PROVISION ISR®

Now you can see!

■ IP Series

USER MANUAL

This user manual covers the following cameras:

FR (Face Recognition) Smart-Sight:

- DW-320FR-MVF2
- TW-320FR-MVF2
- BX-321FR

v5.x User Manual

For H.265 IP Camera

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Notes

- Before operating the camera, we strongly advise users to read this manual and keep it for later use.
- Please use the specified power supply to connect.
- Avoid incorrect operation, shock vibration, heavy pressing which can cause damage to the product.
- Do not use corrosive detergent to clean the body of the camera. If necessary, please use a soft dry cloth to wipe dirt; for hard contamination, use neutral detergent. Any cleanser for high-grade furniture is applicable.
- Avoid aiming the camera directly towards extremely bright objects, such as the sun, as this may damage the image sensor.
- Please follow the instructions to install the camera. Do not reverse the camera, or the reversing image will be received.
- Do not operate the camera in extreme temperatures or extreme humidity conditions.
- Use the power supply supplied authorized by a PROVISION-ISR technician.
- Keep away from heat sources such as radiators, heat registers, stove, etc.
- The instructions in this manual could be outdated; if you need any clarifications you can contact an authorized PROVISION-ISR technician. PROVISION-ISR reserves the right to add changes to this manual and publish it online on our website (www.provision-isr.com): there may be inconsistencies with the latest version. This applies to any and all software upgrades and product improvements, interpretation and modification added. These changes will be published in the latest version without prior notification.
- When this product is in use, the relevant contents of Microsoft, Apple and Google will be involved in. The pictures and screenshots in this manual are only used to explain the usage of our product. The ownership of trademarks, logos and other intellectual properties related to Microsoft, Apple and Google belong to the above-mentioned companies.
- All pictures and examples used in the manual are for reference only.

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1 Introduction

This IPC (short for IP Camera) is designed for high-performance CCTV solutions. It adopts the state-of-the-art video processing chips and utilizes most advanced technologies, such as video encoding and decoding technology, complies with the TCP/IP protocol, SoC, etc to ensure that this system will be extremely stable and reliable. The IPC device should be used together with Provision-ISR's IP manager or recording devices to enable the quick setting and full utilization of the camera.

Main Features

- ICR auto switch, true day/night
- H.265+/H.264+/H.265/H.264 Compression
- Advanced Analytics including Face Recognition*
- 3D DNR
- True WDR/BLC/HLC
- ROI coding
- Support CVBS output
- Support Audio in/out
- Dome and Box cameras include built-in microphone
- Support Alarm in/out (Selected Models)
- PoE power supply
- Remote monitoring support (Via smartphone/CMS/IE)

*Face recognition will be added by future FW update

2 IE Remote Access

You may connect IPC via LAN or WAN. In this manual, we will use IE v11 for example. The details are as follows:

2.1 LAN

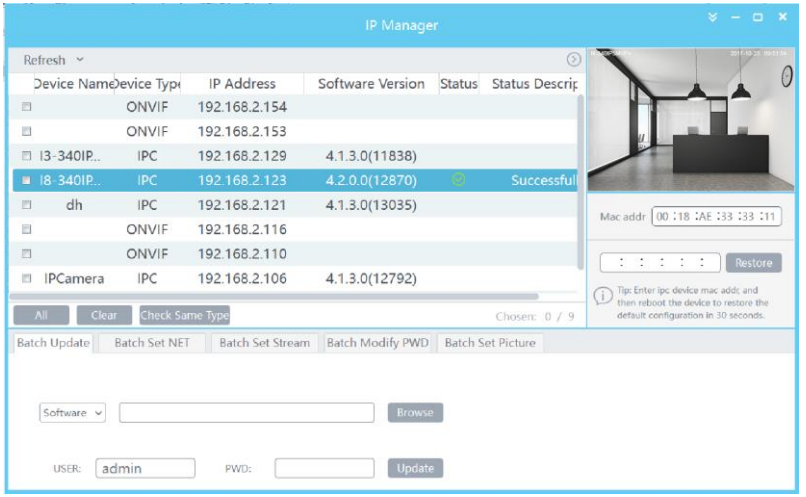
In LAN, there are two ways to access IPC:

1. Access through IP Manager Software.
2. Direct access through IE browser.

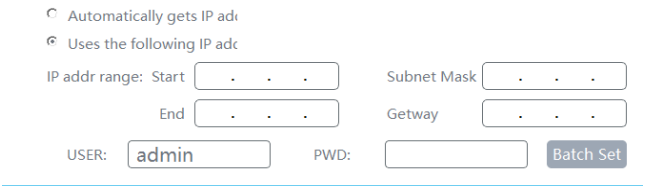
2.1.1 Access through IP-Manager

① Make sure the PC and IPC are connected to the LAN and that the IP-Manager is installed on the PC. You can install the IP manager form the disc provided with the camera or download it by clicking here.

② Double-click the IP-Manager icon on the desktop to run this software as shown below:



③ Modify the IP address. The default IP address of this camera is 192.168.226.201. Tick all the cameras you wish to set and then click on the “Batch Set NET” tab.



If you wish to use DHCP (IP Address automatic assignment), choose “Automatically gets IP address”, set the password and click on “Batch set”. Wait for a few moments until the IP manager will configure the cameras. After configuration, the IP addresses of the cameras will refresh automatically.

Please note:

1) In order for the DHCP mode to work, you must have a DHCP server on the LAN.
2) Using DHCP for permanent installations is not advisable as the IP Address might change after a while and cause the camera to be unreachable.

If you wish to set static IP addresses, choose “Uses the following IP Addresses”, set the range of IP addresses you wish to assign (First and last address), set the gateway and subnet mask and click on batch set. Wait for a few moments until the IP manager will configure the cameras. After configuration, the IP addresses of the cameras will refresh automatically.

Please note:

1) The IP range must fit the number of chosen cameras.
2) The selected IP addresses in the specified range must be available.

For example, if the IP address of your computer is 192.168.1.4, then the IP address of the cameras should be changed to 192.168.1.x. (x stands for any number between 1 and 255).

☞ The default password of the administrator is “***123456***”.

④ Double click on the IP address of the system will pop up IE browser and connect to the IPC. IE browser will auto download the Active X control. You must install it in order for the camera to work. After successful installation, a login window will appear as shown below.

Input the username and password to log in.

☞ The default username is “***admin***”; the default password is “***123456***”.

2.1.2 Direct Access through IE

The default network settings are as shown below:

IP address: **DHCP (Random IP in your network)***
Subnet Mask: **255.255.255.0**
Gateway: **Assigned by the DHCP Server**
HTTP: **80**
Data port: **9008**

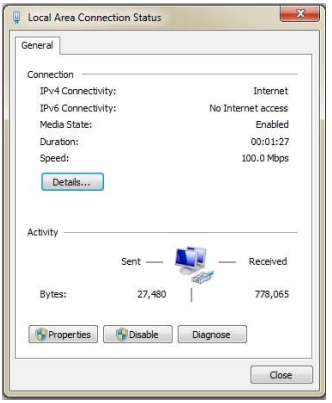
***If there is no DHCP server available, or the camera is not assigned with a valid address within 2 minutes, It will be assigned with the following network settings:**
IP address: **192.168.226.201**
Subnet Mask: **255.255.255.0**
Gateway: **192.168.226.1**
HTTP: **80**
Data port: **9008**

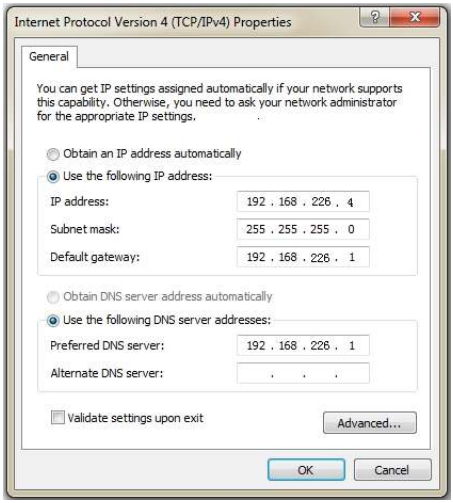
You may use the above default settings when you log in the camera for the first time.

① You can use the IP manager to access the camera even if the camera is still using the default IP address. Double click on the IP address within the IP manager for the system to pop up IE browser and connect to the IPC. IE browser will auto download the Active X control. You must install it in order for the camera to work. After successful installation, a login window will appear.
You can then set the IP address from the camera configuration menu.

② If you wish to access the camera using its default IP address you will have to manually set the IP address of the PC to be in the same IP segment as the default settings of the IP camera. Open the network and sharing center. Click “Local Area Connection” to pop up the following window.

Select “Properties” and then select internet protocol according to the actual situation (most probably you are using IPv4). Next, click “Properties” button and set the network of the PC as shown below.





② Open the IE browser and input the default address of IPC and confirm. The IE browser will download Active X control automatically.

③ After downloading and installing the Active X control, the login dialog box will appear.

④ Input the default username and password and click “Login”.

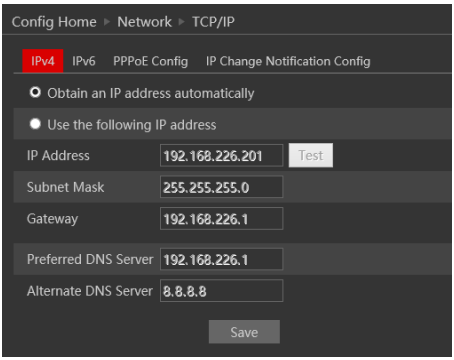
2.2 WAN

Allows you to access the camera using a router or virtual server.

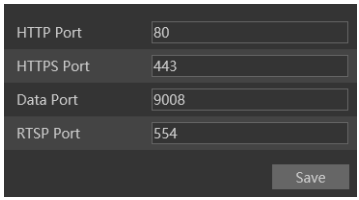
① Make sure the camera is well connected and configured via LAN. Log in the camera via LAN and go to the Config→Network Config→Port menu to set up the port number.

② Go to Config →Network Config→TCP/IP menu to modify the IP address.

③ After modifying the IP Address, click on “Port” and modify the port according to your needs.

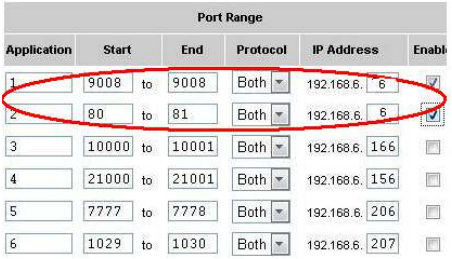


IP Setup



Port Setup

④ Go to the router's management interface through IE browser to forward the IP address and port of the camera to the "Virtual Server". In the picture example below you will see an example of the setting as if the IPC IP address is "192.168.6.6" and the ports are default (9008 & 80)



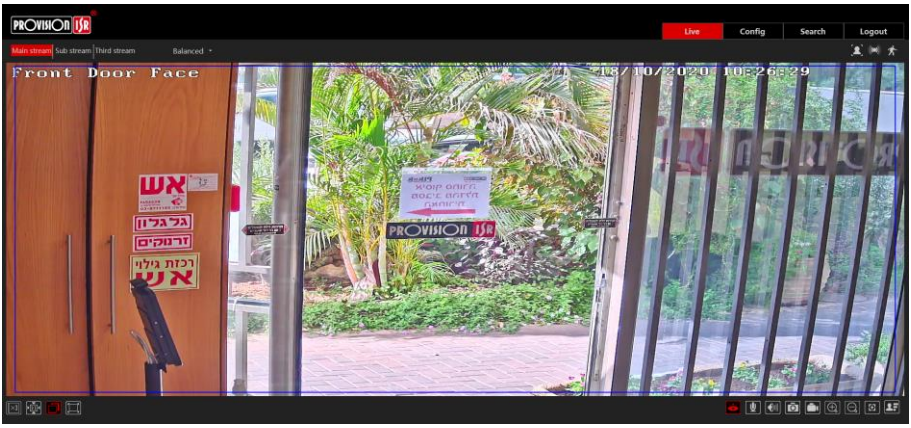
Port Range					
Application	Start	End	Protocol	IP Address	Enabl
1	9008	to 9008	Both	192.168.6. 6	☑
2	80	to 81	Both	192.168.6. 6	☑
3	10000	to 10001	Both	192.168.6. 166	☐
4	21000	to 21001	Both	192.168.6. 156	☐
5	7777	to 7778	Both	192.168.6. 206	☐
6	1029	to 1030	Both	192.168.6. 207	☐

Router Setup

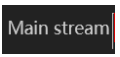
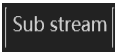
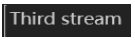
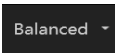
④ Open the IE browser and input your WAN IP and HTTP port to access the camera.

