



VisionHub System Requirements

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1 General Information

1.1 Revision History

Revision	Purpose for Change	Date
00	GA	June 2019
01	<ul style="list-style-type: none">Updated limitationsUpdated table: Entity Capacity and ConfigurationAMS Cluster SQL AlwaysON support	September 2019
02	New format and structure	January 2020
03	Editorial changes; Site Capacity specs.	February 2020

1.2 CPU Values

The CPU benchmark is based on Passmark Software.

The CPU Clockspeed calculation uses the following formulas:

- CPU with Hyper-threading: $\#Sockets \times (\#Cores \times 1 + \#HT \times 0.3) \times GHz \text{ per Core}$
- CPU without Hyper-threading: $\#Sockets \times (\#Cores \times 1 \times GHz \text{ per Core})$

1.3 UPS Information

Qognify recommends utilizing UPS for protecting the mission critical application server. Consult with your system integrator or installer regarding the specific UPS model to support the installed equipment.

2 VisionHub Client Requirements

2.1 Client Hardware Requirements

Component	Requirements
CPU Clockspeed	≥ 16.8 GHz
CPU Passmark Points	≥ 11,994
CPU examples	Intel Core i7-7700K @ 4.20GHz Intel Core i5-8600 @ 3.10GHz Intel Core i7-8700 @ 3.20GHz
Memory	16 GB DDR 2400
Hard Disk	250GB Hard Drive, SSD 2.5"
Display	At least one 22" or larger monitor is required, two monitors or more are recommended. Each monitor should support full HD desktop resolution (1920 x 1080).
Graphic Card	NVIDIA P1000 NVIDIA GTX 1060 6GB
Audio Card	Integrated
Network Adapter	1 Gbps
Other	Keyboard and mouse, or compatible pointing device

2.2 Client Software Requirements

Component	Requirements
Web Client: Control	<ul style="list-style-type: none"> ▪ IE 11 ▪ Windows 10 Enterprise/ Professional 64-bit
Administrative Client Suite: Video Configurator, Administrator, Planner, and Player	<p>The installation checks if the below prerequisites are installed and installs them, if necessary:</p> <ul style="list-style-type: none"> ▪ Microsoft .NET Framework 4.6.2 ▪ Microsoft Visual C++2005 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2010 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2013 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2015 Redistributable Packages (x86, x64)

2.3 Client - Video Viewing Performance

Resolution	Width	Height	Frame Rate	Bitrate (Kbps)	Number of Slots
CIF	352	288	RT	768	60
4CIF	704	576	RT	2048	30
4CIF	704	576	HRT	1024	50
720p	1280	720	RT	4096	24
720p	1280	720	HRT	2048	35
720p	1280	720	QRT	1024	64
FHD	1920	1080	RT	8192	13
FHD	1920	1080	HRT	4096	27
3MP	2560	1440	RT	12288	8
4K (see NOTE)	3840	2160	HRT	6144	9
4K (see NOTE)	3840	2160	RT	8192	4

NOTE: 4K resolution devices require a supported IP Plugin.

3 AMS (Middle Tier) Servers Requirements

3.1 AMS (Middle Tier) Hardware Requirements

For information about supported performance, refer to AMS Performance Guidelines on page 8.

NOTE: Any integration to a third-party system (other than video) requires a dedicated Gateway Host. In addition, when VisionHub needs third-party components to connect to *external* systems, if these components support Windows Server 2012 34-bit operating system, an additional server is required. On this separate server, only the Qognify Gateways Host package should be installed, as well as the appropriate VisionHub gateway, which will act as the communication link between the VisionHub Server and the external system.

3.1.1 Small Site

For a small site deployment (All-In-One) – one server minimum. However, it is possible to install the system components on separate servers.

