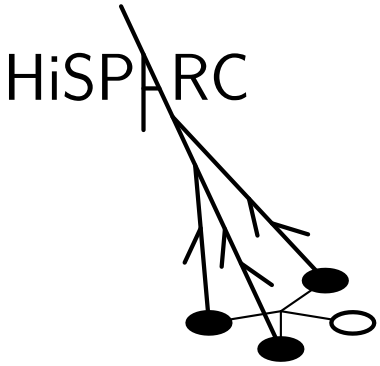

HiSPARC Station Problem and Solutions Documentation

Release 0.1 alpha

HiSPARC team

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CONTENTS

The HiSPARC software can be downloaded here: HiSPARC Installer

A pdf version of this manual is available here: HiSPARC maintenance manual

For more information about HiSPARC, see the HiSPARC Website.

For questions or suggestions please contact our project coordinator Surya Bonam (info@hisparc.nl).

CHAPTER

ONE

INTRODUCTION

This documentation describes the steps required to solve problems with an HiSPARC station. It first explains how to recognize different problems and then how to solve them.

The first part, *Frequently asked questions*, might help answer some questions that you have.

The second part, *Known issues*, describes some of the known issues that we have encountered with the HiSPARC software and hardware. It discribes how to determine if the problem described is what you are experiencing and then possible solutions.

CHAPTER

TWO

FREQUENTLY ASKED QUESTIONS

- **Nothing works! What can I do?**
  - Don't Panic! Try to determine where the problem lies and find the solution in this documentation.
- **Where do I find the list of known possible issues?**
  - Here: *Known issues*
- **The historgrams for my station don't look correct, how can I adjust the station settings to fix this?**
  - Read here about calibrating the detectors
- **I tried that, I didn't find a similar problem! What do I do now?**
  - Please contact your cluster coordinator for further assitance. They may be aware of such problems the corresponding solutions to the problem, and if they are not, they will consult us.

CHAPTER

THREE

KNOWN ISSUES

This is a list of known possible issues with HiSPARC stations. For each problem some steps are given which can be followed to determine if that problem is indeed occuring on your station. Possible Nagios Service warnings that might alert you to the problem are noted.

Here are filters to only show problems which cause a certain Nagios warning: Buffer size, CPU Load, Drive Space, EventRate, Labview Usage, Memory Usage, StorageGrowth, StorageSize, TriggerRate, Uptime.

Note: Multiple issues can cause the same Nagios warning.

Each problem described below has the following fields:

First Sign Explaining how you will probably notice the problem.

Nagios Nagios warnings that can be triggered.

Determination This is a small guide explaining how to make sure that the problem being described is what you are experiencing.

Solution How to solve it.

Effects The effects of this problem.

3.1 Software

This sections concerns itself with issues related to the HiSPARC station-software.

3.1.1 HiSPARC Monitor does not start

Missing directory

First Sign When the `STARTHiSPARCSoftware` program runs and the other programs (HiSPARC DAQ and Updater) start normally but the HiSPARC Monitor does not appear or closes instantly.

Nagios **EventRate**, **StorageGrowth**, **StorageSize**, **TriggerRate**, and possibly **Buffer size**

Determination

- Look in `hisparc/persistent/logs/src/` for the latest log file.

- Check if there is a line that contains the text `Error: unable to open database file`.
- Look in the `hisparc/persistent/data/` directory for a `hsmonitor` folder.
- If it does not exist than go to the solution, otherwise this is not the problem.

Solution Create the missing `hsmonitor` directory in `hisparc/persistent/data`.

Effects The missing directory causes the HiSPARC Monitor to be unable to store events in its SQLite database, preventing it from sending events to the Nikhef datastore. Note that the HiSPARC DAQ should be unaffected. No events should be lost, the DAQ will store events in its MySQL database until the hard disc fills up.

3.1.2 Hard Disc Space

To many logs

First Sign Nagios warning about Disc Space.

Nagios Drive Space

Determination

- Look in hisparc/persistent/logs/.
- Check the size of the src directory by right-clicking on it and choosing 'Properties'.
- Check if this is a significant fraction of the total disc space.

Solution Remove all logs from the src directory except for the current one (present date in `dd-mm-yyyy.log`). Select all (ctrl + a) logs in `hisparc/persistent/logs/src`. Deselect the current one (ctrl + click). Remove them using shift + delete (to bypass the Recycle Bin)

Effects If the disc is full the HiSPARC daq can not store events in the database, preventing the station from storing more events.

