HikCentral Professional V3.0.1

System Requirements and Performance

Legal Information

About this Document

- This Document includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. Unless otherwise agreed, Hangzhou Hikvision Digital Technology Co., Ltd. or its affiliates (hereinafter referred to as "Hikvision") makes no warranties, express or implied.
- Please use this Document with the guidance and assistance of professionals trained in supporting the Product.

Acknowledgment of Intellectual Property Rights

- Hikvision owns the copyrights and/or patents related to the technology embodied in the Products described in this Document, which may include licenses obtained from third parties.
- Any part of the Document, including text, pictures, graphics, etc., belongs to Hikvision. No part of this Document may be excerpted, copied, translated, or modified in whole or in part by any means without written permission.
- HIKVISION and other Hikvision's trademarks and logos are the properties of Hikvision in various jurisdictions.
- Other trademarks and logos mentioned are the properties of their respective owners.

LEGAL DISCLAIMER

- TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS DOCUMENT AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKVISION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKVISION BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKVISION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.
- YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKVISION SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKVISION WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.
- YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW.

ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

- IN THE EVENT OF ANY CONFLICTS BETWEEN THIS DOCUMENT AND THE APPLICABLE LAW, THE LATTER PREVAILS.

Contents

Chapter 1 System Requirements

Table 1-1 System Requirements

OS for Server[1]	• Microsoft® Windows Server 2025 • Microsoft® Windows Server 2022 • Microsoft® Windows Server 2019 64-bit • Microsoft® Windows Server 2016 64-bit • Microsoft® Windows Server 2012 R2 64-bit • Microsoft® Windows Server 2012 64-bit • Microsoft® Windows 11 64-bit (including version 24H2) • Microsoft® Windows 10 64-bit **Note** For Windows Server 2012 R2, make sure it is installed with the rollup (KB2919355) updated in April, 2014.
OS for Control Client	• Microsoft® Windows Server 2025 • Microsoft® Windows Server 2022 • Microsoft® Windows Server 2019 64-bit • Microsoft® Windows Server 2016 64-bit • Microsoft® Windows Server 2012 R2 64-bit • Microsoft® Windows Server 2012 64-bit • Microsoft® Windows 11 64-bit • Microsoft® Windows 10 64-bit **Note** For Windows Server 2012 R2, make sure it is installed with the rollup (KB2919355) updated in April, 2014.
OS for Mobile Client	• iOS 12.0+ • Android 15.0+
Database	PostgreSQL V16.1
Browser	• Google Chrome® 125+ • Firefox® 125+ • Safari® 16.6+ • Microsoft® Edge 125+
Virtual Machine	• VMware® ESXi™ 6.x, ESXi™ 7.x • Microsoft® Hyper-V with Windows Server 2012/2012 R2/2016 (64-bit)

	Note • The Control Client cannot run on the virtual machine. • The Virtual machine in cluster mode is not supported. • The migration of virtual machine will cause the failure of License verification.
Failover Cluster	• Microsoft® Windows Server 2019 64-bit • Microsoft® Windows Server 2016 64-bit • Microsoft® Windows Server 2012 64-bit • RoseReplicatorPlus_for_oversea-5.8.0-1784.230526 -Windows-x64

Chapter 2 System Management Server (SYS)

Note

The values in this document are tested based on Seagate SATA 1.0TB 7200RPM. The values vary by the running conditions and environment, such as HikCentral Professional version, environment temperature, and hard disk brand.

2.1 SYS Configurations

Table 2-1 SYS Configurations

Feature	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Suggested Hikvision Model	DS-VE41-T/HW5	DS-VE11-R/HW1	DS-VH22-R/HW2	DS-VH22-R/HW3E
CPU	Intel® Core™ i5-12500	• Intel® Xeon® E-2434 • Intel® Xeon® E-2324G	• Intel® Xeon® Silver 4410T • Intel® Xeon® 6353P • Intel® Xeon® E-2468 • Intel® Xeon® E-2378	Intel® Xeon® Silver 4410T * 2
RAM	16 GB	16 GB	32 GB	64 GB
NIC	1GbE NIC	1GbE NIC * 2	1GbE NIC * 2	1GbE NIC * 2 + 10 GbE NIC * 2
Disk for OS	1 TB SSD	2 TB 7200 RPM SATA * 2	2 TB 7200 RPM SATA * 2	2 TB 7200 RPM SATA * 2
Disk for Picture Storage	Enterprise-class HDD or high performance network HDD. It should support writing or reading of 10 MB/s.	Enterprise-class HDD or high performance network HDD. It should support writing or reading of 20 MB/s.	Enterprise-class HDD or high performance network HDD. It should support writing or reading of 20 MB/s. **Note** An exclusive HDD is recommended for picture storage.	Enterprise-class HDD or high performance network HDD. It should support writing or reading of 20 MB/s. **Note** An exclusive HDD is recommended

Feature	Configuration 1	Configuration 2	Configuration 3	Configuration 4
				for picture storage.
Disk Capacity for Database	At least 650 GB	At least 650 GB	At least 650 GB **Note** An exclusive HDD is recommended for database.	At least 650 GB **Note** An exclusive HDD is recommended for database.
OS	Microsoft® Windows Server 2019 STD 64-bit or later			
Virtual Machine	**Amazon AWS EC2** Instance: c5.2xlarge vCPU Count: 8 RAM: 16 GB Storage: EBS NIC: 10 Gbps	**Amazon AWS EC2** Instance: c5.2xlarge vCPU Count: 8 RAM: 16 GB Storage: EBS NIC: 10 Gbps	**Amazon AWS EC2** Instance: c5.4xlarge vCPU Count: 16 RAM: 32 GB Storage: HDD NIC: 10 Gbps	**Amazon AWS EC2** Instance: c5d.9xlarge vCPU Count: 36 RAM: 72 GB Storage: NVMe NIC: 10 Gbps
	Microsoft Azure Instance: F8s_v2 vCPU Count: 8 RAM: 16 GB NIC: 10 Gbps	**Microsoft Azure** Instance: F8s_v2 vCPU Count: 8 RAM: 16 GB NIC: 10 Gbps	**Microsoft Azure** Instance: F16s_v2 vCPU Count: 16 RAM: 32 GB NIC: 10 Gbps	**Microsoft Azure** Instance: F32s_v2 vCPU Count: 32 RAM: 64 GB NIC: 10 Gbps

Table 2-2 SYS Configurations For Main Server of Cluster

Feature	Configuration
Suggested Hikvision Model	DS-VH22-R/HW3E
CPU	Intel® Xeon® Silver 4410T * 2
RAM	64 GB
NIC	1 GbE NIC * 2 + 10 GbE NIC * 2
Disk for OS	2 TB 7200 RPM SATA * 2
Disk for Picture Storage	Enterprise-class HDD or high performance network HDD. It should support writing or reading of 20 MB/s.

Feature	Configuration
	Note An exclusive HDD is recommended for picture storage.
Disk Capacity for Database	At least 650 GB **Note** An exclusive HDD is recommended for database.
OS	Microsoft® Windows Server 2019 STD 64-bit or later

Note

- In addition to the recommended CPU, earlier versions are also supported, including Intel® Xeon® Silver 4309Y. See details on earlier documents.
- The virtual machine configuration references are made according to the performance of physical machines, which may differ from that of virtual machines. Therefore the selection of virtual machine configuration should be subject to projects.
- Due to variations in cloud virtual machine services among providers, please contact local Hikvision branches to confirm the configuration specifications for your project.