Component	Requirements
CPU clockspeed	≥24.24 GHz
CPU Passmark Points	≥ 23,314
CPU Examples	1 x Skylake 4110
RAM	At least 16GB
LAN Interface	1 x Gigabit Ethernet
HDD	2TB SAS 10K / 1TB SSD 2.5 mixed
Storage	<ul style="list-style-type: none"> ▪ 80 GB OS Partition ▪ 200 GB Application Partition
Network connectivity	<ul style="list-style-type: none"> ▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply

3.1.2 Large Site

For large site deployment - minimum two servers – the SQL DB and the AMS (application server + web server) – supporting video integration only. Additional integrations require additional servers for the gateway.

It is also recommended to have a dedicated server for system monitoring, which could increase the large site deployment to four servers. The large site deployment does not take into account the sensor layer that requires additional servers for video recording (SVR), decoders for shared monitors on the wall, and transcoders for mobile web viewing. In addition, third-party integrations of ACS, Intrusion and fire alarm systems may require additional servers.

For example, a large site configuration may include the following servers:

Server	Components
A – AMS (Middle Tier)	<ul style="list-style-type: none"> ▪ Application server ▪ Optionally - Web server (instead of server B) ▪ Optionally – NMS (Network Monitoring Client, instead of Server E)
B – Web server	Web server
C - SQL	VisionHub databases
D – Non-video Gateway	Gateways
E - NMS (Network Monitoring)	

Contact your Qognify representative regarding the specific configuration according to external systems that are used in your implementation.

Component	Requirements	
Servers A/B/C/D	CPU clockspeed	≥48.48 GHz
	CPU Passmark Points	≥ 23,314
	CPU Examples	2 x Skylake 4110
	RAM	At least 16GB
	Power Supply	Recommended: hot swappable redundant power supply
	LAN Interface	1 x Gigabit Ethernet
	HDD	1.2TB SAS 10K / 1TB SSD 2.5 mixed
	Storage	<ul style="list-style-type: none"> ▪ 80 GB OS Partition ▪ 200 GB Application Partition
NMS (Network Monitoring) (Server E)	Server	<ul style="list-style-type: none"> ▪ Intel® Xeon® E3-1270 v5 3.6GHz, 8M cache, 4C/8T, turbo (80W) ▪ On board LOM 1Gb Dual Port network adapter
	Power	Single cabled 250W power supply (dual recommended)
	Card	Basic out of band management card
	Storage	<ul style="list-style-type: none"> ▪ RAID (recommended) ▪ 1TB 7.2K RPM SATA 6Gbps 3.5in Hot-plug Hard Drive ▪ 80 GB OS Partition

3.2 VMWare High Availability

Component	Requirements	Notes
Configuration Prerequisites	<ul style="list-style-type: none"> ▪ vCenter 5.5 - 6.x ▪ At least two servers with VMware ESXi installed v5.5-6.x ▪ SAN storage ▪ Windows Server 2016 Standard Edition ▪ SQL 2017 Standard Edition 64-bit (supplied with license and must be installed by customers on site) or SQL 2014 64-bit from the previous VH version ▪ Site redundancy license(s) 	
VMWare Client Configuration for Large Site Model	<ul style="list-style-type: none"> ▪ Minimum of two physical servers separating the middle tier and the DB. ▪ At least one additional physical server as the passive physical server backup for the HA. ▪ A shared storage to enable transparent failover between VMs. <ul style="list-style-type: none"> – vCPU: 32 – Memory: 32GB – Boot from SAN: Supported – Virtual HDD: 1.2TB 10K RPM SAS 6Gbps 2.5 inch Hot-plug Hard Drive – 5TB – High Availability: On – HA Average Recovery Time: Two minutes 	<p>Limitations:</p> <ul style="list-style-type: none"> ▪ Up to two MPC VM clients are allowed on the same Host. ▪ A configuration where SVR & MPC are installed on the same Host is not certified. ▪ VMWare features that are not certified include: <ul style="list-style-type: none"> – SRM – Snapshot – Host resource sharing allocation – Storage vMotion – DRS

