

# CAYUGA R15. SYSTEM REQUIREMENTS.



Modules	Supported Operating Systems	Notes
Core Service Device Management, Multimedia Database, Versatile Applications (i.e. Analytics, LPR)	Microsoft Windows® 10 – 1903 or newer (Pro, Enterprise) 64 Bit Microsoft Windows Server® 2012 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2012 R2 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2016 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2019 (Standard, Datacenter) 64 Bit	<ul style="list-style-type: none"> <li>Only listed OS are supported</li> <li>Latest OS updates required</li> <li>Windows® Embedded is not supported</li> <li>Cayuga Analytics in general and Counting Suite work only as 32 Bit process within a 64 Bit OS</li> <li>Windows 2019 (64 Bit) is recommended</li> <li>Please contact Qognify Sales Engineering or Support if you want to use Virtual Machines</li> <li>LPR on virtual machines could cause issues and is only supported in case of planned by Qognify. Please contact Qognify</li> <li>We do not support the so called „nano server“</li> <li>AES-encrypted export assumes a cpu with AES acceleration, otherwise export duration can increase significantly”</li> </ul>
SDK Native Client Portable Viewer	Microsoft Windows® 10 – 1903 or newer (Pro, Enterprise) 64 Bit Microsoft Windows Server® 2012 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2012 R2 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2016 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2019 (Standard, Datacenter) 64 Bit	<ul style="list-style-type: none"> <li>Only listed OS are supported</li> <li>Latest OS updates required</li> <li>Windows® Embedded is not supported</li> <li>Windows® 10 – 1909 (64 Bit) is recommended</li> <li>.NET 4.6.2 or later is required and is part of the installer</li> <li>Desktop Experience must be activated for Windows Server</li> <li>The Portable Viewer has same requirements as the Native Client, but presupposes .NET 4.6.2</li> <li>Support of SDK for 32-Bit OS is deprecated and will be removed in Cayuga R16</li> </ul>
Mobile Client for iPhone/iPad	Apple iOS devices with iOS 11 or higher	<ul style="list-style-type: none"> <li>Optimized for iPad</li> </ul>

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Mobile Client for Android	Android devices with Android 6.0 ‚Marshmallow‘ or higher	
Webclient	Google Chrome >= 80 Mozilla Firefox >= 73 Microsoft Internet Explorer >= 11 Microsoft Edge, Apple Safari, Opera	<ul style="list-style-type: none"> <li>▪ Google Chrome recommended</li> </ul>
BVI Server	Microsoft Windows® 10 – 1903 or newer (Pro, Enterprise) 64 Bit Microsoft Windows Server® 2012 R2 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2016 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2019 (Standard, Datacenter) 64 Bit	<ul style="list-style-type: none"> <li>▪ Only listed OS are supported</li> <li>▪ Windows® Embedded is not supported</li> <li>▪ Windows 2016 (64 Bit) is recommended</li> <li>▪ We do not support the so called „nano server“</li> </ul>
BVI Client	Microsoft Windows® 10 – 1903 or newer (Pro, Enterprise) 64 Bit Microsoft Windows Server® 2012 R2 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2016 (Standard, Datacenter) 64 Bit Microsoft Windows Server® 2019 (Standard, Datacenter) 64 Bit	<ul style="list-style-type: none"> <li>▪ Only listed OS are supported</li> <li>▪ Windows® Embedded is not supported</li> <li>▪ Windows® 10 – 1909 (64 Bit) is recommended</li> <li>▪ .NET 4.6.2 or later is required and is part of the installer</li> </ul>
BVI Web Service	Google Chrome >= 80 Mozilla Firefox >= 73 Microsoft Internet Explorer >= 11 Microsoft Edge, Apple Safari, Opera	<ul style="list-style-type: none"> <li>▪ Google Chrome recommended</li> </ul>

