VIGI IPC Open API Document

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1. Overview

1.1 Introduction

This section explains how to use VIGI OpenAPI.

VIGI OpenAPI consists of three parts: discovery protocol, control protocol and stream protocol. The OpenAPI Discovery Protocol (ODP) is used for device Discovery. The OpenAPI Discovery Protocol can be used to obtain summary information about a specific host on the same network segment or across network segments. After the device is discovered, you can know the IP address, mac address, and port of the device. Based on this information, you can obtain and set parameters of the device through the OpenAPI control interface, and also make requests related to data stream through the stream interface. Note that authentication is required before the interface is officially used. See Section 2.2 for authentication methods. When the OpenAPI stream interface is used, data streams are often transmitted. In this case, parse and assemble data packets based on RTP Over TCP format.

1.2 Update History

Version	Description
V1.2	Add Chapter 6 OpenAPI LPR interface
V1.1	Delete Section 4.2.4 doSoftReset
V1.0	Initial release

2. OpenAPI Transaction

2.1 Request Format

2.1.1 The request format of OpenAPI Discovery

The OpenAPI Discovery Protocol (ODP) local service port is 23001, and the protocol type field in the Ethernet package is 0x7210.

The request packet must be constructed according to the OpenAPI Discovery Protocol. For details, see Section 3.

2.1.2 The request format of OpenAPI control interface

The VIGI OpenAPI request format is as follows:

```
POST https://device_addr:port/stok=xx HTTP/1.1
Content-Type: application/json
Content-Length: xxx
{"method":"xx","params":{...}}
// or {"method":"xx"}
```

The VIGI OpenAPI information must be a json string containing 'method' and 'method' parameters. For details, see section -- 4.OpenAPI Interface.

Port opened by VIGI for the openAPI control interface can be obtained using the OpenAPI Discovery Protocol, the default value is 20443.

2.1.3 The request format of OpenAPI stream interface

The VIGI OpenAPI stream request format is as follows:

```
MULTITRANS rtsp : //ip /multitrans RTSP/1 .0
CSeq : 1
Content-Type : application/json
Content-Length : xxx
{"type" : "request","seq" : "1","params" : {"method" : "xx"}}
```

The VIGI OpenAPI stream information must be a json string. For details, see section -- 5.OpenAPI Stream interface.

The port corresponding to the OpenAPI stream interface is the port corresponding to the rtsp. The default port is 554. This port is available through the 'getStreamPort' interface.

2.2 Authentication

2.2.1 Method:doAuth

Method: doAuth indicates the authentication before using various OpenAPI control interfaces. After the authentication is successful, 'stok' is returned. 'stok' is required when using all types of openAPI interfaces (except doAuth).

The steps to use doAuth are as follows:

```
/* Step 1 */
POST https://device_addr:port HTTP/1.1
Content-Type: application/json
Content-Length: xxx
{
    "method":"doAuth",
```

```
    "params":null
}

/* reply */
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/json
Content-Length: xxx
{
    "method": "doAuth",
    "authenticate": {
        "realm": "xxx",
        "nonce": "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx",    // nonce1
        "algorithm": "xxx",
        "uri": "xxx",
        "method": "xxx"
    },
    "errCode": -10020
}

/* Step 2 */
POST https://device_addr:port HTTP/1.1
Content-Type: application/json
Content-Length: xxx
{
    "method": "doAuth",
    "params":
    {
        "nonce":"xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx",    // nonce1
        "response":"xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx"
    }
}

/* reply */
HTTP/1.1 200 OK
Cache-Control: no-cache
Content-Type: application/json
Content-Length: xxx
{
    "method": "doAuth",
    "stok": "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx",
    "errCode": 0
}
```

In the second step, the response is calculated from the admin password and the authenticate returned by the IPC. If the algorithm returned by the ipc is SHA-256, the calculation method is as follows:

A1 = SHA256(admin:realm:password)
A2 = SHA256(method:uri)
response = SHA256(A1:nonce:A2)

Port opened by VIGI for the openAPI control interface can be obtained using the OpenAPI Discovery Protocol, the default value is 20443.

2.2.2 Digest Authentication

Digest authentication is used to establish OpenAPI stream connections. The client sends the request without authentication, and the server replies the message with the nonce. The client then sends a request with authorization label, which contains the response calculated by using information such as nonce. The server authenticates the packet after receiving the Authorization label, and continues to process the packet if it passes. Otherwise, a 401 Unauthorized error is displayed.

The process is as follows:

```
/* No authentication request */
C->S :   MULTITRANS rtsp://ip/multitrans RTSP/1.0
  CSeq : 1
  Content-Type : application/json
  Content-Length : xxx
  <json>

/* reply */
S->C :   RTSP/1.0 401 Unauthorized
  CSeq : 1
  WWW-Authenticate : Digest realm="< Request domain >", nonce="<A random 32-bit
character string >", algorithm="SHA-256", qop="auth"

/* authentication request */
C->S :   MULTITRANS rtsp://ip/multitrans RTSP/1.0
  CSeq : 1
  Authorization : Digest username="< username >", realm="< Request domain >",
nonce="< A random 32-bit character string returned by the Server >",
uri="rtsp://ip/multitrans" , qop="auth", cnonce="< cnonce >", nc="< nc >",
response="<SHA-256 digest >"
  Content-Type : application/json
  Content-Length : xxx
  <json>
```

```
/* reply */
S->C :   RTSP/1.0 200 OK
  CSeq : 1
  Content-Type : application/json
  Content-Length : xxx
  <json>
```

2.3 Data Transmission

The data transfer occurs after IPC successfully responds to the relevant request. Using the idea of RTP Over TCP. The format is as follows:

$ (1B)	Chn ID (1B)	Length (2B)

3. OpenAPI Discovery Protocol

OpenAPI Discovery Protocol (ODP) is a device discovery protocol used for OpenAPI. In broadcast or unicast mode, the OpenAPI Discovery Protocol (ODP) can be used to obtain summary information on the same network segment, across network segments, or a specific host.

The ODP local service port is 23001, and the protocol type field in the Ethernet package is 0x7210.

3.1 ODP packet

Please see the following figure for the format of ODP packet:

header	Version [1 Byte]	Reserved [1 Byte]	Flags [1 Byte]	Result [1 Byte]
	Operation Code [2 Bytes]		Payload Length [2 Bytes]	
	Serial No [4 Bytes]			
	Checksum (CRC32) [4 Bytes]			
payload	JSON String			

The fields are described as follows:

fields	Size(byte)	value	description
Version	1	t_uint8	payload format version
Reserved	1	t_uint8	Reserved field, don't care about the value
Flags	1	ODP_FLAG_NONE 0x00	Tag fields, which support many functions, Currently in effect are: REQUEST REPLY BROADCAST UNICAST
		ODP_FLAG_REPLY 0x01	
		ODP_FLAG_REQUEST 0x02	
		ODP_FLAG_COMPRESS 0x04	
		ODP_FLAG_ENCRYPT 0x08	
		ODP_FLAG_UNICAST 0x10	
		ODP_FLAG_BROADCAST 0x20	
		ODP_FLAG_ALL 0xff	
Result	1	ODP_RET_OK 0x01	success
		ODP_RET_ERR 0xff	Packet error
Operation Code	2	t_uint16	Operation code. Currently, the defined operation code is 0x01
Payload Length	2	t_uint16	Payload length
Serial No.	4	t_uint32	The serial number of the request and the reply must be consistent. Anti-attack processing, ensuring that only sent request packets are processed. The exception is broadcast mode.
Checksum	4	t_uint32	MAGIC CODE，Check for the entire package 0x77805D05
Payload		t_int8 *	

3.2Reply packet format

The format of payload content in the reply packet on the device is as follows:

fields		description
error_code **int**		Error code. 0 indicates that the execution succeeds. Otherwise, the execution fails. The specific error value is to be defined.
result	device_name **String**	Device name
	device_type **String**	Device type (such as "IPCAM")
	device_model	Equipment model

	String	
	ip **String**	Device IP address
	mac **String**	MAC address of the device (format: XX-XX-XX-XX-XX-XX, in all uppercase) (Unique identifier of the device)
	factory_default **Bool**	Whether it is in factory default condition. true indicates factory status; otherwise, non-factory status.
	openapi_port **int**	The port number of the OpenAPI control protocol.

The following is an example of device reply data:

```
{
  "error_code": 0,
  "result": {
    "device_name": "XXXXXX",
    "device_type": "XXXXXX",
    "device_model": "XXXXXX",
    "ip": "192.168.0.60",
    "mac": "AA-BB-CC-DD-EE-FF",
    "factory_default": false,
    "openapi_port": 20443
  }
}
```

4. OpenAPI Control Interface

The APIs in this section use the HTTPS protocol. See 2.1.2 for the format of the request.

4.1 Special Interface

4.1.1 doAuth

Name	Content	
Command	doAuth	
Description	This API is used for Auth, requires the password of admin.	
Request	nonce	String. The value needs to be the same as the nonce returned by the IPC.
	response	String. The value is calculated based on the password of the IPC and the authenticate field returned. If the algorithm returned by the ipc is SHA-256, the calculation method is as follows: A1 = SHA256(admin:realm:password)

		A2 = SHA256(method:uri) response = SHA256(A1:nonce:A2)
Response	stok	String. Token required for control protocol instruction authentication. All other control interfaces need to carry tokens. The token aging time is half an hour
	realm	String. Calculate the value required for the response.
	nonce	String. Calculate the value required for the response. In addition, the nonce needs to be sent synchronously with the response when sending the request.
	algorithm	String. The algorithm used to calculate the response.
	method	String. Calculate the value required for the response.
	uri	String. Calculate the value required for the response.

Example	**The process of using this API is as follows:**
	
	First, you need to send a doAuth request with empty params, and the device will return the fields required for authentication.
	request:
	{
	"method": "doAuth",
	"params": null
	}
	response:
	{
	"method": "doAuth",
	"authenticate":
	{
	"realm": "TP-LINK IP-Camera",
	"nonce": "6220dc9a1eea3ad4608a6a780a7958eb",
	"algorithm": "SHA-256",
	"uri": "doAuth",
	"method": "POST"
	},
	"errCode": -10020
	}	

	The response is then calculated based on these fields, and a doAuth request with nonce and response is sent.
	request:
	{
	"method": "doAuth",
	"params":
	{
	"nonce":"6220dc9a1eea3ad4608a6a780a7958eb",
	"response":"8fd7dad29e3fe169a566c164b83d8cf8671b9f1e42a179e6ee6c24c04acbbf4b"
	}
	}
	response:
	{
	"method": "doAuth",
	"stok": "ym(WCEIUs8n4uv3*4J3SJ4o9v3nx94Ez",
	"errCode": 0
	}

4.1.2 getModuleList

Name	Content			
Command	getModuleList			
Description	This API is used for getting module list.			
Request	NULL			
Response	moduleList	array	name	String. The module name.
			version	Int. The version of the current.

Example	**request:**
	{
	"method":"getModuleList"
	}			

response:


```
{
    "method": "getModuleList",
    "result": {
        "moduleList": [
            {
                "name": "system",
                "version": 1
            },
            {
                "name": "dateTime",
                "version": 1
            },
            {
                "name": "audio_speaker",
                "version": 1
            },
            {
                "name": "audio_microphone",
                "version": 1
            },
            {
                "name": "video",
                "version": 1
            },
            {
                "name": "dayNightMode",
                "version": 1
            },
            {
                "name": "sdCard",
                "version": 1
            },
            {
                "name": "motionDetection",
                "version": 1
            },
```

```
            {
                "name": "sound_alarm_enabled",
                "version": 1
            },
            {
                "name": "light_alarm_enabled",
                "version": 1
            },
            {
                "name": "ptz",
                "version": 1
            },
            {
                "name": "playback",
                "version": 1
            },
            {
                "name": "download",
                "version": 1
            },
            {
                "name": "StreamPort",
                "version": 1
            }
        ]
    },
    "errCode": 0
}
```


The current module and its corresponding version are shown in following Table:

Name	Version
system	1
dateTime	1
audio_speaker	1
audio_microphone	1
video	1

dayNightMode	1
sdCard	1
motionDetection	1
CrossLineDetection	1
InvasionDetection	1
AreaEntryDetection	1
AreaLeaveDetection	1
PeopleDetection	1
VehicleDetection	1
DropAndTakeDetection	1
tamperDetection	1
sound_alarm_enabled	1
light_alarm_enabled	1
ptz	1
playback	1
download	1
StreamPort	1
msgPush	1
recordSchedule	1
ptz_zoom	1
LoiterDetection	1
SceneChangeDetection	1
AudioAnomalyDetection	1

4.2 system

4.2.1 getDeviceInfo

Name	**Content**		
method	getDeviceInfo		
Description	This API is used for getting the device information.		
Request	NULL		
Response	deviceInfo	alias	String. The alias of the device.
		type	String. Device type.
		model	String.
		mac	String. The MAC address in the format like 'AA-BB-CC-DD-EE-FF'.
		hwId	String. HW_ID

		oemId	String. OEM_ID
		deviceId	String. Device id
		hwVer	String. Hardware version.
		swVer	String. Software version with country code.