To many updaters

First Sign Nagios warning about Disc Space.

Nagios Drive Space

Determination

- Look in hisparc/persistent/downloads/.
- There should be some adminUpdater_v##.zip and userUnpacker_v##.exe files there.
- By right-clicking them you can see their file size is of the order of 100 MB.
- If there are many they can take up some space.

Solution Remove all userUnpacker and adminUpdater files except the newest ones. Do this by selecting them and pressing shift + delete to remove them directly.

Effects If the disc is full the HiSPARC daq can not store events in the database, preventing the station from storing more events.

3.1.3 HiSPARC DAQ Errors

Can not connect to buffer

First Sign Red LED in HiSPARC DAQ

Nagios

Determination From the Start menu start odbcad32.exe. Check if the hisparc buffer is there.

Solution

Effects

Not in DAQ Mode

First Sign

Nagios **TriggerRate**

Determination Look at the program HiSPARC DAQ, see if the button in the middle shows 'DAQ Mode'.

Solution Click the 'DAQ Mode' button in the HiSPARC DAQ.

Effects When the HiSPARC DAQ is not in DAQ Mode it will not store triggered events.

3.1.4 Error in HiSPARC Monitor

Malformed HisparcII.ini

First Sign Errors in the HiSPARC Monitor: `Uncatched exception in job: need more than 1 value to unpack. Restarting...`

Nagios **TriggerRate**

Determination Check in the file hisparc/persistent/configuration/HisparcII.ini for blank lines

Solution Remove any blank lines from HisparcII.ini

Effects Errors in the HiSPARC Monitor and no TriggerRate updates for Nagios.

Time difference to large

First Sign Errors in the HiSPARC Monitor: `Uncatched exception in job: invalid literal for int() with base 10: 'difference too large'. Restarting...`

Nagios **TriggerRate**

Determination Check in the file hisparc/persistent/configuration/HisparcII.ini for the text 'difference to large'.

Solution Check the PC time, make sure that it is set to the current time. Check the GPS settings, make sure that it is working and showing the correct GPS time.

Effects Errors in the HiSPARC Monitor and no TriggerRate updates for Nagios.

3.1.5 GPS

COM Port to high

First Sign ...

Nagios

Determination

- Open Configuration -> System -> Hardware -> Browse Devices -> Com Ports
- If the Com ports number higher than 32 the DSP Mon GPS program can not connect to the GPS

Solution Lower the COM Port Number, by direct reassignment, use the com_port_reassign utility.

Effects no GPS...

3.1.6 Uploading

Proxy not set

First Sign No data is uploaded, the local storage fills with events

Nagios **StorageSize**

Determination

Solution Run LocalDiagnosticTool to check Proxy settings, if it finds proxy settings for the system it can use these to configure them for Python. Press the Write Config.

Effects

3.1.7 Firewall

VPN blocked

First Sign All Status indicators on Nagios are CRITICAL

Nagios **Host**, **Buffer size**, **CPU Load**, **Drive Space**, **EventRate**, **Labview Usage**, **Memory Usage**, **StorageGrowth**, **StorageSize**, **TriggerRate**, **Uptime**

Determination Run LocalDiagnosticTool to check the VPN status.

Solution Open TCP port 443 in the firewalls

Effects Nagios will be unable to check the status of all services. Moreover, the HiSPARC support will be unable to log into the PC remotely to assist in case of problems.

Web blocked

First Sign No data is uploaded, the local storage fills with events

Nagios **StorageSize**

Determination Try opening a website in a browser on the detector PC, preferably www.nikhef.nl, if this fails then web traffic is blocked. If the browser has no problems, then look at the Proxy not set issue.

Solution Open port 80 in the firewalls

Effects The Uploader of the HiSPARC Monitor uses a HTTP POST Request to send data to our datastore, but this will be blocked if port 80 is closed.

3.2 Hardware

This sections concerns itself with issues related to the HiSPARC electronics and hardware.

3.2.1 No Devices Found

Connect to power

First Sign HiSPARC DAQ s unable to connect to the HiSPARC electronics

Nagios **EventRate**, **StorageGrowth**, **StorageSize**, **TriggerRate**

Determination Start the HiSPARC DAQ, it will show a message that no device is found. Check if the LEDs on the HiSPARC electronics box are lit.

Solution Connect the HiSPARC electronic box via the provided Power supply to a power outlet.

Effects No data can be taken.