IndigoVision

BX and GX Range Cameras

Web Configuration Guide

IndigoVision

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Contact address

IndigoVision Limited

Charles Darwin House,
The Edinburgh Technopole,
Edinburgh,
EH26 0PY

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This guide uses the following formats for safety notices:

Warning

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Caution

Indicates a hazardous situation which, if not avoided, could result in moderate injury, damage the product, or lead to loss of data.

Notice

Indicates a hazardous situation which, if not avoided, may seriously impair operations.

Additional information relating to the current section.

TABLE OF CONTENTS

3 INTRODUCTION

This Web Configuration Guide contains information about the BX or GX Range Cameras Web Configuration pages.

Notice *The following functions are for reference only. Some BX or GX Range Cameras may not support all functions.*

Cameras

This guide describes web configuration for the following BX or GX Range Cameras:

- BX420 4MP Minidome Camera
- BX420 4MP Environmental Minidome Camera
- BX420 HD Minidome Camera
- BX420 HD Environmental Minidome Camera
- BX420 4K Environmental Minidome Camera
- BX520 HD Adaptive IR PTZ Dome Camera
- BX520 4MP In-ceiling PTZ Dome Cameras
- BX520 4MP Pendant PTZ Dome Cameras
- BX620 4MP Bullet Camera
- BX620 4MP Fixed Camera
- BX620 HD Fixed Camera
- BX620 HD Bullet Camera
- BX720 6MP Fisheye Camera
- BX720 12MP Fisheye Camera
- GX420 Minidome Camera
- GX620 Bullet Camera

Requirements

The BX or GX Range Cameras support Web configuration and management using a PC.

Web configuration involves the following modules:

- Monitor channel preview
- PTZ control
- System configuration
- Alarms

Before starting configuration, establish a network connection:

1. Ensure that the BX or GX Range Cameras is correctly connected to the network.

2. Ensure that the BX or GX Range Cameras IP address and the PC IP address are in the same network segment.

3. If there is router, set the corresponding gateway and subnet mask.

4. Use the command `ping <IP address>` to check the connection.

4 OPERATIONS

This chapter describes common tasks required for the operation of the BX or GX Range Cameras.

Logging in

1. In a standard web browser, navigate to the BX and GX Range 's IP address.

   For example, if your device IP is 10.5.1.10, enter `http:// 10.5.1.10` in the address bar.

   The login interface is displayed.

2. Enter your user name and password.

   The default user name is `Admin` and the default password is `1234`.

   On your first login, an install dialog is displayed with details for installing `control webrec.cab`.

3. Click *OK* in the install dialog.

   The system automatically installs the control.

   If you cannot download the file, ensure that you have installed the plug-in to enable download. Alternatively, lower your browser security levels.
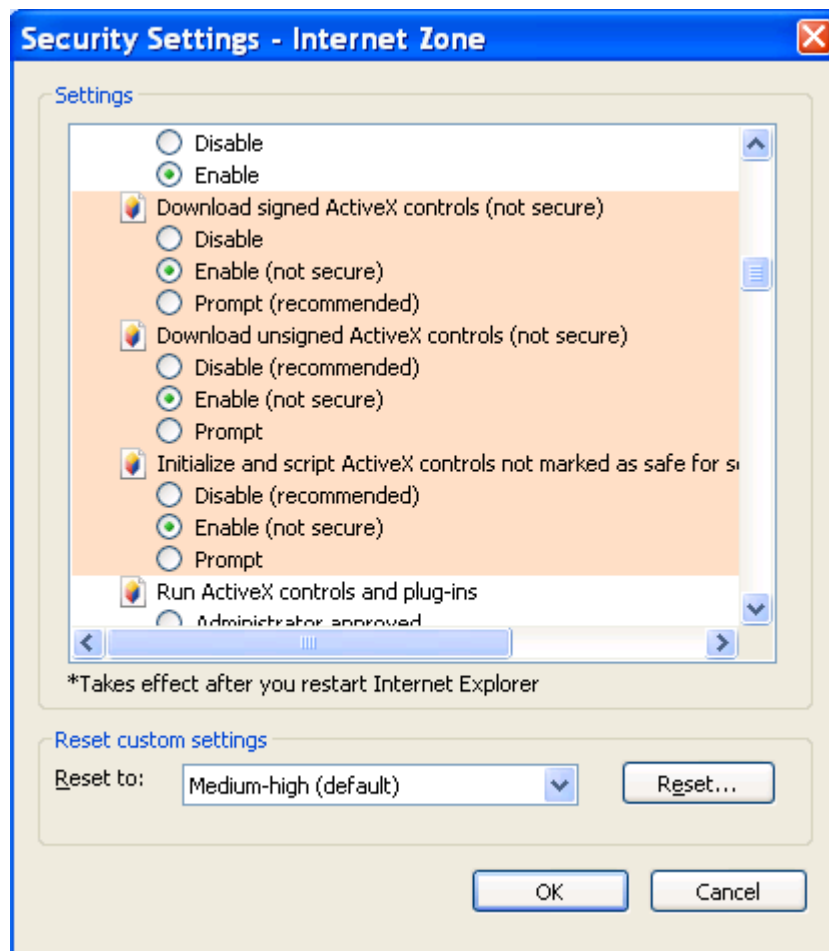
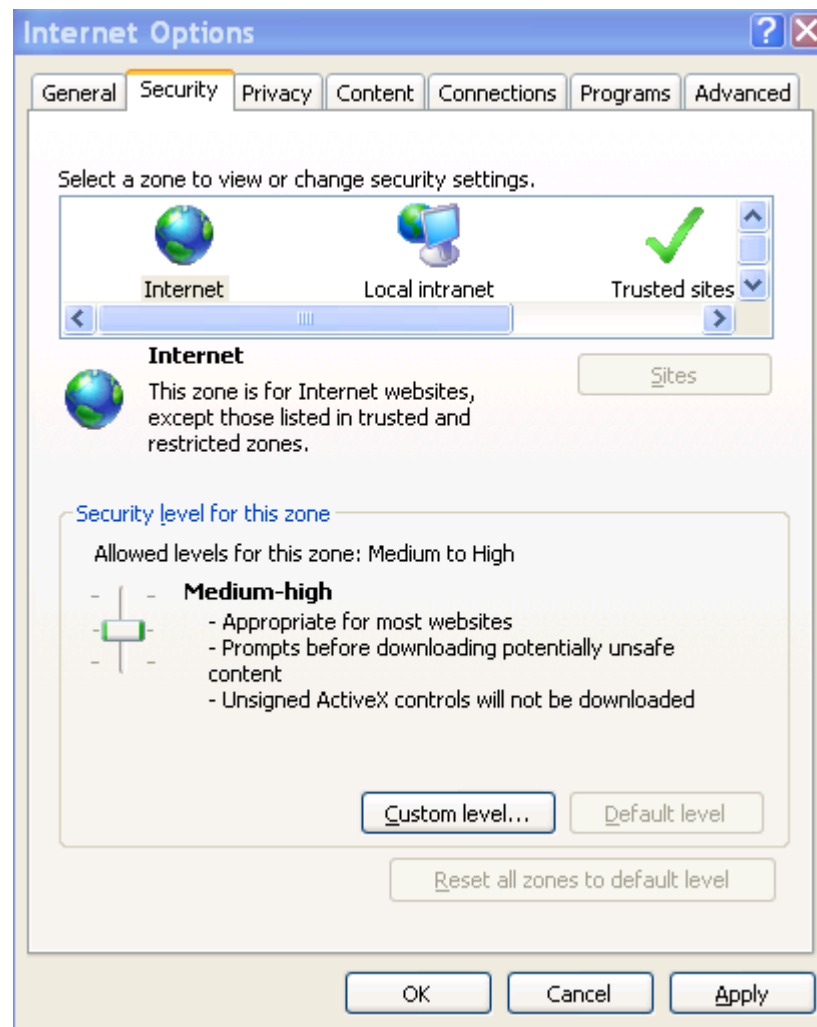**Figure 1:** Security Settings dialog for Internet Explorer

Figure 2: Internet Options dialog

5 WEB CONFIGURATION PAGES

This section explains the configuration options provided by the Web Configuration pages for BX or GX Range Cameras.

Live Interface

Log in to view the live monitor window. Operate the BX or GX Range Cameras using the Web interface.

Encode Setup

The encode setup interface elements are defined below.

Table 1: Encode setup interface options

Parameter	Function
Main stream	In normal network width environment, main stream can record audio/video files and monitor the network.
Sub Stream 1	Connected to the Protocol, monitor or close the video under sub stream 1 configuration. Sub-stream 1 can be used for network monitoring instead of the main stream when network bandwidth is not sufficient.
Protocol	Select video monitor protocol from the dropdown list. There are three options: TCP/UDP/Multicast.

Video Window Setup

The Video Window setup interface elements are defined below.

Table 2: Video Window setup interface parameters

Parameter	Function
Image adjustment	Click to show or hide the picture setup interface in the top right pane.
Original size	Click to restore the video to its original size. This option depends on the resolution of the video.
Full screen	Click to go to full-screen mode. Double-click press *Esc* to exit full-screen.
Width and height ratio	Click to restore the original ratio or suitable window.
Fluency setup	Select the fluency type: `real-time`, `normal` or `fluency`.
Rules info	Click to enable the live interface to display intelligent rules. The default setting is `enabled`.
Open/close PTZ interface	Left click to display or hide the PTZ control interface.