2.2 General System Performance

2.2.1 Multiple Servers (Cluster Mode)

Table 2-3 Server Numbers

Server Type	Value
Resource Server Cluster	1
Sub Servers in a Resource Server Cluster	5
Standby Servers in a Resource Cluster	5
Streaming Server Cluster	1
Servers in a Streaming Server Cluster	32

2.2.2 Manageable Resources

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multi-server is tested with a 5-sub server cluster.

For Single Server

Table 2-4 Manageable Devices

Device Type	Configuration 1	Configuration 2	Configuration 3	Configuration 4
• Encoding Devices • Encoding Devices Supporting ONVIF Protocol • On-Board Devices • Query Terminals • Entrance/Exit Control Devices • Guidance Terminals • Parking Lot Screens • Portable Devices • Dock Stations • Access Control Devices • Elevator Control Devices • Video Intercom Devices • Visitor Terminals • Security Control Panels and Panic Alarm Devices • Decoding Devices • Commercial Display Devices (including digital signage terminals, interactive flat panels, digital signage boxes, and LED controllers) • Security Inspection Devices	256 in Total **Note** For some device types, no more than 256 are supported. See ***details*** .	1,024 in Total **Note** For some device types, no more than 1,024 are supported. See ***details*** .	5,000 in Total **Note** For some device types, no more than 5,000 are supported. See ***details*** .	10,000 in Total **Note** For some device types, no more than 10,000 are supported. See ***details*** .

Device Type	Configuration 1	Configuration 2	Configuration 3	Configuration 4
• UVSSs • Network Transmission Devices • IP Speakers / Amplifier Zones • Fire Protection Devices • Payment Terminals • Portable Code Scanners • Scanning Devices (including Hikvision smart code readers, Hikvision barcode readers, and third-party scanning devices) • BACnet Devices • Modbus Devices				
Recording Servers (Including pStor, Hybird SAN, NVR, and cloud storage)	64	64	64	64
Streaming Servers	64	64	64	64
Intelligent Analysis Servers	64	64	64	64

Table 2-5 Manageable Channels

Device Type	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Cameras	512 **Note** For some camera types, no more than 512 are allowed. See ***details*** .	3,000 **Note** For some camera types, no more than 3,000 are allowed. See ***details*** .	• Central System: 10,000 **Note** For some camera types, no more than 10,000 are allowed. See ***details*** . • RSM: 100,000 (total in all sites)	• Central System: 20,000 **Note** For some camera types, no more than 20,000 are

Device Type	Configuration 1	Configuration 2	Configuration 3	Configuration 4
				allowed. See ***details*** . • RSM: 100,000 (total in all sites)
DS-5600 Series Face Recognition Terminals	32	32	32	32
Access Points (Doors + Floors)	128	1,024	• Central System: 5,000 • RSM: 10,000 (total in all sites)	Central System: 5,000 RSM: 10,000 (total in all sites)
Enrollment Stations	8	8	8	8
Alarm Inputs (Excluding security control panels and panic alarm devices)	512	5,000	5,000	5,000
Alarm Inputs of Security Control Devices	512	10,000	10,000	10,000
Partitions (Areas)	64	2,048	2,048	2,048
Alarm Outputs	512	3,000	3,000	3,000
Intelligent Analysis Servers	64	64	64	64
Modbus Devices	N/A	N/A	1,000 (up to 20 resources per device)	1,000 (up to 20 resources per device)
Speaker Units	128	128	1,000	1,000

For Multiple Servers

Table 2-6 Manageable Devices

Device Type	Value
Encoding Devices	50,000 in Total **Note** The encoding devices (third-party devices excluded) should be deployed on sub server.
• Encoding Devices Added by ONVIF Protocol • Access Control Devices • Elevator Control Devices • Video Intercom Devices • Visitor Terminals • On-Board Devices • Query Terminals • Entrance and Exit Stations • Guidance Terminals • Parking Lot Screens • UVSSs • Security Control Panels and Panic Alarm Devices • Fire Protection Devices • Portable Devices • Dock Stations • Commercial Display Devices (including digital signage terminals, interactive flat panels, digital signage boxes, and LED controllers) • BACnet Devices • Modbus Devices • Decoding Devices • Security Inspection Devices • Network Transmission Devices • IP Speakers / Amplifier Zones • Payment Terminals • Portable Code Scanners • Scanning Devices (including Hikvision smart code readers, Hikvision barcode readers, and third-party scanning devices)	5,000 in Total **Note** • The devices should be deployed on the main server. • For some device types, no more than 5,000 are supported. See ***details*** .

Device Type	Value
Recording Servers (Including pStor, Hybird SAN, NVR, and cloud storage)	64
Streaming Servers	64
Intelligent Analysis Servers	64

Table 2-7 Manageable Channels

Device Type	Value
Cameras	50,000 **Note** For some camera types, no more than 50,000 are supported. See ***details*** .
Alarm Inputs (Excluding security control panels and panic alarm devices)	50,000
Alarm Inputs of Security Control Devices	10,000
Alarm Outputs	3,000
Modbus Devices	1,000 (up to 20 resources per device)

2.2.3 Area

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-8 Area

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Areas	512	3,000	6,000	6,000
Area Hierarchies	5	5	5	5
Cameras in One Area	256	256	256	256
Alarm Inputs in One Area	256	256	256	256
Alarm Outputs in One Area	256	256	256	256

2.2.4 Remote Site Management

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-9 Remote Site Management

Feature	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Remote Sites on Central Site	N/A	N/A	1,024	1,024
Remote Site Resources Added to Central Site	N/A	N/A	100,000	100,000

2.2.5 Person

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-10 Person

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Persons **Note** The persons include persons for Access Control and Time&Attendance.	2,000	50,000	100,000	100,000
Departments	3,000	3,000	3,000	3,000
Department Hierarchies	10	10	10	10
Profile Pictures	2,000	100,000	100,000	100,000
Cards	10,000	250,000	500,000	500,000
Fingerprints	8,000	200,000	400,000	400,000
Irises	4,000	100,000	200,000	200,000
Palm Prints/Veins	4,000	100,000	200,000	200,000

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Recommended Size of One Profile Picture	300 KB	300 KB	300 KB	300 KB
Total Size of Profile Pictures	500 MB	300 GB	300 GB	300 GB
Persons to Be Reviewed	10,000	10,000	10,000	10,000
Resigned Persons	100,000	100,000	100,000	100,000
Resignation Types	100	100	100	100

2.2.6 Event

This chapter introduces the configuration, receiving & delivery, and storage of events.

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multiple servers is tested with a 5-sub server cluster.