Example	**request:**
	{
	"method":"getDeviceInfo"
	}		

	response:
	{
	"method": "getDeviceInfo",
	"errCode": 0,
	"result": {
	"alias": "openapi-test",
	"type": "SECUR.IPCAM",
	"model": "VIGI C540S",
	"mac": "00-0A-EB-01-88-11",
	"hwId": "5AC4CF9E3183C16825EB28BC3C27059C" ,
	"oemId": "A4551BD7CF274B28C532A79E87B9FFB5",
	"deviceId":
	"80217D4B87B119E91F1EB085EE1000C100112001",
	"hwVer": "1.0",
	"swVer": "1.0.0 Build 202011 Rel.65962n"
	}
	}		

4.2.2 setDeviceAlias

Name	Content	
Command	setDeviceAlias	
Description	This API is used for setting device alias.	
Request	alias	String. Device alias.
Response	NULL	

Example	**request:**
	{
	"method":"setDeviceAlias",
	"params":
	{
	"alias": "VIGI C230 1.0"
	}
	}

	response:
	{
	"method": "setDeviceAlias",
	"errCode":0,
	}

4.2.3 getDeviceAlias

Name	Content	
Command	getDeviceAlias	
Description	This API is used for getting device alias.	
Request	NULL	
Response	alias	String. Device alias.

Example	**request:**
	{
	"method":"getDeviceAlias"
	}	

	response:
	{
	"method": "getDeviceAlias",
	"errCode": 0,
	"result": {
	"alias": "VIGI C540-W 2.0"
	}
	}	

4.2.4 searchSystemLog

Name	Content	
Command	searchSystemLog	
Description	This API is used to search system logs.	
Request	start_time	String. The syslog start time of the query, the number of seconds since 1970.1.1 zero to the present
	end_time	String. The syslog end time of the query, the number of seconds since 1970.1.1 zero to the present
	log_type	String. The type of system log The value ranges are as follows: all alarm exception operation information
Response	syslog	An array of logs
	syslog_xx	Specific information for each log entry. The content format of the log is: <number>date[module]message number: indicates the log type, 0 is all, 1 is alarm, 2 is exception, 3 is operation, and 4 is information date: The time the log was generated. The format is the number of seconds from January 1, 1970 to the present. module: The name of the module that generated the log message: The content of the log
	total	Total log entries, which refers to logs that meet the query criteria, not all logs
Example	**request:** { "method": "searchSystemLog", "params": { "start_time": "1691976514",	

```
            "end_time": "1692581314",
            "log_type": "all",
        }
}
```

response:

```
{
    "method": "searchSystemLog",
    "result": {
        "syslog": [
            {
                "syslog_1":    "<4>1692612202[NSD][SNTPC]Init over"
            },
            {
                "syslog_2":    "<4>1692612202[NSD][TPNTP]Init over"
            }
        ],
        "total": 2
    },
    "errCode": 0
}
```


4.2.5 getDeviceStatus

Name	Content	
Command	getDeviceStatus	
Description	This API is used to getting device status.	
Request	NULL	
Response	device_model	String. Device model.
	dev_alias	String. Device alias.
	ip	String. IP of the device
	mac	String. MAC of the device
	link_status	Int. The connection status of the device

		range : 0 - Not connected 1 - Connected
	uptime	long long. Time from system boot to present (in seconds)

Example	**request:**
	{
	"method":"getDeviceStatus"
	}	

	response:
	{
	"method": "getDeviceStatus",
	"result": {
	"device_model": "VIGI C440",
	"dev_alias": "VIGI C440 2.0",
	"ip": "192.168.137.1",
	"mac": "00-ff-11-22-33-44",
	"link_status": 1,
	"uptime": 582
	},
	"errCode": 0
	}	

4.3 dateTime

4.3.1 setTimeZone

Name	Content	
Command	setTimeZone	
Description	This API is used for setting time zone info.	
Request	timezone	String. Time zone, the format must be similar to **"UTC+hh:mm"** or **"UTC-hh:mm"**.
	area	String. Reference to Appendix 3.

Response	NULL

Example	**request:**
	{
	"method":"setTimeZone",
	"params":
	{
	"timezone": "UTC-00:00",
	"area": "Europe/London"
	}
	}

	response:
	{
	"method": "setTimeZone",
	"errCode": 0,
	}

4.3.2 getTimeZone

Name	Content	
Command	getTimeZone	
Description	This API is used for getting time zone info.	
Request	NULL	
Response	timezone	String. Time zone
	area	String.

Example	**request:**
	{
	"method":"getTimeZone"
	}	

	response:
	{
	"method": "getTimeZone",
	"errCode": 0,
	"result": {
	"timezone": "UTC-00:00",
	"area": "Europe/London"
	}
	}

4.3.3 setSystemTime

Name	Content	
Command	setSystemTime	
Description	This API is used for setting the system time.	
Request	system_time	Int. Sets the current time, the number of seconds from 1970.1.1 to now, and must not be less than 946656000 (1/1/2000 0:0:0)
Response	NULL	

Example	**request:**
	{
	"method":"setSystemTime",
	"params":
	{
	"system_time": 1692864317,
	}
	}	

	response:
	{
	"method": "setSystemTime",
	"errCode": 0
	}

4.3.4 getSystemTime

Name	Content	
Command	getSystemTime	
Description	This API is used for getting the system time.	
Request	NULL	
Response	system_time	Int. The current time of the system, the number of seconds since 1970.1.1 zero hour to the present

Example	**request:**
	{
	"method":"getSystemTime"
	}	

	response:
	{
	"method": "getSystemTime",
	"result": {
	"system_time": 1692862677
	},
	"errCode": 0
	}	

4.4 audio

4.4.1 setSpeakerVolume

Name	Content

Command	setSpeakerVolume	
Description	This API is used for setting speaker volume.	
Request	volume	Int. Range [0-100], for current speaker volume.
Response	NULL	

Example	**request:**
	{
	"method": "setSpeakerVolume",
	"params":
	{
	"volume": 50
	}
	}	

	response:
	{
	"method": "setSpeakerVolume",
	"errCode":0
	}	

4.4.2 getSpeakerVolume

Name	Content	
Command	getSpeakerVolume	
Description	This API is used for getting speaker volume.	
Request	NULL	
Response	volume	Int. Range [0-100], for current speaker volume.

Example	**request:**
	{
	"method": "getSpeakerVolume"
	}	

	response:
	{
	"method": "getSpeakerVolume",
	"errCode": 0,
	"result": {
	"volume": 50
	}
	}

4.4.3 setMicrophoneVolume

Name	**Content**	
Command	setMicrophoneVolume	
Description	This API is used for setting microphone volume.	
Request	volume	Int. Range [0-100], for current microphone volume.
Response	NULL	

Example	**request:**
	{
	"method": "setMicrophoneVolume",
	"params":
	{
	"volume": 50
	}
	}	

	response:
	{
	"method": "setMicrophoneVolume",
	"errCode":0
	}	

4.4.4 getMicrophoneVolume

Name	**Content**

Command	getMicrophoneVolume	
Description	This API is used for getting microphone volume.	
Request	NULL	
Response	volume	Int. Range [0-100], for current microphone volume.

Example	**request:**
	{
	"method": "getMicrophoneVolume"
	}	

	response:
	{
	"method": "getMicrophoneVolume",
	"errCode": 0,
	"result": {
	"volume": 50
	}
	}	

4.4.5 getAudioCapability

Name	**Content**	
Command	getAudioCapability	
Description	This API is used for getting the audio capability.	
Request	NULL	
Response	speaker/microphone	Volume: string, 1- Configuration is supported. 0- Configuration is not supported

Example	**request:**
	{
	"method": "getAudioCapability",
	}	

	response:
	{
	"method": "getAudioCapability",
	"errCode": 0,
	"result": {
	"speaker": {
	"volume": "1"
	},
	"microphone": {
	"volume": "1"
	}
	}
	}

4.5 video

4.5.1 setResolution

Name	**Content**	
Command	setResolution	
Description	This API is used for setting stream resolution.	
Request	main_ resolution	String. For example, "2560*1440" Range reference interface 'getVideoCapability'
	minor_resolution	String. For example, "640*480" Range reference interface 'getVideoCapability'
	At least one in main/minor_ resolution	
Response	NULL	

Example	**request:**
	{
	"method":"setResolution",
	"params":
	{
	"main_resolution": "2560*1440",
	"minor_resolution": "640*480"
	}
	}

	response:
	{
	"method": "setResolution",
	"errCode":0
	}

4.5.2 getResolution

Name	Content	
Command	getResolution	
Description	This API is used for getting stream resolution.	
Request	NULL	
Response	resolution	string

Example	**request:**
	{
	"method":"getResolution",
	}	

	response:
	{
	"method": "getResolution",
	"result": {
	"main": {
	"resolutions": "2560*1440"	

	},
	"minor": {
	"resolutions": "640*480"
	}
	},
	"errCode": 0
	}

4.5.3 getVideoCapability

Name	Content	
Command	getVideoCapability	
Description	This API is used for getting the video capability.	
Request	NULL	
Response	resolutions	Array<string>. The option of resolutions.

Example	**request:**
	{
	"method":
	"getVideoCapability"
	}	

	response:
	{
	"method": "getVideoCapability",
	"result": {
	"main": {
	"resolutions": [
	"2560*1440",
	"2304*1296",
	"2048*1280",
	"1920*1080",
	"1280*720"
	]
	},	

	"minor": {
	"resolutions": [
	"640*480",
	"352*288",
	"320*240"
	]
	}
	},
	"errCode": 0
	}

4.6 dayNightMode

4.6.1 setDayNightMode

Name	Content	
Command	setDayNightMode	
Description	This API is used for setting day and night mode.	
Request	mode	String. {"auto", "day", "night"}
Response	NULL	

Example	**request:**
	{
	"method": "setDayNightMode",
	"params":
	{
	"mode": "auto"
	}
	}	

	response:
	{
	"method": "setDayNightMode",
	"errCode":0
	}

4.6.2 getDayNightMode

Name	Content	
Command	getDayNightMode	
Description	This API is used for getting day and night mode.	
Request	NULL	
Response	mode	String. {"auto", "day", "night"}

Example	**request:**
	{
	"method": "getDayNightMode"
	}	

	response:
	{
	"method": "getDayNightMode",
	"errCode": 0,
	"result": {
	"mode": "auto"
	}
	}	

4.7 sdCard

4.7.1 formatSdCard

Name	Content	
Command	formatSdCard	
Description	This API is used for formatting sd card.	
Request	card_index	Int. SD card disk index. (At present, IPC only has one

		sd card, so it is limited to 1)
Response	NULL	

Example	**request:**
	{
	"method": "formatSdCard",
	"params":
	{
	"card_index": 1
	}
	}	

	response:
	{
	"method": "formatSdCard",
	"errCode":0
	}	

4.7.2 getSdCardStatus

Name	**Content**		
method	getSdCardStatus		
Description	This API is used for getting the status of sd card.		
Request	NULL		
Response	sdCardInfo	card_index	Int. SD card disk index.
		rw_attr	String. {"w", "r", "rw"} harddisk read and write permissions.
		status	String. {"normal", "unformatted", "formatting", "abnormal", "offline", "insufficient"}, sd card status.
		detect_status	String. {"normal", "detecting", "dilatant", "dilatant_suspect", "low_speed", "fail"}.
		write_protect	String. {"0", "1"} write

			protection.
		percent	String. Precentage of sd card formatting.
		type	String. {"local", "remote"} type of disk.
		record_duration	String. Length of recorded video ,unit is second.
		record_free_duration	String. The length of video that can be recorded with the remaining disk space.
		record_start_time	String. The start recording seconds since 0:00 on January 1, 1970
		loop_record_status	String. {"0", "1"} indicates whether the disk is in a circular overwrite state.
		total_space	String. Total space of harddisk
		free_space	String. Free space of harddisk
		video_total_space	String. Total space of video
		video_free_space	String. Free space of video
		picture_total_space	String. Total space of picture
		picture_free_space	String. Free space of picture
		msg_push_total_space	String. Total space of push message
		msg_push_free_space	String. Free space of push message

Example	**request:**
	{
	"method":"getSdCardStatus",
	}		

	response:
	{
	"method": "getSdCardStatus",
	"errCode": 0,
	"result": {
	"card_index": 1,
	"rw_attr": "rw",
	"status": "normal",
	"detect_status": "normal",
	"write_protect": "0",
	"percent": "100",
	"type": "local",
	"record_duration": "3549",
	"record_free_duration": "2586875",
	"record_start_time": "1584341988",
	"loop_record_status": "0",
	"total_space": "119.1GB",
	"free_space": "118.4GB",
	"video_total_space": "118.3GB",
	"video_free_space": "118.0GB" ,
	"picture_total_space": "1.0MB",
	"picture_free_space": "1.0MB",
	"msg_push_total_space": "210.0MB",
	"msg_push_free_space": "210.0MB"
	}
	}

4.8 Event Detection

4.8.1 setMotionDetectionSwitch

Name	Content
Command	setMotionDetectionSwitch
Description	This API is used for setting motion detection switch.