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Type of installation	Hardware requirement	Notes
Core Service  running as Master connected to Core Service Slaves (CSS)	<p><b>Recommended for &lt;50 Core Service Slaves:</b> CPU : Intel Core i5-9400 @ 2.90GHz or Intel Xeon E-2124G @ 3.40GHz or Intel Xeon E-2224G @ 3.50GHz RAM 16 GB</p> <p><b>Recommended for &lt;200 Core Service Slaves:</b> CPU : Intel Core i5-9600K @ 3.70GHz or Intel Xeon E-2126G @ 3.30GHz or Intel Xeon E-2226G @ 3.40GHz RAM: 24 GB</p> <p><b>Recommended for &gt;200 Core Service Slaves:</b> CPU : Intel Core i7-9700K @ 3.60GHz or Intel Xeon E-2186G @ 3.80GHz or Intel Xeon E-2276G @ 3.80GHz RAM: 32 GB HDD: 500 GB free disk space @ 7200 RPM or SSD Network: Ethernet with 1000 MBit/s</p> <p><b>Minimum:</b> CPU: Intel Core i5-7400 @ 3.00GHz RAM: 8 GB HDD: 100 GB free disk space Network: Ethernet with 1000 MBit/s</p>	
Core Service  running as Master without Core Service Slaves (CSS)  or running as CSS	<p><b>Recommended:</b> CPU : Intel Core i5-9600K @ 3.70GHz or Intel Xeon E-2126G @ 3.30GHz or Intel Xeon E-2226G @ 3.40GHz RAM: 16 GB HDD: 500 GB free disk space @ 7200 RPM or SSD Network: Ethernet with 1000 MBit/s</p> <p><b>Minimum:</b> CPU: Intel Pentium G4560 @ 3.50GHz RAM: 4 GB HDD: 100 GB free disk space Network: Ethernet with 1000 MBit/s</p>	

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Type of installation	Hardware requirement	Notes
Core Service Device Management (DM) (video throughput < 20 MByte/s)	<p><b>Recommended:</b> CPU : Intel Core i5-9600K @ 3.70GHz or Intel Xeon E-2126G @ 3.30GHz or Intel Xeon E-2226G @ 3.40GHz RAM: 16 GB HDD: 500 GB free disk space @ 7200 RPM or SSD Network: Ethernet with 1000 MBit/s</p> <p><b>Minimum:</b> CPU: Intel Pentium Gold G5420 @ 3.80GHz RAM: 4 GB (+ 2 GB if server-side Motion Detection is used) HDD: 100 GB free disk space Network: Ethernet with 1000 MBit/s</p>	
Device Management (DM) (video throughput < 40 MByte/s)	<p><b>Recommended:</b> CPU : Intel Core i5-9600K @ 3.70GHz or Intel Xeon E-2126G @ 3.30GHz or Intel Xeon E-2226G @ 3.40GHz RAM: 16 GB HDD: 500 GB free disk space @ 7200 RPM or SSD Network: Ethernet with 1000 MBit/s</p>	
Device Management (DM) (video throughput < 60 MByte/s)	<p><b>Recommended:</b> CPU : Intel Core i7-9700K @ 3.60GHz or Intel Xeon E-2186G @ 3.80GHz or Intel Xeon E-2276G @ 3.80GHz RAM : 16 GB HDD : 500 GB free disk space @ 7200 RPM or SSD Network : Ethernet with 1000 MBit/s</p>	<ul style="list-style-type: none"> <li>▪ Get in touch with Qognify Sales Engineering for detailed project planning in case you want to use more video throughput</li> </ul>
Versatile Applications (i.e. Analytics, LPR)	<p><b>See Device Management</b> Server-side Motion Detection depends on hardware and configuration of video streams. With a server based on a Intel Xeon Gold 5217 and Full HD video streams, up to 100 streams can be recorded and analyzed.</p>	<ul style="list-style-type: none"> <li>▪ Please contact Qognify Sales Engineering or Support to get a precise recommendation</li> </ul>

