n^3He DAQ Operational Manual for Shift Takers

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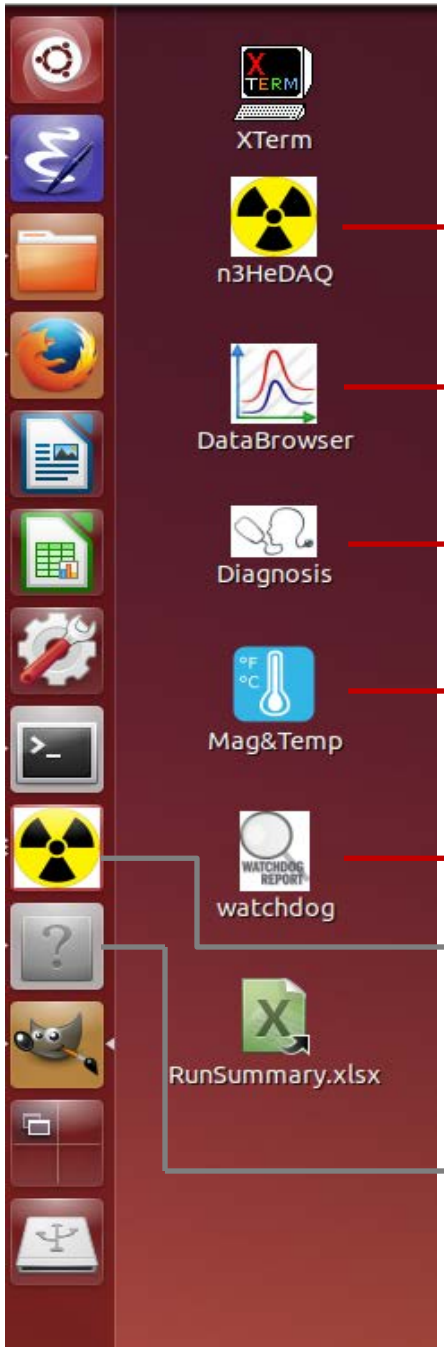
0. Which (icon) is which on Desktop



Main DAQ Control Program for taking data

Data Browser for quick look of data taken

Program to diagnose and fix DAQ issues

Program to display magnetic field and temperature

Program for 24/7 watchdog and data transfer

All of the above four programs when running , wrapped in a single icon

The data browser window icon when it's running

1. DAQ Control Program

Launching the program:

Launch the program by double clicking the icon

Stating the run :

Program starts with ‘Start the run’ button selected. Just press enter to start data taking process at n3He default run length.

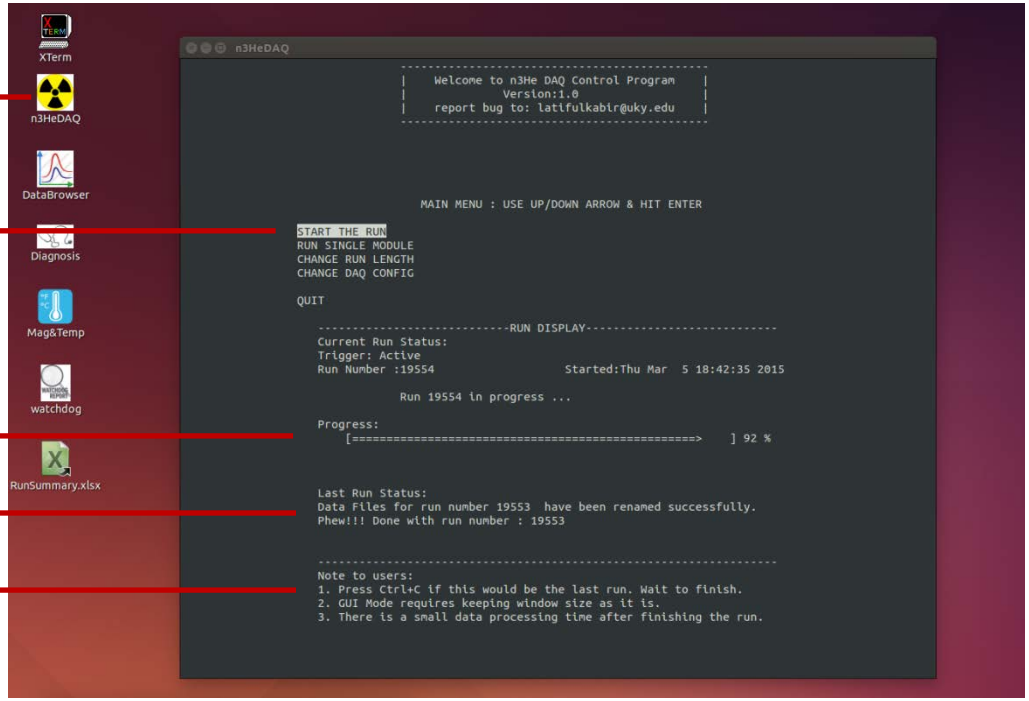
Progress of the run :

Progress status of the current run is shown here.

Status of last run is shown here

Stopping data taking process:

Press Ctrl+C any time if this will be the last run. Wait until the run finishes.



