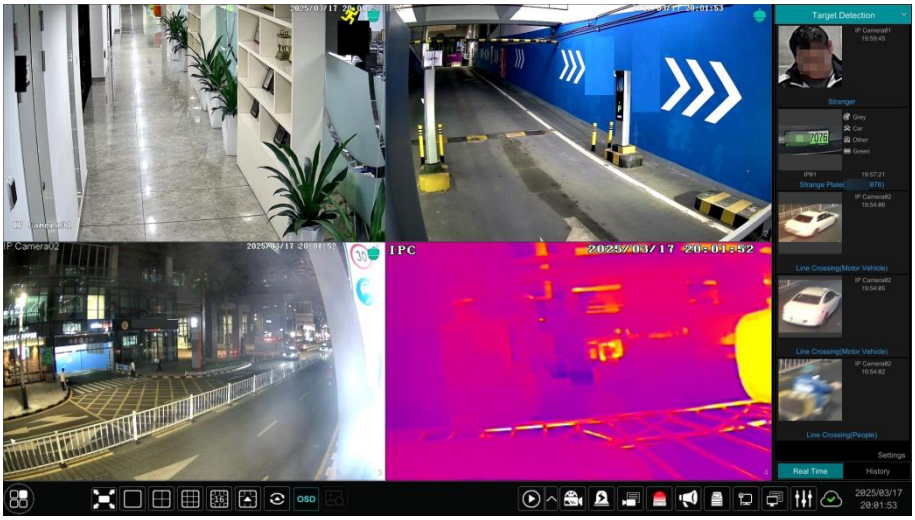
Additionally, you can view the history of captured face pictures and face match information in the face match interface by clicking “History” tab. Besides registering face pictures in the live view interface, you can also add target face pictures in the face database interface.

Note: if you enter a remark when adding a face picture to the face database, the remark information (instead of the person’s name) will be shown under the picture after a successful recognition.

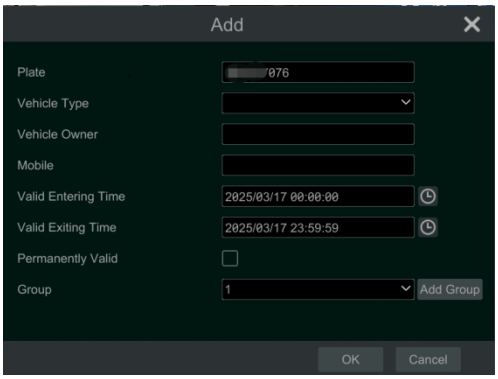
10.1.3 License Plate Detection/Recognition View

Only when the ANPR camera is added and enabled, can license plates be captured and matched. The setting steps are as follows

① Enable the plate detection function (See License Plate Detection Settings for details). Then you can see the captured plates displayed in the live view interface as shown below.



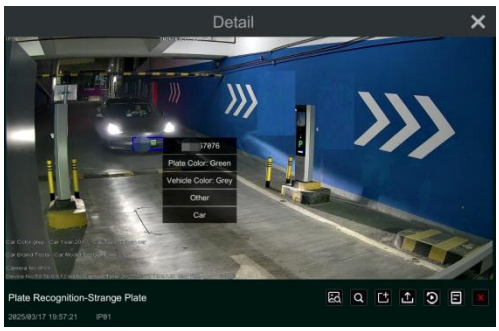
Put the cursor on the captured plate picture and then click ✚ to register this plate as shown below.



Click ••• to view the captured detail information. Click 🔍 to quickly enter the vehicle search interface. You can search the matched plate information in this interface. Click ▶ to go to the smart playback interface.

② Enable license plate recognition function and set the alarm linkage items (see License Plate Recognition Settings for details).

③ Go to live view interface and click ▼ on the top right corner of the live view interface and then choose the target detection tab to go to the target detection interface of multi-channel as shown below. When a plate is captured, it will be displayed on the right panel. A strange plate will show “Strange plate” under the plate picture.



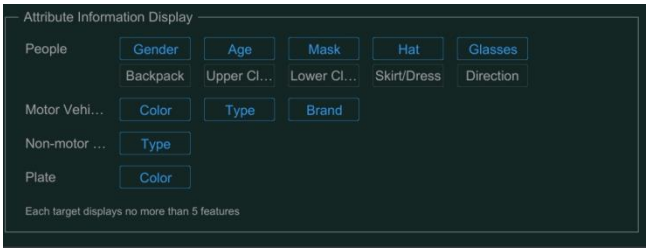
Click the captured plate picture and then it will open a detailed information window. You can view the snapshot picture, original picture, snapshot time, camera, vehicle attributes, etc. Click the corresponding buttons to search/register/export/playback/view the ID information of the target.

10.1.4 Object Attribute View

① Enable video metadata function and then select the detection target and display attributes (see Video Metadata for details).

② Go to live view interface and click on an AI camera channel (which supports video metadata function). This will bring a toolbar under the channel. Then click to go to the target detection interface of this channel. In this interface, you can switch the channel on the top right. You can also click on the top right corner of the live view interface and then choose the target detection tab to go to the target detection interface of multi-channel.

Click “Settings” at the bottom right to select the attribute information of people/motor vehicle/non-motor vehicle/plate you want to view under the captured picture.



Click the captured picture to view the details. In the detail interface, you can view the captured picture, original picture, object attributes, etc.

10.2 Smart Search

10.2.1 Face Search

Only some models support this function. If your device doesn't support it, please skip the following instructions.

Note:

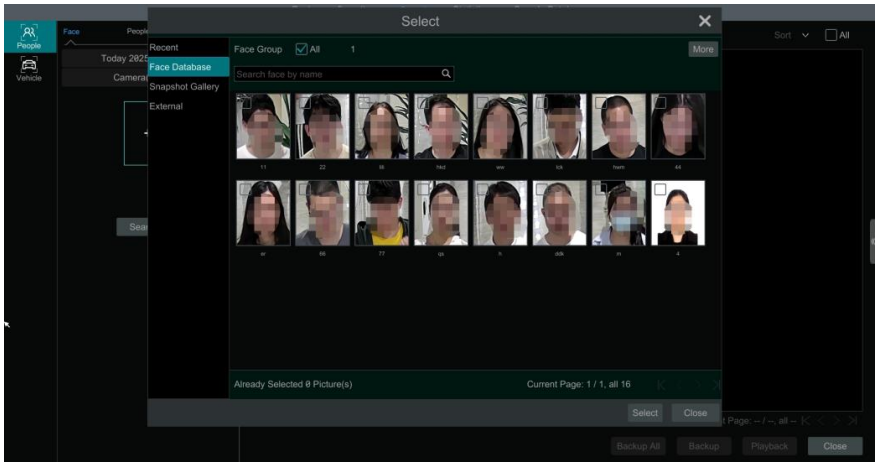
1. The Add function (see Step 3 below) is only available for GV-GNVRC1620-P.
2. To add target faces from the snapshot gallery, the reference recorded videos must contain face data. To provide face data, the cameras must have had Face Detection enabled, either through AI by Camera or AI by NVR, when the videos were recorded. Either Face Event or Smart Event can be enabled for these cameras. See Face Detection Settings for details.

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①Click ***Start→ Intelligent Analytics → Search→People→Face*** to go to the following interface. Set the time and date by clicking the Today tab.

②Choose face detection cameras.

③Click ✚ to add the target face which can be searched and added from recent, face database snapshot gallery and external faces. A single face picture or multiple face pictures can be added and searched. (Taking a single face picture for example)



To add a single target face from recent faces:

a. Choose the face.
b. Click "Select".

To add a single target face from the face database:

a. Click "More" to choose groups.
b. Select a target face and click "Select".

To add a single target face from the snapshot gallery:

a. Select time and click "More" to choose cameras.

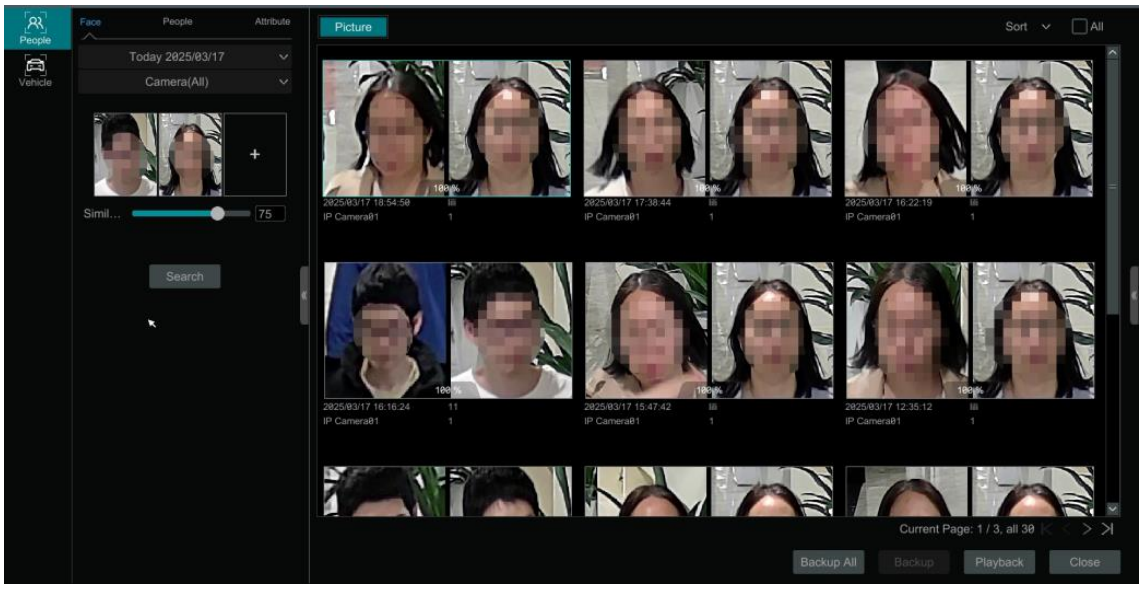
b. Click “Search”.
c. Check a face and click “Select”.

To add a single target face from external faces:
a. Save the target face to the mobile storage device and then insert this device into the USB interface of NVR.
b. Select “External Face” to import the face in this interface.

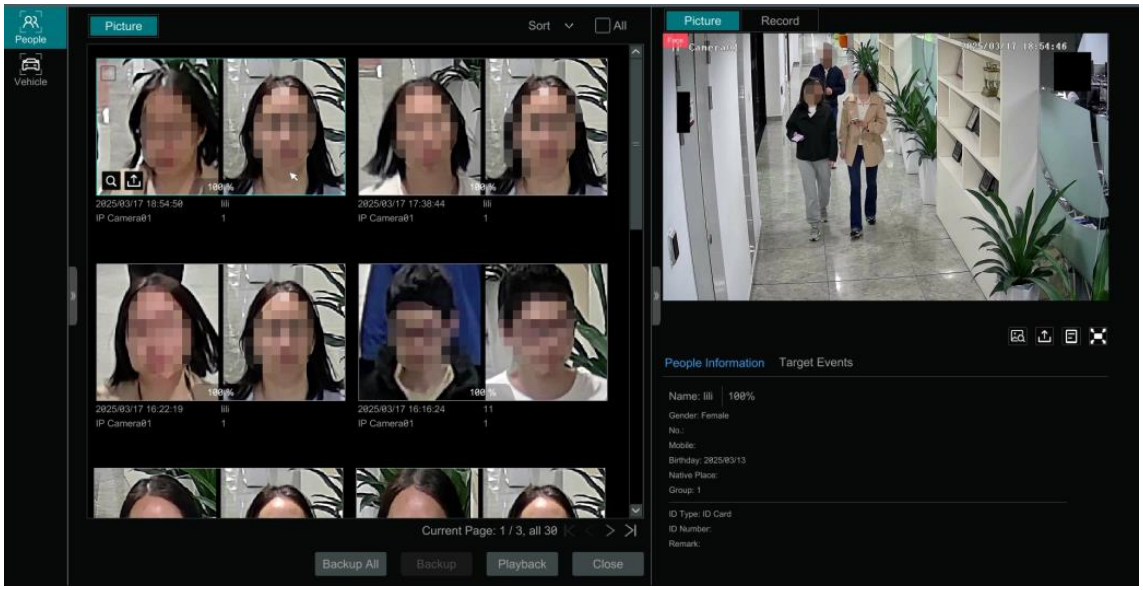
After the picture is selected, set the similarity.

You can modify or delete the added picture. Put the cursor onto the picture and click to change another picture; click to delete the picture.

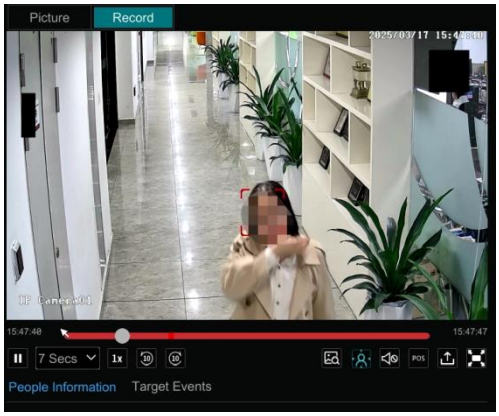
④Click “Search”. You can view the face comparison result or simply search results after search.



⑤Click “Sort” to search the match picture by similarity, time, or camera. Click the searched picture to view the face details.



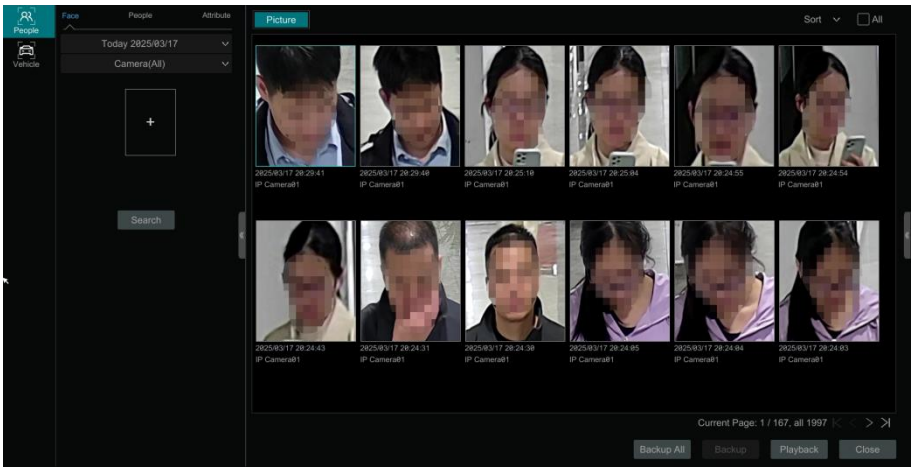
In the above interface, you can view the people information and target events. In the Target Events list, click the capture picture to play the record in the small window. Or click “Record” to play.



You can set the playback time and perform the corresponding operations as needed. Descriptions of the buttons on the small playback window

Button	Description
	Stop
	Click to choose the play speed.
	Click to step backward 30s
	Click to step forward 30s
	AcuSearch, see AcuSearch for details
	Click to close smart information (for example: click it to close the face detection box)
	Click to enable audio
	Click to view the POS information
	Click to back up.
	Full screen button. Click to show full screen; click it again to exit the full screen.

Note: if you search face picture without adding a face picture, you only can view the face pictures based on face detection as shown below.

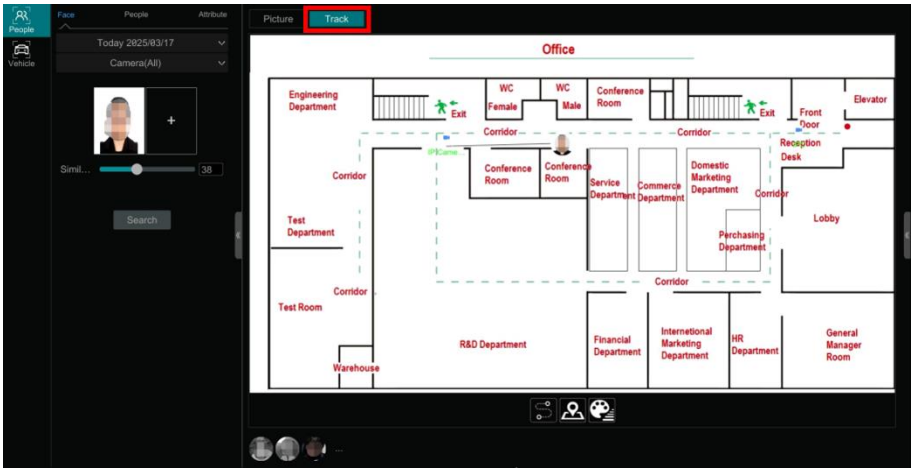


⑥Hover your cursor over the desired image in the search results and select the checkbox at the top left of the image. Click “Backup” to back up the selected pictures. Click “Backup All” to back up all searched pictures. Click “Playback” to go to the playback interface.

10.2.2 Track

Note: This function is only available for GV-GNVRC1620-P.

1. Click ***Start→Intelligent Analytics→Search→People→Face***.
2. Click the Add button (+) to add a face image from Face Database or Snapshot Gallery, and click “Search”. Then the **Track** tab will appear next to the **Picture** tab.
3. Select “Track” to go to the following interface.



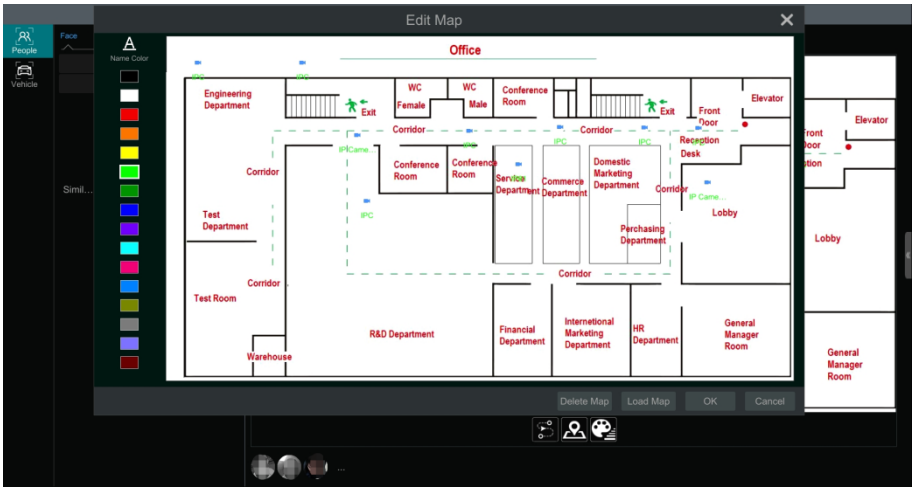
Note: Tracking will only work if two or more cameras have viewed and recorded the subject.

Descriptions of buttons on the track interface

	Start/Stop Track
	Edit Map
	Edit Color
	Click to view the detailed position information

Click on a camera name and then an event list appears. Click one item to play the recording.

Before playing the track, you need to add a map first. Click button to go to the following interface.



Click “Load Map” to add a map. Then drag the camera names onto and around the map to change their locations. Choose a color from the left color list to set your favorite color for camera names. Load Map: ① Save the map to the USB storage device and then insert the USB storage device into the NVR. ② Click “Load Map” button to upload the map.

Click button to modify the colors of camera names and track lines and set the line width.

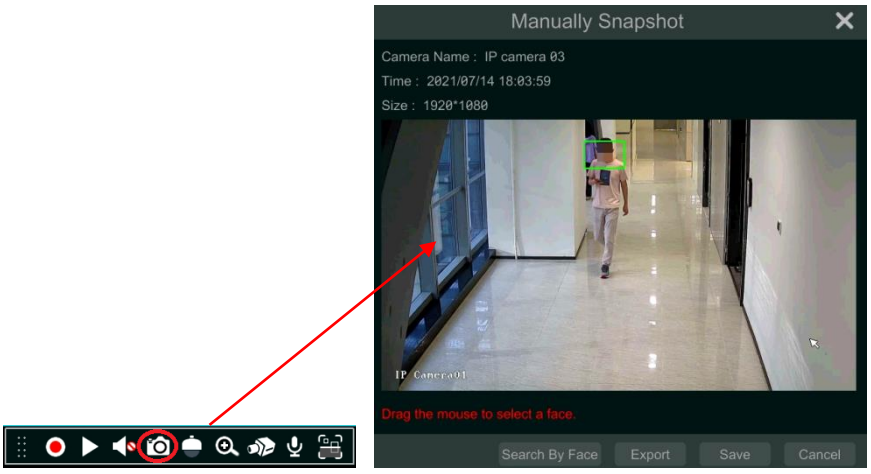
Click on the right of the track interface to play the track video. Click to return to the map track interface.

10.2.3 Face Search by Snapshot

Note:

1. This function is only available for GV-GNVRC1620-P.
2. The selected cameras must have Face Detection enabled, either through AI by Camera or AI by NVR. For Playback, Face Detection must have been enabled when the videos were recorded. Either Face Event or Smart Event can be enabled for these cameras. See Face Detection Settings for details.

In the live or playback interface, click on a face detection camera and then select on the toolbar. This will bring the following window.



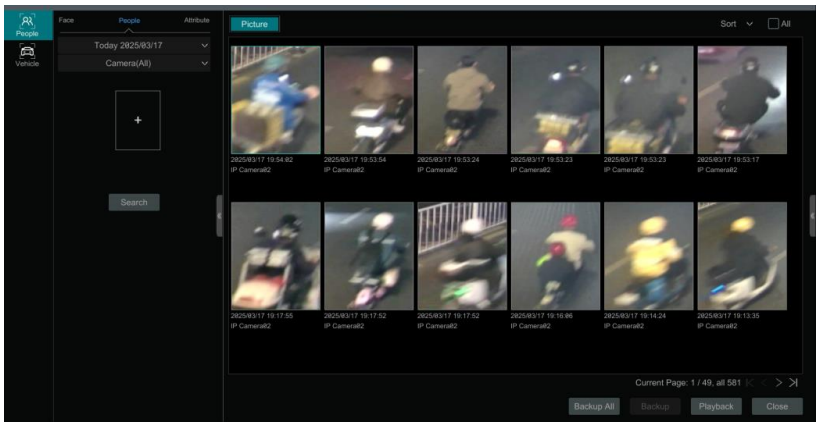
Drag the mouse to select a face and then click “Search by Face” to go to the face search by face interface. You can see its snapshot pictures, match pictures, original pictures and so on by clicking the corresponding tab.

10.2.4 People Search

Click ***Start→ Intelligent Analytics→Search→People→ People*** to go to the people search interface.

Note: For people search, the selected cameras must have had at least one Perimeter Detection event enabled, either through AI by Camera or AI by NVR, when the videos were recorded. Either Face Event or Smart Event can be enabled for these cameras. See Perimeter Detection for details.

Select the search time, camera and then click “Search” to view the searched pictures.



10.2.5 Human Attribute Search

Click ***Start→ Intelligent Analytics→Search→People→ Attribute*** to go to the human attribute search interface.

Note: For human attribute search, the selected cameras must have had Video Metadata enabled when the videos were recorded, which requires Smart Event to be enabled. See Video Metadata for details.

You can select the attributes of people to filter (like gender, age, mask-wearing status, glasses-wearing status, color of clothes, etc.). Note that only the searched camera with video metadata function can filter attributes.
Click a searched picture to view the details (including target events, snapshot picture and records).

10.2.6 Vehicle Search

Click ***Start→ Intelligent Analytics→ Search→Vehicle*** to go to the vehicle search interface. You can search motor vehicle, non-motor vehicle and plate separately.

Note: For vehicle search, the selected cameras must have had Video Metadata enabled when the videos were recorded, which requires Smart Event to be enabled. See Video Metadata for details.

- Motor Vehicle/Non-motor Vehicle Search

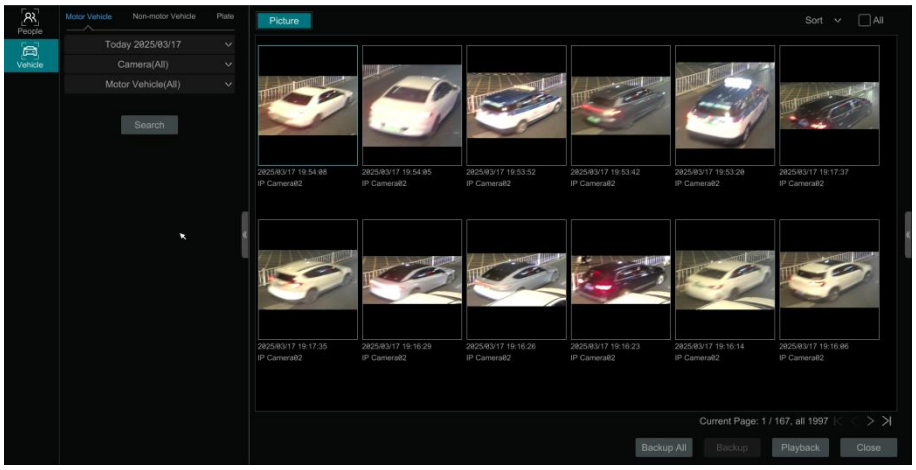
Select the time, camera, and attribute. Then click “Search” to search vehicles.

