

Overview of 3rd Party Integration

- 1 What is 3rd Party Integration**

- 2 Integrate with Hardware Device (Statical IP)**

- 3 Integrate with Hardware Device (Dynamic IP)**

- 4 Integrate HikCentralPro by OpenAPI**

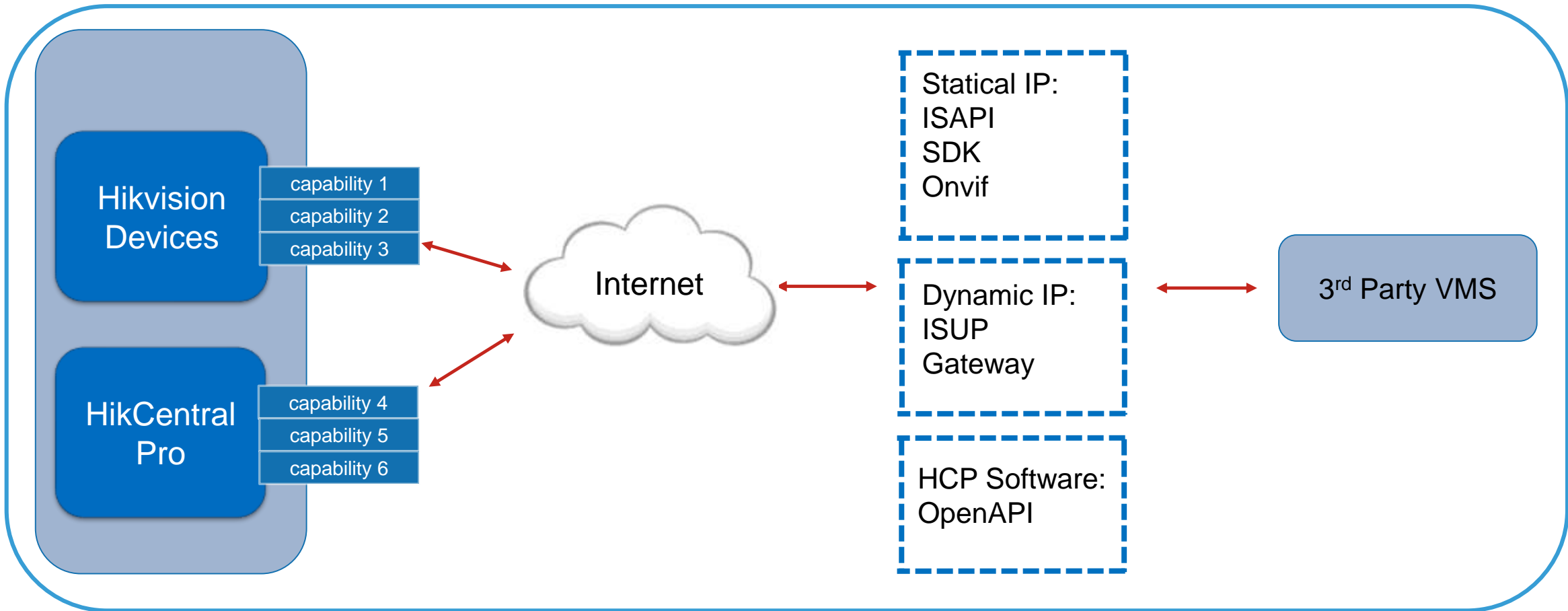
- 5 How to Get Materials From Hikvision TPP Website**

P.01

What is 3rd Party Integration?



What is integration for Hikvision?



P.02

**Integrate With Hardware
(Statical IP)**



Hikvision Devices Integration Protocol Overview



Standard protocol



Hikvision Private protocol

Pre-Request: Device has a static IP



ISAPI

(ISAPI) is a text protocol in RESTful style based on HTTP for communicating between security devices/servers (e.g., Cameras, DVR, NVR, etc.) and client software/system.

RESTful style

- HTTP methods+URI

Hikvision private protocol

- Compares to onvif

Light-weight data inter-change

- Compares to HCNet SDK
- Xml
- Json(save bandwidth and reduce complexity)

Across platforms

- Compares to HCNet SDK
- can be accessed easily across the platform, such as windows, Linux, Mobile OS.

HTTP Methods +URI(Uniform Resource Identifiers)

Method	Description
POST	Create resources
GET	Retrieve resources
PUT	Update resources
DELETE	Delete resources

URL (Uniform Resource Locator) is a further class of URIs, it can identify a resource and locate the resource by describing its primary access mechanism.

URL Format: <protocol>://<host>[:port][abs_path [?query]]

protocol: Protocol types, including HTTP and HTTPS.

host: Host name, IP address, or the FQDN (Fully Qualified Domain Name) of network devices.

Port: number of the host for listening the connection status of TCP.

abs_path: Resource URI.

query: Strings for describing resources information, including related parameters.