Confirmation:

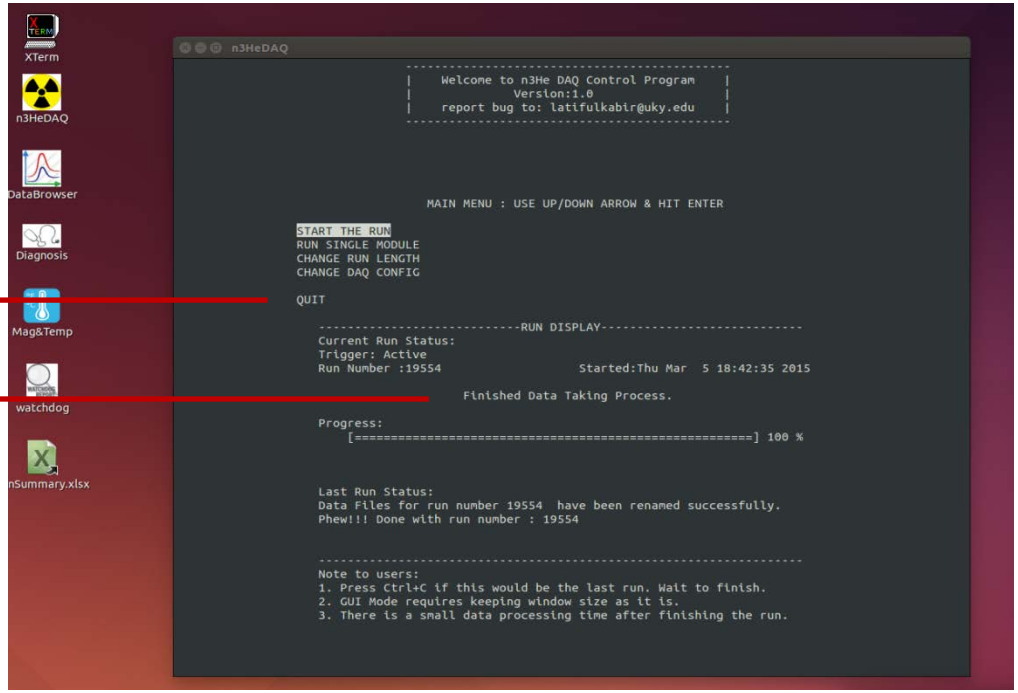
Wait for confirmation until it says Finished data taking process.

Quitting the program:

Use up/down arrow to select QUIT & hit enter to close the program in a systematic way.

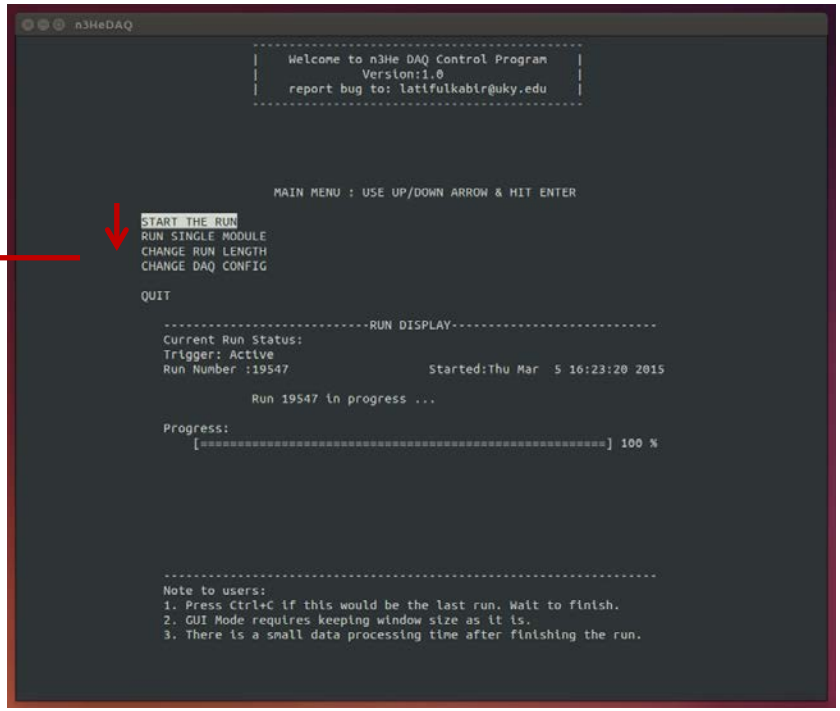
Quitting forcefully:

You can also quit the program forcefully by clicking the x button on top left corner.