The picture setup interface is shown in the top-right pane when selected.

Figure 3: Picture setup interface

The picture setup interface elements are defined below.

Notice   *All the operations listed here apply to the Web Configuration pages only. Other options, including brightness, contrast, hue and saturation, can be adjusted using the following menu path:* ***Setup > Camera > Conditions***

Table 3: Picture setup interface parameters

Parameter	Function
	Adjust monitor video brightness.
	Adjust monitor video contrastness.
	Adjust monitor video saturation.
	Adjust monitor video hue.
Reset	Restore brightness, contrastness saturation and hue to system default setup.

Video Window Function Option

The interface is shown as below.

Figure 4: Video Window function option interface

The Video Window function option interface elements are described below.

Table 4: Vide Window function options interface elements

SN	Parameter	Function
1	Remark	Click and select pen color. Add mark information to the preview interface.

SN	Parameter	Function
2	Gesture control	On the preview interface, click to control the PTZ and use the middle button to zoom in/zoom out.
3	Alarm output	Click to generate an alarm output. The button becomes red. Click again to stop alarm output. There are two alarm output icons because this series product supports two relay output. The alarm output interface may vary for different series products.
4	Digital zoom	When video is in original status, click this button to select any zone to zoom in. After zooming in, drag the zoom-in area to the specified area. Right-click to restore the original status. Use the wheel to zoom out of the video.
5	Snapshot	Snapshoot important video. Navigate to *Setup > Camera > Video > Path* to modify the local record save path.
6	Triple snap	Click to take a snapshot at 1f/s for three times. All images are saved in the system storage folder.
7	Record	When you click the local *Record* button, the system begins recording. Navigate to *Setup > Camera > Video > Path* to modify the local record save path.
8	Manual Track	Click, then click and drag in the video window to select any zone. Enable the BX or GX Range Cameras to auto-track the object in the specified area. Navigate to *Setup > IVS setup > Global setup interface* to enable IVS auto-tracking.
9	Audio output	Turn on or off audio when you are monitoring. Navigate to *Setup > Camera > Audio* to set.
10	Bidirectional talk	Click to begin audio talk. Navigate to *Setup > Camera > Audio* to set bidirectional talk mode.
11	Help	Click to open the help file.

PTZ Control

Before PTZ operation, ensure that you have correctly set PTZ protocol using the following menu path: *Setup > System > PTZ*.

View direction keys, speed, zoom, focus and the iris button.

- PTZ direction: PTZ supports the following directions:
    - Left
    - Right
    - Up
    - Down
    - Upper left
    - Upper right
    - Bottom left
    - Bottom right
    - Fast positioning
- Speed: Select a speed from 1 to 8.

Figure 5: PTZ control interface

Joystick

Figure 6: PTZ Joystick

Drag the button in the middle of the joystick to control device rotation.

PTZ Setup/Menu

Click *Set* to display the PTZ Settings interface. Use this interface to select scan, preset, tour pattern, assistant function and so on.

The options in the PTZ Settings interface are described below.

Table 5:

Parameter	Function
Scan	Control the PTZ to set the scan left limit and right limit. Click *Start* to begin the scan operation. Default SN is 1.
Preset	Input the preset value and click *Add*, to save the current position as one preset. Click *View* and the camera turns to the corresponding position of the preset.
Tour	Input the tour value and click *Add* to add one preset from the tour. Click *Start* to begin the tour.
Pattern	Click *Add* to operate the PTZ. Click *Stop* to stop the memory pattern process. Click *Start* to begin PTZ movement.
Assistant	Input the assistant value and click *AUX on* to enable the corresponding assistant value.
Goto	Accurate positioning function. Input the corresponding horizontal angle, tilt angle, and dome zoom speed and click *Goto* to go to a specified position. One unit of the horizontal angle or tile angle stands for 0.1 degree.
Pan	Click *Start* to turn the PTZ.

Playback

Web client playback supports the following modes:

- Video playback
- Picture playback

Notice	*You must set 3.5 Storage Management before operating playback.*

Video Playback

The video playback interface includes the following functions:

- Play function
- Playback file
- Playback clip
- Record type
- Progress bar
- Aux function

Play Function

Table 6: Play Function parameters

Parameter	Note
Play	Click to play video.
Stop	Click to stop playing current video.
Next frame	Click to play next frame. You must pause playback when using next frame function.

Parameter	Note
Slow	Click to slow down playback.
Fast	Click to speed up playback.
Quiet	When this button is displayed, playback is mute. Click to restore audio function.
Volume	Click the to adjust the playback volume.

Playback File

Figure 7: Playback calendar

The blue dates in the calendar indicate that there is video or a snapshot file on the day indicated.

Table 7: Playback file parameters

Parameter	Note
File type	Select *day* to playback video. Select *jpg* to view an image.
Data source	The default is SD card.

1. Click the blue date.
   The timeline displays the record file progress bar with colors:
   • Green: general record.
   • Yellow: motion record.
   • Red: alarm record.
   • Blue: manual record.
2. Click a certain time location of the record file progress bar area
   The playback interface plays the record file from that time.

3. Click file list
   The record file for the selected date is displayed in the file list.

Figure 8: File list

4. Double-click the file in the list.

    The file is played. File size, start time and end time are also displayed.

Table 8: Search and download options

Parameter	Note
Search	Search all the record files between the start time and end time of the selected date.
Download Format	Select the format: .dav or .mp4.
Download	When record type is "dav", click to download the file to local.
	When record type is "mp4", click to download file to 3.1.15. Storage path.
	The system does not support download and playback record of MP4 format at the same time.
Back	Click to go back to calendar interface to select date again.

Playback Cut

When using playback cut, the record file which is being played back stops playing automatically.

1. Click the start time of playback cut on the timeline.

    The time must be within the range of the progress bar area for the record file.

2. Click *Cut* to set the start time for the playback clip.

3. Click the end time of the playback cut on the timeline.

   The time must be within the range of the progress bar area for the record file.

4. Click *Cut* to set the end time for the playback clip.

5. Click *Save* to edit the file to 3.1.1.5 storage path.

Record Type

Select the Record Type to display only the selected type of file in the progress bar and file list.

Figure 9: Record Type selection

Progress Bar Time Format

Parameter	Note
	Click to display the progress bar in 24-hour mode.
	Click to display the progress bar within 2 hours range of the record file.
	Click to display the progress bar within 1 hour range of the record file.
	Click to display the progress bar with 30 minutes range of the record file.

Assistant Function

Table 9: Assistant Function parameters

Parameter	Note
Regional Zoom	Click to select any area to zoom in to when the playback video is in its original state. When the video is not in its original state, click to drag and zoom the area within a certain range. Right-click to restore the video to its original state. Zoom by rolling the mouse wheel.
Snapshot	Click to snapshot the playback video. The image is stored in the path 3.1.1.5.

Picture Playback

The picture playback interface of WEB client includes following three functions.

The picture playback interface includes the following functions:

- Play function
- Playback file
- Snapshot type

Play Function

- : Click to play pictures.

- : Click to pause playback.

Playback File

Figure 10: Playback calendar

The blue dates in the calendar indicate that there is an image file on the day indicated.
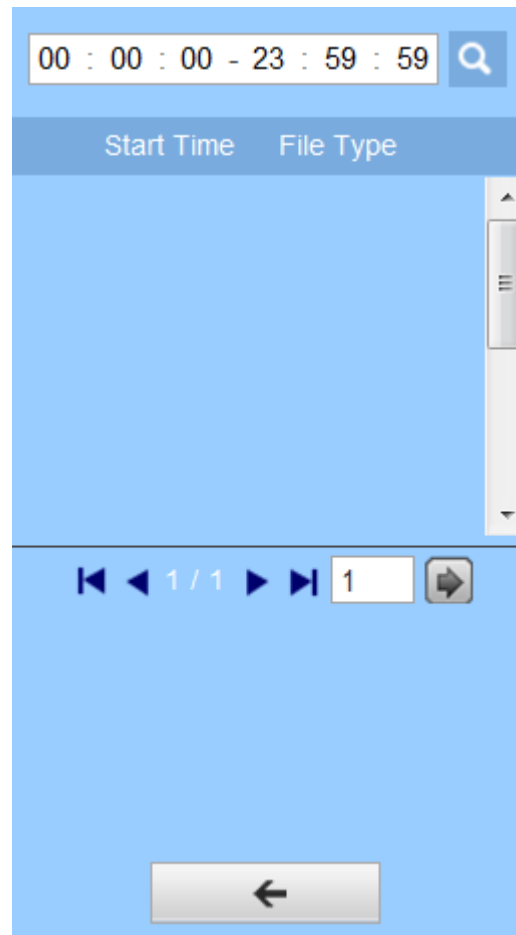
1. Click file list

   The snapshot file for the selected date is displayed in the file list.
2. Double-click the file in the list.

   The snapshot file is played. File size, start time and end time are also displayed.

Table 10: Download and search parameters

Parameter	Note
Search	Search all the record files between the start time and end time of the selected date.
Download	When record type is "dav", click to download the file to local. When record type is "mp4", click to download file to 3.1.15. Storage path. The system does not support download and playback record of MP4 format at the same time.
Back	Click to go back to calendar interface to select date again.