Attributes of motor vehicles: including color, brand or type.

Attributes of non-motor vehicles: you can select the type as needed.

Note that only the searched camera with video metadata function can filter attributes.

You can view vehicle pictures by time or by camera.



Click a searched vehicle picture to view its details on the left. You can view the picture and play the records as needed.

- Plate Search

Click the “Plate” tag and select the time, camera to search vehicles. You can also enter the plate number to search the plate pictures.



10.2.7 AcuSearch

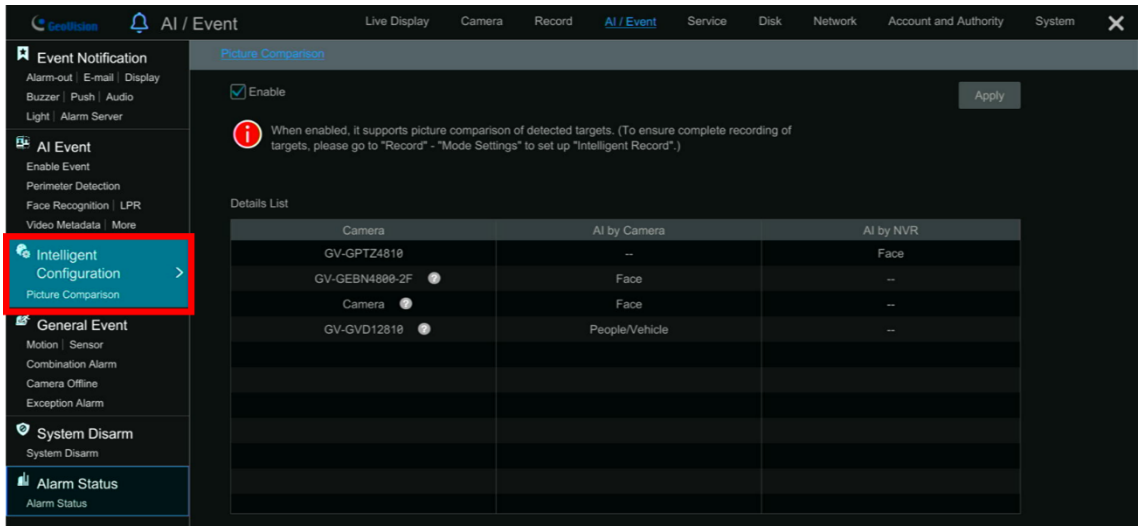
Only some models support AcuSearch. If your device doesn't support this function, please skip the following instructions.

AcuSearch extracts a picture of a human face or body from a video scene during live view or playback, compares the extracted picture with recorded videos, and finds videos containing the target.

Note: This function is only available for GV-GNVRC1620-P.

Prerequisites:

1. AcuSearch is available only when Picture Comparison is enabled, which is available only when the NVR engine is enabled.

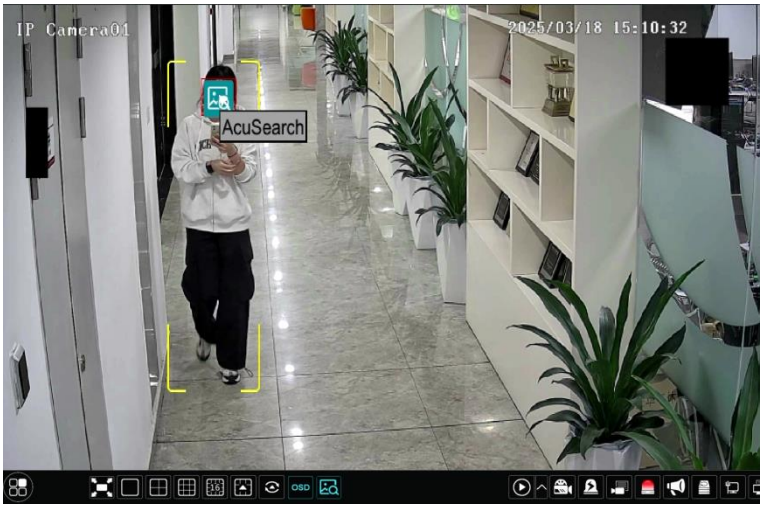


2. For human face search, the reference recorded videos must contain face data. To provide face data, the cameras must have had Face Detection enabled, either through AI by Camera or AI by NVR, when the videos were recorded. Either Face Event or Smart Event can be enabled for these cameras. See Face Detection Settings for details.
3. For human body search, the reference recorded videos must contain body data. To provide body data, the cameras must have had Video Metadata and at least one Perimeter Detection event enabled through AI by Camera when the videos were recorded, which requires Smart Event to be enabled. See Video Metadata and Perimeter Detection for details.

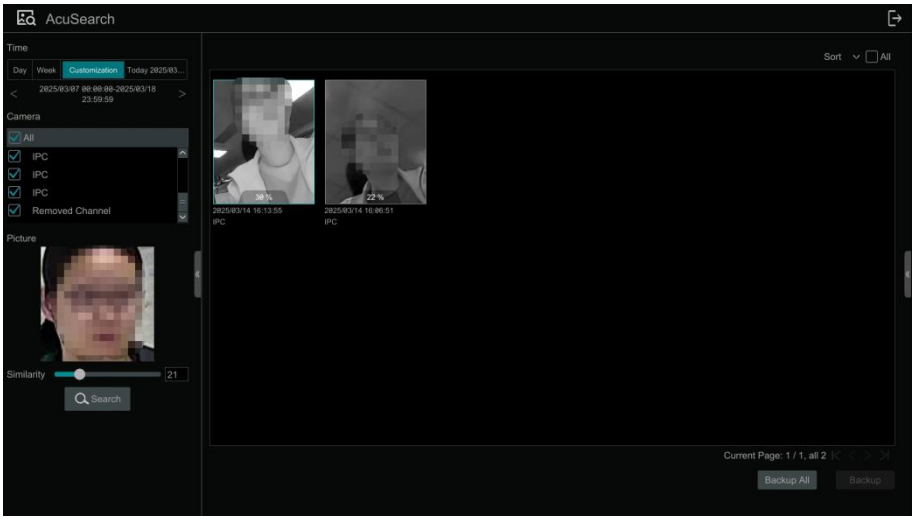
- AcuSearch via Live View

1. In the live view interface, click on a human face/body detection channel and then you can view on the toolbar of the interface. Click it and then you can view its single channel image which is still.

2. Click this button and then the human face/body frame can be viewed. If the human face and body can be detected simultaneously, you can view the human face and body frames at the same time as shown below.



3. Move the cursor to the face frame or human body frame, an AcuSearch button will appear. Click this button to jump to the AcuSearch interface.

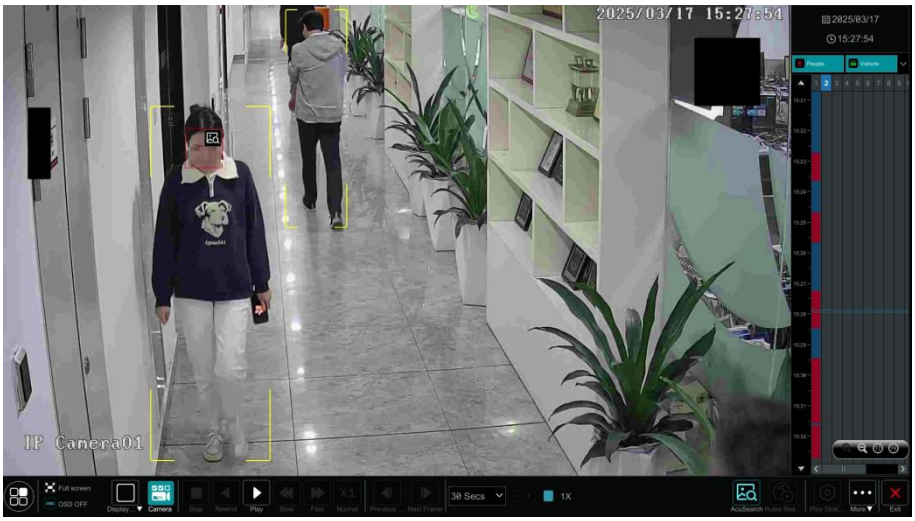


4. If the results are not satisfied, you can adjust the time range, channel or similarity to search again.

5. Click a searched picture, you can view its original picture and recorded video on the right, and export the picture and video as needed. After searching, click to exit.

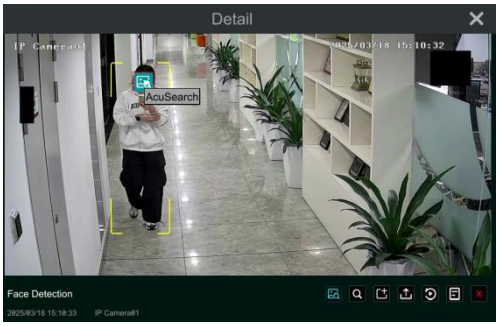
- AcuSearch via Playback

You can perform AcuSearch during normal, event or rules search playback as needed. The AcuSearch method is similar to the AcuSearch via Live View.



- AcuSearch via Target Detection

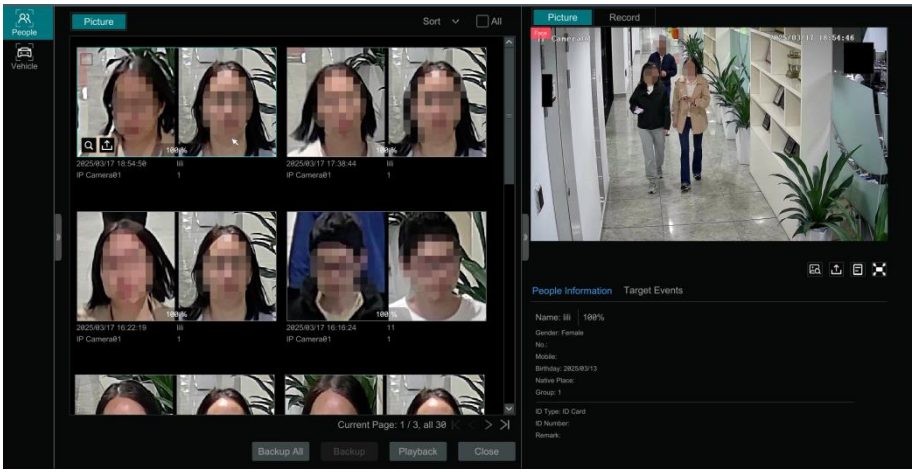
In the live view interface, select a human face/body picture under the target detection tab to display the following detail window. Click  to identify the human face or/and face as shown below.



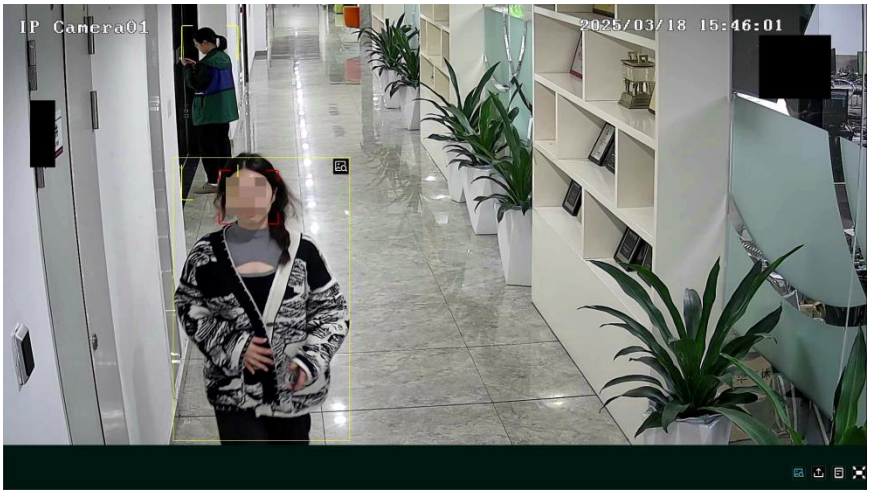
Move the cursor to the face frame or human body frame, an AcuSearch button will appear. Click this button to jump to the AcuSearch interface.

- AcuSearch via Smart Search

In the smart search interface (***Start→ Intelligent Analytics → Search→People→Face),*** click the searched human face/body picture.

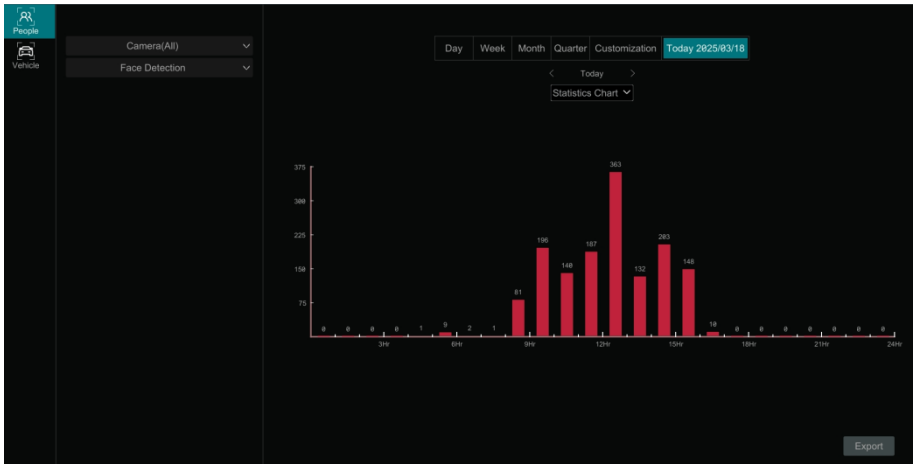


Click to extract the following picture. Move the cursor to the face frame or human body frame, an AcuSearch button will appear. Click this button to jump to the AcuSearch interface.



10.3 View Statistical Information

Click ***Start→ Intelligent Analytics→Statistics*** to go to the following interface. Through this interface, you can view the statistical information for people and vehicles, and you can customize the statistical information.



View People Information:

Note: The person information includes face information and figure information.

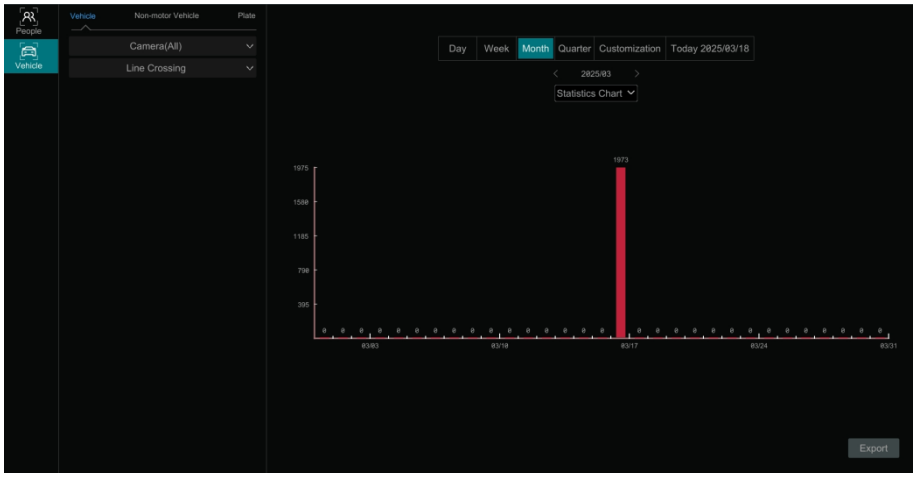
① Select the time.

② Select cameras.

③ Select events as needed, such as face detection, region intrusion, region entrance, region exiting, loitering detection, line crossing, target counting, etc.

View Vehicle Information:

- Click “Vehicle”
- Select “Vehicle”, “No-motor Vehicle” or “Plate” as needed.
- Select the time and cameras.
- Select events as needed.



If “Plate” is selected and “Remove duplicate license plate numbers” is checked, the duplicate statistics of the same license plate in the same day will not be displayed in the chart.

10.4 Enabling AI Mode

Only some models support this function.

For these models, the IP camera without AI function added to the NVR may realize AI functions, like face detection, line crossing and region intrusion by enabling AI mode in the NVR. If AI mode is enabled, the secondary output will be disabled for some models. Click ***Start→Intelligent Analytics→Engine Configuration***.



IMPORTANT: To disable the NVR AI engine, follow the instructions below.

1. For GV-GNVRC0810-P, deselect Enable AI, then click **Apply**.
2. For GV-GNVRC1620-P, you must restore the default parameters. See Factory Default for details.

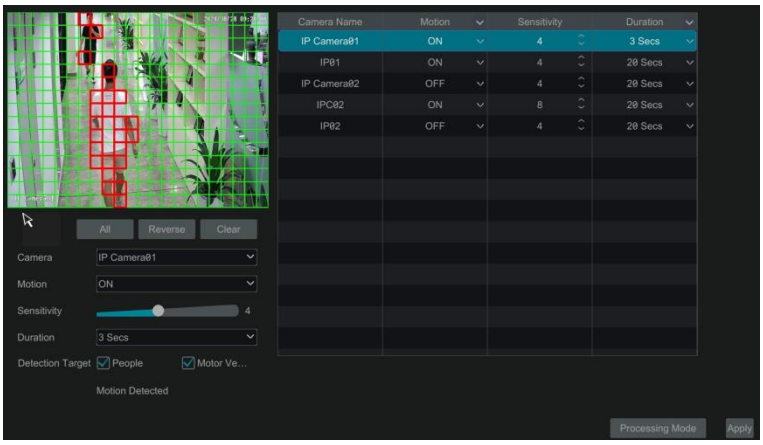
11 General Event Management

11.1 Motion Alarm

Motion Alarm: when a motion object appears in the specified area, it will trigger the alarm. You should enable the motion of each camera first and then set the alarm handling of the camera to complete the whole configuration of the motion alarm.

11.1.1 Motion Configuration

① Click ***Start→Settings→Camera→Motion→Motion Settings*** to go to the following interface.



② Select a camera, enable motion and set the sensitivity and duration of the camera.

Sensitivity: the higher the value is, the more sensitive it will be to motion. You should adjust the value according to the practical conditions since the sensitivity is influenced by background color and time (day or night).

Duration: The interval time between adjacent motion detections. For instance, if the duration time is set to 10 seconds, once the system detects a motion, it will trigger the alarm and will not detect any other motion (specific to that camera) for 10 seconds. If there is another motion detected during this period, it will be considered as continuous movement.

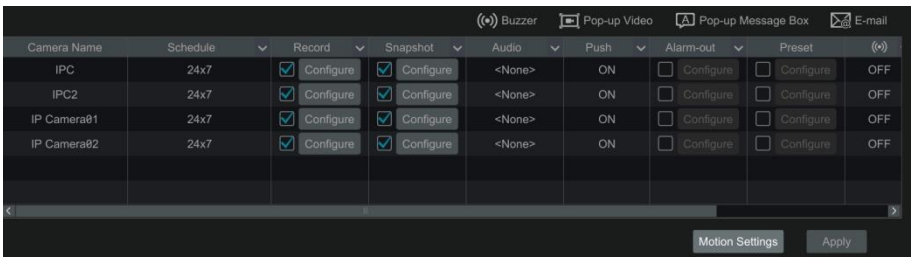
Detection Target: For the camera with SMD function, you can check the detection target as needed. If “People/Motor Vehicle” is enabled, the camera will only detect the movement of people/motor vehicle. If no target is enabled, alarms will be triggered when the moving object appears on the image, including people, vehicle or other moving objects.

③ Drag the camera image to set the motion area. You can set more than one motion area. Click “All” to set the whole camera image as the motion area. Click “Reverse” to swap the motion area and the non-motion area. Click “Clear” to clear all the motion areas.

④ Click “Apply” to save the settings. Click “Processing Mode” to go to the alarm handling configuration interface of the motion alarm.

11.1.2 Motion Alarm Handling Configuration

① Click ***Start→Settings→AI Event→General Event→Motion*** to go to the following interface.



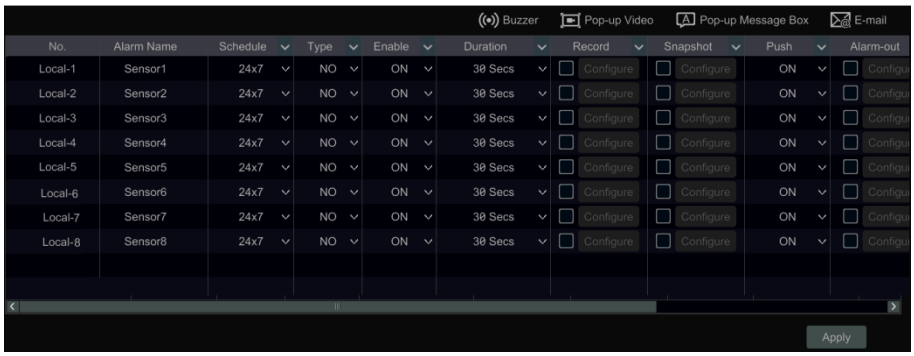
② Enable or disable “Record”, “Snapshot”, “Push”, “Alarm-out”, “Audio”, “Preset”, “Buzzer”, “Pop-up Video”, “Pop-up Message Box” and “E-mail”. The alarm handling setting of motion alarm is similar to that of the sensor alarm (see Sensor Alarm for details).

③ Click “Apply” to save the settings. You can click “Motion Settings” to go to the motion configuration interface.

11.2 Sensor Alarm

To ensure complete setup of the Sensor Alarm function, you should enable the sensor alarm of each camera and then immediately set up the alarm handling for that camera.

① Click ***Start→Settings→AI Event→General Event→Sensor*** to go to the following interface.



② Select the alarm type (NO or NC) according to trigger type of the sensor.

③ Enable the sensor alarm of each camera and select the schedule.

④ Check the “Duration”, “Record”, “Snapshot”, “Push”, “Alarm-out” and “Preset” and enable or disable the “Buzzer”, “Pop-up Video”, “Pop-up Message Box” and “E-mail” as needed.

⑤ Click “Apply” to save the settings.

The configuration steps of the above mentioned alarm linkages are as follows.

Duration: it refers to the interval time between the adjacent motion detections. For instance, if the duration time is set to 10 seconds, once the system detects a motion, it will go to alarm and would not detect any other motion (specific to camera) in 10 seconds. If there is another motion detected during this period, it will be considered as continuous movement; otherwise it will be considered as a single motion.

Record: If checked, the “Trigger Record” window will open automatically (you can also click the “Configure” button to open the window). Select a camera on the left side and then click >> to set the camera as the trigger camera. Select the trigger camera on the right side or click << to cancel the trigger camera. Click “OK” to save your settings. The trigger camera will record automatically when the sensor alarm is triggered.

Snapshot: If checked, the “Trigger Snapshot” window will open automatically. You can configure

the trigger camera in this window. The trigger camera will capture images automatically when the sensor alarm is activated.

Push: If checked, choose ON or OFF. If ON, the system will send messages when the sensor alarm is triggered.

Alarm-out*:* If checked, the "Trigger Alarm-out" window will open automatically. The system will trigger the alarm-out automatically when the sensor alarm is tripped. You need to set the delay time and the schedule of the alarm outputs. See Alarm-out for details.

Preset*:* If checked, the "Trigger Preset" window will open automatically. Here you can configure the trigger preset for each camera. To add presets, please see Preset Setting for details.

Buzzer*:* if enabled, the system will emit an audible buzz when the sensor alarm is triggered. To set the delay time of the buzzer, please see Buzzer for details.

Pop-up Video*:* After camera setup, the corresponding video will pop up automatically when the sensor alarm is triggered. To set the duration time of the video, please see Display for details.

Pop-up Message Box: if enabled, the system will pop up the corresponding alarm message box automatically when the sensor alarm is triggered. To set the duration time of the message box, please see Display for details.

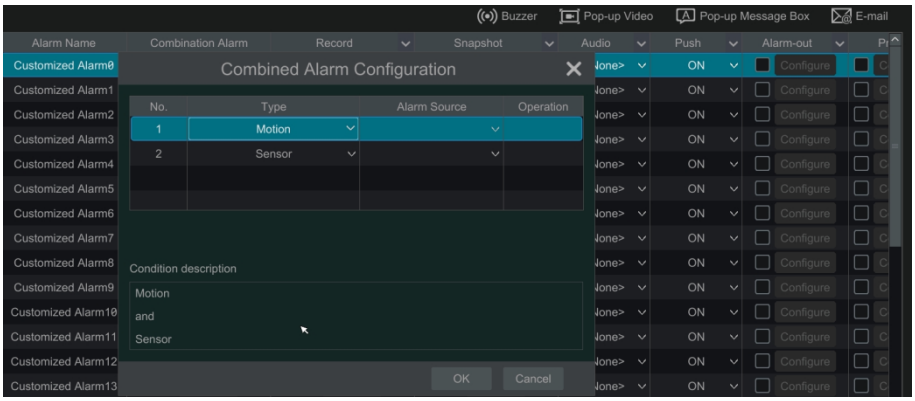
E-mail*:* if enabled, the system will send an e-mail when the sensor alarm is triggered. Before you enable email, please configure the recipient's e- mail address first (see E-mail Configuration for details).