3 Live Preview

3.1 The Live Preview Interface



Icons and operation buttons:

Icon	Description	Icon	Description
	Actual Size		Digital Zoom-Out
	Fit to screen – True Proportions		MVF Controls*
	Fit to screen - Stretch		Face Detection Bar
	Full screen		Motion Detection indicator
	Enable/Disable live view		SD Card recording indicator
	Talk		Alarm In Indicator
	Listen		Use mainstream for live-view
	Take Snapshot		Use sub-stream for live-view
	Enable/Disable Local Recording		Use third stream for live-view
	Digital Zoom-in		Choose the buffering plan

3.2 MVF (Motorized Vari-Focal) Controls*

Clicking on the MVF lens controls will unfold the MVF control panel. Using this interface, you can control the zoom and focus of the MVF lens.

The descriptions of the control panel are as follows:

Icon	Description	Icon	Description
	Zoom Out		Focus In
	Zoom In		One Key Focus
	Focus Out		

*Relevant for MVF Models Only

4 IPC Configuration

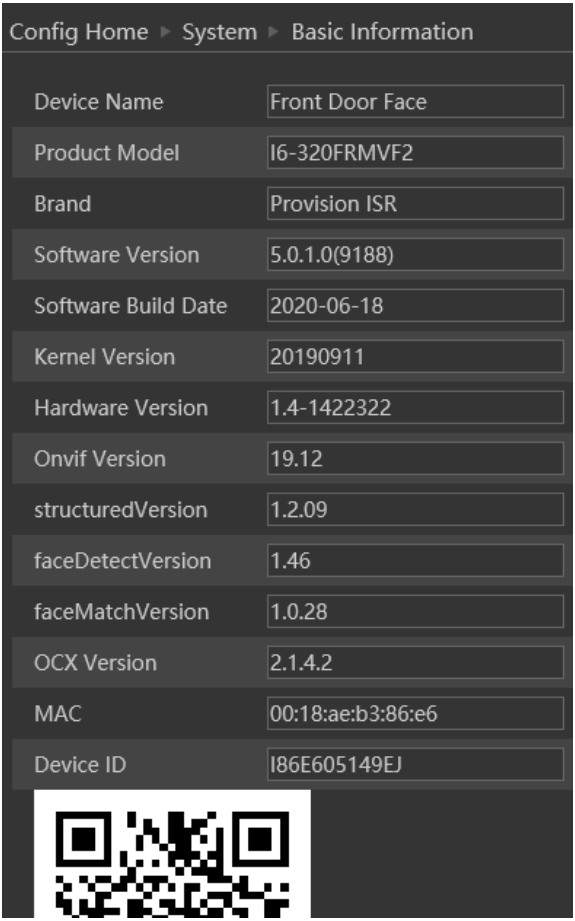
In this chapter, we will go through all the possible configurations of the IPC.

4.1 System Configuration

The “System Configuration” includes four submenus: Basic Information, Date & Time, Local Config and Storage.

4.1.1 Basic Information

In the “Basic Information” interface, you can view all the necessary information related to the IPC, as seen below:



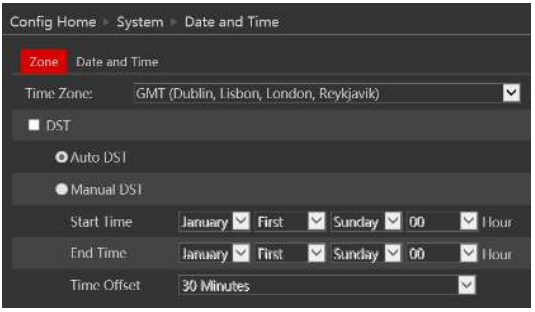
The following table will explain the available detail field.

Parameter	*Meaning*
Device name	Name of the device – can be modified from the OSD settings
Product Model	The model of the device
Brand	The brand of the camera
Software version	The current software version
Software build date	The software build-date
Kernel version	The kernel version of the device
Hardware version	The hardware version of the device
ONVIF Version	The current ONVIF version
OCX Version	The current OCX version
Mac Address	The MAC address of device
QR Code	QR Code used for P2P connection

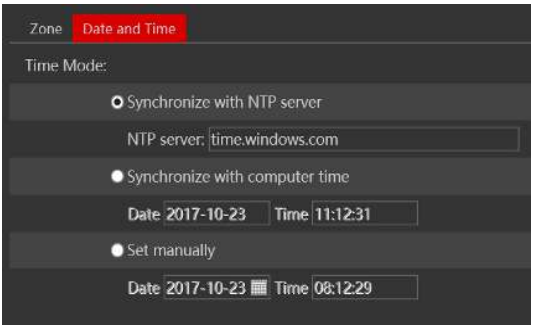
4.1.2 Date & Time Configuration

Setting steps:

1. Go to Config→Date & Time menu as shown below.

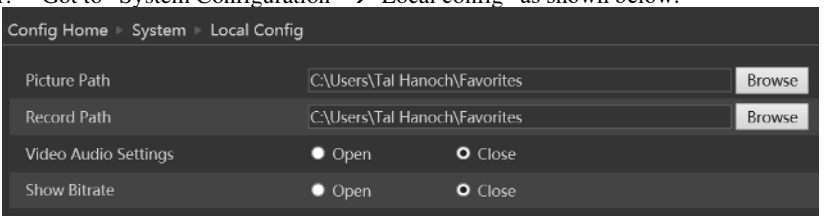


2. Set the time zone.
3. Enable DST mode if required. DST settings are already configured according to your time zone. If you wish to set the DST manually, switch to “Manual DST” and set it accordingly.
4. To set the date and time, click on the “Date and Time” tab. You may synchronize the camera time with an NTP server (Internet connection required), synchronize the camera time with the time of the computer you are using or set the time manually.



4.1.3 Local Config

1. Got to “System Configuration” →“Local config” as shown below:



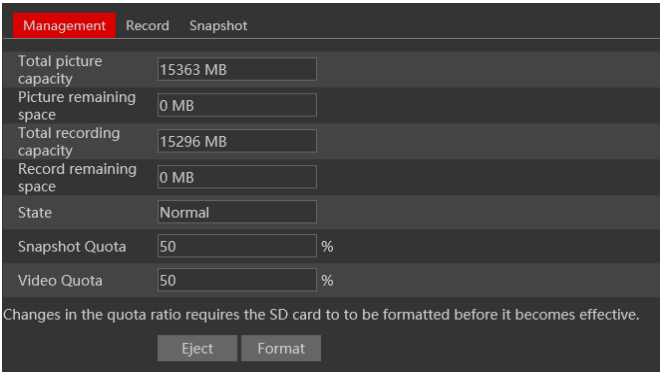
From here you can set the path on your computer where local snapshots and videos will be saved.

You can also choose if the camera will show the current bit-rate on the live-view image (Local interface only).

4.1.4 Storage

The SD card feature allows you to insert an SD card into the camera and enable the camera to operate with a local storage. The SD card will be used for both snapshot and video files. You can allocate a certain percentage for each from the settings menu.

1. Go to “System Configuration” →“Storage” as shown below:



If it is the first time you are using the SD card with the camera or if the state is showing any value different than “Normal”, you should click on “Format” before the SD card will be available for recording.

Click “Eject card” to stop writing data to SD card and allow you to remove it safely. Inserting an SD card to the camera must be done while the camera is powered off.

Note: Using of SD card function should be coordinated with motion or sensor alarms.

The following table will explain the available detail field.

Parameter	*Meaning*
Capacity	The total capacity of the SD card
Used capacity	The capacity currently being used
Remaining Capacity	The available capacity
State	The state of the SD card.
Snapshot Quota	The percentage of the SD card dedicated for Snapshots
Video Quota	The percentage of the SD card dedicated to Videos

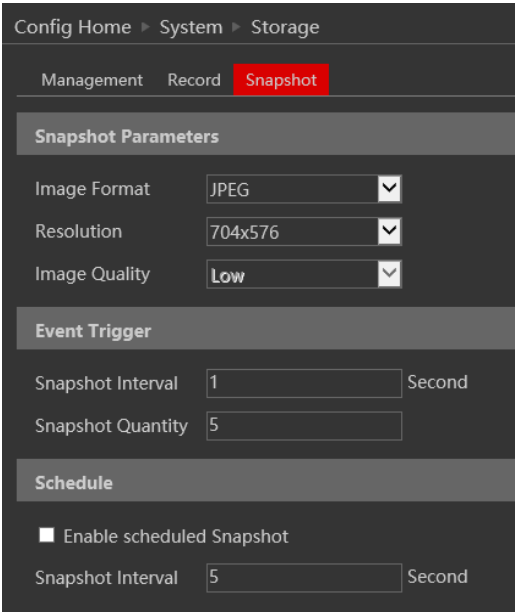
The next tab is “Record”. Click on it to set the video recording parameters and schedule.

The video parameters are as follows:

Parameter	*Meaning*
Record stream	Which video stream will be used for record
Pre-recording time	The duration of video prior to the recording trigger
Cycle recording	Weather to recycle record or stop when the SD card is full

Below are the schedule settings. Enable the schedule if required and set the recording time for each of the weekdays. You can also set a holiday schedule and add required dates to it.

The next tab is “Snapshot” Click on it to set the snapshot parameters and schedule.



The snapshot parameters are as follows:

Parameter	*Meaning*
Image Format	The image format is JPEG
Resolution	Set the snapshot resolution
Image quality	The quality of the image reflects on its size.
Snapshot Interval	The duration between two snapshots
Snapshot Quantity	The total number of snapshots to be taken after a trigger
Scheduled snapshots	Taking a snapshot according to a specified schedule

Below are the schedule settings. Enable the schedule if required and set the recording time for each of the weekdays. You can also set a holiday schedule and add required dates to it.

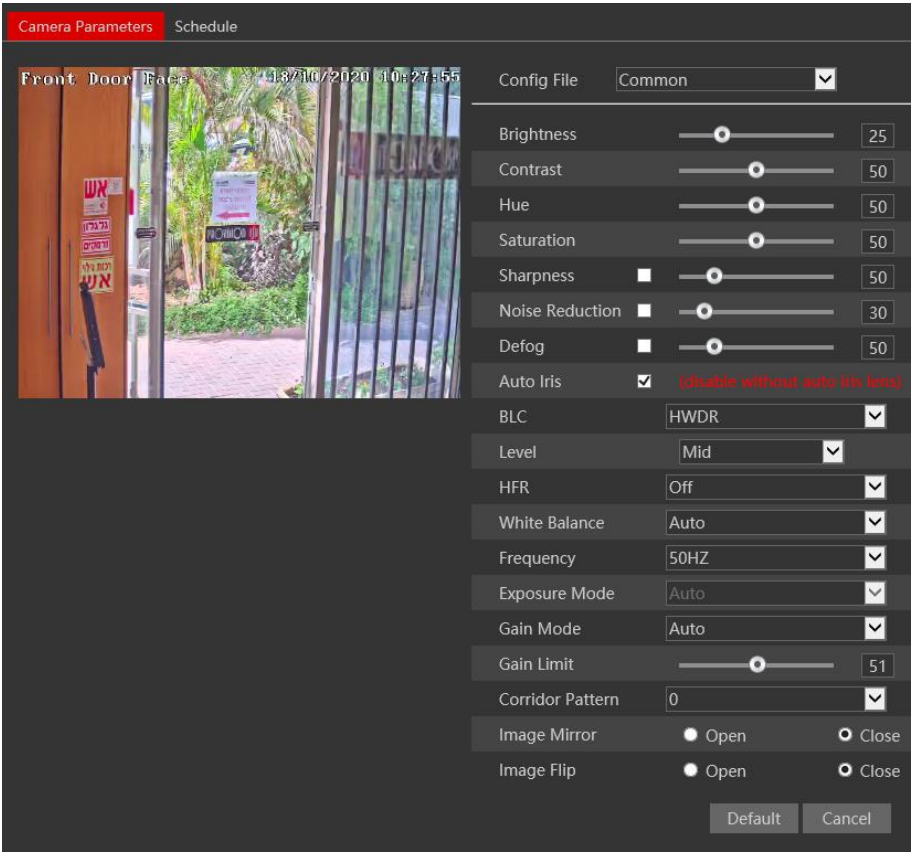
4.2 Video Configuration

Camera Configuration includes five submenus: Display Configuration, Video Stream, OSD Config, Video Mask and ROI Config.

