



# **NETAVIS**

## **Observer 4**

### **Troubleshooting Guide**

**Ver.: 4.3**



# NETAVIS Observer Troubleshooting Guide

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Author: mna@netavis.net

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NETAVIS Software GmbH

Blindengasse 3

A-1080 Vienna

Austria

Fax. +43 1 503 1722 30

[info@netavis.net](mailto:info@netavis.net)

[www.netavis.net](http://www.netavis.net)

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## Introduction

This “Troubleshooting-Guide” is a document which is a short summary how to detect, find and eliminate troubles of an NETAVIS Observer installation.

At this place we want to point out that a video surveillance solution is a summary of many components and at the end of a long chain of components, working altogether, you just see the user’s workspace with the NETAVIS Observer GUI. When you encounter an issue at the end please understand that it’s not in general a NETAVIS Observer problem – so you have to analyze it from the start till the end before you can identify which component caused the trouble!

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# 1. Troubleshoot the server hardware:

## 1.1 General hardware compatibility

The server’s hardware has to be compatible to Red-Hat Enterprise Linux.

NETAVIS observer Versions 1.8.7 – 1.10.0 are RedHat EL 4 update 4 compatible

NETAVIS Observer Versions 1.10.1 till 3.0.0 are RH-EL5.1 compatible

NETAVIS Observer Versions 3.0.0 till 3.4.8 are RH-EL5.2 compatible

NETAVIS Observer Versions 3.4.8 till 3.4.21 are RH-EL5.4 compatible

NETAVIS Observer Versions 3.4.22 - 3.4.40 and 4.0.0 - 4.3.3 are RH-EL5.5 compatible

NETAVIS Observer Versions 4.4.0 and up are RH-EL6.1 compatible

In case your server has no compatibility certificate then it might work or it might have troubles with the network card or with the hard disk controller or with the RAID controller.

## 1.2 Check the BIOS

The BIOS often provides some necessary information about a server!

Temperature of the server, CPU, hard disks, RAM, ... (=> detection of suspicious/too high values)

Which expansion slots are occupied / free (=> i.e. detect if your controller has been detected)

Check that the in use hard disk controller has AHCI enabled (not compatible mode)

Ensure that unused components are switched off like: parallel port, USB, Firewire 1394, Sound card, 3<sup>rd</sup> NIC, ...

Check the voltages of the power supply/supplies!

Check the speed of the fans!

## 1.3 Check your hardware RAID controller

In case you use a hardware RAID controller you can run the built in self tests and overview pages.

Ensure that the built in HDD’s are really in the compatibility of the controller’s compatibility list!



## 1.4 Check and test the built in RAM

First of all: Ensure that the built in RAM's are really in the compatibility of the motherboard vendor's compatibility list!