Virtual alarm: This function should be used with API server. If you want to enable it, please make sure the API Server is enabled first (***Start→Network→Port***) and then set the authentication as "Digest".

11.3 Combination Alarm

① Click ***Start→Settings→AI Event→General Event→Combination Alarm*** to go to the following interface.

② Customize combination alarm. Set alarm name and click "Configure" under the Combined Alarm Configuration item (motion/sensor/intrusion/line crossing). Then select alarm type and alarm source. Finally, click "OK" to save the settings.



③ Enable or disable "Record", "Snapshot", "Push", "Alarm-out", "Preset", "Buzzer", "Audio", "Pop-up Video", "Pop-up Message Box", "E-mail", "IPC_audio" and "IPC_light". The alarm handling setting of combination alarm is similar to that of the sensor alarm (see Sensor Alarm for details).

Click "Apply" to save the settings.

11.4 Exception Alarm

11.4.1 Camera Offline Settings

① Click ***Start→Settings→AI/Event→General Event→Camera Offline*** to go to the interface as shown below.

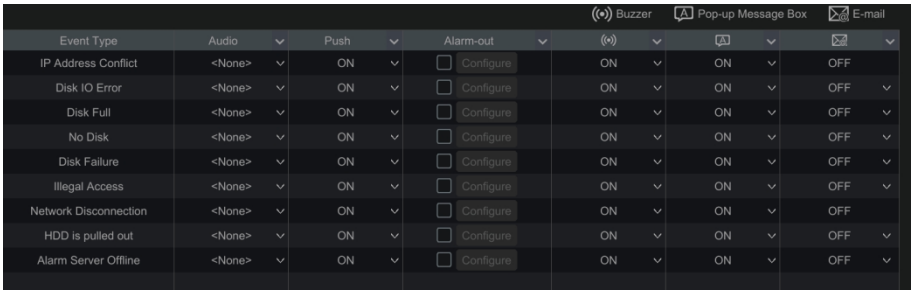
② Enable or disable “Snapshot”, “Push”, “Alarm-out”, “Preset”, “Buzzer”, “Pop-up Video”, “Pop-up Message Box” and “E-mail”. The camera Offline Settings are similar to that of the sensor alarm (see Sensor Alarm for details).

③ Click “Apply” to save the settings.



11.4.2 Exception Alarm Settings

① Click ***Start→Settings→AI/Event→General Event→Exception Alarm*** to go to the interface as shown below.



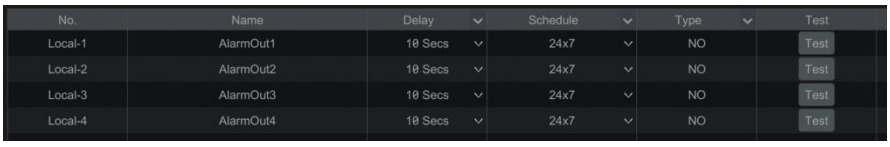
② Enable or disable “Push”, “Alarm-out”, “Buzzer”, “Pop-up Message Box” and “E-mail”. The exception handling settings are similar to that of the sensor alarm (see Sensor Alarm for details).

③ Click “Apply” to save the settings.

11.5 Alarm Event Notification

11.5.1 Alarm-out

① Click ***Start→Settings→AI/Event→Event Notification*** to go to the following interface.



② Set the delay time the schedule and type of each alarm-out. You can click “Edit Schedules” to edit the schedules (see Schedule Settings for details).

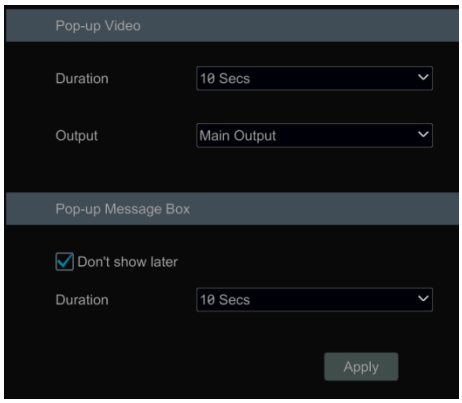
③ Click “Apply” to save the settings. You can click “Test” to test the alarm output.

11.5.2 E-mail

Click ***Start→Settings→AI/Event→Event Notification→E-mail*** to go to the e-mail configuration interface. Set the e-mail address of the recipients. See E-mail Configuration for details.

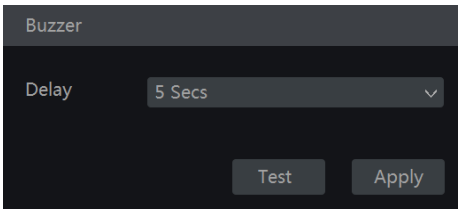
11.5.3 Display

Click ***Start→Settings→AI/Event→Event Notification→Display*** to go to the display configuration interface. Set the duration time of the pop-up video and the pop-up message box. If you device support two outputs, please set the output of the pop-up video as needed. After that, click “Apply” to save the settings.



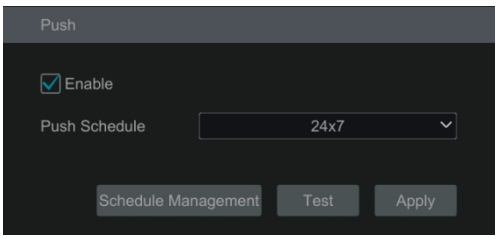
11.5.4 Buzzer

Click ***Start→Settings→AI/Event→Event Notification→Buzzer*** to go to the buzzer configuration interface. Set the delay time of the buzzer and then click “Apply” to save the setting. You can click “Test” to test the buzzer.



11.5.5 Push

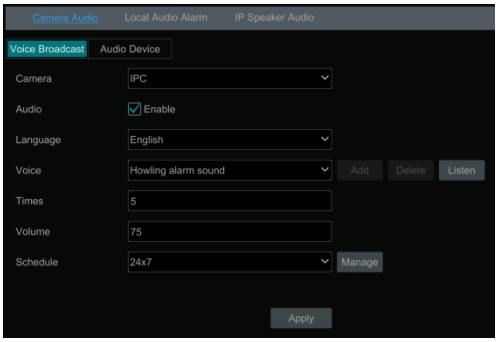
Click ***Start→Settings→ AI/Event→Event Notification→Push*** to go to the interface as shown below. Check “Enable”, select the schedule and then click “Apply” to save the settings. If Push Server is online, it will push text to the GV-Eye mobile clients according to the set schedule.



Note: Enable this function to send push notifications to GV-Eye. For details on receiving push notifications in GV-Eye, see *Push Notifications* in the *GV-Eye Installation Guide*.

11.5.6 Audio

Click ***Start→Settings→ AI/Event →Event Notification→Audio*** to go to the interface as shown below.



Camera audio settings:

For perimeter alert cameras, voice broadcast can be set up. Select the camera, voice, broadcast times, volume, language, and schedule. Then click “Apply” to save the settings. When an alarm is triggered, the camera will broadcast the voice you set.

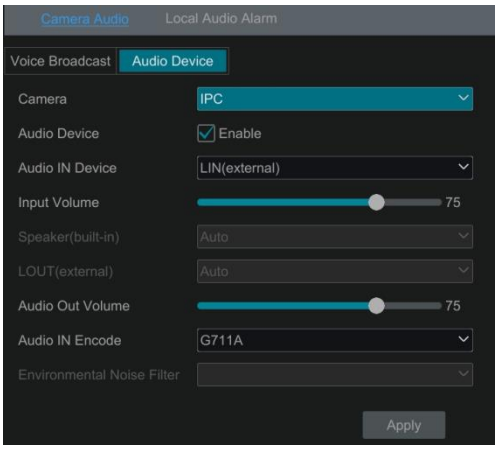
Audio: please enable or disable as needed. If your camera doesn’t support this switch, this function is not available.

Voice: click “Add” to add the alarm voice in WAV format. Click “Listen” to listen to the uploaded audio.

Schedule: Set the schedule of audio linkage alarm. After the schedule is set, the audio alarm will be triggered by events within the schedule.

Note: Only some perimeter alert cameras support schedule settings for audio alarm linkage.

Click “Audio Device” to set the audio of the camera.



Select the camera and then enable audio device.

Audio IN Device: Please select it according to the actual device configuration.

Speaker (built-in): Please select its function as needed.

LOUT (external line output): Select the function of the external audio device as needed.

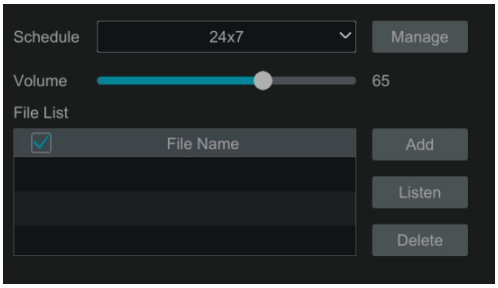
Audio Input Encode: G711A/G711U

Note: The speaker (built-in) and LOUT (external) cannot be enabled simultaneously for some cameras. Please select it as needed.

Environmental Noise Filter: Choose “Normal” or “Enhanced” mode as needed. Only some cameras support this function.

Local Audio Alarm

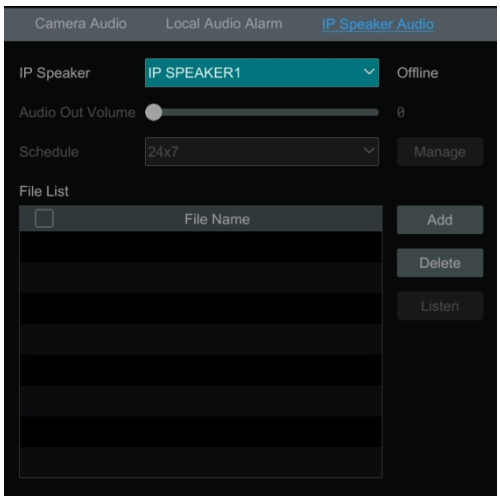
Set the audio alarm of local NVR.



In this interface, you can set the schedule and volume of the local audio alarm. Click “Add” to upload the audio file (.mp3/.wav format). Note that only some models support MP3 audio files. Choose the uploaded audio file and then click “Listen” to listen to it; click “Delete” to delete this file.

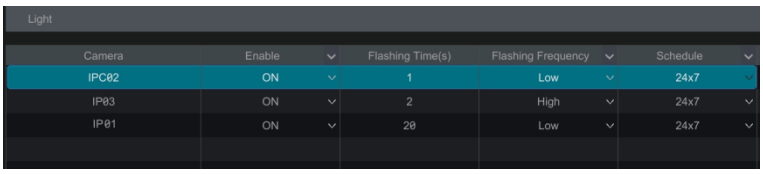
- IP Speaker Audio

1. Select the IP Speaker you have added.
2. Set the audio out volume, schedule and add an audio as needed.
3. Click “Add” to upload the audio file (.wav format). Choose the uploaded audio file and then click “Listen” to listen to it; click “Delete” to delete this file.
The local wav audios also can be listed here.



11.5.7 Light

Click ***Start→Settings→AI/Event→Event Notification→Light*** to go to the interface as shown below.



In this interface, you can enable and set the light flashing time and frequency when an alarm is triggered.

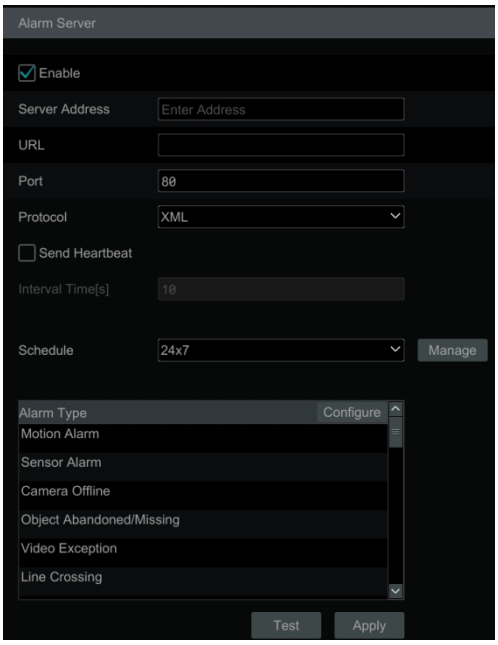
Schedule: Set the schedule of light linkage alarm. After the schedule is set, the light alarm will be triggered by events within the schedule.

Note: Only some perimeter alert cameras support schedule settings for light alarm linkage.

11.5.8 Alarm Server

Go to ***Start→Settings→AI/Event→Event Notification→Alarm Server*** interface as shown below.

Enable the alarm server and enter the server address, URL and port of the alarm server. Next, select the protocol. If “Send Heartbeat” is enabled, set the interval times. After that, test the effectiveness of the alarm server. After a successful test, please click “Apply”. When an alarm occurs, the device will transfer the alarm event to the alarm server. If an alarm server is not needed, there is no need to configure this section.



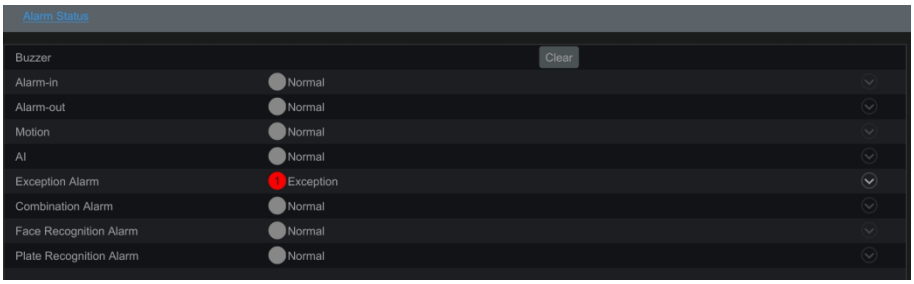
11.6 Manual Alarm

Click  on the tool bar at the bottom of the live view interface to open a window. Click “Trigger” to start alarm. Click “Clear” to stop alarm.

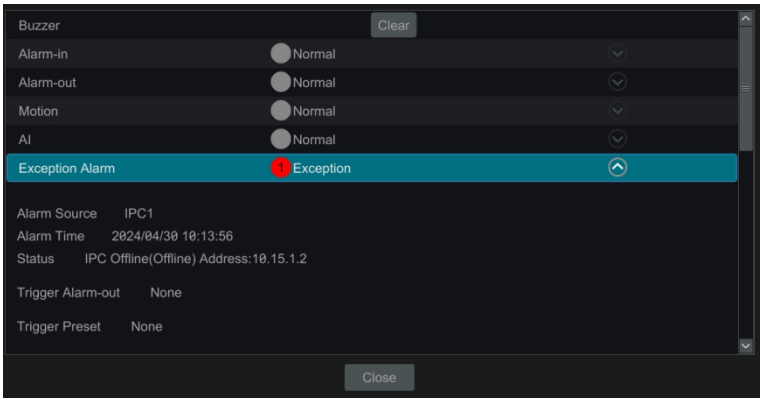


11.7 View Alarm Status

Click ***Start→Settings→AI/Event→Alarm Status*** or click on the tool bar at the bottom of the live view interface to view the alarm status.



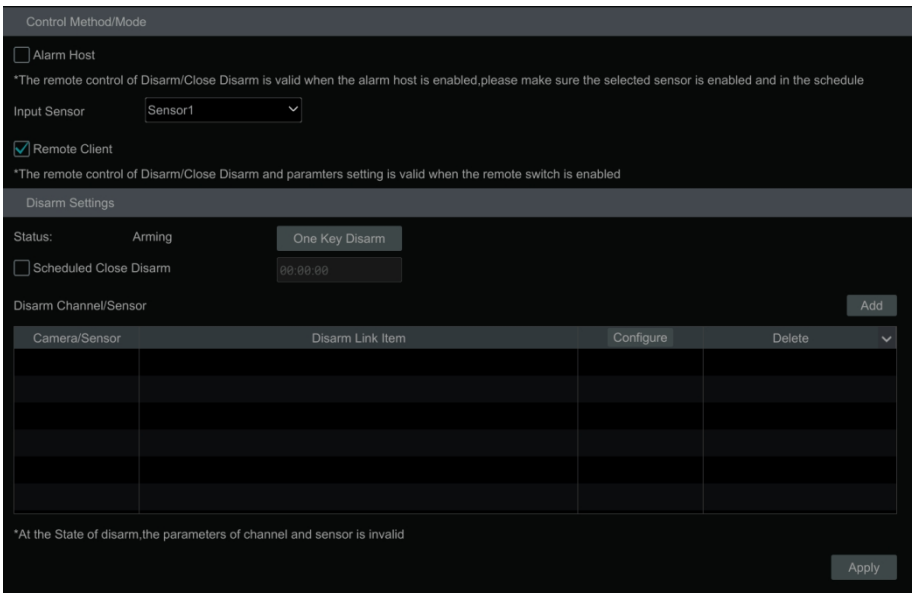
Click “Clear” to stop the buzzer when a buzzer alarm is triggered. Click to view the detailed information as shown below.



If the exception information is more than one page, you can enter the number in the box and then click to jump to the specified page. Click / to view the exception alarm information in the previous/next page.

11.8 System Disarming

Click ***Start→Settings→AI/Event→System Disarm***. You can quickly disarm the device through the alarm host or a remote client (such as the mobile app).



You can self-define the channels and sensors you want to disarm by clicking “Add”. Only the selected channels and sensors can be disarmed by clicking “One Key Disarm”.

Note: If you want to control system disarm by a client, you must check “Remote client” in the above interface, or “One key disarm” function cannot be used in the client (like Web/APP client).

Scheduled Close Disarm: if enable and set the time, the system will close disarming in the set time point.

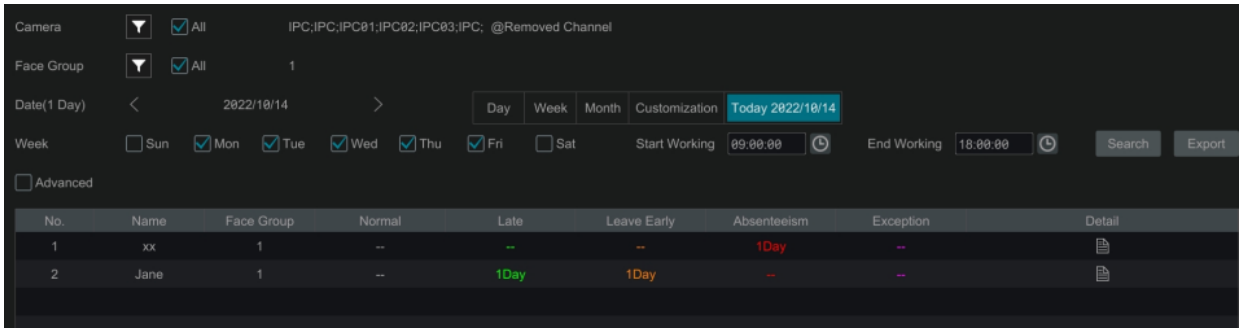
12 Application

12.1 Face Attendance

This function is only available for some models. If your device doesn't support it, please skip the following instructions.

Note: This function is only available for GV-GNVRC1620-P.

Click ***Start→Application→Face Attendance*** to go to the following interface.



To search attendance information:

① Click ▼ behind Camera and Face Group to choose the desired cameras and groups.

② Set the attendance date. You can select Day, Week, Month, or Today, or customize the time period.

③ Set the Start Working and End Working times.

④ Click "Search" to view the attendance status.

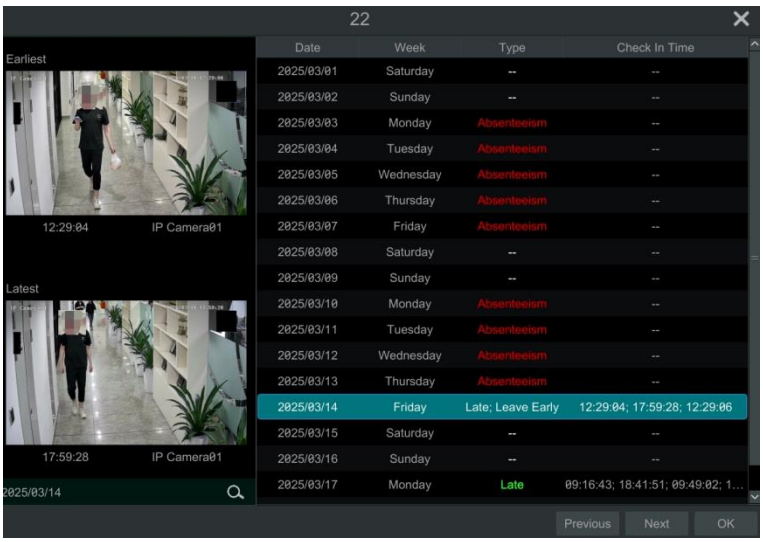
Attendance Status Types

- Normal: First and last recognition times are within working hours.
- Late: First recognition is after the Start Working time.
- Leave Early: Last recognition is before the End Working time.
- Absenteeism: No attendance record is detected during working hours.
- Exception: Only one attendance record is detected during working hours.

To search for the attendance status of a specific person, click "Advanced", enter the person's name, and select the attendance status type.

Click "Export" to export the searched attendance information.

Click 📄 to view the detailed information of attendance. In this interface, click 🔍 to go to the face search interface.


22
Earliest
12:29:04
IP Camera01
Latest
17:59:28
IP Camera01
2025/03/14
Date
Week
Type
Check In Time
2025/03/01 Saturday -- --
2025/03/02 Sunday -- --
2025/03/03 Monday Absenteeism --
2025/03/04 Tuesday Absenteeism --
2025/03/05 Wednesday Absenteeism --
2025/03/06 Thursday Absenteeism --
2025/03/07 Friday Absenteeism --
2025/03/08 Saturday -- --
2025/03/09 Sunday -- --
2025/03/10 Monday Absenteeism --
2025/03/11 Tuesday Absenteeism --
2025/03/12 Wednesday Absenteeism --
2025/03/13 Thursday Absenteeism --
2025/03/14 Friday Late; Leave Early 12:29:04; 17:59:28; 12:29:06
2025/03/15 Saturday -- --
2025/03/16 Sunday -- --
2025/03/17 Monday Late 09:16:43; 18:41:51; 09:49:02; 1...
Previous
Next
OK

12.2 Face Check-In

Note: This function is only available for GV-GNVRC1620-P.

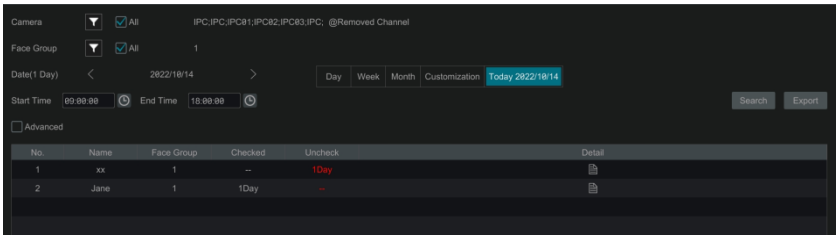
Click ***Start→Application→Face Check-In*** to go to the following interface.
The search steps of face check-in are as follows.

① Click behind camera and group to choose the desired cameras and groups.

② Set the check-in date. You can choose day, week, month and today or customize the time period.

③ Set the start time and the end time of face check-in.

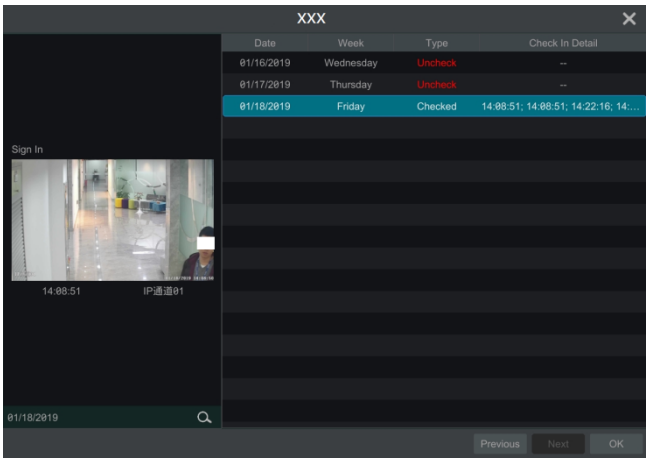
④ Click “Search” to view the check-in state.



If you want to know the check-in status of a specific person, please click “Advanced” and then enter the name and choose the type to search.

Click to view the detailed information. In this interface, the checked image can be viewed.