Example

GET /ISAPI/System/deviceinfo

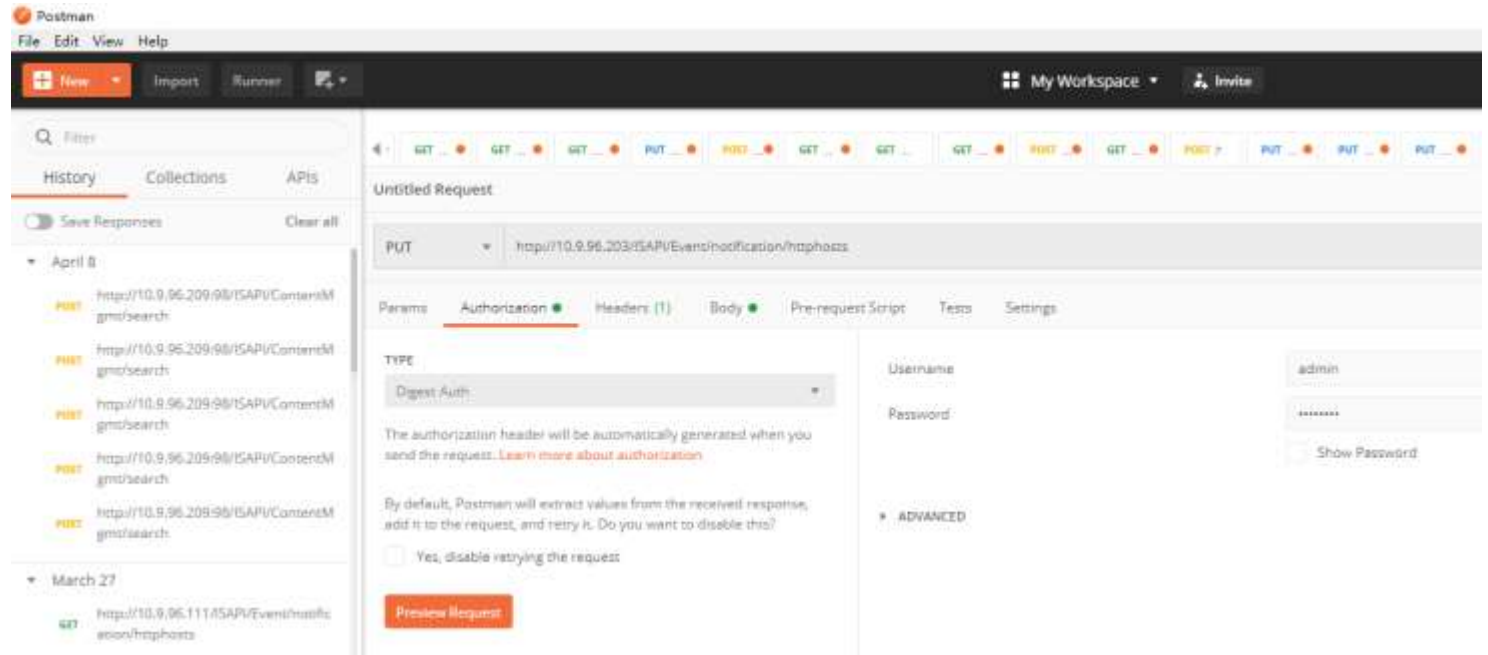
ISAPI URL Example

Here is the example for “GET /ISAPI/System/deviceInfo”, because there’s no request in “GET”, it’s simple to test “GET” URL with IE.

If want to test “POST/PUT/DELETE” URL, because you need to send request, recommend a software named “Postman”.



/ISAPI/System/deviceInfo	URI
GET	HTTP method
Description	It is used to get device information.
Query	None Parameters in URI. Example:/picture?SnapshotImagetype=
Inbound Data	None HTTP request body
Success Return	<DeviceInfo> HTTP response body
PUT	
Description	It is used to update device information.
Query	None
Inbound Data	<DeviceInfo>
Success Return	<ResponseStatus>





Common ISAPI URL

- Hikvision cameras ISAPI capture picture

- Capture specified picture

<http://IP:port/ISAPI/Streaming/channels/1/picture?snapshotImageType=JPEG&videoResolutionWidth=1280&videoResolutionHeight=720>

The resolution must be supported by the camera. If you set “800X600”, but this camera doesn’t support, it would show you the current resolution of main stream picture.

- Capture current main stream picture

<http://IP:port/ISAPI/Streaming/channels/1/picture>

<http://username:pwd@IP:port/ISAPI/Streaming/channels/1/picture>



Common ISAPI URL

- Hikvision NVR/DVR ISAPI capture picture

- IP channels(by resolution)

<http://IP:port/ISAPI/ContentMgmt/StreamingProxy/channels/id/picture?videoResolutionWidth=1920&videoResolutionHeight=1080>

id=channel*100+1

Note: The max picture resolution can't exceed 1080P, if exceeds 1080P, only 1080P can be got. But there're only 6 groups below can be got by resolution.

- Width=176, Height=144 or 120
- Width=352, Height=288 or 240
- Width=704, Height=576 or 480

- Analog channels(by resolution)

<http://IP:port/ISAPI/Streaming/channels/id/picture>

Before using the URL above, it's better to use "GET /ISAPI/Streaming/channels" or "GET /ISAPI/ContentMgmt/StreamingProxy/channels" to check useful channels.

RTSP contains Video, Audio and metadata.

Live View URL

rtsp://<address>:<port>/Streaming/Channels/<id>

Example:

rtsp://192.0.1.100:554/ISAPI/Streaming/Channels/101 /*get the main stream of the 1st channel*/

rtsp://192.0.1.100:554/ISAPI/Streaming/Channels/102/* get the sub stream of the 1st channel*/

rtsp://192.0.1.100:554/ISAPI/Streaming/Channels/202/* get the sub stream of the 2nd channel */

Playback URL (Can be played in the VLC or download by other URL)

rtsp://<address>:<port>/Streaming/tracks/<id>

Example:

rtsp://192.0.1.100:554/Streaming/tracks/101?starttime=20120802t063812z&endtime=20120802t064816z