Event Configuration

Table 2-11 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Alarm Priorities	255	255	255	255
Alarm Categories	25	25	25	25
Events	1,500	3,000	20,000	20,000
User-Defined Event Rules	1,500	3,000	10,000	10,000
Event Rules in One Event Report	32	32	32	32
Arming Schedule Templates	200	200	200	200

Table 2-12 For Multiple Servers

Parameter	Value
Alarm Priorities	255
Alarm Categories	25
Events	100,000
User-Defined Event Rules	10,000
Event Rules in One Event Report	32
Arming Schedule Templates	200

Event Receiving

Table 2-13 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Events with Pictures (When pictures are directly transmitted from devices to Recording Servers or NVRs)	• Average Value: 30/s • Peak Value: 100/s (This value last for no more than 10 minutes.)	• Average Value: 50/s • Peak Value: 200/s (This value last for no more than 10 minutes.)	• Average Value: 100/s • Peak Value: 1,000/s (This value last for no more than 1 hour.)	• Average Value: 300/s • Peak Value: 1,000/s (This value last for no more than 1 hour.)
Events with Pictures (When devices send pictures to SYS[1], and then SYS transmits them to Recording Servers)	Peak Value: 20/s (This value lasts for no more than 10 minutes.)	Peak Value: 80/s (This value lasts for no more than 10 minutes.)	• Average Value: 100/s • Peak Value: 100/s (This value lasts for no more than 1 hour.)	• Average Value: 150/s • Peak Value: 150/s (This value lasts for no more than 1 hour.)

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Events with Pictures (When devices send pictures to SYS for storage)	Peak Value: 20/s[2] (This value lasts for no more than 10 minutes.)	Peak Value: 20/s (This value lasts for no more than 10 minutes.)	• Average Value: 20/s • Peak Value: 20/s (This value lasts for no more than 1 hour.)	• Average Value: 20/s • Peak Value: 20/s (This value lasts for no more than 1 hour.)
Events Without Pictures	• Average Value: 30/s • Peak Value: 100/s (This value lasts for no more than 10 minutes.)	• Average Value: 50/s • Peak Value: 100/s (This value lasts for no more than 10 minutes.)	• Average Value: 100/s • Peak Value: 1,000/s (This value lasts for no more than 1 hour.)	• Average Value: 100/s • Peak Value: 1,000/s (This value lasts for no more than 1 hour.)
Combined Alarms	10/s	10/s	10/s	10/s
Optimus Alarms	30/s	50/s	100/s	100/s

Table 2-14 For Multiple Servers

Parameter	Value
Events with Pictures (When pictures are directly transmitted from devices to Recording Servers or NVRs)	• Average Value: 1,500/s • Peak Value: 3,000/s (This value lasts for no more than 1 hour.)
Events with Pictures (When devices send pictures to SYS, and then SYS transmits them to Recording Servers)	• Average Value: 750/s • Peak Value: 750/s (This value lasts for no more than 1 hour.)

Parameter	Value
Events with Pictures (When devices send pictures to SYS for storage)	• Average Value: 20/s • Peak Value: 20/s (This value lasts for no more than 1 hour.)
Events without Pictures	• Average Value: 1,500/s • Peak Value: 3,000/s (This value lasts for no more than 1 hour.)
Combined Alarms	10/s
Optimus Alarms	100/s

Note

1. The numbers of received events are measured with each picture as 500 KB. For pictures triggered by the alarm linkage action, the receiving performance varies by the number of pictures.
   Pictures will be forwarded to the Recording Server from the SYS when pictures cannot be stored in the device, and the Recording Server is not configured on the device's Web page.
2. For access events stored in SYS, each picture is 50 KB, and the receiving performance is 200/s.

Event Delivery

Note

Clients here include the Web Client, Control Client, and Mobile Client.

Table 2-15 For Single Server

Parameters	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Events Sent to Clients	30 clients * 38 events/s	100 clients * 50 events/s	100 clients * 100 events/s	100 clients * 100 events/s

Table 2-16 For Multiple Servers

Parameter	Value
Events Sent to Clients	100 clients * 100 events/s

2.2.7 Data Storage

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-17 Data Storage

Data Type	Retention Period	Total Numbers During Retention Period	Space for Per Million of Data (MB)
Server Logs (including Operations, Information, and Errors)	3 Years	15 million	1200
Events		1 billion	500
Alarms		1 billion	300
Recording Tags		60 million	110
ANPR Records		1 billion	600
Access Records		1 billion	150
Visitor Reservation and Check-In Records		30 million	270
Attendance Records		55 million	250
People Counting Data		15 million	360
Heat Map Records		0.75 million	610
Queuing Records		15 million	440
On-Board GPS Records	1 Year	1 billion	220
Portable Device GPS Records		1 billion	370

2.2.8 User & Role

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-18 User & Role

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Roles	400	3,000	3,000	3,000
Users	100	3,000	10,000	10,000
Total Online Users and Persons **Note** The persons refers to employees who are allowed to login to Self-Service, searching for attendance results, check in&out via the Mobile Client, and opening door via bluetooth.	500[1]	500[2]	5,000[3]	5,000[3]

Note

1. - Max. online users on Control Clients and Web Clients: 30
   - Max. online users on Mobile Clients: 30
   - Max. online store managers (for Intelligent Analysis module): 500
   - Max. online persons: 500
2. - Max. online users on Control Clients and Web Clients: 100
   - Max. online users on Mobile Clients: 100
   - Max. online store managers (for Intelligent Analysis module): 500
   - Max. online persons: 500.
3. - Max. online users on Control Clients and Web Clients: 100
   - Max. online users on Mobile Clients: 100
   - Max. online store managers (for Intelligent Analysis module): 1,000
   - Max. online persons: 5,000

2.2.9 Map

Note

- The performance of multiple servers is tested with a 5-sub server cluster.
- For details about the configurations, see ***SYS Configurations*** .

Table 2-19 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Number of E-Maps	128	1024	1024	1024
Hot Regions on Each E-Map	8	64	64	64
Hot Regions on E-Maps in Total	128	1024	1024	1024
Cameras on E-Maps in Total	512	3,000	10,000	20,000
Doors on E-Maps in Total	128	1024	1024	5,000
Labels on Maps in Total	128	3,000	3,000	3000
Labels on Each Map	16	128	128	128
E-Map Max Resolution	8192×8192	8192×8192	8192×8192	8192×8192
Size of Single Picture for E-Map	64M	64M	64M	64M
Size of Total Pictures for E-Map	2GB	15GB	15GB	15GB
Size of Zipped Offline Map	1GB	1GB	1GB	1GB

Table 2-20 For Multiple Servers

Parameter	Value
Number of E-Maps	20,000
Hot Regions on Each E-Map	64
Hot Regions on E-Maps in Total	1024
Cameras on E-Maps in Total	100,000
Doors on E-Maps in Total	5000
Labels on Maps in Total	3000
Labels on Each Map	128
E-Map Max Resolution	8192×8192
Size of Single Picture for E-Map	64M
Max Size of Total Pictures for E-Map	15GB
Max Size of Zipped Offline Map	1GB

2.3 Module Performance

2.3.1 Video Security

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multiple servers is tested with a 5-sub server cluster.