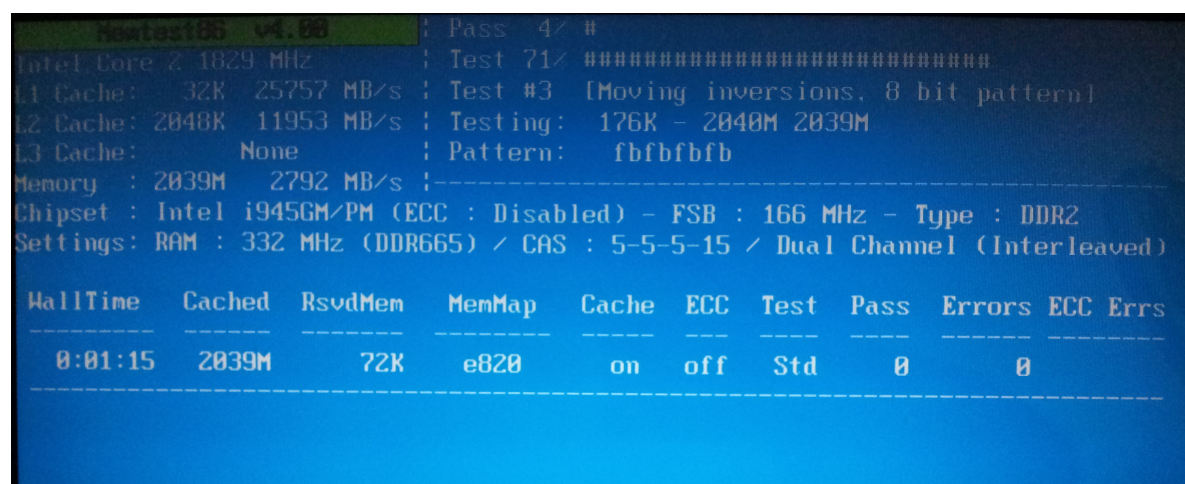
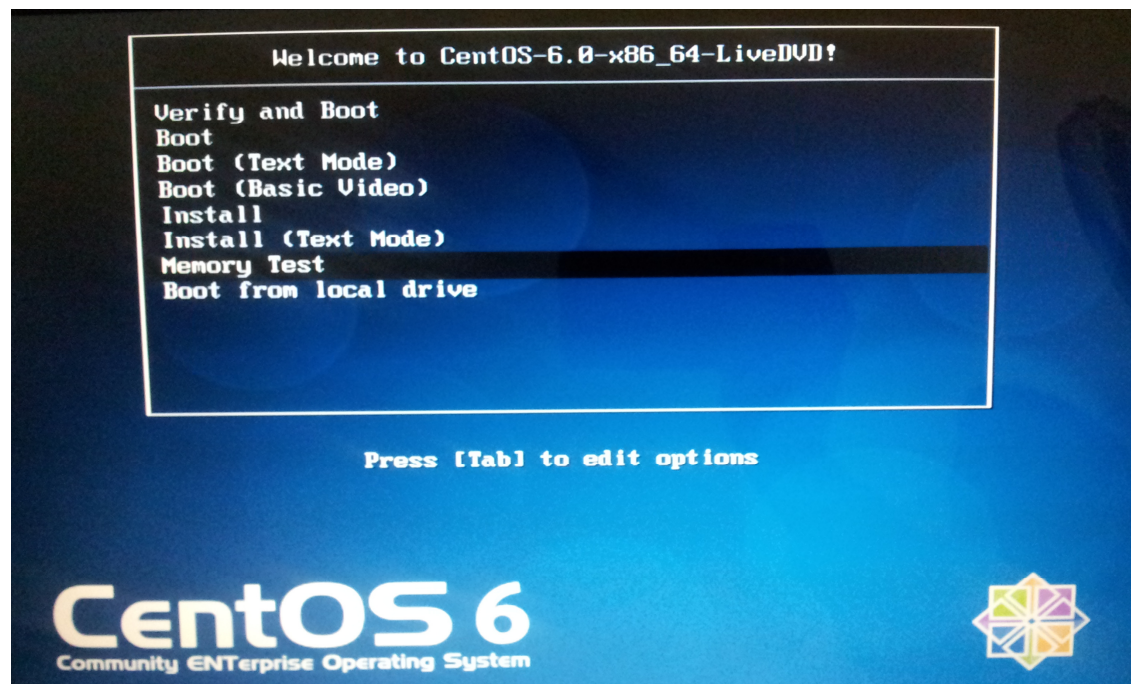
The easiest way to check and detect RAM memory errors is by using a Live-CD, therefore we recommend using a CentOS 6 Live-CD/DVD. A Live-CD/DVD is an operating system running directly from the DVD – so you can boot any PC with it, and the whole operating system will start from a disk / RAM. Your installed OS will be untouched unless you want to.

Here's one of several possible links for downloading the CentOS 6 Live DVD 64Bit:

[ftp://mirror.fraunhofer.de/centos.org/6.0/isos/x86\\_64/CentOS-6.0-x86\\_64-LiveDVD.iso](ftp://mirror.fraunhofer.de/centos.org/6.0/isos/x86_64/CentOS-6.0-x86_64-LiveDVD.iso)

Download it, burn a bootable DVD, and boot it till you see the boot loader. When you see the boot loader welcome screen, then start the "memtest" program by moving the cursor to "Memory Test" (=see below picture) followed by ENTER and memtest will start testing your RAM.

