



HikCentral V1.2
Software Requirements &
Hardware Performance

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Chapter 1 Software Requirements

OS for Server	<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> <p>Microsoft® Windows Server 2016 64-bit</p>
OS for Control Client	<p>Microsoft® Windows 7 32-bit/64-bit</p> <p>Microsoft® Windows 8 32-bit/64-bit</p> <p>Microsoft® Windows 8.1 32-bit/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>
OS for Mobile Client	<p>iOS 8.0 and later</p> <p>Android 4.0 and later</p>
Database	PostgreSQL V 9.2.10
Browsers	<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>
Virtualization (VSM)	<p>VMware® ESXi™ 6.x</p> <p>Microsoft® Hyper-V with Windows Server 2012 R2</p>
Failover Cluster	<p>Microsoft® Windows Server 2008 R2 64-bit</p> <p>Microsoft® Windows Server 2012 64-bit</p> <p>RoseReplicatorPlus_5.1.0_175-x64</p>

Chapter 2 Control Client Performance

Configurations						
Feature	Low-End		Mid-End		High-End	
CPU	Intel® Core™ i5-4590 @ 3.3 GHz		Intel® Xeon® Processor E3-1226 V3 @ 3.30 GHz		Intel® Core™ i7-6700k @ 4 GHz	
RAM	8 GB		8 GB		16 GB	
NIC	GbE Network Interface Card		GbE Network Interface Card		GbE Network Interface Card	
Graphics Card	NVIDIA® GeForce GTX 970		Intel® HD Graphics P4600		NVIDIA GeForce GTX 1070	
HDD Type	SATA II Hard Drive or Better		SATA II Hard Drive or Better		SATA II Hard Drive or Better	
HDD Capacity	60 GB for OS and HikCentral Control Client		120 GB for OS and HikCentral Control Client		240 GB for OS and HikCentral Control Client	
OS	Microsoft® Windows 7 (64-bit)		Microsoft® Windows 7 (64-bit)		Microsoft® Windows 7 (64-bit)	
Performance in Software Decoding						
Encoding Format	Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels		
				Low-End	Mid-End	High-End
H.264	30	0.5	CIF	162	139	210
	30	1	4CIF	66	60	96
	30	3	720p	27	25	42
	30	6	1080p	13	12	20
	30	8	3 MP	9	9	14

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	30	16	8 MP	3	2	5
H.264+	30	1	720p	33	29	65
	30	3	1080p	18	14	29
	30	4	3 MP	10	9	18
	30	1	720p	26	24	41
H.265	30	3	1080p	10	9	16
	30	4	3 MP	6	6	11
	30	0.5	720p	29	26	45
H.265+	30	1	1080p	13	11	21
	30	2	3 MP	8	7	14
	Performance in Hardware Decoding					
Encoding Format	Frame Rate (fps)	Bit Rate (Mbps)	Resolution	Maximum Live View Channels		
				Low-End	Mid-End	High-End
H.264	30	0.5	CIF	100	100	120
	30	1	4CIF	80	90	110
	30	3	720p	38	45	45
	30	6	1080p	18	25	25
	30	8	3 MP	12	17	17
	30	16	8 MP	4	6	6

H.264+	30	1	720p	38	45	45
	30	3	1080p	18	24	23
	30	4	3 MP	12	19	17
H.265	30	1	720p	This graphics card doesn't support H.265.		45
	30	3	1080p			23
	30	4	3 MP			15
H.265+	30	0.5	720p	This graphics card doesn't support H.265+.		45
	30	1	1080p			22
	30	2	3 MP			15

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).

Chapter 3 Server Performance

3.1 VSM Server (without RSM)

Configurations			
Feature	Low-End		High-End
CPU	Intel® Core™ i5-4590 @ 3.30 GHz 3.30 GHz		Intel® Xeon® E3-1220 V5 @ 3.00 GHz 3.00 GHz
RAM	8 GB		16 GB
NIC	GbE Network Interface Card		GbE Network Interface Card
HDD for OS	SATA-II 7200 RPM Enterprise Class HDD		SATA-II 7200 RPM Enterprise Class HDD
HDD for Picture Storage	Surveillance-class HDD or high performance network HDD. It should support 10 MB/s writing and 10 MB/s reading.		Enterprise-class HDD or high performance network HDD. It should support 20 MB/s writing and 20 MB/s reading.
HDD Capacity	At least 650 GB for the HDD where VSM service is installed		At least 650 GB for the HDD where VSM service is installed
OS	Microsoft® Windows 8.1 64-bit		Microsoft® Windows Server 2012 (R2) 64-bit
Maximum Performance			
Feature		Low-End	High-End
Resource	Encoding Devices	128	1,024
	Cameras	512	3,000
	Alarm Inputs	512	3,000
	Alarm Outputs	512	3,000
	Recording Servers	64	
	Streaming Servers	64	
	Areas	512	3,000
	Area Hierarchies	5	