Changing Run Length

Use Up/Down arrow to select
'Change Run Length' > Hit **Enter**

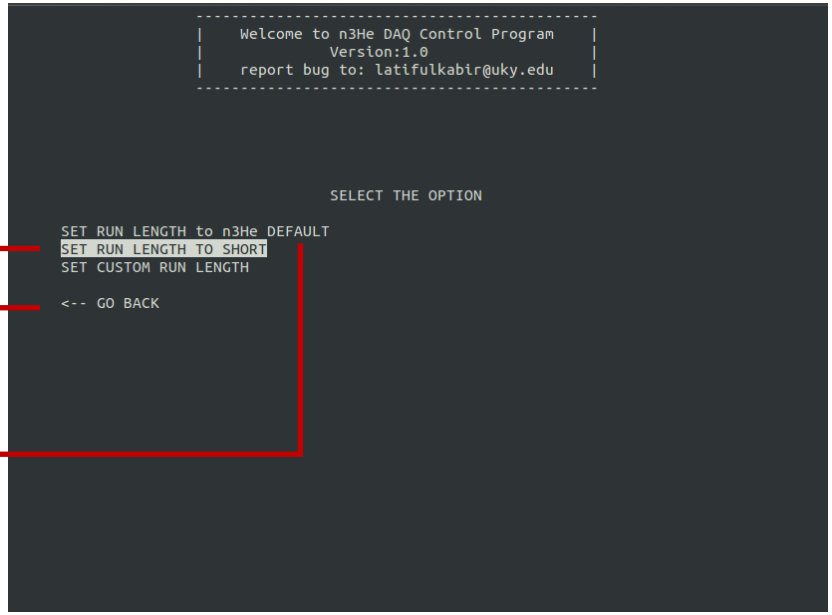


A new window will appear with run length option

Use Up/Down arrow to select
'Set Run Length to Short ' > Hit **Enter**

Select 'Go back' > Hit **Enter** > This will
Take you to the main menu from where
You can start the run .

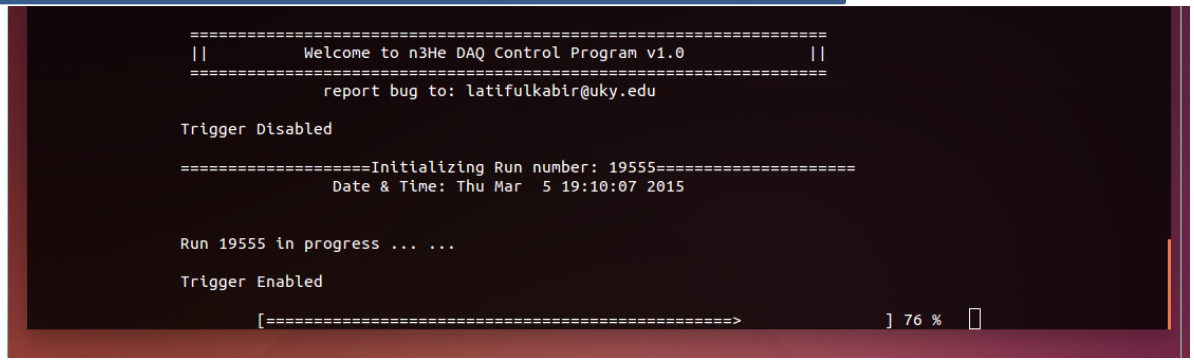
To resume run with n3He default, again select n3He default from this window > Hit Enter > Again Go back to main menu and start the run



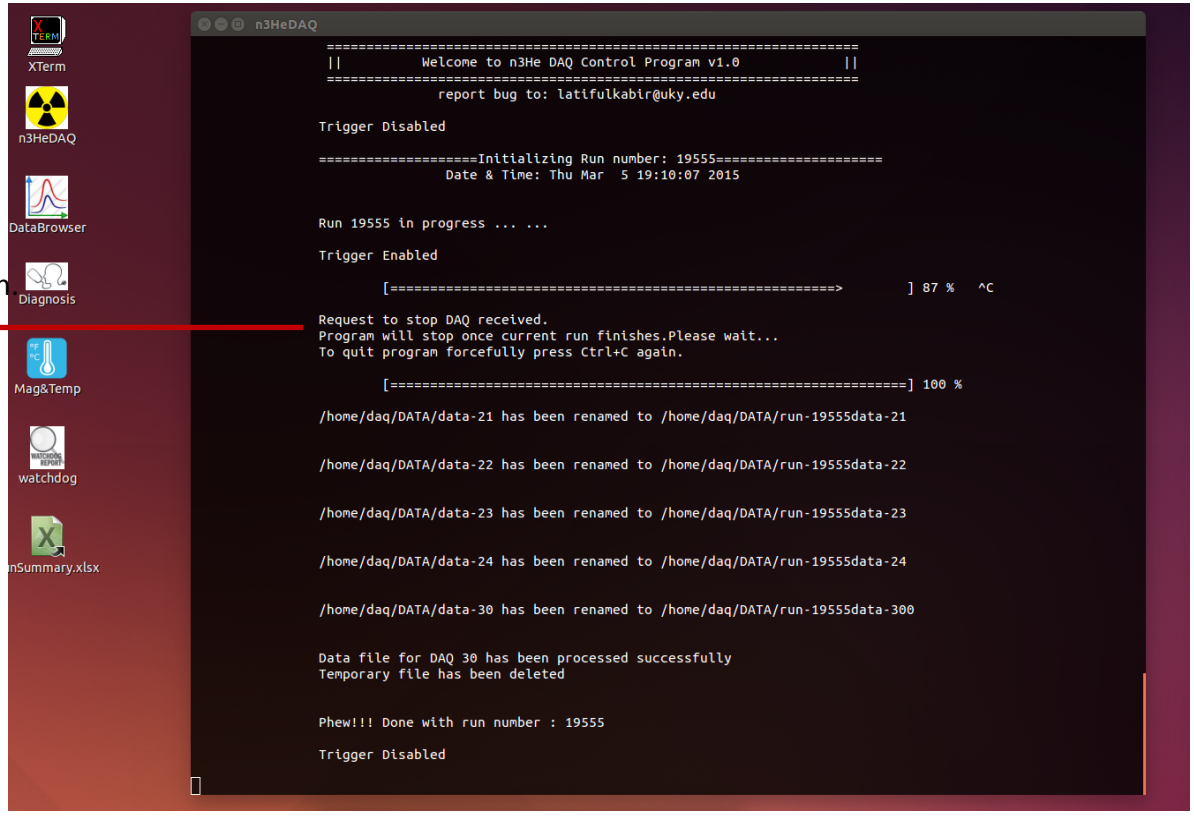
Running the DAQ control program in command line mode:

It is also possible to run the DAQ control Program in command line mode. To run in command line mode, from the terminal do:
n3he start
This will start the data taking process in Default n3He run length.