Click to view the registered face picture of this person.

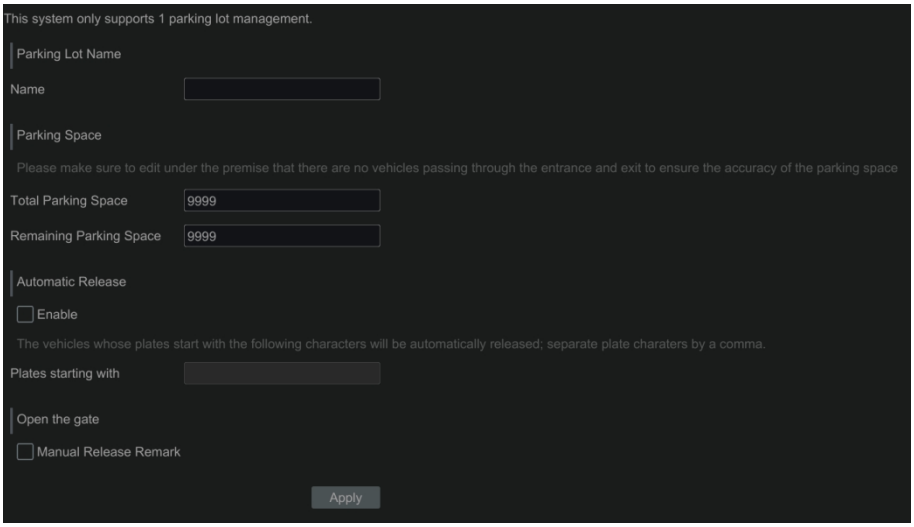


12.3 Parking Lot Settings

You can manage the parking lot through the NVR. Before using this function, please add the professional ANPR camera.

Note: Parking Lot Settings only works with GV-LPR4913 (coming soon).

Click ***Start→Application→Parking Lot Management*** to go to the parking lot setting interface.



12.3.1 Basic Settings

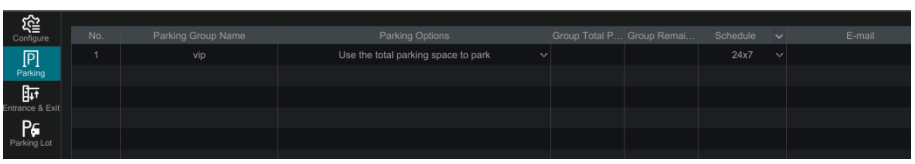
The recorder only supports one parking lot management. Please enter the parking lot name, total parking spaces and remaining parking spaces as needed. To ensure the accuracy of the parking spaces, please enter the parking space information when there are no vehicles entering or exiting.

Automatic Release: The barrier gate can be automatically opened for special vehicles after enabling automatic release and entering the special characters. If you want to automatically release multiple vehicle types whose plates starting with special characters, you can enter and separate them with commas (,).

Manual Release: If “Manual Release Remark” is checked, each time you check “Correct and Open” or “Open the gate-channel name”, you can enter the reason for opening the gate.

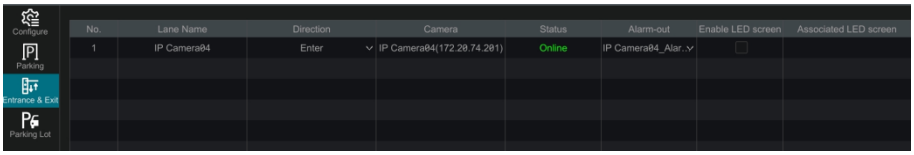
12.3.2 Parking Space Settings

Only the vehicles added into the plate database are allowed to pass through automatically. You can set the parking spaces according to the vehicle groups or directly use the total parking spaces. For the block list, you can set “No parking allowed”. After that, set the schedule and Email as needed.



12.3.3 Entrance/Exit Management

Set the passing direction of vehicles (Enter/Exit/Enter and Exit) and bind LED screen as needed.



Direction: choose “Close”, “Enter”, “Exit” or “Enter and Exit” as needed.

If “Close” is selected, the LPR/ANPR camera is only used to recognize plates and doesn’t trigger the relevant parking management function.

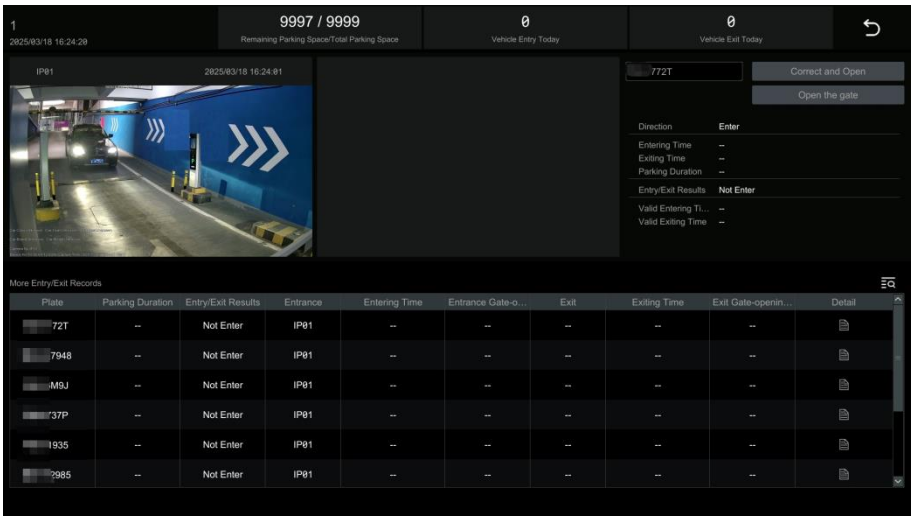
If you want to manage vehicles entering and leaving a park by one LPR/ANPR camera, it is suggested to select “Enter and Exit”. In this way, vehicles entering the park trigger alarms by default, but vehicles leaving the park don’t trigger alarms. Vehicles entering/leaving are classified by recognition mode of the LPR/ANPR camera (recognizing when approaching or driving away). When there is a vehicle approaching, the LPR/ANPR camera captures and reports its license plate, the direction is recognized as “Enter” and the NVR analyzes whether the parking spaces are full. If there are remaining parking spaces, the parking system opens the gate barrier and reduces a remaining parking space. If the parking spaces are full, the gate barrier cannot be opened. When a vehicle is been driving away, the barrier gate can be controlled by the ground sense coil, the LPR/ANPR camera captures and reports its license plate, the direction is recognized as “Exit/Leave” and the NVR increases a parking space.

Note: Only some LPR/ANPR cameras can simultaneously manage the entry and exiting of vehicles.

If “Enter” or “Exit” is selected, the set direction shall prevail.

12.3.4 Parking Lot Management

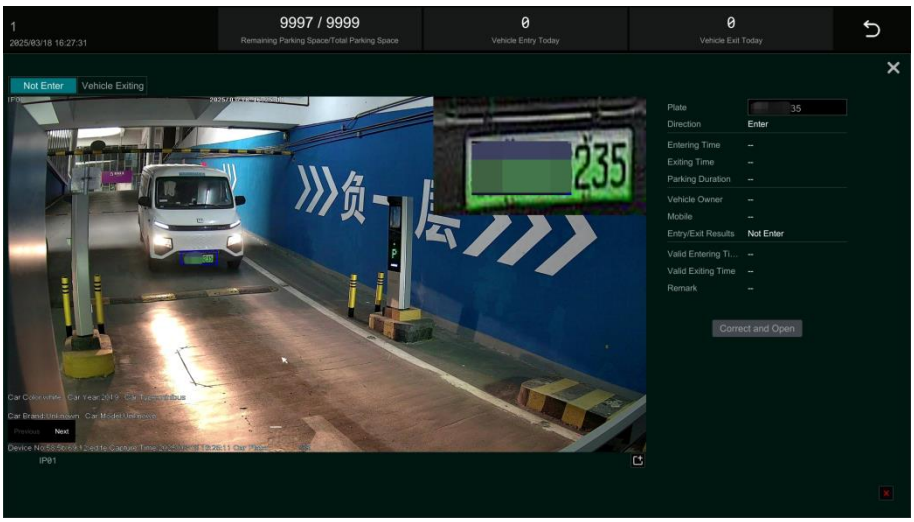
After the above settings are completed, click “Parking Lot” on the left menu to go to the following interface.



In this interface, you can view the detailed information of the parking lot, including the total parking space, remaining parking space, number of vehicle entering today, number of vehicle exiting today, valid entering/exiting time, and vehicle entry/exit records.

Only vehicles added into the plate database are allowed to pass automatically. If the vehicle is a stranger/unknown vehicle, it cannot be allowed to enter. You can release it manually by clicking “Open the gate”. If the plate number captured is not matched with the actual one, you can click “Correct and Open” to correct it and open the gate manually. If “Manual Release Remark” is checked in the configuration interface, the release reason also can be entered. For a strange vehicle or when the gate cannot be automatically opened because of other reasons, you can click “Open the gate” to manually open the gate. If “Manual Release Remark” is checked, you can click the camera name and enter the manual release reason for subsequent tracing.

Click to view the detail information of vehicle entry/exiting.



Put the cursor onto the image to view the captured plate picture.

If the capture plate is a stranger plate, click to add it to the plate database.

Click “Previous/Next” to view the previous/next entering/exiting record of this vehicle.

Click to exit the detailed entering/exiting page.

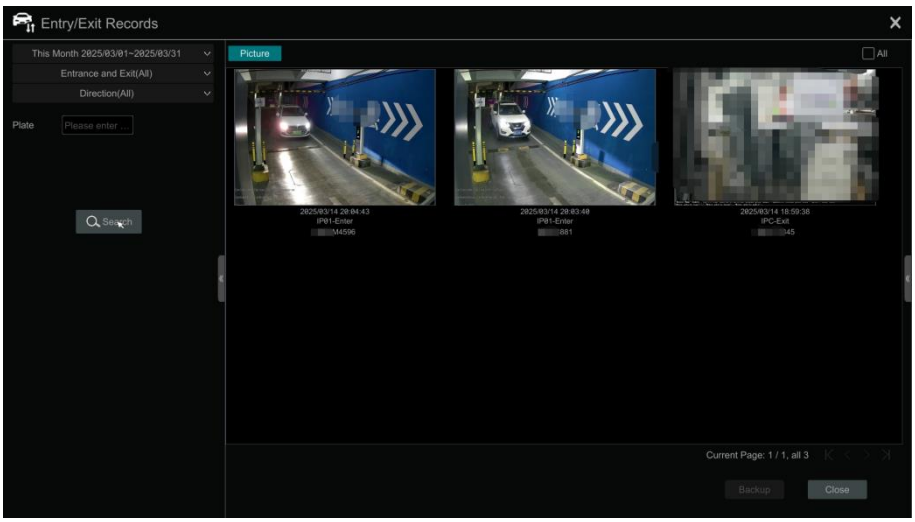
In the parking lot management window, click to go to search the records of vehicles entering/exiting.

Click “ ” to return to the live view interface.

12.3.5 Search Vehicle Entry/Exiting Records

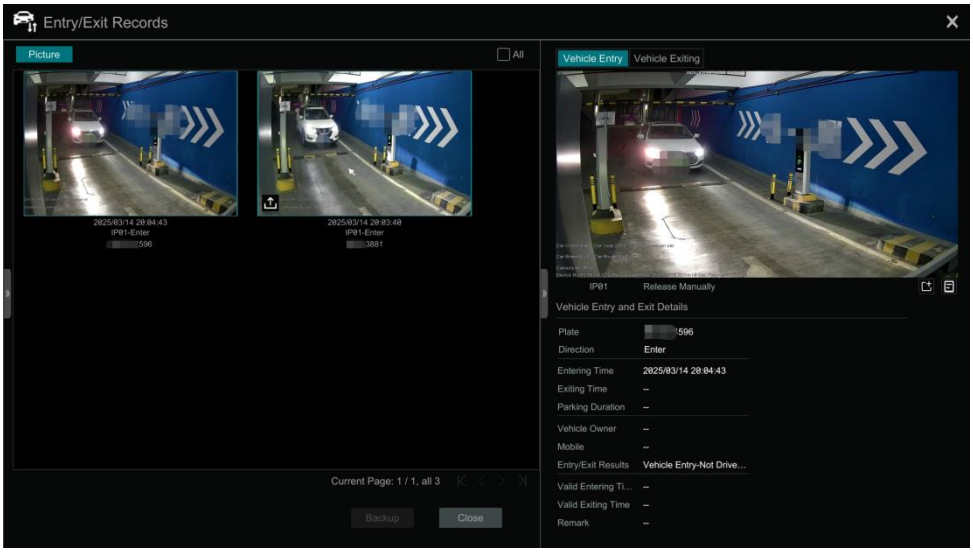
In the parking lot management interface, click to search the records of vehicles entering/exiting the park lot.

You can search these records by setting filtering conditions (including time/direction/license plate).



Select the image and click “Backup” to export the searched picture.

Click the searched vehicle to view the detailed vehicle entry/exiting records as shown below. In addition, you can add the stranger vehicle and view the target ID as needed. Click “Close” or ✖ to return to the parking lot management interface.



12.4 Access Control Management

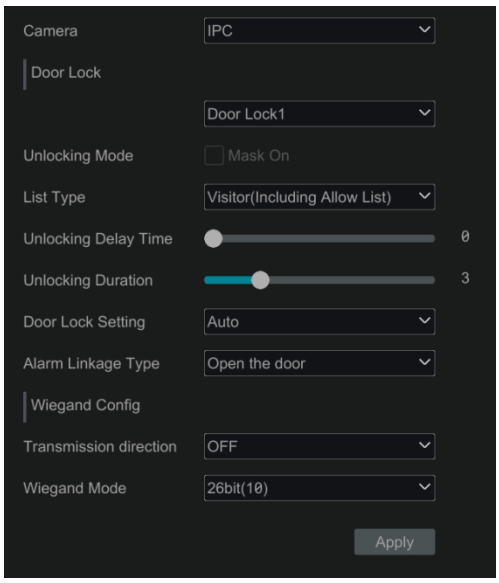
The recorder supports access control parameter configuration and remote door opening.

Note: Access Control Management is currently not supported.

Before using the access control function, please add access control devices (face recognition & access control terminal/panel). Go to ***Start→Settings→Camera→Add Camera*** interface to add devices.

12.4.1 Access Control Settings

Click ***Start→Application→Access Control Management*** to go to the following interface.



Select the access control device you want to configure the parameters.

Lock: Choose the lock you want to control.

Unlocking Mode: if “Mask On” is selected, the door will be opened when the matched person wearing a mask.

List Type: Allow list, visitor (including allow list), stranger (including visitor and allow list).

Unlocking Delay Time: Set the door unlocking delay time. The time range is from 0 to 10 seconds. For example, the unlocking mode is “Face only” and the delay time is set to “2” seconds; the door will be opened 2 seconds later after face recognition.

Unlocking Duration: Set the unlocking duration. The time range is from 0 to 10 seconds. For example, the unlocking mode is “Face only” and the duration is set to “3” seconds; the door will be opened after successful face comparison, but the opening door will be automatically locked 3 seconds later.

Door Lock Setting: Choose “Auto”, “NO” or “NC”. Please select it according to your door lock type.

Alarm Linkage Type: Open/close the door

Wiegand Config: Wiegand Input, Wiegand Output or Off can be selected. If the card reader is connected to the Wiegand interface, please select “Wiegand Input”. If the access controller is connected to the Wiegand interface, please select “Wiegand Output”.

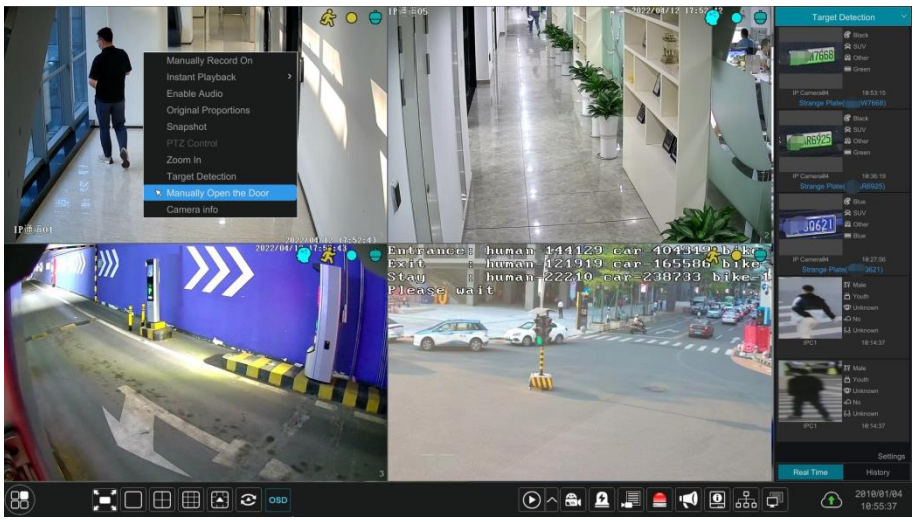
Wiegand Mode: 26bit(8), 26bit(10), 34bit, 37bit, 42bit, 46bit, 58bit or 66bit can be selectable.

After clicking “Apply”, the configuration will be synchronized with the camera.

When someone wants to enter, the access control device will open the door according to the set condition.

12.4.2 Open the Door Manually

In the live view interface, select an access control camera. Right click on the window to show a dropdown list. Select “Manually Open the Door” to open the door via the NVR.



If you want to view the real-time face snapshots and comparison of access control devices, please enable face detection or comparison function as needed. Then the corresponding results will display under the target detection tab in the live interface.

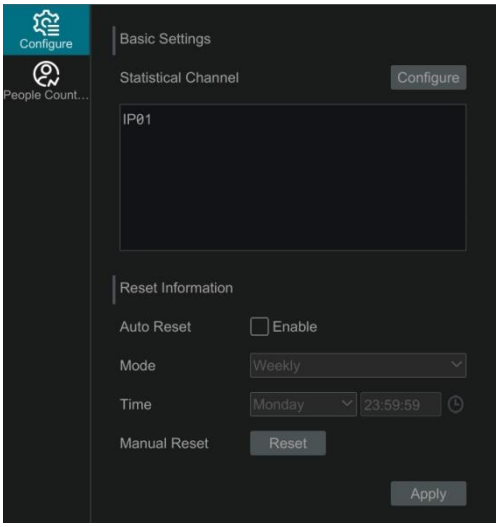
12.5 People Flow

After the people counting cameras are accessed and configured, you can go to the people counting interface to view the detailed counting data.

Note: People Flow only works with GV-3D People Counter V3.

Before viewing the people flow data, please set the people counting function first (See people counting section for details).

① Go to Start→Application→People Flow→Configure interface to set the statistical channel and reset information.



Select the people counting channel you want to view the statistical information.

Set the reset information as needed. Auto or manual reset can be set.

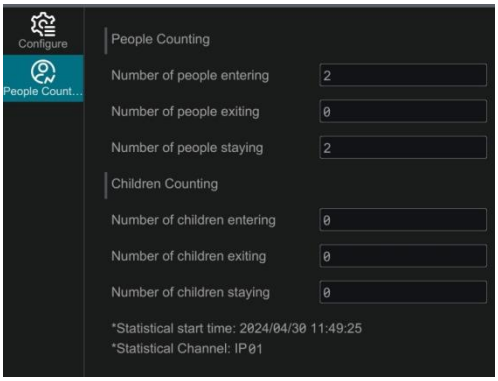
Auto Reset: The current number of the people counting can be reset. You can choose to reset the counting daily, weekly or monthly.

Click “Reset” to manually reset the current number of people counting.

After that, click “Apply” to save the settings.

② Click 

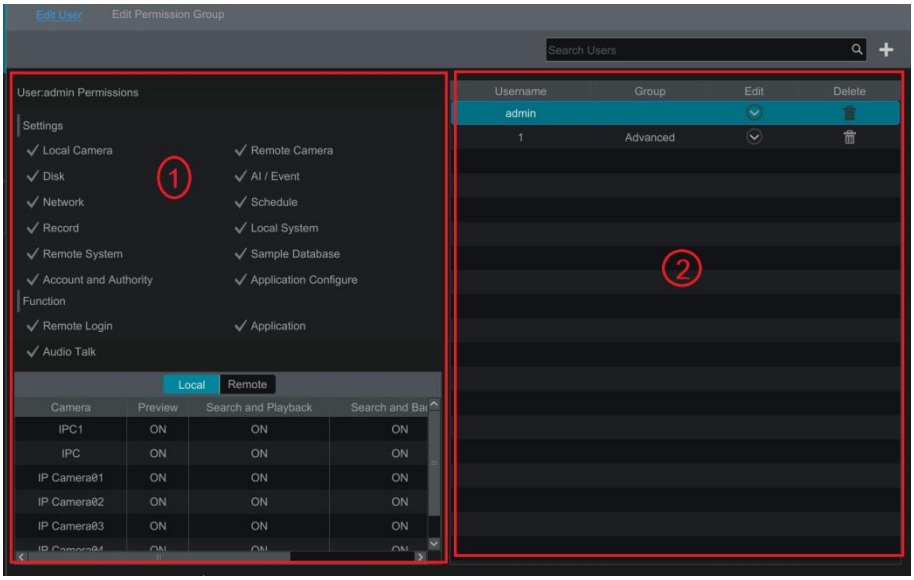
to view the detailed statistical information as shown below.



13 Account & Permission Management

13.1 Account Management

Click ***Start→Settings→Account and Authority→Account→Edit User*** to go to the interface as shown below.



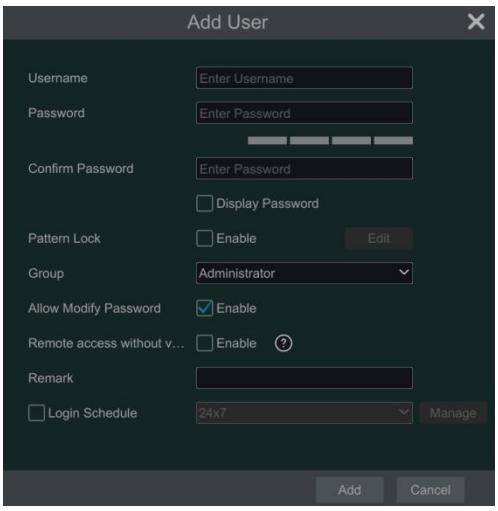
Area ① displays the user permissions. Area ② displays the user list. Click the user in the list to display its user permissions in area ①.

There are three default permission groups (“Administrator”, “Advanced” and “Common”) available when adding accounts. You can manually add new permission group (see Add Permission Group for details).

Only ***admin*** and the users that have the “Account and Authority” permission can manage the system’s accounts. Group “Administrator” owns all the permissions displayed in area ① except “Account and Authority” and its permissions cannot be changed while the permissions of “Advanced” and “Common” can be changed.

13.1.1 Add User

① Click ***Start→Settings→Account and Authority→Account→Add User*** or click + beside the search box to open a window as shown below.



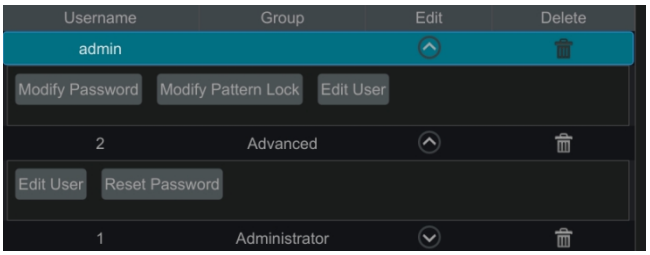
② Set the username, password, group and login schedule. Enable or disable “Allow modify password” or “Remote access without verification code”. User can also set the pattern lock and e-mail address as needed. Click “Add” to add the user.

Login Schedule: If enabled, the added user has access to the NVR within the scheduled period.

Remote access without verification code: If enabled, there is no need for you to enter the verification code when using the mobile app after the device is bound.

13.1.2 Edit User

Click ***Start→Settings→Account and Authority→Account→Edit User*** and then click  in the user list or double click the user to edit the user information. Click  to delete the user (the user ***admin*** cannot be deleted).



➢ **Modify Password**

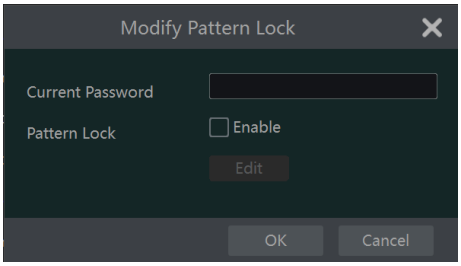
The password of ***admin*** can be modified. Click “Modify Password” to pop up a window. Enter the current password and then set new password. Click “OK” to save the settings.

In addition, the admin user can modify the common/advanced user’s password.