Request	enabled	String. {"on", "off"}, open/close motion detection switch, default is "on".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for motion detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for motion detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for motion detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for motion detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
	sensitivity	Int. Range [1,100]. The sensitivity of motion detection, the higher the sensitivity, the easier it is to generate motion detection
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement
Response	NULL	

Example	**request:**
	{
	"method": "setMotionDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sensitivity": 75,
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "on",
	"record_enabled": "on",
	"people_enhance":"off",
	"vehicle_enhance":"off",
	"enhance_validity":"low",
	}
	}

	response:
	{
	"method": "setMotionDetectionSwitch",
	"errCode": 0
	}

4.8.2 getMotionDetectionSwitch

Name	**Content**	
Command	getMotionDetectionSwitch	
Description	This API is used for getting motion detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close motion detection switch, default is "on".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for motion detection, default is "off".

	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for motion detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for motion detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for motion detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
	sensitivity	Int. Range [1,100]. The sensitivity of motion detection, the higher the sensitivity, the easier it is to generate motion detection
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement

Example	**request:**
	{
	"method":"getMotionDetectionSwitch"
	}	

	response:
	{
	"method": "getMotionDetectionSwitch",
	"errCode": 0,
	"result": {
	"enabled": "on",
	"sensitivity": 75,
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on",
	"people_enhance": "off",
	"vehicle_enhance": "off",
	"enhance_validity": "low"
	}
	}

4.8.3 setMotionDetectionRegion

Name	**Content**		
Command	setMotionDetectionRegion		
Description	This API is used for setting motion detection region. The interface clears the original zone before adding new zones.		
Request	set_region_info	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]
Response	NULL		

Example	**request:**
	{
	"method": "setMotionDetectionRegion",
	"params":
	{
	"set_region_info":[
	{
	"points_num": 4,
	"points_x": [1774,3850,6229,6270],
	"points_y": [5994,2795,2096,8870]
	},
	{
	"points_num": 4,
	"points_x": [7762,9193,9717,7721],
	"points_y": [1774,2983,7043,9731]
	}
	]
	}
	}

	response:
	{
	"method": "setMotionDetectionRegion",
	"errCode": 0
	}

4.8.4 getMotionDetectionRegion

Name	**Content**	
Command	getMotionDetectionRegion	
Description	This API is used for getting motion detection region.	
Request	NULL	
Response	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area.

	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]

Example	**request:**
	{
	"method":"getMotionDetectionRegion"
	}	

	response:
	{
	"method": "getMotionDetectionRegion",
	"result": {
	"region_info_1": {
	"points_num": 4,
	"points_x": [
	7762,
	9193,
	9717,
	7721
	],
	"points_y": [
	1774,
	2983,
	7043,
	9731
	]
	},
	"region_info_2": {	

```
                "points_num": 4,
                "points_x": [
                    806,
                    4536,
                    5262,
                    2883
                ],
                "points_y": [
                    2123,
                    1935,
                    5564,
                    8736
                ]
            },
            "region_info_3": {
                "points_num": 4,
                "points_x": [
                    5120,
                    5927,
                    6189,
                    5866
                ],
                "points_y": [
                    8198,
                    5188,
                    6532,
                    8064
                ]
            }
        },
        "errCode": 0
}
```

4.8.5 setCrosslineDetectionSwitch

Name	Content	
Command	setCrosslineDetectionSwitch	
Description	This API is used for setting Crossline detection switch.	
Request	enabled	String. {"on", "off"}, open/close crossline detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for crossline detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for crossline detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for crossline detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for crossline detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method": "setCrosslineDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	}
	}	

	response:
	{
	"method": "setCrosslineDetectionSwitch",
	"errCode": 0
	}

4.8.6 getCrosslineDetectionSwitch

Name	Content	
Command	getCrosslineDetectionSwitch	
Description	This API is used for getting Crossline detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close crossline detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for crossline detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for crossline detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for crossline detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for crossline detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method": "getCrosslineDetectionSwitch",
	}

	response:
	{
	"method": "getCrosslineDetectionSwitch",
	"result": {
	"enabled": "on",
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},
	"errCode": 0
	}

4.8.7 setCrosslineDetectionRegion

Name	**Content**		
Command	setCrosslineDetectionRegion		
Description	This API is used for setting Crossline detection region. The interface clears the original zone before adding new zones.		
Request	set_region_info	id	Int. Range [1, 4], the id of Crossline Detection Region.
		points_num	Int. The number of point set elements that make up the detected polyline area. The maximum can be 5.
		direction	String. {"AtoB" "BtoA" "both"}. The cordon has two points pt1

	and pt2, palm down the left hand, four fingers together, thumb perpendicular to the four fingers, the base of the left hand is placed on pt1, four fingers point to pt2, the thumb is on one side is A and the other side is B. "AtoB" refers to moving from side A to side B, "BtoA" refers to moving from side B to side A, and "both" means both. Value range: "AtoB" "BtoA" "both".
points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]
sensitivity	Int. Range [1,100]. The sensitivity of crossline detection, the higher the sensitivity, the easier it is to generate crossline detection
people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific

			object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement
Response	NULL		
Example	**request:** { "method": "setCrosslineDetectionRegion", "params": { "set_region_info":[{ "id": 1, "points_num": 4, "direction": "AtoB", "points_x": [0, 6666, 7777,9999, 0], "points_y": [0, 7777, 5555, 2222, 0], "sensitivity": 50, "people_enhance": "on", "vehicle_enhance": "on", "enhance_validity": "medium" }, { "id": 2, "points_num": 2, "direction": "both", "points_x": [0, 8888, 0, 0, 0], "points_y": [0, 6677, 0, 0, 0],		

	"sensitivity": 70, "people_enhance": "off", "vehicle_enhance": "off", "enhance_validity": "medium" }] } }

	response:
	{
	"method": "setCrosslineDetectionRegion",
	"errCode": 0
	}

4.8.8 getCrosslineDetectionRegion

Name	**Content**	
Command	getCrosslineDetectionRegion	
Description	This API is used for getting Crossline detection region.	
Request	NULL	
Response	id	Int. Range [1, 4], the id of Crossline Detection Region.
	points_num	Int. The number of point set elements that make up the detected polyline area. The maximum can be 5
	direction	String. {"AtoB" "BtoA" "both"}. The cordon has two points pt1 and pt2, palm down the left hand, four fingers together, thumb perpendicular to the four fingers, the base of the left hand is placed on pt1, four fingers point to pt2, the thumb is on one side is A and the other side is B. "AtoB" refers to moving from side A to side B, "BtoA" refers to moving from side B to side A, and "both" means both.

		Value range: "AtoB" "BtoA" "both".
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points
	sensitivity	Int. Range [1,100]. The sensitivity of crossline detection, the higher the sensitivity, the easier it is to generate crossline detection
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement

Example	**request:**
	{
	"method":"getCrosslineDetectionRegion"
	}	

	response:
	{
	"method": "getCrosslineDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,	

```
                "points_num": 4,
                "direction": "AtoB",
                "points_x": [
                    0,
                    6666,
                    9999,
                    0,
                    0
                ],
                "points_y": [
                    0,
                    7777,
                    0,
                    0,
                    0
                ],
                "sensitivity": 50,
                "people_enhance": "on",
                "vehicle_enhance": "on",
                "enhance_validity": "medium",
            }
        },
        "errCode": 0
}
```


4.8.9 setInvasionDetectionSwitch

Name	Content	
Command	setInvasionDetectionSwitch	
Description	This API is used for setting invasion detection switch.	
Request	enabled	String. {"on", "off"}, open/close invasion detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound

		alarm switch for invasion detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for invasion detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for invasion detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for invasion detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method": "setInvasionDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	}
	}	

	response:
	{
	"method": "setInvasionDetectionSwitch",
	"errCode": 0
	}	

4.8.10 getInvasionDetectionSwitch

Name	Content	
Command	getInvasionDetectionSwitch	
Description	This API is used for getting invasion detection switch.	
Request	enabled	String. {"on", "off"}, open/close invasion detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for invasion detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for invasion detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for invasion detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for invasion detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method": "getInvasionDetectionSwitch",
	}	

	response:
	{
	"method": "getInvasionDetectionSwitch",
	"result": {
	"enabled": "on",
	"sound_alarm_enabled": "off",	

	"light_alarm_enabled": "off", "msg_push_enabled": "on", "record_enabled": "on" }, "errCode": 0 }

4.8.11 setInvasionDetectionRegion

Name	Content		
Command	setInvasionDetectionRegion		
Description	This API is used for setting invasion detection region. The interface clears the original zone before adding new zones.		
Request	set_region_info	id	Int. Range [1,4], the id of Invasion Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
		threshold	Int. Range [0,10]. Time threshold
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]
		sensitivity	Int. Range [1,100]. The sensitivity of invasion detection, the higher the sensitivity, the easier it is to

			generate invasion detection
		percentage	Int. Range [1,100]
		people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement
Response	NULL		
Example	**request:** { "method": "setInvasionDetectionRegion", "params": { "set_region_info":[{ "id": 2, "sensitivity": 75,		

	"points_num": 4,
	"points_x": [4112,6189,9012,8608],
	"points_y": [6290,3091,5645,9166],
	"threshold":"3",
	"percentage":"60",
	"people_enhance": "off",
	"vehicle_enhance": "off",
	"enhance_validity": "medium"
	},
	{
	"id": 3,
	"sensitivity": 70,
	"points_num": 4,
	"points_x": [2000,3850,6229,6270],
	"points_y": [5994,2795,2096,8870],
	"threshold":"1",
	"percentage":"65",
	"people_enhance": "on",
	"vehicle_enhance": "on",
	"enhance_validity": "low"
	},
	]
	}
	}

	response:
	{
	"method": "setInvasionDetectionRegion",
	"errCode": 0
	}

4.8.12 getInvasionDetectionRegion

Name	Content

Command	getInvasionDetectionRegion	
Description	This API is used for getting invasion detection region.	
Request	NULL	
Response	id	Int. Range [1, 4], the id of Invasion Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points
	sensitivity	Int. Range [1,100]. The sensitivity of invasion detection, the higher the sensitivity, the easier it is to generate invasion detection
	threshold	Int. Range [0, 10]. Time threshold
	percentage	Int. Range [1,100]
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement

Example	**request:**
	{
	"method":"getInvasionDetectionRegion"
	}

	response:
	{
	"method": "getInvasionDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	2500,
	7500,
	7500,
	2500
	],
	"points_y": [
	2500,
	2500,
	7500,
	7500
	],
	"sensitivity": 50,
	"threshold": 5,
	"percentage": 20,
	"people_enhance": "off",
	"vehicle_enhance": "off",
	"enhance_validity": "medium"

	} }, "errCode": 0 }

4.8.13 setTamperDetectionSwitch

Name	Content	
Command	setTamperDetectionSwitch	
Description	This API is used for setting Tamper Detection switch	
Request	enabled	String. {"on", "off"}, open/close tamper detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of tamper detection, the higher the sensitivity, the easier it is to generate tamper detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for tamper detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for tamper detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for tamper detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for tamper detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setTamperDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sensitivity": 10,
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	}
	}

	response:
	{
	"method":"setTamperDetectionSwitch",
	"errCode": 0
	}

4.8.14 getTamperDetectionSwitch

Name	**Content**	
Command	getTamperDetectionSwitch	
Description	This API is used for getting Tamper Detection switch	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close tamper detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of tamper detection, the higher the sensitivity, the easier it is to generate tamper detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for tamper detection, default is "off".

