Netavis Observer 5.0

Server, Client and Storage Compatibility and Requirements

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Netavis Software GmbH
Handelskai 388, Top 221 | A-1020 Vienna

Tel: +43 1 503 1722
info@netavis.net | www.netavis.net

Content

1 Introduction

This document explains the hardware and software requirements for Netavis Observer systems and introduces other considerations relevant for the operation of Netavis Observer servers and clients.

As with any IT solution there is a broad variety of project-specific factors which can influence the requirements of a particular Netavis Observer system. These factors include, but are not limited to: the number of cameras, the video format and resolution, use of motion detection and video analytics features, a centralized or decentralized system architecture, recording configurations, the use of Netavis Adaptive Balanced Streaming (ABS) Technology, and integration with other systems.

Therefore, the information presented in this document should be considered as guidelines for small to medium Netavis Observer installations. For large systems with 50 or more cameras we recommend getting in touch with us via support@netavis.net so project-specific recommendations can be developed.

2   Red Hat Enterprise Linux Compatibility

In its bundled version Netavis Observer uses CentOS which is 100% binary-compatible to the kernel used by Red Hat Enterprise Linux (RHEL). Therefore, server hardware for the different Netavis Observer versions must be compatible to the corresponding RHEL version listed below:

Netavis Observer version	Red Hat Enterprise Linux compatibility
1.8.7 – 1.10.0	RHEL 4.4
1.10.1 – 1.12.4	RHEL 5.1
3.0.0 – 3.4.7	RHEL 5.2
3.4.8 – 3.4.21	RHEL 5.4
3.4.22 – 3.4.x	RHEL 5.5
4.0.0 – 4.3.x	RHEL 5.5
4.4.0 – 4.4.4	RHEL 6.2
4.4.5 – 4.5.x	RHEL 6.4
4.6.x	RHEL 6.6
4.7.0 - 4.8.x	RHEL 6.9
5.0.0	RHEL 7.5

The [Red Hat Ecosystem page](#)[1] provides a list of components and systems which have been tested and certified for various versions of RHEL by Red Hat.

Please note that due to changes to firmware, drivers, and other software components no 100% guarantee can be given for the operation of hardware components such as for example onboard RAID controllers.

3   Netavis Observer Server Requirements

This section contains an overview of server requirements and example servers for the different sizes of systems.

Please note that these examples are recommendations as the particular requirements heavily depend on the specific project. Factors such as whether iCAT video analytics is used, if recording is done permanently or based on motion detection, the system architecture, etc. all influence these requirements.

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[1] https://access.redhat.com/ecosystem

3.1 Important

- Netavis highly recommends the use of server-grade hardware and components which are designed with 24/7-operation and constant high loads in mind.

- For complex iCAT video analytics applications (e.g. Face Detection, iCAT Traffic) the hardware requirements have to be calculated on a case-by-case basis. Please contact our team at support@netavis.net to determine the specific requirements for the servers and clients.

- As of version 4.4.4 Observer can be installed on hard drives which are larger than 2.2TB. However please do note that the 2.2TB limit still exists when using the Netavis Software RAID. In that case hard drives which are larger than 2.2TB can only be used as image disks but not as system disks.

- As of version 5.0.0 Netavis Observer does provide support for UEFI so the previous limitation of having to use the Legacy BIOS option is no longer valid.

- To install the legacy version Netavis Observer 4.8 and use Software RAID on HP Gen9 servers is important to consider these points:
    - UEFI must be disabled to use the Legacy BIOS option instead.
    - The Virtual Install Disk option which is enabled by default must be disabled.
    - The hard drives behind the RAID controller must be configured as independent logical drives.

- For information about the necessary hard drive space for a Netavis Observer system please refer to section 3 *Software installation* of the *Netavis Observer 5.0 Server Installation and Administration* manual.

- Particularly for rack servers the use of server management console systems is recommended. These are often available as options for server systems by leading manufacturers and can also be added to custom setups via daughter boards (e.g. Supermicro Intelligent Management (SIM) modules, TYAN Server Management Daughter Card).

- To ensure high system availability redundant power supplies are also recommended.