Table 2-21 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Recording Schedules	512	3,000	30,000	300,000
Face Pictures	NA	10,000	1,000,000	1,000,000
Face Picture Libraries	NA	200	200	200
Concurrent Face Picture Matching Events	• Average Value: 30/s (This value lasts for 1 hour max.) • Peak Value: 100/s (This value lasts for 1 day max.)	• Average Value: 50/s (This value lasts for 1 hour Max.) • Peak Value: 200/s (This value lasts for 1 day max.)	• Average Value: 100/s (This value lasts for 1 hour Max.) • Peak Value: 1,000/s (This value lasts for 1 day Max.)	When pictures are directly transmitted from devices to Recording Servers or NVRs: • Average Value: 100/s (This value lasts for half an hour Max.) • Peak Value: 10,000/s (This value lasts for 1 day Max.) When devices send pictures to SYS1, and then SYS transmits them to Recording Servers: • Average Value (Last for 1 day max): ◦ 100 images at 500KB/s (Recording

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
				Server independently deployed) ◦ 20 images at 500KB/s (stored on VSM) • Peak Value (Last for half an hour max): ◦ 200 images at 500KB/s (Recording Server independently deployed) ◦ 20 images at 500KB/s (stored on VSM)
Face Picture Libraries	200	200	200	200
Number of Vehicle Lists	100	100	100	100
Scheduled Capture	64	64	64	64

Table 2-22 For Multiple Servers

Parameter	Value
Recording Schedules	300,000
Face Pictures	1,000,000
Face Picture Libraries	200
Concurrent Face Picture Matching Events	When pictures are directly transmitted from devices to Recording Servers or NVRs: • Average Value: 100/s (This value lasts for half an hour Max.) • Peak Value: 10,000/s (This value lasts for 1 day Max.)
	When devices send pictures to SYS1, and then SYS transmits them to Recording Servers: • Average Value (Last for 1 day max): ◦ 100 images at 500KB/s (Recording Server independently deployed) ◦ 20 images at 500KB/s (stored on VSM) • Peak Value (Last for half an hour max):

Parameter	Value
	◦ 200 images at 500KB/s (Recording Server independently deployed) ◦ 20 images at 500KB/s (stored on VSM)
Face Picture Libraries	200
Number of Vehicle Lists	100
Scheduled Capture	64

2.3.2 AR Monitoring

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-23 AR Monitoring

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Plans	512 100 Scenes for Each Plan	512 100 Scenes for Each Plan	512 100 Scenes for Each Plan	512 100 Scenes for Each Plan
Tags for Each Scene	200	200	200	200
Tag Groups for Each Scene	100	100	100	200

2.3.3 Evidence Management

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-24 Evidence Management

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Cases	100,000	100,000	100,000	100,000
Files	100,000	100,000	100,000	100,000

2.3.4 Vehicle and Parking Management

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-25 Vehicles

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Vehicle Lists	100	100	100	100
Vehicles in One List	5,000	5,000	5,000	5,000
Vehicles in Block List	5,000	5,000	5,000	5,000
Total Vehicles	60,000	500,000	500,000	500,000

Table 2-26 Parking Lots

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Parking Lots	10	10	10	10
Total Lanes	40	40	40	40
Lanes in One Parking Lot	32	32	32	32
Total Floors of Parking Lot	128	128	128	128

Table 2-27 Parking Spaces

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Total Parking Spaces	10,000	10,000	10,000	10,000
Parking Spaces on One Floor	5,000	5,000	5,000	5,000

Table 2-28 Parking Fee Rules of One Parking Lot

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Parking Fee Rules for Abnormal Pass	32	32	32	32
Parking Pass Rules	32	32	32	32
Discount Rules	32	32	32	32

Table 2-29 Others

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Vehicles' Cards	250,000	250,000	250,000	250,000
Temporary Cards of One Parking Lot	10,000	10,000	10,000	10,000
Undercarriage Pictures	512	3,000	3,000	3,000
Custom Vehicle Type	10	10	10	10
Parking Records Concurrency	20 records/sec (last for 1 hour)	20 records/sec (last for 1 hour)	20 records/sec (last for 1 hour)	20 records/sec (last for 1 hour)
Parking Vehicle Frequency of One Lane	1 vehicle/sec	1 vehicle/sec	1 vehicle/sec	1 vehicle/sec

Note

The Undercarriage Pictures are tested with each picture being 10 MB.

2.3.5 On-Board Monitoring

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multi-server is tested with a 5-sub server cluster.

Table 2-30 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
GPS Information Sent to Platform Per Second	Peak Value: 60 Average Value: 30	Peak Value: 100 Average Value: 50	Peak Value: 1000 Average Value: 200	Peak Value: 1000 Average Value: 200
Fence Rules for One Vehicle	4	4	4	4
Deviation Rules for One Vehicle	4	4	4	4
Deviation Rules in Total	1,200	2,000	2,000	2,000
Vehicles Can Be Located in One Client	500	500	500	500
Sites	NA	1,000	1,000	1,000
Site Groups	NA	500	1,000	1,000
Routes	NA	500	1,000	1,000
Drivers	10,000	10,000	10,000	10,000
Driver Groups	1,000	1,000	1,000	1,000
Site Event Rules	1,000	1,000	1,000	1,000

Table 2-31 For Multiple Servers

Parameter	Value
GPS Information Sent to Platform Per Second	Peak Value: 1000 Average Value: 334
GPS Information Sent to Platform Every Day	15 Million
Fence Rules for One Vehicle	4
Deviation Rules for One Vehicle	4
Deviation Rules in Total	2,000
Vehicles Can Be Located in One Client	500
Sites	1,000
Site Groups	1,000

Parameter	Value
Routes	1,000
Drivers	10,000
Driver Groups	1,000
Site Event Rules	1,000

2.3.6 Portable Enforcement

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-32 Portable Enforcement

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Intercom Groups	10	128	128	128
Persons in One Intercom Group	100	100	100	100
Pieces of GPS Information Sent to Platform per Second	30 (300 devices online simultaneously.)	200 (1,000 devices online simultaneously.)	250 (2,000 devices online simultaneously.)	250 (2,500 devices online simultaneously.)
Concurrent Intercom (Built-in Streaming Server)	200 devices.	400 devices.	400 devices.	400 devices.
Concurrent Intercom (External Streaming Server)	300 devices.	600 devices.	600 devices.	600 devices.

2.3.7 Intelligent Analysis

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multi-server is tested with a 5-sub server cluster.

Retail/Supermarket Scenario

Table 2-33 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Resources in One Analysis Group	64	64	64	64
Total Stores	192	600	3,000	3,000
Total Floors	192	600	3,000	3,000
Total Entries and Exits	192	600	3,000	3,000
Total Analytic Areas	192	600	3,000	3,000
Promotion Days	Total Days of a Promotion Day: 30 Total Promotion Days: 100	Total Days of a Promotion Day: 30 Total Promotion Days: 100	Total Days of a Promotion Day: 30 Total Promotion Days: 100	Total Days of a Promotion Day: 30 Total Promotion Days: 100
Total Scheduled Reports	100	100	100	100
Records in a Single Report	32,000	32,000	32,000	32,000
Floors of One Store	10	10	10	10
Entries and Exits of One Store	64	100	100	100
Cameras Installed at One Entry and Exit	5	5	5	5
Cameras or Dwell Areas Linked to an Analytic Areas	1	1	1	1
Dwell Areas of a Camera	5	5	5	5