Snapshot Type

Select the Snapshot Type to display only the selected type of file in the file list.

Figure 11: Snapshot Type selection

Setup

Use the setup menu to configure cameras.

Camera

Video

The video interface screen is made up of the following sub-screens:

- Video bit stream interface
- Snapshot interface
- ROI interface
- Path interface

The **Video bit stream** interface is made up of the following fields:

Table 11: Video bit stream parameters

Parameter	Function
Sub Stream Enable	Check the box to enable extra stream function. This function is enabled by default.
Encode mode	Select an encode mode: **H.264**: main profile standard. H264 bit stream **H.264H**: high profile standard. H264 bit stream **H.264B**: baseline profile **H.265**: main profile standard **MJPG**: encode. The video needs a large bit stream to ensure video definition. Use the maximum bit stream value. To monitor the system using a Blackberry mobile phone, enable the sub stream function in your camera and set the resolution as CIF.
Resolution	Select a resolution level from the dropdown list. The recommended bit stream value differs for each resolution level. When video is under rotating status, you cannot set resolution at or higher than 1080P.
Frame Rate (FPS)	PAL: 1～25f/s，1-50f/s NTSC: 1～30f/s or 1~60f/s. The frame rate may vary for different resolutions.
Bit Rate Type	Select either VBR or CBR. You can set video quality in VBR mode. Under MJPEG mode, only CBR is available.
Recommended Bit	Recommended bit rate value according to the resolution and frame rate you have set.
Bit Rate	In CBR, this bit rate is the maximum value. In dynamic video, the system must have a low frame rate or video quality to guarantee the

Parameter	Function
	value.
	The value is null in VBR mode.
	Please refer to recommend bit rate for the detailed information.
SVC	Frame rate can be encoded by layer. It is a flexible encoding method. By default, it is 1 as 1 layer. You also can set 2/3/4 layers.
I Frame	Here you can set the P frame amount between two I frames. The value ranges from 1 to 150. Default value is 50.
	Recommended value is frame rate *2.
Watermark Settings	By calibrating watermark, to see if video is modified. Select Watermark function. Default watermark is Digital CCTV.
	Watermark character can only be number, letter, _, - within 128 characters.

The Snapshot interface is made up of the following fields:

Table 12: Snapshot parameters

Parameter	Function
Snapshot type	Select either General (schedule) or Event (activation).
Image size	Resolution of snapshot (main stream or sub stream).
Quality	Set the image quality from 1 to 6.
Interval	Set snapshot frequency.

The Video overlay interface is made up of the following fields:

Table 13: Video overlay parameters

Parameter	Note
Channel Title	Check *Enable* to display the Channel title in the video monitoring window.
	Use the mouse to drag the *Channel Title* box to adjust its position.
Time Title	Check *Enable* to display time title in the video monitoring window.
	Use the mouse to drag the *Time Title* box to adjust its position.
OSD Info	Check *Enable* to display OSD in the video monitoring window.
	Use the mouse to drag the *OSD Info* box to adjust its position. Alignment mode includes left align and right align.
Picture Overlay	Check *Enable* to display picture overlay in the video monitoring window.
	Click to upload an image. Thi image is overlaid onto the video monitoring window. Drag the yellow box to adjust the position of overlaid pictures.
	OSD Info and Picture Overlay cannot be enabled at the same time.
Refresh	After setting Channel Title, Time Title, OSD Info and Picture Overlay and saving successfully, check the results by clicking *Refresh*.

The ROI interface is made up of the following fields:

Table 14: ROI parameters

Parameter	Note
Enable	Check *Enable* to display the ROI in the video monitoring window.
Image Quality	Set the image quality of the ROI from 1 to 6.

Use record linkage in the **Live** interface to set the storage path for monitoring snapshot and monitoring recordings.

Storage path is linked to the snapshot, download or clip in the playback interface. Use the Storage interface to set the storage path for playback snapshot, record download and playback clip respectively.

- Default Live Snapshot path：*C:\Documents and Settings\Administrator\WebDownload\LivePicture*
- Default Live Record path：*C:\Documents and Settings\Administrator\WebDownload\LiveRecord*
- Default Playback Snapshot path：*C:\Documents and Settings\Administrator\WebDownload\PlayBackPicture*
- Default Playback Download path：*C:\Documents and Settings\Administrator\WebDownload\PlayBackRecord*
- Default Playback Clip path：*C:\Documents and Settings\Administrator\WebDownload\PlayBackRecordCut*

Notice *The Administrator is the login account currently being used.*

Audio

The audio interface is made up of the following fields:

Notice *Ensure that you have enabled the video function, otherwise you can not enable the audio function.*

Table 15: Audio interface parameters

Parameter	Function
Audio enable	Recorded files in the main stream or sub (extra) streams only contain video by default. Check the audio box to enable the audio function so that the main stream that the network has transmitted is audio/video composite stream.
Encode mode	The encode mode of the main stream and extra stream include PCM, G.711A and G.711Mu. The setup here is for audio encode mode and the bidirectional talk encode both.

IVS Setup

Global Setup

The Global Setup interface is made up of the following fields:

Table 16: Global Setup interface parameters

Parameter	Function
IVS enable	Check the box to enable IVS function.
Panorama PTZ enable	Click to enable panorama PTZ. IVS function and panorama PTZ cannot be enabled at the same time.
Scene type	**Panorama:** Intelligent analytics of the current monitor video with the preview function enabled. **Single scene:** Intelligent analytics for one scene. **Multiple-scene:** Iintelligent analytics for several scenes, which support tour function.

Parameter	Function
Apppply scene	The default setting is Normal.
Alarm track enable	The system enables auto-tracking when a rule is activated. The alarm track function is null if you do not check the box. This does not affect other alarm output when this function is null.
De-jitter	Set device de-jitter rate.
De-jitter enable	Check the box to enable de-jitter module.

Scene Setup

The Scene setup interface is made up of the following fields:

Table 17: Scene setup parameters

Parameter	Function
Add scene	Click to add a scene.
Scene setup	Click to set current monitor video as the corresponding scene and get a number.
Preview scene	Click to preview the selected scene.
Limit Track	Check the box to set up/down/left/right limit at the bottom of the interface.
Zoom	Click ⊕ to zoom in and click ⊖ to zoom out.
PTZ	Click PTZ button 🔆 to adjust scene position.
Speed	Set PTZ movement speed. The value ranges from 1 to 8.

Use the **Single Scene** sub-screen to select which single scene to view.

Use the **Multiple Scene** sub-screen to set up Tours and Stay times.

Rule Setup

Set up rules using the individual rule type interfaces.

► *For more information, see "Capabilities" on page 43*

The rule setup interface is made up of the following fields:

Table 18: Rule setup interface parameters

Parameter	Function
Select scene	Select the scene from the drop-down to add the corresponding rule.
Add rule	Click to add a rule to the selected scene.
Rule enable	Check the box to enable the rule.
Rule name	Set a rule name.
Rule type	Set the rule type.
Draw rule	Click to draw current rule.
Delete rule	Click to delete current rule.

The Tripwire interface is made up of the following fields:

Table 19: Tripwire interface parameters

Parameter	Function
Object type supported	Select an object type here. The default setup is all types.
Direction	Set tripwire direction. *A->B*、*B->A*、*A<->B*.
Target filter	Check the box to enable this function, then click *Draw* to set the target filter model in this scene for this rule. Click *Clear* to remove the selected target filter model.

The Cross warning zone interface is made up of the following fields:

Table 20: Cross warning zone parameters

Parameter	Function
Object type supported	Select an object type. The default setting is All types.
Detect action list	**In area:** When the tracked object is in the detect zone and the stay time is more than the time threshold set here, the system activates an alarm. **Through area:** The system generates an alarm when the tracking object crosses the limit set here.
Direction	Set the cross direction for Through area Detect actions.
Max target No.	Set the alarm activation amount in the zone. The system will not generate an alarm when the object amount in the zone is more than the threshold set here.
Min target No.	Set the alarm activation amount in the zone. The system will not generate an alarm when the object amount in the zone is less than the threshold set here.
Min last time	Set the minimum time between the target being in the zone and an alarm activation occurrence.
Report interval	Set the alarm period. If this value is 0, the system sounds the alarm only once.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

The abandoned object detection interface is made up of the following fields:

Table 21: Abandoned object detection interface parameters

Parameter	Function
Object type supported	Select an object type. The default setting is All types.
Min last time	Set the minimum time between the abandoned object occurrence and alarm activation.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

The loitering detection interface is made up of the following fields:

Table 22: Loitering detection interface parameters

Parameter	Function
Object type supported	Select an object type. The default setup is all types.
Alarm activation number (Person)	Set the alarm activation threshold. The default setup is 0.
Min last time	Set the minimum time between the target being in the zone and an alarm activation occurrence.

Parameter	Function
Report interval	Set the alarm period. If this value is 0, the system triggers the alarm just once.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

The fast moving interface is made up of the following fields:

Table 23: Fast moving interface parameters

Parameter	Function
Object type supported	Select an object type. The default setup is all types.
Detect type	Set the detection type. The default setup is "Fast move". The rule is to detect the fast moving object in the warning zone.
Sensitivity	Set the alarm activation sensitivity.
Min last time	Set the minimum time between the object moving and alarm activation.
Activation speed	Set the minimum speed at which an object can activate an alarm.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in the scene.

