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# 1 Integration Summary

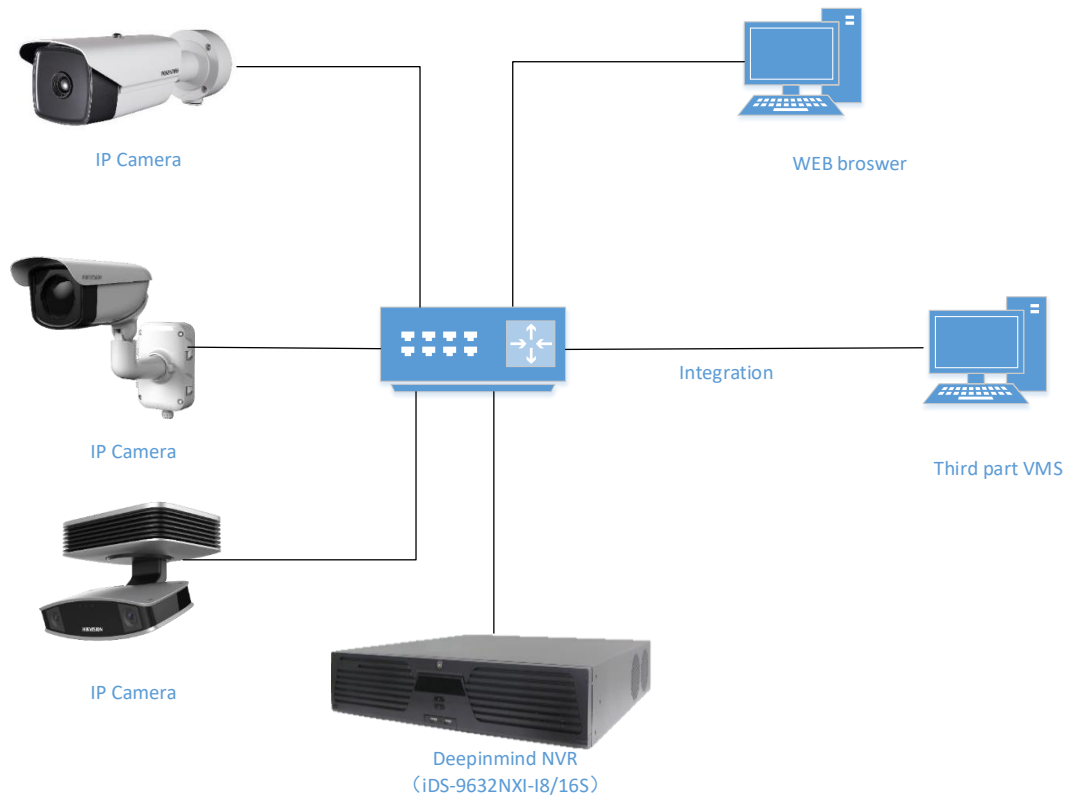
## 1.1 Common functions

- Live view
- Playback
- Download
- Event

## 1.2 Special functions

- Intrusion detection
- Line crossing detection
- Region entrance detection
- Region exit detection
- People density
- Vehicle detection

## 2 Integration Architecture



## 3 Integration method

### 3.1 SDK

The device network SDK is developed based on private network communication protocol, and it is designed for the remote connection and configuration of embedded DVR, Encoder, IPC and the other IP devices.

### 3.2 ISAPI

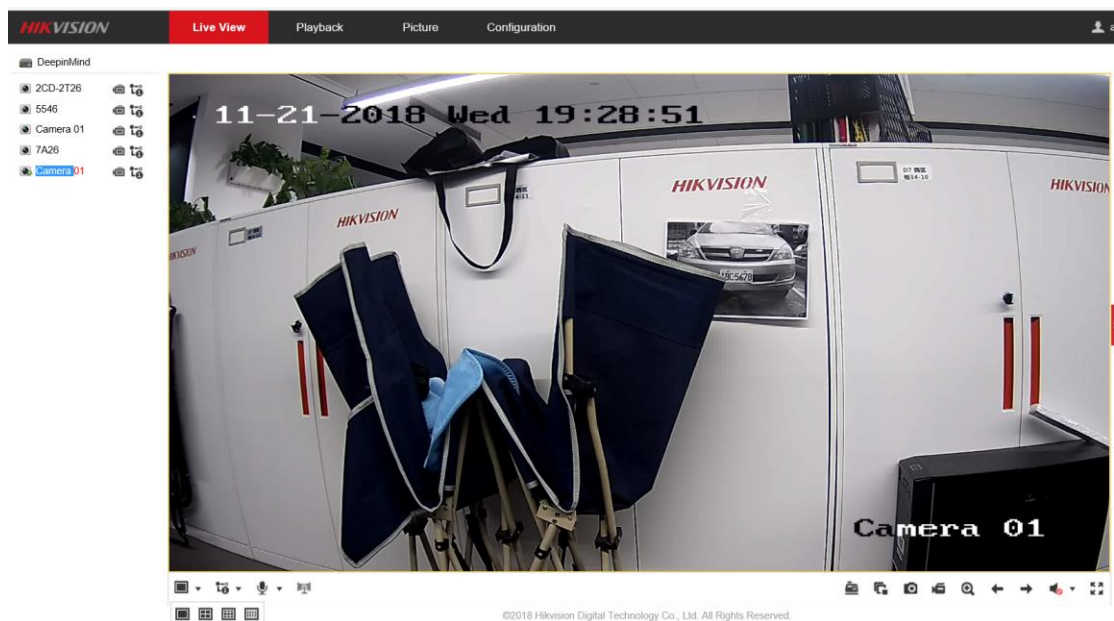
ISAPI is a kind of Hikvision protocol, based on HTTP. It is available to all kinds of platforms, such as console application, web application and so on.