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Stores That Can be Selected for Generating a Multi-Store Report	100	100	100	100
Stores That Can be Selected for Generating a Comparison Report	2	2	2	2
Stores That Can be Selected for Generating a Store Promotion Day Report	64	100	100	100
Stores That Can be Selected for Generating a People Counting / Person Feature Analysis/ Heat Analysis / Pathway Analysis / Queue Analysis Report	1	1	1	1
Cameras That Can be Selected for Generating a People Counting / Person Feature Analysis/ Heat Analysis / Pathway Analysis / Queue Analysis Report	1	1	1	1

Table 2-34 For Multiple Servers

Parameter	Value
Resources in One Analysis Group	64
Total Stores	3,000
Total Floors	3,000

Parameter	Value
Total Entries and Exits	3,000
Total Analytic Areas	3,000
Promotion Days	Total Days of a Promotion Day: 30 Total Promotion Days: 100
Total Scheduled Reports	100
Records in a Single Report	32,000
Floors of One Store	10
Entries and Exits of One Store	100
Cameras Installed at One Entry and Exit	5
Cameras or Dwell Areas Linked to an Analytic Areas	1
Dwell Areas of a Camera	5
Stores That Can be Selected for Generating a Multi-Store Report	100
Stores That Can be Selected for Generating a Comparison Report	2
Stores That Can be Selected for Generating a Store Promotion Day Report	100
Stores That Can be Selected for Generating a People Counting / Person Feature Analysis/ Heat Analysis / Pathway Analysis / Queue Analysis Report	1
Cameras That Can be Selected for Generating a People Counting / Person Feature Analysis/ Heat Analysis / Pathway Analysis / Queue Analysis Report	1

Public Scenario

Table 2-35 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Total Analysis Groups	192	600	3,000	3,000
Cameras of Each Analysis Group	64	64	64	64

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Analysis Groups That Can be Selected for Generating a People Counting / Person Feature Analysis Report	20	20	20	20
Analysis Groups That Can be Selected for Generating a Heat Analysis / Pathway Analysis Report	1	1	1	1

Table 2-36 For Multiple Servers

Parameter	Value
Total Analysis Groups	3,000
Cameras of Each Analysis Group	64
Analysis Groups That Can be Selected for Generating a People Counting / Person Feature Analysis Report	20
Analysis Groups That Can be Selected for Generating a Heat Analysis / Pathway Analysis Report	1

2.3.8 Intelligent Recognition

Note

- For details about the configurations, see ***SYS Configurations*** .
- The performance of multi-server is tested with a 5-sub server cluster.

Table 2-37 For Single Server

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Face Pictures for Intelligent Recognition	5000	1,000,000	1,000,000	1,000,000
Face Picture Libraries	16	64	64	200

Table 2-38 For Multiple Servers

Parameter	Value
Face Pictures for Intelligent Recognition	1,000,000
Face Picture Libraries	200

2.3.9 Access Control

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-39 Access Control

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Anti-Passback Rules	32	128	128	128
Access Points in One Anti-Passback Rule	16	16	16	16
Access Levels	32	512	1,024	1,024
Access Points in One Access Level	32	1,024	1,024	1,024
Access Group	16	512	512	512
Access Levels in One Access Group	8	8	8	8
Access Schedules	32	32	32	32
Card Printing Templates	32	32	32	32
Speed of Applying Credentials to Devices	• Card: 4.2/s • Fingerprint: 1.7/s • Face credential: 1.7/s	• Card: 4.2/s • Fingerprint: 1.7/s • Face credential: 1.7/s • Iris: 100/s • Palm Prints/ Veins: 1.5/s	• Card: 4.2/s • Fingerprint: 1.7/s • Face credential: 1.7/s • Iris: 100/s • Palm Prints/ Veins: 1.5/s	• Card: 4.2/s • Fingerprint: 1.7/s • Face credential: 1.7/s • Iris: 100/s • Palm Prints/ Veins: 1.5/s

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
	• Iris: 100/s • Palm Prints/ Veins: 1.5/s			

2.3.10 Time and Attendance

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-40 Time and Attendance

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Schedules	32	128	128	128
Break Timetables	128	128	128	128
Break Timetables in One Timetable	4	4	4	4
Pay Codes (including overtime types and leave types)	128	128	128	128
Approval Roles	100	100	100	100
Approval Flows	1,000	1,000	1,000	1,000
Nodes in One Application Flow	100	100	100	100
Persons Allowed in One Approval Role	500	500	500	500
Persons Contained in All Approval Roles in Each Nodes	500	500	500	500
Custom Reports in Time and Attendance Module	128	128	128	128

2.3.11 Visitor

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-41 Visitor

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Visitors	5,000	100,000	100,000	100,000
Visitor Registration/ Reservation Records	100,000	100,000	100,000	100,000
Visitor Reservation Records to Be Approved	5,000	10,000	10,000	10,000
Visitor Email Templates	20	20	20	20
Visitors in Block List	5,000	10,000	10,000	10,000
Entities in Watch List	5,000	10,000	10,000	10,000
Hosts to Be Applied	20,000	100,000	100,000	100,000
Card Templates	20	20	20	20
WhatsApp Templates	20	20	20	20

2.3.12 Patrol

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-42 Patrol

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Patrol Points	1,024	1,024	1,024	1,024
Patrol Person Groups	300	300	300	300
Schedule Templates	1,000	1,000	1,000	1,000
Shifts of a Patrol Route	8	8	8	8

2.3.13 Security Inspection

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-43 Security Inspection

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Security Analyzers	N/A	8	8	8
Walk-Through Metal Detectors	N/A	64	64	64
Security Inspection Channels	N/A	8	64	64

2.3.14 Commercial Display

Feature	Configuration 1	Configuration 2	Configuration 3
Materials	10,000	10,000	10,000
Material Size	4 GB	4 GB	4 GB
Materials Uploading Concurrently	50	50	50
Programs	2,000	2,000	2,000
Pages of One Program Content	32	32	32
Windows of One Program Content	64	512	1,024
Windows on One Page	32	64	128
Picture Windows	32	32	32
Document Windows	16	16	16
Video / Live Video Windows	4	4	4
Audio Windows	1	1	1
Webpage Windows	2	2	2

Feature	Configuration 1	Configuration 2	Configuration 3
Text Windows	128	128	128
Clock	1	1	1
Countdown Timer	1	1	1
Materials in One Window	256 (Picture/Video/ Text, etc.)	256 (Picture/Video/ Text, etc.)	256 (Picture/Video/ Text, etc.)
Schedules	1,000	1,000	1,000
Cut-In Schedules	Cut-In Programs: 10,000 Cut-In Text Messages: 10,000	Cut-In Programs: 10,000 Cut-In Text Messages: 10,000	Cut-In Programs: 10,000 Cut-In Text Messages: 10,000
Content Review Records	5,000	10,000	20,000
Quickly Released Contents	64 Materials (Picture/ Video) for a Single Release	64 Materials (Picture/ Video) for a Single Release	64 Materials (Picture/ Video) for a Single Release
Released Records	2,000	20,000	20,000
Concurrent Content Release	10	10	10
Applications	512	512	512
Flat Panels Usage Statistics	Devices: 128	Devices: 2,048	Devices: 2,048
Combined Control Command	500	500	500
Device Playing Statistics	128	512	2,048