	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for tamper detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for tamper detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for tamper detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getTamperDetectionSwitch"
	}	

	response:
	{
	"method": "getTamperDetectionSwitch",
	"result": {
	"enabled": "off",
	"sensitivity": 10,
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},
	"errCode": 0
	}	

4.8.15 setPeopleDetectionSwitch

Name	Content	
Command	setPeopleDetectionSwitch	
Description	This API is used for setting People Detection switch.	
Request	enabled	String. {"on", "off"}, open/close people detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of people detection, the higher the sensitivity, the easier it is to generate people detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for people detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for people detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for people detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for people detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	
Example	**request:** { "method":"setPeopleDetectionSwitch", "params": { "enabled": "on", "sensitivity": 10, "sound_alarm_enabled": "on", "light_alarm_enabled": "on", "msg_push_enabled": "on",	

	"record_enabled": "on", } }

	response:
	{
	"method": "setPeopleDetectionSwitch",
	"errCode": 0
	}

4.8.16 getPeopleDetectionSwitch

Name	Content	
Command	getPeopleDetectionSwitch	
Description	This API is used for getting People Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close people detection switch, default is "off".
	sensitivity	Int. range [1,100]. The sensitivity of people detection, the higher the sensitivity, the easier it is to generate people detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for people detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for people detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for people detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record

		switch for people detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getPeopleDetectionSwitch"
	}	

	response:
	{
	"method": "getPeopleDetectionSwitch",
	"result": {
	"enabled": "off",
	"sensitivity": 10,
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	},
	"errCode": 0
	}	

4.8.17 setPeopleDetectionRegion

Name	**Content**		
Command	setPeopleDetectionRegion		
Description	This API is used for setting People Detection region.		
Request	set_region_info	id	Int. Range [1, 4], the id of People Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that

			make up the detection area
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]
Response	NULL		

Example	**request:**
	{
	"method": "setPeopleDetectionRegion",
	"params": {
	"set_region_info":
	[
	{
	"id": 1,
	"points_num": 4,
	"points_x": [0, 10000, 10000, 0],
	"points_y": [0, 0, 10000, 10000]
	},
	]
	},
	}		

	response:
	{
	"method": "setPeopleDetectionRegion",
	"errCode": 0
	}		

4.8.18 getPeopleDetectionRegion

Name	Content	
Command	getPeopleDetectionRegion	
Description	This API is used for getting People Detection region.	
Request	NULL	
Response	id	Int. Range [1, 4], the id of People Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range [0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]

Example	**request:**
	{
	"method":"getPeopleDetectionRegion"
	}	

	response:
	{
	"method": "getPeopleDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	0,
	10000,
	10000,	

```
                0
            ],
            "points_y": [
                0,
                0,
                10000,
                10000
            ]
        }
    },
    "errCode": 0
}
```


4.8.19 setVehicleDetectionSwitch

Name	Content	
Command	setVehicleDetectionSwitch	
Description	This API is used for setting Vehicle Detection switch	
Request	enabled	String. {"on", "off"}, open/close vehicle detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of vehicle detection, the higher the sensitivity, the easier it is to generate vehicle detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for vehicle detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for vehicle detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for vehicle detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for vehicle detection, default is "on".

		But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setVehicleDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sensitivity": 20,
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	}
	}	

	response:
	{
	"method": "setVehicleDetectionSwitch",
	"errCode": 0
	}	

4.8.20 getVehicleDetectionSwitch

Name	**Content**	
Command	getVehicleDetectionSwitch	
Description	This API is used for getting Vehicle Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close vehicle detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of vehicle

		detection, the higher the sensitivity, the easier it is to generate vehicle detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for vehicle detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for vehicle detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for vehicle detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for vehicle detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getVehicleDetectionSwitch"
	}	

	response:
	{
	"method": "getVehicleDetectionSwitch",
	"result": {
	"enabled": "off",
	"sensitivity": 50,
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},	

	"errCode": 0 }

4.8.21 setVehicleDetectionRegion

Name	Content		
Command	setVehicleDetectionRegion		
Description	This API is used for setting Vehicle Detection region.		
Request	set_region_info	id	Int. Range [1,4], the id of Vehicle Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
Response	NULL		

Example	**request:**
	{
	"method": "setVehicleDetectionRegion",
	"params": {
	"set_region_info": [
	{
	"id": 1,
	"points_num": 4,
	"points_x": [1000, 9000, 9000, 1000],		

<table>
<tr><td></td><td>
<pre>"points_y": [1000, 1000, 9000, 9000]
},
{
"id": 2,
"points_num": 4,
"points_x": [0, 1000, 1000, 0],
"points_y": [0, 0, 1000, 1000]
},
]
},
}</pre>
</td></tr>
<tr><td></td><td>
response:
<pre>{
"method": "setVehicleDetectionRegion",
"errCode": 0
}</pre>
</td></tr>
</table>

4.8.22 getVehicleDetectionRegion

Name	**Content**	
Command	getVehicleDetectionRegion	
Description	This API is used for getting Vehicle Detection region.	
Request	NULL	
Response	id	Int. Range [1, 4], the id of Vehicle Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]

Example	**request:**
	{
	"method":"getVehicleDetectionRegion"
	}

	response:
	{
	"method": "getVehicleDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	0,
	10000,
	10000,
	0
	],
	"points_y": [
	0,
	0,
	10000,
	10000
	]
	}
	}, "errCode": 0
	}

4.8.23 setAreaEntryDetectionSwitch

Name	Content

Command	setAreaEntryDetectionSwitch	
Description	This API is used for setting Area Entry Detection switch.	
Request	enabled	String. {"on", "off"}, open/close Area Entry detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Area Entry detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Area Entry detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Area Entry detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Area Entry detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setAreaEntryDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	
	}
	}	

	response:
	{
	"method": "setAreaEntryDetectionSwitch",
	"errCode": 0
	}

4.8.24 getAreaEntryDetectionSwitch

Name	Content	
Command	getAreaEntryDetectionSwitch	
Description	This API is used for getting Area Entry Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close Area Entry detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Area Entry detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Area Entry detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Area Entry detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Area Entry detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getAreaEntryDetectionSwitch"
	}

	response:
	{
	"method": "getAreaEntryDetectionSwitch",
	"result": {
	"enabled": "on",
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},
	"errCode": 0
	}

4.8.25 setAreaEntryDetectionRegion

Name	**Content**		
Command	setAreaEntryDetectionRegion		
Description	This API is used for setting Area Entry Detection region		
Request	set_region_info	id	Int. Range [1,4], the id of Area Entry Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area.
		points_x	Array<int>. An array representing the x-

			coordinate of the i-th point in a set of points. x-range [0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range [0,10000]
		sensitivity	Int. Range [1,100]. The sensitivity of Area Entry detection, the higher the sensitivity, the easier it is to generate Area Entry detection.
		people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement

			and vehicle enhancement.
Response	NULL		

Example	**request:**
	{
	"method": "setAreaEntryDetectionRegion",
	"params": {
	"set_region_info": [
	{
	"id": 1,
	"points_num": 4,
	"points_x": [1000, 9000, 9000, 1000],
	"points_y": [1000, 1000, 9000, 9000],
	"sensitivity": 30,
	"people_enhance": "on",
	"vehicle_enhance": "on",
	"enhance_validity": "low"
	},
	{
	"id": 2,
	"points_num": 4,
	"points_x": [0, 1000, 1000, 0],
	"points_y": [0, 0, 1000, 1000],
	"sensitivity": 70,
	"people_enhance": "on",
	"vehicle_enhance": "off",
	"enhance_validity": "high"
	},
	]
	},
	}		

	response:
	{
	"method": "setAreaEntryDetectionRegion",
	"errCode": 0
	}

4.8.26 getAreaEntryDetectionRegion

Name	Content	
Command	getAreaEntryDetectionRegion	
Description	This API is used for getting Area Entry Detection region.	
Request	NULL	
Response	id	Int. Range [1,4], the id of AreaEntry Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
	sensitivity	Int. Range [1,100]. The sensitivity of Area Entry detection, the higher the sensitivity, the easier it is to generate Area Entry detection
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43

	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement

Example	**request:**
	{
	"method":"getAreaEntryDetectionRegion"
	}	

	response:
	{
	"method": "getAreaEntryDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	2500,
	7500,
	7500,
	2500
	],
	"points_y": [
	2500,
	2500,
	7500,
	7500
	],
	"sensitivity": 50,
	"people_enhance": "off",
	"vehicle_enhance": "off",
	"enhance_validity": "medium"	

	} }, "errCode": 0 }

4.8.27setAreaLeaveDetectionSwitch

Name	Content	
Command	setAreaLeaveDetectionSwitch	
Description	This API is used for setting Area Leave Detection switch.	
Request	enabled	String. {"on", "off"}, open/close Area Leave detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Area Leave detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Area Leave detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Area Leave detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Area Leave detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	
Example	**request:** { "method":"setAreaLeaveDetectionSwitch", "params": { "enabled": "on", "sound_alarm_enabled": "on",	

	"light_alarm_enabled": "on", "msg_push_enabled": "off", "record_enabled": "off", } }

	response:
	{
	"method": "setAreaLeaveDetectionSwitch",
	"errCode": 0
	}

4.8.28 getAreaLeaveDetectionSwitch

Name	**Content**	
Command	getAreaLeaveDetectionSwitch	
Description	This API is used for getting Area Leave Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close Area Leave detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Area Leave detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Area Leave detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Area Leave detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Area Leave detection, default is "on". But if you want to record, you need to have recordschedule turned on at the

		same time.

Example	**request:**
	{
	"method":"getAreaLeaveDetectionSwitch"
	}	

	response:
	{
	"method": "getAreaLeaveDetectionSwitch",
	"result": {
	"enabled": "off",
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},
	"errCode": 0
	}	

4.8.29 setAreaLeaveDetectionRegion

Name	**Content**		
Command	setAreaLeaveDetectionRegion		
Description	This API is used for setting Area Leave Detection region		
Request	set_region_info	id	Int. Range [1,4], the id of Area Leave Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area.
		points_x	Array<int>. An array representing the x-coordinate

			of the i-th point in a set of points. x-range[0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
		sensitivity	Int. Range[1,100]. The sensitivity of Area Leave detection, the higher the sensitivity, the easier it is to generate Area Leave detection
		people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement
Response	NULL		

Example	**request:**
	{
	"method": "setAreaLeaveDetectionRegion",
	"params": {
	"set_region_info": [
	{
	"id": 1,
	"points_num": 4,
	"points_x": [1000, 9000, 9000, 1000],
	"points_y": [1000, 1000, 9000, 9000],
	"sensitivity": 30,
	"people_enhance": "on",
	"vehicle_enhance": "on",
	"enhance_validity": "high"
	},
	{
	"id": 2,
	"points_num": 4,
	"points_x": [0, 1000, 1000, 0],
	"points_y": [0, 0, 1000, 1000],
	"sensitivity": 70,
	"people_enhance": "on",
	"vehicle_enhance": "on",
	"enhance_validity": "medium"
	},
	]
	},
	}

	response: { "method": "setAreaLeaveDetectionRegion", "errCode": 0

	}

4.8.30 getAreaLeaveDetectionRegion

Name	Content	
Command	getAreaLeaveDetectionRegion	
Description	This API is used for getting Area Leave Detection region.	
Request	NULL	
Response	id	Int. Range [1,4], the id of Area Leave Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
	sensitivity	Int. Range [1,100]. The sensitivity of Area Leave detection, the higher the sensitivity, the easier it is to generate Area Leave detection
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43

	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement.

Example	**request:**
	{
	"method":"getAreaLeaveDetectionRegion"
	}	

	response:
	{
	"method": "getAreaLeaveDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	2500,
	7500,
	7500,
	2500
	],
	"points_y": [
	2500,
	2500,
	7500,
	7500
	],
	"sensitivity": 50,
	"people_enhance": "off",
	"vehicle_enhance": "off",
	"enhance_validity": "medium"	

	} }, "errCode": 0 }

4.8.31 setDropAndTakeDetectionSwitch

Name	Content	
Command	setDropAndTakeDetectionSwitch	
Description	This API is used for setting DropAndTake Detection switch.	
Request	enabled	String. {"on", "off"}, open/close DropAndTake detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for DropAndTake detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for DropAndTake detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for DropAndTake detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for DropAndTake detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setDropAndTakeDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	}
	}

	response:
	{
	"method": "setDropAndTakeDetectionSwitch",
	"errCode": 0
	}

4.8.32 getDropAndTakeDetectionSwitch

Name	Content	
Command	getDropAndTakeDetectionSwitch	
Description	This API is used for getting DropAndTake Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close DropAndTake detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for DropAndTake detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for DropAndTake detection, default is "off".