## 4 Live view

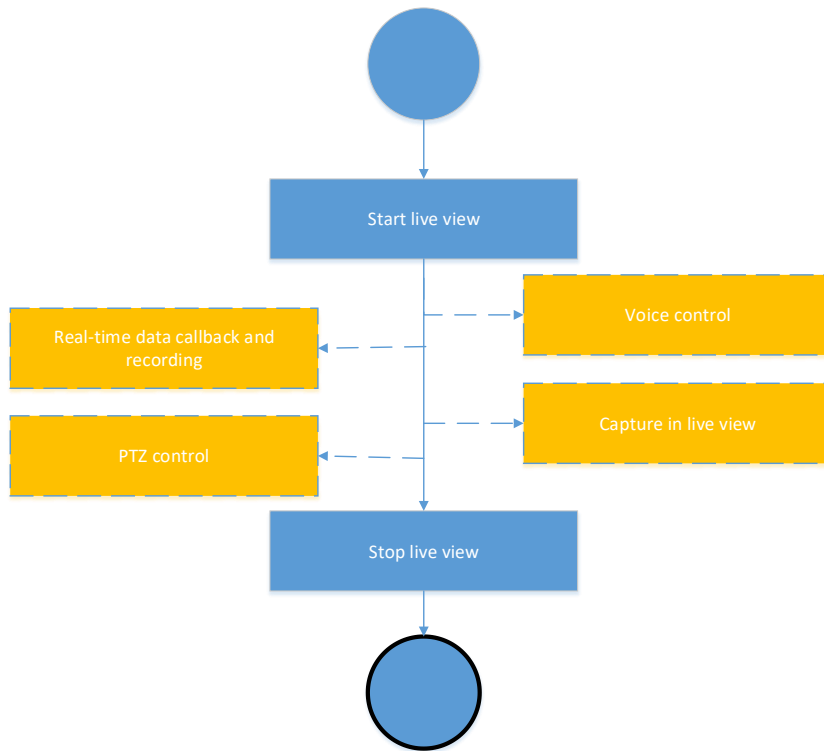
### 4.1 Description

Live view is common function for the device. It is easy for you to get live view stream from the device and display on your platform. During the live view process, you can also realize other function, such as recoding, capture, voice control, etc.

### 4.2 WEB interface



### 4.3 Intgration method



### 4.3.1 Live view

#### 1) SDK Integration

SDK interface	Description
NET_DVR_RealPlay_V40	Start live view
NET_DVR_StopRealPlay	Stop live view

#### 2) ISAPI integration

Please use RTSP URL below to get live view stream.

**URL:** rtsp://<address>:<port>/Streaming/Channels/<id>(?parm1=value1&parm2=value2...)

**Remark:** There are many channels in the device. For the SDK integration, the starting channel number starts from N, while for ISAPI integration, the starting number starts from 1. So please choose the one you want for the control.

### 4.3.2 Recording

#### 1) SDK integration

SDK interface	Description
NET_DVR_SaveRealData	Video file in PS package format
NET_DVR_SaveRealData_V30	PS package format or 3GPP package format is selectable

#### 2) ISAPI integration

ISAPI doesn't support recording function.

### 4.3.3 Capture in live view

#### 1) SDK integration

SDK interface	Description
NET_DVR_SetCapturePictureMode	Set capture mode, BMP or JPEG
NET_DVR_CapturePictureBlock_New	Blocking capture and the data will be stored in the cache
NET_DVR_CapturePictureBlock	Blocking capture and directly saved as file
NET_DVR_CapturePicture	non-blocking capture and directly saved as file

#### 2) ISAPI integration

Call URL below to get a snapshot from a specified channel.

**ISAPI command:** /ISAPI/Streaming/channels/<ID>/picture

### 4.3.4 Voice control

For video and audio stream, call the voice control API to turn on or off the audio, and adjust volume.

#### 1) SDK integration

SDK interface	Description
NET_DVR_OpenSound	Open sound under exclusive sound card mode
NET_DVR_CloseSound	Close sound under exclusive sound card mode
NET_DVR_OpenSoundShare	Open sound under shared sound card mode
NET_DVR_CloseSoundShare	Close sound on share sound card mode
NET_DVR_Volume	Adjust playing volume

#### 2) ISAPI integration

Call URL below to control the voice from a specified channel.

**ISAPI command:** /ISAPI/System/TwoWayAudio/channels/ID

### 4.3.5 PTZ control

#### 1) SDK integration

SDK interface	Description
NET_DVR_PTZControl	Control PTZ
NET_DVR_PTZPreset	Control PTZ preset
NET_DVR_PTZCruise	Control PTZ patrol
NET_DVR_TransPTZ	Set transparent PTZ control
NET_DVR_PTZTrack	Realize PTZ pattern operation

Remark: For more detailed information, please refer to the SDK manual.

## 2) ISAPI integration

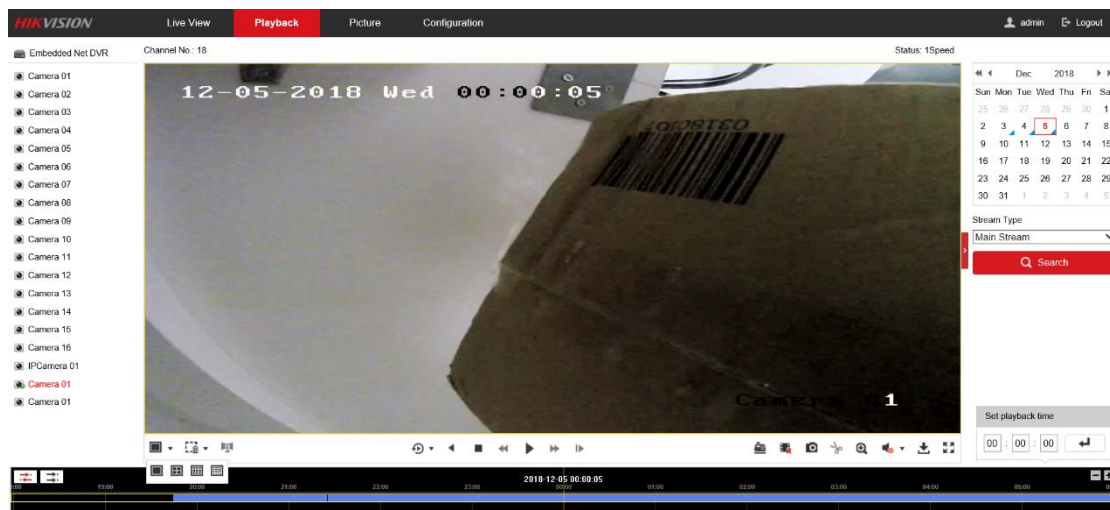
Please refer to [HIKVISION ISAPI 2.0-PTZ Service.pdf](#) for the ISAPI integration.