3.3 AMS Software Requirements

Component	Requirements
Application Server	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition or ▪ Windows Server 2012 R2 64-bit Standard Edition ▪ .NET Framework 4.6.2 <hr/> <p>NOTE: MS Cluster certified on Windows server 2016.</p> <p>NOTE: VisionHub must be installed on an English-language supported operating system.</p> <p>NOTE: Client and Server machine-times should be synchronized using NTP service.</p>
SQL Database Server (for VisionHub and Suspect Search)	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition or ▪ Windows Server 2012 R2 64-bit Standard Edition ▪ SQL 2017 Standard Edition 64-bit (supplied with license and must be installed by customers on site) or SQL 2014 64-bit from the previous VH version <hr/> <p>NOTE: There is an option to upgrade SQL 2014 64-bit to SQL 2017 64-bit (supplied by Qognify). Refer to Upgrading to SQL 2017 Standard Edition 64-bit Manually in the <i>VisionHub AMS (Middle-Tier) Installation Guide</i>.</p> <p>NOTE: SQL 2017 AlwaysOn, certified on Windows server 2016</p> <hr/> <ul style="list-style-type: none"> ▪ Microsoft .NET Framework 4.6.2 ▪ For SQL 2014 64-bit: <ul style="list-style-type: none"> – Microsoft .NET Framework 3.5.1 (must be installed before .NET Framework 4.5.2) – Microsoft .NET Framework 3.5 WCF <p>The installation checks if the below prerequisites are installed and installs them, if necessary:</p> <ul style="list-style-type: none"> ▪ .NET Framework 4.6.2 Redistributable Packages ▪ Microsoft Visual C++2005 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2010 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2012 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2013 Redistributable Packages (x86, x64)
Gateway Host Server & Video Gateway	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition or Microsoft Windows Server 2012 R2 64-bit Standard Edition <p>The installation checks if the below prerequisites are installed and installs them, if necessary:</p> <ul style="list-style-type: none"> ▪ Microsoft .NET Framework 4.6.2 Redistributable Packages ▪ Microsoft Visual C++2005 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2010 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2012 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2013 Redistributable Packages (x86, x64)
Web Server (for VisionHub and Suspect Search)	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition or ▪ Windows Server 2012 R2 64-bit Standard Edition

3.4 AMS Performance Guidelines

3.4.1 Site Capacity

Entity	Large Distributed Site	Small Site	Small Site (Video Only)
Total sensors	18000	1000	1000
Video/audio channels	10000	500	1000
Non-video sensors	8000	500	0
Constant events/sec	10	10	
Peak events/sec (peak 10 min/hour)	335	35	
Constant incidents/min	48	2	
Peak incidents/min	80	2	
Concurrent users	200	20	
Total Roles	500	15	
Administrator roles	20 18,000 sensors per role	1 1000 sensors per user	
Operator roles with privileges for sensors	200 100 sensors per role	6 64 sensors per user	
Operator roles with privileges for sensor group(s)	280 64 sensor groups per role	8 32 sensor groups per role	
Control Room concurrent pages switch/min	32	8	
Automatic actions peak rate/sec	10	1	

3.4.2 SQL Performance Sizing

Historical data	Standard SQL DB Rows
Events	40M
Incidents	4.5M
Incidents comments	13.5M
Deployed tasks	40M
Audit	40M
Publish pages	1 month (configurable)

4 Smart Video Recorder (SVR) Server

4.1 SVR Server Hardware Requirements

For performance type guidelines see [SVR Software-Kit Performance Guidelines](#) on page 10.