A progress bar will show the run progress.



Any time press Ctrl+ C if this will be the last run
Wait until the current run finishes.



To learn all the possible options associated With command line mode, from terminal do:
n3he help

2.Data Browser for Checking the Data of the Run

2.Enter the run number

3.Hit Enter, to confirm entered run

4. Hit Read to Plot

5.Read Next to plot any successive run

6.Select any other tab and hit Read to see corresponding plots/signals

1. Double click on this icon to open the Data Browser if it is not already open

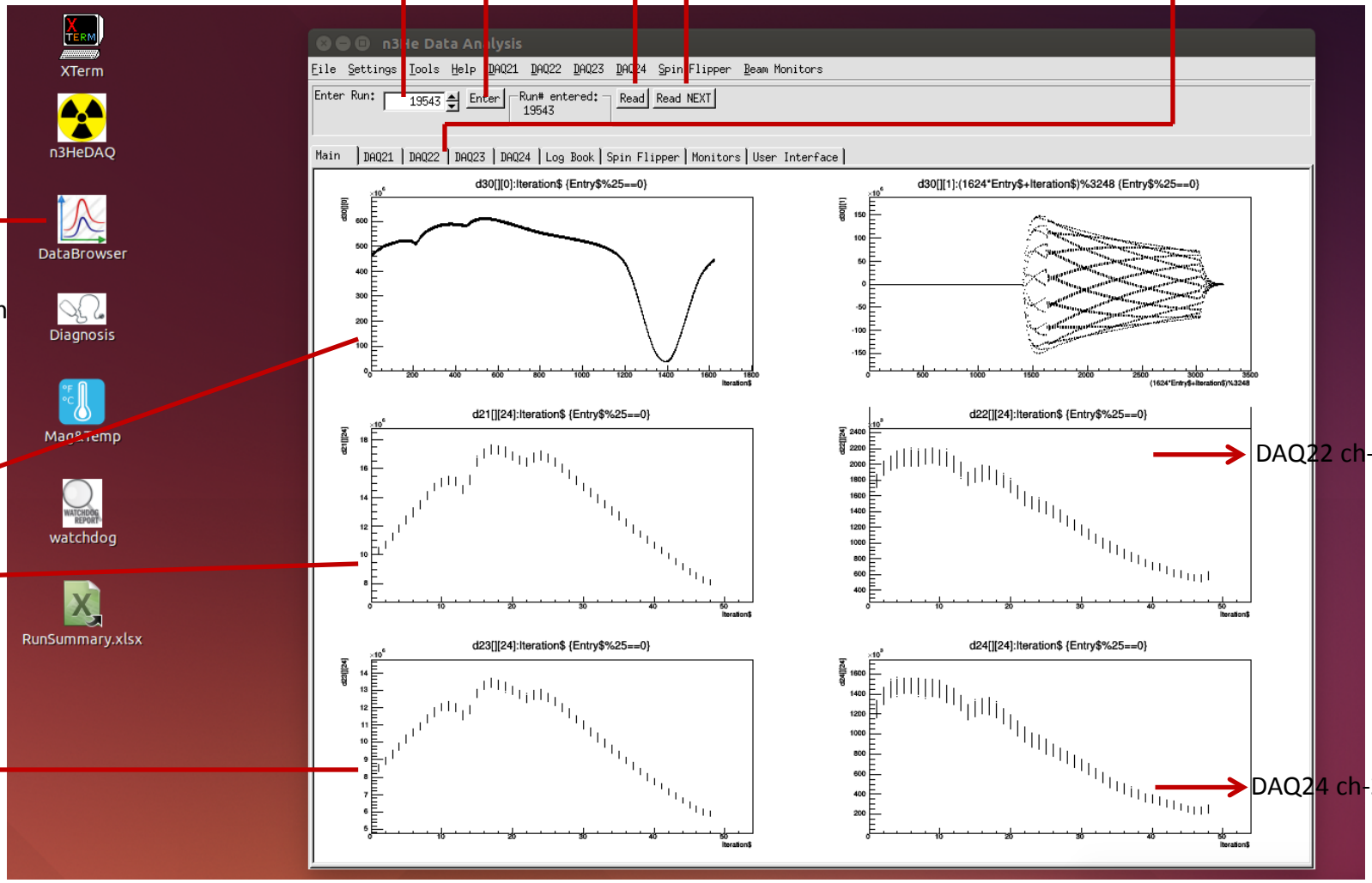
Monitor 1 Signal

DAQ21 ch-24

DAQ23 Ch-24

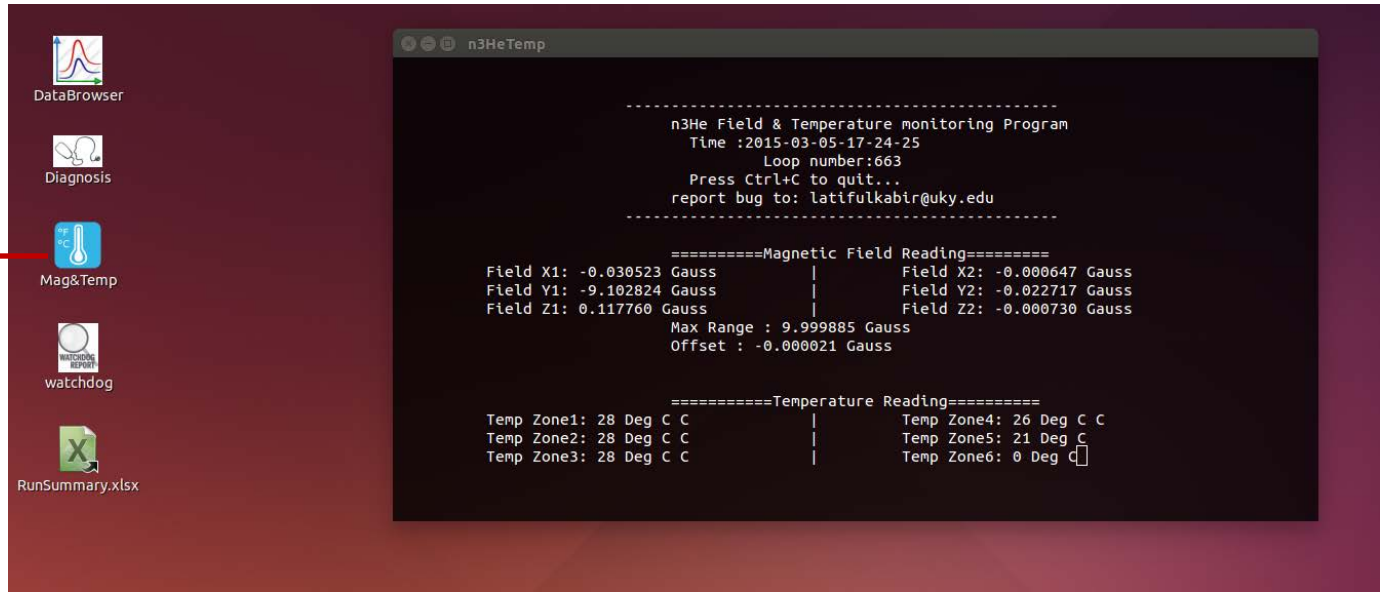
DAQ22 ch-24

DAQ24 ch-24



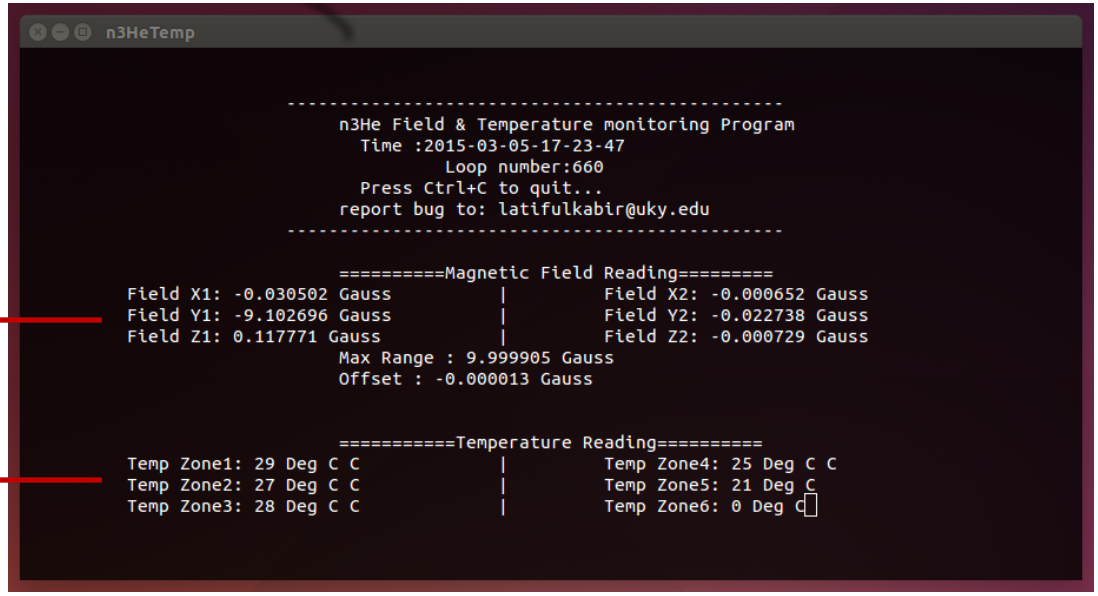
3.Magnetic field and Temperature Monitoring Program