4.2.1 Camera Configuration

Setting steps:

1. Go to “Video Configuration” → “Display” interface as shown below.

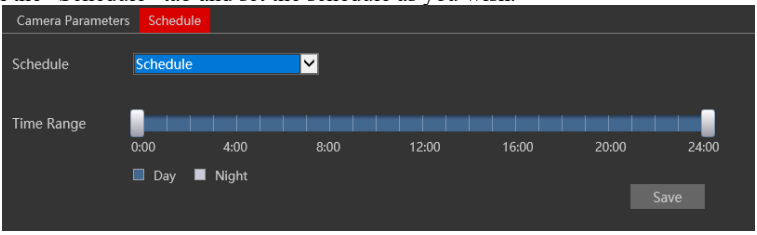


The display parameters are as follows:

Parameter	*Meaning*
Config file*	You can set an individual configuration for Day and night. Common is used for both
Brightness	Set the image brightness
Contrast	Set the image contrast
Hue	Set the image hue
Saturation	Set the image saturation
Sharpness	Enable/Disable the sharpness and set its level
Noise reduction	Enable/Disable the 3D-DNR and set its level
Defog	Enable/Disable the defog and set its level
Auto-Iris	Set the lens to Auto-Iris mode (Not suitable for fixed iris models).
BLC	Set HLC/BLC/True-WDR to deal with advanced light conditions.
Level	The Level of the HWDR/BLC/HLC
HFR	Switch the camera to work in 50/60FPS instead of 25/30FPS. (Disables True WDR).
Smart-IR	Enable Smart IR function that prevents burnt pixels due to strong IR illumination.
White Balance	Set the white balance of the camera
Frequency	Set the frequency to 50/60Hz
Gain Mode	Set the camera Gain (Auto/Manual)
Gain Limit	Set the Gain value
Corridor Pattern	Rotate the image to fit corridors
Image Mirror	Mirror the image horizontally
Image Flip	Flip the image vertically

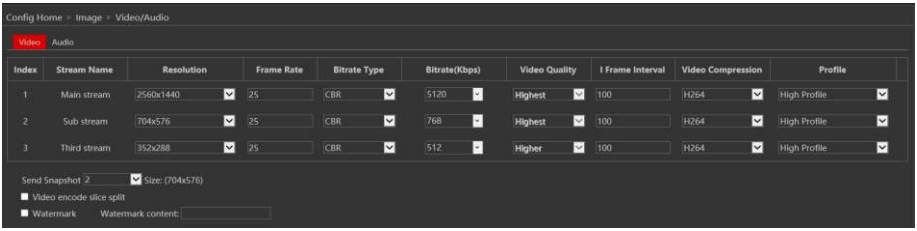
*If you set the day/night mode to schedule or you wish to differentiate between the daytime and night-time image settings, you will need to set the schedule accordingly.

Click on the “Schedule” tab and set the schedule as you wish.



4.2.2 Video/Audio

Go to “Video configuration” → “Video/Audio” to see an interface as shown below.



Three video streams are available. You can set each one of them differently with the limitations of the camera’s capabilities.

Resolution: The higher the resolution is, the bigger the image is.

Frame rate: The higher the frame rate is, the more fluent the video is. However, more storage room will be taken up.

Bitrate type: CBR and VBR are available. CBR (Constant Bit-Rate) means that no matter how what the video resources are, the compression bitrate will be constant as configured. This will not only facilitate the image quality better in a constant bitrate but also help to calculate the capacity of the recording. VBR (Variable Bit-Rate) means that the compression bitrate can be automatically adjusted according to the change of the video resources with the configured bit-rate as the maximum value. This will help to optimize the storage network bandwidth.

Video Quality: When VBR is selected, you need to choose image quality. The higher the image quality you choose, the more bitrate will be required.

Bitrate: Please set it according to your needs while taking in consideration the bandwidth and storage limits.

I Frame interval: It is recommended to use the default value. If the value is too high, the read speed picture group will be slow resulting in video quality loss.

Video Compression: Choose between H.265 and H.264. The IPC also support MJPEG on sub-stream resolution but you need to make sure that the application connected to the camera also supports it.

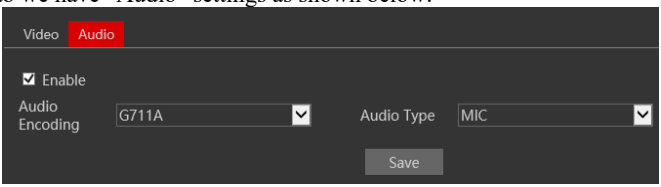
Profile: Baseline, main profile and high profile are optional. Baseline profile is mainly used in interactive applications with low complexity and delay. The main or high profile is mainly used for higher coding requirements.

Send Snapshot: Please select it according to the actual situation.

Video encode slice split: If enabled, you may get a more fluent image even when using a low-performance PC.

Watermark: You can set a watermark that will appear on the image.

In the next tab we have “Audio” settings as shown below:



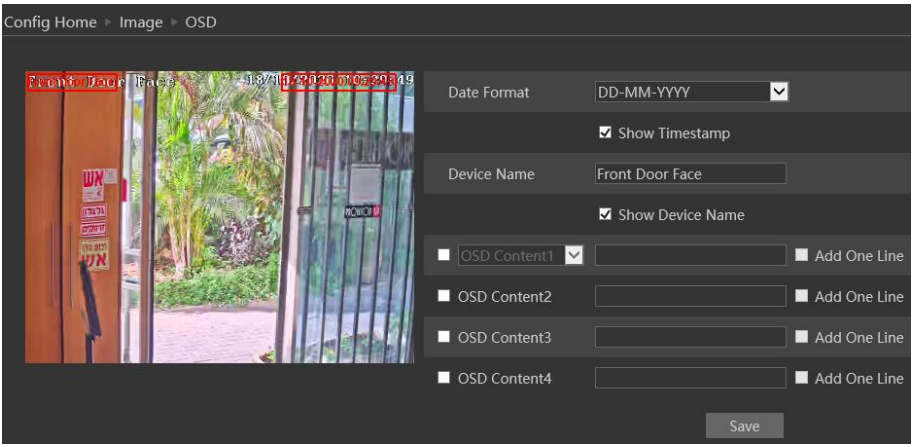
The audio input / built-in microphone is disabled by default. Enable it if you need audio input from the camera..

Set the encoding profile as desired and the type of audio input. If LIN (Line) is selected, it means that the audio input is already amplified and the input volume will be set to “low”. If MIC (Microphone) will be selected, it means that the audio signal is not amplified and the input volume will be set to “high”.

4.2.3 OSD Configuration

Go to “Video Config” → “OSD” menu to display the interface as shown below.

You may set the device name, time stamp and custom OSDs here. Drag the time stamp and custom OSD over the image on the left side to set their position. Then press the “Save” button to save the settings.



4.2.4 Video Mask

You can set 4 mask areas at most.

To set up video mask

1. Enable video mask.
2. Click “Draw” button and then drag the mouse to draw the video mask area.
3. Click “Save” button to save the settings.
4. Return to the live to see the following picture.

To clear the video mask:

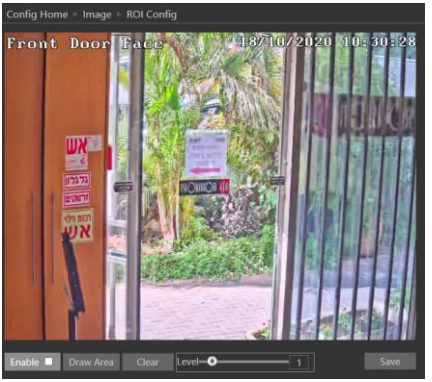
Go to video mask menu and then click “Clear” button to delete the current video mask area.

4.2.5 ROI Configuration

ROI is used to allocate higher bit-rate on a certain area of the image than other areas

To set up ROI

1. Go to Config→ROI menu.



2. Check “Enable” and then click “Draw” button.

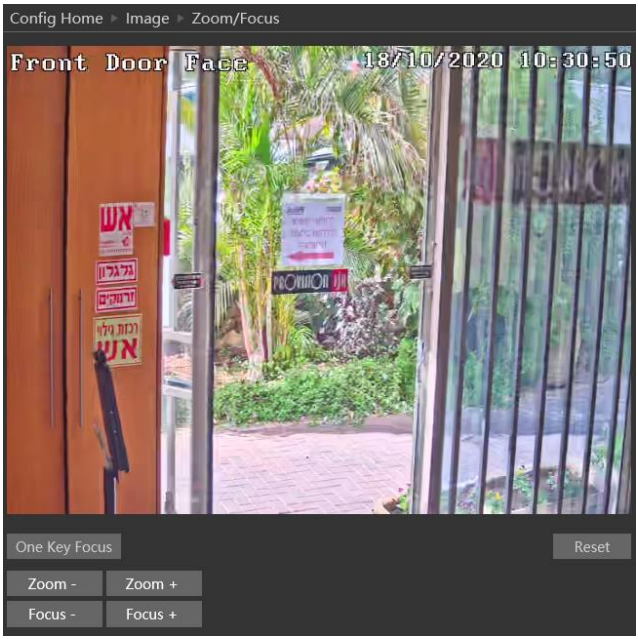
3. Drag the mouse to set the ROI area.
4. Set the level.
5. Click “Save” button to save the settings.

Now, you will see that the selected ROI area is clearer than other areas, especially in low bit-rate settings.

4.2.6 Zoom/Focus*

The zoom/focus interface is used for setting the lens of the camera (In MVF Models only).

You can also enable “Day/Night Switching focus” which will refocus the lens every time the camera switched from day to night and vice-versa.



“One Key Focus” will automatically focus the lens in one click.

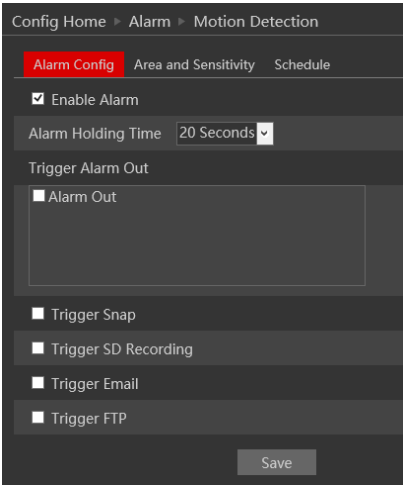
Zoom +/- will manually control the zoom ratio.
Focus +/- will manually set the focus of the lens.

4.3 Alarm Configuration

Alarm configuration includes four submenus: Motion Detection, General Fault, Alarm in and Alarm Out.

4.3.1 Motion Detection

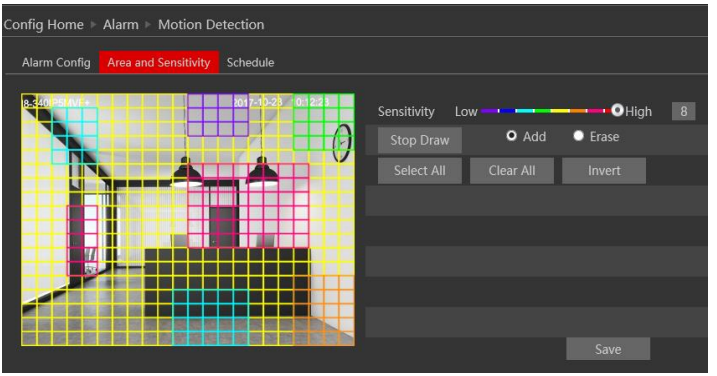
Go to “Alarm configuration”→ “Motion Detection” to see an interface as below.