	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for DropAndTake detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for DropAndTake detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getDropAndTakeDetectionSwitch"
	}	

	response:
	{
	"method": "getDropAndTakeDetectionSwitch",
	"result": {
	"enabled": "off",
	"sound_alarm_enabled": "off",
	"light_alarm_enabled": "off",
	"msg_push_enabled": "on",
	"record_enabled": "on"
	},
	"errCode": 0
	}	

4.8.33setDropAndTakeDetectionRegion

Name	**Content**		
Command	setDropAndTakeDetectionRegion		
Description	This API is used for setting DropAndTake Detection region		
Request	set_region_info	id	Int. Range[1,4], the id of

			DropAndTake Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
		sensitivity	Int. Range [1,100]. The sensitivity of DropAndTake detection, the higher the sensitivity, the easier it is to generate DropAndTake detection
		threshold	Int. Range [5,20]. Time threshold
		detect	String. {'take','drop','both'}. Detect event types, 'take': take away, 'drop': legacy, 'both' (default): legacy and take.
Response	NULL		

Example	**request:**
	{
	"method": "setDropAndTakeDetectionRegion",
	"params": {
	"set_region_info": [
	{
	"id": 1,
	"points_num": 4,
	"points_x": [1000, 9000, 9000, 1000],
	"points_y": [1000, 1000, 9000, 9000],
	"sensitivity": 30,		

```
                "threshold": 16,
                "detect": "drop"
            },
            {
                "id": 2,
                "points_num": 4,
                 "points_x": [0, 1000, 1000, 0],
                "points_y": [0, 0, 1000, 1000],
                "sensitivity": 70,
                "threshold": 6,
                "detect": "take"
            },
        ]
    },
}
```


response:


```
{
    "method": "setDropAndTakeDetectionRegion",
    "errCode": 0
}
```


4.8.34 getDropAndTakeDetectionRegion

Name	Content	
Command	getDropAndTakeDetectionRegion	
Description	This API is used for getting DropAndTake Detection region.	
Request	NULL	
Response	id	Int. Range[1,4], the id of DropAndTake Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area.
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-

		range[0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
	sensitivity	Int. Range [1,100]. The sensitivity of DropAndTake detection, the higher the sensitivity, the easier it is to generate DropAndTake detection.
	threshold	Int. Range [5,20]. Time threshold.
	detect	String. {'take','drop','both'}. Detect event types, 'take': take away, 'drop': legacy, 'both' (default): legacy and take.

Example	**request:**
	{
	"method":"getDropAndTakeDetectionRegion"
	}	

	response:
	{
	"method": "getDropAndTakeDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	2500,
	7500,
	7500,
	2500
	],
	"points_y": [
	2500,	

```
                    2500,
                    7500,
                    7500
                ],
                "sensitivity": 50,
                "threshold": 50,
                "detect": "both"
            }
        },
        "errCode": 0
}
```


4.8.35 setLoiterDetectionSwitch

Name	Content	
Command	setLoiterDetectionSwitch	
Description	This API is used for setting Loiter Detection switch.	
Request	enabled	String. {"on", "off"}, open/close Loiter detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Loiter detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Loiter detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Loiter detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Loiter detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setLoiterDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	
	}
	}

	response:
	{
	"method": "setLoiterDetectionSwitch",
	"errCode": 0
	}

4.8.36 getLoiterDetectionSwitch

Name	**Content**	
Command	getLoiterDetectionSwitch	
Description	This API is used for getting Loiter Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close Loiter detection switch, default is "off".
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Loiter detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Loiter detection, default is "off".

	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Loiter detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Loiter detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getLoiterDetectionSwitch"
	}	

	response:
	{
	"method": "getLoiterDetectionSwitch",
	"result": {
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off"
	},
	"errCode": 0
	}	

4.8.37 setLoiterDetectionRegion

Name	Content		
Command	setLoiterDetectionRegion		
Description	This API is used for setting Loiter Detection region.		
Request	set_region_info	id	Int. Range [1, 4], the id of Loiter

			Detection Region.
		points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
		points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
		points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
		sensitivity	Int. Range [1,100]. The sensitivity of Area Entry detection, the higher the sensitivity, the easier it is to generate Loiter detection
		threshold	Int. Range [1,10]. Time threshold
		people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
		vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported

			based on the response result of 4.8.43
		enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement
Response	NULL		

Example	**request:**
	{
	"method": "setLoiterDetectionRegion",
	"params": {
	"set_region_info": [
	{
	"id": 1,
	"points_num": 4,
	"points_x": [1000, 9000, 9000, 1000],
	"points_y": [1000, 1000, 9000, 9000],
	"sensitivity": 30,
	"threshold": 6,
	"people_enhance": "on",
	"vehicle_enhance": "on",
	"enhance_validity": "low"
	},
	{
	"id": 2,
	"points_num": 4,
	"points_x": [0, 1000, 1000, 0],
	"points_y": [0, 0, 1000, 1000],
	"sensitivity": 70,
	"threshold": 3,
	"people_enhance": "on",
	"vehicle_enhance": "off",
	"enhance_validity": "high"		

	},] }, }

	response:
	{
	"method": "setLoiterDetectionRegion",
	"errCode": 0
	}

4.8.38 getLoiterDetectionRegion

Name	**Content**	
Command	getLoiterDetectionRegion	
Description	This API is used for getting Loiter Detection region.	
Request	NULL	
Response	id	Int. Range [1,4], the id of Loiter Detection Region.
	points_num	Int. The value can only be 4. The number of point set elements that make up the detection area
	points_x	Array<int>. An array representing the x-coordinate of the i-th point in a set of points. x-range[0,10000]
	points_y	Array<int>. An array representing the y-coordinate of the i-th point in a set of points. y-range[0,10000]
	sensitivity	Int. Range [1,100]. The sensitivity of Loiter detection, the higher the sensitivity, the easier it is to generate Loiter detection
	threshold	Int. Range [1,10]. Time threshold
	people_enhance	String. {"on", "off"}. Humanoid recognition switch. An event will be triggered only when a specific

		object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	vehicle_enhance	String. {"on", "off"}. Vehicle recognition switch. An event will be triggered only when a specific object enters the area. Determine whether this configuration is supported based on the response result of 4.8.43
	enhance_validity	String. {"high", "medium", "low"}. Confidence levels for people enhancement and vehicle enhancement

Example	**request:**
	{
	"method":"getLoiterDetectionRegion"
	}	

	response:
	{
	"method": "getLoiterDetectionRegion",
	"result": {
	"region_info_1": {
	"id": 1,
	"points_num": 4,
	"points_x": [
	1000,
	9000,
	9000,
	1000
	],
	"points_y": [
	1000,	

```
                1000,
                9000,
                9000
            ],
            "sensitivity": 30,
            "threshold": 6,
            "people_enhance": "on",
            "vehicle_enhance": "on",
            "enhance_validity": "low"
        },
    },
    "errCode": 0
}
```


4.8.39 setSceneChangeDetectionSwitch

Name	Content	
Command	setSceneChangeDetectionSwitch	
Description	This API is used for setting Scene Change Detection switch	
Request	enabled	String. {"on", "off"}, open/close Scene Change detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of Scene Change detection, the higher the sensitivity, the easier it is to generate Scene Change detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Scene Change detection, default is "off".
	light_alarm_enabled	String.{"on", "off"}, open/close the light alarm switch for Scene Change detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Scene Change detection, default is "on".

	record_enabled	String. {"on", "off"}, open/close the record switch for Scene Change detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
Response	NULL	

Example	**request:**
	{
	"method":"setSceneChangeDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	"sensitivity": 30,
	}
	}	

	response:
	{
	"method":"setSceneChangeDetectionSwitch",
	"errCode": 0
	}	

4.8.40 getSceneChangeDetectionSwitch

Name	Content	
Command	getSceneChangeDetectionSwitch	
Description	This API is used for getting Scene Change Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close Scene Change detection switch, default is "off".

	sensitivity	Int. Range [1,100]. The sensitivity of Scene Change detection, the higher the sensitivity, the easier it is to generate Audio Anomaly detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Scene Change detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Scene Change detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Scene Change detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Scene Change detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getSceneChangeDetectionSwitch"
	}	

	response:
	{
	"method": "getSceneChangeDetectionSwitch",
	"result": {
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",	

	"sensitivity": 30 }, "errCode": 0 }

4.8.41 setAudioAnomalyDetectionSwitch

Name	Content	
Command	setAudioAnomalyDetectionSwitch	
Description	This API is used for setting Audio Anomaly Detection switch.	
Request	enabled	String. {"on", "off"}, open/close Audio Anomaly detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of Audio Anomaly detection, the higher the sensitivity, the easier it is to generate Audio Anomaly detection
	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Audio Anomaly detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Audio Anomaly detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Audio Anomaly detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Audio Anomaly detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.
	threshold	Int. Range [1,100]. Alert threshold.
Response	NULL	

Example	**request:**
	{
	"method":"setAudioAnomalyDetectionSwitch",
	"params":
	{
	"enabled": "on",
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off",
	"sensitivity": 30,
	"threshold": 40
	}
	}

	response:
	{
	"method":"setAudioAnomalyDetectionSwitch",
	"errCode": 0
	}

4.8.42 getAudioAnomalyDetectionSwitch

Name	**Content**	
Command	getAudioAnomalyDetectionSwitch	
Description	This API is used for getting Audio Anomaly Detection switch.	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close Audio Anomaly detection switch, default is "off".
	sensitivity	Int. Range [1,100]. The sensitivity of Audio Anomaly detection, the higher the sensitivity, the easier it is to generate tamper detection
	threshold	Int. Range [1,100]. Alert threshold

	sound_alarm_enabled	String. {"on", "off"}, open/close the sound alarm switch for Audio Anomaly detection, default is "off".
	light_alarm_enabled	String. {"on", "off"}, open/close the light alarm switch for Audio Anomaly detection, default is "off".
	msg_push_enabled	String. {"on", "off"}, open/close the msg push switch for Audio Anomaly detection, default is "on".
	record_enabled	String. {"on", "off"}, open/close the record switch for Audio Anomaly detection, default is "on". But if you want to record, you need to have recordschedule turned on at the same time.