2.3.15 Smart Wall

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-44 Smart Wall

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Smart Walls	8	32	32	32
Views	100	1,000	1,000	1,000
Alarms Displayed on Smart Wall as Actions	• Average: 1 alarm every 15 seconds per screen. • Peak: 1 alarm every second per screen; Last for 10 minutes.	• Average: 1 alarm every 15 seconds per screen. • Peak: 1 alarm every second per screen; Last for 10 minutes.	• Average: 1 alarm every 15 seconds per screen. • Peak: 1 alarm every second per screen; Last for 10 minutes.	• Average: 1 alarm every 15 seconds per screen. • Peak: 1 alarm every second per screen; Last for 10 minutes.
Preview Channels (Sub-Stream)	32	32	64	64
Cameras for Multi-Window Auto-Switch	256	256	256	256
Channels for Playback per Client	4	4	4	4
Programs Displayed on Smart Wall / Client	1	1	1	1
Concurrent Requests from Mobile App	1	1	1	1

2.3.16 Audio Broadcast

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-45 Audio Broadcast

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Broadcast Groups	100	100	100	100
IP Speakers in One Broadcast Group	16	128	128	128
Media Libraries	100	100	100	100
Audio Files in One Media Library	100	100	100	100
Broadcast Schedules	100	100	100	100
Number of Speaker Units When Select Speak as Broadcast Mode in Live Broadcast	64	256	256	256
Number of Speaker Units When Select Audio File as Broadcast Mode in Live Broadcast	64	256	256	256
Number of Speaker Units When Select Custom Broadcast Content as Broadcast Mode in Live Broadcast	64 Set Broadcast Delay Time as 4 sec)	256 (Set Broadcast Delay Time as 4 sec)	256 (Set Broadcast Delay Time as 4 sec)	256 (Set Broadcast Delay Time as 4 sec)
Number of Speaker Units When Select Speaker Unit as Alarm Linkage Action and Select Audio File as Broadcast Mode	64 (Set Broadcast Delay Time as 2 sec)	64 (Set Broadcast Delay Time as 2 sec)	64 (Set Broadcast Delay Time as 2 sec)	64 (Set Broadcast Delay Time as 2 sec)

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Number of Speaker Units When Select Speaker Unit as Alarm Linkage Action and Select Custom Broadcast Content as Broadcast Mode	64 (Set Broadcast Delay Time as 4 sec)	64 (Set Broadcast Delay Time as 4 sec)	64 (Set Broadcast Delay Time as 4 sec)	64 (Set Broadcast Delay Time as 4 sec)
Number of Speaker Units Linked with SIP Phones When Select Speak as Broadcast Mode in Live Broadcast	64	256	256	256
Number of Speaker Units Linked with SIP Phones When Select Audio File as Broadcast Mode in Live Broadcast	64 (Set Broadcast Delay Time as 2 sec)	256 (Set Broadcast Delay Time as 2 sec)	256 (Set Broadcast Delay Time as 2 sec)	256 (Set Broadcast Delay Time as 2 sec)

2.3.17 Third-Party Integration

When adding HikCentral Professional as a device to a third-party system, performances are as the following table.

Table 2-46 Third-Party Integration

Parameter	Value
BACnet Objects	• Binary Value: 1,000 • Door: 1,000 • Binary Output: 1,000 • Binary Input: 1,000
Event Templates with SIA Protocol	1,000

Parameter	Value
Zones with SIA Protocol	1,000
Event Templates with Sur-Gard Protocol	1,000
Zones with Sur-Gard Protocol	1,000

2.3.18 Others

Note

For details about the configurations, see ***SYS Configurations*** .

Table 2-47 Others

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Streaming Gateway	50 cameras×2 Mbps input and 50 cameras×2 Mbps output	200 cameras×2 Mbps input and 200 cameras×2 Mbps output	200 cameras×2 Mbps input and 200 cameras×2 Mbps output	200 cameras×2 Mbps input and 200 cameras×2 Mbps output
Number of Messages Sent from SYS to Mobile Clients on Different Smart Phone Systems	iOS/HUAWEI: 30/s Android: 26/s	iOS/HUAWEI: 30/s Android: 26/s	iOS/HUAWEI: 30/s Android: 26/s	iOS/HUAWEI: 30/s Android: 26/s

Chapter 3 Streaming Server

Configurations

Table 3-1 Configurations

Feature	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Suggested Hikvision Model	DS-VP41D-C/HW5L	DS-VE11-R/HW2	DS-VH22-R/HW20	DS-VH22-R/HW2
CPU	Intel® Core™ i5-12500	• Intel® Xeon® E-2434 • Intel® Xeon® E-2324G	Intel® Xeon® Silver 4410T	Intel® Xeon® Silver 4410T
RAM	8 GB	16 GB	32 GB	32 GB
NIC	1 GbE NIC	1GbE NIC * 2	1GbE NIC * 6	1GbE NIC * 2 + 10GbE NIC *2
Disk for OS	2 TB 7200 RPM SATA * 1	2 TB 7200 RPM SATA * 2	2 TB 7200 RPM SATA * 2	2 TB 7200 RPM SATA * 2

Maximum Performance

Table 3-2 Maximum Performance

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Input and Output of Streaming	Up to 200 channels, and no more than 400 Mbps for input/output bandwidth[1]	Up to 600 channels, and no more than 600 Mbps for input/output bandwidth[2]	Up to 2,000 channels, and no more than 2,000 Mbps for input/output bandwidth[3]	Up to 2,000 channels, and no more than 4,000 Mbps for input/output bandwidth

Note

1. In the Portable Enforcement module, persons performing group intercom via the streaming server of HikCentral Professional simultaneously is 200; persons performing group intercom simultaneously via a third-party streaming server is 300.
2. In the Portable Enforcement module, persons performing group intercom via the streaming server of HikCentral Professional simultaneously is 400.
3. For 4 NIC teaming, up to 2,000 channels, and no more than 2,000 Mbps for input/output bandwidth; For 6 NIC teaming, up to 2,000 channels, and no more than 3,600 Mbps for input/output bandwidth.

Chapter 4 pStor Server

OS Requirements

- Microsoft® Windows 10 64-bit
- Microsoft® Windows 11 64-bit
- Microsoft® Windows Server 2012 R2 64-bit
- Microsoft® Windows Server 2016 64-bit
- Microsoft® Windows Server 2019 64-bit
- Microsoft® Windows Server 2022
- Microsoft® Windows Server 2025

Note

For Windows Server 2012 R2, make sure it is installed with the rollup (KB2919355) updated in April, 2014.

Hardware Requirements

Table 4-1 Hardware Requirements

Feature	Picture Storage	Video + Picture Storage	Video + Picture Storage
Suggested Hikvision Model	DS-VE11-R/HW22	DS-VH22-R/HW812	DS-VH22-R/HW828
CPU	• Intel® Xeon® E-2434 • Intel® Xeon® E-2324G	Intel® Xeon® 5416S	Intel® Xeon® 5416S
RAM	16 GB	32 GB	32 GB
NIC	1 GbE NIC * 2	1 GbE NIC * 6	1 GbE NIC * 6
Disk for OS	2 TB 7200 SATA RPM Enterprise Class Hard Drives * 2	2 TB 7200 SATA RPM Enterprise Class Hard Drives * 2	960 GB SSD * 2
Disk for Storage	• Total disk bays: 2 • Preset disks: 20 TB 7200 SATA * 2	• Total disk bays: 10 • Preset disks: 0	• Total disk bays: 26 • Preset disks ： 16 TB 7200 SATA * 10

Note

1. If you plan to configure other types of servers with identical disk for OS, allocate at least 512 GB of space for OS.
2. For cluster configurations, it is recommended to maintain consistent disk capacity across all storage nodes for better performance.
3. For general video storage, at least 4 disks are recommended for better performance and reliability; for video storage with RAID5, at least 5 disks are recommended.
4. For video + picture storage, in addition to the recommended CPU, earlier versions are also supported, including Intel® Xeon® E-2468, Intel® Xeon® Silver 4410T, Intel® Xeon® 4410Y, and Intel® Xeon® E-2378. See details in earlier documents.