Component	Server Performance Type					
	Low	Basic	Middle	High	High VA	Extreme
CPU clockspeed (GHz)	≥ 9.6	≥13.32	≥13.32	≥24.24	≥61.2	≥48.48
CPU Passmark points	≥ 8,006	≥ 11,657	≥ 11,657	≥11,324	≥28,594	≥23,314
CPU example	i3 8100 8th Gen	E-2144 Intel® Xeon® E	E-2144 Intel® Xeon® E	Intel Xeon® E5-2620 v4 @ 2.10GHz	2x Intel® Xeon® Silver 4110 @ 2.10GHz	
Recording throughput (MB/s)	4	13.6	21.25	40.8		54.4
RAM (minimum GB)	8			16	16	32
HDD	SATA II Hard Drive or more Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database			SAS 10K 1.2TB for OS (RAID1 recommended) Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database		
LAN interface	1 x Gigabit Ethernet adapter			2 x Gigabit Ethernet adapters		2 x Gigabit Ethernet adapters (teaming mode: load balancing)
Network Connectivity	<ul style="list-style-type: none"> Recommended for system redundancy: two NIC cards in a redundant configuration A secured Internet connection (PPP, VPN) is required for support/maintenance purposes 					
DVD/USB	Recommended for software installations					
Video Storage (see Video Storage System on page 10)	Recommended: unRAID hard drives or higher			NLSAS for video storage Recommended: unRAID hard drives or higher		
Storage Redundancy	Recommended: Hot swappable RAID 1 for the OS					
Fans	Recommended: hot swappable redundant fans					
Power Supply	Recommended: hot swappable redundant power supply					

4.2 Video Storage System

Component	Requirements
Controller processor	LSI ROC XOR engine
Controller cache	1GB Cache and up
Controller cache policy	Write back
Interface	PCI-Express
Configuration type	RAID5 or Raid 6
Disks per RAID group	12 (11 + 1 or 10 + 2 for parity) or more
Disk type	1TB – 8TB 7200RPM (or higher) NL-SAS
RAID Stripe Size	128KB

4.3 SVR Server Software Requirements

Component	Requirements
Server Operating System	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition ▪ Windows Server 2012 R2 Standard Edition ▪ For basic and low performance server, Windows 7 Ultimate Edition SP1 64-bit is also supported.

4.4 SVR Software-Kit Performance Guidelines

SVR software-kit performance guidelines are presented in the following table.

Software -kit Platform	Recording [MB/Sec]	Storage Throughput [MB/Sec]	Computational Power [MB/Sec]	Total CH	VA CIF@ HRT	VA higher than CIF@ HRT	SUSE 4CIF	SUSE HD	Example
Low	4	4.88	6.08	64	1	–	–	–	16 x 2Mbps
Basic	13.5	16.59	20.67	128	5	–	–	–	54 x 2Mbps
Medium	21	25	32	100	–	–	–	–	84 x 2Mbps
				50	8	8	–	–	42 x 2Mbps
				32	–	–	3	3	32 x 2.5Mbps
High	40.8	49.776	62	128	10	6	–	–	128 x 2.5Mbps
				32	–	–	6	6	32 x 3Mbps
High VA	40.8	49.776	62	128	34	17	34	–	128 x 2.5Mbps
				32	–	–	–	27	32 x 3Mbps
Extreme	54.4	66.368	82.688	128	–	–	–	–	108 x 4Mbps

NOTE: DAS, SAN and NAS are supported.

4.5 SVR Server Virtualization

For more information refer to the [VisionHub SVR Virtualization Guide](#) on the Q.

Component	Requirements
CPU	2 x Intel Xeon E5-2620 @2.399 GHz CPU or Higher Hyper-threading supported
Memory	32 GB RAM
NIC	Total of 4 NICs: 4x1GB NIC for virtual machines (depends on the calculation model)
Storage	Server internal hard drives / RAID configuration: <ul style="list-style-type: none"> ▪ 1 virtual disk, Partition C, 60 GB for OS, Windows 2012 R2 Standard SP1 ▪ 1 virtual disk, Partition D for Recorder database - each 1 TB

4.6 Virtual SVR Performance

Number of VMs	Recording throughput MB/s per VM	Camera Tampering (CT) and Visual Parameter Optimizer (VPO) channels per VM Client	Total of channels
1	64	128	128
2	32	128	256
4	16	128	512
6	10	128	768
8*	8	128	1024

* Up to eight VM clients that are approved per host are not based on the minimum recommended spec and require a higher spec.