Example	**request:**
	{
	"method":"getAudioAnomalyDetectionSwitch"
	}	

	response:
	{
	"method": "getAudioAnomalyDetectionSwitch",
	"result": {
	"enabled": "on",
	"sensitivity": 30,
	"threshold": 40,
	"sound_alarm_enabled": "on",
	"light_alarm_enabled": "on",
	"msg_push_enabled": "off",
	"record_enabled": "off"
	},
	"errCode": 0	

	}

4.8.43 getEventEnhanceCapability

Name	Content	
method	getEventEnhanceCapability	
Description	This API is used for get the enhance capability.	
Request	NULL	
Response	people_enhance_ver	Strings. Humanoid enhancement is based on the following matching rules: 1: MotionDetection 2: CrossLineDetection 4: InvasionDetection 8: AreaEntryDetection 16: AreaLeaveDetection 32: LoiterDetection Support bitwise or, such as 3 indicates that humanoid enhancement is supported in motion detection and crossline detection
	vehicle_enhance_ver	Integer strings. Vehicle enhancement is based on the following matching rules: 1: MotionDetection 2: CrossLineDetection 4: InvasionDetection 8: AreaEntryDetection 16: AreaLeaveDetection 32: LoiterDetection Support bitwise or, such as 3 indicates that vehicle enhancement is supported in motion detection and crossline detection

Example	**request:**
	{
	"method": "getEventEnhanceCapability"
	}

	response:
	{
	"method": "getEventEnhanceCapability",
	"result": {
	"people_enhance_ver": "63",
	"vehicle_enhance_ver": "63",
	},
	"errCode": 0
	}

4.9 PTZ

4.9.1 getPresetPoint

Name	**Content**	
Command	getPresetPoint	
Description	This API is used for getting preset point.	
Request	NULL	
Response	id	Array<string>. Presets a point-unique identifier.
	name	Array<string>. The name of the preset point.
	position_pan	Array<string>. Preset point horizontal position information.
	position_tilt	Array<string>. Preset point vertical position information.
	position_zoom	Array<string>. Preset point zoom position information(Only available when ptz_zoom is supported)

Example	**request:**
	{
	"method": "getPresetPoint"
	}

	response:
	{
	"method": "getPresetPoint",
	"result": {
	"id": [
	"3"
	],
	"name": [
	"vigi-test"
	],
	"position_pan": [
	"0.200000"
	],
	"position_tilt": [
	"0.600000"
	]
	"position_ zoom ": [
	"0.200000"
	]
	},
	"errCode": 0
	}

4.9.2 motorMove

Name	Content	
Command	motorMove	
Description	This API is used for absolute movement.	
Request	x_coord	String. Range in [-1,1]

	y_coord	String. Range in [-1,1]
	z_coord	String. Range in [0,1] (Only essential when ptz_zoom is supported)
Response	NULL	

Example	**request:**
	{
	"method": "motorMove",
	"params":
	{
	"x_coord": "0.2",
	"y_coord": "0.2",
	"z_coord": "0.2",
	}
	}	

	response:
	{
	"method": "motorMove",
	"errCode": 0
	}	

4.9.3 cruiseMove

Name	**Content**	
Command	cruiseMove	
Description	This API is used for continuous movement.	
Request	coord	String, 'x', 'y', '-x' or '-y'; String, 'x' , 'y' , '-x', '-y', 'z' or '-z' when ptz_zoom is supported
	coord_speed (option)	String. The speed at which the coord direction is moving. The maximum speed is 1.000000
Response	NULL	

Example	**request:**
	{
	"method": "cruiseMove",
	"params":
	{
	"coord": "y",
	}
	}

	response:
	{
	"method": "cruiseMove",
	"errCode": 0
	}

4.9.4 stopMove

Name	Content
Command	stopMove
Description	This API is used for stop moving.
Request	NULL
Response	NULL

Example	**request:**
	{
	"method": "stopMove"
	}

	response:
	{
	"method": "stopMove",
	"errCode": 0
	}

4.9.5 setPresetPoint

Name	Content	
Command	setPresetPoint	
Description	This API is used for setting preset point. Save the current PTZ information as the preset point PTZ information.	
Request	id	String. Presets a point-unique identifier, incrementing from 1 to a maximum of 8
	name	String. The name of the preset point
Response	id	String. Presets a point-unique identifier, incrementing from 1 to a maximum of 8
	name	String. The name of the preset point

Example	**request:**
	{
	"method": "setPresetPoint",
	"params":
	{
	"id":"3",
	"name":"vigi-test"
	}
	}	

	response:
	{
	"method": "setPresetPoint",
	"result": {
	"name": "vigi-test",
	"id": 3,
	}
	"errCode": 0
	}

4.9.6 removePresetPoint

Name	Content	
Command	removePresetPoint	
Description	This API is used for removing preset point	
Request	id	Array<string>. Presets a point-unique identifier, incrementing from 1 to a maximum of 8
Response	NULL	

Example	**request:**
	{
	"method": "removePresetPoint",
	"params":
	{
	"id":["3"],
	}
	}	

	response:
	{
	"method": "removePresetPoint",
	"errCode": 0
	}	

4.9.7 gotoPresetPoint

Name	Content	
Command	gotoPresetPoint	
Description	This API is used for jumping to preset point.	
Request	id	String. Presets a point-unique identifier, incrementing from 1 to a maximum of 8
Response	NULL	

Example	**request:**
	{
	"method": "gotoPresetPoint",
	"params":
	{
	"id":"3",
	}
	}	

	response:
	{
	"method": "gotoPresetPoint",
	"errCode": 0
	}	

4.9.8 getPTZCapability

Name	Content	
method	getPTZCapability	
Description	This API is used for get the PTZ capability.	
Request	NULL	
Response	speed_x_max	String. Maximum speed in the x-direction.
	speed_y_max	String. Maximum speed in the y-direction.
	speed_z_max	String. Maximum speed in the z-direction, when ptz_zoom is supported.

Example	**request:**
	{
	"method": "getPTZCapability"
	}

	response:
	{
	"method": "getPTZCapability",
	"result": {
	"speed_x_max": "1.000000",
	"speed_y_max": "1.000000",
	"speed_z_max": "1.000000",
	},
	"errCode": 0
	}

4.10 Playback

4.10.1 searchVideoCalendar

Name	**Content**	
Command	searchVideoCalendar	
Description	get date that had recorded video data	
Request	start_date	String. Start time of search date, the parameter format is ***yyyymm***.
	end_date	String. End time of search date, the parameter format is ***yyyymm***.
Response	dates	Array<string>. All recording dates within the given date, count by day , named by yyyymmdd

Example	**request:**
	{
	"method": "searchVideoCalendar",
	"params": {
	"start_date": "202103",
	"end_date": "202104"
	}
	}

	response:
	{
	"method": "searchVideoCalendar",
	"errCode": 0,
	"result": {
	"dates": [
	"20210303",
	"20210304",
	"20210305",
	"20210306",
	"20210307"
	]
	}
	}

4.10.2 searchVideoList

Name	Content	
Command	searchVideoList	
Description	Get all the video information in a specific UTC time interval. This is not a pagination interface. For example, search the video event list in 20210301, and the client obtains the first 20 events through start_index = 0, end_index = 19, and then the client obtains the next 20 events until all the events of the channel are obtained. When the number of entries returned by the device side is less than 20, the client thinks that there are no more events on the device side and stops the search.	
Request	date	String. Query the recording information for the date, the

		parameter format is ***yyyymmdd***.
	start_index	Int. The start index (including) of the query result.
	end_index	Int. The end index (including) of the query result.
	user_id (optional)	Int. User id, return by getUserID command
Response	startTime	Int. Video start time, seconds since zero hour on January 1, 1970
	endTime	Int. Video end time, seconds since zero hour on January 1, 1970
	video_type	string, video type: Timing MotionDetection TamperDetection CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection LoiterDetection SceneChangeDetection AudioAnomalyDetection

Example	**request:**
	{
	"method": "searchVideoList",
	"params": {
	"date":"20220912",
	"start_index": 0,
	"end_index": 99
	}
	}	

response:


```
{
    "method": "searchVideoList",
    "result": {
        "search_video_results": [
            {
                "search_video_results_1": {
                    "startTime": 1662975800,
                    "endTime": 1662975818,
                    "video_type": "Timing"
                }
            },
            {
                "search_video_results_2": {
                    "startTime": 1662976759,
                    "endTime": 1662983232,
                    "video_type": "Timing"
                }
            },
            {
                "search_video_results_3": {
                    "startTime": 1662983232,
                    "endTime": 1662990625,
                    "video_type": "Timing"
                }
            },
            {
                "search_video_results_4": {
                    "startTime": 1662990625,
                    "endTime": 1662996442,
                    "video_type": "Timing"
                }
            }
        ]
    },
    "errCode": 0
}
```

4.10.3 getUserId

Name	Content	
method	getUserId	
Description	This API is used for get a user ID.	
Request	NULL	
Response	user_id	Int. The user id to used to distinguish and limit the number of users watching a replay video at the same time.

Example	**request:**
	{
	"method": "getUserId"
	}	

	response:
	{
	"method": "getUserId",
	"result": {
	"user_id": 2
	},
	"errCode": 0
	}	

4.11 Download

4.11.1 getMediaList

Name	Content	
Command	getMediaList	
Description	This API is used for getting media list	
Request	start_time	String. The start time of the query, the number of seconds since 1970.1.1.
	end_time	String. The start time of the query, the number of seconds since 1970.1.1.

	event_type	Array<string>. Event type, represented as an array ["MotionDetection"," DropAndTakeDetection ", ...] type value: Timing MotionDetection TamperDetection CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection LoiterDetection SceneChangeDetection AudioAnomalyDetection
	media_type	Array<string>. Media file type, represented as an array. ["video"] (Currently, the download interface only supports media_type with a value of "video")
	start_index	Int. Query the start number of the video, starting from 0, as follows: 1. This field is optional. If no field is left, all fields are obtained. 2. The value is the same as that of max_num. 3. Containing. the index>=start_index of the returned result is not index>start_index. start_index and max_num either exist at the same time or they do not
	max_num	Int. Return the maximum entry of the result. start_index and max_num either exist at the same time or they do not
	user_id (optional)	Int. user id, return by getUserID command
Response	error_code	Int. Error code
	start_time	Array<string>. Start time, the number of seconds since

		1970.1.1. The default value is "".
	end_time	Array<string>. End time, the number of seconds since 1970.1.1. The default value is "".
	size	Array<int>. The size of the file, in bytes, is 0 by default
	file_id	Array<string>. File name, a uniquely identified file. The default value is ""
	event_type	Array<string>. Event type, represented as an array ["MotionDetection"," DropAndTakeDetection ", ...] type value: Timing MotionDetection TamperDetection CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection
	media_type	Array<string>. Media file type, represented as an array. ["video"] (Currently, the download interface only supports media_type with a value of "video")
	Index (optional)	Array<int>. Index number, starting with start_index in the request. The default value is 0
	rest_num (optional)	String. The device caches a certain number of media information in a single search. This field is used to represent the difference between the total number of media cached in a single search and the number of media actually obtained. This field is optional and returned when supported by the device.
	total_num	String. Indicates the total number of media that match the search criteria in the search time range. This field is optional. It is returned when the device supports it

Example	**request:**
	{
	"method":"getMediaList",
	"params":
	{
	"start_time" : "1688350527",
	"end_time" : "1688351757",
	"event_type" :
	["MotionDetection","DropAndTakeDetection"],
	"media_type" : ["video"],
	"start_index" : 0,
	"max_num" : 20
	}
	}

	response:
	{
	"media": {
	"total_num": "2",
	"start_time": [
	"1688350527",
	"1688351737"
	],
	"end_time": [
	"1688350546",
	"1688351757"
	],
	"size": [
	3467800,
	963784
	],
	"file_id": [
	"00010000000001",
	"00010000000002"
	],
	"event_type": [
	"MotionDetection",
	"DropAndTakeDetection"

	] "media_type": ["video", "video"], }, "error_code": 0 }

4.12 StreamPort

4.12.1 getStreamPort

Name	Content	
method	getStreamPort	
Description	This API is used for getting the stream port.	
Request	NULL	
Response	streamPort	The port used for the stream protocol

Example	**request:**
	{
	"method":"getStreamPort"
	}	

	response:
	{
	"method": "getStreamPort",
	"errCode": 0,
	"result": {
	"streamPort": "554",
	}
	}	

4.13 MsgPush

4.13.1 subscribeMsg

Name	Content	
method	subscribeMsg	
Description	This API is used for subscribing to event detection information. The premise of device push messages is that the corresponding "msg_push_enabled" in event detection is turned on. After sending the interface request, you need to maintain the connection, the device will periodically send heartbeat packets to the client, and when the event is triggered, the device will send a message to the client. (Note that if you want to get certain types of event detection messages, you need to enable "msg_push_enabled" in the corresponding event)	
Request	event_type	Array<string>. The event type to which you subscribed. Value range: "all", "MotionDetection", "TamperDetection", "CrossLineDetection", "InvasionDetection", "AreaEntryDetection", "AreaLeaveDetection", "PeopleDetection", "VehicleDetection", "DropAndTakeDetection", "LoiterDetection", "SceneChangeDetection", "AudioAnomalyDetection"
	heartbeat	Int. Range[1,60]. The interval at which the heartbeat packet is sent
Response	(Please see example-response. Other, when the event_type value in the event message looks like "xxx", it stands for xxx event detection. When the event_type value in the event message looks like	

	"xxx_yyy_enhance", it stands for xxx event detection, and xxx event detection enables enhancements of the yyy type.)