Example for RTSP playback

POST http://10.9.96.209:98/ISAPI/ContentMgmt/search

Params Authorization Headers (10) **Body** Pre-request Script Tests Settings

none form-data x-www-form-urlencoded **raw** binary GraphQL JSON

```
1 <CMSearchDescription>
2 <searchID>C8DC1695-6040-0001-A59C-AFE81E095460</searchID>
3 <trackList><trackID>101</trackID></trackList>
4 <timeSpanList>
5 <timeSpan>
6 <startTime>2020-04-07T00:00:00Z</startTime>
7 <endTime>2020-04-09T23:59:59Z</endTime>
8 </timeSpan>
9 </timeSpanList>
10 <maxResults>40</maxResults>
11 <searchResultPostion>0</searchResultPostion>
12 <metadataList>
13 <metadataDescriptor>//recordType.meta.std-cgi.com</metadataDescriptor>
14 </metadataList>
15 </CMSearchDescription>
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize XML

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <CMSearchResult version="1.0" xmlns="http://www.hikvision.com/ver20/XMLSchema">
3   <searchID>{c8dc1695-6040-0001-a59c-afe81e095460}</searchID>
4   <responseStatus>true</responseStatus>
5   <responseStatusStrg>OK</responseStatusStrg>
6   <numOfMatches>1</numOfMatches>
7   <matchList>
8     <searchMatchItem>
9       <sourceID>{00000000-0000-0000-0000-000000000000}</sourceID>
10      <trackID>101</trackID>
11      <timeSpan>
12        <startTime>2020-04-08T08:16:08Z</startTime>
13        <endTime>2020-04-08T09:58:07Z</endTime>
14      </timeSpan>
15      <mediaSegmentDescriptor>
16        <contentType>video</contentType>
17        <codecType>H.264-BP</codecType>
18        <playbackURI>rtsp://10.9.96.209/Streaming/tracks/101/?starttime=20200408T081608Z&amp;endtime=20200408T095807Z&amp;name=01010000009000100&amp;size=840764244</playbackURI>
```

rtsp://10.9.96.209:10054/ISAPI/Streaming/tracks/101/ - VLC media player

Media Playback Audio Video Subtitle Tools View Help



Test On ANPR Camera

```
<EventNotificationAlert version="2.0"
  xmlns="http://www.hikvision.com/ver20/XMLSchema">
  <ipAddress>10.9.96.186</ipAddress>
  <dateTime>2020-06-03T11:07:43+08:00</dateTime>
  <eventType>ANPR</eventType>
  <ANPR>
    <licensePlate>NU28382</licensePlate>
    <direction>reverse</direction>
    <confidenceLevel>100</confidenceLevel>
    <pictureInfoList>
      <pictureInfo> <fileName>licensePlatePicture.jpg</fileName>
        <type>licensePlatePicture</type>
        <absTime>20200603110743487</absTime>
      </pictureInfo>
      <pictureInfo>
        <fileName>detectionPicture.jpg</fileName>
        <type>detectionPicture</type>
        <absTime>20200603110743487</absTime>
      </pictureInfo>
    </pictureInfoList>
  </ANPR>
  <picNum>2</picNum>
</EventNotificationAlert>
```



Content-Disposition: form-data; name="licensePlatePicture.jpg"; filename="licensePlatePicture.jpg"
Content-Type: image/jpeg
Content-Length: 5345



Content-Disposition: form-data; name="detectionPicture.jpg"; filename="detectionPicture.jpg"
Content-Type: image/jpeg
Content-Length: 186142

Test On Access Control Device

```
{
  "ipAddress": "10.9.96.20",
  "portNo": 80,
  "dateTime": "2020-05-11T22:12:12+08:00",
  "eventType": "AccessControllerEvent",
  "AccessControllerEvent": {
    "majorEventType": 5,
    "subEventType": 75,
    "cardNo": "66",
    "name": "Kelo",
    "employeeNoString": "77",
    "currTemperature": 36.5,
    "isAbnomalTemperature": false,
    "mask": "no",
    "attendanceStatus": "checkIn",
    "picturesNumber": 2
  }
}
```



Content-Disposition: form-data; name="Picture"; filename="Picture.jpeg"
Content-Type: image/jpeg
Content-Length: 73203
Content-ID: pictureimage



Content-Disposition: form-data; name="Thermal"; filename="Thermal.jpeg"
Content-Type: image/jpeg
Content-Length: 6148
Content-ID: thermal_image

Test On Thermal Camera

```
{
  "ipAddress": "10.9.96.181",
  "dateTime": "2020-05-07T19:53:25+08:00",
  "eventType": "faceCapture",
  "faceCapture": [
    {
      "faces": [
        {
          "mask": {
            "value": "yes"
          },
          {
            "currTemperature": 34.4,
            "isAbnomalTemperature": "true",
            "thermometryUnit": "celsius",
            "alarmTemperature": 34
          }
        }
      ],
    }
  ]
}
```



Content-Disposition: form-data; name=""; filename="facePicture.jpg"; Content-Type: image/jpeg Content-Length: 21382



Content-Disposition: form-data; name=""; filename="thermalPicture.jpg"; Content-Type: image/jpeg Content-Length: 26700



Content-Disposition: form-data; name=""; filename="faceCapturePicture.jpg"; Content-Type: image/jpeg Content-Length: 186199

How To Get ISAPI URL Via Web Console

Press "F12" and the developer tool would occur.(Recommend IE browser.)

The screenshot shows the Hikvision web console configuration page for Video/Audio settings. The 'Video Encoding' dropdown is set to 'H.265'. A red box highlights this dropdown with the annotation '1. modify the parameters'. Below the settings, a red box highlights the 'Save' button with the annotation '2. click the button'. The browser's developer tools are open to the Network tab, showing a list of requests. A red box highlights the first request, '101', with the annotation '3. browser will grab the packet data'. The 'Headers' tab for this request is expanded, showing the 'Request URL' as 'http://10.9.96.191/ISAPI/Streaming/channels/101', which is highlighted with a red box and the annotation '4. you can see the url and parameters'.

