



# **HikCentral Version 1.1 Specification**

## Introduction

HikCentral is a flexible, scalable, reliable and powerful central video system. HikCentral provides central management, information sharing, convenient connection and multi-service cooperation. It is capable of managing devices, live view, storage and playback, VCA playback, and alarm linkage.

## Key Components

### Service:

Video Surveillance Management (VSM)  
Streaming Service (Optional)

### Client:

Web Client /Control Client/Mobile Client

## Function Features

### VSM

- Provides normal and hot spare installation mode
- Provides unified authentication service for clients & servers
- Provides centralized management for users, roles, permissions, surveillance devices, alarm device and servers
- Provides log management and statistics function
- Scalable for medium and large-sized projects
- Manage remote sites for HikCentral with RSM module
- Service manager for system health monitoring
- Streaming gateway: A VSM component that forwards and distributes audio and

video data

### Streaming Service (Optional)

- Forwards and distributes audio and video data

### Web Client

- Access to the VSM via IP address or domain name
- Flexible license activation methods: online activation and offline activation
- Startup wizard guides you through basic operations including:
  - Adding encoding devices
  - Setting recording schedule
  - Configuring event parameters
  - Managing system users
- Standard ONVIF™ protocol
- Remote site's central management:
  - Add remote site to the Central System (HikCentral with an RSM module).  
Three adding modes for remote sites available:
    - ✓ By specifying the remote site's IP address or domain name
    - ✓ Adding remote site registered to the Central System.
    - ✓ By importing in a batch
  - Select the alarms configured on the remote site to receive in the Central System.
  - Back up the remote site's database in the Central System manually or regularly.
  - Synchronize the changed resources in the Central System (newly added cameras, deleted cameras, and name changed cameras) with the remote site.
- Encoding device management:

- Multiple devices can be added: network cameras, network speed domes, video encoders, NVRs, etc.
- Create passwords for detected inactive online devices
- The password strength of the added device can be checked by the system for security notification
- Six adding modes for encoding devices available:
  - ✓ By detecting the online devices
  - ✓ By specifying the device IP address or domain name
  - ✓ By adding the devices added to a Hik-Connect account
  - ✓ By specifying an IP segment
  - ✓ By specifying a port segment
  - ✓ By importing in a batch
- Recording Server manageable:
  - Add CVR or Cloud Storage Server as Recording Server
  - Add CVR or Cloud Storage Server by IP address
  - Provides WAN access
  - Provides searching the video files stored in Cloud Storage Server via the HikCentral Mobile Client.
  - Remotely configure the CVR or Cloud Storage Server via a web browser
  - One-touch configuration for setting the CVR storage
  - CVR N+1 hot spare
  - Provide ANR function
- Streaming Server manageable:
  - Add Streaming Server by IP address
  - Provides WAN and LAN access
- Smart wall manageable:
  - Four adding modes for decoding devices available:
    - ✓ By detecting the online devices
    - ✓ By specifying the device IP address or domain name
    - ✓ By specifying an IP segment
    - ✓ By specifying a port segment
  - Provides WAN and LAN access
  - Add smart wall and link decoding output with the window
- Manage encoding devices (cameras, alarm inputs, and alarm outputs) by areas
- Recording
  - Two storage methods for storing the video files:
    - ✓ Encoding Device: DVR/NVR/network camera (SD card);
    - ✓ Recording Server: CVR or Cloud Storage Server
  - For remote site's cameras, store video files in the Central System's CVR or Cloud Storage Server
  - Continuous recording, event triggered recording, and command triggered recording.
  - Custom recording schedule: All-Day Time-Based Template, All-Day Event-Based Template, and Custom Template
  - Auxiliary storage
  - Picture storage: Store the images (including passing vehicles and triggered alarms) on the VSM server's HDD
- Events & Alarms
  - Detect system-related events : camera events, alarm input events, encoding device exceptions, and server exceptions:
    - ✓ Camera events: Motion, Video Tampering, Video Loss, etc.
    - ✓ Device alarm input events
    - ✓ Device exceptions: Device Offline, HDD Full, HDD Read / Write Error, etc.