Start the program by double clicking This icon Only if it's not already running



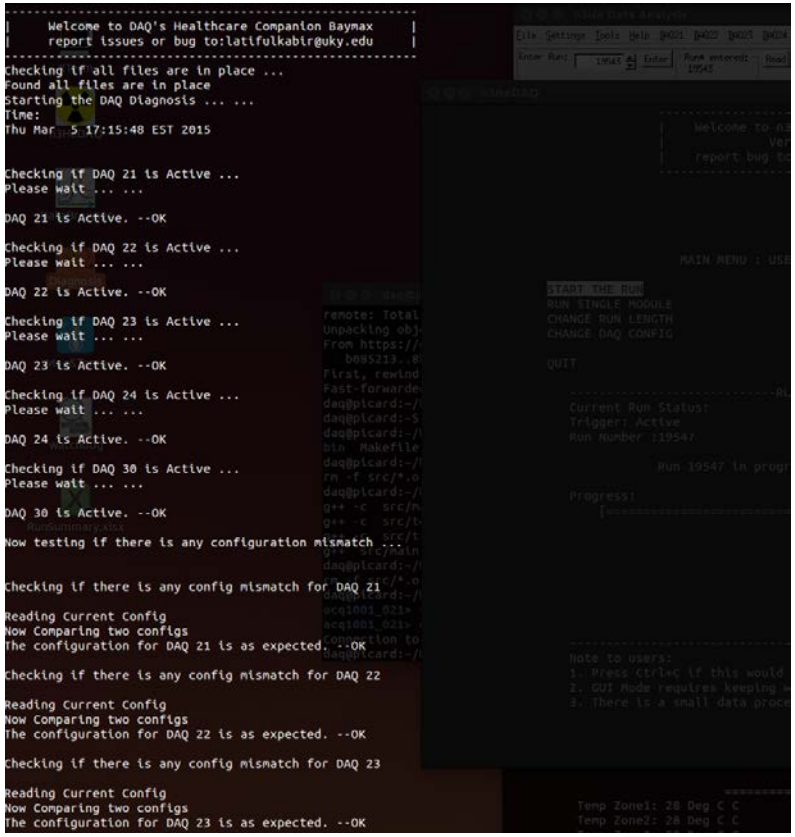
Magnetic field reading for Probe 1
The other probe is not connected.

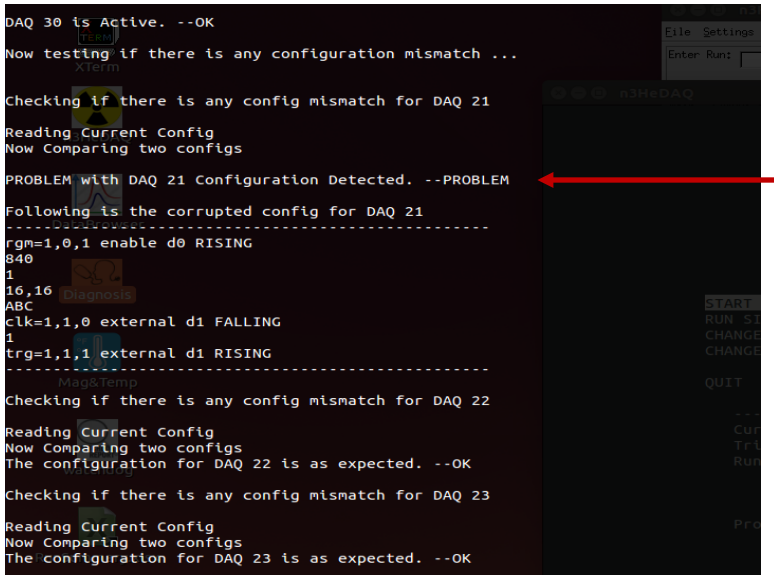
Temperatures of five zones.
The first four for four pre-amps.



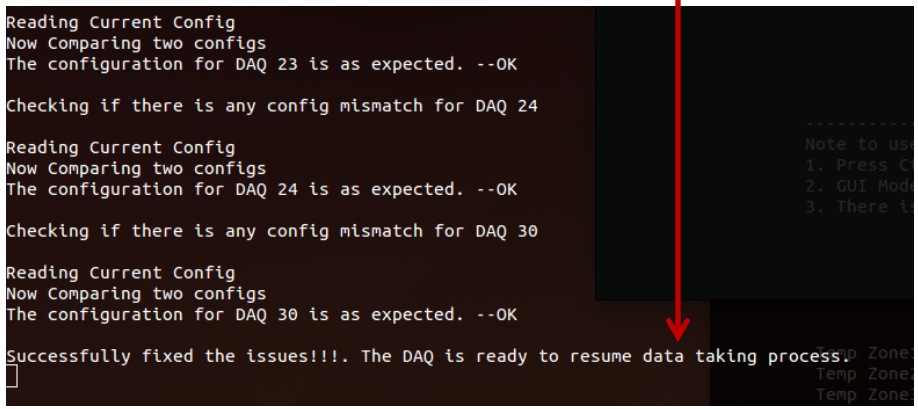
4.Diagnosis for the DAQ

Run the diagnosis program ,which is capable to detect DAQ issues and also fix it, if the DAQ is not taking data or frozen. Start the program by double clicking the icon on desktop





The program will detect if ant DAQ is has no activity or if there is Any configuration mismatch.
Then it will ask for permission to fix it itself. Type ‘y’ to give permission.
Wait until a confirmation printed before resuming data taking process.



The diagnosis program checks for DAQ Activity and configuration. So 10 OK Check will be expected if all 5 DAQs are working fine.