The first tab is the “Alarm Config”. Enable or disable the alarm and set the alarm holding time. The holding time means that the alarm signal will stay active and no additional alarms will be generated during that time.
Choose the camera’s response to the alarm:

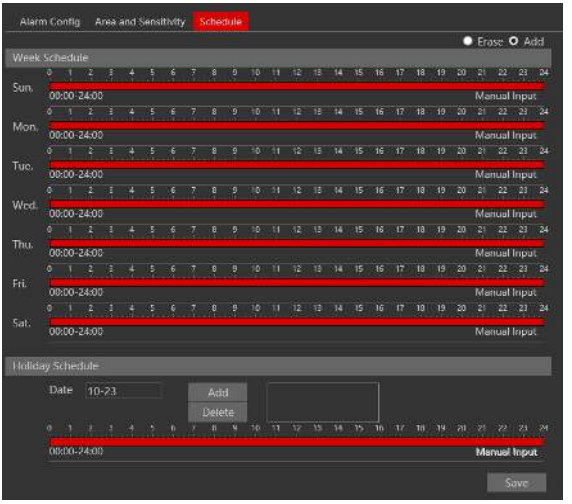
Alarm Triggers:	
Alarm Out	triggers the alarm out relay
Trigger Snap	takes a snapshot (SD card must be available)
Trigger SD Recording	Initiates video recording over the SD card (SD card must be available)
Trigger Email	sends an email as configured in the Email section.
Trigger FTP	send a snapshot as configured in the FTP section

Next is the “Area and Sensitivity” Tab. Move the “Sensitivity” scroll bar to set up the motion sensitivity and click on “draw” to enable the marking on the image. Note that you can set different sensitivities to a different area of the picture as shown below. Once finished, click on “Stop Draw”.



4. Click “Save” to save the settings.

Last is the “Schedule” tab:

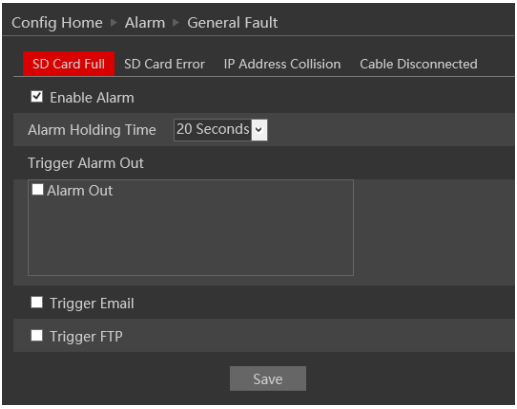


Set the active alarm time for each of the weekdays. You can also set a holiday schedule and add required dates to it.

4.3.2 General Fault

A problem with the network cable or with the SD card will produce a general fault. The alarms can be configured as follows: SD Card Full, SD Card Error, IP Address Conflict, Network cable disconnected.

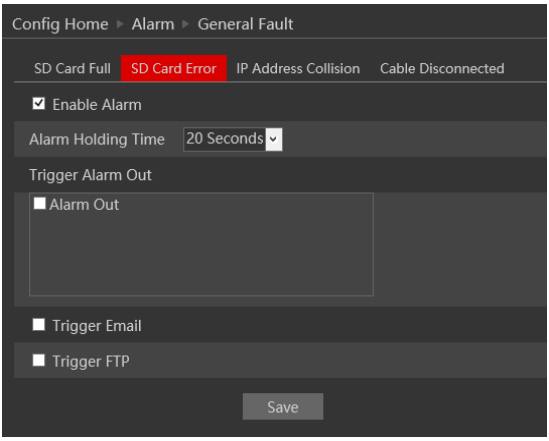
Enter “Alarm Configuration”→ “General Faults” to see a screen as shown below. The default tab is “SD Card Full”:
Enable the alarm if required. This alarm will only be relevant if “Recycle Record” is not marked. If “recycle record” is active, the SD card will never get full.



After enabling the alarm, choose the responses required from the camera in case the alarm will be active. After the setting is complete, click “Save”.

Next is the “SD Card Error” Tab. This alarm will be triggered if any fault will be developed with the SD card. It can be a malfunction or removing the SD card from the camera.

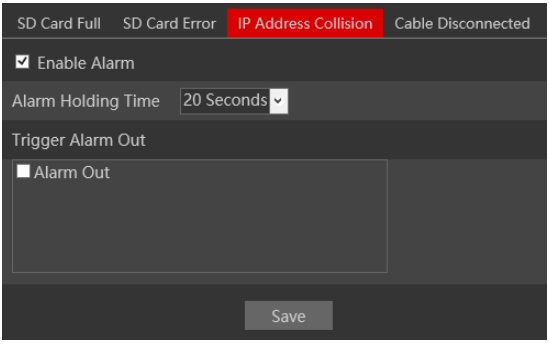
To activate it, enable the alarm.



After enabling the alarm, choose the responses required from the camera in case the alarm will be active. After the setting is complete, click “Save”.

Next is the “IP Address Collision”. This alarm will be triggered when another device in the network will be assigned with the same IP address of the IPC (or vice versa).

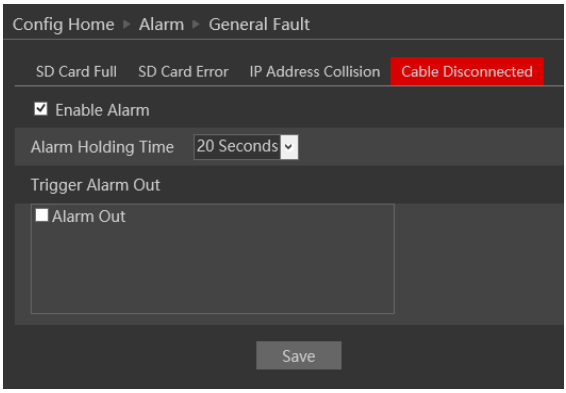
To activate it, enable the alarm.



After enabling the alarm, choose the responses required from the camera in case the alarm will be active. Note that any response related to the network such as email or FTP is not available since in most cases the network will become unavailable for the camera. After the setting is complete, click “Save”.

Last is the “Cable Disconnected” tab. This alarm will be generated if the network cable will be disconnected from the camera. Please note that this alarm is not usable if you are using PoE to power the camera since the disconnection of the cable will cause the camera to turn off due to power loss.

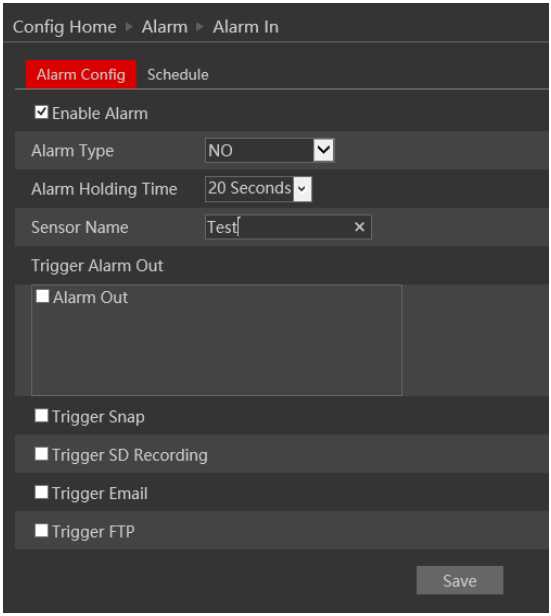
To activate it, enable the alarm.



After enabling the alarm, choose the responses required from the camera in case the alarm will be active. Note that any response related to the network such as email or FTP is not available since the disconnection of the network cable prevents any external network communication by the camera. After the setting is complete, click “Save”.

4.3.3 Alarm In (Selected Models)

Enter “Alarm”→ “Alarm In” to see a screen as shown below:



2. Enable the alarm to activate it and see the configuration parameters:

Parameter	*Meaning*
Alarm Type	You can set it to “NO” (Normally open) which means that the once the line is closed the alarm will be active, or “NC” (Normally Closed”) which means that once the line is open the alarm will be active.
Alarm Holding Time	The holding time means that the alarm signal will stay active and no additional alarms will be generated during that time.
Sensor Name	You can set a unique name for easy identification.
Alarm Triggers:	
Alarm Out	triggers the alarm out relay
Trigger Snap	takes a snapshot (SD card must be available)
Trigger Email	sends an email as configured in the Email section.
Trigger FTP	send a snapshot as configured in the FTP section

3. After the setting is complete, click “Save”.

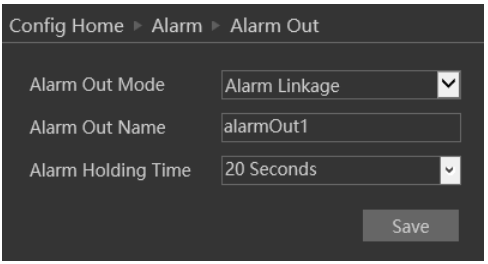
4. Next, you will need to set the alarm schedule. Click on the “Schedule” tab to get the following interface:

5. Set the active alarm time for each of the weekdays. You can also set a holiday schedule and add required dates to it. The holiday schedule overtakes the normal schedule.

4.3.4 Alarm Out (Selected Models)

The Alarm output is actually a relay that can operate many types of devices such as gates, doors, strobe light, and sirens. The alarm out always works in a "NO" mode (Normally open) which means that the relay is open in a normal state and closed in an armed state.

1. Go to "Alarm"→ "Alarm Out" to get to the interface as shown below:

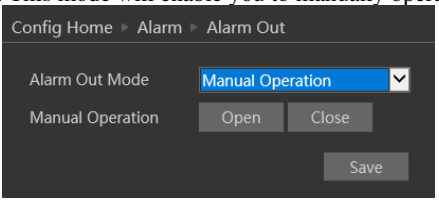


2. Alarm out has 4 modes as described below:

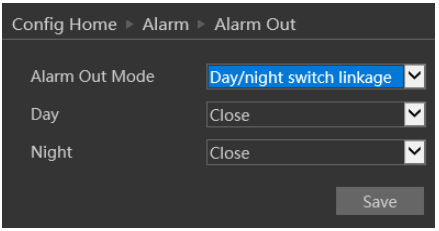
A. Alarm Linkage (Shown Above): This mode will set the alarm out to be triggered as a response to any of the available alarms (Motion, Alarm in, Analytics). If this mode is chosen you will need to set it properly.

Parameter	*Meaning*
Alarm Out Name	You can set a unique name for easy identification.
Alarm Holding Time	The holding time means that the alarm signal will stay active and no additional alarms will be generated during that time.

B. Manual Mode: This mode will enable you to manually operate the relay.



C. Day/night switch linkage: This mode allows you to set the relay condition according to the day/night mode of the camera.



D. Schedule mode: This mode allows you to set the relay condition according to a

pre-defined schedule.
Once chosen you will have to set the schedule. The set schedule will be relevant for all weekdays and cannot be set for each day independently.

3. Press the “Save” button to save the settings.

4.4 Advanced Analytics

This version offers advanced video analytics that was designed to detect special scenarios and events. In Eye-Sight v2, the Video analytics detection is based on true object detection of 3 classes: Humans, 4 wheel vehicle and 2 wheel vehicle. v5.1 offers a variety of Analytics based on Object detection (Line Crossing, Sterile Area, Object Counting) together with advanced face detection and other general analytics such as Camera Tampering

Note that some features might not be available in specific models. For confirmation please refer to the camera’s technical specs.

4.4.1 Camera Tampering

Camera tapering uses special analytics algorithm to detect if the camera was tampered with. This includes: Camera tampering – detects if the camera was shifted from its original location, covered or that the lens was tampered with. Color cast detection – detects if the camera image suffers from unusual color (For example faulty ICR results in pinkish) image.