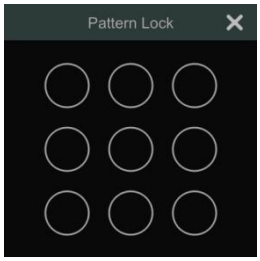
➢ **Modify Pattern Lock**

Some models may not support this function.

Click “Modify Pattern Lock” to pop up a window.

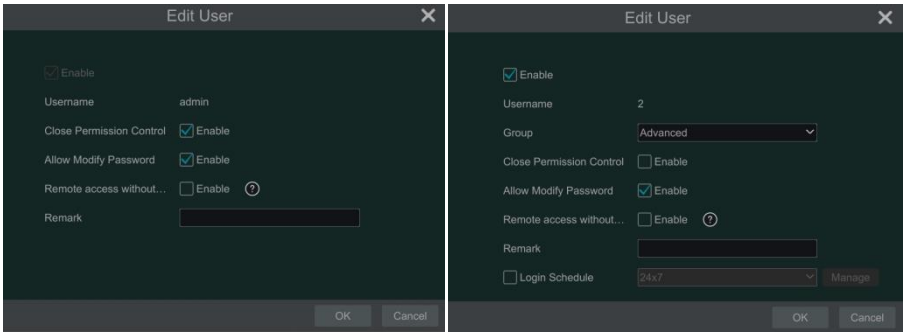


Input current password and then check “Enable” to set pattern lock.



➢ **Edit User**

Click “Edit User” to pop up the window as shown below. The ***admin*** is enabled, its permission is closed and permission group cannot be changed by default. You can open or close permission control (if closed, the user will get all the permissions which ***admin*** has) and set their permission groups. Click “OK” to save the settings.



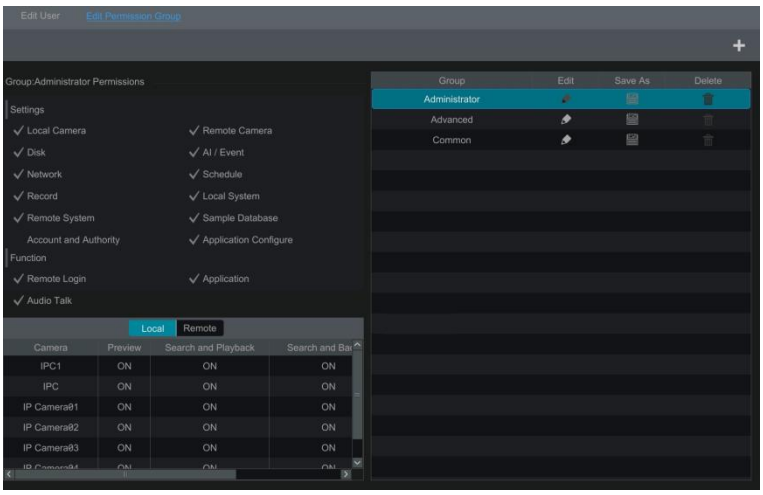
13.2 User Login & Logout

Login: Click ***Start→Login*** or directly click the preview interface and then select username and enter the password in the popup window. Click the “Login” button to log in the system.
Logout: Click ***Start→Logout*** or click ***Start→Shutdown*** to pop up the “Shutdown” window. Select “Logout” in the window and then click “OK” to log out the system.

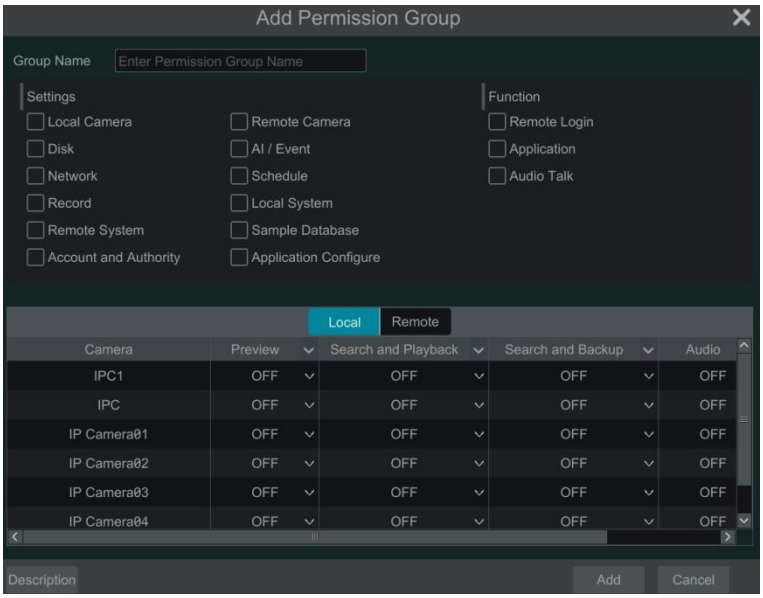
13.3 Permission Management

13.3.1 Add Permission Group

Click ***Start→Settings→Account and Authority→Account→Edit Permission Group*** to go to the interface as shown below.



Click ➕ to add permission group. Set the group name, check the permissions as needed and then set the “Local” and “Remote” permissions. Click “Add” to save the settings.

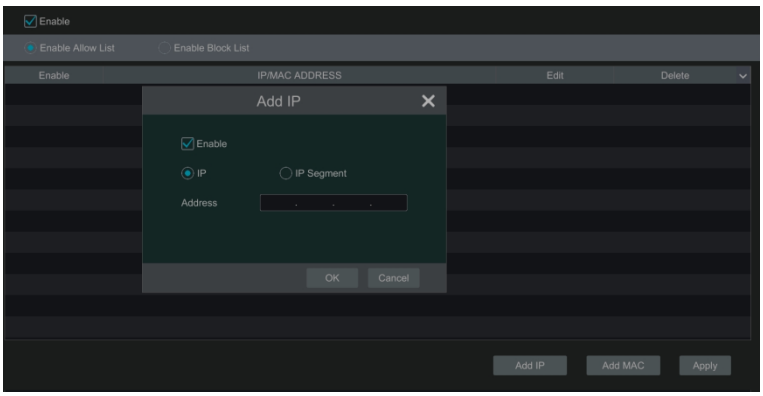


13.3.2 Edit Permission Group

Go to “Edit Permission Group” interface and then click ✎ in the group list to edit the permission group (the operations of the “Edit Permission Group” are similar to that of the “Add Permission Group”, please see Add Permission Group for details). Click 💾 to save the group as another group. Click 🗑 to delete the permission group. The three default permission groups (“Administrator”, “Advanced” and “Common”) cannot be deleted.

13.4 Block and Allow List

① Click ***Start→Settings→Account and Authority→Security*** to go to the following interface.



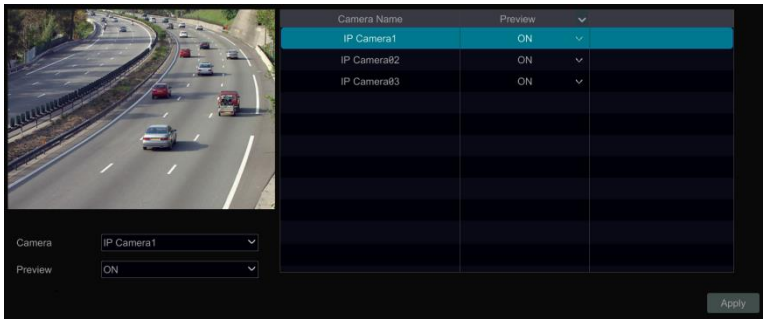
② Check “Enable” and then choose “Enable Allow List (white list)” or “Enable Block List (black list)” (the PC client of which the IP address is in the white list can access NVR remotely while the PC client in the black list cannot).

③ Add IP/IP segment/MAC. Click “Add IP” or “Add MAC” and then check “Enable” in the popup window (only if you check it can the IP/IP segment/MAC you add be effective). Enter the IP/IP segment/MAC and then click “OK”. In the above interface, click to edit IP/IP segment/MAC, click to delete it. Click “Apply” to save the settings.

13.5 Preview on Logout

Click ***Start→Settings→Account and Authority→Security→Preview on Logout*** to go to the following interface.

Set a camera and then enable or disable the preview permission on logout as needed. If a camera’s preview permission on logout is “ON”, you can view the live image of the camera when the system is logged out, or the live image of the camera cannot be seen when logged out.



13.6 Network Security

Click ***Start→Settings→Account and Authority→Security→Network Security*** to go to the following interface. You can enable APR Guard.



ARP (Address Resolution Protocol) Guard: This function can protect the LAN from ARP attacks and increase the network stability. If it is enabled, you can enable auto gateway MAC

or manually set gateway MAC. Additionally, detection defense also can be enabled as needed.

13.7 Password Security

Click ***Start→Settings→Account and Authority→Security→Password Security*** to go to the following interface.



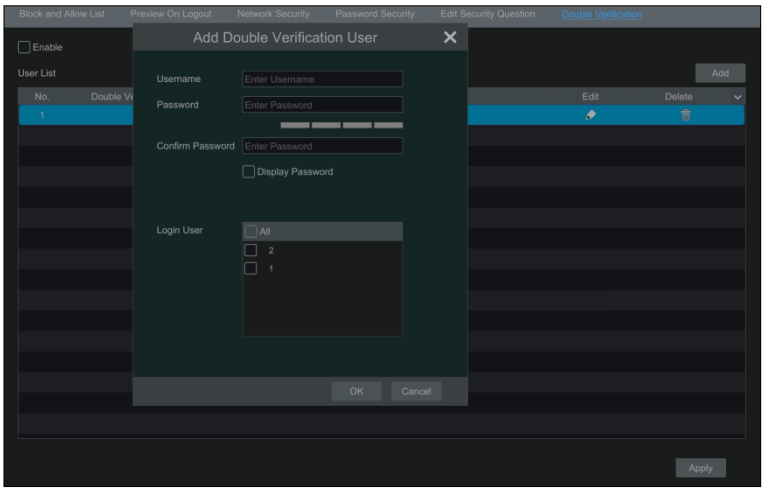
In this interface, you can set the security level and expiration time of the password. It's recommended to force a new password periodically to enhance system security.

13.8 Password Retrieval Settings

You can reset your admin password by E-mail or security question. Click Start→Settings→Account and Authority→Edit Security Question to enter the password retrieval setting interface. You can set reset the password via E-mail or security question. If you forget your admin password, you can click "Retreve Password" in the login interface to reset your password.

13.9 Double Verification

This device allows you to create a double verification user. That's to say, you can create a user who want to log in must be verified by the other specified user.



Click "Add" to add a double verification user. Enter the username and password and select the login user. When you use the login user set above to log in the NVR, the user you added in the double verification interface must be verified, or the login failure will occur.

13.10 View Online User

Click ***Start→Settings→Account and Authority→User Status*** to view the online user information (you can view the online user name, login type, IP address and login time; click  to open a window showing the preview occupied channel number and playback occupied channel number).

14 Device Management

14.1 Network Configuration

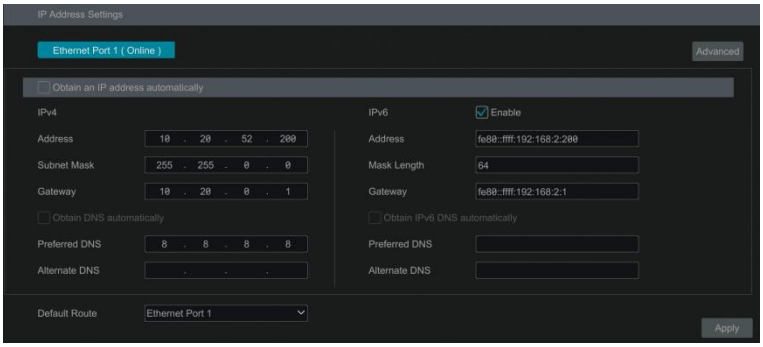
14.1.1 TCP/IP Configuration

Click ***Start→Settings→Network→TCP/IP*** to go to the following interface. By default, Obtain an IP address automatically and Obtain DNS automatically are enabled, allowing the NVR to obtain IPv4/IPv6 (if IPv6 is enabled) addresses and DNS information automatically. Optionally disable these settings and enter the network addresses manually.

Note: When DHCP is disabled, the network interface uses the default IP address 192.168.0.100.

You can modify the MTU value according to the network condition (MTU, Maximum Transmission Unit, can be modified according to network condition for higher network transmission efficiency). Click “Apply” to save your settings.

Additionally, if you want to configure multiple IP addresses for a single network card (for example: add devices from different network segments under the same switch), you can click “Advanced” to set a secondary IP address.



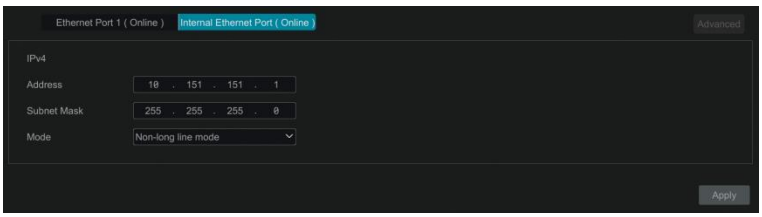
Note:

Internal Ethernet Port

If you use an NVR with PoE network ports, click “Internal Ethernet Port” to go to the interface below.

The internal Ethernet port is the port which connects all PoE ports with the NVR system. The PoE ports are available if the internal Ethernet port is online; if it is offline, all the PoE ports will be unavailable and it’s possible there’s an issue with the Ethernet port. The network address of the internal Ethernet port can be changed to be in the same network segment as IP cameras which are directly connected to the PoE ports of the NVR (Note that it is not recommended to change the network address of the internal Ethernet port).

Mode: Non-long line mode or long line mode can be selectable. The non-line mode is the default setting. If you want to run your PoE cameras longer than the standard 100M distance, you can choose long line mode. The tradeoff will be that your network speed on all PoE ports will drop to 10MBPs.



- **Multiple Ethernet Ports Setting**

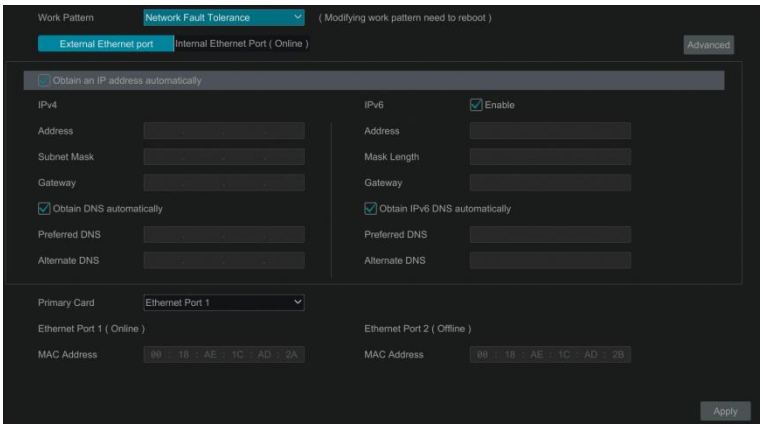
If the NVR has two network ports or above, you can select the network work pattern as required.

TOE: Some models may support TOE mode. It is a technology for improving the network transmission speed. Please enable it according to the actual network situation. If TOE is enabled, it shall be high speed mode. Then multiple address setting or network fault tolerance can be chosen and configured. If TOE is not enabled, it shall be compatible mode. Then the network fault tolerance cannot be selected and set up.

Network Fault Tolerance:

The two network ports will be bound to one IP address if you select the “Network Fault Tolerance” pattern. There are many advantages of this work pattern: 1. increase the bandwidth; 2. form a network redundant array to share the load. When a failure happens to one network port, the other port will take over the entire load immediately. The takeover process is seamless and the network service will not be broken off.

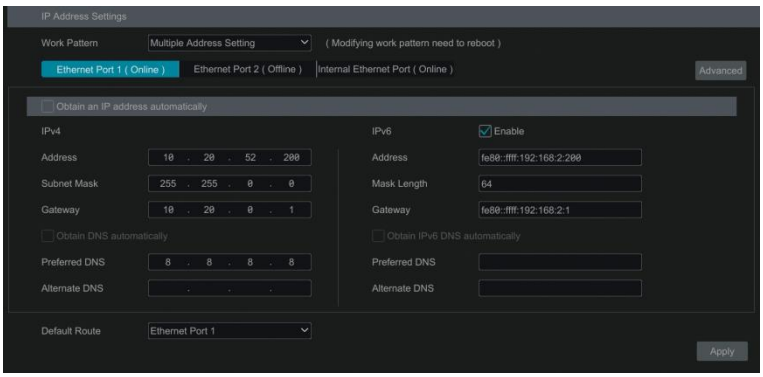
Refer to the figure as shown below. If “Network Fault Tolerance” is selected, check “Obtain an IPv4 address automatically”, and “Obtain DNS automatically” to get the network addresses automatically, or manually enter IPv4/IPv6(if IPv6 is enabled) address select one Ethernet port as the primary card and then click “Apply” to save the settings.



Multiple Address Setting:

If “Multiple Address Setting” is selected, the IP addresses of the two Ethernet ports should be set respectively. Refer to the picture as shown below.

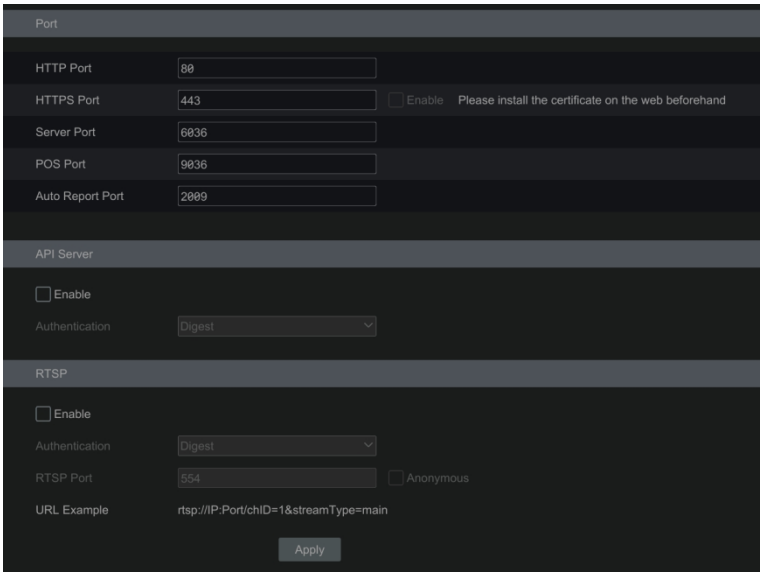
Check “Obtain an IP address automatically” and “Obtain DNS automatically” to get the network addresses automatically, or manually enter IPv4/IPv6(if IPv6 is enabled) address; select one Ethernet port as the default route and then click “Apply” to save the settings.



Note: The above interface may be different for different models. The above picture are for reference only.

14.1.2 Port Configuration

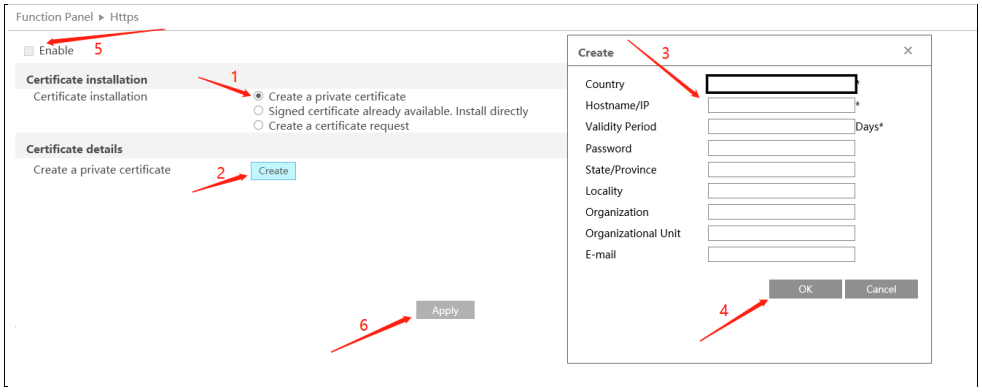
Click ***Start→Settings→Network→Port*** to go to the interface as shown below. Enter the HTTP port, HTTPS port, server port and POS port of the NVR, and then click “Apply” to save the settings. You can also enable and set RTSP port (please check “Anonymous” as required).



HTTP Port: the default HTTP port of the NVR is 80. The port number can be changed to another number such as 81. The port is mainly used for web client access. If you want to access the NVR through a web browser, you should enter the IP address plus HTTP port in the address bar of the web browser like http://192.168.11.61:81.
Note: The HTTP port and server port of the NVR should be mapped to the router before you access the NVR via WAN.

HTTPS Port: the default HTTPs port of the NVR is 443.
HTTPs provides authentication of the web site and protects user privacy. You can enter IP address plus HTTPs port in the address bar of the web browser. Then enter username and password to log in. Click Functional Panel→Network→HTTPS to go to the following interface. There are three ways to enable HTTPs service.

A. Create a private certificate.



① Select “Create a private certificate”.

② Click “Create”.

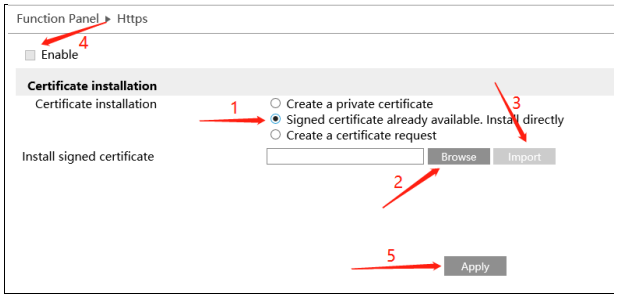
③ Fill out the corresponding information in the above creation box. Enter the country (only two letters available), domain (NVR’s IP address/domain), validity date, password, province/state, region and so on.

④ Click “OK”.

⑤ Check “Enable” checkbox.

⑥ Click “Apply” to save the setting.

B. Install a signed certificate



① Check “Signed certificate already….”.

② Click “Browse” to select the certificate you want to import.

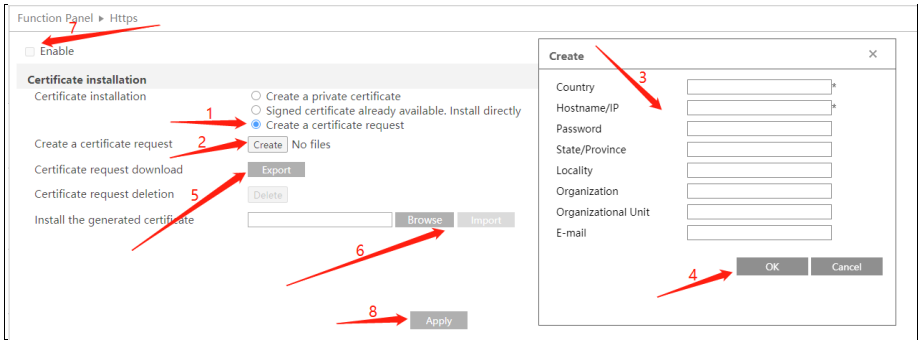
③ Click “Import”.

④ Check “Enable”.

⑤ Click “Apply” to save the settings.

Please note that the certificate uploaded here shall be a certificate with private key.
To attach the private key to the certificate, please open the certificate and the private key files with an editor (like Notepad++) and then copy the private key to the certificate.

C. Create a certificate request



① Check “Create a certificate request”.

② Click “Create”.

③ Fill out the corresponding information in the above creation box. Enter the country (only two letters available), domain (NVR’s IP address/domain), validity date, password, province/state, region and so on.

④ Click “OK”. Then a certificate request file (CSR) will be created.

⑤ Click “Export” to export the certificate request file. Then send this file to the trusted third-party CA to apply a signed certificate.

⑥ Click “Browse” and select the signed certificate issued by the CA and then import this certificate.

⑦ Click “Enable”.

⑧ Click “Apply” to save the settings.

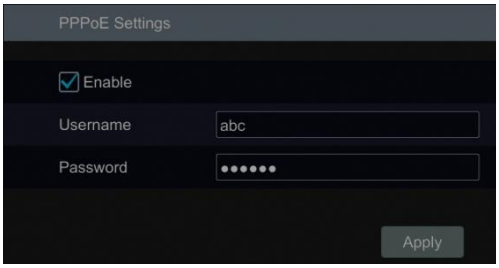
After that, the device can be accessed by entering https://IP: https port via the web browser (eg. https://192.168.1.201:443).

Server Port: the default server port of the NVR is 6036. The server port number can be changed as needed. The port is mainly used in network video management system.
POS Port: the default POS port of the NVR is 9036.
Auto Report Port: the default auto report port of the NVR is 2009. The server port number can be changed as needed. This port is used when the IPCs automatically report to the NVR.
API Server: You can log into a media player which supports the RTSP protocol. Moreover, the third-party can further develop performance through an API service.
Authentication: Basic authentication and digest authentication are optional.