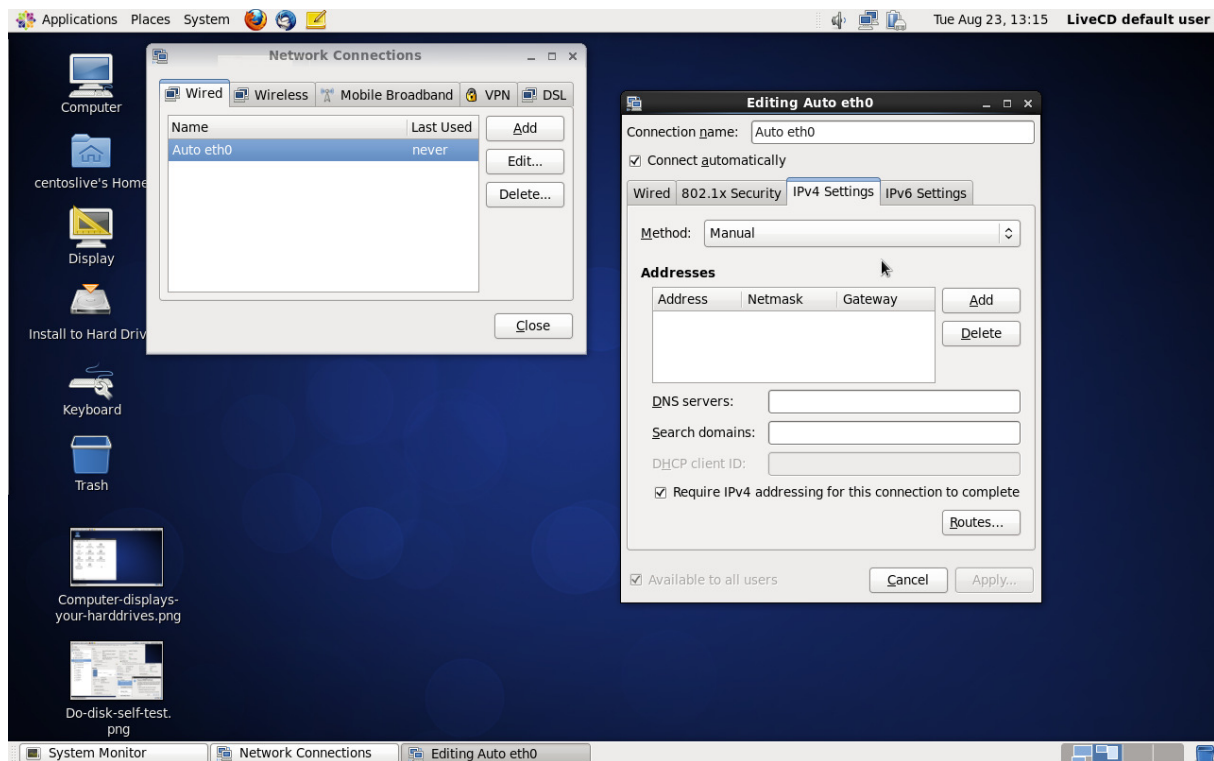
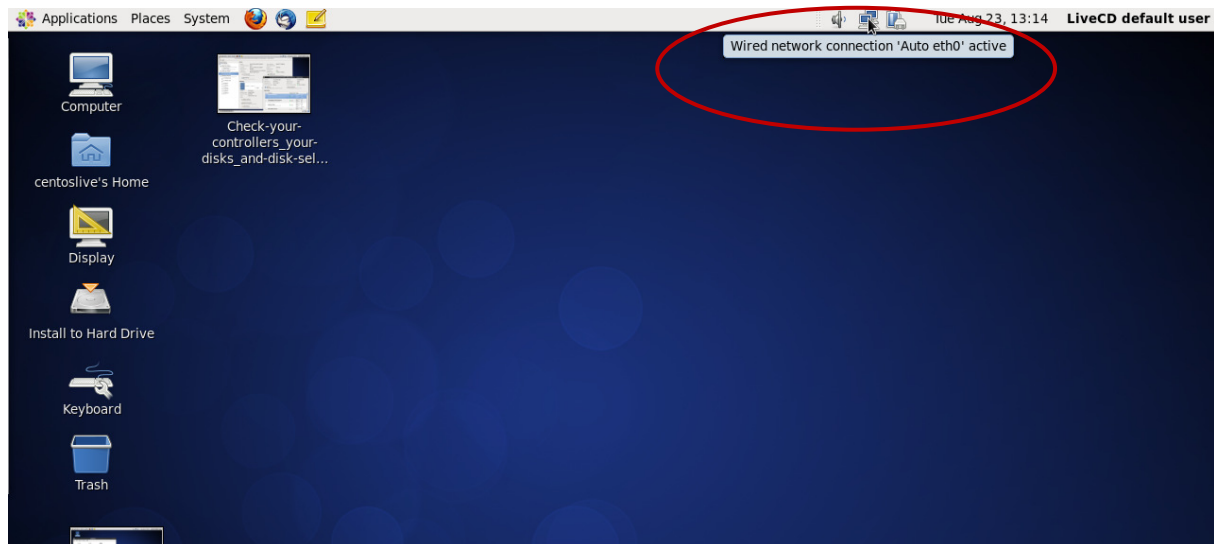
A short test is within ~15minutes and provides only very rough information. A good trustworthy measurement is when the test passed at least 2 times (=> may run also for 2 days!).