- ✓ Server exception: High Mainboard Temperature, Bad Disk, Disk Loss, etc.
- Create a generic event rule to analyze the received TCP and/or UDP data packages, and trigger events
- Detect camera alarms, alarm input alarms, encoding device exception alarms, server exception alarms, ANPR alarms, generic alarms, and remote site alarms
- In the Central System, detect camera alarms configured on remote site
- Support to save event as alarm when editing event
- Set linkage actions for event and alarm respectively
- Send emails to notify users of configured event
- Send emails to notify users of configured alarm information with email template configurable
- Set arming template for the events: All-Day Time-Based Template, All-Day Event-Based Template, and Custom Template
- Set alarm priority: high, medium, low, and custom level
- Set alarm category: true, false, to be acknowledged, and to be verified
- Set multiple alarm linkage actions: trigger pop-up image, audible warning (voice text is supported), PTZ linkage, map linkage, alarm output linkage, smart wall linkage, recording linkage and alarm notification
- Map management
  - GIS map to manage the added remote sites
- E-map to manage the resources on current site
  - ✓ Local map file (PNG /JPG /BMP)
  - ✓ Main maps and sub maps for the areas
  - ✓ Max. 6-hierarchies of maps
  - ✓ Add/edit/delete the hot region on the map
  - ✓ Add/edit/delete hot spots (camera / alarm input/alarm output) on the map
  - ✓ Set monitoring area for camera hot spots
  - ✓ Set name, icon and description for the hot regions and hot spots
  - ✓ Get live view of cameras on map
  - ✓ Customize icon of hot region and hot spot
- Vehicle management
  - Add vehicle information manually
  - Import vehicle information according to the pre-defined template
- Role & User management
  - The default password of the admin user must be changed at first-time login.
  - Support changing the password of the admin user
  - The admin user can reset other users' password
  - The user account will be frozen for 30 minutes after 5 failed password attempts
  - Add/Edit/Delete roles and users
  - Roles can be assigned with different permissions, including area display rule, resource access, and user permissions
  - Two default roles are supported:

- administrators and operators
- The role name, expiry date, and text description can be set for the roles
- The users can be assigned with the roles to obtain the corresponding permissions
- The user name, expiry date, and text description can be set for the users
- Two types of user status are supported: active and inactive
- PTZ control permission level (1~100) can be set
- Domain users can be imported in batches
- The user can be forced to logout by the admin user
- Security settings
  - Lock IP address for configurable duration when reaching the configured failed password attempts
  - Set the min. password strength
  - Set the max. password age
  - Lock the Control Client after a time period of inactivity
- System configuration & maintenance
  - Create a name for the current site
  - A static IP address can be set for the WAN access
  - NTP settings
  - Enable GIS map function and configure the map API URL
  - Active directory settings
  - Allow the system to receive the configured generic events.
  - For Central System, allow remote site registration
  - For remote site, register remote site to Central System
  - VSM server NIC settings
  - Set transfer protocol as HTTP or HTTPS
  - System hot spare settings
  - Reset network information of added devices
  - Export service component certificate from VSM server.
- Live view
  - View real-time video from the cameras on the current site or cameras imported from a remote site
  - PTZ control; 256 presets/16 patrols/ 1 pattern
  - Manual recording
  - Capture
  - Instant playback
  - Digital zoom
  - Two-way audio
  - Switch between main stream or sub-stream
  - Display live view parameters.
  - Turn on/off the audio in live view; adjust the volume
  - Set the window division
  - POS Live View
    - ✓ Display transaction data alongside corresponding video
    - ✓ Transaction information video overlay / separate display
- Playback
  - Play back the recorded video of the cameras on the current site and cameras imported from a remote site
  - Playback by files/ timeline
  - Playback for up to 16 cameras
  - Download the recordings for backup
  - Reverse playback
  - Playback frame-by-frame
  - Single-frame backward
  - Slow forward/fast forward
  - Turn on/off the audio in playback; adjust the volume
  - Video clipping and capture

- Set the window division
- Digital zoom
- Display video parameters
- Customize playback speed
- Select storage location and stream type for playback
- Local configuration
  - Set the network transmission settings
    - ✓ Network Performance: Normal/ Better/ Best
    - ✓ Play Performance: Shortest Delay/ Self-adaptive
    - ✓ Captured Picture Format: JPEG/ BMP
    - ✓ Network Connection Mode: Automatically Judge / Proxy
  - View local saving path of videos/ pictures
- Fisheye expansion modes: Fisheye, Panorama, PTZ, etc.
- Auxiliary screen preview
- Digital zoom
- Two-way audio
- Turn on/off the audio in live view; adjust the volume
- Camera status detection
- Arming control
- Switch the live view stream to main stream or sub-stream
- Live view on smart wall