Resolution: 1280*960
 Bitrate Type: Variable
 Video Quality: Medium
 Frame Rate: 25 fps
 Max. Bitrate: 2048 Kbps
 Video Encoding: H.265
 H.265+: OFF
 Profile: Main Profile
 I Frame Interval: 6
 SVC: OFF
 Smoothing: 50 [Clear<->Smooth]

Save

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Network Elements Console Sources Performance Memory Application Security Audits

View: [Icons] Group by frame [] Preserve log [] Disable cache [] Offline No throttling []

Filter [] Hide data URLs [All] XHR JS CSS Img Media Font Doc WS Manifest Other

Name

101
 sessionHeartbeat
 sessionHeartbeat
 sessionHeartbeat
 sessionHeartbeat

3. browser will grab the packet data

Headers Preview Response Cookies Timing

General

Request URL: http://10.9.96.191/ISAPI/Streaming/channels/101
 Request Method: PUT
 Status Code: 200 OK
 Remote Address: 10.9.96.191:80
 Referrer Policy: no-referrer-when-downgrade

4. you can see the url and parameters

Register on TPP, and check more operation videos from the Training Center
(<https://tpp.hikvision.com/tpp/Training>)

ARC

HIK IP Receiver Pro
HIK IP Receiver Pro
Manitou

ISAPI

General Functions

Access Control
ANPR
TCG
People Counting

HCP OpenAPI

General Functions
Access Control
ANPR

DeviceGateway

AC Gateway



How to Search and
Download Video Files

ISAPI /General Functions;



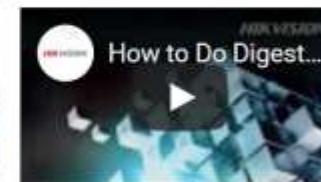
How to Get Playback from
Hikvision Cameras
Through RTSP Protocol

ISAPI /General Functions;



How to Get Live View from
Hikvision Cameras
Through RTSP Protocol

ISAPI /General Functions;



How to Do Digest
Authentication with ISAPI

ISAPI /General Functions;



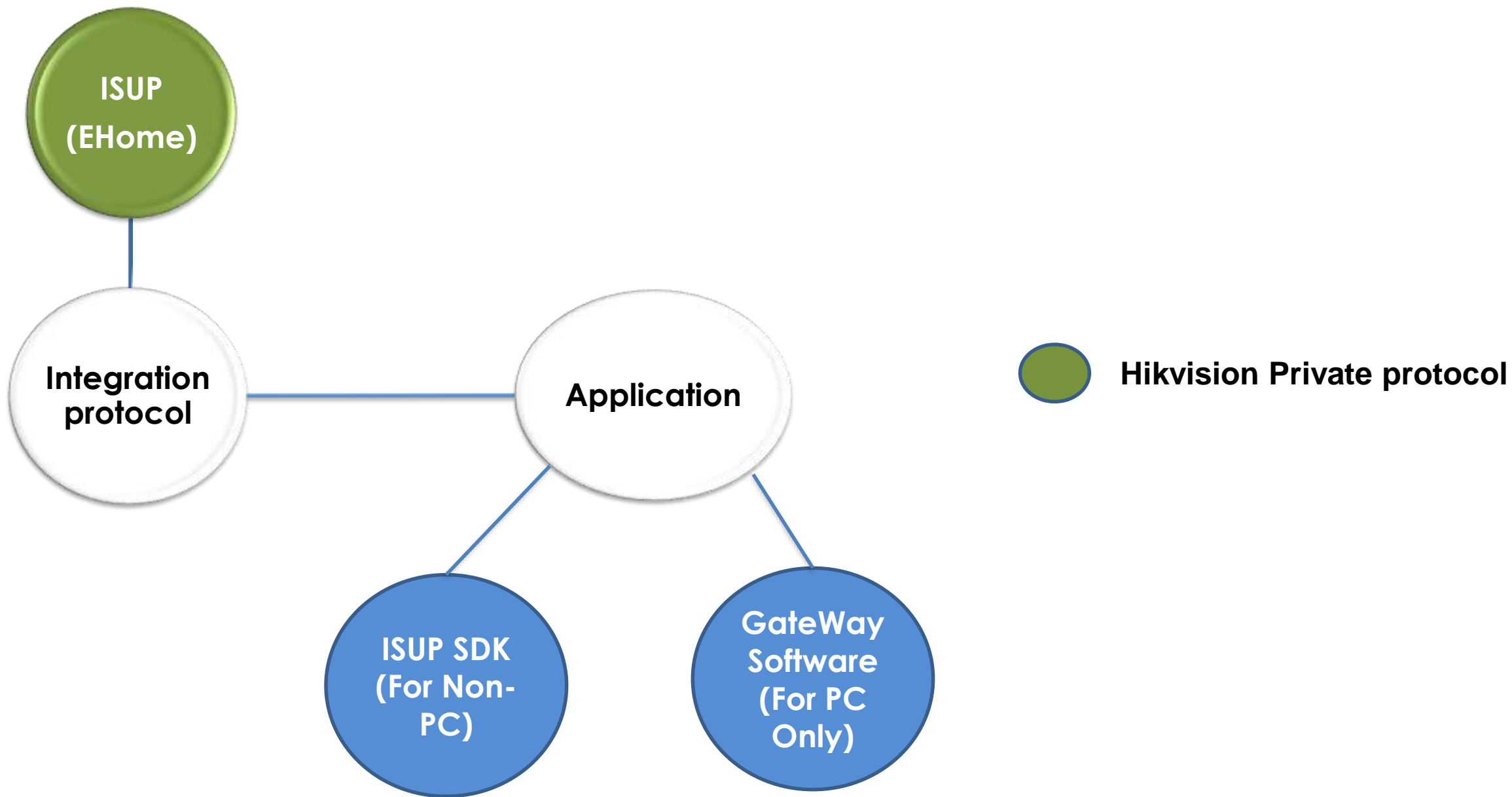
How to Receive and Check
Events in Arming Mode