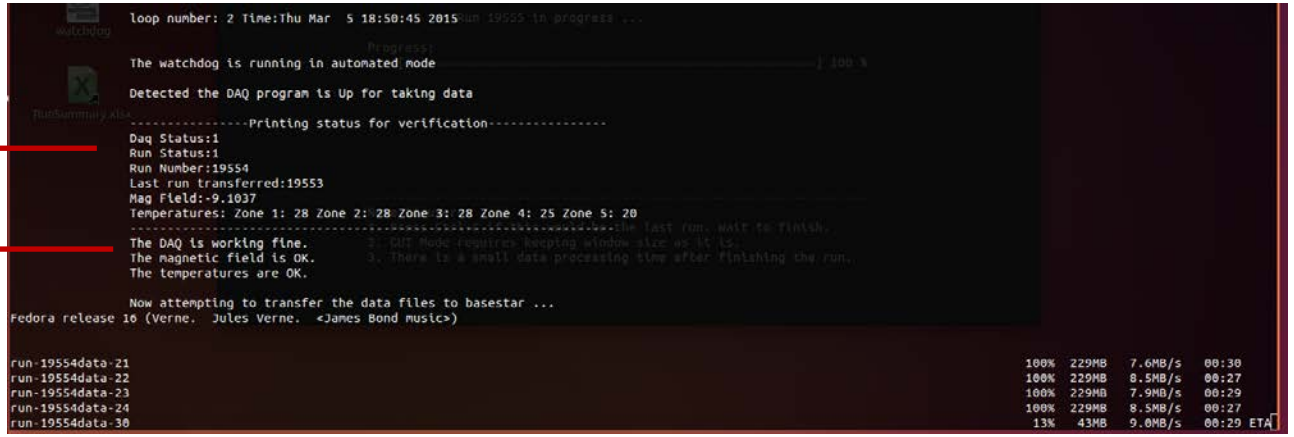
5. 24/7 Watchdog Program

The 24/7 watchdog program checks for DAQ status, critical parameters, send text alerts if DAQ is not taking data or any Critical parameter is out of range. It also transfer data to basestar. This program is expected to be running always even you are not taking data. This programs runs generally in the other workspaces, so check other workspaces to make sure it's always running.

Double click on this icon on desktop to start the watchdog program only if this not running.

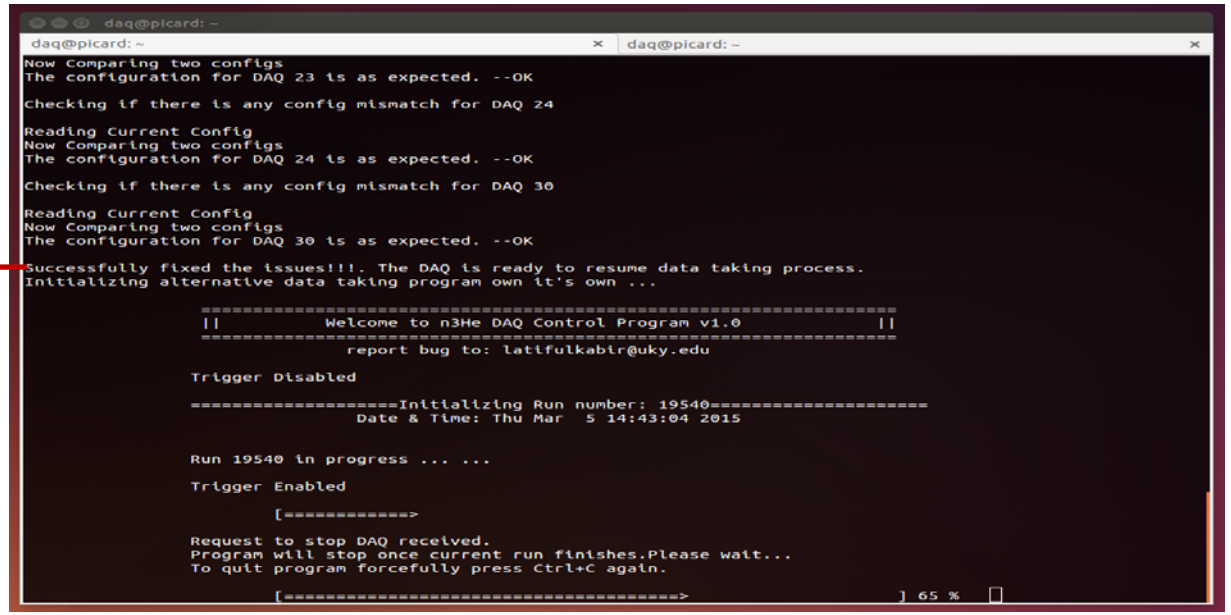
The program will print all the status Periodically for verification.

It will print if everything is OK.
If not it will send text alert.



It will periodically transfer data to basestar. It keeps record of last transferred run. It can automatically catch up if the transfer is lagging behind from last run.
However if you need to transfer run manually, From the terminal do:
transfer X Y
Where, X & Y defines the range of the runs to be transferred starting from X and before Y.

The watchdog program ,if running in auto mode, can call the DAQ diagnosis program automatically if any DAQ issue arises. The later program after detecting the issue and fixing the issue, can resume a new data taking process automatically.



6. Soft reboot and Power reset of the DAQ

Note: You are actually NOT expected to perform these two tasks since the diagnosis program can already do that for you. But in case if you need to perform any of them following is the procedure:

Soft reboot of DAQ:

If any DAQ experience any configuration mismatch, rebooting that DAQ through ssh can restore the configuration.