The permiter protection interface is made up of the following fields:

Table 24: Perimeter protection interface parameters

Parameter	Function
Object type supported	Select an object type. The default setup is all types.
Direction	Set cross perimeter direction. The option includes: A->B、B->A、A<->B.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

The missing object detection interface is made up of the following fields:

Table 25: Please refer to the following sheet for detailed informaiton.

Parameter	Function
Object type supported	Select an object type. The default setup is all types.
Min last time	Set the minimum time between the missing object occurrence and alarm activation.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

The illegal parking interface is made up of the following fields:

Table 26: Illegal parking interface parameters

Parameter	Function
Object type supported	Select an object type. The default setup is all types.
Min last time	Set the minimum time between the illegal parking occurrence and alarm activation.
Target filter	Check the box to enable this function and click *Draw* to set the target filter model in this scene.

Alarm activation setup is made up of the followng fields:

Table 27: Alarm activation setup parameters

Parameter	Function
Rule Working period	Set rule arm and disarm period. Click *Setup* to set.
Record	Check the box to record when alarm activation occurred.
Relay output	Check the box to output an alarm when alarm activation occurred.
Send e-mail	Check the box to send out an email when alarm activation occurred. Please note current function is null when the device is offline, or IP conflict occurred.
Snapshot	Check the box to snapshot when alarm activation occurred.
Copy	Select a rule name from the dropdown list and click *Copy* to copy the alarm activation setup of current rule to the selected rule.

Parameter

The parameter interface is made up of the following fields:

Table 28: Parameters interface parameters

Parameter	Function
Scene	Select a scene from the drop-down.
Detect balance	Select a detect balance mode: Compromise mode, Omission detect less or Error detect less.
Sensitivity	Set the sensitivity level from 1 to 10. The default setting is 5. The higher the sensitivity is, the easier it is for the device to detect low-contrast and small objects. More errors may also be detected.
Anti-disturbance mode	Control random disturbance in the scene.
Backlight scene enable	Check the box to set higher recognition capability in backlit scenes.
Shadow scene enable	Check the box to set higher recognition capability in shadow scenes.
Target filter	Click *Draw* to set the target filter model in this scene.
Add detect region	Click *Add Detect Region* to draw a detection zone.
Add exclued region	Click *Add Exclude* to draw a privacy mask (shield) zone.

Network

TCP/IP

The TCP/IP interface is made up of the following fields:

Table 29: TCP/IP interface parameters

Parameter	Function
Host Name	Set the current host device name.
Ethernet Card	If the device has several network cards, select the Ethernet port.

Parameter	Function
Mode	**Static mode**: Set the IP/subnet mask/gateway manually. **DHCP mode**: The IP/subnet mask/gateway are null. IP/subnet mask/gateway and DHCP are read-only when the PPPoE dial is OK.
Mac Address	Dsplay host Mac address. This field is read-only.
IP Version	Select either IPV4 or IPV6. You can access the IP address of these two versions. The system must check the validity of all IPv6 addresses. The IP address and the default gateway must be in the same IP section. When PPPoE function is enabled, the IP/subnet mask/default gateway is read-only. You can not set or restore default setup.
IP Address	Use the keyboard to input the corresponding number to modify the IP address, then set the corresponding subnet mask and the default gateway.
Default Gateway	Set the corresponding default gateway for the IPv4. This field must not be left blank.
Preferred DNS	DNS IP address for the IPv4. This field must not be left blank.
Alternate DNS	Alternate DNS IP address for the IPv4. This field must not be left blank.
Enable ARP/Ping set device IP address service.	If the device MAC address in known, use an ARP/Ping command to modify or set the device IP address. For more information, *see "ARP/Ping set device IP address" on page 27*.

ARP/Ping set device IP address

1. Ensure that the BX or GX Range Cameras and the PC are on the same LAN.
2. Get the required IP address.
3. Set the BX or GX Range Cameras and the PC on the same LAN.
4. Get the physical address from the label of the BX or GX Range Cameras.
5. Go to the **Run** interface and input the following commands.
   ```
   arp  -s  <IP Address>  <MAC>
   ping  -l  480  -t  <IP Address>
   ```
   For example:
   ```
   arp  -s  192.168.0.125  11-40-8c-18-10-11
   ping  -l  480  -t  192.168.0.125
   ```
6. Reboot the device.
   If the setup is successful, a `Reply from` output message is displayed.
7. Close the command line.
8. Open a standard web browser and enter `http://<IP address>`.
9. Press *Enter* to access the IP.

Connection

The connection interface is made up of the following fields:

Table 30: Connection interface parameters

Parameter	Function
Max	Maximum Web connection for the BX or GX Range Cameras between 1 and 20.

Parameter	Function
connection	The default setting is 10.
TCP port	Select a value from 1025 to 65535. The default value is 37777. Input the actual port number if necessary.
UDP port	Select a value from 1025 to 65535. The default value is 37778. Input the actual port number if necessary.
HTTP port	Select a value from 1025 to 65535. The default value is 80. Input the actual port number if necessary.
RTSP port	The default value is 554. If using QuickTime, a Blackberry phone or VLC play real-time video, you can use a real-time monitor bit stream Url format to play. When using a Blackberry phone, the bit stream mode is H.264B, resolution is CIF and audio is disabled. If requesting a real-time monitor bit stream RTSP stream media service, specify the channel number and bit stream type in the Url. The Url format is shown as below: `rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0` Input the username, password, port and subtype following items manually. Username/password/IP/port/subtype. The IP is device IP and the port default value is 554. The channel number begins with 1. subtype：bit stream type，main stream is 0(subtype=0) and extra stream is 1(subtype=1) . You do not need to input the user name and password if you do not need the verification. For example: Main stream：`rtsp://ip:port/cam/realmonitor?channel=1&subtype=0`
HTTPS Enable	Enable HTTPs communication service control. If you enable this function, use `https://<ip>:<port>` to log in the device. If you are using the default port in data encryption protection mode, use `https://<ip>` to log in.
HTTPS Port	Select a HTTPs communication port value from 1025 to 65535.

ONVIF

ONVIF (Open Network Video Interface Forum) describes the model, interface, data type of network video and the mode of data interaction.

The target of the ONVIF standard is to realize a network video frame protocol, which makes the network video products, including front end and record device, produced by different manufacturers completely compatible.

PPPoE

1. Enter the PPPoE user name and password from your ISP (internet service provider) and the enable PPPoE function in the PPPoE interface.
2. Save the current settings.
3. Reboot the device.
   The current settings are applied.

The device connects to the internet using PPPoE after reboot.

4. Note the IP address in the WAN from the IP address column.

PPPoE is set to connect to the internet. Acquire an account from your ISP, and set here to dial to the interface. The registered IP address is displayed in the interface.

Navigate to the IP address item to view the current device information and access the client-end.

DDNS

Use the DDNS interface to set the DDNS. This connects the various servers so that you can access the system using the server.

Navigate to the corresponding service website to apply a domain name and then access the system using the domain.

Table 31: DDNS interface parameters

Parameter	Function
Server Type	Select DDNS protocol from the drop-down and enable DDNS function.
Server IP	DDNS server IP address
Server Port	DDNS server port.
Domain Name	The self-defined domain name.
User	The user name input to log in to the server.
Password	The password input to log in to the server.
Update period	Device IP and service connection refresh period. The default setup is 10 minutes.

IP filter

The IP filter interface is shown used to enable IP filter function so that a specified IP user can access the BX or GX Range Cameras.

Add IP address or the IP address section.

If you do not check the box, there is no access limit.

SMTP

The SMTP (email) interface is made up of the following fields:

Table 32: SMTP interface parameters

Parameter	Function
SMTP Server	Input the server address then enable this function.
Port	The default value is 25.
Anonymity	A user can auto login anonymously. Do not input the user name, password or the sender information.
User Name	The user name of the sender email account.
Password	The password of sender email account.
Sender	Sender email address.
Authentication	Select SSL or none.

Parameter	Function
(Encryption mode)	
Title (Subject)	Email subject.
Attachment	Check the box to send a snapshot picture in the email.
Mail receiver	Enter a maximum of three receiver addresses.
Interval	Set the send interval from 0 to 3600 seconds. 0 means there is no interval. The system does not send out the email immediately when the alarm occurs. When the alarm, motion detection or the abnormity event activates the email, the system sends out the email according to the interval specified here. This function is very useful when there are too many emails activated by the abnormity events, which may result in heavy load for the email server.
Health mail enable	Check the box to enable this function.
Update period (interval)	This function allows the system to send out the test email to check the connection is OK. Check the box to enable this function and set the corresponding interval.
Email test	The system automatically sends out an email to test the connection is OK . Before the email test, save the email setup information.

UPnP

UPnP allows the user to establish the mapping relationship between the LAN and the public network, and to add, modify or remove UPnP item.

1. In the Windows OS, navigate to *Start > Control Panel > Add or remove programs*.
2. Click *Add/Remove Windows Components* then select *Network Services* from the Windows Components Wizard.
3. Click *Details* and then enable the *Internet Gateway Device Discovery and Control client* and *UPnP User Interface* features.
4. Click *OK* to begin installation.

If your UPnP is enabled in the Windows OS, the BX or GX Range Cameras auto detects it through **My Network Places**.