Chapter 5 Decoding Performance of Web Client and Control Client

Note

- The performance refers to maximum live view channels within up to 80% of CPU consumption (software decoding) or up to 80% of video engine load/decoding value (hardware decoding).
- You can switch to hardware decoding on the System page. If the OS of your PC is Windows 7, make sure the DirectX End-User Runtime Web Installer have been installed, in order to improve the hardware decoding performance. To download the DirectX, you can go to the Download Center of the Microsoft® official Website, and find it on the Windows page.

Table 5-1 Configurations

Feature	Configuration 1	Configuration 2	Configuration 3
Suggested Hikvision Model	DS-VP41D-C/HW3	DS-VP41D-C/HW5L	DS-VP41D-C/HW7L
CPU	Intel® Core™ i3-12100	Intel® Core™ i5-12500	Intel® Core™ i7-12700
RAM	8 GB	8 GB	16 GB
NIC	GbE Network Interface Card	GbE Network Interface Card	GbE Network Interface Card
Graphics Card	Intel®UHD Graphics 730	Intel® HD Graphics 770	Intel® HD Graphics 770
OS	Microsoft® Windows 10 (64-bit)	Microsoft® Windows 10 (64-bit)	Microsoft® Windows 10 (64-bit)

5.1 Performance in Software Decoding

This topic introduces the software decoding performance of different encoding formats including H.264, H.264+, H.265, and H.265+.

Note

For details about the configurations, see ***Decoding Performance of Web Client and Control Client*** .

H.264

Table 5-2 Performance of H.264

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	0.5	CIF	64	128	148
30	1	4CIF	39	128	136
30	3	720p	18	44	55
30	6	1080p	9	23	31
30	8	3 MP	6	15	21
30	12	8 MP	3	7	9
25	16	32 MP	1	3	4

H.264+

Table 5-3 Performance of H.264+

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	1	720p	17	54	57
30	3	1080p	10	30	32
30	4	3 MP	7	15	18

H.265

Table 5-4 Performance of H.265

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	1	720p	17	38	43
30	3	1080p	7	17	22
30	4	3 MP	5	10	12

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	6	8 MP	2	4	5
25	16	32 MP	1	2	2

H.265+

Table 5-5 Performance of H.265+

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	0.5	720p	18	43	47
30	1	1080p	8	15	18
30	2	3 MP	5	11	14
30	3	8 MP	2	4	5

5.2 Performance in Hardware Decoding

This topic introduces the hardware decoding performance of different encoding formats including H.264, H.264+, H.265, and H.265+.

Note

For details about the configurations, see ***Decoding Performance of Web Client and Control Client*** .

H.264

Table 5-6 Performance of H.264

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	0.5	CIF	72	80	94
30	1	4CIF	48	64	72
30	3	720p	18	28	30
30	6	1080p	9	13	18

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	8	3 MP	6	9	10
30	12	8 MP	2	3	4

H.264+

Table 5-7 Performance of H.264+

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	1	720p	17	27	30
30	3	1080p	9	14	17
30	4	3 MP	6	9	12

H.265

Table 5-8 Performance of H.265

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	1	720p	17	27	30
30	3	1080p	12	13	14
30	4	3 MP	6	12	14
30	6	8 MP	3	4	4

H.265+

Table 5-9 Performance of H.265+

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	0.5	720p	17	26	28
30	1	1080p	9	14	14

Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels of Configuration 1	Maximum Live View Channels of Configuration 2	Maximum Live View Channels of Configuration 3
30	2	3 MP	6	9	10
30	3	8 MP	3	4	5

Chapter 6 Control Client Performance

The performance refers to the maximum performance of the Control Client, running on the PC of the following configurations.

Configurations

Table 6-1 Configurations

CPU	Intel® Core™ i7-12700
RAM	16 (8+8) GB
NIC	1 GbE
OS	Microsoft® Windows 10 64-bit
Graphics Card	Intel® HD Graphics 770

Maximum Performance of Different Modules

Table 6-2 Maximum Performance of Control Panel

Name	Value
Control Panels Can Be Configured	5
Windows on One Control Panel	12
Displayed Alarms	20
Displayed Face Recognition Records	200
Displayed Face Picture Comparison Records	20
Displayed Access Records	20
Displayed Vehicle Passing Records	20

Table 6-3 Maximum Performance of Resources

Name	Value
Resources in One Area	256

Table 6-4 Maximum Performance of Views

Name	Value
Public Views	1,000
Private Views	100/user
Public View Groups	100
Private View Groups	100/user
Cameras in One View	64
View Hierarchies	5

Table 6-5 Maximum Performance of Favorites

Name	Value
Favorites	100/user
Resources in One Favorites	64
Favorites Hierarchies	5

Table 6-6 Maximum Performance of Live View and Playback

Name	Value
Channels in Live View	256
Windows of Zooming Area in Fisheye Dewarping Live View	8
Windows of Zooming Area in Live View	5
Channels in Playback	16
Channels in Synchronous Playback	16
Channels in Visual Tracking	9
Channels in Reverse Playback	16
Auto-Switch Windows on One Auxiliary Screen	64 (four auxiliary screens are supported)

Table 6-7 Maximum Performance of Events

Name	Value
Max. Frequency of Alarm and Event Receiving (Face, Access Control, and Entrance & Exit)	100 alarms per second (last for 12 seconds), including 20 alarms with pictures (500 KB each) and 80 without pictures.
Average Frequency of Alarm and Receiving (Face, Access Control, and Entrance & Exit)	20 alarms with pictures (500 KB each) and 20 without pictures
Alarms Displayed in Alarm Center	2,000
Unacknowledged Alarms Displayed	5,00
Alarms to Be Batch Acknowledged for Once	100
Alarms in One Export	XLS/CSV: Unlimited PDF: 5,000

Table 6-8 Maximum Performance of Monitoring

Name	Value
Events Displayed in Event List	500
Displayed Face Picture Comparison Records / Access Records / Vehicle Passing Records	200
Subscribed Face Picture Libraries	10
Comparison Records of One Person	20
Displayed Person-Related Events	20
Displayed Vehicle-Related Events	20
Displayed Video Search Results	5,000
Displayed VCA Search Results	5,000
Face Capture Records	200
Vehicle Capture Records	200
Vehicle Matched Events	20

Table 6-9 Maximum Performance of Intelligent Recognition

Name	Value
Face Picture Matched Events	20
Search Results of Matched Face Pictures	Total: 10,000 (20 per page)
Search Results of Frequently and Rarely Appeared Persons	100 per page