● Playback

- Normal playback for continuous recordings
- VCA playback based on motion analysis/intrusion/line crossing events
- Async/Sync playback for up to 16 cameras
- Playback in fisheye expansion mode
- Add default, customized tag to mark the important video footage
- Play back the tagged video footage
- Play back by files/timeline
- Lock/unlock the video file for file protection
- Download the video files
- Reverse playback
- Single-frame backward
- Playback frame-by-frame
- Slow forward/fast forward
- Customize high speed playback settings
- Turn on/off the audio in playback; adjust the volume
- Provide video thumbnail on the timeline
- Accurate positioning for playback
- Digital zoom
- Video clipping
- Capture

**Control Client**

- GPU hardware decoding
- Receive alarm
- Access to VSM via IP address
- Log in with the domain user
- The user account will be frozen after 5 failed password attempts
- Live view
  - View real-time video from the cameras on current site or cameras imported from remote site
  - PTZ control; 256 presets/ 8 patrols/1 pattern
  - PTZ control lock/unlock
  - Set virtual presets
  - Public view and private view
  - Camera auto-switch/View auto-switch
  - Manual recording
  - Capture
  - Instant playback
  - Custom window division

- Set the window division
- Camera status detection
- Switch the video stream to main stream or sub-stream
- Playback on smart wall
- Transcoding playback
- Map control
  - GIS map to view the geographic location of remote site and current site
  - E-map to control the resources on current site and remote site
    - ✓ Get the live view and playback of the cameras on the map
    - ✓ Arming control: arm and disarm the hot spots
    - ✓ Search and view history alarm of the camera on the map
    - ✓ Jump to the hot region map
    - ✓ Get a notification message on the map when alarm is triggered
    - ✓ Zoom in/out on the map
- Alarm center
  - Display alarm info including alarm time, alarm name, alarm status, etc.
  - Display system alarm info including time and description
  - View the live video or images from the related camera
  - Play the alarm related video on smart wall.
  - Add a tag to the alarm information
  - Acknowledge the alarm with a text description
  - Arming control for alarms
  - Clear alarms manually
  - Enable/disable the alarm audio
  - Enable/disable alarm triggered pop-up window
  - Search LPR alarms
  - Search event log files and alarm log files
- ANPR control
  - View live video of ANPR cameras, and the license plate displays.
  - Search logs of vehicle license plate recognized by the camera and the related vehicle passing information
- Video search
  - Search video files stored on local devices or Recording Server
  - Search the video clip by tag, lock, segment or interval
  - Search in storage location in Main Storage or Auxiliary Storage
  - Search the transaction event by inputting the keywords in POS information
  - Search the ATM event by inputting the card number that is contained in the ATM information
  - Set VCA rules to search the video where a VCA event occurs
  - Play back the searched video clip
  - Download the searched video clip
- People counting statistic
- Heat map statistic
- Health monitoring
  - Status overview including camera status, remote site status, decoding device status, VSM status, Recording Server status, and Streaming Server status
  - Detailed status page of cameras, encoding devices, remote site, decoding device, Recording Servers, and Streaming Servers
- Tools
  - Smart Wall
    - ✓ Decode and display the video streams from the camera on the smart wall
    - ✓ Switch the live view stream to

- main stream or sub-stream
  - ✓ PTZ control
  - ✓ Instant playback
  - ✓ View auto-switch
  - VSPlayer
  - Broadcast
  - Alarm Output
  - Two-Way Audio
- Download center
  - Check the downloading tasks and status centrally
  - Continuous transmission on the breakpoint
  - Download the player for playing back the video files
- Log search
  - Search log files of VSM, remote site, cameras, and smart walls that are connected to the system
  - Back up log files
- System settings
  - Configure the general parameters
    - ✓ Network Performance: Normal/ Better/Best
    - ✓ Picture Format: JPEG/BMP
    - ✓ Maximum Mode: Maximize/Full Screen
    - ✓ Enable/disable auto-login
    - ✓ Enable/disable to resume last interface
  - Configure the image parameters
    - ✓ View Scale: Full Screen, 4:3, 16:9 or Original Resolution
    - ✓ Play Performance: Shortest Delay /Self-adaptive
    - ✓ Enable/disable main/sub stream auto-adaptive
    - ✓ Enable/disable highlight for Motion
    - ✓ Enable/disable VCA rule
    - ✓ Enable/disable GPU hardware decoding
  - ✓ Enable/disable display the transaction information on the live view and playback image
    - ✓ Enable/disable display the temperature information on the live view and playback image
  - Configuring file saving path
    - ✓ Set local saving path of videos/pictures/packages
    - ✓ Configure the FTP parameters
  - Configuring keyboard and joystick parameters
  - Configuring live view and playback settings
    - ✓ Configure icons on live view and playback toolbar
    - ✓ Enable/disable Screen Toolbar Display
  - Set alarm sounds by local audio files or voice engine (require support of the OS)