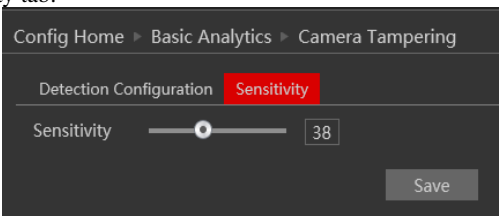
1.Go to “Advanced Analytics”→ “Camera Tampering” to get to the interface as shown below:

2. Enable the required detection analytics out of Camera Shifting/Lens Tampering/Masking detection.
3. Set the Alarm response as follows:

Alarm Triggers:	
Alarm Out	triggers the alarm out relay
Trigger Snap	takes a snapshot (SD card must be available)
Trigger SD Recording	Initiates video recording over the SD card (SD card must be available)
Trigger Email	sends an email as configured in the Email section.
Trigger FTP	send a snapshot as configured in the FTP section

4. Click “Save” to confirm.

5. Go to the sensitivity tab:

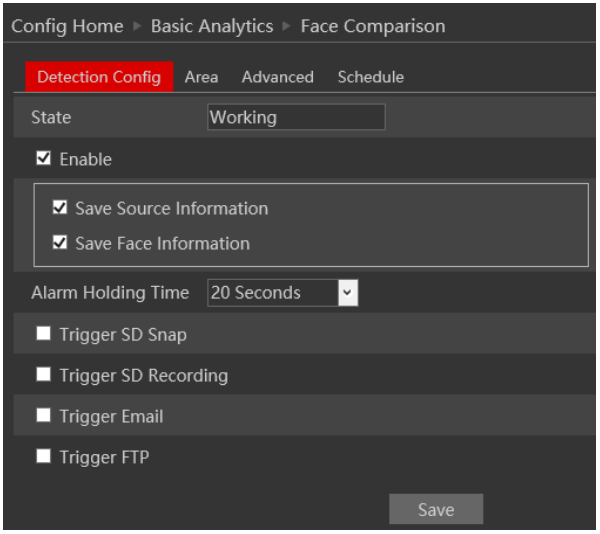


6. Set the sensitivity (0 – lowest, 100 – Highest)
7. Click “Save” to confirm.

4.4.2 Face Detection

Face Recognition analytics will detect human faces in the defined area run the recognition algorithm and compare it to the camera internal database. If there is a match, the camera will trigger the required alerts.

1.Go to “Analytics”→ “Face Comparison” to get to the interface as shown below:

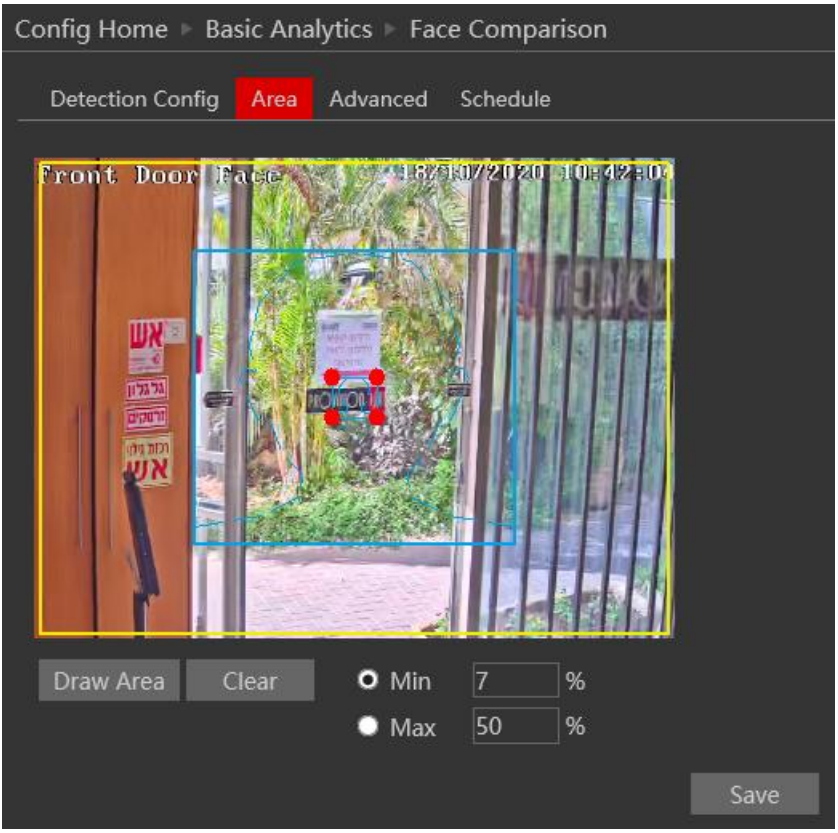


2. Enable the detecion and set the detectio requirement.
3. Set triggers for face **detection**

Alarm Triggers:	
Alarm Out	triggers the alarm out relay
Save source information	takes a snapshot (SD card must be available)
Save face information	Takes an image of the detected license plate.
Trigger SD Recording	Initiates video recording over the SD card (SD card must be available)
Trigger Email	sends an email as configured in the Email section.
Trigger FTP	send a snapshot as configured in the FTP section

Next you will need to set the detection area and fice size

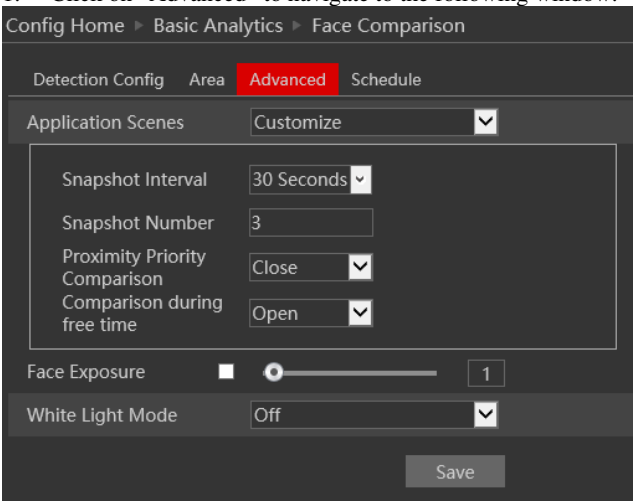
1. Click on “Area” to navigae to the following window.



2. Set the detection area (marked in red).
3. Set the minimum and maximum face size in the frame. (Marked in blue). Notice that the blue face sketch is reference only. Its position is not changing any setting.

Next we will set the installation application. Different application requires different behavior from the face detection algorithm.

1. Click on “Advanced” to navigate to the following window.



2. Set the application scene. First lets understand the vlues:
    a. Snapshot intervals: The time between each snapshot capturing of the same face.
    b. Snapshot Number: Limit the number of snapshot taken of the same face.
    c. Proximity Priority Comparison: Give priority to detect faces closer to the camera (Bigger faces are closer to the camera)
    d. Comparison during free time (Future Development).

    We have prepared 2 presets for you:
    a. Access Control: Very fast face sampling intervals (0.5 Seconds) without a limit. (65535) and priority to closer faces.
    b. Security Monitoring: Slower sampling intervals (30 Seconds) with a snapshot limit. (3) and no priority to closer faces.

    Use “Customize” to configure your own setting.
3. Face exposure gives more weight to the face detection area when setting the auto exposure.
4. White Light Mode: Set the white LED operation.

Please Note: The face detection algorithm requires proper light in order to work. If the white LED is set to auto, and the white LED turned on, it means that the light is insufficient. It is better to increase the surrounding light than using the camera’s built in white LED

Eventually, set the analytic schedule in the schedule tab.

4.4.3 Analytics and Live Display.

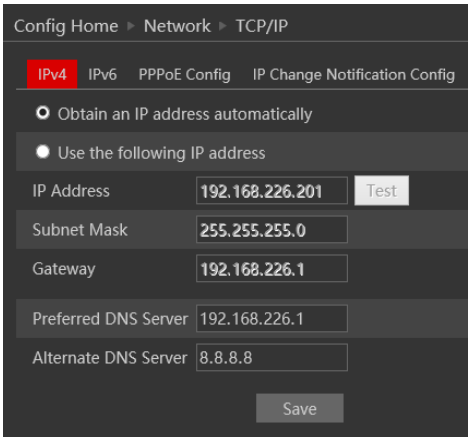
Once enabled, the Analytics will appear on the camera's live interface. It will only appear on Ossia devices running v1.4.3 if configured so.

4.5 Network Configuration

Network configuration includes eight submenus: Port, IP Address, Server Configuration, IP Notify, DDNS Config, RTSP, UPnP, Mail Setting, and FTP.

4.5.1 TCP/IP

Go to "Network"→ "TCP IP" tab to see the interface shown below. The first and default tab is IPv4 Protocol. There are two options for IP setup: obtain an IP address automatically by DHCP or a defined IP address. You may choose one of the options as required.



Automatic IP Assignment: Use "Obtain an IP address automatically" for the camera to communicate with an available DHCP server that will assign the camera with an IP address automatically.

Please note:

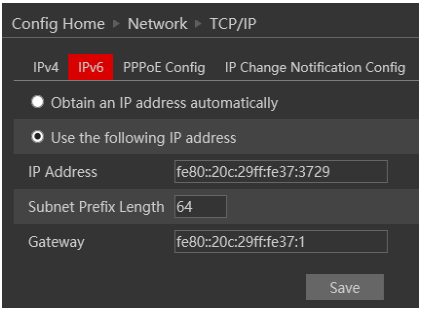
1) In order for the DHCP mode to work, you must have a DHCP server on the LAN.
2) Using DHCP for permanent installations is not advisable as the IP Address might change after a while and cause the camera to be unreachable.

Manual IP Assignment: If you wish to set static IP addresses, choose "Use the following IP Address", set the range of IP addresses you wish to assign (First and last address), set the gateway and subnet mask and click on batch set. Wait for a few moments until the IP manager will configure the cameras. After configuration, the IP addresses of the cameras will refresh automatically.

Please note:

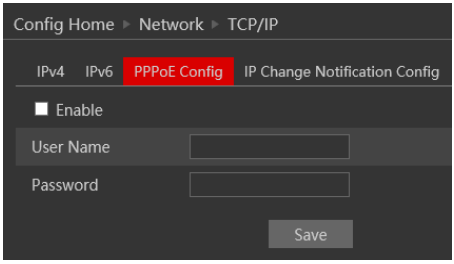
1) The selected IP address must be available.

The next tab is IPv6:



If you need to use IPv6, configure it in the same method as described for IPv4.

The next tab is PPPoE:



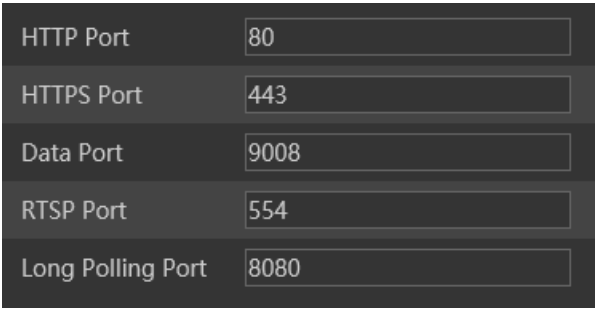
For PPPoE, the user is required to manually input the username and password for dial-up internet. After saving the username/password information set up IP address change notification. Last, connect with Modem and the device will dial-up internet automatically.

Press the “Save” button to save the settings.

The next tab is “IP Change Notification Config”: If you have used DHCP and you need to be notified that the IP Address assigned to the camera was changed, enable it and set Email or FTP for the notification process.

4.5.2 Port

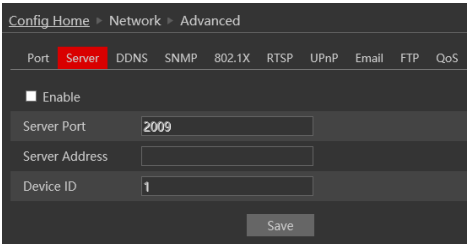
1. Go to “Network”→ “Port” to see the interface as shown below.