	Cameras in Each Area	64	
	Alarm Inputs in Each Area	64	
	Alarm Outputs in Each Area	64	
Event & Alarm	Alarm Priorities	255	
	Alarm Categories	25	
	Event or Alarm Rules	1,500	3,000
	User-Defined Event Rules	400	
	Arming Schedule Templates	200	
	Report Rules	100	
	Event or Alarm Rules in One Report Rule	32	
	Event or Alarm Logs in One Sent Report	10,000 or 10 MB	
	*Events or Alarms Received	<ul style="list-style-type: none"> ● 30 events or alarms without picture (matched configured rules) per second. ● 5 events or alarms with pictures (500 KB each, including alarm pictures, vehicle pictures, undercarriage pictures, captured face pictures, etc.) per second. 	<ul style="list-style-type: none"> ● 100 events or alarms without picture (matched configured rules) per second. ● 20 events or alarms with pictures (500 KB each, including alarm pictures, vehicle pictures, undercarriage pictures, captured face pictures, etc.) per second.
	Alarm Triggered Recording	30 cameras can be triggered to record video concurrently by alarms per second.	128 cameras can be triggered to record video concurrently by alarms per second.
Alarm Triggered Actions (Excluding Recording)	152 actions (excluding recording) can be triggered concurrently by alarms per second.	512 actions (excluding recording) can be triggered concurrently by alarms per second.	
Recording	Recording Schedules	512	3,000

	Recording Schedule Templates	200	
Map	E-map Resolution	8192 × 8192	
	E-maps	128	1,024
	E-map Hierarchies	6	
	Cameras on Each E-map	16	128
	Alarm Inputs on Each E-map	16	128
	Alarm Outputs on Each E-map	16	128
	Labels on Each E-map	16	128
	Hot Regions on Each E-map	8	64
	Cameras on E-maps in Total	512	3,000
	Alarm Inputs on E-maps in Total	512	3,000
	Alarm Outputs on E-maps in Total	512	3,000
	Labels on E-maps in Total	512	3,000
	Hot Regions on E-maps in Total	128	1,024
	Elements on GIS Map in Total	3,000	
User & Role	Roles	400	3,000
	Users	1,250	3,000
	Roles Assigned to One User	<ul style="list-style-type: none"> ● 100 roles can be assigned to one user (Resources linked to one role < 170); ● 50 roles can be assigned to one user (Resources linked to one role < 514). 	<ul style="list-style-type: none"> ● 100 roles can be assigned to one user (Resources linked to one role < 1,000); ● 50 roles can be assigned to one user (Resources linked to one role < 3,000).
	Concurrent Accesses via Client	<ul style="list-style-type: none"> ● 30 Control Clients, Web Clients, or OpenSDK Clients access the system concurrently; ● 30 Mobile Clients or OpenSDK Clients access the system concurrently. 	<ul style="list-style-type: none"> ● 100 Control Clients, Web Clients, or OpenSDK Clients access the system concurrently; ● 100 Mobile Clients or OpenSDK Clients access the system concurrently0
Data Storage	People Counting Records	5 million (70 people counting cameras and can store for 2 years)	

	Heat Map Records	250,000 (70 heat map cameras and can store for 2 years);	
	ANPR Records	60 million	
	Operation Logs	5 million	
	System Logs	5 million	
	Alarm Logs	60 million	
	Event Logs	60 million	
	Tags	60 million	
Person	Persons	2,000	10,000
	Cards	10,000	50,000
	Fingerprints	8,000	40,000
	Credentials (Card + Fingerprint)	10,000	50,000
Access Control	Access Control Devices	32	128
	Doors	32	128
	Doors on Each E-map	16	128
	Doors on E-maps in Total	32	128
	Anti-Passback Rules	32	128
	Doors in One Anti-Passback Rule	16	
	Access Groups	16	64
	Persons in One Access Group	1,000	
	Access Levels	32	128
	Doors in One Access Level	32	128
	Access Levels Assigned to One Access Group	8	
	Access Schedules	32	
	Attendance Groups	16	64
	Persons in One Attendance Group	1,000	
Shift Schedules	32	128	

