

BRIKEN Experiments May-June 2017
RIBF127, RIBF128, RIBF148
Running Gasific-7.0 acquisition program
(29/05/2017)

Computer: IFICdaq.riken.jp (IP: 10.32.6.166)
User: dacq
Password: BRIKEN2016
ELOG: <http://ribf-exp.riken.jp/eelog/BRIKEN2017-June/>
Working directory: /data/YMMRIBFXXX/
Configuration file: YMMDDConf_BrikenFull.xlsx

RUN PROTOCOL DURING SHIFT:

Desktop 1

- 1) Start a new measurement (in **DACQ Control** tab in **MainWindow**):
 - a. **Start File** (enter dlt filename: **YMMDD_HHMM_XX**; HHMM=Start-time, XX=BigRIPS-Setting)
 - b. **Start Online**
 - c. **Start DAQ**
 - 2) Check that the BRIKEN spectrum is incrementing. Check that the new **dlt** file has been opened and is incrementing (type **ls -ltrh** in a terminal).
 - 3) **Check the Sync Monitoring in Desktop 2.**
 - 4) Make the corresponding entry in the **ELOG** using the template (copy-paste from previous entry): Shifters, Date, Start time, BRIKEN DLT filename, BRIKEN run number, AIDA run number (filename), BigRIPS run number
 - 5) **Check** the important **histograms** periodically. **Online tab** in **MainWindow**. **Calibrated** sub-tab. Energy histograms: Ancillary: F11_PL_R (and _L), Si_T (and _B), V_PL_T (and _B), and AIDA_PL. **Correlated** sub-tab: Energy histograms: BRIKEN, Clovers: D4 and G7. Rate histograms: RateBRIKEN, RateD4, RateG7, RateF11R, RateSiT, RateSiB, RateAIDAPL. Time correlation histograms: Corr_BR_BR, Corr_R1_R2, Corr_BR_G7, Corr_BR_F11R, Corr_BR_SiT (and _B), Corr_BR_AIDAPL, Corr_F11R_Clovers.
 - 6) Write in the ELOG: RateBRIKEN, RateF11R, RateClovers.
 - 7) After about 1 hour (and in accord with BigRIPS DACQ) stop the measurement (in **DACQ Control** tab):
 - a. **Stop File**
 - b. **Stop DAQ**
 - c. **Save online histograms** (in **Online** tab). Enter ROOT filename: **YMMDD_HHMM_HHMM_XX.root**, and **PRESS SAVE** (HHMM: start and stop time)
 - d. **Check** that the *.root file has been written (type **ls -ltrh** in a terminal).
 - e. **Clear online histograms** (in **Online** tab) if you don't want to accumulate statistics
 - f. **Stop Online**
 - 8) Fill the information in the **ELOG** (Stop time, BRIKEN run number, AIDA run number, BigRIPS run number, any additional info)
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How to start from scratch and run BRIKEN DACQ

1) Start Gasific-7.0

- Make sure that you are on **Desktop 1**
- You should see four terminals labeled *AcqRead*, *GUI*, *RootDisplay*, and *ConfClock*. **NEVER KILL THESE TERMINALS.**
- Check that you are in the right working directory on the 4 terminals
- In the *ConfClock* window type **ConfClock_external** and press enter to start the common clock for synchronization with AIDA and BigRIPS. The window becomes **GREEN**. Unless the VME crates are reset there is no need to repeat the command even if you stop Gasific-7.0.
- Type in the corresponding terminal the commands **AcqRead**, **GUI_DAQ**, and **RootDisplay**, and press enter in order to launch the Gasific-7.0 processes. The **MainWindow** panel and the **ROOT canvas** will open.
- NOTE: To stop Gasific-7.0 processes: ctrl+C in all of the three terminals *AcqRead*, *GUI*, and *RootDisplay*. If the data acquisition stacks or you don't have control on the *GUI* or *ROOT display* you will need to do that, in order to restart Gasific-7.0.

2) Load the proper configuration file

In the **MainWindow** panel:

- Click on **Config Module** tab
- Click on **Load Config** button
- A menu with possible configuration files will appear. Select the right configuration file (*.xlsx), and click the **Open** button
- Wait until the file is read (monitor the progress in the *GUI* terminal) and click the **Send to Hard** button. **Be patient** it takes about 1 minute to load all parameters in the digitizers (monitor the progress in the *AcqRead* terminal, wait until the line "List of controllers defined" followed by 4 additional lines appear)
- NOTE: If at any moment you **load a new configuration file** an the Sync Monitoring process is already running (see below) do not forget to press **Send Sync pulse** in the DAQ Control tab

3) Start the Sync Monitoring display

See detailed explanation in the Appendix at the end.

5) Start/stop acquisition

In the **DAQ Control** tab:

Without list-mode data:

Start:

- Click on **Start Online** button
- Click on **Start DAQ** button
- Click the **Reset** button to clear the *DAQ Statistics* counters

At this point you should see that the *DAQ Statistics* counters are being updated.