SNMP

The SNMP allows communication between the network management work station software and the proxy of the managed device. Before you use this function, install software such as MG MibBrowser 8.0c software or establish the SNMP service. You must reboot the device to activate the new setup.

Table 33: SNMP interface parameters

Parameter	Function
SNMP Port	Listening UDP port of the device's proxy program. Set the port value from 1 to 65535. The default value is 161
Read Community	A string command between the manage process and the proxy process which defines authentication, access control and the management relationship between one proxy and one group of managers. Ensure that the device and the proxy are the same. The read community reads all the objects the SNMP supported in the specified name. The default setup is public.
Write	A string command between the manage process and the proxy process which defines

Parameter	Function
Community	authentication, access control and the management relationship between one proxy and one group of managers. Ensure that the device and the proxy are the same.
	The write community reads, writes or accesses all the objects the SNMP supported in the specified name. The default setup is write.
Trap address	The destination address of the Trap information from the device's proxy program.
Trap port	The destination port of the Trap information from the device's proxy program. Used for the gateway device and the client-end PC in the LAN to exchange the information. This is a non-protocol UDP connection port with no effect on the network applications.
	Set the port value from 1 to 165535. The default value is 162.
SNMP version	Check SNMP v1, system only processes the information of V1.
	Check SNMP v2, system only processes the information of V2.
	Check SNMP v3, you can set account and password. Set the corresponding account and password for security verification. The V1 and V2 option is null.

Bonjour

The Bonjour interface is based on the multicast DNS service from the Apple. The Bonjour device can automatically broadcast its service information and listen to the service information from other devices.

If BX or GX Range Cameras information is unknown, browse for the BX or GX Range Cameras using the Bonjour service in the same LAN to access the relevant records.

View the server name when the BX or GX Range Cameras is detected by Bonjour. Note the safari browser supports this function.

Click *Display All Bookmarks* and open Bonjour. The system can auto-detect the BX or GX Range Cameras in the Bonjour function in the LAN.

Multicast

The multicast interface is a transmission mode of data packet. When there are multiple hosts to receive the same data packet, multiple-cast is the best option to reduce the broad width and the CPU load. The source host can just send out one data to transit. This function also depends on the relationship of the group member and group of the outer.

Set the multicast address and port. You also need to go to Live interface to set the protocol as Multicast.

IEEE802

IEEE802.1X works for local and metropolitan area networks and port based network access control protocol. It supports manual operation of the client to choose the means of authenticating by which to control it to access to the Local Area Networks or not. It supports the ability to authenticate, to calculate fees, to ensure security and to maintain requirements.

Table 34: IEEE802 interface parameters

Parameter	Function
Authentication	PEAP (protected EAP protocol).
Username	It needs the username to login, which is authenticated by the server.
Password	Please input password here.

QoS

The QoS (Quality of Service) interface is used to define the network security mechanism. This is a technology to fix network delay and jam problem and so on.

For the network service, the QoS includes the transmission bandwidth, delay and the packet loss. We guarantee the transmission bandwidth, lower the delay, and reduce the loss of the data packet and anti-dither to enhance the quality.

Set the DSCP (Differentiated Services Code Point) of the IP to distinguish the data packet so that the router or the hub can provide different services for various data packets. It can select the different queues according to the priority of the packets and select the bandwidth of each queue. It can also discard at a different ratio when the broad bandwidth is jam.

Table 35: QoS interface parameters

Parameter	Function
Real-time monitor	The data packet of the network video monitor.
Command	The non-monitor packet such as device setup and search.

Event

Video detect

Motion Detect

The motion detect interface is made up of the following fields:

Table 36: Motion Detect interface parameters

Parameter	Function
Enable	Check the box to enable motion detection function.
Enable video mask detection	Check the box to enable video mask detection alarm.
Enable defocus detection	Check the box to enable defocus detection alarm.
Working Period	Set the arm/disarm period. Click *Set* to open the Period setup menu. Check the box in front of each period to enable it. Period setup can be done by dragging and dropping the working period.
Anti-dither	The system only memorizes one event during the anti-dither period. The value ranges from 0s to 100s.
Area	Set motion detection region and its sensitivity and area. The higher the sensitivity is, the easier it is to trigger motion detection. The smaller the area, the easier to trigger motion detect. The default covers all regions. Click on *Save* to enable the setup.
Record	Check to enable auto record when an alarm. Set the record period in *Storage > Schedule* and select auto record in the record control interface.
Record Delay	The system can delay the recording for a specified time after alarm has ended. The value ranges from 10s to 300s.
Relay out	Enable the alarm activation function. Select the alarm output port so that the system can activate the corresponding alarm device when an alarm occurs.
Alarm Delay	The system can delay the alarm output for a specified time after an alarm has ended. The

Parameter	Function
	value ranges from 10s to 300s.
Send Email	If you enable this function, the System can send out an email to alert you when an alarm occurs and ends. Set the email address in **Network > SMTP**
Audio linkage	Check and the system plays an alarm audio file when an alarm occurs. Set the recorded or uploaded audio file in **Camera setting > Audio > Alarm audio**
Flash linkage	Check the flash will be on when an alarm occurs, and the flash will be off until the end of alarm after corresponding delay.
PTZ	Set PTZ movement when an alarm occurs. For example, go to preset x when there is an alarm. The event type includes: Preset, Tour and Pattern.
Snapshot	Check the to enable the system to backup a motion detection snapshot file. Set the snapshot period in **Storage > Schedule**

Different colors represent different areas. Each area can set different detection zones. The detection zone can be irregular and discontinuous.

The **Area** interface is made up of the following fields:

Table 37: Area interface parameters

Parameter	Function
Name	The default area name includes Region1, Region2, Region3, Region4 and Custom.
Sensitivity	Brightness sensitivity. Motion detection is triggered more easily with higher sensitivity. Set up different sensitivities from 0 to 100. The recommenced value is 30 to 70.
Area threshold	Used to check the relationship between an object and its area. The lower the area threshold, the easier it is to trigger motion detection. Set up different threshold for each area from 0 to 100. The recommenced value is 0 to 10.
Waveform	Red means motion detect is triggered. Green means motion detect is not triggered.
Delete all	Clear all the detection areas with color.
Delete	Delete the selected area.

Video Masking

The video masking interface is made up of the following fields:

Table 38: Video Masking interface parameters

Parameter	Function
Enable	Check the box to enable video masking function.
Sensitivity	Set the sensitivity level from 1 to 6.
Working Period	The video masking function becomes activated in the specified periods. There are six periods in one day. Draw a circle to enable the corresponding period. Select a date. If you do not select a date , the current setup applies to today only. You can select all week column to apply to the whole week. Click **OK** and the system goes back to the motion detection interface; click **Save** to exit.
Anti-dither	The system only memorizes one event during the anti-dither period. The value ranges from 0s to 100s.
Relay out	Enable alarm activation function. Select an alarm output port so that system can activate the corresponding alarm device when video masking alarm occurs. The relay output number here is for reference only. The alarm output number may vary due to

Parameter	Function
	different series products.
Alarm Delay	The system can delay the alarm output for specified time after video masking alarm ended. The value ranges from 10s to 300s.
Record channel	The system automatically activates the motion detection channel to record when the video masking alarm occurs (working with motion detection function).
	Navigate to *Storage > Schedule* to set the motion detect record period and go to *Storage > Record* control to set the current channel as auto record.
Record Delay	The system can delay recording for specified time after the video masking alarm has ended. The value ranges from 10s to 300s.
Email	If you have enabled this function, the system can send out an email to alert you when alarm occurs.
PTZ	Set PTZ movement when alarm occurs. For example, go to preset x when there is an alarm.
	The event type includes: Preset, Tour and Pattern.
Snapshot	Activate the snapshot function.

Audio Detect

The Audio Detect interface is made up of the following fields:

Table 39: Audio Detect interface parameters

Parameter	Note
Enable Input Abnormal	Check to trigger an alarm when the system detects abnormal audio input.
Enable Intensity Change	Check to trigger an alarm when the system detects the audio intensity change exceeds the threshold.
Sensitivity	Set the sensitivity level from 1 to 100.
	When the volume of the input sound is greater than the volume of the continuous environment, it can be judged as audio abnormality. Adjust this setting according to the actual environmental test.
Threshold	Set the threshold level from 1 to 100.
	Used to set the intensity of filtered environmental sound. If the environmental noise is louder, set the value higher. Adjust this setting according to the actual environmental test.
Working Period	This function becomes activated in the periods specified. Click *Setup* to open the working period menu.
	There are six periods in one day. Draw a circle to enable the corresponding period.
	Select the date. If you do not select, the current setup applies to today only. Select All week to apply to the whole week.
	Click *OK* and the system goes back to the motion detection interface. Click *Save* to exit.
Anti-Dither	The system only memorizes one event during the anti-dither period. The value ranges from 0s to 100s.
Record	Check the box so that when an alarm occurs, the system auto records. Set the recording period in *Storage > Schedule* and select auto record in the record control interface.
Record Delay	The system can delay recording for a specified time after the alarm has ended. The value ranges from 10s to 300s.
Relay-out	Enable the alarm activation function. Select the alarm output port so that the system can activate the corresponding alarm device when the alarm occurs.
Alarm Delay	The system can delay the alarm output for a specified time after the alarm has ended. The value ranges from 10s to 300s.