# 5 Playback

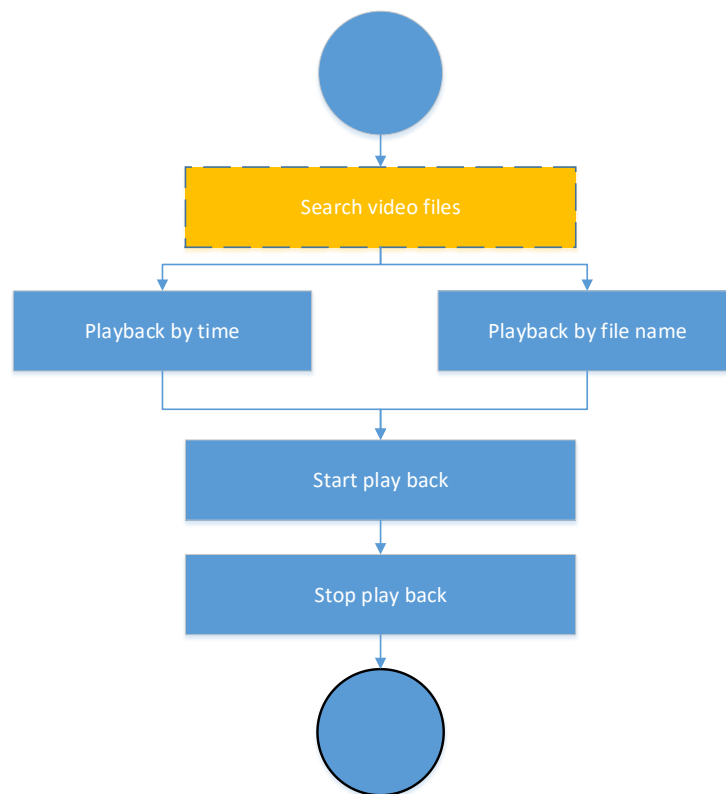
## 5.1 Description

This section explains how to view the remotely recorded video files stored in the network disks (NAS) or memory cards.

## 5.2 WEB interface



## 5.3 Integration method



### 5.3.1 Playback by time

#### 1) SDK integration

**Step1:** Call **NET\_DVR\_PlayBackByTime\_V40** to start playback according to the time period with videos in the specified time range.

**Step2:** Call **NET\_DVR\_PlayBackControl\_V40** (command: NET\_DVR\_PLAYSTART) to control the start of playback.

#### 2) ISAPI integration

Please use URL below for the integration.

rtsp://<address>:<port>/Streaming/tracks/<id>(?parm1=value1&parm2=value2...)

### 5.3.2 Playback by file name

#### 1) SDK integration

Step1: Call related APIs to obtain file name.

Step2: Call **NET\_DVR\_PlayBackByName** to start playback by file name.

Step3: Call **NET\_DVR\_PlayBackControl\_V40** (command: NET\_DVR\_PLAYSTART) to control the start of playback

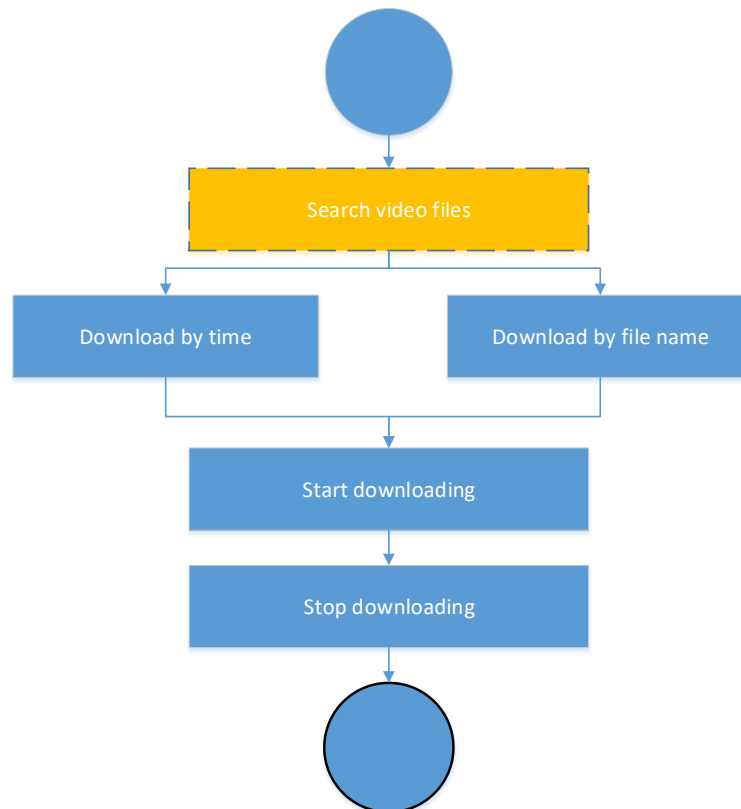
#### 2) ISAPI integration

ISAPI doesn't support playback by file name.