## 1.5 Test your network connectivity

Please test on the switch or router the network socket's LED which is connected to the server. In case it's blinking in a non constant way then your network is from the hardware side okay.

Testing if the OS supports the network interface card by the built in driver can be easily tested with a CentOS live DVD. Please see the previous chapter for more information about the CentOS 6 Live DVD 64Bit.





## 1.6 Test your hard disks

Ensure that the built in HDD's are really in the controller's compatibility list!

Testing your hard disks is neither done via:

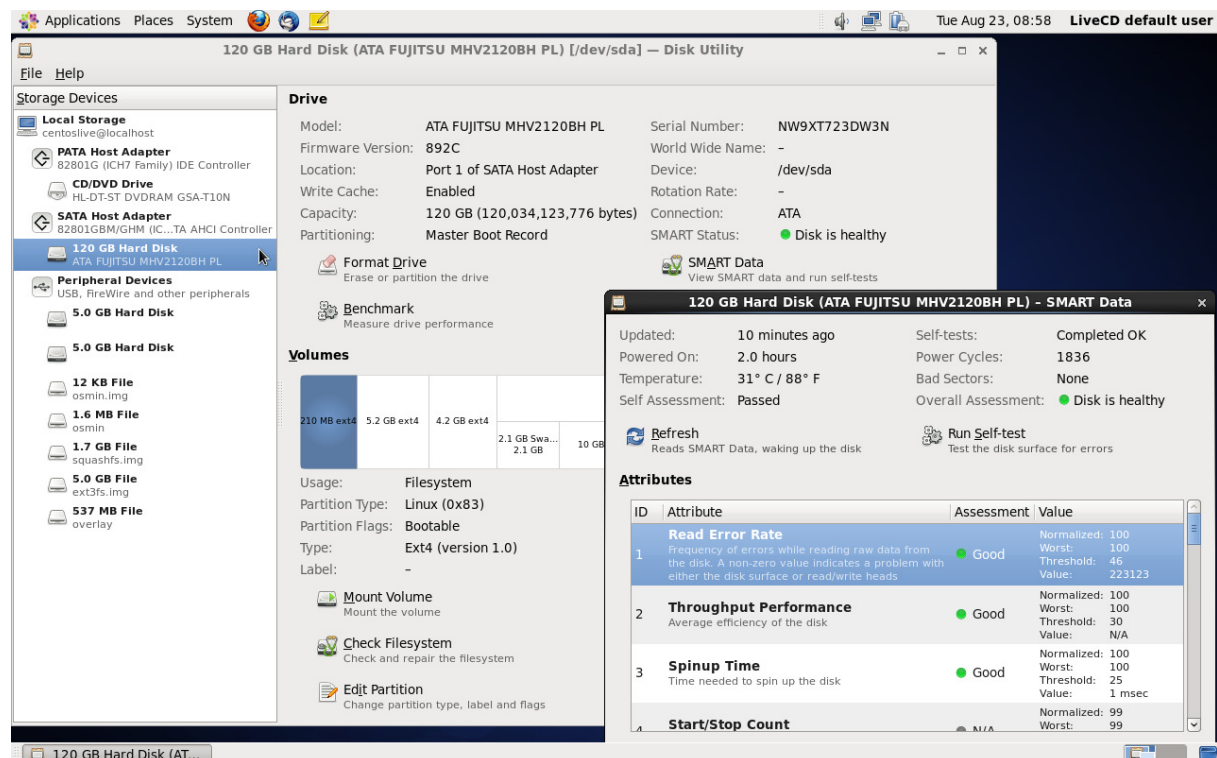
- the NETAVIS Observer's admin menu → [25] Show unusable disks / [27] Show disk status
- in case you have a HW-RAID controller then via its RAID BIOS or RAID-toolbox or
- with a CentOS 6 Live DVD 64Bit.

Using the CentOS 6.0 live DVD:

Please see the previous chapter for more information about the CentOS Live DVD 64Bit.

For performing a hard disk test with this Live-DVD please go on like that:

- Boot your server with the CentOS 6 Live-DVD fully up until you see the graphical user interface (GUI).
- In the menu *APPLICATIONS >> SYSTEM TOOLS* you will find a tool for disk analysis called *DISK UTILITY*!