- Several companies (e.g. AXIS[2], Panasonic[3], Sony[4]) offer online tools which provide estimations for the required network bandwidth and storage capacity of IP-based video systems. These figures should be considered rough approximations. Please contact our team at support@netavis.net to help determine the requirements for your specific system and how Netavis technologies such as Adaptive Balanced Streaming (ABS) can be utilized to reduce them.

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[2] http://www.axis.com/products/video/design_tool/index.htm

[3] http://panasonic.net/pcc/support/netwkcam/technic/calculator_top.html

[4] http://pro.sony.com/bbsc/ssr/mkt-security/resource.downloads.bbsccms-assets-cat-camsec-downloads-storagecalc.shtml

- Please refer to the Netavis *Observer 5.0 Server Installation and Administration* manual for further information on the installation process, size requirements for Netavis Observer 4.8 server, etc.

3.2 Virtualization

Netavis Observer supports virtualization, whereby the following known limitations have to be considered:

- iCAT Face Detection is not supported on virtual systems
- iCAT Number Plate Recognition requires a USB passthrough configuration so the guest system can connect to the USB dongle plugged into the host system

3.3 CPUs

Netavis Observer runs on both AMD and Intel x86 CPUs. Only when using iCAT Number Plate Recognition an Intel CPU is required. However, Netavis recommends the use of Intel x86 CPUs, particularly for systems which are expected to have a high load and/or use iCAT video analytics.

3.4 RAID Controllers

As discussed in section 2 *Red Hat Enterprise Linux Compatibility* it is necessary for server hardware to be compatible with the Red Hat Enterprise Linux (RHEL) version which corresponds to the Netavis Observer version used on the server. For Netavis Observer 5.0 this means compatibility with RHEL 7.5.

This requirement also applies to RAID controllers. In general RAID controllers by 3Ware, Adaptec, Dell, HP, and IBM are recommended.

Dell RAID controllers which are known to be supported by Netavis Observer 5.0:

- PERC 6/E SAS controller with RAID
- PERC 6/I SAS controller with RAID
- SAS 5/E controller with RAID
- SAS 6I/R SAS controller with RAID
- PERC H310
- PERC H700
- PERC H740p mini
- PERC H800

Dell RAID controllers which are <u>not</u> supported by Netavis Observer 5.0:

- S100
- S300
- …

HP RAID controllers which are known to be supported by Netavis Observer 5.0:

- E200 (with low read/write performance)
- P212
- P212i (RAID mode unknown)

- P400
- P410
- P410i (RAID mode unknown)
- P420
- P420i

HP RAID controllers which are <u>not</u> supported by Netavis Observer 5.0:

- B110i (only works in AHCI mode as a normal SATA disk controller and not as a RAID controller!)
- B120i (see B110i description above for details)
- B320i (see B110i description above for details)

Note: We generally advise against using onboard RAID controllers.

3.5   Small systems (up to 12 cameras)

CPU: Intel Xeon E3 series (mid-range)

RAM: 4GB DDR3

Hard drive: SATA

3.6   Medium systems (up to 32 cameras)

CPU: Intel Xeon E3 (mid-range: permanent recording) / E5 series (high-end: motion detection recording*)

RAM: 6GB / 8GB DDR3 (permanent recording / motion detection recording*)

Hard drive: SATA+ hardware RAID controller

NIC: 2x NICs (1x NIC for the cameras, 1x NIC for the clients; in combination with a managed switch)

3.7   Large systems (up to 64 cameras)

CPU: Intel Xeon E5 series (mid-range: permanent recording / high-end: motion detection recording*)

RAM: 8GB / 12GB DDR3 (permanent recording / motion detection recording*)

Hard drive: SATA (Nearline SAS is recommended for configurations with high I/O requirements) + hardware RAID controller

NIC: 2x NICs (1x NIC for the cameras, 1x NIC for the clients; in combination with a managed switch)

3.8   Very large systems

For projects using the Enterprise edition of Netavis Observer – which allows for an unlimited number of cameras – please contact our team at support@netavis.net to determine the specific requirements for the servers and clients.

* Based on the assumption that multi-streaming is used.