Example	**request:**
	{
	"method": "subscribeMsg",
	"params":
	{
	"event_type":["MotionDetection","InvasionDetection"],
	"heartbeat":15
	}
	}

	response: (After sending a subscription request, the device first returns a successful/failed result and boundary format.) ********** HTTP/1.1 200 OK Cache-Control: no-cache Content-Type: multipart/mixed;boundary=--boundary-- ----boundary-- Content-Type: application/json Content-Length: 32 {"result":"success","errCode":0} ********** **<u>Or</u>** ********** HTTP/1.1 200 OK Cache-Control: no-cache Content-Type: application/json Content-Length: 31 {"result":"failed","errCode":0} ********** (After the subscription is successful, the device sends event

	notifications in the same connection and sends heartbeat packets on a regular basis. The format is as follows) ********** ----boundary-- Content-Type: application/json Content-Length: 18 {"Heartbeat":"30"} ----boundary-- Content-Type: application/json Content-Length: 50 {"event_type":"TamperDetection","time":1723175020} ----boundary-- Content-Type: application/json Content-Length: 18 {"Heartbeat":"30"} ……

4.13.2 setMsgpushInterval

Name	Content	
Command	setMsgpushInterval	
Description	This API is used for setting the time interval for pushing various event messages. Event messages within the interval are ignored. The time of different clients is calculated independently.	
Request	event_interval	Int. The default is 0. The interval at which event messages of the same type are pushed to clients.
Response	NULL	
Example	**request:** { "method": "setMsgpushInterval", "params": { "event_interval":60	

	} }

	response:
	{
	"method": "setMsgpushInterval",
	"errCode": 0
	}

4.13.3 getMsgpushInterval

Name	Content	
Command	getMsgpushInterval	
Description	This API is used for getting the time interval for pushing various event messages. Event messages within the interval are ignored. The time of different clients is calculated independently.	
Request	NULL	
Response	event_interval	Int. The default is 0. The interval at which event messages of the same type are pushed to clients

Example	**request:**
	{
	"method": "getMsgpushInterval",
	}	

	response:
	{
	"method": "getMsgpushInterval",
	"result": {
	"event_interval": 60
	},
	"errCode": 0
	}	

4.14 recordSchedule

4.14.1 setRecordSchedule

Name	Content	
method	setRecordSchedule	
Description	This API is used for setting Record Schedule	
Request	enabled	String. {"on", "off"}, open/close record
	monday tuesday wednesday thursday friday saturday sunday	Array<string>. 1. Use each time period: ["AABB-CCDD:type", "AABB-CCDD:type", ...] Indication, AABB means that the start time is AA:BB, CCDD means that the end time is CC:DD, type is the schedule type, and the time period and type are separated by ":". Type is represented by an integer, with 1 representing timing; 2 represents event triggering. 2. There is a limit to the number of time periods included in each day, and the maximum number of time periods is 24 (Note that if you want to record a certain type of event when the type is 2, "record_enabled" needs to be enabled in the corresponding event detection)
Response	NULL	
Example	**request:** { "method": "setRecordSchedule", "params": { "enabled": "on", "monday": ["0000-2400:2"], "tuesday": ["0000-2400:2"], "wednesday": ["0000-2400:2"], "thursday": ["0000-2400:2"], "friday": ["0000-2400:2"], "saturday": ["0000-2400:2"],	

	"sunday": ["0000-2400:2"] } }

	response:
	{
	"method":"setRecordSchedule",
	"errCode":0
	}

4.14.2 getRecordSchedule

Name	Content	
method	getRecordSchedule	
Description	This API is used for getting Record Schedule	
Request	NULL	
Response	enabled	String. {"on", "off"}, open/close record
	monday	Array<string>. 1. Use each time period: ["AABB-CCDD:type", "AABB-CCDD:type", ...] Indication, AABB means that the start time is AA:BB, CCDD means that the end time is CC:DD, type is the schedule type, and the time period and type are separated by ":". Type is represented by an integer, with 1 representing timing; 2 represents event triggering. 2. There is a limit to the number of time periods included in each day, and the maximum number of time periods is 24 (Note that if you want to record a certain type of event when the type is 2, "record_enabled" needs to be enabled in the corresponding event detection)
	tuesday	
	wednesday	
	thursday	
	friday	
	saturday	
	sunday	

Example	**request:**
	{
	"method": "getRecordSchedule",
	}

	response:
	{
	"method": "getRecordSchedule",
	"result": {
	"enabled": "off",
	"monday": [
	"0000-2400:2"
	],
	"tuesday": [
	"0000-2400:2"
	],
	"wednesday": [
	"0000-2400:2"
	],
	"thursday": [
	"0000-2400:2"
	],
	"friday": [
	"0000-2400:2"
	],
	"saturday": [
	"0000-2400:2"
	],
	"sunday": [
	"0000-2400:2"
	]
	},
	"errCode": 0

	}

4.15 Alarm

4.15.1 manualAlarm

Name	Content	
method	manualAlarm	
Description	This API is used to manually start or end alarms.	
Request	act	String. {start, stop}. Indicates the action performed.
Response	duration	Int. Indicates the duration of the countdown on the device, in seconds. When “act” is “stop”, the response does not carry this field

Example	**request:**
	{
	"method": "manualAlarm",
	"params": {
	"act": "start",
	}
	}	

	response:
	{
	"method": "manualAlarm",
	"result": {
	"duration": 10
	},
	"errCode": 0
	}

5. OpenAPI Stream interface

The interfaces in this section are based on the RTSP protocol. See 2.1.3 for the format of the request. Streaming data is transmitted using the RTP over TCP.

5.1 preview

Name	**Content**	
Command	preview	
Description	Get preview data	
Request	resolutions	Array<string>. You need to obtain the resolution of the channel corresponding to the preview stream, which can be VGA, or HD. VGA stands for Sub Stream. HD stands for the main stream.
Response	interleaved_id	String. RTSP chn id. Indicates the track occupied by the channel. Value range: 0 to 127. Format: 'a-b': occupies the id segment from a to b. Generally, two adjacent ids, the former for video transmission and the latter for audio transmission. 'a': Occupied id a.
	av_config	Audio and video configuration

Example	**request:**
	{
	"method" : "get" ,
	"preview" :
	{
	"resolutions" : ["HD"]
	}
	}

	response:
	{
	"error_code":0,
	"session_id":"0",
	"interleaved" :
	[
	{
	"channel":0,
	"interleaved_id":"0-1"
	}
	],
	"av_config":
	[
	{
	"channel":0,
	"video_codec":"H264",
	"audio_codec": "G711alaw",
	"audio_sampling_rate": "8",
	"audio_bitwidth": "16",
	"audio_channels": "1",
	"extra_data":
	{
	"video_rtpmap":"96 H264/90000",
	"video_fmtp":
	"a=fmtp:96 packetization-mode=1;
	profile-level-id=640032;
	sprop-parameter-
	sets=Z2QAMqzGuAoALWhAAAD6QAAnGgE=,aOqPLA=="
	}

```
            }
        ]
}
```

5.2 playback

Name	Content	
Command	playback	
Description	Get playback data. (If the parameters of the playback video are inconsistent with the parameters of the current response, the device will send a notification message.)	
Request	client_id	String. The client_id is specified by the client and must be unique by the client. The client_id can contain a maximum of 64 characters, including letters, digits, and symbols.
	event_type	Array<string>. The Client is used to request the type of event that needs to be played back. Timing MotionDetection TamperDetection CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection LoiterDetection SceneChangeDetection AudioAnomalyDetection
	scale	String. Playback rate and direction, use +n/m format. Positive numbers represent forward play. 1/1 means normal speed. Currently, only

		'+1/1' is supported
	event_type_exclude	Array<string>. Optional field that specifies the type of the event to be excluded. If not carried, it means that the event is not modified. event_type and event_type_exclude can contain only one. An empty array indicates that all events are retrieved. The value meaning of the elements in the array is the same as that of event_type.
	start_time	String. Start time, the number of seconds corresponding to the time point since 1970.1.1
	end_time	String. End time of playback, number of seconds since 1970.1.1, mandatory field.
Response	error_code	Int. The error code corresponding to the error occurs in the sequence corresponding to the channel array.
	interleaved_id	String. RTSP chn id. Indicates the track occupied by the channel. Value range: 0 to 127. Format: 'a-b': occupies the id segment from a to b. Generally, two adjacent ids, the former for video transmission and the latter for audio transmission. 'a': Occupied id a.
	av_config	Audio and video configuration
Example	**request:** { "method":"get", "playback": { "client_id":"123abc", "scale":"+1/1", "event_type":["InvasionDetection"], "start_time":"123123123", "end_time":"123123123"	

	} }

	response:
	{
	"error_code":0,
	"session_id":"0",
	"interleaved":
	[
	{
	"channel":0,
	"interleaved_id":"0-1"
	}
	],
	"av_config":
	[
	{
	"channel":0,
	"video_codec":"H264",
	"audio_codec":"G711alaw",
	"audio_sampling_rate": "8",
	"audio_bitwidth": "16",
	"audio_channels": "1"
	}
	]
	}
	
	If the parameters of the playback video are inconsistent with the parameters of the current response (for example, video_codec), the device will send a notification message. The following is an example of notification.
	
	{

```
  "type":"notification",
  "params":
  {
    "event_type":"channel_preview_params",
    "channels":[0],
    "resolutions":["HD"],
    "audio":["enable"],
    "av_config":
    [
      {
        "channel":0,
        "video_codec":"H264",
        "audio_codec": "G711alaw",
        "audio_sampling_rate": "8",
        "audio_bitwidth": "16"
      }
    ]
  }
}
```

5.3 download

Name	Content	
Command	download	
Description	You need to use the searchVideoList and getMediaList interfaces to obtain related information before downloading. (If the parameters of the download video are inconsistent with the parameters of the current response, the device will send a notification message.)	
Request	client_id	Int. Range[1,32].
	file_id	Optional field that uniquely identifies a media file, but can be corroborated by start_time,end_time, and event_type. Available at getMediaList
	event_type	Array<string>. The Client is used to request the type of event that needs to be downloaded. ["MotionDetection"]

		type value: Timing MotionDetection TamperDetection CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection LoiterDetection SceneChangeDetection AudioAnomalyDetection
	media_type	String. Value: "video" (Currently, the download interface only supports media_type with a value of "video")
	start_time	String. Start time, the number of seconds corresponding to the time point since 1970.1.1
	end_time	String. End time, the number of seconds corresponding to the time point since 1970.1.1
Response	interleaved_id	String. 'a-b': occupies the id segment from a to b. Generally, two adjacent ids, the former for video transmission and the latter for audio transmission. 'a': Occupied id a.
	av_config	Audio and video configuration
	error_code	Integer[]. The error code corresponding to the error occurs in the sequence corresponding to the channel array.

Example	**request:**
	{
	"method":"get",
	"download":
	{
	"client_id":1,
	"start_time":"123123123",
	"end_time":"1231231231",
	"file_id":"01230123",
	"event_type":["MotionDetection"],
	"media_type":"video",
	}
	}

	response:
	{
	"error_code":0,
	"session_id": "xxx",
	"range":"x-y/n",
	"interleaved":
	[
	{
	"channel": 0,
	"interleaved_id": "0-1"
	},
	],
	"av_config":
	[
	{
	"channel":0,
	"video_codec":"H264",
	"audio_codec": "G711alaw",
	"audio_sampling_rate": "8",
	"audio_bitwidth": "16",
	"audio_channels": "1"
	}
	]
	}

If the parameters of the download video are inconsistent with the parameters of the current response (for example, video_codec), the device will send a notification message. The following is an example of notification.

```
{
    "type":"notification",
    "params":
    {
        "event_type":"channel_preview_params",
        "channels":[0],
        "resolutions":["HD"],
        "audio":["enable"],
        "av_config":
        [
            {
                "channel":0,
                "video_codec":"H264",
                "audio_codec": "G711alaw",
                "audio_sampling_rate": "8",
                "audio_bitwidth": "16"
            }
        ]
    }
}
```

5.4 stop

Name	Content
Command	stop
Description	Stop obtaining stream data
Request	null
Response	null

Example	**request:**
	{
	"method":"do",
	"stop":"null"
	}

	response:
	{
	"error_code":0
	}

5.5 play

5.5.1 Modify the parameters for obtaining data

Name	**Content**	
Command	Play	
Description	Change the start and end time and change rate of obtaining data.	
Request	start_time	String. Time stamp, the number of seconds since 1970.1.1.
	end_time	String. Time stamp, the number of seconds since 1970.1.1.
	scale	String. For playback services, the score format indicates the playback rate. Playback rate and direction, use +n/m format. Positive numbers represent forward play. 1/1 means normal speed. Currently, only '+1/1' is supported If it is missing, the rate is not changed.
	event_type	Array<string>. An optional field that is changed to the type of the specified event. If it is not carried, it indicates that the event is not modified. At present, the values are: Timing MotionDetection TamperDetection

		CrossLineDetection InvasionDetection AreaEntryDetection AreaLeaveDetection PeopleDetection VehicleDetection DropAndTakeDetection LoiterDetection SceneChangeDetection AudioAnomalyDetection
	event_type_exclude	Array<string>. Optional field that specifies the type of the event to be excluded. If not carried, it means that the event is not modified. event_type and event_type_exclude can contain only one. An empty array indicates that all events are retrieved. The fillable elements in the array are the same as those in event_type.
Response	null	

Example	**request:**
	{
	"method":"do",
	"play":
	{
	"start_time":"123123123",
	"end_time":"123123123",
	"scale":"+n/m",
	"event_type":["PeopleDetection"],
	}
	}	

	response:
	{
	"error_code":0
	}	

5.6 video

5.6.1 force_iframe

Name	Content	
Command	force_iframe	
Description	Force the device to generate an I-frame.	
Request	stream_type	String. The stream type of the I-frame needs to be enforced Value range: main: Main stream minor: substream
Response	null	

Example	**request:**
	{
	"method": "do",
	"video": {
	"force_iframe":
	{
	"stream_type": "main"
	}
	}
	}	

	response:
	{
	"error_code":0,
	"session_id":" xxx "
	}	

5.7 talk

Name	Content
Command	talk
Description	This API is used by the client to initiate an audio session. Then, the client can send audio data to the IPC. (IPC sends audio to the client through the preview stream.)

