

Thursday, June 5, 2025

FRIB DAQ Operation

General information

- The FRIB DAQ is run from the spdaq26 Linux computer, which has the IP address 192.168.41.17
- The DAQ writes 2 types of events: physics events and scaler events
- Physics events are read when a trigger is detected on the NIM I1 input of the VMUSB
- Scaler events are read periodically (every second by default)
- The list of modules read for each type of event is configured in a special file called **daqconfig.tcl** located in the **~/readout** folder

Logging in

From a terminal window on attpc-blue, type:

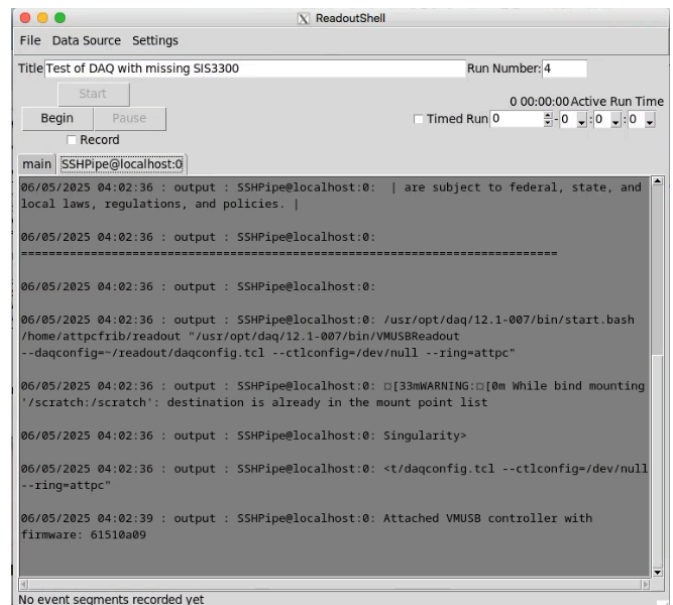
```
ssh -X -Y attpcfrib@192.168.41.17
```

And enter the password

Frib2025!

Setting up the DAQ

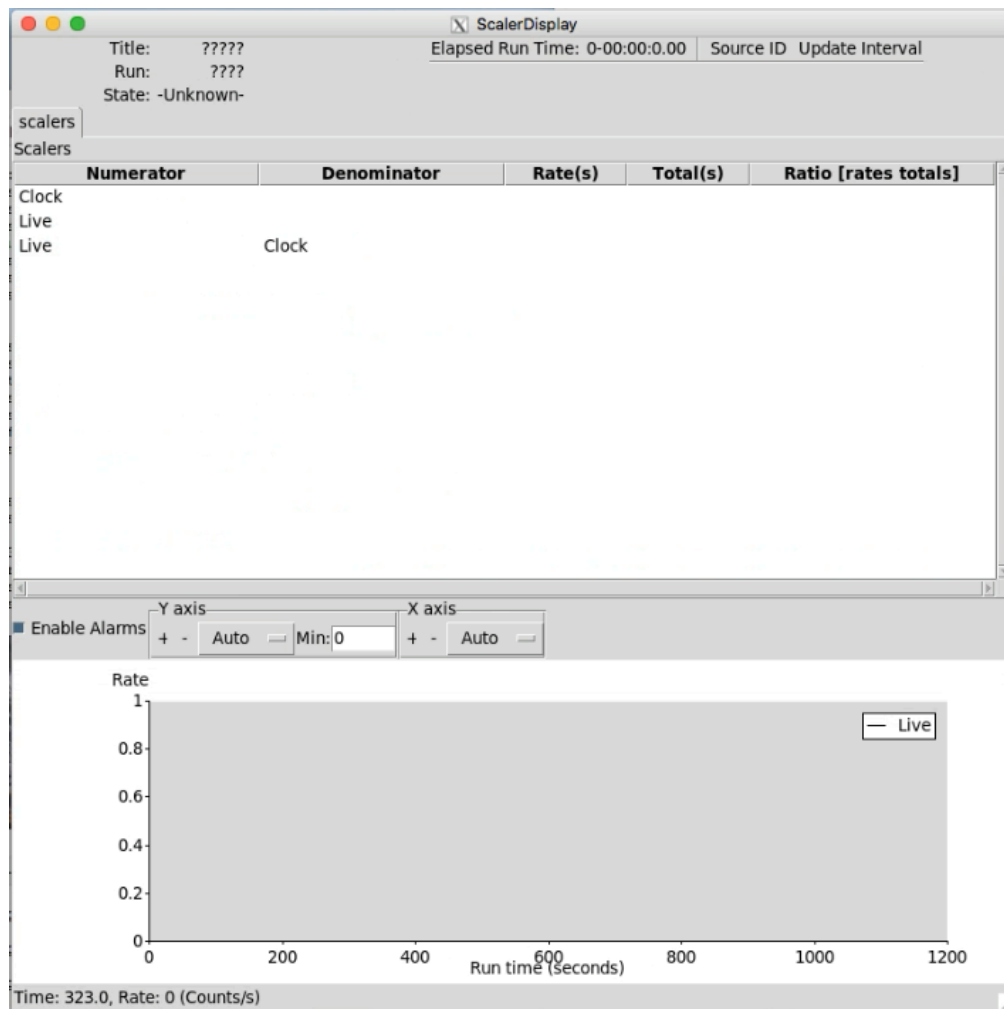
- Navigate to the folder **~/scripts**
- The command to setup the DAQ is
`./godaq`
- Then press the **“Start”** button to initialize the DAQ system
- Press the **“SSHPipe@localhost:0”** tab next to the **“main”** tab
- You should see a window similar to the one displayed on the right, showing at