## 6.3 Integration method



### 6.3.1 Download by time

#### 1) SDK integration

**Step1:** Call **NET\_DVR\_GetFileByTime\_V40** to start downloading according to the time period with videos in the specified time range.

**Step2:** Call **NET\_DVR\_PlayBackControl\_V40** (command: NET\_DVR\_PLAYSTART) to control the start of download.

#### 2) ISAPI integration

ISAPI doesn't support download by time.

Remark: When download by time, the user can specify the start time and end time without calling API to search video files. The progress between 0 to 100 is not supported, and progress configuration is also not supported

### 6.3.2 Download by file name

#### 1) SDK integration

Step1: Call related APIs to obtain file name.

Step2: Call **NET\_DVR\_GetFileByName** to start downloading by file name.

Step3: Call **NET\_DVR\_PlayBackControl\_V40** (command: NET\_DVR\_PLAYSTART) to control the start of download.

## 2) ISAPI integration

Step1: Call URL [/ISAPI/ContentMgmt/search/](#) to search video files via specified time.

Step2: Call URL [/ISAPI/ContentMgmt/download](#) to start download by playbackURI.

Eg. playbackURI: rtsp://10.7.64.104/Streaming/tracks/101?starttime=2018-12-10 00:00:00Z&endtime=2018-12-10 17:14:54Z&name=00000000508000000&size=924151628

# 7 Event

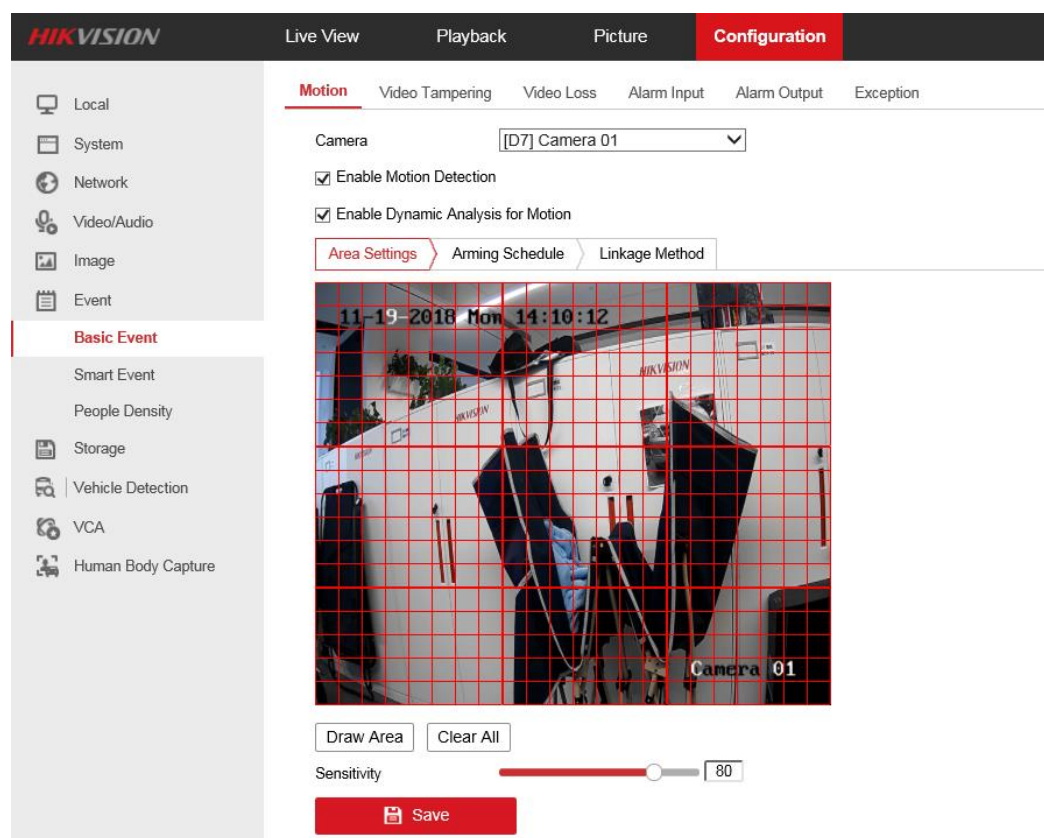
## 7.1 Basic event

### 1) Description

Basic events exist in common devices , including Motion, Video Tampering , Video Loss, Alarm Input, Alarm Output and Exception. Motion will be taken for example. It detects the moving objects in the configured surveillance area, and triggers the certain action as a respond to detection. In order to detect the moving objects accurately and reduce the false alarm rate, normal configuration and expert configuration are selectable for different motion detection environment.