## 1.7 Troubleshoot a defect hard disk or a “Degraded recording” or a “Stopped recording”:

Degraded recording: One or more archive partitions are damaged. At least one image partition is working. This may result due to a hard disks problem.

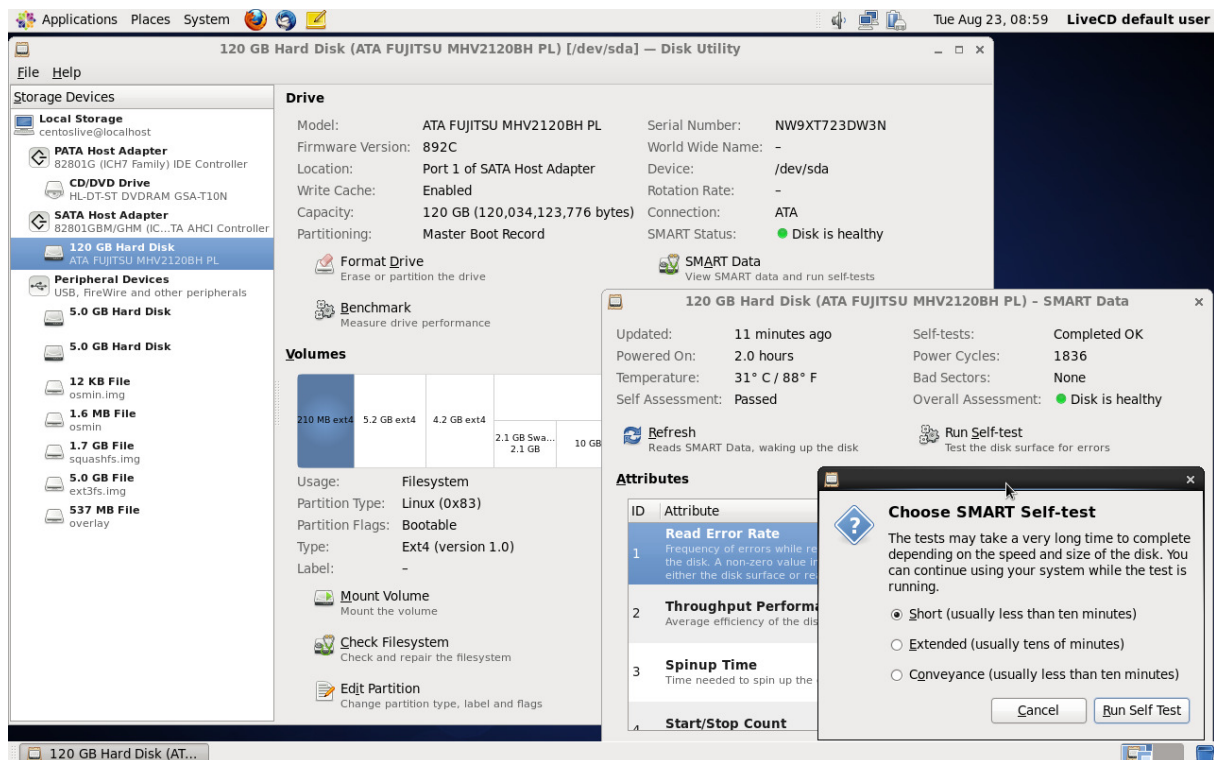
Stopped recording: All archive partitions on all hard disks do have a problem. No image partition is ready. This may result due to a hard disks problem.

First of all: Before going on with any troubleshooting make sure you have at least one fresh SystemBackup successfully saved on your client-PC!

Note: Not suitable for a THECUS NVR – therefore please contact the THECUS support.

- a) Reboot your server – due to a reboot all hard disks and partitions are automatically checked and repaired. After the server started successfully you shouldn't see any longer a message "degraded recording" or "stopped recording" in your event list.
- b) Only in case the above way of repairing your hard disk was not successful go on with the next step:  
You may try to boot up a server from the correct installation media (100% correct version) and type in "repair" followed by an enter. This will look like an installation for you, but it isn't – your archive will be untouched. In case your hard disk(s) or/and your partitions are critically damaged that method won't successfully work. The repair method can only repair software parts, in case the underlying hardware is alright – otherwise it's of course not possible.
- c) In case the two steps from above won't work and in case you've 2 or more hard disks there's an option to exchange a disk easily via the admin menu  
[24] Configure replaced disk  
Doing so requires a shutdown – exchange the disks – startup the server – then in the admin menu you can call "[24] Configure replaced disk" followed by your input if this new disk should act as a system + archive disk or as archive-only disk (depending on the fact what the old disk represented).
- d) In case all above mentioned steps won't work then there's only one option left over:  
Contact your installation partner or distributor how to do a clean installation on new disks.