2. Input port number for IE access in the “HTTP Port” textbox.
3. Input the port number for audio & video transmission in the “Data Port” textbox.
4. Set the RTSP port for video/audio transmission over RTSP
5. Set the HTTPS port in case that you wish to use Secured HTTP connection.
6. Set the Long Polling Port when there is a usage of the LPR analytics by any external software / app.

4.5.3 Server Configuration

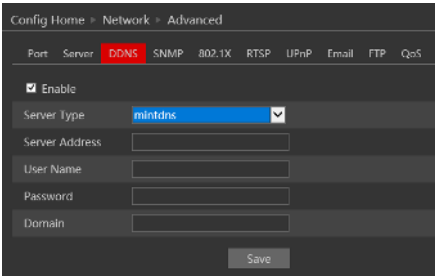
Go to “Network”→ “Server”.



This section refers to “Auto Report Server”. Enable it if required.
Auto report server will make the camera to report back to the defined server using the port 2009.
Set the port (default port is 2009. It is advisable not to change it.) Set the server address (usually it is the CMS address which needs to be a static address). Set a unique device ID. Each of the devices using auto server report should have its own ID.
The Camera will report back to the defined server its current IP using port 2009.

4.5.4 DDNS Configuration

1. Enter into "Network"→"DDNS" tab as below:



The default choice is Mint-Server which is Provision-ISR's free Domain name Registration (http://www.provision-isr-dns.com)

Note: DDNS is used to register for a hostname with DDNS username and password.

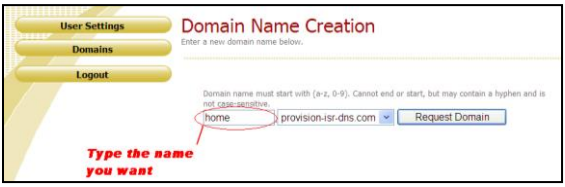
Provision ISR now allows you to use our mint DDNS server in order to create a virtual address for your security device on the internet. Each account is limited to 35 different addresses using your preferred domain name address instead of using IP addresses. Follow the steps below to register your device's name and to configure your DVR to use Provision ISR's Mint DDNS server.

(a) <u>To register a domain with Provision-ISR DDNS server follow these steps:</u>

1) Visit our website: http://provision-isr-dns.com and register for a domain name by clicking "**Registration**"

2) Fill in the registration form, then click "**Submit**"

3) Fill in the hostname you want to apply for and press "**Request Domain**" (for example **"home"**)



4) If there is no problem with the domain registration you will see the following message: "**Your domain was successfully created.**"

If you do not see this message, the domain name you requested is already in use and you will be requested to provide an alternate domain name (please note: the *domain name* is sometimes called *hostname*).

You can create up to 35 domain records under a single account

5) The domain name is added at the beginning of your DVR's address, for example, the domain "*home*" will appear at **home.provision-isr-dns.com.**

Press the "Save" button to save the settings.

4.5.5 SNMP

Simple Network Management Protocol (SNMP) is a popular protocol for network management. It is used for collecting information from and configuring, network devices, such as servers, printers, hubs, switches, and routers on an Internet Protocol (IP) network. In order to Enable and work with SNMP, you need that the switch or another server on the network will support this protocol as well. Though our IPC fully supports SNMP will not explain how to configure it in this manual.

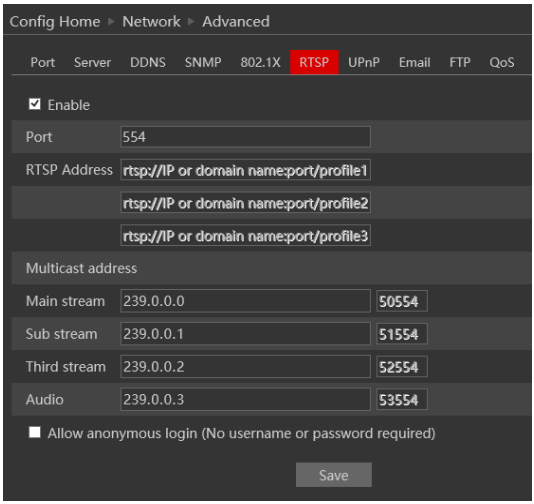
4.5.6 802.1X

The 802.1X standard is designed to enhance the security of wireless and local area networks (WLANs) that follow the IEEE 802.11 standard. 802.1X provides an authentication framework for wireless LANs, allowing a user to be authenticated by a central authority.

4.5.7 RTSP

RTSP is used to stream video/audio using the shared protocol. v4.2 is also supporting RTSP using Multicast protocol.

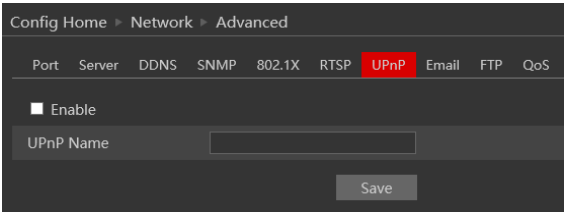
Go to “Network”→ “RTSP” interface as shown below.



1. Enable the RTSP if required.
2. RTSP Port: Access Port of the streaming media. The default port is 554.
3. RTSP Address: each of the streams have a unique RTSP address. Input the desired address into your RTSP player.
Notice that the camera also support multicast addresses that can be used as well for supporting players.
4. Enabling “Allow anonymous login” will authorize RTSP connection without the need for username/password.
5. Click “Save” to confirm and save settings.

4.5.8 UPnP

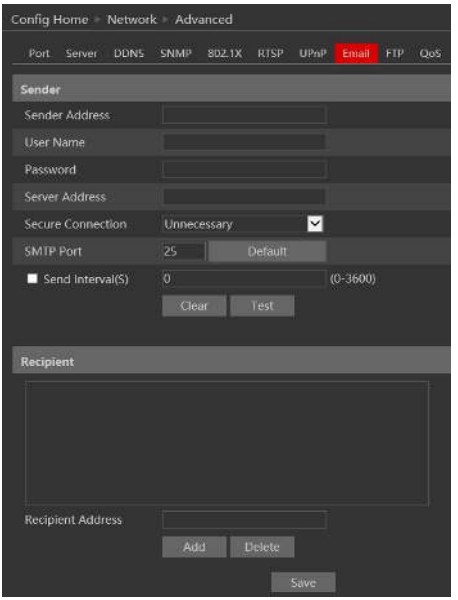
Go to “Network”→ “UPnP” interface as shown below.
Select “Enable UPnP” and then input friendly name.



Then double-click “Network” icon on the desktop of the PC to see an icon with the name and IP address of the camera. You may quickly access the device by double-clicking this icon.

4.5.9 Email Setting

Go to “Network” → “Email” interface.



The input fields are as follows:

Field	*Meaning*
Sender Address	Sender’s e-mail address
User Name	The username of the Email account
Password	The password for the Email account
Server Address	The SMTP/Outgoing Email server address
Secure Connection	Choose between Unnecessary/SSL/TLS
SMTP Port	The SMTP port. The default port will be used according to the secure connection choice but can be edited manually if required.
Send Intervals	The minimum time duration between 2 Email that will be sent by the system,
Recipient Address	The email addresses that Emails generated by the system will be sent to.

After all parameters are properly set up, you can click “Test” to confirm that the system can connect to the email server with the provided details. If an email sent successful, a “Test

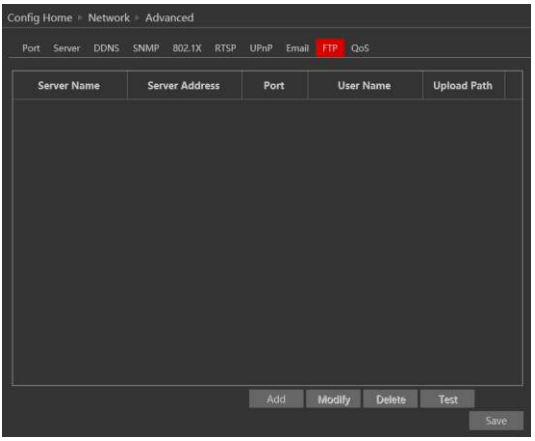
Successful" window will pop up, if not, you should try other email addresses or check and correct the settings.

In order to input new mail recipient, input the recipient address and click on "Add". The new address will be added to the recipient list box.

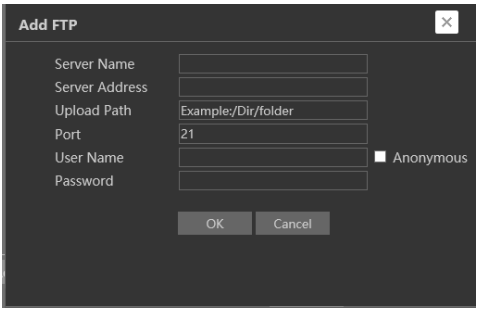
Notice: If you change the static IP into PPPoE and select mailbox, there will be an e-mail sent to your mailbox for notifying a new IP address.

4.5.10 FTP

Go to "Network" →"FTP" interface as shown below.



To add a new FTP server click on "Add" and input the FTP server's server name, address, port number, username, password, and upload path, click OK to confirm the setting.

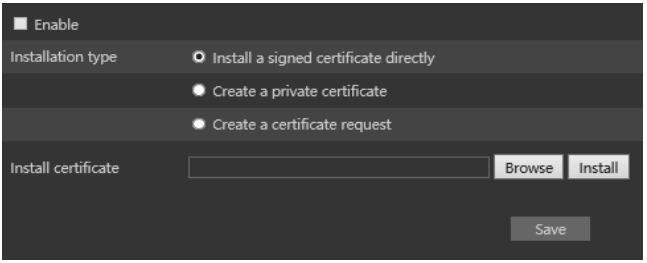


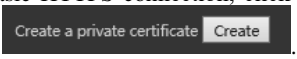
Click on "Modify" to edit the information of the FTP server
Click on "Delete" to delete the FTP server
Click on "Test" to confirm the setting and availability of the FTP server.

4.5.11 HTTPS

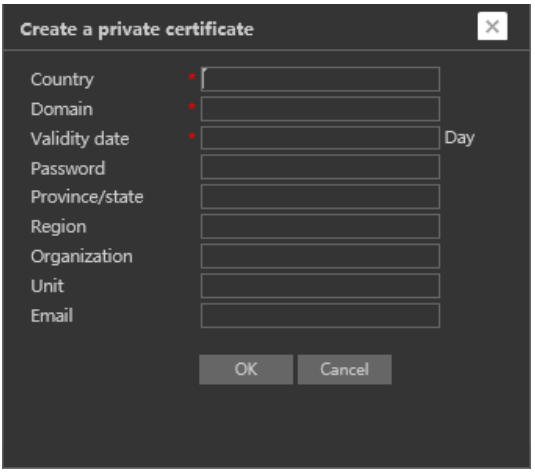
HTTPS (Secured HTTP) is used to establish a secured and encrypted connection between the camera and the client (IE in our case). This will prevent from anyone on the network to be able to get information packets and other information by sniffing the network.
The HTTPS must have an SSL certificate in order to work properly. An authentic certificate must be created by an authorized SSL certificate provider. This will confirm its security and validity. (The internet browser will authenticate the certificate when connecting to the camera).

This is a brief explanation about the SSL certificate and HTTPS connection.
Go to "Network" →"HTTPS". interface as shown below. Enable the HTTPS if required. (Enabling HTTPS completely disables HTTP connection).



1.If you already have an SSL certificate in hand, choose "Install a signed certificate directly". Click on "Browse" and choose your certificate. Click on "Install", wait for the procedure to complete and click on "Save"
2. If you wish to use basic HTTPS connection, click on "Create a private certificate". The interface will update to: 

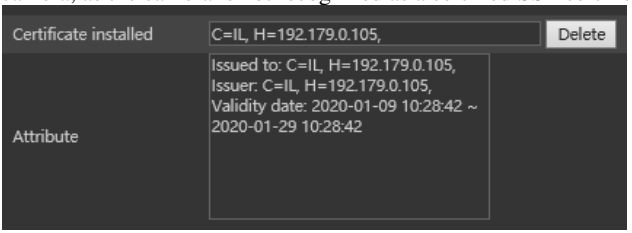
.
Click on "Create". The interface below will appear.