Parameter	Note
Send Email	Enable this function to allow the system to send out an email to alert you when an alarm occurs and ends.
PTZ	Set PTZ movement when an alarm occurs. For example, go to preset x when there is an alarm. The event type includes: Preset, Tour and Pattern.
Snapshot	Activate the snapshot function.

Alarm

The Alarm interface is made up of the following fields:

Table 40: Alarm interface parameters

Parameter	Function
Enable	Check the box to enable this function.
Working Period	This function becomes activated in the periods specified. There are six periods in one day. Draw a circle to enable the corresponding period. Select the date. If you do not select, the current setup applies to today only. Select All week to apply to the whole week. Click *OK* and the system goes back to the motion detection interface. Click *Save* to exit.
Anti-dither	The system only memorizes one event during the anti-dither period. The value ranges from 0s to 100s.
Sensor type	Select either NO or NC. From NO to NC, system enables alarm. From NC to NO, system disables alarm.
Relay out	Enable the alarm activation function. Select the alarm output port so that the system can activate the corresponding alarm device when the alarm occurs. Please note the relay output number here is for reference only. The alarm output number may vary due to different series products.
Alarm Delay	The system can delay the alarm output for a specified time after the alarm has ended. The value ranges from 10s to 300s.
Record Channel	The system auto activates the motion detection channel to record once an alarm occurs (working with motion detection function). Navigate to *Storage > Schedule* to set the current channel as a general record.
Record Delay	The system can delay recording for a specified time after the alarm has ended. The value ranges from 10s to 300s.
Send Email	Enable this function to allow the system to send out an email to alert you when an alarm occurs and ends.
PTZ	Set PTZ movement when an alarm occurs. For example, go to preset x when there is an alarm. The event type includes: Preset, Tour and Pattern.
Snapshot	Input the capture channel number so that the system can backup a motion detection snapshot file.

Abnormality

Abnormality includes the following statuses:

- No SD card
- Capacity warning
- SD card error
- Disconnection or IP conflict
- Illegal access

Devices which support the SD card have following the abnormality functions:

- No SD Card
- Capacity Warning
- SD card error

The abnormality interface is made up of the following fields:

Table 41: Abnormality interface parameters

Parameter	Note
Event Type	SD card abnormality alarm event type.
Enable	Check to enable SD card abnormality alarm.
Relay out	Check to enable the alarm activation output interface. This can activate the corresponding alarm output device when an alarm occurs.
Alarm Delay	The system can delay the alarm output for a specified time after the alarm has ended. The value ranges from 10s to 300s. No SD card, capacity warning, SD card error, alarm delay starts from the beginning of alarm.
Send email	Enable this function to allow the system to send out an email to alert you when an alarm occurs and ends. Users can set email address in **Network > SMTP**
SD Card Capacity Limit	Set the remaining capacity of an SD card. An alarm will occur when the remaining capacity of SD card is less than this percentage.

When the device is offline or has IP conflicts, the abnormal alarm is similar to the case of an SD card error.

When the login password has been entered incorrectly multiple times, the illegal access alarm occurs. This operation is similar to the SD card error. Allow login error times, as when it exceeds this limit, the user account will be locked.

Storage

Record schedule and snapshot schedule

Use these two interfaces to add or remove the recording schedule and snapshot schedule setup.

There are six periods in one day, and the different recording modes scheduled are indicated with different colours. You can view the current time period setup from the color bar.

- **Green:** general (auto) record/snapshot.
- **Yellow:** motion detect record/snapshot.
- **Red:** alarm record/snapshot.

Please make sure you have enabled the corresponding record mode in the **Setup > Storage > Conditions**

Destination

The destination interface is used to set the storage mode of the BX or GX Range Cameras record file or snapshot pictures.

There are two options: local storage/FTP. You can only select one mode. The system can save according to the event types. This corresponds to the three modes (general/motion/alarm) in the Schedule interface. Check the box to enable the save functions.

The destination interface is made up of the following fields:

Table 42: Destination interface parameters

Parameter	Function
Event Type	General, Motion detect or Alarm.
Local	Save in the SD card.
FTP	Save in the FTP server.

The local interface is used to view local SD card information. You can also operate the read-only, write-only, hot swap and format operation.

The FTP interface is used to enable the FTP function. When network disconnect has occurred, or there is malfunction, emergency storage can save the record/snapshot picture to the local SD card.

Record control

The record control interface is made up of the following fields:

Table 43: Record control interface parameters

Parameter	Function
Pack Duration	Select file size. Default setup is 60 minutes.
Pre-record	Enter the pre-record value here.
	For example, enter 4 so that system can read the previous four seconds' video before the alarm occurrence from the buffer and record the 4 seconds video in the file.
	If there is no record when the alarm record or motion detect record occurred, the system can record the N seconds' video before the event occurrence in the file.
Disk Full	Stop: Current working HDD is overwriting or current HDD is full, it will stop record.
	Overwrite: Current working HDD is full; it will overwrite the previous file.
Record Mode	There are three modes: Auto/manual/close.
Record Bit Stream	Select main stream or extra stream.

System

General

The general interface includes the general setup and the date/time setup.

The general setup section is made up of the following fields:

Table 44: General interface parameters

Parameter	Function
Device Name	Set the device name.
Video Standard	Display the video standard.
Language	Select the language from the drop-down list.
	The device must reboot to get the modification activated.

Date and time

The date and time interface is made up of the following fields:

Table 45: Date and time interface parameters

Parameter	Function
Date format	Select the date format from the drop-down.
Time Format	There are two options: 24-H and 12-H.
Time zone	The time zone of the device.
System time	Set system time. This field becomes valid after you set.
Sync PC	Click to save the system time as your PC current time.
DST	Set day-night save time begin time and end times. Set according to the date format or according to the week format.
NTP	Check the box to enable NTP function.
NTP server	Set the time server address.
Port	Set the time server port.
Update period	Set the sync periods between the device and the time server. The update function is null if the value is 0.

Account

- User name or user group name can have a maximum of 15 characters. The space at the beginning or end of the string is null. The valid string includes: character, number, space and underline.
- The maximum amount of users permitted is 20.
- The maximum amount of groups permitted is 8.
- The factory default setup includes two levels: user and admin. User management adopts group/user modes. The user name and the group name must be unique. One user must be included in only one group.

User name

Use the user name interface to add/remove user and modify user name.

1. Check the box to enable anonymous login function.
2. Enter the address for the preview interface into a standard browser and log in.
3. Open the **Add user** dialog to add a name to a group and set the user rights.
4. Input the user name and password and then select one group for the current user.
   The user rights cannot exceed the group right setup.
   Ensure that the general user has the lower rights setup than the admin.

Modify user

Use this dialog to modify the user property, belonging group, password and rights.

Modify password

Use this dialog to modify the user password. Enter the old password and then input the new password twice to confirm the new setup. Click *OK* to save.

Users cannot modify others' passwords.

Group

The group management interface can add/remove group, modify group password and etc.

The **Add group** dialog is used to add a group and set its corresponding rights. Input the group name and then check the box to select the corresponding rights. It includes: preview, playback, record control, PTZ control and etc.

Click *Modify group* to modify group information such as remarks and rights.

PTZ

The Network PTZ interface is made up of the following fields:

Table 46: Network PTZ interface parameters

Parameter	Function
Protocol	Select the corresponding protocol.

The Analog PTZ interface is made up of the following fields:

Table 47: Analog PTZ interface parameters

Parameter	Note
Address	Address of the corresponding BX or GX Range Cameras. By default this is 1.
Baud rate	Select the Baud rate for camera. By default is 9600.
Data Bit	Default setting is 8.
Stop Bit	Default setting is 1.
Parity	Set parity mode of the protocol. Default setting is 0.

Default

Click *Default* on the **Default** interface to restore the entire system to factory default settings.

The system cannot restore some information such as network IP address.

Import/Export

The Import/Export interface is made up of the following fields:

Table 48: Please refer to the following sheet for detailed information.

Parameter	Function
Import	Import the local setup files to the system.
Export	Export the corresponding system setup to your local PC.

Auto maintenance

The auto maintenance interface is used to select to auto reboot and auto delete the old files interval from the drop-down list.

To use the auto delete old files function, set the file period.

Upgrade

The upgrade interface is used to perform software upgrades on the system.

Select the upgrade file and click *Upgrade* to begin the firmware update.

Notice	*Do not turn off the device power, disconnect the device, reboot or shutdown the device during the update period.*

Notice	*If the incorrect program is updated, reboot the device. Errors in upgrades may cause some modules of the device to malfunction.*

Information

Version

The version interface is used to view system software version, WEB version, release date and etc.

Log

Use the Log interface to view the system log.

Table 49: Log interface parameters

Parameter	Function
Type	Log types include: system operation, configuration operation, data operation, alarm event, record operation, and user management, log clear.
Start time	Set the start time of the requested log.
End time	Set the end time of the requested log.
Search	Select log type from the drop-down list and click **Search** to view the list. Click **Stop** to terminate the current search operation.
Detailed information	Select one item to view the detailed information.
Clear	Click to delete all displayed log files.
Backup	Click to backup log files to current PC.

Online User

The online user interface is used to view online user name, group name, IP address and login time.

6 ALARM

Click *Alarm function* to display the Alarm interface.

Use the alarm interface to set the device alarm type and alarm sound setup. When a specified alarm has occurred, the system can record the corresponding alarm information on the right pane of the alarm list.