## Mobile Client

- Access to the VSM via IP address
- Log in with normal user or domain user
- Log in with HTTP or HTTPS transfer protocol
- The user account will be frozen after 5 failed password attempts
- Add/remove cameras to/from My Favorites
- Search cameras in different sites
- Live view
  - View real-time video from the cameras
  - Set 1/4/9/16 window division
  - PTZ control
  - Turn on/off the audio in live view
  - Set the video quality
  - Manual recording

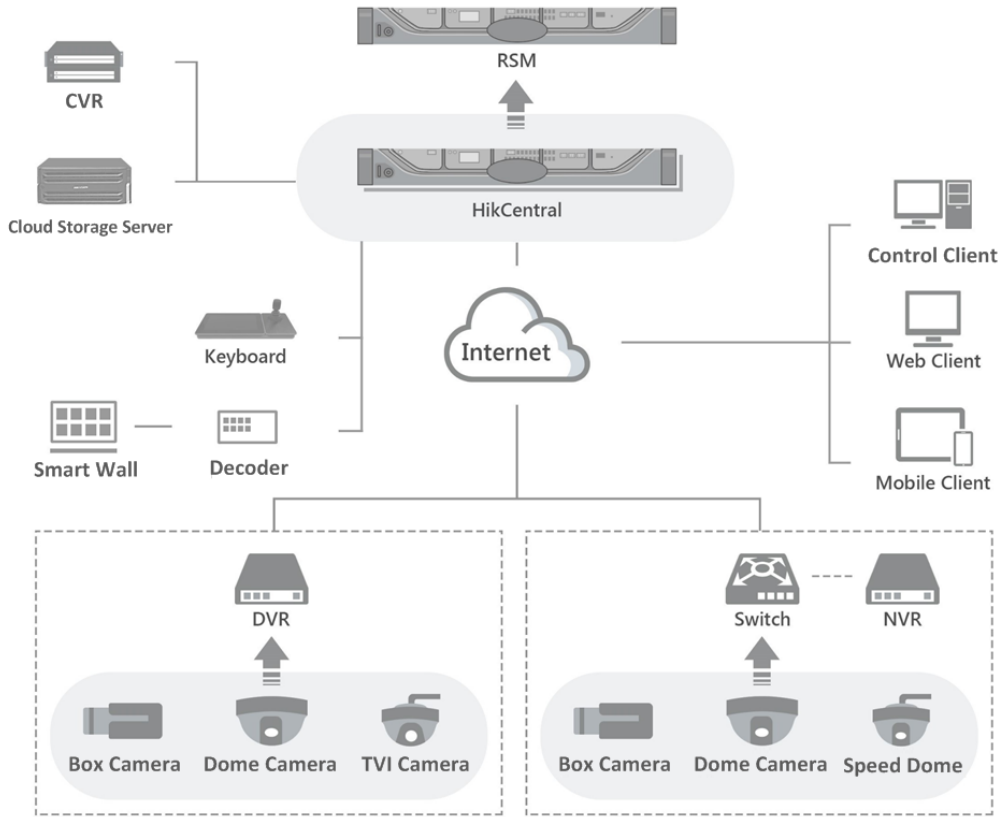


- Capture
- Two-way audio
- Digital zoom
- Fisheye dewarping
- Add to Favorites and view
- Playback
  - Search by date/storage mode
  - Provides three storage modes: encoding devices, Central Video Recorder, and Cloud Storage Server
  - Play back the recordings
  - Turn on/off the audio in playback
  - Video clipping
  - Capture
  - Synchronous playback
  - Digital zoom
  - Switch the video stream to main stream or sub-stream
  - Fisheye dewarping
  - Transcoding playback
  - PIP mode (only for tablet)
- Scale up or scale down the playback timeline bar
- Receive and display the alarm notification and view the alarm related live video or recording
- View the alarm time of current site and remote site
- Display the camera details including appearance, online status, PTZ control, etc.
- Heat map statistics
- View/delete/share the captured images and video clips
- Provide flow statistics of Current Day/Current Month/History
- Provide hardware decoding
- Receive alarm information