Video Analytics (VA) is not supported on virtual SVR.

5 Network Video Decoder (NVD) Software-Kit

5.1 NVD Hardware Requirements

Component	Requirements
CPU Clockspeed	≥16.8 GHz
CPU Passmark Points	≥ 11,381
CPU Examples	E-2144 Intel® Xeon® E Processor Intel Core i7-8700 @ 3.20GHz Intel Core i5-8600 @ 3.10GHz
Memory	At least 8GB
VGA cards	1 x NVIDIA P1000 1 x NVIDIA GTX 1060 6GB
HDD	250GB (7,200rpm) SATA II Hard Drive or more
LAN interface	1 x Gigabit Ethernet
Storage Redundancy	Recommended: Storage redundancy and protection via RAID
Network connectivity	<ul style="list-style-type: none"> ▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply

5.2 NVD Software Requirements

Component	Requirements
NVD OS	<ul style="list-style-type: none"> ▪ Windows Server 2016 Standard Edition or Server 2012 R2 Standard Edition 64-bit ▪ Windows 10 Enterprise 64 Bit

5.3 NVD Performance Guidelines

Refer to [Client - Video Viewing Performance](#) on page 3.

6 Mobile Viewer

6.1 Mobile Viewer Hardware Requirements

Component	Streaming Manager or All-in-One Server	Stream Transcoding Server
CPU clockspeed (GHz)	≥ 24.24	≥ 48.48
CPU Passmark points	≥ 11,657	≥ 23,314
CPU example	2 x Skylake 4110	
Memory (minimum GB)	16	
HDD	1.2TB SAS 10K / 1TB SSD 2.5 mixed	
Network Connectivity	<ul style="list-style-type: none"> Recommended for system redundancy: two NIC cards in a redundant configuration A secured internet connection (PPP, VPN) is needed for support/maintenance purposes 	
LAN interface	1 x Gigabit Ethernet	
DVD/USB	Recommended for software installations	
Fans	Recommended - hot swappable redundant fans	
Free Disk Space (GB)	500	
Storage redundancy and protection	via RAID	
Power Supply	Recommended - hot swappable redundant power supply	
Operating System	Windows Server 2012 R2 (Standard Edition)	

6.2 Mobile Viewer Software Requirements

Component	Requirements
Software - Media Web Application and Media Streamer Host	<ul style="list-style-type: none"> IIS (ver. 6 or 7) .NET runtime 4.5.2 (optional) Java 64-bit version 8 or later. If Java 64-bit is not installed, install it manually. Wowza Media Server 4.xx

7 Suspect Search Requirements

The following are the minimum requirements for the Suspect Search MPC (Metadata Processing Center) server.

7.1 Suspect Search Hardware Requirements

Component	Requirements
CPU Clockspeed	≥16.2 GHz
CPU Passmark Points	≥ 28,594
CPU Examples	2 x Intel® Xeon® Silver 4114 @ 2.20GHz
Memory	At least 16GB
HDD	8 x 1.2TB 10K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive
LAN interface	2 x Gigabit Ethernet
Storage Redundancy	Recommended: Storage redundancy and protection via RAID
Network connectivity	<ul style="list-style-type: none"> ▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply

7.2 Suspect Search Software Requirements

Component	Requirements
Software	<ul style="list-style-type: none"> ▪ VisionHub Site installed <hr/> <p>NOTE: Since the Suspect Search solution is an integral part of VisionHub, there is no need for separate SQL or Web servers. See Client Software Requirements (page 2)</p> <hr/>
MPC Server	<p>The installation checks if the below prerequisites are installed and installs them, if necessary.</p> <ul style="list-style-type: none"> ▪ .NET Framework 4.6.2 ▪ Microsoft Visual C++2005 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2010 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2012 Redistributable Packages (x86, x64) ▪ Microsoft Visual C++2013 Redistributable Packages (x86, x64)