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Type of installation	Hardware requirement	Notes
Native Client / SDK	<p><b>Recommended:</b>            CPU : Intel Core i7-9700K @ 3.60GHz or Intel Xeon E-2186G @ 3.80GHz or Intel Xeon E-2276G @ 3.80GHz            RAM: 16 GB            HDD: 50 GB free disk space @ 7200 RPM or SSD            Network: Ethernet with 1000 MBit/s            Graphics Adapter: At least 4GB GDDR5 RAM, memory bandwidth at least 100 GB/sec.</p> <p><b>Minimum:</b>            CPU : Intel Pentium Gold G5420 @ 3.80GHz            RAM: 4 GB            HDD: 10 GB free disk space            Network: Ethernet with 100 MBit/s or faster            Dedicated Graphics Adapter without Shared Memory, 16 Mio. colors, supporting DirectX 9.0 or higher, Memory Bandwidth &gt;= 100 GB/s, Memory Size &gt;= 2 GB</p> <p><b>Recommended display resolution:</b>            1920 x 1080 or higher</p> <p><b>Minimum display resolution:</b>            1280 x 768 (with text size 100%)            1600 x 960 (with text size 125%)            1920 x 1152 (with text size 150%)</p>	<ul style="list-style-type: none"> <li>Deviation from the recommendation can cause stumbling rendering and other negative side effects</li> <li>onboard graphic is not supported</li> <li>We recommend not to use more than one Graphics Adapter</li> <li>Please use always the latest graphics adapter-drivers</li> <li>Qognify recommends not to use Nvidia NVS, Mobile or Matrox graphic cards (Performance too low)</li> <li>For further Graphics Cards information please read <a href="https://downloads.seetec-video.com/fileadmin/01DL/doc/Qognify.Cayuga.graphics.cards.suggestion-EN.pdf">https://downloads.seetec-video.com/fileadmin/01DL/doc/Qognify.Cayuga.graphics.cards.suggestion-EN.pdf</a></li> </ul>
BVI Server	<p><b>Minimum:</b>            CPU : Intel Core i7-9700K @ 3.60GHz or Intel Xeon E-2186G @ 3.80GHz or Intel Xeon E-2276G @ 3.80GHz            RAM: 16 GB            HDD: 500 GB free disk space @ 7200 RPM or SSD            Network: Ethernet with 1000 MBit/s</p>	We recommend a dedicated SSD for BVI Server with 100 GB free disk space
BVI Client	See „Native Client“, but at least 16 GB RAM mandatory	See all notes for „Native Client“

# CAYUGA R15. SYSTEM REQUIREMENTS.

## General hints

Please watch out for the latest updated System Requirements and Parameters on [https://www.seetec-video.com/fileadmin/user\\_upload/software/R15/System\\_Requirements\\_and\\_Parameter.pdf](https://www.seetec-video.com/fileadmin/user_upload/software/R15/System_Requirements_and_Parameter.pdf)

CPU	Cayuga and BVI are fully compatible with CPUs from Intel and AMD and general recommendations apply to both vendors. The best price-performance ratio can be expected with single-processor systems and a Processor Base Frequency $\geq$ 3 GHz. Good references for main stream servers are <a href="https://en.wikichip.org/wiki/intel/microarchitectures/coffee_lake - Memory_Hierarchy">https://en.wikichip.org/wiki/intel/microarchitectures/coffee_lake - Memory_Hierarchy</a> and <a href="https://en.wikichip.org/wiki/intel/cores/cascade_lake_sp">https://en.wikichip.org/wiki/intel/cores/cascade_lake_sp</a> for highend servers.
Windows® Operating System	Please install always the latest OS updates. Support for Windows® 7, Windows® 8.x, Windows® Server 2008 (R2) and all 32 bit OS ended with Cayuga R14.
Windows Clustering	<ul style="list-style-type: none"><li>▪ Windows® Server 2012 (R2) not supported</li><li>▪ Windows® Server 2016 not supported</li><li>▪ Windows® Server 2019 not yet certified</li></ul>
Virtual environments	<ul style="list-style-type: none"><li>▪ We recommend not to use clients in virtual environments, because the rendering performance is not satisfactory.</li><li>▪ We recommend dedicated network interfaces.</li><li>▪ Virtualization could need more cpu power than its physical counterpart.</li><li>▪ We recommend direct attached storage or iSCSI.</li><li>▪ Because virtualization can in general decrease the performance, we recommend to test the planned server environment.</li><li>▪ Cayuga is compatible with Citrix XEN, VMware vSphere and Microsoft Hyper-V.</li></ul>
Thin Clients	Thin Client environments are not supported.

# CAYUGA R15. SYSTEM REQUIREMENTS.



## General hints

### CPU recommendations

Video processing demands high CPU power. We recommend always to use the latest, most powerful CPU models. You can find a comparison at [https://www.cpubenchmark.net/high\\_end\\_cpus.html](https://www.cpubenchmark.net/high_end_cpus.html). In general, we recommend single socket server with up to 10 physical cores.

### Virus scanning

Please note: Web guard and Internet Security features must not be installed on Cayuga systems!

To run Cayuga software properly, it is important that you exclude specific locations, processes and certain network traffic. Without configuring these exceptions, virus scanning could use a high amount of system resources. Additionally the scanning process could temporarily lock files, which could lead to a disruption in the recording process or even to database corruption.

Do not perform a real time and system scan of Cayuga directories containing recording databases (by default C:\Program Files\Qognify, as well as all folders under that location). Avoid also to perform a real time and system scan on archive storage directories.