Request	mode	String, talk mode, mandatory field. Value: half_duplex: Half-duplex mode aec: AEC Full-duplex mode
Response	null	

Example	**request:**
	{
	"method":"get",
	"talk":
	{
	"mode":"half_duplex",
	}
	}	

	response:
	{
	"error_code":0,
	"session_id":"xxx"
	}	

Once the client receives the correct reply, it can send the audio data to IPC. Audio data is transmitted using the RTP over TCP. Currently, only the G711 format is supported.

The RTP over TCP packet format is as follows:

$(1B)	Chn ID(1B)	Length(2B)	RTP Header	RTP Payload

The RTP Header format is as follows:

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
IV   IP IXI CC     IMI PT              I sequence number              I
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
ITimeStamp                                                         I
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
ISSRC                                                              I
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Important field descriptions:

V : The version number of the RTP protocol, accounting for 2 digits, and the current protocol version number is 2.

P: Padding the flag, which occupies 1 bit, and if P=1, padding one or more

	additional octets at the tail of the packet, which are not part of the payload. X: Extended flag, 1 bit, if X=1, there is an extended header followed by the RTP header. CC : A 4-bit CSRC counter that indicates the number of CSRC identifiers. M: Marker, occupies 1 bit, different payloads have different meanings, for video, marks the end of a frame; For audio, mark the start of the session. PT: The payload type, which occupies 7 bits, is used to describe the type of payload in RTP packets, such as H264/H265 and G711A/U, which is mostly used to distinguish between audio and video streams in streaming media, so that it is easy for clients to parse them. For the value of PT, see RFC3551 and Appendix 2 (this document). Sequence number: occupies 16 digits and identifies the sequence number of the RTP message sent by the sender, with the sequence number incrementing for each packet sent. This field can be used to check packet loss. Simultaneous network jitter can be used to reorder the data, starting at 0 on the Helix server, and counting the audio and video packets separately. Timestamp: 32 bits, timestamp indicates the time when the first byte of the RTP packet was sampled. The receiver uses timestamps to calculate delay and delay jitter and synchronize control. Synchronous Source (SSRC) Identifier: 32 bits and is used to identify the synchronous source. The identifier is chosen randomly, and two simultaneous sources participating in the same video conference cannot have the same SSRC. **RTP Payload is the G711 payload.** Generally, different voices have different packaging cycles, and different packaging cycles correspond to different timestamps. Take G711 with a packaging period of 10ms as an example, the sample rate is 8000, the frame rate is 100, and the increment of RTP timestamp between two frames =8000/100=80, which is also the g711 data size of each rtp packet.

6. OpenAPI LPR interface(Only for LPR)

The interfaces in this section are only supported by license plate recognition models.

6.1 Set the recognition mode

Name	Content
Command	lprTriggerMode

Description	This API is used to set the license plate recognition mode of the IPC.	
Request	alarm_trigger	String. {"on", "off"}, "on" indicates enable the Alarm in trigger mode, and "off" indicates disable the Alarm in trigger mode
	video_trigger	String. {"on", "off"}, "on" indicates enable the video trigger mode, and "off" indicates disable the video trigger mode
Response	NULL	

Example	**request:**
	{
	"method":
	"lprTriggerMode",
	"params":
	{
	"alarm_trigger" : "on",
	"video_trigger" : "on",
	}
	}	

	response:
	{
	"method": "lprTriggerMode",
	"errCode": 0
	}	

6.2 Open the Barrier Gate

Name	Content
Command	openBarrierGate
Description	This API is used for IPC to send electrical signals to open the barrier gate.
Request	NULL
Response	NULL

Example	**request:**
	{
	"method":"openBarrierGate",
	}

	response:
	{
	"method": "openBarrierGate",
	"errCode": 0
	}

6.3 getUserId

Name	**Content**	
method	getUserId	
Description	This API is used for get a user ID.	
Request	NULL	
Response	user_id	Int. The user id to used to distinguish and limit the number of users watching a replay video at the same time.

Example	**request:**
	{
	"method": "getUserId"
	}	

	response:
	{
	"method": "getUserId",
	"result": {
	"user_id": 7
	},
	"errCode": 0
	}	

6.4 Search for license plate recognition information

Name	Content	
Command	searchLprInfo	
Description	This API is used to search the license plate recognition information of the IPC.	
Request	end_time	Number(int). End timestamp of search time range
	start_time	Number(int). Start timestamp of search time range
	user_id	Number(int). User ID which can get from 6.3 getUserId response information
	item_per_page	Number(int). Number displayed per page
	page_num	Number(int). Search page count
	license_plate_number	String. The license plate number to be searched, if there is no such field or the value is empty, it means searching for all license plates
Response	total	Number(int). The total number of license plate records within the search time range
	page	Number(int). Current page count
	device_name	String. Device name of the IPC
	snapshot_timestamp	Number(int). Picture time
	license_plate_number	String. License plate number
	license_plate_color	String. License plate color, this field is currently invalid
	vehicle_brand	String. Vehicle brand, this field is currently invalid
	vehicle_color	String. Vehicle color, this field is currently invalid
	vehicle_type	String. Vehicle type, this field is currently invalid
	event_type	Number(int). Event Type
	thumbnail_size	Number(int). License plate thumbnail size

	thumbnail_file_id	String. License plate thumbnail file ID
	background_size	Number(int). Vehicle background image size
	background_file_id	String. Vehicle background image file ID
	list_type	Number(int). Blacklist and whitelist type. Possible values: 1 indicates Blacklist 2 indicates White List Other values indicates temporary list

Example	**request:**
	{
	"method": "searchLprInfo",
	"params": {
	"end_time": 1755857239,
	"start_time": 1755770839,
	"user_id": 7,
	"item_per_page": 10,
	"page_num": 1,
	"license_plate_number": ""
	}
	}	

	response:
	{
	"method": "searchLprInfo",
	"result": {
	"total": 1,
	"page": 1,
	"license_plate_result": [
	{
	"license_plate_results_0": {
	"device_name":
	"InSight%20LPR345Z%201.0_E4C4",	

"snapshot_timestamp": 1755846951,
"license_plate_number": "WSP7072",
"license_plate_color": "green",
"vehicle_brand": "0",
"vehicle_color": "other",
"vehicle_type": "other",
"event_type": 52,
"thumbnail_size": 10201,
"thumbnail_file_id": "0001000000001000",
"background_size": 34617,
"background_file_id": "0001000000001001",
"list_type": 0
}
}
],
"error_code": 0
}
}

6.5 Download license plate recognition images

Name	Content	
Command	downloadLprImage	
Description	This API is used to download the license plate recognition image of the IPC.	
Request	timestamp	Number(int). Picture time which can get from 6.4 searchLprInfo response information
	thumbnail_file_id	String. License plate thumbnail file ID which can get from 6.4 searchLprInfo response information
	background_file_id	String. Vehicle background image file ID which can get from 6.4 searchLprInfo response information
Response	thumbnail_image	String. License plate thumbnail base64

		information
	background_image	String. Vehicle background image base64 information

Example	**request:**
	{
	"method": "downloadLprImage",
	"params": {
	"timestamp": 1755846951,
	"thumbnail_file_id": "0001000000001000",
	"background_file_id": "0001000000001001"
	}
	}	

	response:
	{
	"method": "downloadLprImage",
	"result": {
	"license_plate_image_result": {
	"thumbnail_image": "(base64 thumbnail image data)",
	"background_image": "(base64 background image data)"
	}
	},
	"errCode": 0
	}	

Appendix 1 Error code information

Error code information about OpenAPI interface

errCode	errMsg
-10000	Other err
-10001	Json parse failed
-10002	Unauthorized Error
-10003	Method not support
-10004	No method in request
-10005	No params in request
-10006	Parameter value not exist
-10007	Multiple request has no requests
-10008	Requests in multipleRequest is not an array
-10009	The format error
-10010	The parameter error
-10011	The number of clients used for playback reached the limit
-10012	Client id is occupied or invalid
-10013	Storage device does not exist
-10014	Failed to search for events
-10015	The request failed, please restart the request
-10016	The motor arrives at the stalled rotor
-10020	Authentication failed or password error
-10021	Authentication failed because the number of supported clients is exceeded
-10022	The number of retries has been exceeded, and it has been locked
-10030	Unsupported directives

Error code information about Stream interface

errCode	errMsg
-501	Json error
-502	Json parse error
-52400	System general error
-52401	Invalid session id
-52402	Invalid args
-52405	Session up to limit
-52409	Storage error
-52411	Audio device busy
-52422	Storage device does not exist

Appendix 2 Payload Type

PT of RTP, 96-127 is dynamic. There is no universal definition for dynamic PT except that 96 is conventionally used for H264/H265. Therefore, in this document, some dynamic PT types are used as auxiliary data types for events transmission and other functions. The value of the audio part is the same as that of RFC3551. The PT values used in this document are shown in the table below.

Payload Type

Type value	Type of payload	Reference format
96	H.264/H265, Video	
0	G711U/PCMU, Audio	RFC 3551
8	G711A/PCMA, Audio	RFC 3551

Appendix 3 area about 'setTimeZone'

AREA
Pacific/Wake
Pacific/Midway
Pacific/Honolulu
America/Anchorage
America/Los_Angeles
America/Phoenix
America/Chihuahua
America/Denver
America/Tegucigalpa
America/Chicago
America/Mexico_City
Canada/Saskatchewan
America/Bogota
America/New_York
America/Indiana/Indianapolis
America/Caracas
America/Asuncion
America/Halifax
America/Cuiaba
America/La_Paz
America/Santiago
Canada/Newfoundland
America/Sao_Paulo
America/Buenos_Aires
America/Cayenne
America/Godthab
America/Montevideo
Atlantic/South_Georgia
Atlantic/Azores
Atlantic/Cape_Verde
Africa/Casablanca
UTC
Europe/London
Atlantic/Reykjavik
Europe/Amsterdam
Europe/Belgrade
Europe/Brussels
Europe/Sarajevo
Africa/Algiers
Europe/Athens
Asia/Beirut

Africa/Cairo
Asia/Damascus
Africa/Harare
Europe/Vilnius
Asia/Jerusalem
Asia/Amman
Asia/Baghdad
Europe/Minsk
Asia/Kuwait
Africa/Nairobi
Asia/Istanbul
Europe/Moscow
Asia/Tehran
Asia/Muscat
Asia/Baku
Asia/Tbilisi
Asia/Yerevan
Asia/Kabul
Asia/Karachi
Asia/Yekaterinburg
Asia/Tashkent
Asia/Kolkata
Asia/Colombo
Asia/Katmandu
Asia/Dhaka
Asia/Rangoon
Asia/Bangkok
Asia/Novosibirsk
Asia/Krasnoyarsk
Asia/Hong_Kong
Asia/Kuala_Lumpur
Australia/Perth
Asia/Taipei
Asia/Ulaanbaatar
Asia/Irkutsk
Asia/Tokyo
Asia/Seoul
Asia/Yakutsk
Australia/Adelaide
Australia/Darwin
Australia/Brisbane
Australia/Canberra
Pacific/Guam

Australia/Hobart
Asia/Vladivostok
Pacific/Noumea
Asia/Magadan
Pacific/Auckland
Pacific/Fiji
Asia/Kamchatka
Pacific/Tongatapu