	Holidays	16	
	Attendance Records	3.65 million (10,000 persons for one year)	
	Card Swiping Records	92 million (10,000 persons and each person swipes card for 25 times every day)	
Face Comparison	Face Pictures	2,000	10,000
	Face Comparison Groups	16	64
Vehicle	Under Vehicle Surveillance Systems	4	
	Vehicle Lists	13	100
	Vehicles	60,000	500,000
	Undercarriage Pictures (Each 10 MB)	512	3,000
Smart Wall	Decoding Devices	32	
	Smart Walls	32	
	View Groups	100	
	Views per View Group	10	
	Views Auto-Switched Simultaneously	32	
	Concurrent Accesses via Control Client	5 Control Clients access the system concurrently.	
	Operation Logs Storage	500,000	
	Alarms Displayed on Smart Wall as Actions	5 alarms per second (each alarm has 16 related cameras).	
Others	Streaming Gateway	50 cameras × 2 Mbps input and 50 cameras × 2 Mbps output	200 cameras × 2 Mbps input and 200 cameras × 2 Mbps output
	People Counting Record Processed	1 record processed per 13s	
	Heat Map Record Processed	1 record processed per 26s	

*The value is the maximum value, and it can last for 1 minutes. The average value is 5,000,000 events or alarms per month (with or without pictures).

3.2 VSM Server (with RSM)

Configurations				
Feature	Low-End		High-End	
CPU	Intel® Xeon® E3-1220 V5 @ 3.00 GHz 3.00 GHz		Intel® Xeon® E5-2620 V4 @ 2.40 GHz 2.40 GHz	
RAM	16 GB		16 GB	
NIC	GbE Network Interface Card		GbE Network Interface Card	
HDD for OS	SATA-II 7200 RPM Enterprise Class HDD		SATA-II 7200 RPM Enterprise Class HDD	
HDD for Picture Storage	Enterprise-class HDD or high performance network HDD It should support 20 MB/s writing and 20 MB/s reading.		Enterprise-class HDD or high performance network HDD It should support 20 MB/s writing and 20 MB/s reading.	
HDD Capacity	At least 650 GB for the HDD where VSM service is installed		At least 650 GB for the HDD where VSM service is installed	
OS	Microsoft® Windows Server 2012 (R2) 64-bit		Microsoft® Windows Server 2012 (R2) 64-bit	
Maximum Performance				
Feature		Low-End	High-End	
Resource	Current Site	Cameras	512	3,000
		Alarm Inputs	512	3,000
		Alarm Outputs	512	3,000
		Recording Servers	64	
		Streaming Servers	64	
		Areas	512	3,000
		Cameras in Each Area	64	
		Alarm Inputs in Each Area	64	
		Alarm Outputs in Each Area	64	
	Central System	Cameras from Remote Sites	18,000	100,000

		Encoding Devices & Access Control Devices & Remote Sites	128	1,024	
		Areas from Remote Sites	18,000	100,000	
Event & Alarm	Alarm Priorities		255		
	Alarm Categories		25		
	Event or Alarm Rules (Current Site)		1,500	3,000	
	Event or Alarm Rules (Current Site and Remote Sites)		5,000	10,000	
	User-Defined Event Rules		400		
	Arming Schedule Templates		200		
	Report Rules		100		
	Event or Alarm Rules in One Report Rule		32		
	Event or Alarm Logs in One Sent Report		10,000 or 10 MB		
	Events Received		500 events (matched configured event rules) from devices per second.	1,000 events (matched configured event rules) from devices per second.	
	*Alarms Received		<ul style="list-style-type: none"> ● 30 alarms without picture (matched configured rules) per second. ● 5 alarms with pictures (500 KB each, including alarm pictures, captured vehicle, undercarriage, and face pictures, etc.) per second. 	<ul style="list-style-type: none"> ● 100 alarms without picture (matched configured rules) per second. ● 20 alarms with pictures (500 KB each, including alarm pictures, captured vehicle, undercarriage, and face pictures, etc.) per second. 	
Alarm Triggered Recording		30 cameras can be triggered to record video concurrently by alarms per second.	128 cameras can be triggered to record video concurrently by alarms per second.		
Alarm Triggered Actions (Excluding Recording)		152 actions (excluding recording) can be triggered concurrently by alarms per second.	512 actions (excluding recording) can be triggered concurrently by alarms per second.		