Create the following additional exclusions:

- Cayuga installation directory (per default "C:\Program Files\Qognify") and all subdirectories.
- Path to Multimedia Database Zone(s)

Exclude real time network scanning on TCP ports: Please refer to "Cayuga R15 Used Ports" document:

[https://downloads.seetec-video.com/fileadmin/01DL/6.15.1/documentation/Cayuga\\_R15\\_Used\\_Ports.pdf](https://downloads.seetec-video.com/fileadmin/01DL/6.15.1/documentation/Cayuga_R15_Used_Ports.pdf)

Exclude network scanning of the following processes:

All processes starting with VMS\_\* (e.g. VMS\_Client.exe)

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## General hints

### Firewalls

Multiple ports on the server computer must be available by default to allow the Cayuga software to function correctly in a network environment with a firewall.

Please refer to “Cayuga R15 Used Ports” document:

[https://downloads.seetec-video.com/fileadmin/01DL/6.15.1/documentation/Cayuga\\_R15\\_Used\\_Ports.pdf](https://downloads.seetec-video.com/fileadmin/01DL/6.15.1/documentation/Cayuga_R15_Used_Ports.pdf)

### Network layout

Depending on the number of cameras in your system and the resulting network bandwidth used, you should consider to use multiple separate networks for the cameras, the clients and the storage to prevent an overload on your network. This depends on the bandwidth. Since the Cayuga/BVI Client does not need a direct connection to the cameras, the only module which needs access to both networks is the Cayuga Device Manager.

### Teaming / Bonding of network interfaces

Please do not use these kind of functions!

### Multimedia Database Filesystem

We recommend NTFS for Microsoft Windows® with a cluster size of 64 KB and not to use Microsoft Windows® ReFS.

### Usage of cameras

Cameras should usually be referenced only once.

Configuring a camera multiple times per installation or in different installations will cause problems with several manufacturers.

Please contact Qognify Sales Engineering for further information.



# CAYUGA R15. SYSTEM PARAMETER.

Description and Comments	Value
Maximum number of video channels to be served by Cayuga within one installation.	5000 Contact Qognify Sales Engineering for detailed project planning in case you want to use more
Maximum number of video channels per Device Manager server. A reduction of the amount of video channels might be advisable in dependence on the amount of video recordings to be stored.	250 Contact Qognify Sales Engineering for detailed project planning in case you want to use more
Maximum number of video channels per Device Manager server, if also video analytics will run on the same server. The final amount of video channels will depend on the performance consumption of the applied analytics software.	20 - 80
Maximum number of servers with installed service „Core Slave“ being connected to the one server running the service „Core Master“.	250
Maximum number of Device Manager servers running in a Cayuga system.	250
Maximum number of AutoUpdaterClients in a Cayuga system.	250
Maximum time in minutes until all services are connected to the „Core Master“ when the „Core Slave“ has failed (same time for switching back). A failover will happen when services cannot reach the „Core Slave“ anymore (e.g. if the „Core Slave“ or parts of the network are unavailable).	2 minutes
Maximum time in minutes until the secondary Device Manager has taken over control from the primary Device Manager (same time for switching back). A failover will happen (if activated) when the primary Device Manager is not accessible; the whole failover time span is determined to avoid flickering.	2 minutes

# CAYUGA R15. SYSTEM PARAMETER.



Description and Comments	Value
Maximum number of concurrent native (Windows) clients in one Cayuga installation.	200
Maximum number of concurrent web clients in one Cayuga installation.	20
Maximum number of concurrent mobile clients in one Cayuga installation.	50
Maximum number of attached Cayuga installation for Multi Installation Login	50 independant Cayuga installations with an overall max. of 5000 devices. Contact Qognify Sales Engineering for detailed project planning in case you want to use more.
Recommended minimum bandwidth between a native client and any server. The required bandwidth depends on the number of video channels to be simultaneously displayed and could exceed the mentioned value significantly.	2 MBits/s
Recommended minimum bandwidth between „Core Master“ and any „Core Slave“. The required bandwidth depends on the number of video channels and could exceed the mentioned value significantly.	2 MBits/s
Recommended bandwidth between „Core Master“ and the Cayuga server providing patches and new loads for a remote update or upgrade of the local installation. This bandwidth is only required if automated updates and upgrades where selected in the „Autoupdater“.	10 MBits/s
Maximum number of SEI devices and states	1000 items with 10 states each