RTSP Port: RTSP real-time stream protocol can be used to control the transfer of real-time data. . Through a media player which supports the RTSP real-time stream protocol (Such as VLC player), you can view live images synchronously. The default RTSP port is 554 and it can be changed as needed. (The address format: rtsp://IP address:554/chID=1&streamType=main or rtsp://IP address:554/chID=1&streamType=sub; main indicators main stream; sub indicators sub stream; chID indicators channel ID).
Examples: Enable RTSP and “Anonymous”. Then open the VLC player and enter the address (for example: rtsp://192.168.1.88:554/chID=1&streamType=main) in the network address bar of the VLC player. Then you can view the video of channel 1.

14.1.3 PPPoE Configuration

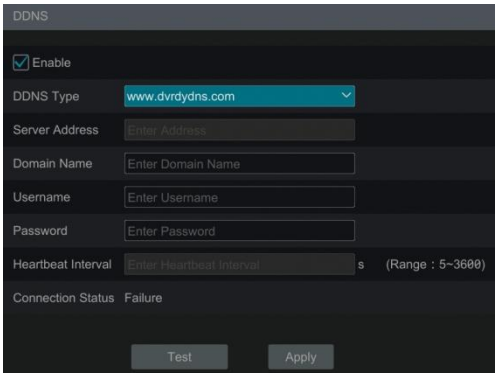
Click ***Start→Settings→Network→PPPoE*** to go to the interface as shown below. Check “Enable” in “PPPoE Settings” and then enter the username and password obtained from the dealer. Click “Apply” to save the settings.



14.1.4 DDNS Configuration

The DDNS is used to control the dynamic IP address through a domain name. You can access to the NVR easily if the DDNS is enabled and configured.

Click ***Start→Settings→Network→DDNS*** to go to the interface as shown below.



Check “Enable” and then select the DDNS type. Enter the server address, domain name, username and password according to the selected DDNS type. Click “Test” to test the effectiveness of the input information. Click “Apply” to save the settings. After that, the successful connection status can be viewed.

Note: Only when the DDNS type is “dyndns”, can the heartbeat interval be configurable.

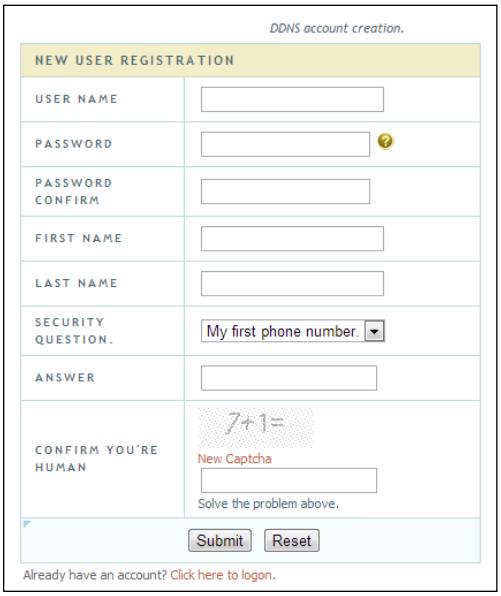
You will have to enter the server address and domain name if some DDNS types are selected. Go to the relative DNS website to register domain name and then enter the registered domain information here). Now we take ***www.dvrdydns.com*** for example.

① Enter ***www.NVRdydns.com*** in the address bar to visit its DNS website.

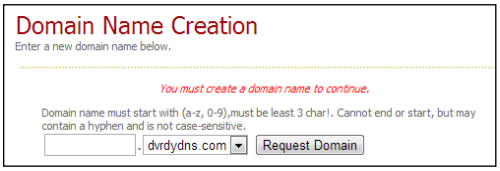


② Click ***Registration*** to go to the interface as shown below. Set the DDNS account information

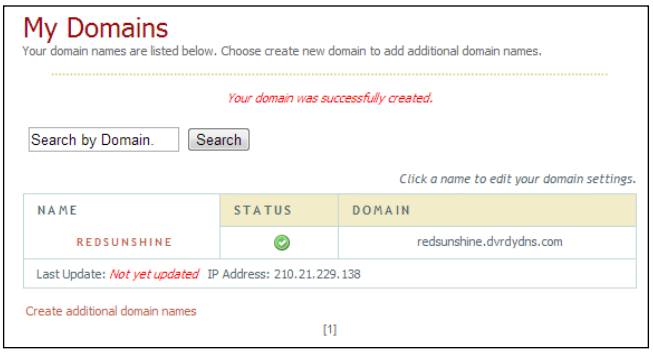
(username, password and so on) and then click ***Submit*** to save the account.



③ Create domain name and then click ***Request Domain***.



④ After you successfully request your domain name, you will see your domain name information in the list.



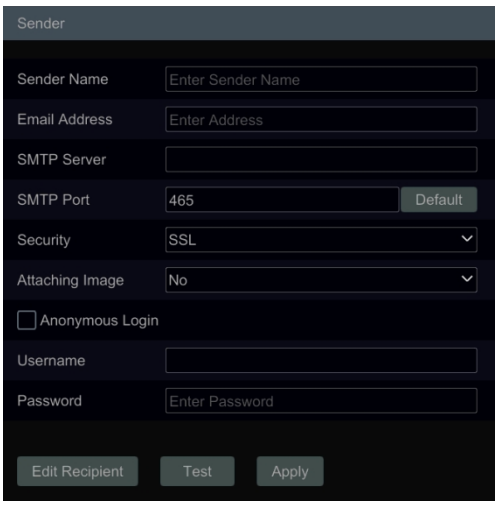
⑤ Click ***Start→Settings→Network→DDNS*** to go to DDNS setting interface. Enable DDNS and then select the ***www.dvrdydns.com*** DDNS type. Enter the registered username, password and domain name and then click “Apply”.

⑥ Map the IP address and HTTP port in the router (you can skip this step if UPnP function is enabled).

⑦ Enter the registered domain name plus HTTP port like ***http://www.xxx.dvrdydns.com:81*** in the address bar and then press Enter key to go to the web client.

14.1.5 E-mail Configuration

Click ***Start→Settings→Network→E-mail*** to go to the following interface.

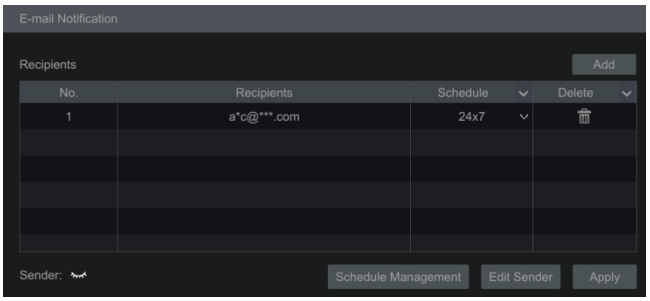


Enter the sender's name, e-mail address, SMTP server and SMTP port (you can click "Default" to reset the SMTP port to the default value) and then enable or disable the SSL and attaching image.

Attaching Image: Choose "NO", "A Picture" or "Multiple Pictures". If "A Picture" or "Multiple Pictures" is selected, snapshot image or original image can be selected to attach.

Select the username (the username list will be updated automatically according to the email address you input) and enter the password of the sender and then click "Apply" to save your settings (you don't have to enter the username and password if "Anonymous Login" is enabled). Click "Test" to open a window. Enter the e-mail address of the recipient in the window and then click "OK." The e-mail address of the sender will send an e-mail to the recipient. If the e-mail is sent successfully, it indicates that the e-mail address of the sender is configured correctly.

Click "Edit Recipient" to go to the following interface:



Click "Add" and then enter the recipient's e-mail address and select the schedule (if a schedule is selected, the system will send the alarm email and the recipient will receive it only in the selected schedule time) in the popup window. Click "Add" in the window to add the recipient. You can also change the recipient's receiving schedule by clicking in the "Schedule" column. Click to delete the recipient in the list. Click "Apply" to save your settings. Click "Edit Sender" to go to the e-mail configuration interface of the sender.

14.1.6 UPnP Configuration

By UPnP you can access the NVR through the web client which is on the WAN via a router without port mapping.

① Click ***Start→Settings→Network→UPnP*** to go to the following interface.

② Make sure the router supports UPnP function and the UPnP is enabled in the router.

③ Set the NVR's IP address, subnet mask and gateway and so on corresponding to the router.

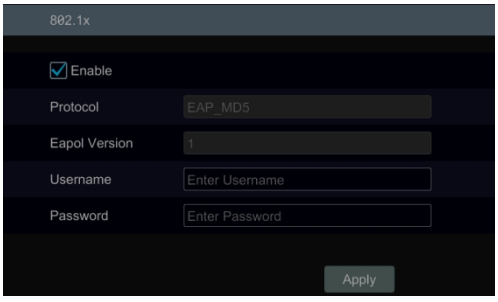
④ Check "Enable" in the interface as shown below and then click "Apply".

Click "Refresh" button to refresh the UPnP status. If the UPnP status is still "Invalid UPnP" after refreshing, the port number is wrong. Please change the mapping type to "Manual" and then click  to modify the port until the UPnP status turns to "Valid UPnP". Refer to the picture below. You can view the external IP address of the NVR. Enter the external IP address plus port in the address bar of your browser to access the NVR (example: http://183.17.254.19:81).



14.1.7 802.1X

If it is enabled, the NVR data can be protected. When the NVR is connected to the network protected by the IEEE 802.1X, user authentication is needed.



To use this function, the NVR shall be connected to a switch supporting the 802.1x protocol. The switch can be considered as an authentication system to identify the device in a local network. If the NVR connected to the network interface of the switch has passed the authentication of the switch, it can be accessed via the local network.

Protocol type and EAPOL version: Please use the default settings.

User name and password: The user name and password must be the same with the user name and password applied for and registered in the authentication server.

14.1.8 Mobile App

You can scan this QR code with the GV-Eye mobile app to remotely view the NVR. For details, see *GV-Relay QR Code* in the *GV-Eye Installation Guide*.

1. Click ***Start→Settings→Network→Mobile App***.



2. By default, “Enable” is selected. Verify that it remains enabled, and click “Apply” if any changes are made.

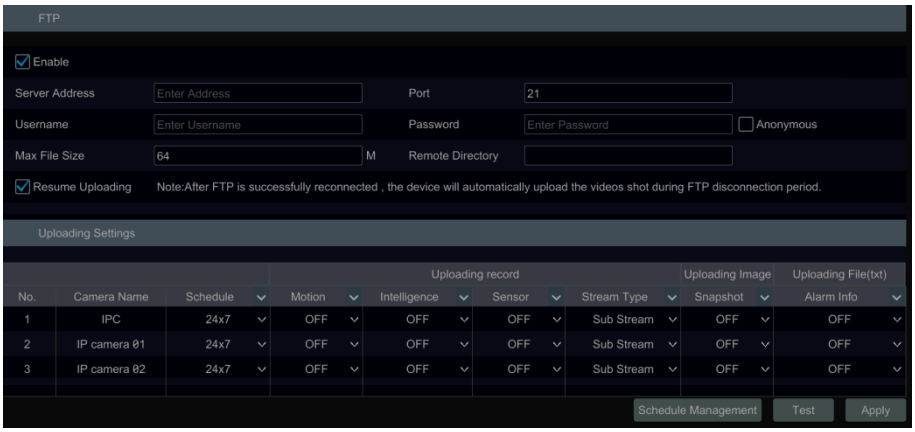
14.1.9 FTP Configuration

Some models may not support this function.

Click ***Start→Settings→Network→FTP*** to go to the interface for FTP configuration. Check “Enable” and enter the server name, port, username and password, max file size and remote directory.

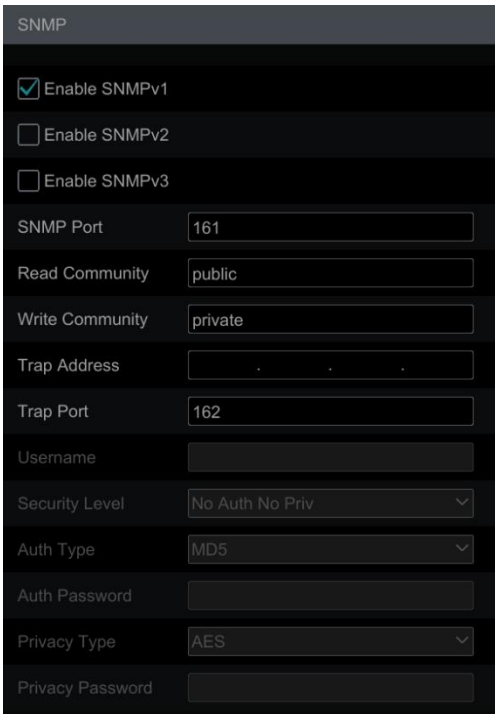
Please enable “Resume Uploading” as needed.

After that, you can choose the camera, set the schedule and then select the video records, images and alarm information to upload as needed in this interface.



14.1.10 SNMP

① Click ***Start→Settings→Network→SNMP*** to go to the interface for SNMP configuration.



② Check SNMPv1, SNMPv2 or SNVMPv3 to enable this function.

③ Set the port of the SNMP.

④ Set the trap address and the trap port.

⑤ Click “Apply” to save the settings.

Trap Address: The IP address of SNMP host.

Trap Port: The port of SNMP host.

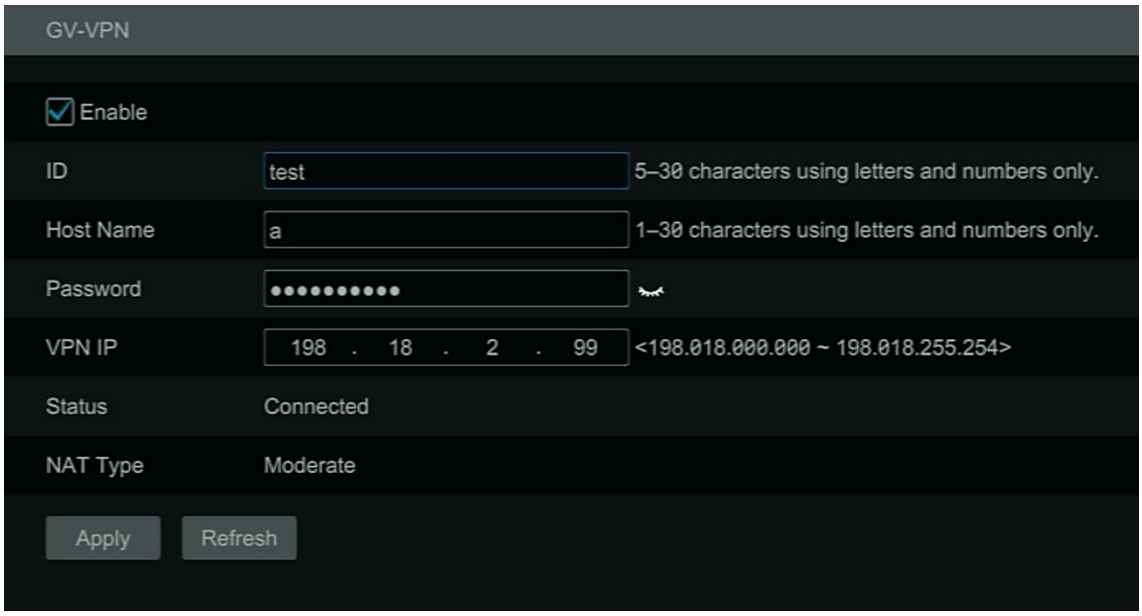
Tips: Before setting the SNMP, please download the SNMP software and manage to receive the device information via SNMP port. By setting the trap address, the device is allowed to send the alarm event and exception message to the monitoring center.

14.1.11 GV-VPN

GV-VPN is an application powered by P2P VPN technology and the cloud-based GV-Cloud platform. It enables users to create a secure virtual private network (VPN) environment that connects multiple NVRs. With GV-VPN, there is no need for complex router configurations — the NVRs are seamlessly linked within the same virtual network.

For details, see *GV-VPN Guide*.

1. Click ***Start→Settings→Network→GV-VPN***.



2. Check “Enable”, fill in the information, and click “Apply” for the changes to take effect.
3. Click “Refresh” to refresh the wireless hotspot list.

Note: The Host Name must be 1-30 characters long. It can contain the following three character classes: lowercase letters (a-z), numbers (0-9), and hyphens (-, not at the beginning and end).

14.1.12 ONVIF

The device supports ONVIF (Profile G/T/S), and the model name can be searched on the ONVIF official website. When ONVIF is enabled, third-party platforms can discover and connect to the device via the ONVIF protocol.

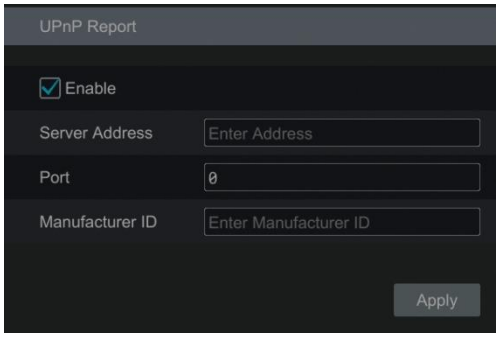
1. Click ***Start→Settings→Network→Integration→ONVIF*** to enter the interface.



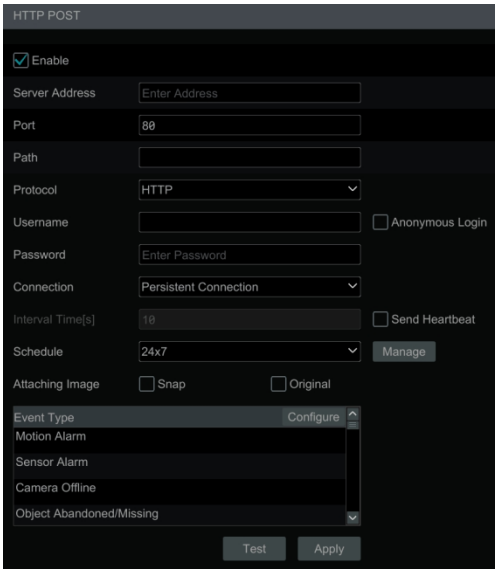
2. By default, “Enable ONVIF” is selected. Verify that it remains enabled before adding the device to a third-party platform via ONVIF, and click “Apply” if any changes are made.

14.1.13 UPnP Report Access

In this interface, you can also access the third-party platform by UPnP Report. Click ***Start→Settings→Network→Integration→UPnP Report.*** If this one is enabled, please enter the server address, port and manufacturer ID.



14.1.14 HTTP POST



Server Address: the IP address of the third-party platform.
Server port: the server port of the third-party platform.
Path: enter the subdomain of the above server, for example, the URL of alarm information push: "/SendAlarmStatus".
Protocol type: HTTP
Username and password: Please enable and enter as needed.
Connection: Persistent connection or non-persistent connection.
Enable "Send heartbeat" and set heartbeat interval, schedule, and attaching image as needed.
Click "Configure" to set the event type. After that, click "Apply" to save the settings. Then click "Test" to test the connection of the URL. Then the camera will automatically connect to the third-party platform. After the camera is successfully connected, it will send the selected alarm data to the third-party platform once the selected smart alarm is triggered.

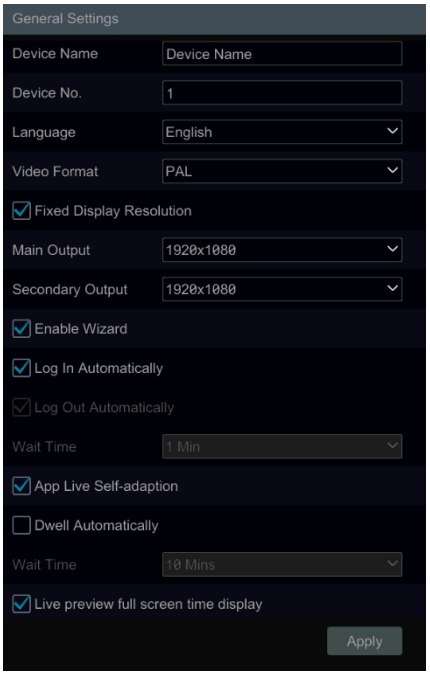
14.1.15 Network Status

Click ***Start→Settings→Network→Network Status*** to view the network status or click  on the tool bar at the bottom of the live view interface to view network status conveniently.
Click ***Start→Settings→Network→Network Status Detection***. Enter the IP address and then click "Test" to check the network connection status (like network delay, packet loss).

14.2 Basic Configuration

14.2.1 Common Configuration

Click ***Start→Settings→System→Basic→General Settings*** to go to the following interface. Set the device name, device No., language, video format and main output. Enable or disable wizard, "Log In Automatically", "Log Out Automatically" (if checked, you can set the wait time), "App Live Self-Adaption" and "Dwell Automatically" (if checked, you can set the wait time). Click "Apply" to save the settings.



Device Name: The name of the device. It may display on the client end or CMS to help users to

recognize the device remotely.

Video Format: Two modes: PAL and NTSC. Select the video format according to the camera.

Dwell Automatically: Switch automatically. Check it and set “wait time”. The system will sequence automatically if it is not operated during the time you set.

Main Output: Enable “Fixed display resolution” and then select the main output as needed.

Note: You can set the resolutions of the main output, secondary output (varies by models) respectively if the NVR has multiple outputs.

You can check “Support 8K” as needed for some models.

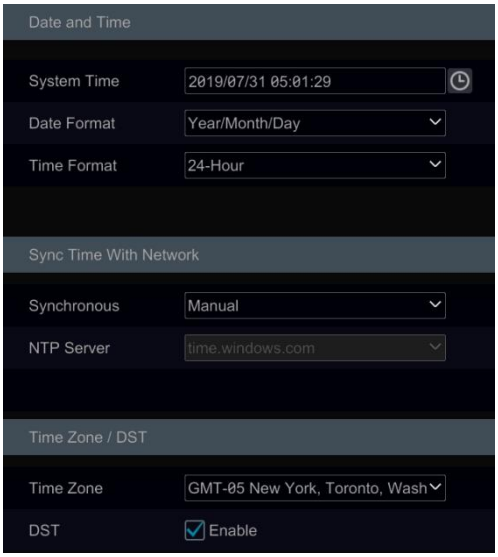
14.2.2 Date and Time Configuration

Click ***Start→Settings→System→Basic→Date and Time*** to go to the interface as shown below. Set the system time, date format, time format and time zone of the NVR. The default time zone is GMT+08 Beijing, Hong Kong, Shanghai, Taipei. If the selected time zone includes DST, the DST of the time zone will be checked by default. Click “Apply” to save the settings.

You can manually set the system time or synchronize system time with network through NTP.

Manual: select “Manual” in the “Synchronous” option and then click after the “System Time” option to set the system time.

NTP: select “NTP” in the “Synchronous” option and then enter the NTP server.

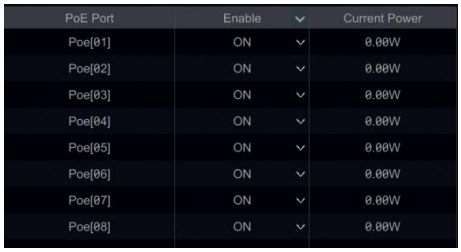


14.2.3 Recorder OSD Settings

Click ***Start→Settings→System→Basic→Recorder OSD settings*** to go to recorder OSD setting interface. OSD name and icon can be enabled here.

14.2.4 PoE Power Management

Click ***Start→Settings→System→Basic Settings→PoE Power Management*** to go to the following interface. This function is only available for the POE device.



In this interface, you can view the the current power consumption of the added POE camera/panel. The PoE power supply of the PoE camera/panel can be enabled or disabled by selecting “ON” or “OFF” as needed.

- PoE Plug-and-Play Settings

The PnP function of each PoE port is enabled by default. You can directly connect the PoE IPC to the PoE port of the NVR with a network cable.

Note: PoE Plug-and-Play only works with compatible AI GV-IP Cameras that support this feature (see the datasheets for compatible AI cameras).

You can also connect the PoE IPC to the NVR via a PoE switch by referring to the following steps.
1. Go to Start→Settings→System→PoE Settings→PoE Plug-and-Play Settings interface. Disable the PnP function of a PoE Port.
2. Connect the PoE switch to this PoE port of the NVR with a network cable.
3. Connect the PoE IPCs to the PoE switch with network cables.
4. Go to Start→Settings→Network→Internal Ethernet Port interface. Set the IP address segment and mode as needed.
5. Go to Start→Settings→Camera→Edit Camera interface. Click “Add Camera” to add these PoE IPCs manually. Note that the IP address of these cameras must be in the same local network segment as the internal Ethernet port.

Note: If the above-mentioned PoE IPCs are added to the NVR successfully, the corresponding number of PoE ports will be occupied. For example, if the NVR has 16 PoE ports and one of them is used to connect a PoE switch which 8 PoE IPCs are connected to, then only 8 PoE ports of the NVR can be used to directly connect PoE cameras.