### 2) WEB interface configuration

Configure Area Setting



Configure Arming Schedule

HIKVISION

Live View

Playback

Picture

Configuration

Local

System

Network

Video/Audio

Image

Event

Basic Event

Smart Event

People Density

Storage

Vehicle Detection

VCA

Human Body Capture

Motion

Video Tampering

Video Loss

Alarm Input

Alarm Output

Exception

Camera

[D7] Camera 01

☒ Enable Motion Detection

☒ Enable Dynamic Analysis for Motion

Area Settings

Arming Schedule

Linkage Method

Delete

Delete All

Mon

024681012141618202224

Tue

024681012141618202224

Wed

024681012141618202224

Thu

024681012141618202224

Fri

024681012141618202224

Sat

024681012141618202224

Sun

024681012141618202224

Save

Configure Linkage Method

HIKVISION

Live View

Playback

Picture

Configuration

Local

System

Network

Video/Audio

Image

Event

Basic Event

Smart Event

People Density

Storage

Vehicle Detection

VCA

Human Body Capture

Motion

Video Tampering

Video Loss

Alarm Input

Alarm Output

Exception

Camera

[D7] Camera 01

☒ Enable Motion Detection

☒ Enable Dynamic Analysis for Motion

Area Settings

Arming Schedule

Linkage Method

<input type="checkbox"/> Normal Linkage	<input type="checkbox"/> Trigger Alarm Output	<input type="checkbox"/> Trigger Recording
<input type="checkbox"/> Audible Warning	<input type="checkbox"/> A->1	<input type="checkbox"/> D1
<input type="checkbox"/> Send Email	<input type="checkbox"/> A->2	<input type="checkbox"/> D2
<input checked="" type="checkbox"/> Notify Surveillance Center	<input type="checkbox"/> A->3	<input type="checkbox"/> D3
<input type="checkbox"/> Full Screen Monitoring	<input type="checkbox"/> A->4	<input type="checkbox"/> D4
	<input type="checkbox"/> D2->1	<input type="checkbox"/> D5
	<input type="checkbox"/> D3->1	<input type="checkbox"/> D6
	<input type="checkbox"/> D4->1	<input checked="" type="checkbox"/> D7
	<input type="checkbox"/> D4->2	
	<input type="checkbox"/> D5->1	
	<input type="checkbox"/> D6->1	
	<input type="checkbox"/> D6->2	
	<input type="checkbox"/> D7->1	

Save

### 3) Integration method

#### SDK integration

Call NET\_DVR\_SetDVRMessageCallBack\_V31 to set alarm callback function for receiving and handling alarm information.

Command: COMM\_ALARM\_V30

**Main Structure:** NET\_DVR\_ALARMINFO\_V30

#### Main field

Main field	Remark
dwAlarmType	Alarm type: 0- semaphore alarm, 1- hard disk full, 2- video lost, 3- motion detection, etc
dwAlarmInputNumber	Alarm input port, valid when alarm type is 0 or 23
byAlarmOutputNumber	The triggered alarm output port
byAlarmRelateChannel	Recording channel triggered by alarm: 0- not triggered, 1- triggered.
byChannel	Alarming channel, it is valid when alarm type is 2, 3, 6, 9, 10 or 11
byDiskNumber	Alarming hard disk, it is valid when alarm type is 1, 4, or 5

#### ISAPI integration

URL: GET /ISAPI/Event/notification/alertStream

Note: A connection is established with the device when this URL is called, and stays open to constantly receive event notifications. If Heartbeat/Network timed out, platform should call this URL to reconnect.

Main field in the returned data

Main field	Remark
ipAddress	IP Address. Eg. 10.7.68.11
portNo	Port no. Eg. 80
dynChannelID	Channel number. Eg.7
dateTime	The event time
eventType	Eg.VMD
eventDescription	Eg.Motion alarm

## 7.2 Smart Event

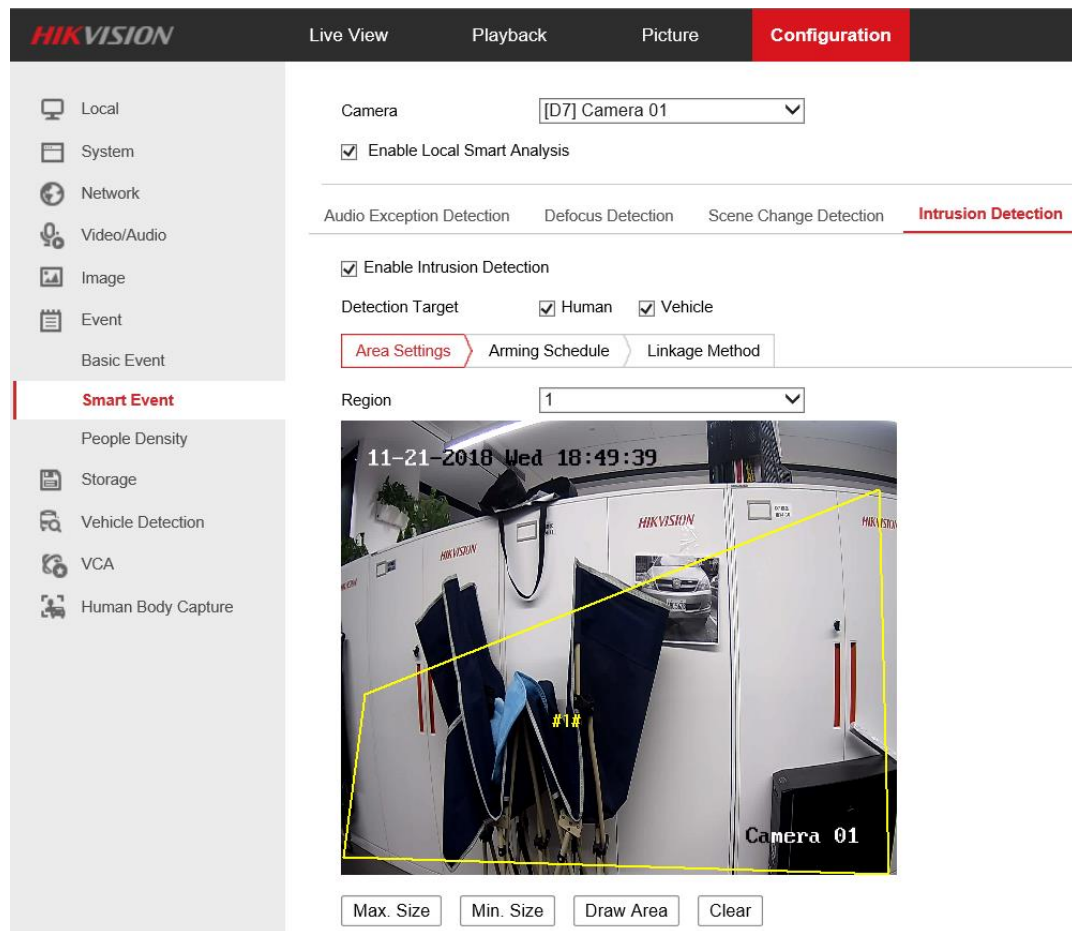
Smart events including intrusion detection, line crossing detection, Region Entrance detection, etc. It depends on the camera support.