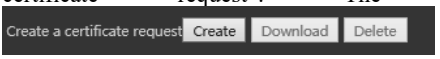
Input the details (The country field is set by 2 captial letters. For example for Israel the user should input “IL”). The fields marked with * are mendatory. All the rest are optional.

Click on “OK”. Once the procedure is finished, the SSL certificate will be automatically installed as follows.

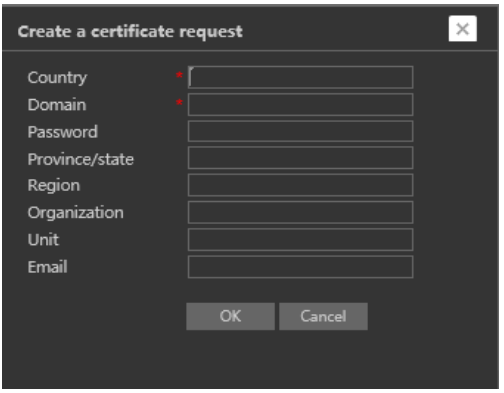
Please note: Using this method will display an error message by the browser everytime you connect to the camera, as the camera is not recognized as a certified SSL certificate issuer.



3. If you wish to create an SSL certificate with an issuer of your choice, choose “Create a certificate request”. The interface will update to:



Click on “Create”. The interface below will appear.

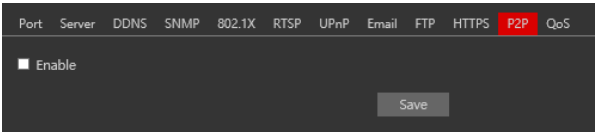


Input the details (The country field is set by 2 captial letters. For example for Israel the user should input “IL”). The fields marked with * are mendatory. All the rest are optional.
Click on “OK”. The interface will update.

Click on “Download”. A file called “svrCert.pem” will be downloaded. Submit this file to the certificate issuer when required. When you receive the final certificate from the issuer, install it by choosing “Install a signed certificate directly.

4.5.12 P2P

P2P is used to connect directly to the camera through an advanced NAT interface.
Go to “Network” →”P2P”.



Enable P2P if required.
Once enabled you can refer to “Settings”→”System”→”Basic Information”

Scan the QR code using the “Provision Cam2” mobile APP or input the device ID manually in the P2P domain (http://www.provisionisr-cloud.com).

4.5.13 QoS

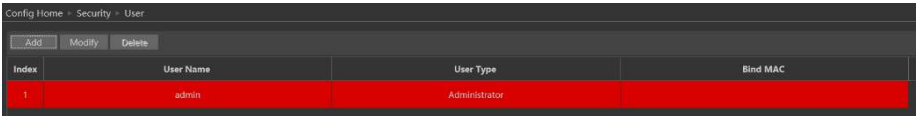
Quality of Service (QoS) is an advanced feature that prioritizes internet traffic for applications to minimize the impact of busy bandwidth. It must be supported by the switch/router being used.

4.1 Security

Security configuration includes three submenus: User Settings, Online Users, and Block & Allow lists.

4.1.1 User

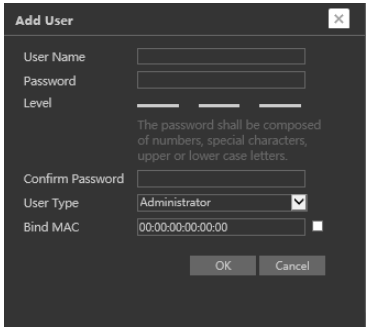
Go to "Network" →"User" to access the following interface.



Adding a user:

Click on the "Add" button to pop up the "Add user" dialog box.

Input the username, password and confirm the password.



Set the user type. 3 user types are available:

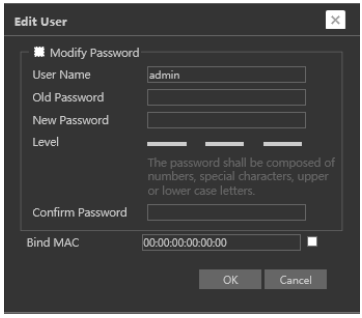
A. Administrator – Can perform all action and settings on the camera.
B. Advanced user – Can view and configure the camera excluding the "User Access" section.
C. Normal User – Can only view the live image and cannot configure.

At this stage, you can also bind a MAC address for the user. This means that this user will only be able to connect from a single pre-defined device and his access will be denied if he will try to connect from any other device.

Click on "OK" and "Save"

Modify user:

Select the user you wish to modify and click on the "Modify" button. A modification window will pop up as shown below.



You can change the username if required. If you wish to edit the password of the user, tick "modify password" and input the old password, new password, and confirmation of the new password.

You can also bind a MAC address for the user as explained in the "Add user" section.

Click “OK” to save.

Delete user:

Select the user you wish to delete and click on the “Delete” button. A confirmation prompt will pop up. Click “Ok” to confirm.

Note: The default user “admin” cannot be deleted.

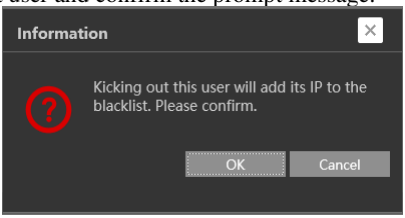
4.1.2 Online Users

“Online users” section will allow you to view users who are currently connected to the camera. Administrator level users can also kick out other users who are currently connected to the camera.

Go to “Network” →“Online Users” to access the following interface.

You can view the IP address, port, username and user type used for the connection.

The “Kick Out” button will kick out the selected user and input his IP address to the blacklist. Click on it for the relevant user and confirm the prompt message.



Important Note: once the user is kicked out, the IP address used for connection will be blacklisted. Therefore, the device used for connection will not be able to connect to the camera until the IP address will be manually removed from the blacklist.

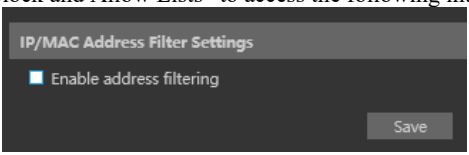
4.1.3 Block and Allow Lists

“Block and Allow” lists allow the user to create lists of IP/MAC addresses that will be allowed or denied for connection.

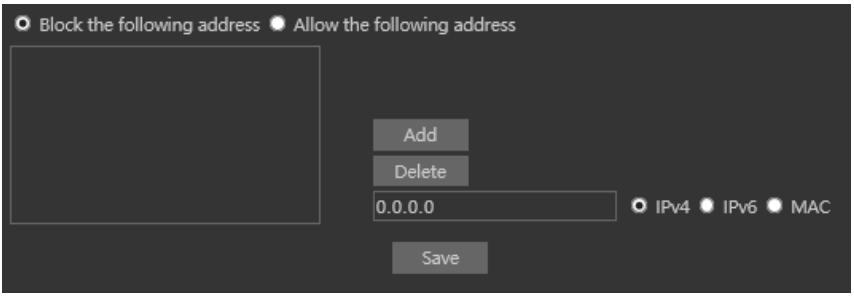
Once a “Block” list is created, all devices except the blocked devices will be allowed to connect to the camera.

Once an “Allow” list is created, all devices except the allowed devices will be blocked from connecting to the camera.

Go to “Network” →“Block and Allow Lists” to access the following interface.



The lists can be based on IP Only / MAC only / Both IP and MAC together.



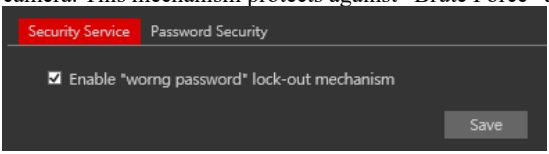
Enable the filtering you wish to activate. For the demonstration, we will enable both IP and MAC filtering, so the instructions below are true for both.

1) Choose the type of list you wish to create (block or allow)
2) Input the IP/MAC address you wish to add to the list
3) Set whether the input is IPv4/IPv6/MAC address
4) Click on add.
5) If you wish to add more than one address, repeat stages 1-4
6) Once finished, click “Save” to confirm, save the settings and enable the lists.

4.1.4 Security Management

“Security Management” Allows the user to enhance the device security by adding protections layers and rules.

“Security Service” enables a mechanism that locks the IPC to incoming connection after 3 wring attempts. Releasing the camera from a locked state is by waiting the lock duration or hard rebooting the camera. This mechanism protects against “Brute Force” attack.



“Password security” allows the user to set the password required strength and password change policy.
Password level divides to 3 levels:

1) Low: No Requirements.
2) Mid: Minimum of 8 characters. Contains at least one number and one character.
3) High: Minimum of 8 characters. Contains at least one number, one character and one special character.

Expiration time: After the set duration (30 Days, 60 Days, Half a Year, Year), the camera will demand for a password change. The current password cannot be reused. Older passwords are not kept and can be used again.

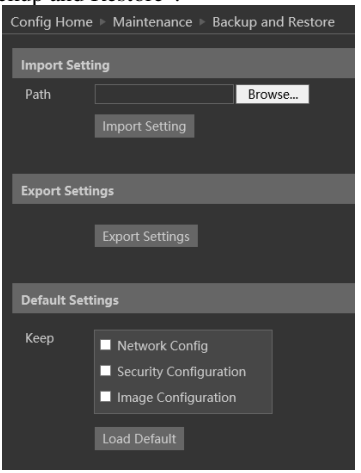
4.2 Maintenance

Maintenance includes 4 submenus: Backup & Restore, Reboot, Upgrade and Operation log.

4.2.1 Configure Backup & Restore

Backup and restore are used to save the camera's configuration on a PC and use it in case the camera's configuration was changed or when you wish to change the configuration of several cameras to be uniformed. This section also allows you to restore the camera's setting to factory default with some exceptions.

Go to "Maintenance"→" Backup and Restore".



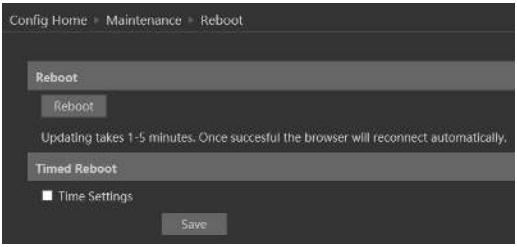
- Importing Settings: If you have a configuration file and you wish to import it to the camera, click on "browse" and choose the relevant config file.
  After choosing the file click on "Import settings" and wait for the process to finish.

- Exporting settings: If you wish to export the configuration settings of the camera click on "Export". Choose the location on your PC and set the file name. Click on "OK" to save the file on the desired location.

- Loading factory default: If for any reason you wish to restore your camera settings to factory default, you can use the "Load Default" button. Notice that you can mark some configuration that will be saved:
    - Network Config: Will save all the network section configuration
    - Security Configuration: Will save all the security section configuration.
    - Image configuration: Will save the image section configuration.

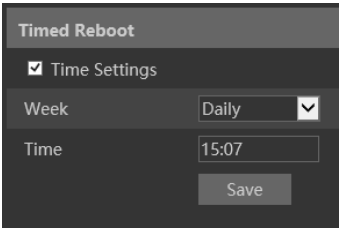
4.2.2 Reboot Device

Go to "Maintenance"→"Reboot" to see the interface as shown below.



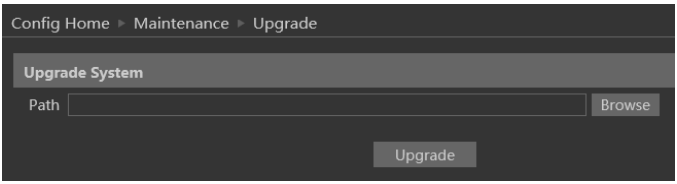
In order to reboot the IPC click on the reboot "Reboot" button and confirm the pop up prompt message, then wait for the reboot process to finish.

You can also set a scheduled reboot. Tick the "Time Settings" and set the time period and time for the reboot. You can choose a day of the week when the reboot will automatically take place or you can set it to happen on a daily basis. The reboot will occur on the specified day and time.



4.2.3 Upgrade

Go to "Maintenance"→"Update" to open the interface as shown below.



