# HikCentral

HikCentral is an intelligent management platform under the architecture of AI Cloud, applicable for fields such as urban security management and traffic management. It focuses on data collection, supports integrating, accessing and analyzing devices based on Internet-of-Things (IoT). It supports video live view and recording, structured and semi-structured data search, track search, and target arming. Based on this architecture and current capability of the platform, it can quickly realizes different functions and demands.

# Functions

## Video Surveillance

- Supports video live view and video query based on technologies such as video patrol and E-map.
- Provides video surveillance on the map and video parsing.

## Integration Search

- Supports quick search of persons and vehicles based on big data technologies such as integration search, face search, vehicle search, and human body search.
- Helps users quickly know the information of target persons and vehicles.
- Supports viewing history traffic data and real-time traffic data on a dashboard.

## Violation Management

- Supports violation verification (including overspeed, red light running, wrong-way driving, parking violation, etc.).
- Supports generating violation tickets.
- Forms closed-loop service which combines violation management and violation verification

## Mobile Enforcement Application

- Supports managing digital evidence collected via body cameras during enforcement.
- Supports features for enforcement event management, including event creation, event search, linking evidence to events, etc.
- Supports features for enforcement officer management, such as track search and SOS alarm search.
- Supports viewing the status of enforcement devices.
- Supports viewing statistics of enforcement data.
- Supports showing locations of the enforcement officers and the SOS alarm notifications in real time on a GIS map. In addition, supports features such as live view, playback, and two-way audio on the GIS map.

## Traffic Event Monitoring

- Supports real-time analysis of the detected videos.
- Supports monitoring traffic status.
- Supports detecting multiple traffic events such as traffic accidents, parking violation, and wrong-way driving.
- Supports detecting and reporting traffic congestion.

## Alarm Center

- It contains two applications including target arming and alarm search.
- Supports vehicle arming and face arming.
- Supports configuring alarm rules of corresponding devices and linkage rules.

## Statistics Center

- Supports graphical display of multi-dimensional data based on data analysis technologies such as face data statistics, vehicle data statistics, and behavior statistics.

## Video Maintenance

- Supports real-time intelligent management of camera running status based on technologies such as online detection, video quality diagnosis, and recording check.

## Operation and Management Center

- Integrates multiple components including configuration, log search, and integration.
- Supports single sign-on services (SSO).

## AR Application

- Supports adding images, videos, etc., to the AR view based on Augmented Reality (AR) technology.

- Provides functions such as adding camera tag, video plan, and linking cameras in high locations and low locations.
- Supports vivid and flexible command and management.

### Intelligent Fusion via Fusion Server

- Supports searching persons by face picture and viewing track of the target person based on the search result.
- Supports searching persons by body picture and viewing track of the target person based on the search result.
- Supports searching for the identification of a target person and viewing track of the person.
- Supports setting frequently appeared person alarm and viewing related capture picture.
- Supports enabling or disabling the people cluster functionality.
- Supports searching capture records of the persons in the face list library; Support parsing offline videos via fusion server and viewing parsing results.
- Supports face capture statistics.
- (Fusion Server) Supports enabling or disabling Daylight Saving Time (DST).
- (Android App) Supports identification search.

## Features

### Intelligent Platform Management

- Supports on-stop installation, parameter configuration, server monitoring, and log analysis.
- Supports data backup, cluster management and license management.

### Intelligent Applications

- With the integration of multiple functionality and application software, the platform extends its applications from video surveillance to the ones based on artificial intelligence algorithms, such as Automatic Number-Plate Recognition (ANPR) and facial recognition. This makes the platform applicable to the application scenarios such as city surveillance system and intelligent transportation system.

### Comprehensive Security Mechanism

- Provides security mechanism for device, network, host computer, data, and applications, and supports multiple security control schemes.

### Extensibility and Scalability

- Supports expanding the capacity of the services such as the maximum added device amount, stream distribution, stream storage, events, and data library.
- Increases capacity and stability by distributed deployment.
- Supports cluster deployment for some key services such as streaming gateway.
- Supports techniques such as clustered proxy, distributed cache, and load balancing to improve the response speed, and decrease performance losses caused by the interaction among different components and modules, therefore improving the fluency of the platform.

### Multiple Application Scenarios

- Supports assembling different modules into different platforms based on different application scenarios. The platforms can be compatible with each other and cooperate with each other.

## Key Components

### 1. Server Modules

| Module ID | Module Name |
|---|---|
| **HikCentral-M_iFar-VAS** | Basic Module |

| | |
|---|---|
| **HikCentral-M_iFar-METIS** | E-Map Application |
| **HikCentral-M_iFar-FAS** | Persons Search |
| **HikCentral-M_iFar-BMS** | Vehicle Application |
| **HikCentral-M_iFar-LANE** | Lane |
| **HikCentral-M_iFar-VIDEO** | Video Channel |
| **HikCentral-M_iFar-VIOLATION** | Violation Management Application |
| **HikCentral-M_iFar-Traffevent** | Traffic Event Detection |
| **HikCentral-M_iFar-Behavior** | Behavior Analysis Application |
| **HikCentral-M_iFar-Foottraff** | People Counting Application |
| **HikCentral-M_iFar-ARHIGHNUM** | AR Scene Number |
| **HikCentral-M_iFar-2D** | 2D Dashboard |
| **HikCentral-M_iFar-Arming** | Arming Control |
| **HikCentral-M_iFar-VPS** | Video Parsing |
| **HikCentral-M_iFar-APP** | Mobile Client |
| **HikCentral-M_iFar-Videobase** | Video System Management |
| **HikCentral-M_iFar-3Ddashboard** | 3D Dashboard |
| **HikCentral-M_iFar-Evidencemgt** | Evidence Management Application |
| **HikCentral-M_iFar-Realtimecommand** | Enforcement Real-time Command Application |
| **HikCentral-M_iFar-Enfdashboard** | Enforcement Dashboard Application |
| **HikCentral-M_iFar-EnfEventmgt** | Enforcement Event Management Application |