Table 50: Alarm interface parameters

Type	Parameter	Function
Alarm type	Motion detect	System triggers alarm when motion detection alarm occurs.
	Disk full	System triggers alarm when disk is full.
	Disk Error	System triggers alarm when disk error happens.
	Video Tamper	System triggers alarm when video is tampering.
	External alarm	Alarm input device sends out alarm.
	Illegal Access	System triggers alarm when the password has been entered incorrectly a certain number of times.
	Audio Detect	System triggers alarm when audio detect occurs.
Operation	Prompt	System automatically pops up alarm dialog.
Alarm audio	Audio	When alarm occurs, system auto generates alarm audio. The audio supports customized setup.
	Path	Specify the alarm sound file.

7 INTELLIGENT AUTO-TRACKING

BX520 HD Adaptive IR PTZ Cameras can automatically monitor, intelligently detect and track a defined object using zoom, recording and alarm functions.

The device can carry out effective surveillance without any staff on site. It supports various action rules as well as auto-tracking and manual tracking simultaneously.

The BX520 HD Adaptive IR PTZ Cameras can be used in high-risk environments where staffing is low, such as banks, power stations and prisons.

The following tracking types are available:

- Single-scene tracking
- Multiple-scene tracking
- Panorama-scene tracking

Configure tracking types using the IVS Web setup interface.

Capabilities

Intelligently track objects using a BX520 HD Adaptive IR PTZ Camera and the web configuration interface. The BX520 HD Adaptive IR PTZ Cameras have the following capabilities.

Tripwire

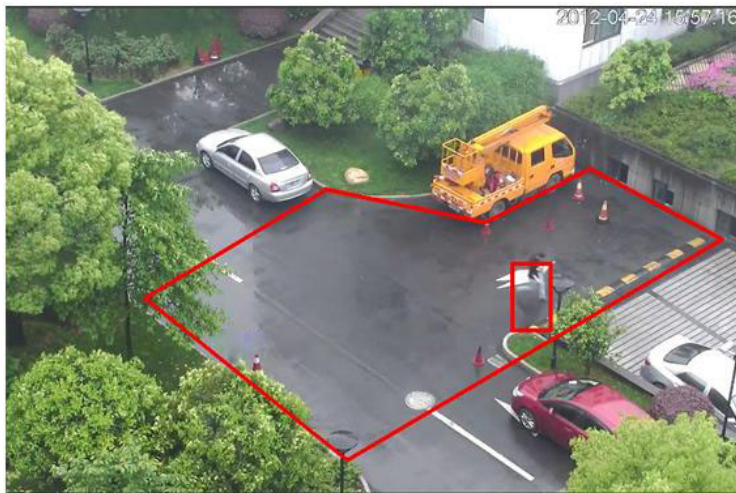Detect when a object crosses a predefined boundary or 'tripwire'.

Figure 12: Object crossing a pre-defined tripwire

- The customized tripwire setup can be a straight line or a line of any shape.

- Trigger alarms for crossing one-way or dual-way.
- There may be several tripwires in one scene to meet the monitor requirements of complex environments.
- Object size filters supported.

Cross Warning Zone

Detect moving objects crossing the specified zone or in the specified zone.

Figure 13: Cross Warning Zone defined

- The warning zone shape and size can be fully customized.
- When an object enters or leaves the zone, the system triggers an alarm.
- Detect moving object action in the zone. The activation amount and the stay time can be fully customized.
- Object size filter supported.

Perimeter Protection

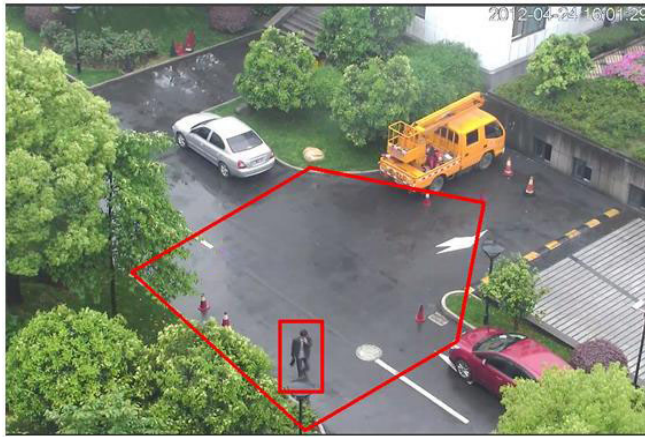Detect objects crossing a defined perimeter.

Figure 14: Perimeter protection

- The customized e-fence setup can be a straight line or a line of any shape.

- Trigger alarms for crossing one-way or dual-way.
- Object size filters supported.

Loitering Detection

Detect objects that stay in the specified zone longer than the set time.

Figure 15: Loitering detection

- The detect zone shape and size can be fully customized.
- Time threshold can be fully customized.
- Object size filters supported.

Abandoned Object Detection

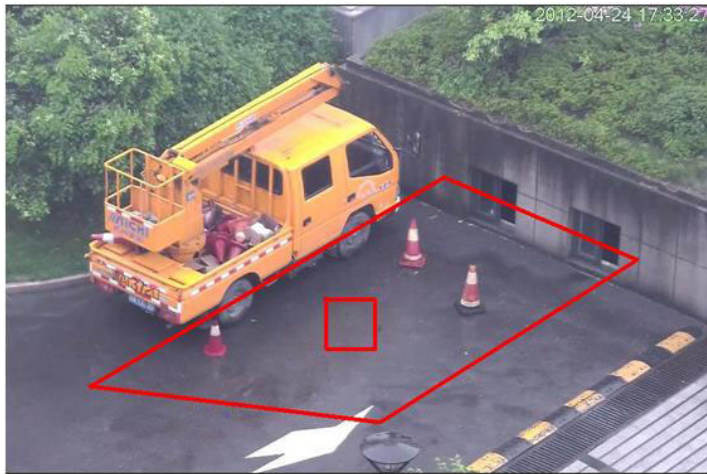Detect any abandoned objects in the specified zone.

Figure 16: Abandoned object detect zone

- The detect zone shape and size can be fully customized.
- Time threshold can be fully customized.
- Object size filters supported.

Missing Object Detection

Detect any missing objects in the specified zone.

Figure 17: Missing object detect zone

- The detect zone shape and size can be fully customized.
- Time threshold can be fully customized.
- Object size filters supported.

Illegal Parking

Detect any illegal parking events in the specified zone.

Figure 18: Illegal parking detect zone

- The detect zone shape and size can be fully customized.
- Time threshold can be fully customized.

Fast Moving

Detect any fast moving objects in the specified zone.

Figure 19: Illegal parking detect zone

- The detect zone shape and size can be fully customized.
- Speed threshold can be fully customized.

Typical Applications

This section describes how to set up Intelligent Auto-tracking for the most commonly-used applications.

Single-Scene Track

Single-scene tracking is suitable for single-scene monitor zones. Set corresponding alarm activation rules here.

After an object has entered the monitor zone and activated the selected rule, the system can enable Auto-tracking.

For example, if you want to set one prohibited area in the monitor zone, use the 'Cross warning zone' rule.

1. Log in to the Web Configuration pages and click *Set*.
2. Select IVS in the menu tree on the left pane.
3. Set the track parameter.
4. Click *Save* to complete the setup.
5. To set the scene, navigate to the Scene setup interface and click *Add Scene*.

   The system saves the current monitor area as the new scene by default.

   a. Use the PTZ to adjust the monitor area and click *Scene Setup* to set a new scene.
   b. Use the *Zoom* controls to adjust the PTZ zoom position.
   c. Click *Set Track Rate* to set the track rate for the current scene.
   d. Edit the Scene name and Track time as appropriate.
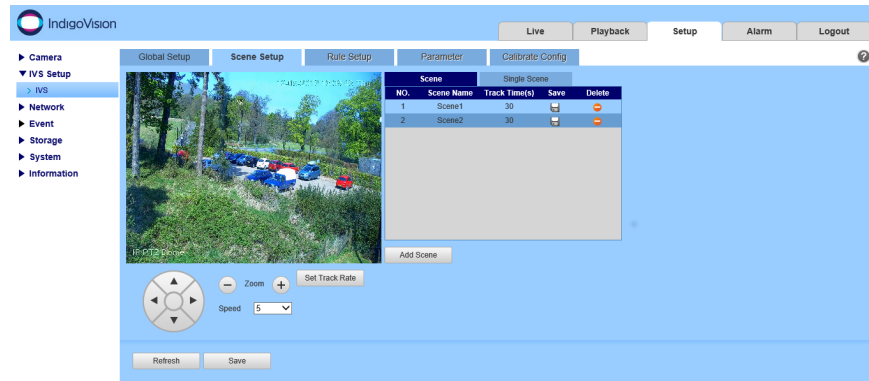   e. Click *Save* to complete setup.

Figure 20: Scene setup interface

6. If appropriate, set the limited scene.
    a. Check the corresponding box to enable the limited track function.
    b. Select the track line at the right pane of the interface.
    c. Use the PTZ direction and zoom to set the up/down/left/right line.
    d. Click *Save* to complete setup.