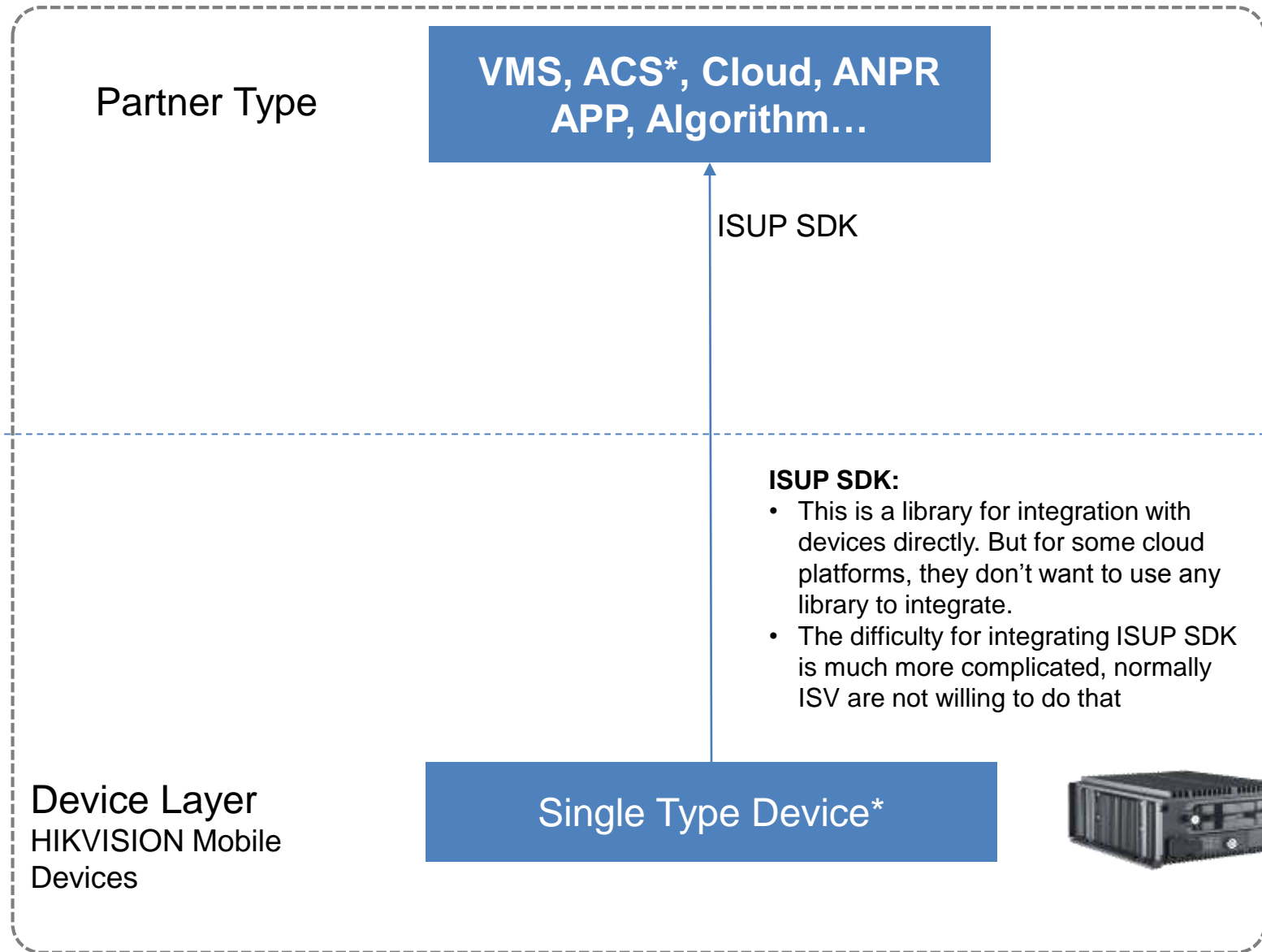
ISAPI /General Functions;