## 7.2.1 Intrusion detection

### 1) Description

Intrusion detection function detects people, vehicle or other objects which enter and loiter in a pre-defined virtual region, and some certain linked actions can be taken when the alarm is triggered.

### 2) WEB interface configuration



### 3) Integration method

#### SDK integration

Call **NET\_DVR\_SetDVRMessageCallBack\_V31** to set alarm callback function for receiving and handling alarm information.

**Command:** COMM\_ALARM\_RULE

**Main Structure :** NET\_VCA\_RULE\_INFO

**Main field:** dwEventType (VCA\_INTRUSION)

#### ISAPI integration

URL: GET /ISAPI/Event/notification/alertStream

Note: A connection is established with the device when this URL is called, and stays open

to constantly receive event notifications. If Heartbeat/Network timed out, platform should call this URL to reconnect.

Main field in the returned data

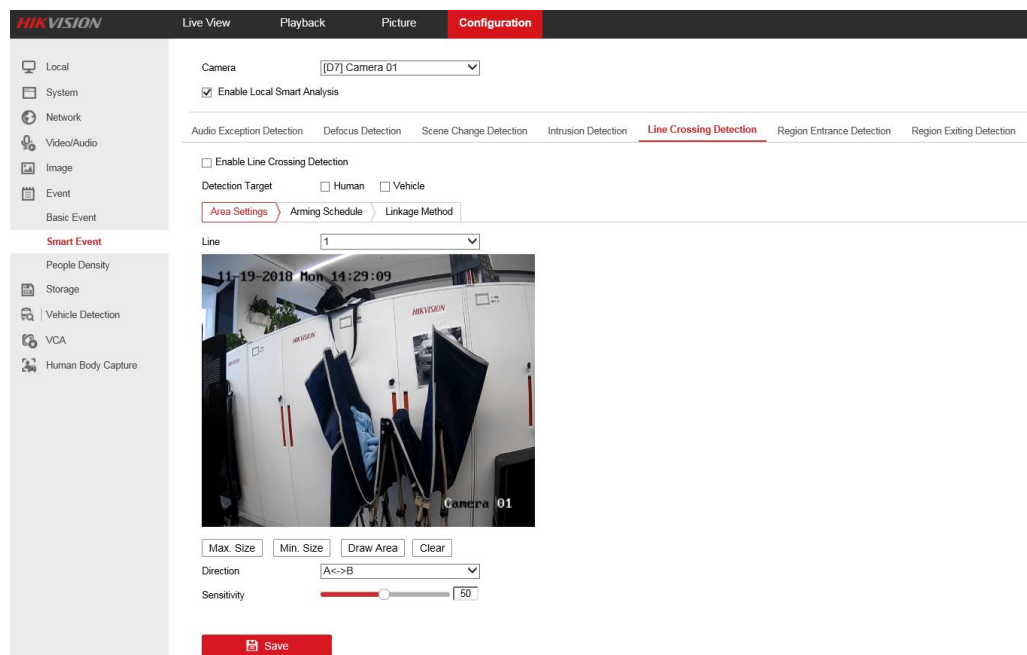
Main field	Remark
dynChannelID	Channel number
dateTime	The event time
eventType	Eg. fieldddetection
eventDescription	Eg. fieldddetection alarm
detectionTarget	Detection target.Eg.human,vehicle
detectionPictureTransType	The trans type of detection pictures,eg.url
detectionPicturesNumber	The number of detection pictures.Eg.1
bkgUrl	The background URL
URLCertificationType	The certification type of URL. Eg. digest

## 7.2.2Line Crossing Detection

### 1) Description

Line crossing detection function detects people, vehicle or other objects which cross a pre-defined virtual line, and some certain actions can be taken when the alarm is triggered.

### 2) WEB interface configuration



### 3) Integration method

#### SDK integration

Call **NET\_DVR\_SetDVRMessageCallBack\_V31** to set alarm callback function for receiving and handling alarm information.

**Command:** COMM\_ALARM\_RULE

**Main Structure :** NET\_VCA\_RULE\_INFO

**Main field:** dwEventType (VCA\_TRAVERSE\_PLANE)

#### ISAPI integration

URL: GET /ISAPI/Event/notification/alertStream

Note: A connection is established with the device when this URL is called, and stays open to constantly receive event notifications. If Heartbeat/Network timed out, platform should call this URL to reconnect.

Main field in the returned data

Main field	Remark
dynChannelID	Channel number
dateTime	The event time
eventType	Eg. linedetection
eventDescription	Eg. linedetection alarm
detectionTarget	Detection target.Eg.human,vehicle
detectionPictureTransType	The trans type of detection pictures,eg.url
detectionPicturesNumber	The number of detection pictures.Eg.1
bkgUrl	The background URL
URLCertificationType	The certification type of URL. Eg. digest