Stop:

- Click on **Stop DAQ** button
- Click on **Stop Online** button

With list-mode data:

Start:

- Click on the **Start File** button. You are prompted for a **File name**. Use the format **YYMMDD_HHMM_*** (the extension **.dlt** will be added by the system). **DO NOT ENTER A RUN NUMBER**. The *Run number* is automatically incremented by the system. Instead check that the *Run number* has been effectively incremented respect to the last written file (if this is not the case then provide a run number higher than the last one). Click the **OK** button.
- Click on the **Start Online** button
- Click on the **Start DAQ** button
- Click the **Reset** button to clear the *DAQ Statistics* counters
- Check that the **dlt** file was opened and is incrementing (in a terminal on the right directory type **ls -ltrh**)

Stop:

- Click on the **Stop File** button in order to close the current **dlt** file
 - Click on **Stop DAQ** button
 - Click on **Stop Online** button
-

6) Visualize online spectra

In the **Online** tab:

- Click on **Raw, Calibrated, Correlated,** or **Groups** sub-tabs to see the list of corresponding types of spectra to display
- **Click on the name** of the spectra that you want to visualize. It will be displayed in the *RootDisplay* window (*Canvas*)
- On the *Canvas* you can select **Auto Update, Log Scale** or **Overlay**. Be careful with the use of *Overlay* as it can slow the display process considerably. You can also use most of the usual interactive ROOT commands (zoom, change line color, ...) but **avoid the use of Fit or Rebin**. Instead save a ROOT histogram file (see below) and work off-line with it.

7) Save and clear online spectra

In the **Online** tab:

- Click on the **General** sub-tab
- Click on **Save online histograms** to save all online spectra into a root file. You are prompted for a file name. Enter it using the format **YYMMDD_HHMM_*.root** and click **Save**. **DO NOT USE ENTER/RETURN**. Please **verify** that the file has been effectively written on disk (in a terminal on the right directory make **ls -ltrh**).
- Click on **Clear online histograms** to delete all online spectra. You are asked to confirm the operation. **THINK BEFORE YOU ERASE THE HISTOGRAMS**.

Troubleshooting: Call an expert! (Jorge, Alvaro, Jose)

Otherwise:

If RootDisplay do not respond (operation with the canvas blocked):

1. Ctrl+C in RootDisplay terminal
 2. Restart Rootdisplay (RootDisplay + ENTER)
 3. Load config (choose the right one!)
 4. DO NOT SEND TO HARD!
 5. Stop Online + Start Online
 6. Ready!
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LIST OF HISTOGRAMS:

Raw: V1A1C1, ..., V1A7C16, V2A1C1, ..., V2A7C8

V: VME crate number: 1 or 2, A: ADC number: 1-7, C: channel number: 1-16, 1-8

(For displaying of individual raw energy histograms)

Groups: GV1A1, ..., GV1A7, GV2A1, ..., GV2A7 (G: for groups)

(For simultaneous display of all raw histograms from one ADC)

Calibrated:

He001, ..., He140, D4Black, D4Red, D4Green, D4Blue, G7Black, G7Red, G7Green, G7Blue,
F11_PL_R, F11_PL_L, F11_PL_R_LG, F11_PL_L_LG, Si_T, Si_B, V_PL_T, V_PL_B, AIDA_PL,
Sync Pulser, DT Pulser

(For displaying calibrated energy histograms of individual detectors)

Correlated:

BRIKEN, Ring1, ..., Ring7, D4, G7, Clovers

RateBRIKEN, RateR1, ..., RateR7, RateD4, RateG7, RateG7Black, RateG7Green, RateClovers

RateF11R, RateVPLT, RateVPLB, RateAIDAPL, RateSiT, RateSiB

Corr_Br_BR, Corr_R1_R2, Corr_BR_D4, Corr_BR_G7, Corr_BR_Clovers, Corr_D4_G7,

CorrG7BlackGreen, Corr_BR_F11R, Corr_BR_VPLT, Corr_BR_VPLB, Corr_BR_AIDAPL,

Corr_BR_SiT, Corr_BR_SiB, Corr_F11R_Clovers, Corr_F11R_VPLT, Corr_F11_VPLB

(For displaying derived histograms, time histograms, correlation histograms)

APPENDIX

Synchronization monitoring procedure

In Desktop 2

To launch the processes for monitoring the synchronization between BigRIPS, AIDA and BRIKEN DACQs open 4 terminals:

Terminal 1 (DataSink) type:

```
>ssh aida@d05 (pwd: aida)
>cd /home/aida/DataPackage/DataSink/Linux64
>./DataSink -i 3
```

Terminal 2 (SynCheck) type:

```
>ssh -X aida@d05
>cd /home/aida/SynCheck
>./SynCheck
(opens a ROOT canvas with two 1D histograms and two 2D histograms)
```

Terminal 3 (BigRIPS Data Relay) type:

```
>ssh aida@d05
>cd /home/aida/ribfts/ribftssender
>./ribftssender_mar17ca debug
```

Terminal 4 (AIDA Data Relay) type:

```
>ssh npg@aidas1 (pwd: nuclear)
>DataRelayFilter -n 10.32.0.12 -p 10307 -I 2
```

In Desktop 1:

Gasific Main Window (Briken Data Relay):

- In the DAQ Control tab: Click "Start Sync Monitoring" button.
- In the pop up window set server ip and port (ip:10.32.0.12, port:10305)

To synchronize (reset all three TimeStamps):

- In the DAQ Control tab: Click "Send Sync Pulse" button

WARNING: **DO NOT PRESS Send Sync Pulse in the middle of a run**, or in general unless there is a reason for that (ask an expert)

In the ROOT panel you should see a one channel peak around 0 in the lower 1D histograms and 1 pixel peak around 0:0 in the upper 2D histograms (you might need to expand the histogram in order to see it)