G22-E0018 shifter manual

V 0.0.1, May 2024

Welcome to the nuclear two photon experiment, a.k.a. G22-E0018 (E018)!

Access

Locations

The location for shifters is mainly in the the so called AP-Messhuette a.k.a. ESR-Messhuette. Here the DAQs are placed and also working place with the main computer.

It is possible that during settings people gather in the Main Control Room, a.k.a. HKR.

Please make sure you have the plastic guest card, otherwise you can not open the door of the ESR-Messhuette.

Telefon numbers

- Main control room: +49+6159-71-2245
- ESR-Messhuette fix: +49+6159-71-2880
- ESR-Messhuette mobile: +49+6159-71-3880

Telegram / Mattermost

Telegram invite Link:

https://t.me/+hBH2_jv-cDpkZDZi

Mattermost invite Link (as always, on Helmholtz-Mattermost everyone can log in using their own institute's account):

https://mattermost.hzdr.de/signup_user_complete/?id=wostccxu1fnxbphiwtixoetjky&md=link&sbr=su

Usernames / Password

The user name and password for the Linux machines during experiment, also for ELOG:

- user: litv-exp
- pw: you know the password, don't you?! :-)

ZOOM sessions

The main zoom session of the experiment, specially the 3 p.m. zoom meeting.

- Meeting number: 683 7660 9383
- Password: 000

Accelerator meetings mornings and at 12:45

https://gsi-fair.zoom.us/j/68557152344

Data flow

DAQ consists of 2 Tektronix RSA5000 series devices which are getting trigger from the accelerator. Here we use the new timing system GENESYS which works very reliably.

The data is recorded on a local hard disk raid. Then transferred to LUSTRE file system on the Green Cube using a script called *queqiao* with GUI. Finally another script creates another copy of the data, the spectra and also PNG files. Finally the PNG files are transferred on the WWW server for view.

Computers

The main shift computer is the *LXG1056*, here also a ZOOM session is running, showing the output of the first transfer script *queqiao*.

There is a spare Linux computer *LXG1477* as a general purpose device which should not be used for serious work.

There are three windows devices: *ATPPC007* for general purpose access, and *ATPPC019* which is the ZOOM computer with Audio/Video in the AP-Messhuette, and finally *ATPPC030* which is the streaming device.

Scripts

All scripts are on GitHUB. This is just FYI, you don't need to do anything in this respect, since all is running automatically.

Copy script from disks to LUSTRE:

https://github.com/ruijiuchen/queqiao

Analysis on Lustre:

https://github.com/xaratustrah/e018_scripts/blob/main/e018_looper_df.py

Further analysis:

https://github.com/DFreireF/rionid

Documentation

ELOG

The ELOG is available under https://elog.gsi.de/esr/E0018/. You can use the same user name and password.

Lassie Monitor

On the special purpose accelerator computers there is a possibility to make screen shots. Some of these screen shots go into GSI-wide Clipboard system, which is accessible as a URL. You can open the URL in a FireFox and then save it locally, then upload on the ELOG.

Lassie Monitor shows the SIS and ESR Current, sometimes you can have a look on it. The main devices interesting for us are:

- GS09DT_ML --> SIS current
- GE02DT_ML --> ESR current

Viewing possibilities

Analysed file server

Under the following link, it is possible to view the result of the recent injections.

https://sparc-daq-02.gsi.de/

This server is available worldwide (also outside GSI network). It shows the result of the analysis of 2 RSA devices each in full span and zoom version.

The upper one is connected to RSA01 (currently 410 MHz) and the lower one is connected to RSA02 (currently 245 MHz).

Livestream

there is a livestream of the beam available under following link, that can be viewed on any device, also private phone (also outside GSI network).

https://www.twitch.tv/xaratustrah

Lamps on the RSA

During the normal operation the "RUN/STOP" button of both RSAs should be green.

Also every injection causes the green indicator "trig'd" to turn on every RSA and cycle to the white / green.

If you are in the main control room, you hear a beep for every injection.

Queqiao file transfer

The first stage file transfer runs on *LXG1056*, you can also watch it on zoom. If it crashes, you can run in according to instructions on an ELOG entry. You can see how files are being transferred by checking the dates/times. Yellow indicates files under transfer, green indicates already transferred ones.

e018_looper script (for advanced users only!)

This one is running on a separate screen session. Usually you don't need to do anything here, but you can:

ONLY FOR ADVANCED USERS or IF YOU ARE FAMILIAR WITH GNU SCREEN!

Open a terminal on *LXG1056*. Then login to *LXIR131*

```
ssh lxir131
```

connect to screen:

```
screen -DRS 8278.e018_copy_scripts
```

RSA01 file copy is running on screen 0, if something crashed, you can type:

```
cd /u/litv-exp/git/e018_scripts
mamba activate E0018
python3 e018_looper_df.py --config e018_path_config_rsa01.toml
```

RSA02 file copy is running on screen 1, in case of crash you can type:

```
cd /u/litv-exp/git/e018_scripts
mamba activate E0018
python3 e018_looper_df.py --config e018_path_config_rsa02.toml
```

Remember to detach after this, by *ctrl-A* then *d*.

DO NOT CLOSE, ONLY DETACH!

Shifter's todo

It is good to know that the DAQ is independent on all file transfers and scripts. As long as the RSAs are triggering, the data is recorded and not lost. All other things can in principle crash and restart, the data is saved nevertheless.

You can have an eye:

- Look at the live stream
- RSA green lamp "RUN/STOP" should be green
- RSA Trigger lamp that switches between green / white
- Queqiao file transfer
- On the WWW server: even if the pics don't look good, at least the file stamps are being updated
- ONLY FOR ADVANCED USERS: open the screen session and check the *e018_looper* script