7. Select the track scene.
    a. Navigate to the single-scene track interface and select the monitor scene required.
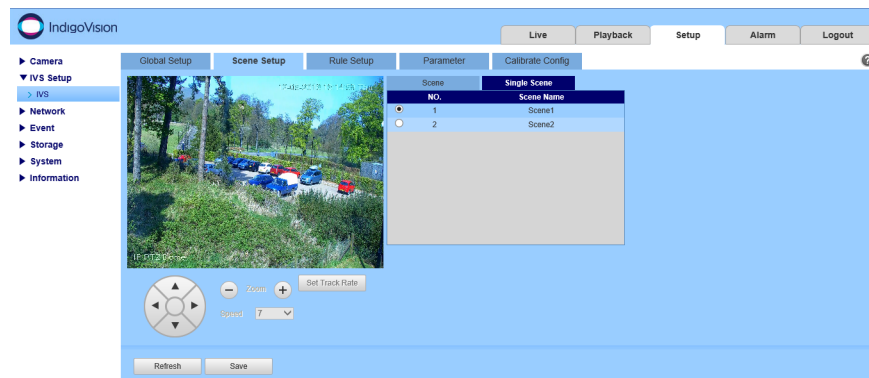   b. Click *Save* button to complete setup.

Figure 21: Single-scene track interface

8. Set the intelligent rule.
    a. Navigate to the Rule setup interface to set the monitor scene of the rule.
    b. Click *Add Rule*.
        The system enables the rule by default.
    c. Edit the Rule name and type as appropriate.
    d. Click [icon] and draw the rule threshold in the preview interface in the bottom left panel.
    e. Select *Both* from the direction dropdown list.
    f. Click *Save* to complete setup.

Figure 22: Rule setup interface

9. Click *Live*.

When you switch to a new scene, the system takes 3 seconds to enable Auto-tracking.

10. Click ![icon] to draw the rule in the **Live** pane in the left bottom corner of the interface.
    Click to begin drawing and right-click to complete.
    When drawing the perimeter protection rule interface, draw the fence at the top first and then draw the fence at the bottom.

11. Click *Draw* to draw the target filter in the **Live** pane in the left bottom corner of the interface.
    The green pane indicates the maximum size and the red pane indicates the minimum size. Click the green pane and then drag the four corners to set the zone size.
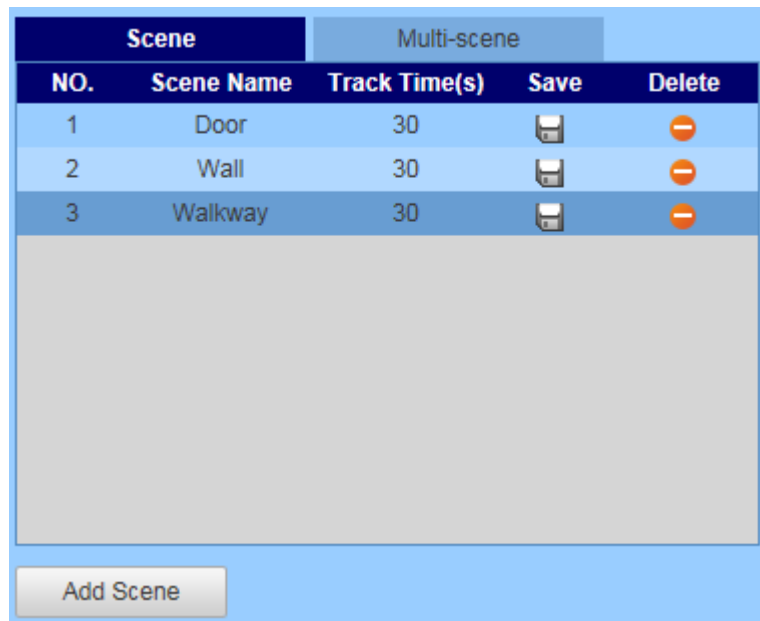
12. Click *Save*.

Multiple-scene Track

Multiple-scene tracking is suitable for multiple-scene monitor zones. Set alarm activation rules for each scene.

After an object has entered the monitor zone and activated the selected rule, the system can enable Auto-tracking.

For example, if you want to use one BX520 HD Adaptive IR PTZ Camera to monitor three scenes using the Tour function, you can use the 'Loitering detection', 'Perimeter protection' and 'Tripwire' rules on three different scenes.

1. Log in to the Web Configuration pages and click *Set*.
2. Select IVS in the menu tree on the left pane.
3. Set the track parameter.
4. Click *Save* to complete the setup.
5. To set the scene, navigate to the Scene setup interface and click *Add Scene*.
6. Add the path for the multiple-scene track.
7. Click *Save* to complete setup.

Figure 23: Scene setup interface for multi-scene

8. Set the rule.
   ► *For more information, see "Single-Scene Track " on page 47*
9. Click *Live* and use the PTZ to set the monitor scene.

Notice	*When you switch to a new scene, the system takes 3 seconds to enable Auto-tracking.*

Panorama-Scene Tracking-Alarm Activation

The system can auto-track objects entering the monitor zone.

For example, you can set the BX520 HD Adaptive IR PTZ Camera to auto-track a recognized object after 1 second, and to keep tracking for 30 seconds.

1. Log in to the Web Configuration pages and click *Set*.
2. Select IVS in the menu tree on the left pane.
3. Check the box corresponding to the appropriate track parameter.
4. Select panorama-scene from the track type dropdown list.
   The default activation rule is 'Cross Warning zone'.
5. Set the trigger delay time as 1 second and track time as 30 seconds.
6. Click *Save* to complete the setup.
7. Click *Live* and use the PTZ to set the monitor scene.

Notice	*When you switch to a new scene, the system takes 3 seconds to enable Auto-tracking.*

Panorama-scene Track-Manual Activation

The system can auto-track objects entering the monitor zone.

For example, you can set the BX HD Adpative IR PTZ Camera to auto-track a recognized object after 1 second, and to display an object frame an rule. The system records an alarm.

1. Log in to the Web Configuration pages and click *Set*.
2. Select IVS in the menu tree on the left pane.
3. Set the track parameter.
4. Click *Save* to complete the setup.
5. Click *Live* and use the PTZ to set the monitor scene.

Notice   *When you switch to a new scene, the system takes 3 seconds to enable Auto-tracking.*

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6. Click and select an object in the scene.

   The BX HD Adpative IR PTZ Camera can track the selected object in the specified monitor zone.

   If there are several objects appearing at the same time, click to select the new tracking object manually.

   When enabling intelligent auto-tracking, the PTZ needs to stop intelligent track. The system can enable intelligent track automatically when the PTZ is idle for a period of time.

8 FISHEYE CAMERA CONFIGURATION

This section details the configuration options for fisheye cameras.

The IndigoVision fisheye camera uses a wide-angle lens which can monitor a larger area than would be possible using a conventional camera lens.

You can display video from a fisheye camera in original wide-angle format, or in a rectilinear or panoramic format.

Video monitoring window configuration

Configure how the video monitoring window displays video from the fisheye camera.

1. Log in to the camera, and navigate to *Setup > Camera > Video > Video*.
2. Select the camera's *Installation Mode* from the drop-down.

   The *Installation Mode* is the type of surface on which the camera is installed. It defines the orientation of the video displayed in the video monitoring window.
3. Select a *Stream mode*.

   The *Stream mode* defines how video is displayed in the video monitoring window. Stream modes are combinations of the following types of video pane:

   - **Fisheye**

     Displays the whole area covered by the fisheye lens without dewarping.

     When displayed with rectilinear video panes, the focal points of the rectilinear video panes are displayed in the fisheye video pane as numbers.
   - **Rectilinear**

     Displays part of the area covered by the fisheye lens with dewarping.

     Zoom in or out in **Live** view by scrolling up and down with the mouse.

     To refocus a rectilinear video pane in **Live** view, click and drag a point in its field of view.
   - **Panoramic**

     Displays a panoramic view of part of the area covered by the fisheye lens with dewarping.

     You cannot zoom or refocus a panoramic video pane in **Live** view.

   You can select from the following *Stream mode* options:

Table 51: Stream modes

Stream mode	Description of the video monitoring window
1O	1 fisheye video pane.
1P	1 panoramic video pane.
2P	2 panoramic video panes. This option is not available for wall installation.

Stream mode	Description of the video monitoring window
1O+3R	1 fisheye video pane and 3 rectilinear video panes.
1R	1 rectilinear video pane.
4R	4 rectilinear video panes.
	Hover the mouse over the center of the video monitoring window to display a fisheye video pane.
2R	2 rectilinear video panes.

After you select a stream mode, a confirmation notification is displayed.

The video monitoring window is reset to the options you have selected.

Refocus a rectilinear video pane

In **Live** view, you can refocus a rectilinear video pane on a different part of the area covered by the fisheye camera.

To refocus the video pane to a point within its current field of view, click and drag a point in the rectilinear video pane.

To refocus the video pane to a point outside its current field of view using the fisheye video pane, do the following:

1. In **Setup** view, select one of the following stream modes:
   - *1O+3R*

     The fisheye video pane is displayed in the video monitoring window.
   - *1R*

     To display the fisheye video pane, hover over the lower-right corner of the video monitoring window.
   - *4R*

     To display the fisheye video pane, hover over the center of the video monitoring window.

   In **Live** view, the focus points of the rectilinear video panes are displayed in the fisheye video pane as numbers.

2. In **Live** view, click on the corresponding number in the fisheye video pane, and drag the number to the point on which you want to focus.

   The rectilinear pane refocuses immediately.