## Starting the SMART hard disk self test:



## 1.8 Maintenance tips for a server

- Occasionally check the temperature via the BIOS functions.
- Check the age and other parameters of the hard disks via the "disk utility" via booting from a Live-CD.
- Open the server and carefully clean it.
- ...

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## 2. Troubleshoot network cameras

### 2.1 Is the camera supported by your NETAVIS Observer version

Please visit the documentation page on your server – it contains the correct documentation to your version. Open the SupportedVideoSources documentation to go sure that your camera vendor and the model are supported by your NETAVIS version. In case it isn't so, please check if a newer version of observer has support for it.

### 2.2 Is the camera firmware supported by your NETAVIS Observer version

Check the firmware of your network camera against the one which is tested in our SupportedVideoSources document. In case you encounter suspicious behaviour or malfunctions of the picture or of the stability of the server-camera connection please install the same firmware which we've been testing in our laboratory! With this version it has to work. Otherwise we wouldn't set this camera to our supported list! In case you encounter anyway problems please check other influence parameters or consult the NETAVIS Technical Support team.

### 2.3 Unstable picture and other picture / video issues

Flickering picture/video, half videos, lost video signal, black video signals or interlaced videos might have been seen in the past. NETAVIS Observer does not destroy the video stream of camera, and you can be sure that it was okay and tested to be able to release an official NETAVIS Observer version with support for that device! So it has been working in another environment or setup!

In case your camera model is supported and the firmware is also okay, ensure that the temperature of the camera isn't too high! To test it, disconnect the device from power and wait several minutes/hours for cooling down the device and re-plug it for a test.

An easy test is also by shortly testing the video via a browser connected to the camera IP address. This connection mostly uses the ActiveX protocol and not the NETAVIS method via HTTP what definitely results in a big difference!

In case you've tested and tried some settings without luck, try to reset the camera to its default settings and go on by only setting its IP-address, subnet mask and gateway followed by another test.

Sometimes it's helpful when the camera's default gateway (=DGW) is set to the value of the IP-address of the NETAVIS server – so it's the direct way. Note: In some network environments it's not possible!

Sometimes a network analysis might be helpful to detect if there's too much network load! A good test tool is wireshark.

Make sure that the server's network card is set at least to 1000Mbit/s (depending on your hardware), auto negotiation on, and full duplex (via admin menu 9b) – so please make sure to have a non high loaded network!

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## 3. Troubleshoot your network

### 3.1 Check the server network settings

Via the server admin menu's network settings [9] check and go sure that all network parameters are correct. Please ensure that the default-gateway (DGW) and the SMTP and the NTP and the DNS is set to a really reachable good IP-address! In case one of these parameters is not >=99% available then set it to the local host / local-loopback address 127.0.0.1 which is all the time present!

### 3.2 Check the servers link parameters

Ensure that the server's network card is set at least to **1000Mbit/s** (depending on your hardware), **auto negotiation on**, and **full duplex = yes** (via admin menu 9b).

### 3.3 Test your switch / router

Check your switch / router to see if all lights are blinking synchronously (=bad) or asynchronously. To go sure that there's really everything okay please do a reboot by powering it off and on.

### 3.4 Basic test of your server's network function

Performa the lowest basic test of your server's network function when you directly connect a computer / laptop to the server's first NIC via a crossover cable.

### 3.5 Check a server's two network card setup

In case you've two NIC's installed in your server, please ensure to have 2 different IP addresses set to these NIC's. In case you want to have your NIC's configured for failover, load balancing or for higher throughput then the right way to do so is by bonding the NIC's (not by just giving 2 exactly same IP addresses). Bonding is a special setup and requires root-login by the NETAVIS support team to configure it to suit to your needs.

### 3.6 Check your managed switch

In case you encounter some malfunctions in your network ensure that managed switches have no limitations for the NETAVIS Observer as well as no limitations for your connected cameras and PC's.

### **3.7 Check your router**

Please ensure that the in use router(s) have correct port forwarding and a correct firewall configured.

### **3.8 Check your cables**

It's strongly recommended to have a 1Gbit/s connection wherever it is possible. To be able to use your Gbit environment in a most utilized way ensure to have at least CAT 6 or better cables connected.