4   External Storage

4.1   NAS

NAS (Network Attached Storage) systems using the NFS file system can be used with Netavis Observer after configuration via the Admin menu. Please refer to the *Netavis Observer 5.0 Server Installation and Administration* for details on how to do this.

4.2   SAN

In order for a SAN (Storage Area Network) system to work in combination with Netavis Observer it has to be compatible with the Red Hat Enterprise Linux (RHEL) version which corresponds to the Netavis Observer version used on the system. For Netavis Observer 5.0 this means compatibility with RHEL 7.5 (see section 2 *Red Hat Enterprise Linux Compatibility* for more details).

4.3   DAS

Similarly, to the requirements for SAN systems a SCSI or SAS controller for DAS (direct-attached storage) has to be compatible with the Red Hat Enterprise Linux (RHEL) version which corresponds to the Netavis Observer version used on the system. For Netavis Observer 5.0 this means compatibility with RHEL 7.5 (see section 2 *Red Hat Enterprise Linux Compatibility* for more details).

For more information about external storage options please contact our team at support@netavis.net.

5   Netavis Observer Client Compatibility and Requirements

This section contains a list of hardware and software requirements for Netavis Observer clients.

Note that these are general suggestions as the particular requirements heavily depend on the specific project setup. Of particular concern for the client requirements are the number, format, and resolutions of the video streams which are to be displayed by it.

Important:

- Netavis highly recommends the use of workstation-grade hardware and components which are designed with 24/7-operation and constant high loads in mind.

- If high system availability is required redundant power supplies and hard drives in a RAID 1 configuration are recommended for Netavis Observer clients.

- H.264, H.265, and MPEG-4 video streams require significantly more processing power than MJPEG streams.

5.1   Hardware

CPU:

- Required: a 64-bit processor which supports the SS3 instruction set.

- For clients which display up to 20 cameras (720p resolution, 10fps) a mid-range Intel Core i5 processor (Passmark CPU Mark: 6200) is recommended. For displaying more than 20 cameras

(720p resolution, 10fps) using an Intel Core i7 processor (Passmark CPU Mark: 8300) is recommended. These recommendations apply to systems which use MPEG-4/MxPEG/H.264/H.265 streams. MJPEG streams require less powerful hardware.

RAM:

- The overall RAM requirements are dependent on the operating system (32-bit vs. 64-bit) and specific client configuration. However, as a rule of thumb at least 512MB to 1GB RAM should be available for the Netavis Observer client. For example, if the operating system and other applications running on the client computer consume 1GB then the system should have at least 1.5~2GB RAM.

Hard drive:

- Browser client: Apart from the underlying operating system and required Java Runtime environment the browser client does not require any additional drive space.

- Local client: Locally installing the Netavis Observer client requires approximately 40MB.

Joystick:

- Required: a locally installed Netavis Observer client on a Windows operating system (Joystick support is not available on Linux or via the browser client)

- Supported: USB Joysticks, e.g. Axis 295, AXIS T8310, JVC HFX1400, Megatron MACH V 551A15, Siemens SUT50 (requires special customization).

Graphics card:

- Required: able to display a minimum resolution of 1024x768 pixels

Monitor:

- Required: a minimum resolution of 1024x768 pixels

- Supported: multiple monitors (this is not true for Client on Server configurations which only support a single monitor in the bundled version).

Audio support:

- A soundcard is required to make use of acoustic signals and for an operator to listen to a camera's microphone.

5.2   Software

Operating system (64-bit):

- Microsoft Windows: Windows 7, Windows 8, Windows 10

- Linux/UNIX: Any distribution capable of running a modern Web browser and at least Java 8.

- Known limitations: Some features are currently only available on clients running on Microsoft Windows (e.g. audio and joystick support, Layout Navigation). Please refer to the Netavis Observer User Manual's "Observer client on multiple platforms" chapter for further information.

- Note: The Mac OS X operating system hasn't been supported since Netavis Observer 4.0.

Web browser:

- Windows: Netavis Observer's browser client requires a modern browser such as Google Chrome, Microsoft Internet Explorer, Mozilla Firefox or Opera.

- Linux: A modern browser such as Google Chrome, Mozilla Firefox or Opera is required.