Recording	Recording Schedules (Current Site)	512	3,000
	Recording Schedules (Current Site and Remote Sites)	21,000	30,000
	Recording Schedule Templates	200	
Map	E-map Resolution	8192 × 8192	
	E-maps	128	1,024
	E-map Hierarchies	6	
	Cameras on Each E-map	16	128
	Alarm Inputs on Each E-map	16	128
	Alarm Outputs on Each E-map	16	128
	Labels on Each E-map	16	128
	Hot Regions on Each E-map	8	64
	Cameras on E-maps in Total	512	3,000
	Alarm Inputs on E-maps in Total	512	3,000
	Alarm Outputs on E-maps in Total	512	3,000
	Labels on E-maps in Total	512	3,000
	Hot Regions on E-maps in Total	128	1,024
	Elements on GIS Map in Total	3,000	
User & Role	Roles	400	3,000
	Users	1,250	3,000
	Roles Assigned to One User	<ul style="list-style-type: none"> ● 100 roles can be assigned to one user (Resources linked to one role < 170); ● 50 roles can be assigned to one user (Resources linked to one role < 514). 	<ul style="list-style-type: none"> ● 100 roles can be assigned to one user (Resources linked to one role < 1,000); ● 50 roles can be assigned to one user (Resources linked to one role < 3,000).
	Concurrent Accesses via Client	<ul style="list-style-type: none"> ● 30 Control Clients or Web Clients access the system concurrently; 	<ul style="list-style-type: none"> ● 100 Control Clients or Web Clients access the system concurrently;

		● 30 Mobile Clients access the system concurrently.	● 100 Mobile Clients access the system concurrently0
Data Storage	People Counting Records	5 million (70 people counting cameras and can store for 2 years)	
	Heat Map Records	250,000 (70 heat map cameras and can store for 2 years);	
	ANPR Records	60 million	
	Operation Logs	5 million	
	System Logs	5 million	
	Alarm Logs	60 million	
	Event Logs	60 million	
	Tags	60 million	
Person	Persons	2,000	10,000
	Cards	10,000	50,000
	Fingerprints	8,000	40,000
	Credentials (Card + Fingerprint)	10,000	50,000
Access Control	Access Control Devices	32	128
	Doors	32	128
	Doors on Each E-map	16	128
	Doors on E-maps in Total	32	128
	Anti-Passback Rules	32	128
	Doors in One Anti-Passback Rule	16	
	Access Groups	16	64
	Persons in One Access Group	1,000	
	Access Levels	32	128
	Doors in One Access Level	32	128
	Access Levels Assigned to One Access Group	8	
	Access Schedules	32	
	Attendance Groups	16	64

	Persons in One Attendance Group	1,000	
	Shift Schedules	32	128
	Holidays	16	
	Attendance Records	3.65 million (10,000 persons for one year)	
	Card Swiping Records	92 million (10,000 persons and each person swipes card for 25 times every day)	
Face Comparison	Face Pictures	2,000	10,000
	Face Comparison Groups	16	64
Vehicle	Under Vehicle Surveillance Systems	4	
	Vehicle Lists	13	100
	Vehicles	60,000	500,000
	Undercarriage Pictures (Each 10 MB)	512	3,000
Smart Wall	Decoding Devices	32	
	Smart Walls	32	
	View Groups	100	
	Views per View Group	10	
	Views Auto-Switched Simultaneously	32	
	Concurrent Accesses via Control Client	5 Control Clients access the system concurrently.	
	Operation Logs Storage	500,000	
	Alarms Displayed on Smart Wall as Actions	5 alarms per second (each alarm has 16 related cameras).	
Others	Streaming Gateway	50 cameras × 2 Mbps input and 50 cameras × 2 Mbps output	200 cameras × 2 Mbps input and 200 cameras × 2 Mbps output
	People Counting Record Processed	1 record processed per 13s	
	Heat Map Record Processed	1 record processed per 26s	

*The value is the maximum value, and it can last for 1 minutes. The average value is 5,000,000 events or alarms per month (with or without pictures).

3.3 Streaming Server

Configurations		
Feature	Low-End	High-End
CPU	Intel® Core™ i5-4590 @ 3.30 GHz	Intel® Xeon® E3-1220 V5 @ 3.00 GHz
RAM	8 GB	16 GB
NIC	GbE Network Interface Card	GbE Network Interface Card
HDD Type	SATA-II 7200 RPM Enterprise Class Hard Drives	SATA-II 7200 RPM Enterprise Class Hard Drives
HDD Capacity	10 GB for Streaming Server Log Files	10 GB for Streaming Server Log Files
Maximum Performance		
Input and Output	200 streams × 2 Mbps input and 200 streams × 2 Mbps output	300 streams × 2 Mbps input and 300 streams × 2 Mbps output



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