## System Requirements

<b>OS for VSM Server</b>	<p>Microsoft® Windows 7 (64-bit)</p> <p>Microsoft® Windows 8 (64-bit)</p> <p>Microsoft® Windows 8.1 (64-bit)</p> <p>Microsoft® Windows 10 (64-bit)</p> <p>Microsoft® Windows Server 2008 R2 (64-bit)</p> <p>Microsoft® Windows Server 2012 (64-bit)</p>
<b>OS for Control Client</b>	<p>Microsoft® Windows 7 (32/64-bit)</p> <p>Microsoft® Windows 8 (32/64-bit)</p> <p>Microsoft® Windows 8.1 (32/64-bit)</p> <p>Microsoft® Windows Server 2008 R2 (64-bit)</p> <p>Microsoft® Windows Server 2012 (64-bit)</p> <p>Microsoft® Windows 10 (64-bit)</p>
<b>Browser Version</b>	<p>Internet Explorer 10/11 and above (32-bit)</p> <p>Chrome 35 and above (32-bit)</p> <p>Firefox 32 and above (32-bit)</p> <p><b>Note:</b> Google Chrome and Firefox do not support live view, playback, and device remote upgrade.</p>
<b>Database</b>	PostgreSQL V 9.2.10
<b>OS for Smartphone</b>	<p>iOS 8.0 and later</p> <p>Android phone OS version 4.0 or later, and dual-core CPU with 1.5 GHz or above, and at least 2G RAM</p>
<b>OS for Tablet</b>	<p>iOS 8.0 and later</p> <p>Android tablet with Android OS version 4.1 or later</p>
<b>Virtual Machine</b>	<p>VMware® ESXi™ 6.x</p> <p>Microsoft® Hyper-V with Windows Server 2012 R2</p>

## Typical Application



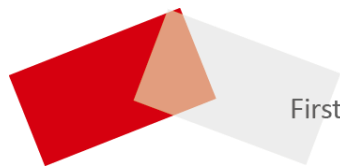
## Specification

VSM Server (without RSM)		
<b>General</b>	Maximum Number of Cameras	3,000
	Maximum Number of Alarm Inputs	3,000
	Maximum Number of Alarm Outputs	3,000
	Maximum Number of Encoding Devices	1,024
	Maximum Number of Recording Servers Connected	64
	Maximum Number of Streaming Server Connected	64
	Maximum Number of Concurrent Control or Web Clients	100
	Maximum Number of Concurrent Mobile Clients	100
	Maximum Number of Users	3,000
	Maximum Number of Roles	3,000
	Maximum Number of Areas	3,000
	Maximum Number of Area Hierarchies	5
	Maximum Number of Cameras per Area	64
	Maximum Number of Alarm Inputs per Area	64
	Maximum Number of Alarm Outputs per Area	64
<b>Map</b>	Maximum Number of Maps	1,024
	Maximum Resolution of Map	1920*1080
	Maximum Number of Map Hierarchies	6
	Maximum Number of Hot Regions per Map	64
	Maximum Number of Camera Hot Spots per Map	128
	Maximum Number of Alarm Input Hot Spots per Map	128
	Maximum Number of Alarm Output Hot Spots per Map	128
	Maximum Number of Labels per Map	128
	Maximum Number of Hot Regions in Total	1,024
	Maximum Number of Camera Hot Spots in Total	3,000
	Maximum Number of Alarm Input Hot Spots in Total	3,000
	Maximum Number of Alarm Output Hot Spots in Total	3,000
	Maximum Number of Labels in Total	3,000
<b>Vehicle</b>	Maximum Number of Vehicle Lists	100
	Maximum Number of Vehicles per Vehicle List	5,000
<b>Recording</b>	Maximum Number of Recording Schedules	3,000
	Maximum Number of Recording Templates	200
<b>Event &amp; Rule</b>	Maximum Number of Event and Alarm Rules	1,000
	Maximum Number of Alarms per Second (Rule Matched)	*120
	Maximum Number of Arming Templates	200
	Maximum Number of Alarm Categories	25
	Maximum Number of Alarm Priorities	255
	Maximum Number of Email Templates	Unlimited