P.03

**Integrate With Hardware
(Dynamic IP)**

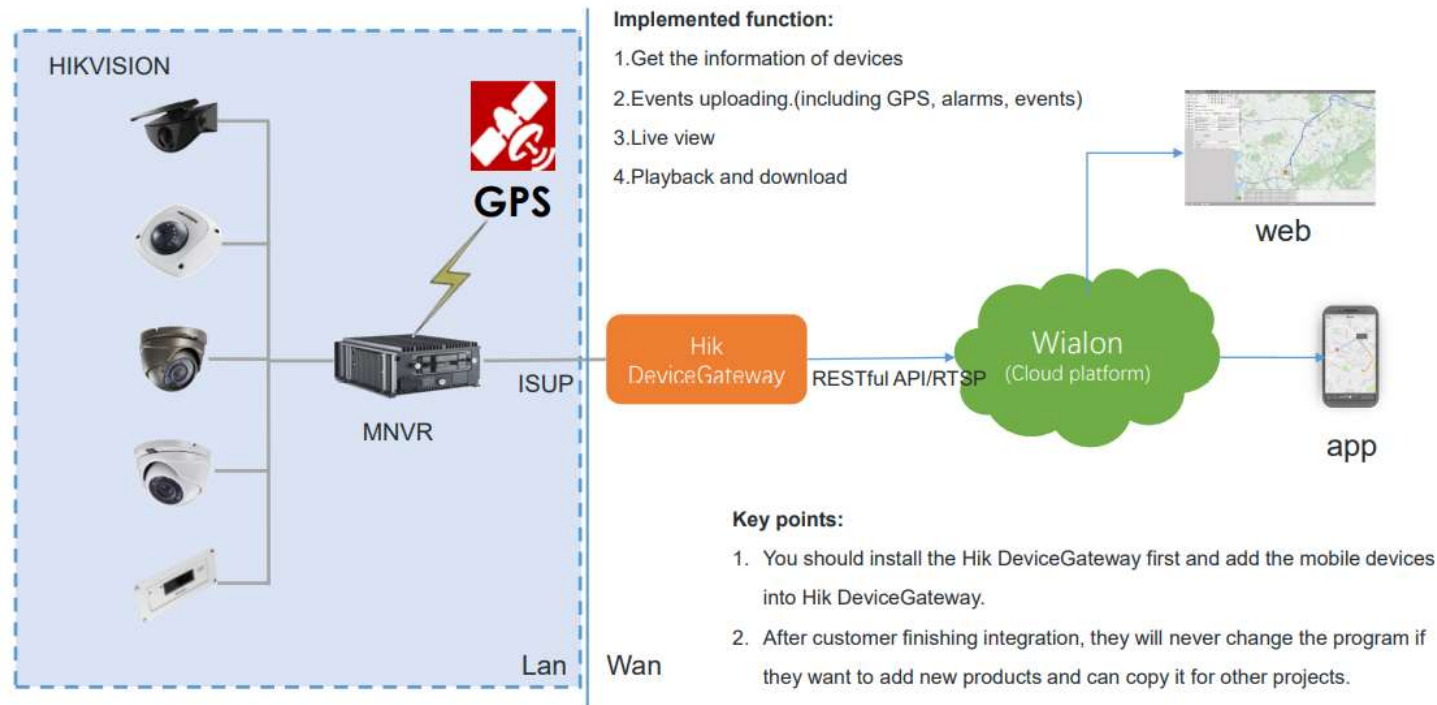






Hik DeviceGateway (Suggested)

- Hik DeviceGateway is a middleware in the form of server. It's main function is to solve the integration of unfixed IP(3G/4G) devices, and transfer nonstandard internal protocol to standard RESTful API.
- There are several different versions of Hik DeviceGateway. In this project, we use the Hik Video DeviceGateway to integrate.
- Suitable for regular mobile business including GPS Acquiring, Liveview & Playback(with download), Event Receiving, two way audio



Hik DeviceGateway (Suggested)

- Key features:
 - Can manage 10000 devices.
 - Adding devices in a batch by importing a predefined template (CSV file)
 - Provide the RESTful API and RTSP protocol for integration

Features	Requirements
CPU	Intel ^(R) Core ^(TM) i5-7500 @ 3.0 GHz, 4-core or above
RAM	8 GB or above
HDD Capacity	200 GB or above
Network Card	Gigabit NIC
Operating System	Microsoft ^(R) Windows 10 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit) <i>* For Windows Server 2012 R2 (64-bit), the patch KB2999226 is required to be installed.</i>
Web Browser	Internet Explorer 9/10/11, Chrome 31.0 and later versions, Firefox 30 and later versions, Edge

*Hardware requirement for Device Gateway



P.04

Integrate with HCP OpenAPI

Open Capabilities of HCP OpenAPI for Partners

Partner's system



HCP OpenAPI 2.2

Resource

Get Encoding Device & Access Control Device

Get Camera, Vehicle, Door, Person List, Face Comparison Group, Organization info

Video

- 1. Live view;
- 2. Playback;
- 3. Two-way Audio;
- 4. PTZ;

Event and Alarm

Subscribe event by event type;

Cancel subscribing event by event type;

Search for event subscription information;

Vehicle Management

- 1. Get vehicle passing picture;
- 2. Search for vehicle passing logs;

Access Control

- 1. Control door by door No.;
- 2. Search for access records;
- 3. Apply person's access level settings to device;

Person & Visitor Management

Registered Person Info (Name, Face, Card etc.)

- 1. Visitor Info (Name, Face, Purpose etc.)
- 2. Check In/Check Out

HCP

Requirements Before Installing OpenAPI

1. Partner needs to installed HikCentral Professional.
2. The OpenAPI version should match with the HikCentral Pro version
3. Apply trial license from <https://www.hikvision.com/en/all-forms/hikcentral-license-application/>

License Details License List

Authorization Details	Details
Queue Analysis	Enabled
Heat Analysis	Enabled
Pathway Analysis	Enabled
Person Feature Analysis	Disabled
Health Monitoring	Enabled
HikCentral Professional Server Distribute... ⓘ	Disabled
Third-Party Integration	Enabled
Software Upgrade Program	Expiry Date: 2021-06-04