### **3.9 Check the network stability**

Services like DynDNS and similar are in praxis less than 99% available. This is a non good base to build up a security environment which has to be up and running all the time 24/7. Please avoid such services wherever possible.

### **3.10 Check throughput / load of your network**

To make a deeper analysis of your network we recommend doing that via a network frequency measurement tool (not only a CAT tester) as well as with software tools like wireshark or similar.

Wireshark is free of charge downloadable via: <http://www.wireshark.org/download.html>

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## 4. Troubleshoot network attached storages (NAS)

### 4.1 Check NAS setup in Observer

Done via the server's admin menu item 17 (=NAS management)  
Often problems occur when at the end of the path the / is missing.

### 4.2 Check NAS configuration in the NAS itself

Mostly the problem is based on the fact that the login of any user to the NAS has missing permissions – it's a must to enable the write permission

Some NAS offer a menu item like "map all users to root" → please enable it (unless there's a fine granulated setup of every user).

### 4.3 Check the throughput of the NAS

Mostly higher CPU load of the NAS and of the NETAVIS Observer may come from slow write-speeds of NAS devices.  
A too slow NAS may lead to several unwanted occurrences (NAS disconnected, recording degraded, ...)

## 5. Troubleshoot an unexpected high loaded system

### 5.1 How to get an overview and measure the server's load

The server's CPU load and the ImageDataBase load (IDB) are displayed in the lower right corner of the running Observer client.

You may also find at this place messages like "SWAP: xxx MB" but only when you have less RAM built in.

You may also find there "Degraded Recording" or "Recording Stopped" only when one or all archive-partitions are out of order.

You can measure a server's load also with the server's monitoring tool "munin". You can call this very brilliant tool via your browser on <http://IP-ADDRESS-OF-YOUR-SERVER/monitoring/>.

You will see the load, the hard disk utilization the RAM utilization and many more diagrams!

### 5.2 High CPU load

Check the server's CPU load and the ImageDataBase load (IDB) via the display in the lower right corner of the running Observer client. In case you encounter values higher than ~90% you should optimize your system a little bit.

Note: The CPU, hard disk speed & load is measured not when a system is fresh installed! It's measured when the system is running for such a long time till the archive is full and the ring buffer mode has been activated. The ring buffer mode is when the server is writing data and synchronously reading and detecting what is old and deleting this old data.

In case you're flooded with information from munin's output of the CPU graphs, then we recommend using the easiest way by checking only the "idle time". When there's an idle value of 10 that means the server has 90% load which might be too high.

You can lower down the load of a server by re-thinking about the following items:

- ) Decrease the amount of video analytics, or/and decrease the size of the video analytics areas.
  - ) Lower down the quality of the video streams or/and the fps rates of the video streams.
  - ) Lower down the PRE-alarm seconds of video analytics (saves a little bit of RAM and a little bit of the CPU)
  - ) Increase the RAM memory. NOTE: This may not help in all environments!
  - ) Install a fast hardware RAID controller (should be faster than your actual controller) and do a fresh install followed by putting back the SystemBackup.
  - ) In case your system has only one disk installed, you may consider installing a second one.
  - ) As a last option it shouldn't be unmentioned that you may disable the server motion detection and do an In-Camera motion detection.
  - ) A too heavy hard disk utilization will cost also a lot of CPU! Especially when you're nearby the limit of the disk controller then it gets harder to write data onto the disk – so the CPU begins shifting data around.
- Lower down the recording parameters.

### 5.3 High hard disk load

The detection and measurement is done via munin (<http://IP-ADDRESS-OF-YOUR-SERVER/monitoring/>).

In case you encounter higher loads of your hard disk utilization (compared to the maximum supported of your server hardware), you should consider lowering down the recording parameters.



## 5.4 High RAM utilization / Swapping server

In case you see that your server is taking use of SWAP memory then you have definitely less built in main memory (RAM). Contact your server vendor's supplier to increase the server's RAM with good and correct expansion parts! Take care about the ECC capability flag and about the frontside bus speed – do not mix up different speed settings!