<b>Logs &amp; Records</b>	Maximum Stored Number of Alarm Logs	60,000,000
	Maximum Stored Number of Event Logs	60,000,000
	Maximum Stored Number of Operation Logs	5,000,000
	Maximum Stored Number of System Logs	5,000,000
	Maximum Stored Number of Tags	60,000,000
	Maximum Stored Number of People Counting Records	5,000,000 Stored for 2 Years
	Maximum Stored Number of Heat Map Records	250,000 Stored for 2 Years
	Maximum Stored Number of License Plate Recognition Records	60,000,000
<b>Smart Wall</b>	Maximum Number of Decoding Devices	32
	Maximum Number of Smart Walls	8
	Maximum Number of View Groups	64
	Maximum Number of Views per View Group	8
	Maximum Number of View Groups Auto-Switched Simultaneously	4
	Maximum Stored Number of Operation Logs	500,000
<b>VSM Server (with RSM)</b>		
<b>General</b>	Maximum Number of Cameras (Current Site)	3,000
	Maximum Number of Alarm Inputs (Current Site)	3,000
	Maximum Number of Alarm Outputs (Current Site)	3,000
	Maximum Number of Cameras (Remote Sites)	100,000
	Maximum Number of Encoding Devices and Remote Sites	1,024
	Maximum Number of Recording Servers Connected	64
	Maximum Number of Streaming Server Connected	64
	Maximum Number of Concurrent Control or Web Clients	100
	Maximum Number of Concurrent Mobile Clients	100
	Maximum Number of Users	3,000
	Maximum Number of Roles	3,000
	Maximum Number of Areas	3,000
	Maximum Number of Area Hierarchies	5
	Maximum Number of Cameras per Area	64
	Maximum Number of Alarm Inputs per Area	64
	Maximum Number of Alarm Outputs per Area	64
<b>Map</b>	Maximum Number of Maps	1,024
	Maximum Resolution of Map	1920*1080
	Maximum Number of Map Hierarchies	6
	Maximum Number of Hot Regions per Map	64
	Maximum Number of Camera Hot Spots per Map	128
	Maximum Number of Alarm Input Hot Spots per Map	128
	Maximum Number of Alarm Output Hot Spots per Map	128
	Maximum Number of Labels per Map	128

	Maximum Number of Hot Regions in Total	1,024
	Maximum Number of Camera Hot Spots in Total	3,000
	Maximum Number of Alarm Input Hot Spots in Total	3,000
	Maximum Number of Alarm Output Hot Spots in Total	3,000
	Maximum Number of Labels in Total	3,000
<b>Vehicle</b>	Maximum Number of Vehicle Lists	100
	Maximum Number of Vehicles per Vehicle List	5,000
<b>Recording</b>	Maximum Number of Recording Schedules (Current Site and Remote Sites)	30,000
	Maximum Number of Recording Templates	200
<b>Event &amp; Alarm</b>	Maximum Number of Event and Alarm Rules (Current Site and Remote Sites)	10,000
	Maximum Number of Alarms per Second (Rule Matched)	*120
	Maximum Number of Arming Templates	200
	Maximum Number of Alarm Categories	25
	Maximum Number of Alarm Priorities	255
	Maximum Number of Email Templates	Unlimited
<b>Logs &amp; Records</b>	Maximum Stored Number of Alarm Logs	60,000,000
	Maximum Stored Number of Event Logs	60,000,000
	Maximum Stored Number of Operation Logs	5,000,000
	Maximum Stored Number of System Logs	5,000,000
	Maximum Stored Number of Tags	60,000,000
	Maximum Stored Number of People Counting Records	5,000,000 Stored for 2 Years
	Maximum Stored Number of Heat Map Records	250,000 Stored for 2 Years
	Maximum Stored Number of License Plate Recognition Records	60,000,000
<b>Smart Wall</b>	Maximum Number of Decoding Devices	32
	Maximum Number of Smart Walls	8
	Maximum Number of View Groups	64
	Maximum Number of Views per View Group	8
	Maximum Number of View Groups Auto-Switched Simultaneously	4
	Maximum Stored Number of Operation Logs	500,000
	<b>Streaming Server</b>	
Maximum Number of Video Input Bandwidth per Streaming Server		300×2 Mbps
Maximum Number of Video Output Bandwidth per Streaming Server		300×2 Mbps

\*20 alarms with pictures and 100 alarms without pictures can be received concurrently per second.



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