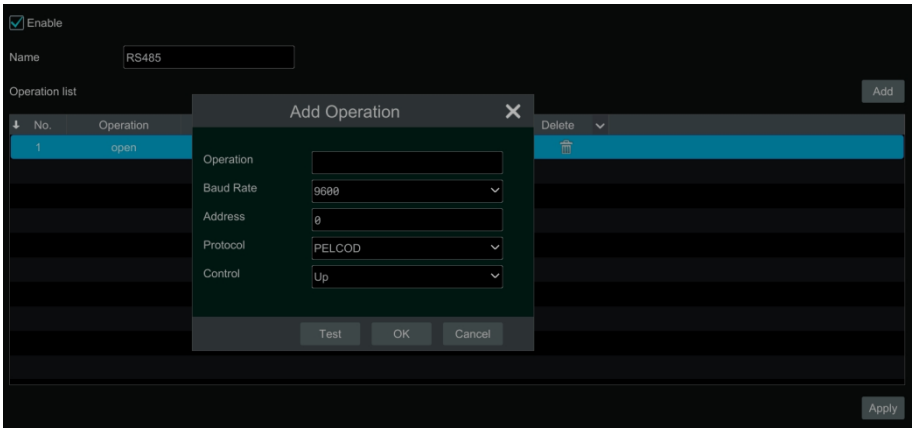
14.2.5 RS485 Settings

If your NVR supports RS485 interface, you can set the RS485 parameters to control the third-party device. For example: controlling roll-up door through RS485 protocol.

Note: This function is only available for GV-GNVRC1620-P.

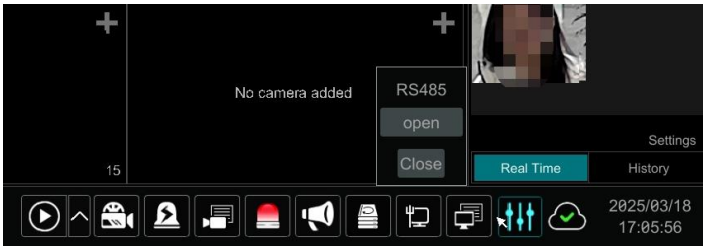
The setting steps are as follows:

1. Click ***Start→Settings→System→Basic Settings→RS485***.
2. Check “Enable” and click “Apply” to enable RS485 settings.
3. Click “Add” to add the corresponding operation.



4. Add the operation name, for example: “Open”. Then set the baud rate, address, protocol and control.
5. Click “OK” to save the settings.
6. Click “Test” to test whether the settings are valid.

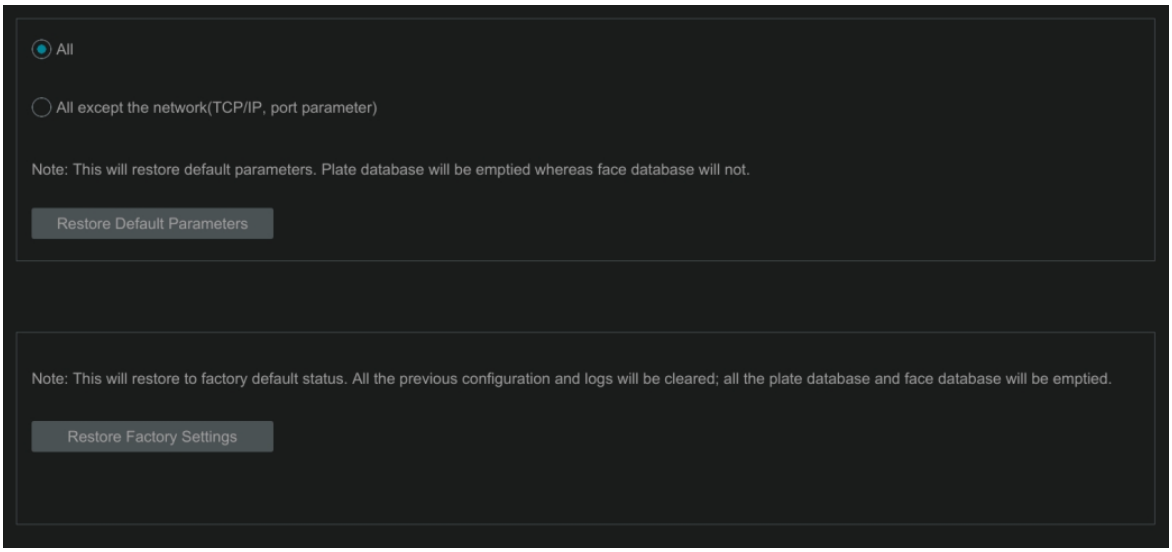
After the operation is successfully set, you can go to the live view interface and click to choose the desired operation.



14.3

14.3 Factory Default

Click ***Start→Settings→System→Maintenance→Factory Default*** to go to the following interface. Please choose the item as needed.



Note: Restoring default parameters will not change time zone and video format, except that, the password of the admin will be preserved.

14.4 Device Software Upgrade

- **Upgrade**

You can click ***Start→Settings→System→Information→Basic*** to view MCU, kernel version and firmware version and so on. Before upgrade, please get the upgrade file from your dealer.

Note: The NVR firmware can be upgraded through the Local Interface, Web Browser, or GV-IP Device Utility. To upgrade firmware using GV-IP Device Utility, see *5.2 Upgrading Firmware Using GV-IP Device Utility* in the *GV-GNVR Quick Start Guide*.

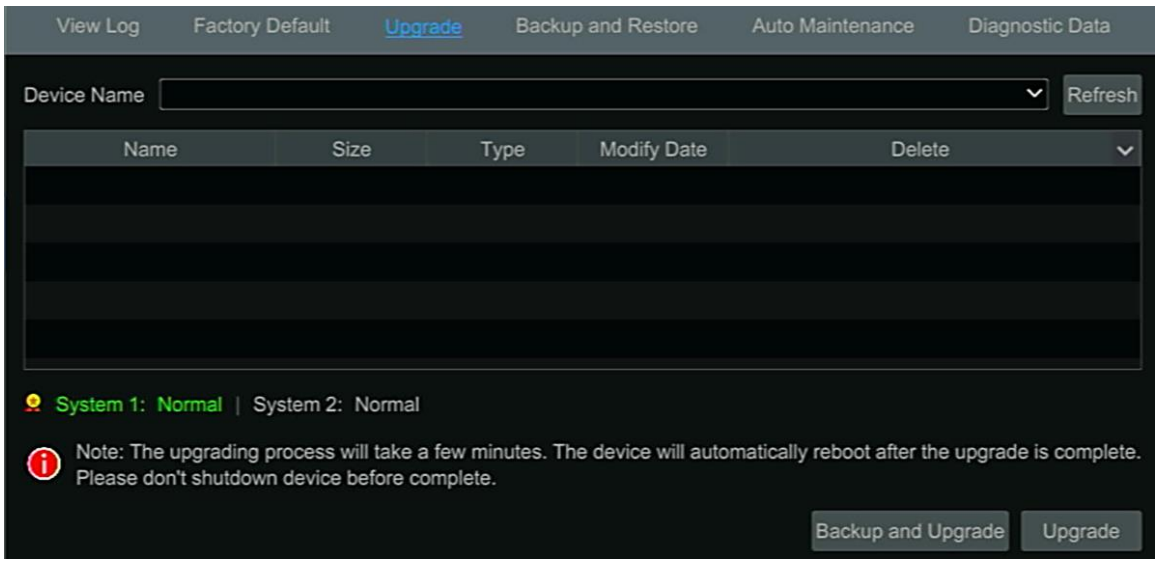
The upgrade steps are as follows:

① Copy the upgrade software onto the USB storage device.

② Insert the USB storage device into the USB interface of the NVR.

③ Click ***Start→Settings→System→Maintenance→Upgrade*** to go to “Upgrade” interface. Select the USB device in “Device Name” option and go to the path where the upgrade software resides. Select the upgrade software and then click “Upgrade”. The system may automatically restart during upgrading. Please wait for the upgrade to finish and it’s critical to not power off the NVR during the upgrade process.

Note: The file system of the USB mobile device which is used for upgrade, backup and restoration should be FAT32/NTFS format.



14.5 Backup and Restore

You can back up the configuration file of the NVR and export the file to other storage devices; in this way, you can implement the configuration to other NVRs of the same model and save setup time.
Insert the USB storage device into a USB interface on the NVR and then click ***Start→Settings→System→Maintenance→Backup and Restore*** to go to the interface.

- **Backup**

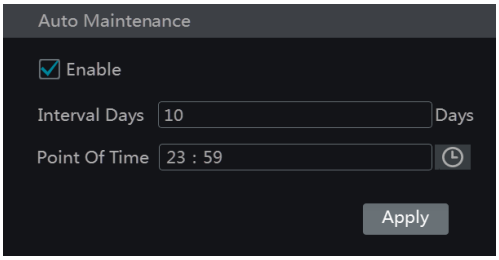
Select the USB device in “Device Name” option; go to the path where you want to store the configuration backup file and then click “Backup”; finally, click “OK” in the popup window.

- **Recover**

Select the USB device in “Device Name” option; find the configuration backup file and then click “Recover”; finally, click “OK” in the popup window.

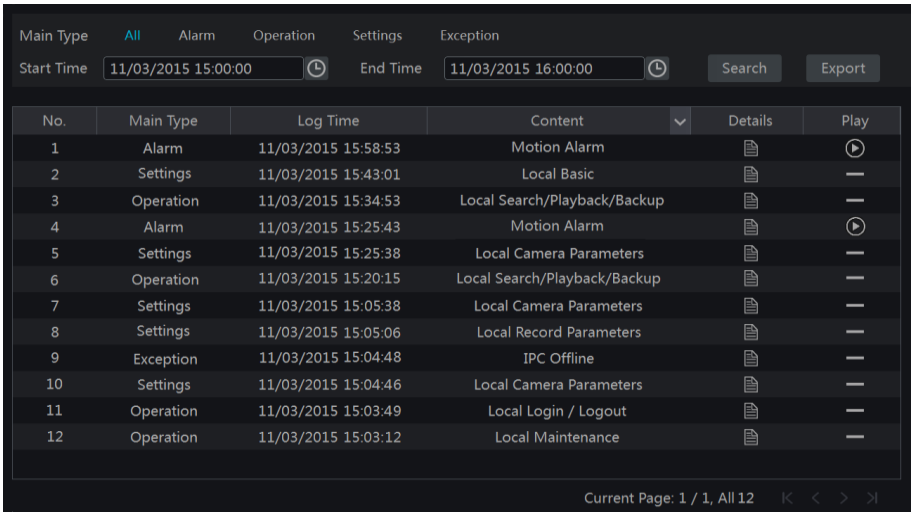
14.6 Restart Automatically

You can set the automatic restart time for the NVR to maximize performance. Click ***Start→Settings→System→Maintenance→Auto Maintenance*** to go to the interface as shown below. Enable auto maintenance, set the interval days and point of time and then click “Apply” to save the settings. The NVR will restart automatically at the pointed time every *interval* days.



14.7 View Log

Click ***Start→Settings→System→Maintenance→View Log*** to go to the log view interface. Select the log main type, click  to set start time and end time and then click “Search”. The searched log files will be displayed in the list.



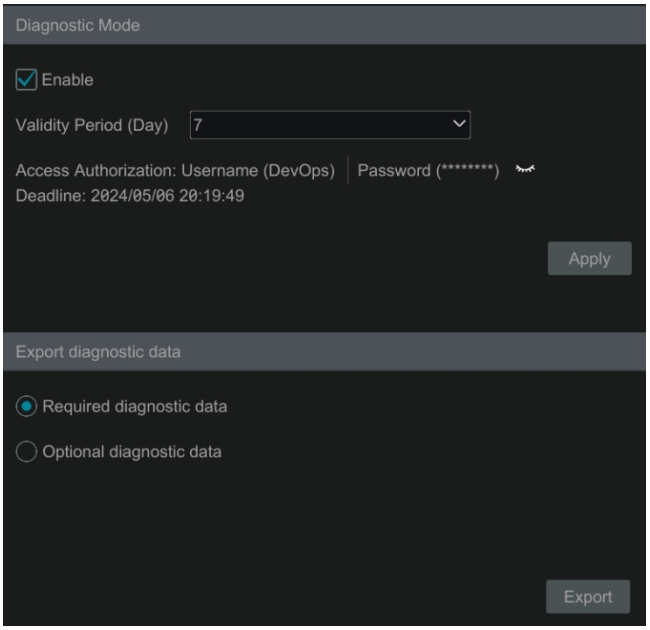
Choose the log file in the list and then click “Export” button to export the log file. Click  on the “Content” title bar to pop up a menu list. Using the check box, check contents on the menu list and then the log list will show only the checked log contents. Click  to play the video log.

14.8 View System Information

Click ***Start→Settings→System→Information*** and then click the corresponding menu to view the “Basic”, “Camera Status”, “Alarm Status”, “Record Status”, “Network Status” and “Disk” information of the system.

14.9 Diagnostic Data

Admin (default administrator) can enable diagnostic mode. An authorized account and password can be generated, which can be used to visit the web client for the collection of diagnostic data. Check “Enable”, set the validity period and click “Apply” to generate an authorized account.



The required diagnostic data or optional diagnostic data can be exported within the validity period by using the authorized account.

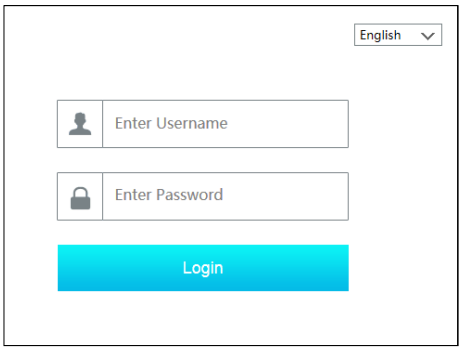
Note: When the NVR is bound by the APP, the verification code is not needed to log in the P2P web by using the authorized account generated above.

15 Remote Surveillance

15.1 Web LAN Access

① Click ***Start→Settings→Network→TCP/IP*** to go to the “TCP/IP” interface. Set the IP address, subnet mask, gateway, preferred DNS and alternate DNS of the NVR.

② Open a web browser on your computer, enter the IP address of the NVR in the address bar (**192.168.0.100** by default) and then press enter to go to the login interface as shown below. You can change the display language on the top right corner of the login interface. Enter the username and password of the NVR in the interface and then click “Login” to go to the live view interface.



Notes: 1. Please make sure that the IP address of the NVR and the computer are both in the same local network segment. For example, supposing that the IP address of the computer is 192.168.1.41, the IP address of the NVR shall be set to 192.168.1.XXX.

2. If the HTTP port of the NVR is not 80, but another number, you need to enter the IP address plus port number in the address bar when accessing the NVR over a network. For example, the HTTP port is 81. You should enter http://192.168.1.42:81 in the address bar.

15.2 Web WAN Access

➢ PPPoE Access

① Click ***Start→Settings→Network→PPPoE*** to go to the “PPPoE” interface. Check “Enable” in the “PPPoE settings” and then enter the username and password you get from your ISP. Click “Apply” to save the settings.

② Click ***Start→Settings→Network→Network Status*** to view the IP address of the NVR.

③ Open a web browser on your computer, enter the IP address of the NVR like http://210.21.229.138 in the address bar and then press enter to go to the login interface. Enter the username and password of the NVR in the interface and then click “Login” to go to the live view interface.

➢ Router Access

① Click ***Start→Settings→Network→TCP/IP*** to go to the “TCP/IP” interface. Set the IP address, subnet mask, gateway, preferred DNS and alternate DNS of the NVR.

② Set the HTTP port (it is suggested to modify the HTTP port because the default HTTP port 80 might be taken up) and enable UPnP function in both the NVR and the router. If the UPnP function is not available in the router, you need to forward the LAN IP address, HTTP port and server port of the NVR to the router. Port mapping settings may be different in different routers, so please refer to the user manual of the router for details.

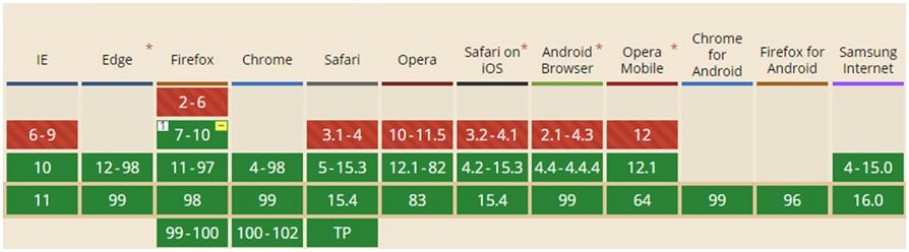
③ Get the WAN IP address of the NVR from the router. Open a web browser on your computer, enter the WAN IP address plus HTTP port like http://116.30.18.215:100 in the address bar and then press enter to go to the login interface. Enter the username and password of the NVR in the interface and then click “Login” to go to the live view interface.

Note: If the WAN IP address is a dynamic IP address, it is necessary for you to use the domain name to access the NVR. Click Start→Settings→Network→DDNS to set DDNS (see DDNS Configuration for details). By using DDNS function you can use the domain name plus HTTP port like http://sunshine.NVRdydns.com:100 to access the NVR via the Internet.

15.3 Web Remote Control

The NVR supports web client access with or without a plug-in. The plug-in for HTML5 browsers offers improved features and performance.

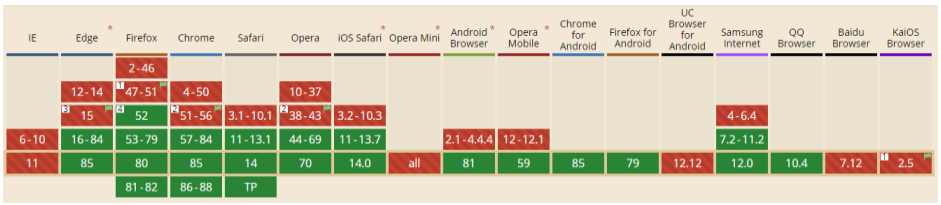
The supported browsers (green color) for remote access with the plug-in are as follows. The red color versions are not supported.



When you access the NVR through the above web browser for the first time, the browsers need to download and install the relative components for normal preview and playback.

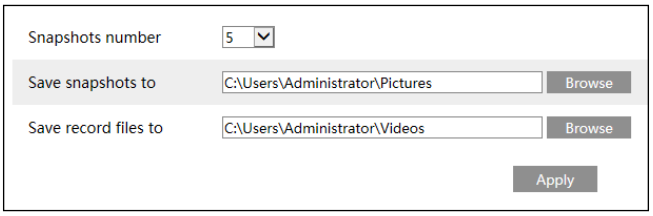
If your browser asks for permission on the configuration modifications after the plug-in runs, please allow it, or the interface will not display normally; if the relevant ports of the plug-in (port 11563; port 12863; port 13863) are occupied, the system will tell you which program currently occupies the port. Please stop the occupying program.

The supported browsers (green color) for remote access without the plug-in are as follows. The red color versions are not supported.



Please refer to the tips in the remote interfaces for details. The buttons and icons on the top right corner of the remote interface are introduced as follows.

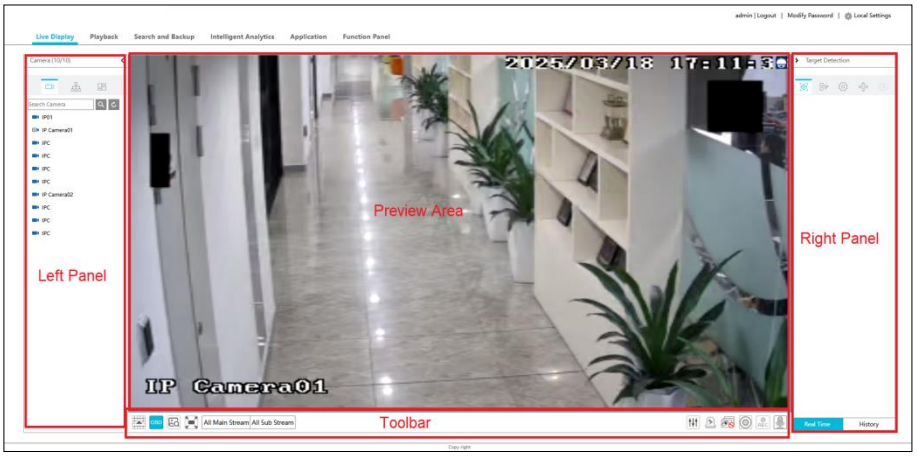
admin: the current login username.
Logout: click to log out and return to the login interface.
Modify Password: click to change the password of the currently active user. Enter the current password and then set a new password in the popup window. Click “OK” to save the new password.
Local Settings: click to change the local settings. Set the snapshot number and click “Browse” to set the snapshot path and record path as shown below. Click “Apply” to save the settings.



Below as an introduction is a web browser with the applicable plug-in installed.

15.3.1 Remote Preview

Click “Live Display” in the remote interface to go to the preview interface.
The preview interface consists of the four areas marked in the following picture.



➢ **Start Preview**

Select a window in the preview area and then click one online camera on the left panel to preview the camera in the window. You can click in the tool bar to preview all the cameras.

➢ **Left Panel Introduction**

Click ‹ on the left panel to hide the panel and click › to show the panel. You can view all the added cameras and groups on the left panel.

- **View Camera**

Click to view the cameras. You can view the number of all the added cameras and the online cameras. For instance, the left number 3 in Camera (3/4) on the left panel stands for the number of online cameras; the right number 4 stands for the number of all the added cameras. Enter the camera name in the search box and then click to search for the camera. Click to refresh the camera list.

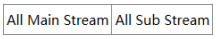
- **View Group**

Click  to view the groups. The top side of the left panel displays all the groups and the bottom displays all the cameras in the group.

- **View Scheme**

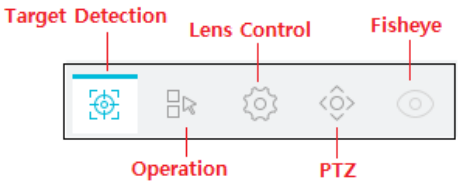
Click  to view the scheme. All schemes can be shown in the left panel. Double click the scheme name to invoke it quickly.

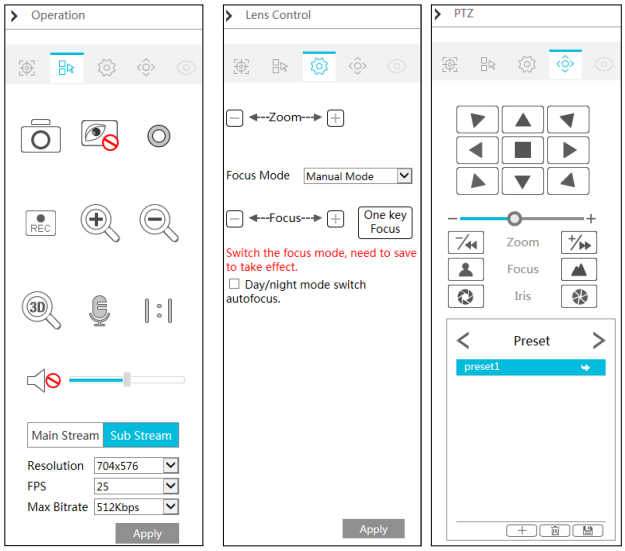
➢ **Tool Bar Introduction**

Button	Meaning
	Screen mode button.
	Click to enable/disable OSD.
	AcuSearch (only available for certain models)
	Click to show full screen. Right click on the full screen to exit full screen.
	Click “All Main Stream” or “All Sub Stream” to set the stream of all the cameras.
	RS485 button, click to control the third-party device (only available for certain models)
	Manual alarm button. Click to open a window and then trigger and clear the alarm-out in the window manually.
	Click to preview all cameras.
	Click to close all the preview cameras.
	Click to start recording for all cameras to computer. Click  to stop recording.
	Click to start recording for all cameras to the NVR. Click  to stop recording.
	Click to enable talk through the NVR.

➢ **Right Panel Introduction**

Click  on the right panel to show the panel and click to hide the panel.





Operation panel introduction:

Button	Meaning
	Click to take snapshots
	Click to start recording to computer
	Click to start recording to the NVR.
	Click to zoom in the image of the camera and then drag the mouse on the camera image to view the hidden area.
	Click to zoom out the image of the camera.
	Click to start two-way talk.
	The 3D zoom in function is designed for P.T.Z. Click the button and then drag the image to zoom in or zoom out the image; click the image on different areas to view the image of the dome omni-directionally.
	Click to close the preview camera.
	Click to display original size
	Click to enable audio and then drag the slider bar to adjust the volume. You can listen to the camera audio by enabling audio.

Click one camera window in the preview area and then click Main Stream to set the camera's live preview stream and record stream to main stream in manual record mode; click Sub-stream to set the camera's live preview stream and record stream to sub stream. In sub stream tab, set the resolution, FPS and bitrate and then click "Apply" to save the settings.