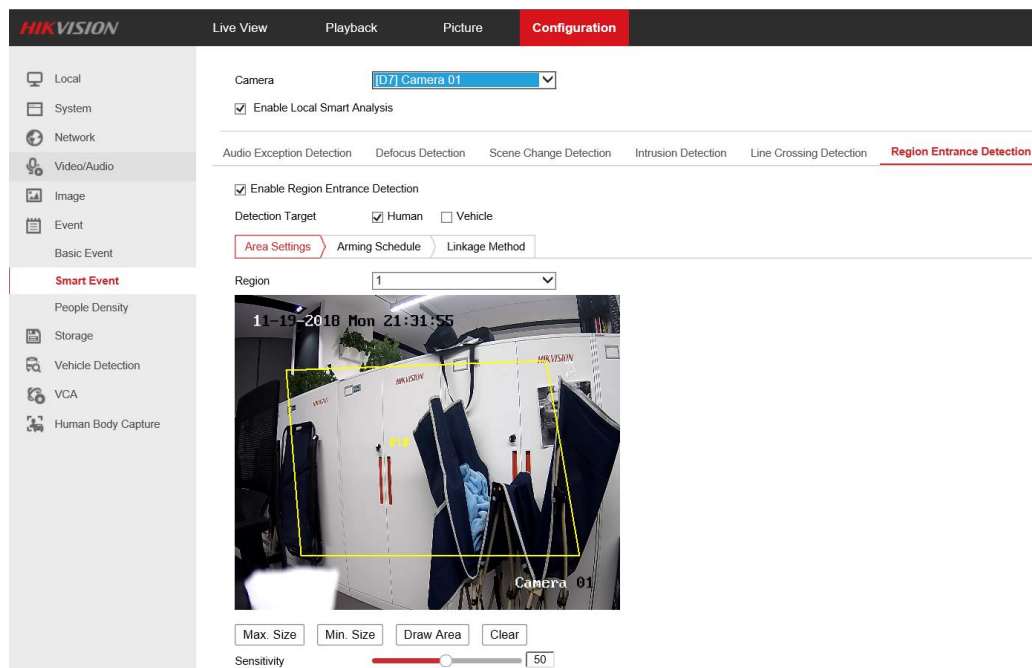
## 7.2.3Region Entrance/Exiting Detection

### 1) Description

Region entrance detection function detects people, vehicle or other objects which enter a pre-defined virtual region from the outside place. Region exiting detection function detects people, vehicle or other objects which exit from a pre-defined virtual region. Some certain actions can be taken when the alarm is triggered.

### 2) WEB interface configuration





### 3) Integration method

#### SDK integration

Call **NET\_DVR\_SetDVRMessageCallBack\_V31** to set alarm callback function for receiving and handling alarm information.

**Command:** COMM\_ALARM\_RULE

**Main Structure :** NET\_VCA\_RULE\_INFO

**Main field:** dwEventType (VCA\_ENTER\_AREA, VCA\_EXIT\_AREA)

#### ISAPI integration

URL: GET /ISAPI/Event/notification/alertStream

Note: A connection is established with the device when this URL is called, and stays open to constantly receive event notifications. If Heartbeat/Network timed out, platform should call this URL to reconnect.

Main field in the returned data

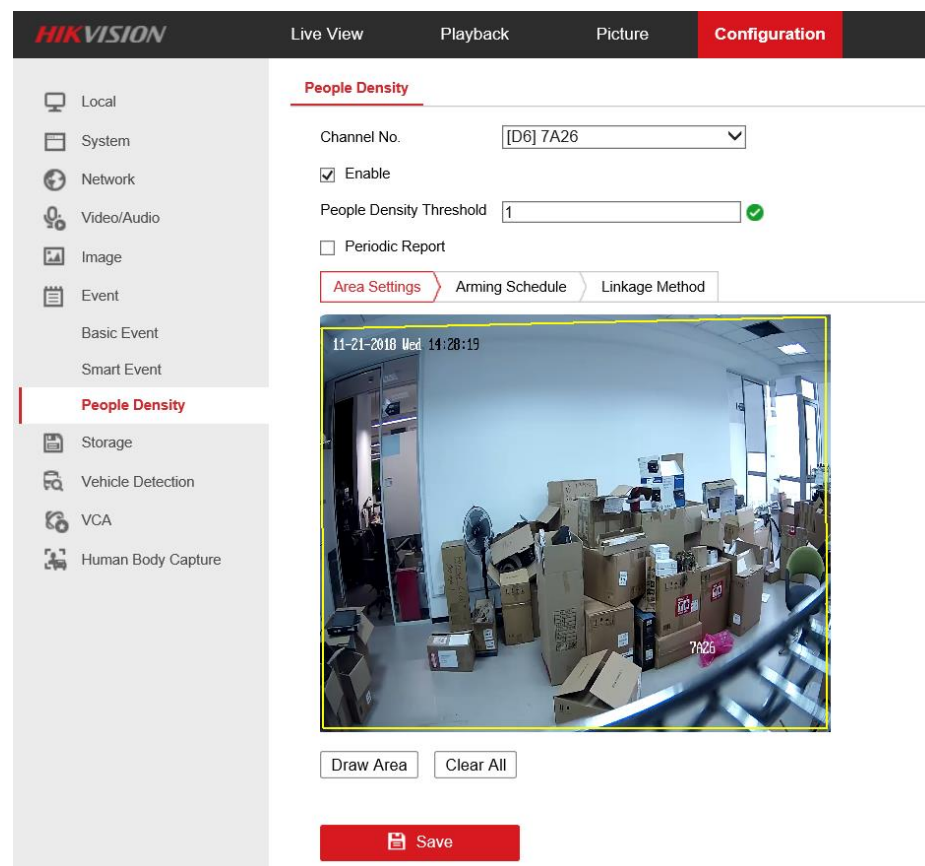
Main field	Remark
dynChannelID	Channel number
dateTime	The event time
eventType	Eg. regionEntrance
eventDescription	Eg. regionEntrance alarm
regionID	Region ID. Eg. 1
detectionTarget	Detection target.Eg.human,vehicle
detectionPictureTransType	The trans type of detection pictures,eg.url
detectionPicturesNumber	The number of detection pictures.Eg.1
bkgUrl	The background URL
URLCertificationType	The certification type of URL. Eg. digest

## 8 People Density

### 8.1 Description

When the people density of an area exceeds a set value, device will alarm. It can be used to get the number of people and people gathering density in specified area within a period of time.

### 8.2 WEB interface configuration



Remark: if you enable **Periodic Report** , then the people density detection will upload in a specified time.

### 8.3 Integration method

#### SDK integration

Call **NET\_DVR\_SetDVRMessageCallBack\_V31** to set alarm callback function for receiving and handling alarm information.