From the terminal do: > ssh daq21

> reboot

Wait to give the DAQ sufficient enough time to reboot properly. The above example is for DAQ 21. use daq22, daq23,daq24 or daq30 for Others.

Power Reset of the DAQ:

If the DAQ lose the activity (as a result sshing is not possible), then resetting the power can restore it. We use IP power strip to reset it to avoid entering the cave. It can be done either from the terminal or using the browser Mozilla Firefox.

Using terminal: From the terminal do: power_reset 21

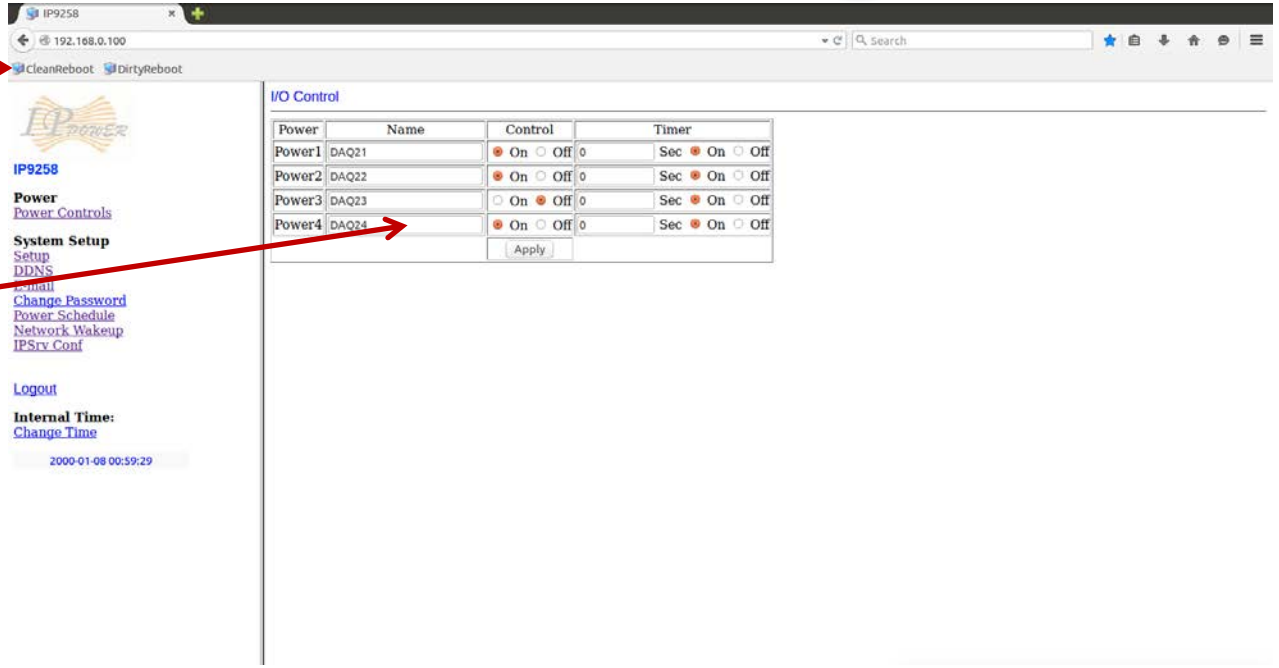
The above example is for DAQ 21. For others use 22,23,24 or 30 instead of 21.

Using browser:

1. Open Mozilla Firefox by double clicking this icon on desktop.

2. For DAQ 21 to 24 click on Clean and for DAQ 30 click on dirty

3. From the I/O Control window For the corresponding DAQ: Select Off > submit . Now select On > submit.



Frequently Asked Questions (FAQ)

1. Q. Picard (The DAQ control computer) is locked. How do I unlock it ?
   A. Use user name daq. You are expected to remember the password. It is written somewhere in the paper log book. Please find it.
2. Q. The DAQ control program is frozen while taking data and I can not quit it in the systematic way as recommended ?
   A. The other button is not expected to respond unless it finishes data taking process. Sometimes because of config mismatch in the DAQ the run will continue at a very tiny sample rate and will not finish. Only in that case use forced closure procedure(x button on left top) to close the program.
3. Q. The diagnosis program can not find any issue. Still why the DAQ control program is not taking data ?
   A. Make sure the external hard disk is mounted and NOT full. If external hard disk is fine and diagnosis can not find any issue, then just close the DAQ control program and start the data taking process. This will fix if the data streaming was interrupted because of any other networking related issue.
4. Q. I see the program mostly freezes at he end of run. Why is that ?
   A. The progress bar actually represent only one DAQ (DAQ21). Since all the DAQs are threaded. So that should also represent the progress of all others. But in case the problem happens for any one DAQ other than 21, then you see the progress bar reaches 100%, but does not start new run as one of them did not finish or has an issue. Run the diagnosis program to know which DAQ has issue.
5. Q. In the data browser main tab, I see all plots are OK, except for one or more DAQ signals which appears as straight line ?
   A. That data file has a header in incorrect position which destroys the tree structure. Since header is way bigger than actual signal, you see a flat line. In this case just note down the run number in the paper log book.
6. Q. The DAQ is not taking data as beam is off or some other reason. Should I close the watchdog?
   A. NO. The watchdog should be running 24/7 even you are not taking data. The watchdog is smart enough to identify if DAQ control program is closed or stopped by user. So it would not send unnecessary text alert.