PTZ panel introduction:

Button	Meaning
	Click / / / / / / / to rotate the dome; click to stop rotating the dome.
	Drag the slider to adjust the rotating speed of dome.
	Click / to zoom in/out camera image.
	Click / to increase/ decrease the focal length.

Button	Meaning
Iris	Click / to increase/decrease the iris of the dome.
Preset	Click to view the preset list and then click the button in the list to call the preset. Click to add a preset; click to save the preset setting; click to delete the selected preset
Cruise	Click to view the cruise list. Click to add a cruise; click to play the cruise; click to stop cruise.
Cruise Group	Click to view the cruise group list. Click to add a cruise group; click to play the cruise group; click to stop cruise group.
Trace	Click to view the trace list. Click to add a trace; click to play the trace click to start record.

If the camera you added is motorized lens camera, click the lens control icon to adjust the lens.
If the camera you added is a fisheye camera, click the fisheye icon to set the relevant parameters as needed.

15.3.2 Remote Playback

Click “Playback” in the remote interface to go to the playback interface.

① Check the record event types and cameras on the left panel. Click to select “Normal Playback” or “Event Playback”. Set the record date on the calendar beside the time scale.

② Click to search the record data and then click or directly click the time scale to play the record.

The operation of the playback time scale is similar to that of the time scale in the main program of the NVR. Please refer to Playback Interface Introduction for details.

Introduction of playback control buttons:

Button	Meaning
■	Stop button.
◀	Rewind button. Click to play video backwards.
▶	Play button. Click to play video forwards.
❚❚	Pause button.
◀◀	Deceleration button. Click to decrease the playing speed.
▶▶	Acceleration button. Click to increase the playing speed.
◀❙	Previous frame button. It works only when the forward playing is paused in single screen mode.
❙▶	Next frame button. It works only when the forward playing is paused in single screen mode.
−	Select the time (for example: 30s); click it to step backward 30s
+	Select the time (for example: 30s); click it to step forward 30s.
	AcuSearch, refer to AcuSearch for details.
	Backup start time button. Click the time scale and then click to set the backup start time.
	Backup end time button. Click the time scale and then click to set the backup end time.

Button	Meaning
	Backup button.
	Play strategy
	More operations (water mark/POS/backup status)

15.3.3 Remote Search and Backup

Click “Search and Backup” in the remote interface to go to the backup interface. You can back up the record by event or by time.

➢ **By Event**

Click to set the start time and end time on the left side of the interface; check the cameras; click to select the desired events and then click “Search” to search the record (the searched record data will be displayed in the list); check the record data in the list and then click “Backup” to backup the record.

➢ **By Time**

Click to set the start time and end time on the left side of the interface; check the cameras and then click on the right side to backup the record.

Image Management: Click “Image Management” to go to image management interface. The system will display all captured images automatically in the list. Click to delete the image. Click to open the “Export” window. Click to open the “View Image” window. Click to export the image.

View Backup Status: Click “Backup Status” to view the backup status. Click “Pause” to pause; click “Resume” to continue the backup; click “Delete” to delete the task.

15.3.4 Intelligent Analysis

Click “Intelligent Analysis” in the remote interface to configure smart search, statistics and sample database. All of these settings are similar to that of the NVR. See the configurations of the NVR for details.

15.3.5 Application

The application of this system includes parking lot management and people flow statistics. All of these settings are similar to that of the NVR. See the configurations of the NVR for details.

15.3.6 Remote Configuration

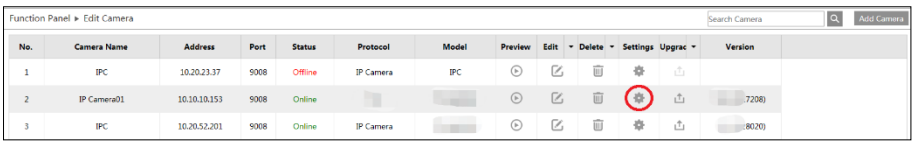
Click “Function Panel” in the remote interface and then configure the camera, record, alarm, disk, network, account and authority and system of the NVR remotely. All of these settings are similar to that of the NVR. See the configurations of the NVR for details.

➢ **Jumping to IPC Web Client**

Except for IPCs that access with RTSP protocol, the IPC can be directly jumped from the NVR

web client to the IPC web client by clicking in the above-mentioned interface.

1. Please login the Web Client of NVR (See Web LAN Access or Web WAN Access for details).
2. Click ***Function Panel→Camera→Edit Camera*** to go to the following interface.



3. Select the camera and click to log into the web client of the camera. From there, you can set the parameters of the camera as needed.

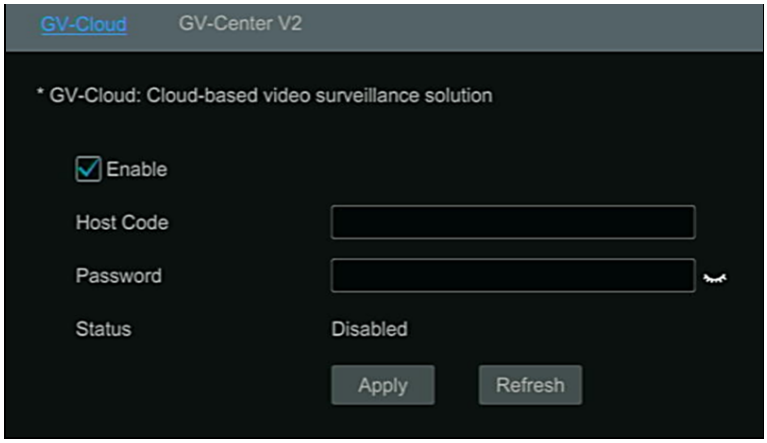
16 Service

16.1 GV-Cloud VMS

The GV-Cloud VMS service is a cloud-based data center and video surveillance solution. Thousands of on-site videos, alarm devices, and AI events can be monitored and managed from a single platform. With GV-Cloud VMS, you can easily search for events and watch live streams or recordings from anywhere using a web browser.

Click ***Start→Settings→Service→GV-Cloud***.

It is required to sign up and log in GV-Cloud first to create a host for the camera.



1. Enable the function and fill in the Host Code and Password created on GV-Cloud.
2. Click “Apply” and “Refresh” to set up and refresh the connection.

IMPORTANT:

1. GV-GNVR supports connecting IP cameras to either GV-Cloud VMS or GV-Center V2, but not both at the same time.
2. While connecting IP cameras to GV-Cloud VMS through GV-GNVR, video playback is currently not supported.
3. If the GV-GNVR is connected to a GV-Cloud IP camera (a G-series model with a 9 in its model name) and you also want to connect the NVR to GV-Cloud VMS, you must disable the cloud service on the camera (**Config** > **Service** > **GV-Cloud**) to avoid conflicts.

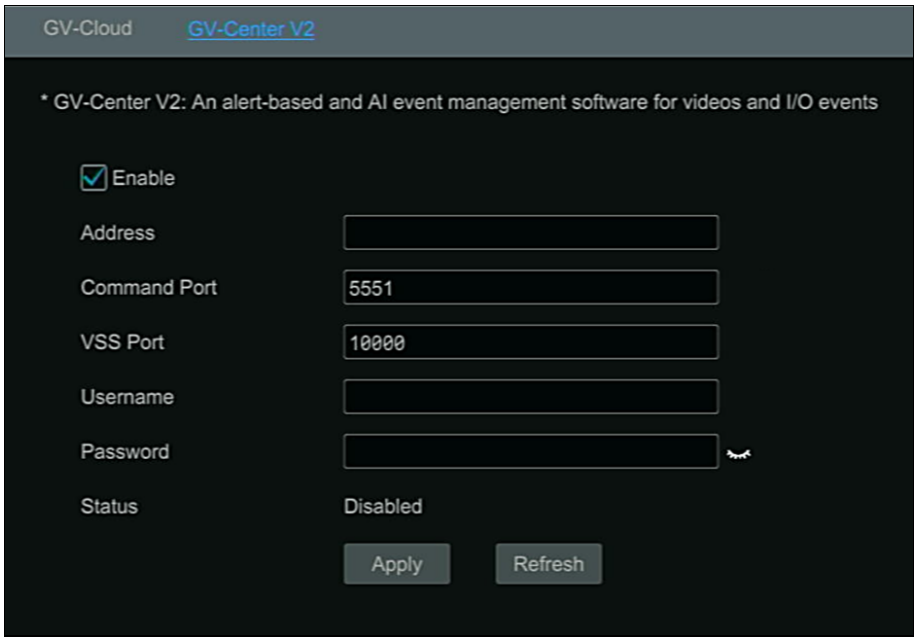
Note:

1. See *6. Connecting to GV-Cloud VMS* in the *Quick Start Guide* for detailed steps.
2. When motion occurs, the NVR can send **snapshots** to GV-Cloud VMS. It also transmits the following **AI events** from AI-capable GV-IP cameras, varying by model: Intrusion / Cross Line / Enter Area / Leave Area / Loitering. For details, see *2. AI Search: GV-IP Cameras via GV-GNVRC0810-P* in this document.

16.2 GV-Center V2

GV-Center V2 is a Central Monitoring System (CMS) software that allows users to monitor, receive, and record events from IP cameras and surveillance systems on a single platform. During alert events, GV-Center V2 receives live view and messages with attached recordings, allowing users to track any abnormalities on the premises.

Click ***Start→Settings→Service→GV-Center V2***.



1. Enable the function and fill in the connection information.
2. Click **Apply** and **Refresh** to set up and refresh the connection.

IMPORTANT:

1. GV-GNVR supports connecting IP cameras to either GV-Cloud VMS or GV-Center V2, but not both at the same time.
2. While connected to GV-Center V2 and GV-Dispatch Server,
   - GV-Center V2 Standard / Pro used alone, or GV-Center V2 Pro used with GV-Dispatch Server Standard, do not support AI events.
   - GV-Center V2 AI used with GV-Dispatch Server AI supports AI events.
3. If the GV-GNVR is connected to a GV-Cloud IP camera (a G-series model with a 9 in its model name) and you also want to connect the NVR to GV-Center V2, you must disable the GV-Center V2 service on the camera (**Config > Service > GV-Center V2**) to avoid conflicts.

Note:

1. See *7. Connecting to GV-Center V2* in the *Quick Start Guide* for detailed steps.
2. The NVR transmits the following **AI events** from compatible IP cameras, varying by model: Intrusion / Cross Line / Enter Area / Leave Area. Currently, only AI events processed by the NVR AI engine are supported. For details, see *2. AI Search: GV-IP Cameras via GV-GNVRC0810-P* in this document.

Specifications

For hardware specifications, see details in:

- Datasheet GV-GNVRC0810-P
- Datasheet GV-GNVRC1620-P

Appendix A FAQ

Q1. Why can't I find the HDD?

a. Please check the power and SATA data cables of the HDD to make sure they are properly connected.
b. For some NVRs with the 1U or small 1U case, the power of the adapter may not be enough for operating your HDD. Please use the power adaptor supplied along with your specific NVR.
c. Please make sure the HDD is compatible with the NVR. The GV-GNVR supports HDDs up to 10 TB and also supports validated HDD models over 10 TB listed in the *GV-SNVR HDD Compatibility Table*.
d. The HDD may be defective. Try replacing it with a known working HDD.

Q2. Why are there no images in some or all the camera windows?

a. Please make sure the resolutions of the cameras are supported by the NVR.
b. Please make sure the network cables of the IP camera and NVR are both connected properly and the network parameters are set correctly.
c. Please make sure the network and the switch both work normally.

Q3. Why does my screen have no output after booting the NVR normally?

a. Please make sure the screen, HDMI or VGA cables are functioning and properly connected.
b. Please make sure the screen supports the resolution of 1280*1024, 1920*1080 or 3840*2160 (4K*2K). The NVR cannot self-adapt to a screen of which the resolution is lower than 1280*1024, In that event, the screen will remind you that the resolution is not supported by the NVR or just not display anything. Please change the screen to 1280*1024, 1920*1080 or 3840*2160 resolution before booting the NVR.

Q4. What do I do if I have forgotten my password?

a. The password for ***admin*** can be reset using one of the following methods:

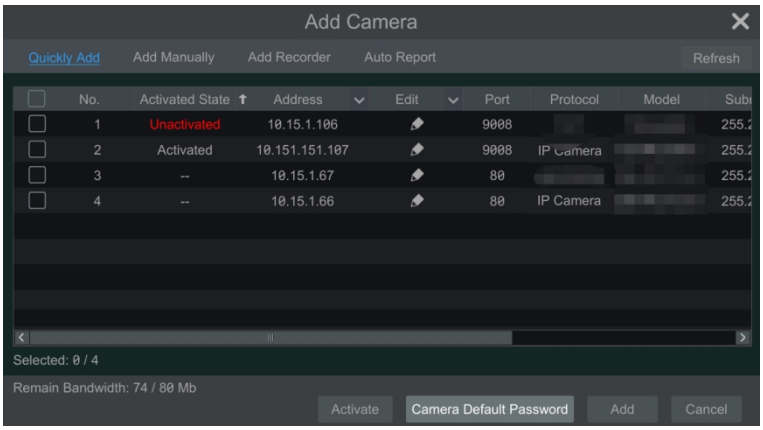
- **Security Question:** Click "Retrieve Password" in the login window and answer the configured security questions. After all questions are answered correctly, you can reset the admin password.
- **Dynamic Password:** If the security questions are unavailable or the answers are forgotten, contact GeoVision technical support at support@geovision.com.tw for assistance. A dynamic password can be generated using a dedicated tool to reset the admin password.

Note: For security reasons, password reset operations can only be performed locally on the device.

b. The passwords of other users can be reset by ***admin***, please refer to Edit User for details.

Q5. Why will my NVR not accept the maximum number of IP cameras?

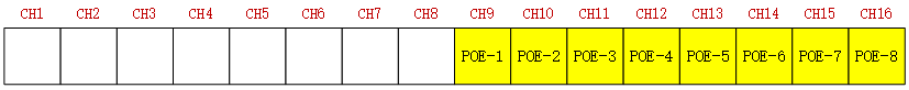
Take a 16 CH NVR as an example. Some 16 CH NVRs support a maximum of 120Mbps bandwidth input (please take the real device as a standard). Refer to the picture below. The remaining bandwidth should be larger than the bandwidth of the IP camera you want to add, or you would fail to add an IP camera. You should lower the added cameras' bitrate to relieve the bandwidth. It is recommended to add cameras by "Quickly Add" for batch adding.



Q6. Why is an IP camera connected directly to the PoE port of my NVR not displayed automatically in the camera list?

a. Please check whether a PoE port is occupied by another IP camera that may have been added through the network (including a PoE switch).

- Take a 16 CH NVR with 8 PoE ports as an example. The resource distribution of the 16 CH IP cameras is shown in the picture below.



When you add IP cameras through network, the IP cameras will occupy the resource from CH1, CH2, CH3, CH4…in the sequence they are added; if you directly connect IP cameras to the PoE ports of the NVR, the IP cameras will occupy ports from CH9 to CH16 according to the number of the PoE port each IP camera is connecting to.

Let's say 12 IP cameras have been added to the NVR through the network and no IP cameras have been directly connected to a PoE port. The 12 CH IP cameras occupy the 8 network resources from CH1 to CH8 and 4 PoE resources from CH9 to CH12 which otherwise would have been occupied by connecting the IP cameras directly. In this situation, if you directly connect one IP camera to PoE5, PoE6, PoE7 or PoE8, the IP camera will be displayed in the camera list automatically; if you connect it to PoE1, PoE2, PoE3 or PoE4, it won't be displayed in the camera list and will show a resource conflict; if you need to connect it to PoE1, PoE2, PoE3 or PoE4, you should first delete the IP camera which occupies the PoE port resource and then reconnect your camera to the PoE port.

- Take a 8 CH NVR with 8 PoE ports as another example. The resource distribution of the 8 CH IP cameras is shown in the picture below and the addition rules of the IP cameras are similar to the rules mentioned above. Please refer to the above for details.

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
POE-1	POE-2	POE-3	POE-4	POE-5	POE-6	POE-7	POE-8

b. Please make sure that the internal Ethernet port and an IP camera which directly connects to a PoE port through the ONVIF protocol are in the same network segment, or you will fail to add the camera.
Log into the IP camera's Web client and then enable DHCP (to obtain an IP address automatically); or manually change the IP address of the IP camera to put it in the same network segment as the internal Ethernet port.
c. Check whether the number of the added IP camera exceeds the maximum allowed.
If the number of IP cameras exceeds the maximum allowed, the system will alert you that the IP camera count is exceeds the limit.

Q7. Why do I have no image output on an IP camera directly connected to the PoE port of my NVR using the ONVIF protocol, even though it's shown on the camera list?

Please make sure the username and password of the IP camera are correct. The IP camera's username and password can be modified through the two ways mentioned below.
① Click "Edit Camera" in the Camera module of the setup panel to go to the interface. Click  to modify the username and password of the IP camera (enter the correct username and password of the IP camera in the popup window and then click "OK").



② Go to the live view interface and then click  in the preview window of the IP camera to edit the IP camera's username and password.

Q8. Why is my system not recording?

a. Make sure the HDD was formatted prior to use.
b. The recording schedule has not been set in customization mode. Please refer to Schedule Settings for details.
c. It's possible your HDD is full and the NVR is not able to record. Check HDD information from Disk Management and if required, please enable the recycle function (please see Advanced Configuration for details).
d. There is no disk in the disk group, so please add at least one disk to the group. Refer to Storage Mode Configuration for details.
e. The HDD could have gone bad. Please change another one.

Q9. Fail to access the NVR remotely through a Web browser.

a. Check whether the PC firewall or antivirus software is blocking access. Try to access the NVR

again after you disable the firewall and stop the antivirus software.
b. The Allow List and Block List settings may have been configured in Account and Authority Settings. A PC whose IP address is in the Block List or not included in the Allow List cannot access the NVR remotely.

Q10. How do I play a backup file?

a. Recorded video backed up by NVR: insert the USB device with the recorded video backup files unto the USB interface of a PC, and then open the USB device path. The recorded video can be backed up in the private format and AVI format by NVR.

- If you select the private format when backing up recorded video by NVR, a RPAS compression package will be backed up to the USB device automatically along with the recorded video data. Uncompress the “RPAS.zip” and then click “RPAS.exe” to set up RPAS. After the setup is completed, open RPAS player and then click “Open Folder” in the middle of the interface to select the record data. Refer to Fig 11-1.

Select a camera in the resource tree on the left side of the interface to play the camera record. Click  on the tool bar under the camera image to enable audio. Refer to Fig 11-2.

Note: The record will not have audio output if you disable the audio when recording by NVR. Please see Mode Configuration and Encode Parameters Settings for details.

- If you select the AVI format when backing up recorded video by NVR, the recorded video backup data can be played by a video player that supports this format.

b. Recorded video backed up through web. The recorded video can only be backed up using AVI format. The recorded video can be backed up to PC and played by the video player which supports this format.

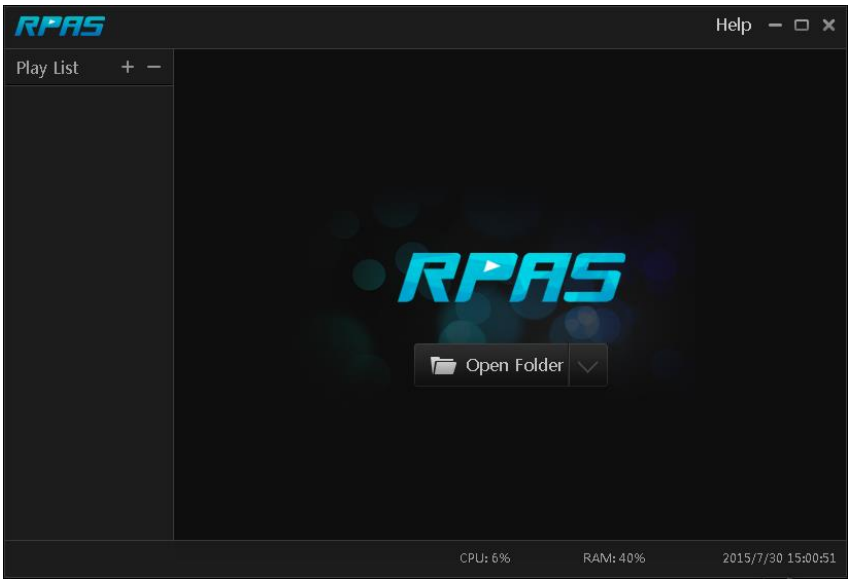


Fig 11-1

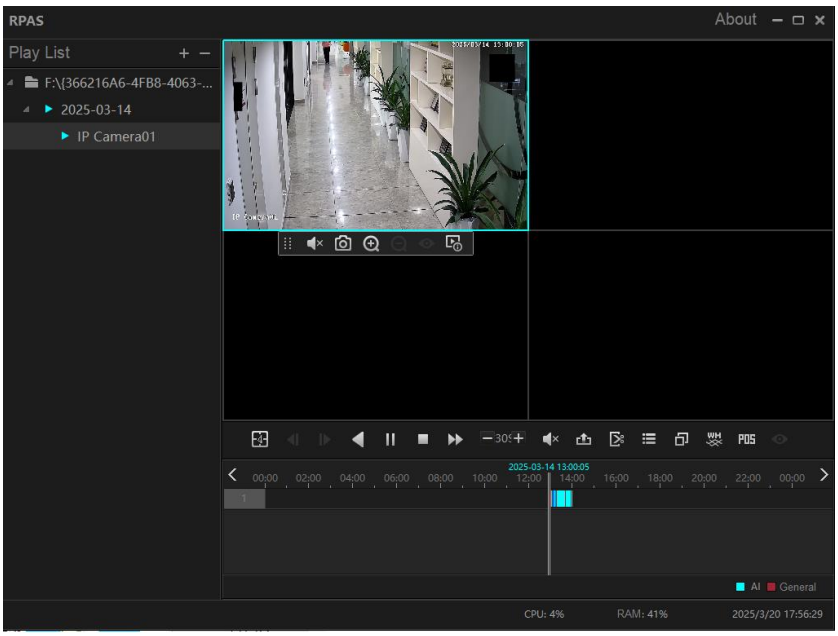


Fig 11-2

Q11. HTTPs service cannot work normally after directly installing the signed certificate.

a. When importing the certificate, the private key is not attached to the certificate.
b. When importing the certificate, the private key is attached to the certificate, but it is encrypted. At present, the NVR doesn't support the certificate with the encrypted private key.

Q12. You are prompted with the unsafe statements/tips when using HTTPs service.

a. Please make sure your certificate is trusted.
b. Make sure whether the Common Name (domain information) of the certificate matches with the domain name of the visiting website.
c. Whether the certificate is within the period of validity.

Appendix B Calculate Recording Capacity

The recording capacity is mainly up to the record resolution, record stream and bitrate. Different image quality parameters decide different disk capacity occupation under equal circumstances. The higher the recording resolution, recording stream and recording bitrate is, the more disk capacity is taken up under equal circumstances. The calculation format of the recording capacity is shown as below.

Recording Capacity(MB) = Bitrate(Kbps) ÷1024 ÷ 8 × 3600 × Recording hours per day × Record Storage Days × channel numbers

3600 means record for an hour(1TB=1024GB，1GB=1024MB，1MB=1024KB，1Byte=8bit).

Record Bitrate (Kbps)	Used Space (MB/H)	Used Space (MB/D)
10240	4500	108000
8192	3600	86400
6144	2700	64800
4096	1800	43200
3072	1350	32400
2048	900	21600
1024	450	10800
768	337.5	8100
512	225	5400
384	168.75	4050
256	112.5	2700

The table below shows the recording capacity requirements for record storage in 30 days.

Record Bitrate (Kbps)	Recording Capacity(TB)					
	1CH	4CH	8CH	16CH	32CH	64CH
10240	3.09	12.36	24.72	49.44	98.88	197.76
8192	2.48	9.89	19.78	39.56	79.11	158.21
6144	1.86	7.42	14.84	29.67	59.33	118.66
4096	1.24	4.95	9.89	19.78	39.56	79.11
3072	0.93	3.71	7.42	14.84	29.67	59.33
2048	0.62	2.48	4.95	9.89	19.78	39.56
1024	0.31	1.24	2.48	4.95	9.89	19.78
768	0.24	0.93	1.86	3.71	7.42	14.84
512	0.16	0.62	1.24	2.48	4.95	9.89
384	0.12	0.47	0.93	1.86	3.71	7.42
256	0.08	0.31	0.62	1.24	2.48	4.95

For instance, there is a 32CH NVR recording 24 hours per day and the recordings are stored for 30 days and the NVR adopts dual stream recording. If the main stream is 4096Kbps and the sub stream is 1024Kbps, then the total recording capacity is 49.45TB (39.56TB + 9.89TB).

Considering the format loss of the disk is about 10%, the required disk capacity will be 55TB (49.45TB ÷ (1-10%)).