

muX DAQ/Analysis after R22

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Online DAQ:

- New DAQ PC (muX-DAQ)
- Runs with most recent ROOT/Midas/gcc/cmake/...
We will try to keep it so
- Online DAQ software ran in `/home/muX/mux-daq`
- Online data, histograms, Slow Control History, ... in `/media/muX/HD01/R2022`
- Analyzer config in `/home/muX/mux-daq/analyzer/config`
- Run database in `home/muX/mux-daq/runDB`
- Hiccups:
 - Needed to recompile the SIS I100 drive after muX-daq restart sometimes
 - VME controller failure, or module-slot problems, or ... ?
 - HV logging

From outside:

```
Host muXDAQ
Hostname muX-daq
User muX
ForwardX11 yes
ProxyCommand ssh -A -W %h:%p hop.psi.ch
```

Analyzer

- Produces ROOT files well
- Runs both online as offline
- Online mode:
 - creates online.json in /home/muX/mux-daq/analyzer/config from the online odb
 - Detector calibration and related in config.json
- Offline mode:
 - Needs equipment.json (an ODB json save from the /Equipment tree)
 - Same config.json
 - For offline analysis, save your configs in e.g. config_MH_R2022.json, and cp to config.json
- Pending development:
 - Tree writer. No ROOT TTree's are produced. Can be partially ported from the old analyzer (*tree_analysis.cpp*). Preferably with some improvements. Make a flat tree, no objects to tree! Some development in *writing_to_trees* branch
 - In web page histogram viewer development. The analyzer start a ROOT server, so histograms are in principle accessible. We do have a prototype from Cedric, <https://muon.npl.washington.edu/elog/neutralcurrents/Analysis2019/40>, does not work with most recent JSROOT.

Run Database

- We did manual logging <https://docs.google.com/spreadsheets/d/1ka0PBku1fj6ccj852GRfrQxadSE5MGhwycK1uaw7Ds/edit#gid=0> + notes in the elogs
- Turned the sqlite database on at some point:
 - HOWTOs in the elog
 - I will try to add the previous runs
 - We have also saved a odb dump for each run
- Produced by db_fe.cpp. Nice update would be that it adjust the database structure to the odb structure

```
CREATE TABLE run_info(run_nr INT PRIMARY KEY, comment TEXT, source TEXT, start_time TEXT, stop_time TEXT, target TEXT, beam INTEGER, calibration INTEGER, production INTEGER, test INTEGER, momentum REAL);
sqlite> select * from run_info;
31597|Beam on natural potassium hydroxide|22Na 60Co 137Cs|2022-09-19 14:27:02|2022-09-19 14:29:04|KOH|||0|0||0.0
31598|Beam on natural potassium hydroxide | turn on run DB|22Na 60Co 137Cs|2022-09-19 14:29:27|2022-09-19 14:29:38|KOH|||0|0||0.0
31599|Beam on natural potassium hydroxide | turn on run DB|22Na 60Co 137Cs|2022-09-19 14:32:59|2022-09-19 14:39:17|KOH|||0|0||0.0
31600|Beam on natural potassium hydroxide | turn on run DB|22Na 60Co 137Cs|2022-09-19 14:39:18|2022-09-19 14:45:40|KOH|||0|0||0.0
31601|Beam on natural potassium hydroxide | turn on run DB|22Na 60Co 137Cs|2022-09-19 14:45:42|2022-09-19 14:52:04|KOH|||0|0||0.0
31617|first beam data on SDD|55Fe 241Am 109Cd|2022-09-19 17:38:27|2022-09-19 17:44:52|Li2O|||0|0||27.5
```

Data backup

- Leuven has one disk. For this we used the MIDAS *lazylogger*
- No MIDAS *lazylogger* to ftp anymore :(
- New paradigm: <https://www.psi.ch/en/awi/scicat>
- Have been working to get this going: see <https://muon.npl.washington.edu/elog/neutralcurrents/Run2022/5> thread
- Very much geared towards fixed *beam-line instruments* measuring *sample*, operated by PSI staff
- Work in progress ...
 - Still have password prompts
 - Final tape-archiving not available
 - Hangs on work in progress ... something is uploaded though
- Can in principle be used for derived data

Datasets /

Search Clear

Text Search

Location

Group a-35581

My Data All Public Data All Archivable Retrievable Work In Progress System Error User Error

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<input type="checkbox"/>	Name	Source Folder	Size	Start Time	Type	Proposal ID	Group	Data Status
<input type="checkbox"/>	muX2022_test_backup_30000_30009	.../R2022/mid	2 GB	2022-09-07 Wed 13:52	raw		a-35581	work in progress

Add to Cart

Git

- Please use git. It is not that hard, and everyone is using it.
 - git add, git commit, git push, git pull, git merge, git checkout, git checkout -b
- Work on you own space, account
 - ... /home/muX/mux-daq/ is for online running
 - One can use muX-daq of course
 - Have a relative recent operating system with ROOT6 (compiled with c++17), MIDAS, cmake. The old muX boxes are out or need an OS update
- Use branches:
 - *online* for online
 - *master* as a stable version (currently = online)
 - *dev* as a generic dev branch
 - Make your own, use *merge* to share or import developments
 - The old daq is in *old_master*. DO NOT merge old branches in new ones. cp the files over if you need them, and *git add* them
- Also for you analysis scripts. yes , you work is useful for other too.