the bottom the VMUSB attached

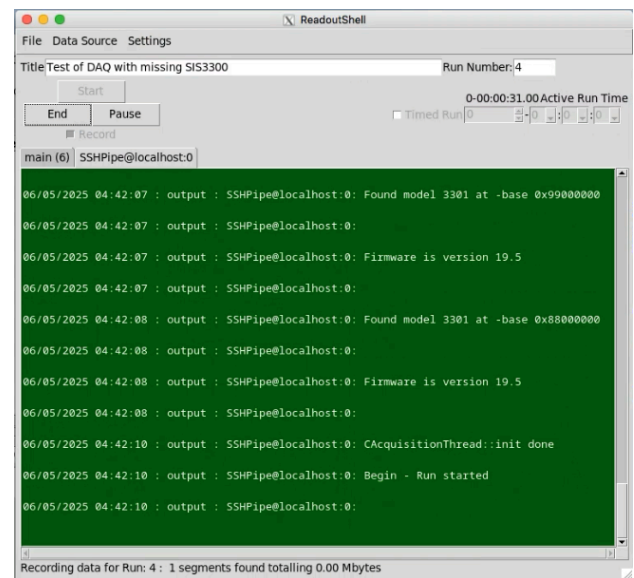
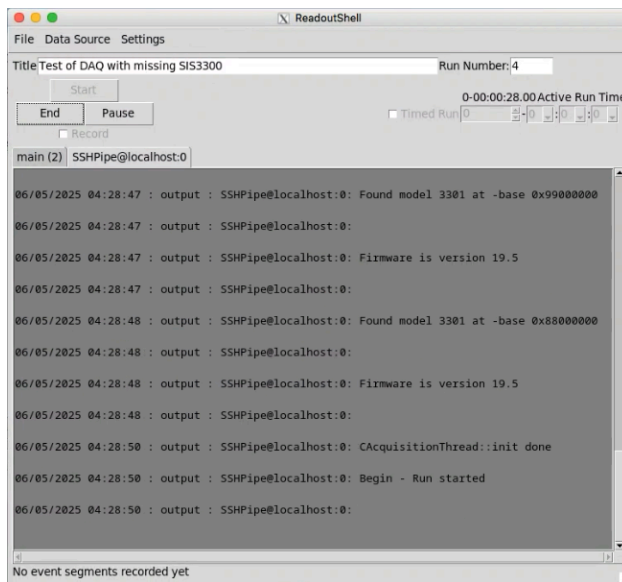
Setting up the scaler display

- From another terminal, navigate to the same **~/scripts** folder and start the scaler display:
`./goscalers`
- The scaler display window should popup, which contains rates, totals, ratios as well as a chart displaying the history of some selected channels
- The scaler display configuration file is named **scalers.def** and is located in **~/readout**



Beginning a run

- First set a sensible title for the run in the “**Title**” field of the GUI
- Next verify that the run number is correct and change it if it isn't
- Then decide whether to record data on disk or not by click the “**Record**” box or not
- Note that run numbers are automatically incremented whenever the “**Record**” box is enabled
- Finally press the “**Begin**” button to start acquiring data
- The DAQ GUI window should look like below
 - Grey background: no recording of data to disk
 - Green background: recording data to disk, and displaying the run size
- The scaler display window should become live and show rates



Ending a run

- Simply press the “**End**” button
- If the “Record” box was enabled, the run number will increment automatically

Run file location

- Once a run has ended, the run file is located in the folder **~/stagearea/experiment/runNNN** where NNN is the run number
- The run file name is **“run-NNNN-XX.evt”** where NNNN is the run number and XX is the iteration number starting at 00
- There is also a folder called **~/stagearea/complete** that contains symbolic links to each of the run files using the same naming convention for easy access

Troubleshooting

- If there is some kind of error when setting up or starting the DAQ, it could be that some ring buffer process has not ended properly. In that case go to the ~/scripts folder and type the command:

```
./restartrings
```