Help

- Web Client Video Tutorial
- Web Client User Manual

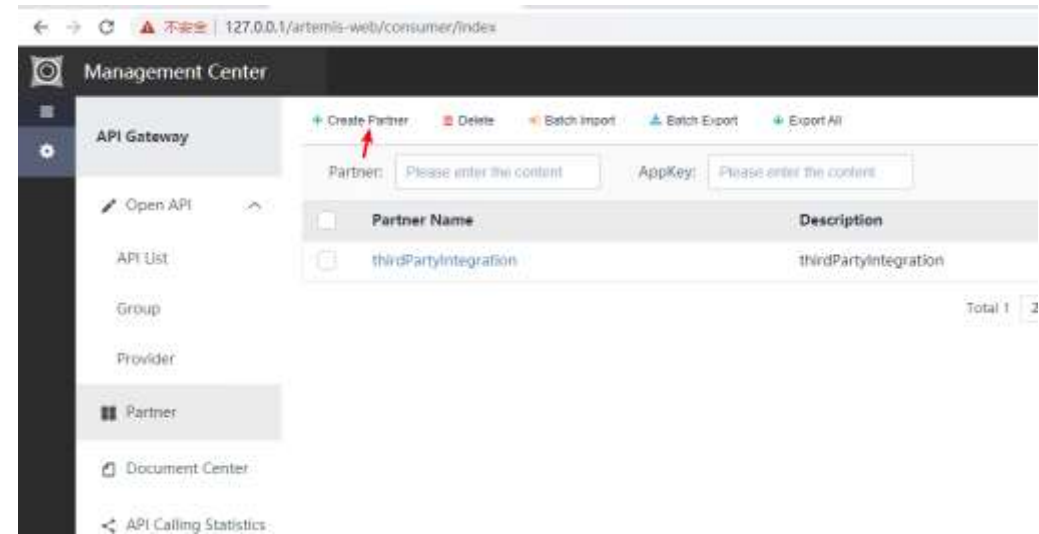
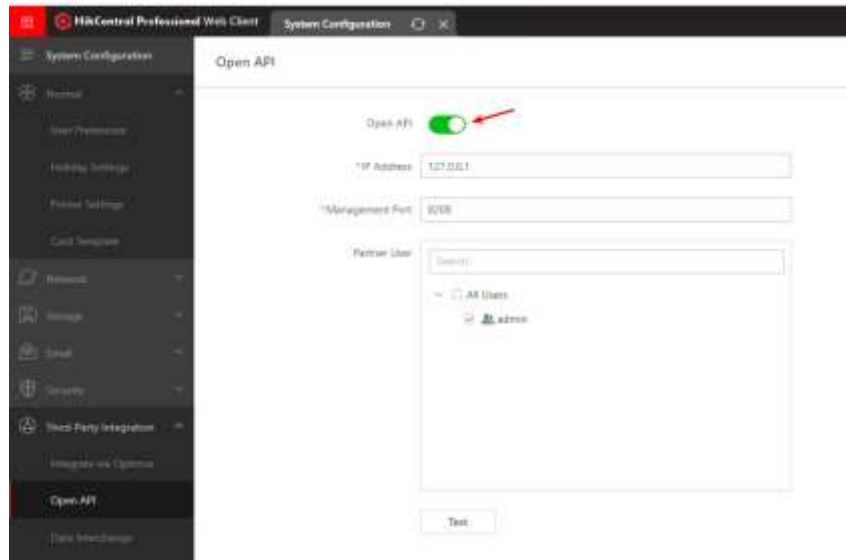
Maintenance

- Back Up and Restore System Data
- Export Configuration Data
- Upgrade Device Firmware

License

- License Details ⓘ**
- License Expiry Date: 2020-07-01(Trial Peri

1. Enable the “OpenAPI” module on the HCP webpage
2. Create a Partner on the OpenAPI webpage (The Artemis webpage)
3. Authorize the APIs to the Partner



1. Find a command on the Artemis webpage.
2. Input AppKey/AppSecret and call the command.
3. Check the result.
4. Check more detail on the developer manual from the installation folder “\HikCentral\VSM Servers\OpenAPI\Document”

Provider

Partner Parameters

Parameter Name	Parameter Value
userid	admin
domainid	0

Partner Key

Partner Key	Partner Secret
24989098	***** Show



URL: http://127.0.0.1/artemis/api/common/v1/version

Security Authentication: Authenticated

Request Parameter

Header: None

Query: None

Path: None

contentType: application/json

Body: {}

Authentication Information

Use Simulated Data: Yes No

* AppKey: 24989098

* AppSecret: sc9588f88a146e7314

Remember Password

Send Request

Returned Result

```
{
  "statusCode": 200,
  "responseHeader": {
    "connection": "keep-alive",
    "transfer-encoding": "chunked",
    "content-type": "application/json;charset=UTF-8",
    "x-application-context": "artemis-prod-0018",
    "date": "Mon, 07 Mar 2022 02:23:45 GMT"
  },
  "response": {
    "code": "0",
    "msg": "Success",
    "data": {
      "productName": "HiCentral Professional",
      "softVersion": "V2.2.0"
    }
  }
}
```

Learn More About OpenAPI

Register on TPP, and check more operation videos from the Training Center
(<https://tpp.hikvision.com/tpp/Training>)

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DeviceGateway

AC Gateway

Search Training Videos

 How to Receive and Search Alarm Info. with OpenAPI on HikCentral Professional HCP OpenAPI /General Functions;	 How to Get Live View Video via jsDecoder on HikCentral Professional HCP OpenAPI /General Functions;	 How to Configure Generic Events and Receive Event Information with Open API on HikCentral Professional HCP OpenAPI /General Functions;	 How to Receive Access Control Event Info. by AC Gateway DeviceGateway /AC Gateway;
 How to Add Devices to AC Gateway and Add Person Information on Devices DeviceGateway /AC Gateway;	 How to Receive Access Control Event Info. in ISAPI Listening Mode ISAPI /Access Control;	 How to Send Face Data to Hikvision Face Recognition Terminals ISAPI /Access Control;	 How to Add and Delete Personal Information on Hikvision Face Recognition Terminals ISAPI /Access Control;





P.05

How To Get Materials From TPP

Empowering Solutions through Partnerships

Join the Hikvision Technology Partner Program and open the door to a world of opportunities. With customers and support from all over the world, Hikvision provides a solid foundation for mutual success.



Why Join the Program?