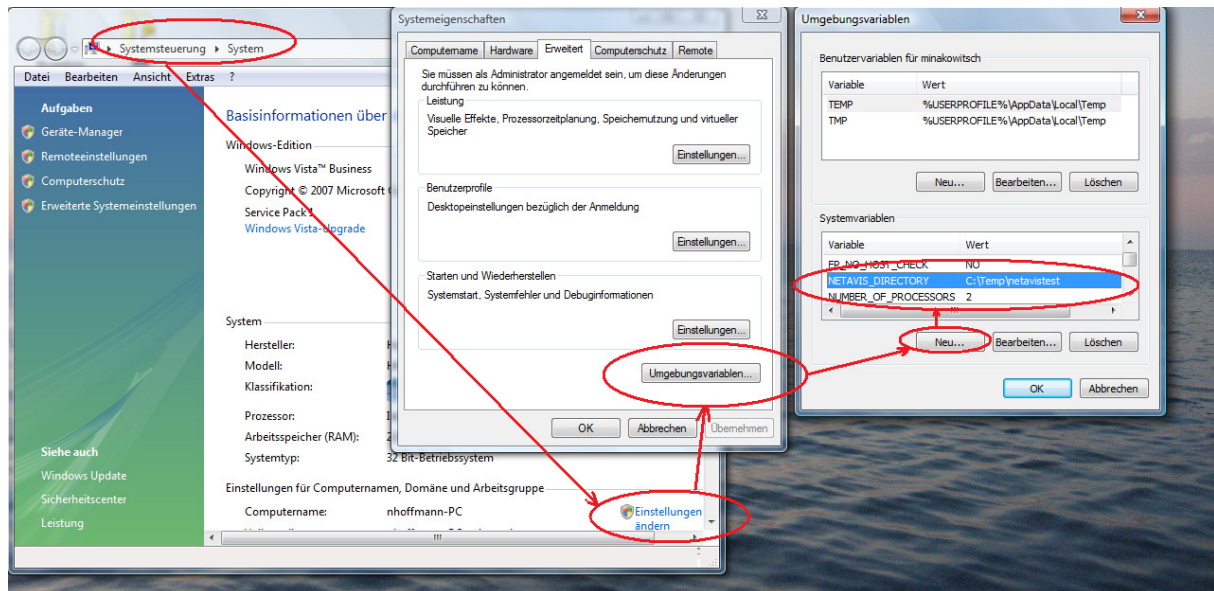
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## 6. Correcting a wrong time/date/timezone of your server/client:

For the correct function on every NETAVIS system you have to configure your time step by step --> beginning directly in the server's BIOS!

- 1) Close the NETAVIS Observer client on your workstation
  - 2) Reboot the server
  - 3) Start into the BIOS set correct date and also the correct time → ensure that you enter the time as UTC time!!!
  - 4) Save your BIOS changes
  - 5) Normal start of the server
  - 6) Before doing any changes on the server stop the NETAVIS service via the admin menu  
[3] Stop video system processes
  - 7) Set the time zone and the UTC enable flag via the admin menu  
[29] Set time zone
  - 8) Now please set the correct date and time via the admin menu  
[16] Set server date and time
  - 9) Ensure you have a time server (=NTP) configured on your NETAVIS server(s).  
[26] Configure time service
- NOTE!!! In a distributed environment a NTP server is a must due to the fact that all servers should run in sync!
- 10) Start the NETAVIS service via the admin menu:  
[2] Start video system processes
  - 11) Check the time on your client-PC --> set the correct time and time zone  
We also strongly recommend to have a NTP server configured also on all your client-PC's!
  - 12) Start your NETAVIS Observer client and see that the time on right hand side of the GUI is correct.

## 7. Setting a different user home directory as storage place for the netavislibs:



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## 8. Other problems

- ➔ In case you're a enduser, please contact your reseller with good logs and with appropriate other information.
- ➔ In case you're a reseller of NETAVIS Software products please create ticket in the NETAVIS Support Ticket Tool with good logs and with appropriate other information.

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## 9. How to get good log-files for a NETAVIS SUPPORT analysis

Take logs exactly when the incident happens and please note the date and time (also the seconds) taken from the client GUI time or the servers time! Screenshots are also helpful.

Download the server's log files immediately after the occurrence of an unusual behavior.  
Please don't download it 1 hour later, because these logs will not contain the necessary information.

In all NETAVIS Observer versions 1.0 till 4.X you can download the logs via your browser from the following website:  
<http://IP-ADDRESS-OF-YOUR-SERVER/logs.jsp>

In NETAVIS Observer versions greater or equal 4.0 you can take the logs via the starter → right mouse click on the button of the connection to your server → "save log files". Also in the already running Observer GUI you may download it via the menu HELP → SAFE LOG FILES.