1. Click “Browse” button to select the upgrade file.
2. Click “Upgrade” button to start the upgrading process of the IPC.
3. The device will restart automatically once completed.
4. Depending on the update release note, the IPC configuration might reset.

Notice:

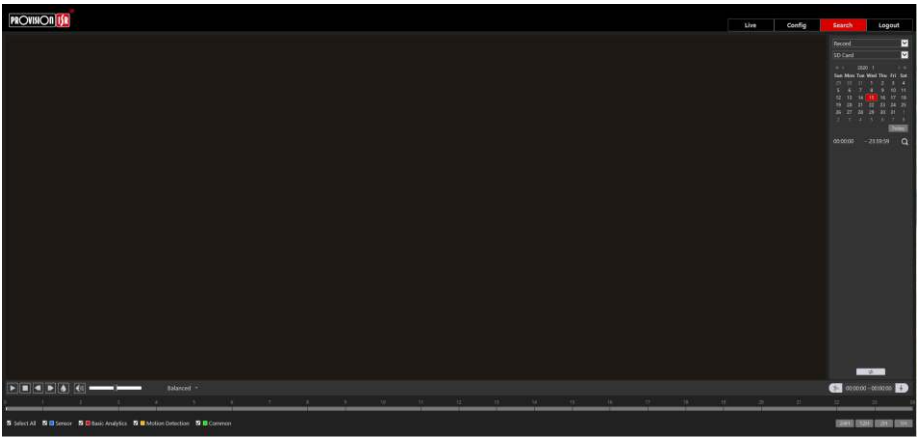
1) You must not disconnect to PC or close the IPC during the upgrade process to prevent permanent damage to the camera.
2) The camera update file is ***.TAR. the “TAR” file should not be extracted.

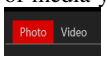
4.3 Playback

Playing back videos taken by the camera have 2 options:

A. Video files/Images saved locally on the PC (If any were taken)
B. Video files/Images saved on the Camera SD card (If available)

To access the playback interface, click on the “Search” Main tab. The interface below will appear.

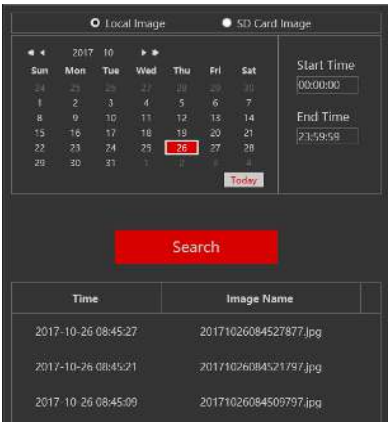


1) First, you will have to choose which type of media you wish to search. On the left top corner choose from Photo and Video 

2) Choose the location of the stored media. You can either choose “Local” – which is your PC or you can choose “SD Card” which is the camera’s SD Card.

3) If you chose the SD card as the search source you can also define the alarm trigger as follows:

4) Set the search range. You can choose a single day and set a time range of up to 24 hours. (full day). Once finished click on “Search” to show the results.



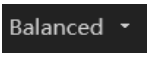
5) Double click on the image/video from the list for it to show on the main playback window and it to the playback queue.

The playback controls are described below. Notice that it is different for Videos and Photos

- **For Photos**

Icon	Description	Icon	Description
	Close the displayed image		Digital Zoom In
	Close the displayed image and delete the queue list		Digital Zoom out
	Download the displayed image to your PC (SD Card search only)		Play a slideshow of the queued images
	Download the displayed image and queue list to your PC (SD Card search only)		Stop the slideshow
	Fit the image to the screen		Dwell time between images
	Display the image in real-size		

- **For Videos**

Icon	Description	Icon	Description
	Play		Play next file
	Pause playback		Enable/Disable Watermark
	Stop Playback		Download the selected file (SD Card only)
	Reduce playback speed		Enable/Disable Audio + Volume control
	Increase playback speed		Full-screen mode
	Play previous file		Buffering mode selection

5 Mobile Surveillance

This IPC supports mobile surveillance from internet browsers and iOS/Android mobile phones using Provision-ISR's application "Provision Cam2"

5.1 Network Configuration

- **Access the device via LAN**

Step 1: Connect device via a wireless router. Then checkmark DHCP both in router and device to automatically acquire IP address or enter the IP address manually.
Step 2: Use WIFI function on your mobile phone to connect the wireless router.
Note: Make sure your phone network and device network are on the same network segment on LAN.
Step 3: Add the IP address and port in the mobile phone surveillance client.

- **Access the device via 3G network**

Step 1: Set the device network. Please enter Main Menu→Setup→Network tab.

- If you use PPPoE to connect the device, please enable PPPoE and input username and password received from your ISP in network tab. Then click "Apply". You can enter Main Menu→Information→Network tab to see the IP address. If you want to utilize dynamic domain name, please apply for a domain name in a DNS server supported by the device.
- If you have a static WAN IP address, please enter Main Menu→Setup→Network tab to input your IP address, gateway, and port.
- If you use LAN IP address, please enter Main Menu→Setup→Network tab to input your IP address, gateway and port and then forward IP address and port number in virtual server setup of the router or virtual server(If you have enabled the UPnP function in both the device and router, you can skip this step). Port forwarding setting may be different in different routers and servers. Please refer to the router's manual for details. After you forward your LAN IP address and port, please check the WAN IP address of the router or server.

Step 2: Add the WAN IP address or domain name in mobile phone surveillance client.

6 Appendix I : Analytics Configuration Requirements

6.1 General

The Face Recognition platform is based on 2 components:

1) Analytics camera with “Face Detection”.
2) Recording device with "Face Recognition".

The Smart-Sight FR cameras can perform these 2 tasks locally*

The face recognition allows to easily detect and recognize a person in the scene within a defined area. The recognition rate can be up to 98% if the distance between two pupils is greater than 20 pixels. A maximum of 10,000 face images can be stored in the device database.

6.2 FR (Face Recognition) Installation and Settings:

1) Direction: The camera should be installed in front of the walking lane and capture the face straight front.

2) Light sources: bright and stable light sources are required. Faces must be properly lit.

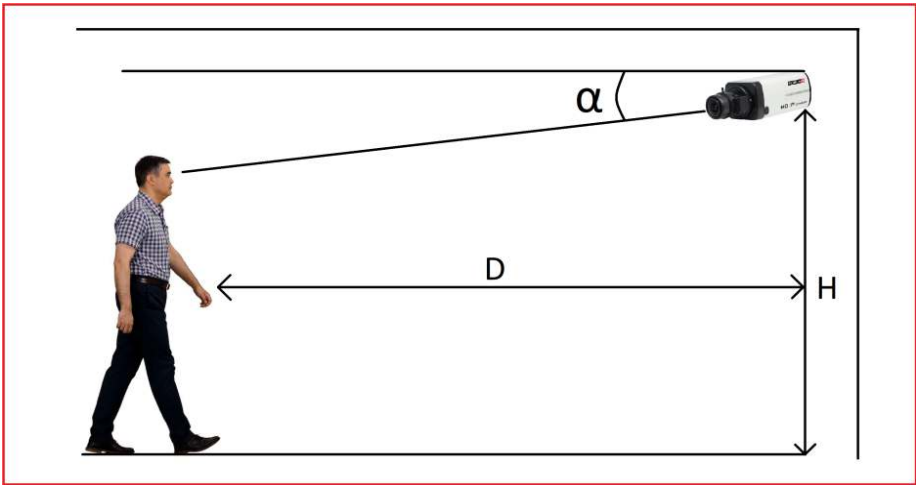
3) Visible area: All the face should be visible in the frame

4) Camera angle: camera angle from the ceiling (α) should be lower or equal to 15°

5) Camera height: Height (H) should be 2.0~3.5m according to the lens focal length and other requirements.

6) Face Position: Face angle from the camera (Left/Right) should be less than 30°. Pitch angle (Up/Down) should be less than 20°

7) Night Mode: In general, B&W recognition rate is 20% lower than daytime.



6.2.1 Factors Reducing Recognition Factors:

1) Obstructed Face Features: Faces with covered features or people wearing sunglasses, hats and masks will result in poor recognition, if any.
2) Low Resolution: Low Resolution faces reduces the algorithm efficiency and therefore the recognition accuracy.
3) Low Brightness: Dark scene/Face features dramatically reduces the recognition efficiency. If needed. Use BLC/HLC/HWDR in order to improve the image.
4) Face Angle: Face should be straight forward to the camera. Any rotation or tilt reduces recognition efficiency

6.2.2 Inapplicable Scenes:

1) Dark/Backlit Scene
2) Scene with small size/low resolution faces
3) Areas with large crowds

7 Q & A

1. Q: How to find my password if I forget it?

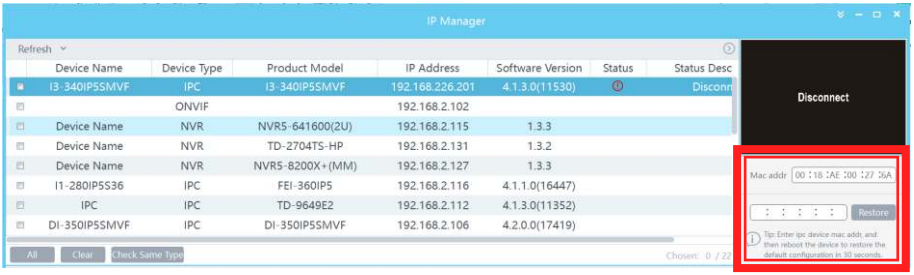
A：The default username is “admin” and the default password is “123456”.

If you have changed the password and you can’t remember it, press and hold the physical reset button on the camera (If available) or use the IP Manager to reset the camera to factory default as follows:

A. Open the IP Manager and locate the required camera.

B. Click on the camera line in the IP manager.

C. Input the MAC address of the camera into the restore window (The MAC address of the camera will appear in the op part of it:



D. Click on “Restore”, and wait for the message “Device restored successfully”

E. Disconnect the camera from power and reconnect it **within 30 seconds.**

F. The camera will boot up in factory default.

Default IP: DHCP (If there is no DHCP server, the camera will fall back to 192.168.226.201)

User name: admin

Password: 123456

2. Q: The IPC fails to connect devices through IE browser, why?

A: Network cable is not connected well. Please check the connection and make sure it is connected securely to the camera.

B: IP was not assigned to an IP.

C: Web port number has been revised: contact an administrator or use the IP manager to get the correct port number.

D: If none of the above worked, recover the IPC’s default setting by using the physical reset button on the camera (Press and hold if available) or using the IP Manager to reset the camera to factory default.

Note: Default IP: 192.168.226.201， mask number: 255.255.255.0

3. Q: IP tool cannot search for devices, why?

A：It may be caused by the anti-virus/firewall software on your computer. Please disable it and try to search device again.

4. Q: IE cannot download ActiveX control. How can I do?

a. Your IE browser probably set to block ActiveX controls. Please perform the following steps:

① Open IE browser. Click Tools-----Internet Options….

② Select Security------Custom Level….Refer to Fig 4-1

③ Enable all the sub-options under "ActiveX controls and plug-ins". Refer to Fig 4-2

Fig 4-1

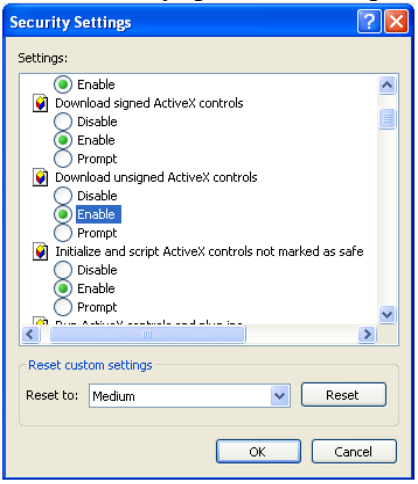


Fig 4-2

④ Click ok to finish setup.

b. Other plug-ins or anti-virus blocks ActiveX. Please uninstall or close them.

5. Q: No sound can be heard, why?

A: Audio input device was not connected. Please connect and try again.

B: Audio was not enabled in the live view interface. Please check the AUDIO item to enable this function.