When joining the Technology Partner Program, you will enjoy access to a wealth of technical and commercial resources, and we ensure that your solution gets attention through our communication channels. Benefits include:

Synergy between your solutions and Hikvision's

Global Reach and Support

Faster Go-to-Market Process



Get ISAPI Documents from TPP

1. Partner registers to tpp.hikvision.com;
2. Go to <https://tpp.hikvision.com/tpp/Resource>;
3. Sign Materials License Agreement;
4. Download documents.



Quick Guide for line Signing Proc

[Sign Materials License Agreement](#)

[Sign Materials License Agreement-Russian](#)

[Sign Materials License Agreement-Japanese](#)

[Sign Materials License Agreement-Turkish](#)

ISAPI GROUP						
Resource Type	Name	Description	Issued On	License Required	Download	
API	Intelligent Security API (Video Intercom)		2021/08/12			
API	Intelligent Security API (Intelligent Analysis and Event)		2021/06/11			
API	Intelligent Security API(Behavior Analysis Server)		2021/06/11			
API	Intelligent Security API (Intelligent Fusion Server)		2021/06/11			
API	Intelligent Security API(Full Analysis Server)		2021/06/11			



Find The Correct ISAPI Documents

Product Scope	Document Name
Every product which supports ISAPI (Camera, NVR/DVRs)	General
Face applications features	Facial Application
Behavior Analysis Server (IE10XX-03U)	Behavior Analysis Server
People Counting Features	People Counting
Queue Management Features	Queue Management
Behavior Analysis Features	Behavior Analysis
For some monitoring scenes (e.g., road, lane) mixing with human and vehicle	Multi-Target-Type Detection
Heat Map Feature	Heat Map
Thermal Application Feature	Thermal
LPR Features (Most for 4A26/P, 7A26/P, TCG /TCM)	ANPR
Traffic Camera (TCV, TCE, TCM) Portable Speed Dome (MH6171) Portable Box Camera (MCD, MCB) Portable Speed Detector (TDI) Terminal Server (TP, TSS, TSV, TSI) Desktop Body Camera Dock Station (MH4172) Wall-Mounted Dock Station (MDS)	Traffic
Access Control Devices Features	Person Based Access Control
Video Intercom Devices Features	Video Intercom

Get HCP OpenAPI Materials

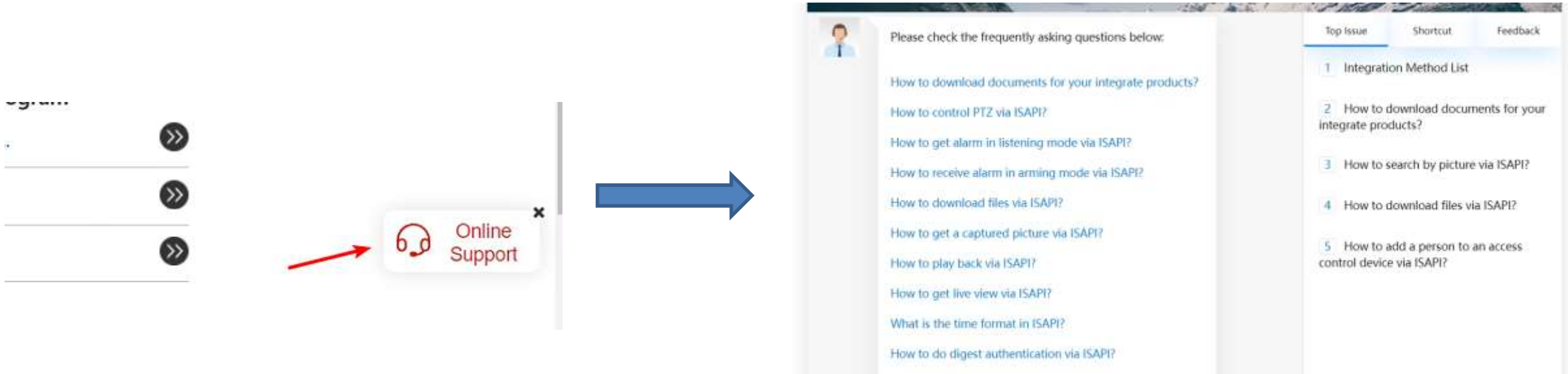


1. Partner registers to our TPP portal;
2. Download the OpenAPI installation file from <https://tpp.hikvision.com/tpp/Resource>;
3. Check the Developer Guide online from <https://tpp.hikvision.com/tpp/Wiki/HCPOpenAPI>;
4. Check the HowTo & Configuration videos on <https://tpp.hikvision.com/tpp/Training>

HIKCENTRAL SOFTWARE GROUP					
Resource Type	Name	Description	Issued On	License Required	Download
API	HikCentralPro OpenAPI 2.2.0		2022/01/12		
API	HikCentralPro OpenAPI 2.1.0		2021/11/24		
API	HikCentralPro OpenAPI 2.1.1 0930		2021/11/24		
API	HikCentralPro OpenAPI 2.0.2		2021/07/27		
API	HikCentralPro OpenAPI 2.0.1		2021/03/16		
API	HikCentralPro OpenAPI 2.0	1. support to add person to Ac...	2020/12/09		
How To	Hikvision HikCentral Platform & OpenAPI 1.7 Integration Guide		2020/09/17		
API	HikCentralPro OpenAPI 1.7	ANPR: CRUD License Plate list...	2020/07/30		
API	HikCentralPro OpenAPI 1.6		2020/06/12		

Have Questions?? Ask us on TPP:

1. Check the Bot for frequently asking questions:



2. Create a case to integration support engineer from <https://tpp.hikvision.com/tpp/Company>:



Thank You