- Note: The video wall control application for setting up video walls requires an HTML5 compatible browser (such as Google Chrome 17.0 or higher, Mozilla Firefox 10.0 or higher)

Java environment:

- Netavis Observer client requires an installed 64-bit Java environment and supports Oracle Java and OpenJDK 8, 9, 10, and 11.

- Note: Java WebStart is not supported by Java 11 and newer versions.

.NET environment:

- For the Layout Navigation Tool .NET Framework 2.0 or newer must be installed.

6   Mobile Clients

As of Netavis Observer version 4.8.0 the previously provided Client for iPad and Client for Smartphone & Tablet are deprecated and no longer supported. The new Mobile Client provides cross-platform support for all supported browsers and platforms.

All mobile clients require separate licenses which are available from your distributor/reseller.

6.1   Mobile Client

The Mobile Client supports mobile live viewing of multiple cameras, archive access, and full layout control (max. 3x2 view ports) via HTTP and HTTPS connections.

Recommended browsers:

- Mobile devices:
    - Android (v4.4 KitKat or later): Chrome
    - iOS (v10 or later): Safari
- Desktop:
    - Chrome v32 or later
    - Edge v0.10 or later
    - Firefox v32 or later
    - Internet Explorer: v10 or later
    - Safari: v8 or later

Note: If a camera that is not configured for MJPEG streaming in Netavis Observer is watched in Mobile Client then the camera's MPEG-4/MxPEG/H.264/H.265 video stream will be transcoded on the server (which requires significant CPU performance).

6.2 Client for Smartphone & Tablet (deprecated)

The Client for Smartphone & Tablet is a browser-based application which supports live viewing of individual cameras from a camera tree in both portrait and landscape screen orientations.

Recommended browsers:

- Android: Chrome
- iOS: Safari

Note: It only supports MJPEG streams and hence it is not possible to display the live stream in case the camera is configured for MPEG-4/MxPEG/H.264/H.265-only streaming in Netavis Observer!

6.3 Client for iPad, Version 2 (deprecated)

The Client for iPad, Version 2 supports mobile live viewing in MJPEG of multiple cameras, archive access, and full layout control via HTTP and HTTPS connections.

It is available on the iTunes App Store[5] and requires iOS 8 or later.

Note: It is not possible to display the live stream in case the camera is configured for MPEG-4/MxPEG/H.264/H.265-only streaming in Netavis Observer. It is also not possible to playback the archive in case it is not in MJPEG format!

7 Client on Server (CoS) configurations

Note: As a Client on Server configuration runs a server and client on a single machine it has higher hardware requirements than a server-only installation. The CoS requirements therefore depend on both the requirements of the server and the client! The use of server-grade hardware is highly recommended.

CPU:

- Recommended: High performance server CPUs with at least two cores (e.g. Intel Core i3 / i5 / i7, Intel Xeon, AMD Opteron)
- Not recommended: Single core CPUs
- Not supported: Intel Atom CPUs

RAM:

- Required: 2GB
- Recommended: 4GB (please note that when using 4GB of RAM it is necessary to use a 64-bit Netavis Observer version)

RAID controller:

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[5] https://itunes.apple.com/us/app/netavis-client-for-ipad/id496176184?mt=8

- When using entry-level hardware RAID controllers please ensure that they provide sufficient read and write performance.

Graphics card:

- Required: able to display a minimum resolution of 1024x768 pixels

Monitor:

- Required: a minimum resolution of 1024x768 pixels

- Note: Contrary to regular Netavis Observer clients Client on Server configurations do not support multiple monitors in the bundled version.

8   Additional resources

Netavis Observer 5.0 Server Installation and Administration

> Netavis Observer – Help – All Documentation
>
> http://netavis.net – Support - Documentation
>
> http://showroom.netavis.net – Documentation – All Documentation

Netavis Observer 5.0 User Manual

> Netavis Observer – Help – User Manual
>
> http://netavis.net – Support - Documentation
>
> http://showroom.netavis.net – Documentation – User Manual

Netavis Observer 5.0 Supported Video Sources

> Netavis Observer – Help – All Documentation
>
> http://netavis.net – Support - Documentation
>
> http://showroom.netavis.net – Documentation - All Documentation