**Command:** COMM\_VCA\_ALARM

**Main Structure :** EVENT\_JSON

**Main field:** "recognition": "personDensityDetection",

### ISAPI integration

URL: GET /ISAPI/Event/notification/alertStream

Note: A connection is established with the device when this URL is called, and stays open to constantly receive event notifications. If Heartbeat/Network timed out, platform should call this URL to reconnect.

Main field in the returned data

Main field	Remark
channelID	Channel number
dateTime	The event time
eventType	Eg. PERSON_DENSITY_DETECTION
eventDescription	Eg. Person Density Detection
recognitionType	Eg. human
dataSource	Eg. trigger
densityLevel	
personCnt	
framesPeopleCounting_number	

### Example:

--boundary

Content-Type: application/json; charset="UTF-8"

Content-Length: 586

```
{
  "ipAddress": "10.7.68.11",
  "portNo":80,
  "protocolType": "HTTP",
  "macAddress": "58:03:fb:2a:e9:51",
  "channelID": 6,
  "dateTime": "1970-01-01T00:00:00+08:00",
  "activePostCount": 15,
  "eventType": "PERSON_DENSITY_DETECTION",
  "eventState": "active",
  "eventDescription": "Person Density Detection",
  "personDensityResult": [{
    "Target": [{
      "recognitionType": "human",
      "TargetInfo": {
        "recognition": "personDensityDetection",
        "dataSource": "trigger",
        "densityLevel": 1,
        "personCnt": 5,
        "framesPeopleCounting_number": 5
      }
    }]
  }]
}
```

```

    }
  }}
}
--boundary

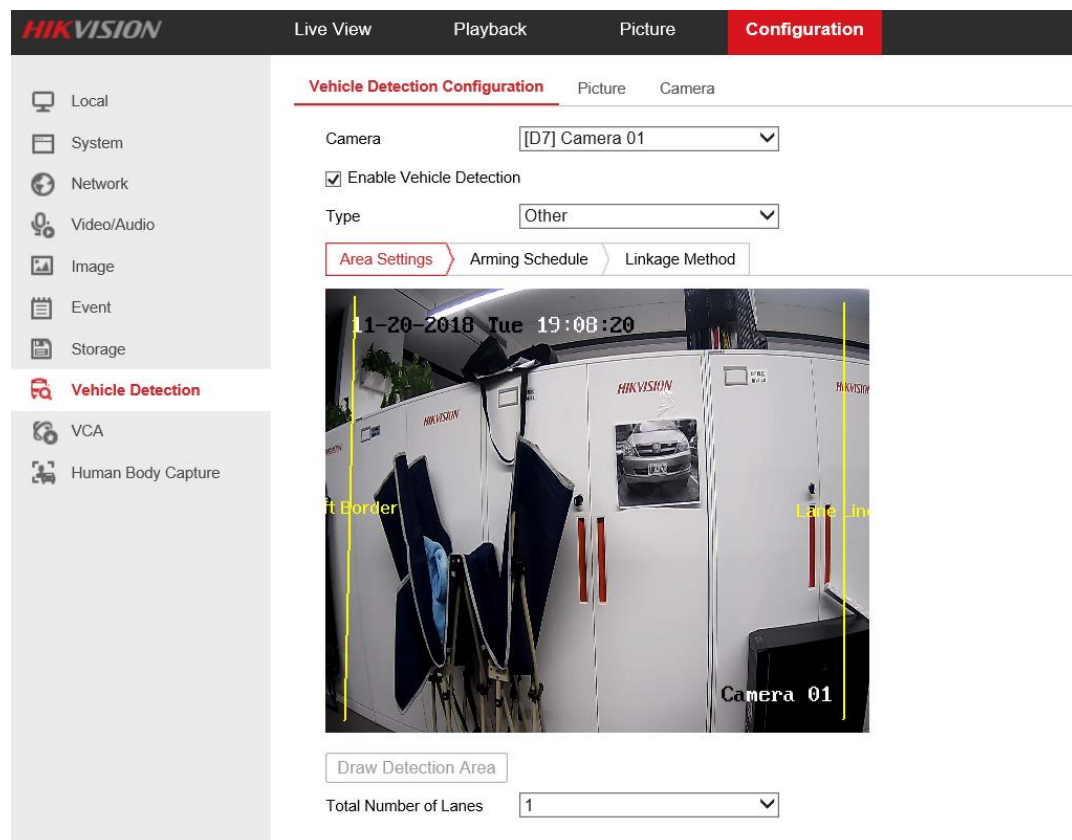
```

## 9 Vehicle Detection

### 9.1 Description

In the vehicle detection configuration interface, you can enable the function to capture the picture of every passed vehicle and the corresponding license plate number, detect the vehicle type and vehicle color, notify the surveillance center of the alarm signal, upload the captured picture to FTP server, etc.

### 9.2 WEB interface configuration



## 9.3 Integration method

### SDK integration

Call NET\_DVR\_SetDVRMessageCallBack\_V31 to set alarm callback function for receiving and handling alarm information.

Command: COMM\_ITS\_PLATE\_RESULT

**Main Structure:** NET\_ITS\_PLATE\_RESULT

#### Main field

Main field	Remark
byVehicleType	Vehicle type: 0- is unknown, 1- bus, 2- truck, 3- car, 4- microbus, 5- van, 6- pedestrian, 7-bicycle, 8-tricycle
byPlateType	License plate type, see details in VCA_PLATE_TYPE
byColor	Color of license plate, see details in VCA_PLATE_COLOR
byLicenseLen	The number of plate characters
byEntireBelieve	Accuracy of the license plate (percentage): 0~100
byCountry	Country index, for details, see COUNTRY_INDEX
struPlateRect	Plate location
sLicense	License number
byBelieve	Accuracy of every recognizing character.
struPicInfo	Picture information, callback one by one, and up to 6 pictures are allowed, differentiated by No

**Remark:** It doesn't support ISAPI command.