Table 6-10 Maximum Performance of Evidence Management

Name	Value
Files Linked to One Evidence	100

Table 6-11 Maximum Performance of Video Intercom

Name	Value
Channels for Video Intercom	1

Table 6-12 Maximum Performance of Two-Way Audio

Name	Value
Channels for Two-Way Audio	1

Table 6-13 Maximum Performance of Broadcast

Name	Value
Devices in One Broadcast	512
IP Speakers in One Broadcast	128

Table 6-14 Maximum Performance of Intelligent Analysis

Name	Value
Records in One Report	320,000

Table 6-15 Maximum Performance of Vehicle and Parking

Name	Value
Vehicle Passing Records in One Export	PDF: 500

Table 6-16 Maximum Performance of Health Monitoring

Name	Value
Server Logs in One Export	5,000
Device Logs in One Export	2,000
Online/Offline Logs and Recording Logs in One Export	10,000

Table 6-17 Maximum Performance of Task Center

Name	Value
Tasks Downloading Completed	5,000
Tasks Waiting for Downloading	500
Tasks Waiting for Uploading	500
Tasks in Downloading Simultaneously	5
Tasks in Uploading Simultaneously	5

Table 6-18 Maximum Performance of Screen Wall

Name	Value
Times for One Alarm to Be Displayed on Smart Wall	1
Windows on One Smart Wall	64

Table 6-19 Maximum Performance of Smart Wall (Decoding Device)

Name	Value
Views	1,000
View Groups	100
Auto-Switch Cameras in One Window	20
Auto-Switch Windows on One Smart Wall	16
Auto-Switch Cameras in Multiple Windows	256

Name	Value
Maximum Number of Windows Displaying a Program	1
Maximum Resolution and Frame Rate of Displaying a Program	3840*2160, 30 fps

Table 6-20 Maximum Performance of Vehicle Monitoring

Name	Value
Driving Events in One Export	100

Table 6-21 Maximum Performance of Login/Logout

Name	Value
Login Time Consumed	15 Seconds
Logout Time Consumed	10 Seconds
User Switch Time Consumed	22 Seconds

Table 6-22 Maximum Performance of Others

Name	Value
Image Cache	2 GB

Appendix A. Resource Number Limitation for Single Server with Configuration 1

Limitation for Manageable Devices

- Query terminals: 16
- Entrance/exit control devices: 40
- Dock stations: 16
- Elevator control devices: 128
- Video intercom devices: 32
- Visitor terminals: 8
- Network transmission devices: 16
- Decoding devices: 4
- Network keyboard: 1
- UVSSs: 4
- Security radars: 5
- IP speakers / amplifier zones: 32
- Portable Code Scanners: 256
- Payment terminals: 100

Limitation for Manageable Channels

- Radar PTZ cameras: 30
- Cameras for face picture comparison and human body recognition: 256
- ANPR cameras: 256
- Thermal cameras: 100 (with 20 measurement points for each camera)

Appendix B. Resource Number Limitation for Single Server with Configuration 2

Limitation for Manageable Devices

- On-board devices: 500
- Query terminals: 16
- Entrance/exit control devices: 40
- Parking lot screens: 512
- Portable devices: 1,000
- Dock stations: 200
- Visitor terminals: 32
- Security radars: 10
- Network transmission devices: 128
- Decoding devices: 32
- Network keyboards: 32
- UVSSs: 4
- IP speakers / amplifier zones: 64
- Portable Code Scanners: 256
- Payment terminals: 100
- BACnet devices: 1,000

Limitation for Manageable Channels

- Radar PTZ cameras: 30
- Cameras for face picture comparison and human body recognition: 1,024
- ANPR cameras: 1,024
- Thermal cameras: 200 (with 20 measurement points for each camera)

Appendix C. Resource Number Limitation for Single Server with Configuration 3

Limitation for Manageable Devices

- Encoding devices supporting ONVIF protocol: 2,048
- On-board devices: 5,000
- Query terminals: 16
- Entrance/exit control devices: 40
- Guidance terminals: 2,048
- Parking lot screens: 512
- Dock stations: 1,000
- Visitor terminals: 32
- Alarm devices (security control panels and panic alarm devices): 2,048
- Security radars: 30
- Network transmission devices: 128
- UVSSs: 4
- Commercial display devices (including digital signages, interactive flat panels, digital signage boxes, and LED controllers): 2,048
- Network keyboards: 32
- Decoding devices: 32
- IP speakers / amplifier zones: 1,000
- Fire protection devices: 1,024
- Portable Code Scanners: 256
- Payment terminals: 100
- Modbus devices: 1,000
- BACnet devices: 1,000

Limitation for Manageable Channels

- Radar PTZ cameras: 30
- Cameras for face picture comparison and human body recognition: 3,000
- ANPR cameras: 3,000
- Thermal cameras: 200 (with 20 measurement points for each camera)

Appendix D. Resource Number Limitation for Single Server with Configuration 4

Limitation for Manageable Devices

- Encoding devices supporting ONVIF protocol: 2,048
- On-board devices: 5,000
- Portable devices: 5,000
- Dock stations: 1,000
- Query terminals: 16
- Entrance/exit control devices: 40
- Guidance terminals: 2,048
- Parking lot screens: 512
- Access control devices: 5,000
- Elevator control devices: 5,000
- Video intercom devices: 5,000
- Visitor terminals: 32
- Security radars: 30
- Alarm devices (security control panels and panic alarm devices): 2,048
- Network transmission devices: 128
- UVSSs: 4
- Commercial display devices (including digital signages, interactive flat panels, digital signage boxes, and LED controllers): 2,048
- Network keyboards: 32
- Decoding devices: 32
- IP speakers / amplifier zones: 1,000
- Fire protection devices: 1,024
- Payment terminals: 100
- Portable Code Scanners: 256
- Modbus devices: 1,000
- BACnet devices: 1,000

Limitation for Manageable Channels

- Radar PTZ cameras: 30
- Cameras for face picture comparison and human body recognition: 3,000
- ANPR cameras: 3,000
- Thermal cameras: 200 (with 20 measurement points for each camera)

Appendix E. Resource Number Limitation for Multiple Servers

Limitation for Manageable Devices

- Encoding devices added by ONVIF protocol: 2,048
- Portable devices: 5,000
- Dock stations: 1,000
- Alarm devices (security control panels and panic alarm devices): 2,048
- Entrances&exits: 40
- Commercial display devices (including digital signages, interactive flat panels, digital signage boxes, and LED controllers): 2,048
- Fire protection devices: 1,024
- Scanning devices: 1,000
- IP speakers / amplifier zones: 1,000
- BACnet devices: 1,000

Limitation for Manageable Channels

- Radar PTZ cameras: 30
- Cameras for face picture comparison and human body recognition: 3,000
- ANPR cameras: 3,000
- Thermal cameras: 200 (with 20 measurement points for each camera)

Appendix F. DS-5600 Series Face Recognition Terminals

DS-5600 series devices should be applied with Hikvision Turnstiles. If they are applied with third-party turnstiles, they are regarded as access control devices.

Appendix G. Access Points (Doors + Floors)

If more than 2,500 access points are added, SSD for OS is recommended.


See Far, Go Further