### 2. Clients

- Web Client
- Control Client
- AR Client
- Booth Client
- Self-Service Vehicle Tracking Client
- Manual Visitor Client

### 3. Mobile APPs

- Mobile APP (iOS/Android)
- Face Picture Collection APP (iOS/Android)
- iPad Video Wall Controller (iOS)

## System Requirements

| | |
|---|---|
| **OS for Server** | CentOS 7.2 (64-bit)<br>CentOS 7.4 (64-bit)<br>CentOS 7.6 (64-bit) |
| **OS for Control Client** | Microsoft® Windows 7 (32/64-bit)<br>Microsoft® Windows 10 (64-bit) |
| **OS for Mobile Client** | iOS 10 and later<br>Android 5.0 and later |
| **Browser Version** | Internet Explorer 11 and later<br>Chrome 73 and later (recommended) |

## Hardware Requirements (Standard Version)

| | |
|---|---|
| **Processer** | Intel® Xeon™ Silver 4110*2 (2.1G, 8C/16T, 9.6GT/s) |
| **Operating System** | CentOS Linux release 7.6.1810 (Core) |
| **Memory** | 64G RDIMM, 2666MT/s RDIMMS |

| | |
|---|---|
| **Storage** | 1T SATA × 4, 3.5" Enterprise SATA 7.2k HDDs<br>Including:<br>● System Disk: 1T SATA × 2 with RAID<br>● Data Disk: 1T SATA × 2 with RAID |
| **NIC** | 1GbE × 4 |

## Hardware Requirements (Standalone Version)

| | |
|---|---|
| **Processer** | Intel® Xeon™ Silver 4110 (2.1G, 8C/16T, 9.6GT/s) |
| **Operating System** | CentOS Linux release 7.6.1810 (Core) |
| **Memory** | 16G*6 ， HMA82GR7CJR4N-VK,DDR,16GB,RDIMM |
| **Storage** | 1T SATA × 4, 3.5" Enterprise SATA 7.2k HDDs<br>Including:<br>● System Disk: 1T SATA × 2 with RAID<br>● Data Disk: 1T SATA × 2 with RAID |
| **NIC** | 1GbE × 4 |

## Software Specification (Based on Standard Version)

The following table shows the maximum performance of the HikCentral (based on standard requirements).

| | | |
|---|---|---|
| **Mobile Enforcement Application** | Body Cameras | 1,000 |
| | Dock Stations | 150 |

## Software Specification (Based on Standalone Version)

| Parameter/Module | Maximum Performance | Remark |
|---|---|---|
| **Camera** | 1,000 cameras | If no cascading cameras are added , up to 1000 Cameras/Channels can be added by Hikvision SDK |
| **Scalability** | Up to 250000 Channels | By the help of Distributed Architecture. |
| **Client** | Up to 250 Control client | By the help of Distributed Architecture. |
| **Device** | 500 devices | Video capability set connectable via Hikvision SDK |
| **Checkpoint** | 20 devices | 50 lanes |
| **User** | 100 users | N/A |
| **Department** | 100 departments | |
| **Role** | 100 roles | |
| **Area** | 100 areas | 5 cascading levels (each level 20 sub-areas) |
| **Passing Vehicles** | 250,000 per day | Static data: 240, 000 |
| | Dynamic Data | Peak without Image: 50 Items/s |

| Parameter/Module | Maximum Performance | Remark |
|---|---|---|
| | | Peak Passing Vehicles: 30 Items/s |
| **Vehicle List Library** | 10,000 | 10,000 items of data |
| **Vehicle List Library Alarm** | 1,000,000 | Static Data: 1,000,000 items |
| **Live View** | 32 concurrent channels (Bandwidth: 2M) | N/A |
| **Playback** | 20 concurrent channels (Bandwidth 2M) | N/A |
| **Alarm Sending** | \ | Frequency of sending arming alarm: 10msg/s<br>Frequency of sending device alarm: 5msg/s |
| **iac** | \ | Peak without image: 50/s<br>Peak passing vehicle: 30/S |
| **Mixed Businesses** | 50 online<br>20 concurrent login | 50 users log in to the platform, 10 expand the e-map tree (10 cameras in the tree), 3 redirect to the e-map for track analysis, 7 drag map, 10 view alarm details. |
| | | 40 users log in to the client, 5 view real-time alarms, 10 search videos, 10 expand organization tree in Video Patrol (10 cameras in the tree), 15 expand organization tree in Video Playback (10 cameras in the tree). |
| | | 3 users search vehicles, 3 search cameras via e-map, 4 expand organization tree in Live View (10 cameras in the tree). |

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