BRIKEN Commissioning November 2016
Running Gasific-7.0 acquisition program
(10/11/2016)

Computer: IFICdaq.riken.jp (IP: 10.32.6.166)
User: dacq
Pasword: BRIKEN2016
Working directory: /data/1611Commissioning/161110Main/
Configuration file: 161107Conf_BrikenFull.xlsx
ELOG: http://ribf-exp.riken.jp/elog/RIBF123/

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. If the *ConfClock* terminal is yellow you are running not synchronized (running with Gasific clock).
- 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.
- 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.

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)

3) Start the Sync Monitoring display

In a terminal type:
> ssh –Y aida@d05
> cd SyncCheck
> ./SyncCheck
This will open a 4 panel ROOT canvas where you can check the synchronization between BRIKEN, AIDA and BiRIPS.

4) Start the synchronization with AIDA/BigRIPS

Needed after (re-)starting Gasific-7.0 (for example after any of the three dacq crash). Not needed for running standalone.

In the **DAQ Control** tab:
- Click **Start DAQ**
- Click the **Start Sync Monitoring** button. Enter in **Server host** the address <mark>10.32.0.12</mark> and click **OK**
- Click **Send Sync pulse** to reset all timestamps to 0.
- Check that the synchronization is working in the **Sync Monitoring** display (the other two DACQs must be running as well)
- Click **Stop DAQ**

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). <mark>DO NOT ENTER A RUN NUMBER</mark>. 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 make **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, fit, …).

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.** 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 SEN TO HARD!
5. Stop Online + Start Online
6. Ready!

When Gasific/AIDA-DACQ crashes because of LN2 filling of CLOVERS
Wait until filling is completed
1. Wait until AIDA is up and sending the 25MHz Clock pulses
2. Ctrl+C in all 3 terminals (AcqRead, RootDisplay, GUI_DAQ)
3. Restart all 3 processes
4. Check that Gasific is runing properly (Start DAQ, Start Online, Stop Online, Stop DAQ)
5. Wait until AIDA dacq is running
6. Start Sync Monitoring
7. Send Sync pulse and check
8. Start run: Start File, Start DAQ, Start Online

LIST OF HISTOGRAMS:

Raw: V1A1C1, …, V1A7C16, V2A1C1, …, V2A7C8

Groups: GV1A1, …, GV1A7, GV2A1, …, GV2A7

Calibrated:
He001, …, He140, D4Black, D4Red, D4Green, D4Blue,G7Black, G7Red, G7Green, G7Blue, F11_PL_R, F11_PL_L, Si_T, Si_B, V_PL_T, V_PL_B, AIDA_PL, V_NaI_T, V_NaI_B, V_NaI_R, V_NaI_L, Pulser

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

RUN PROTOCOL:

1) Start a new measurement:
    a. **Start File** (enter dlt filename: **YYMMDD_HHMM_***)
    b. **Start Online**
    c. **Start DAQ**
    d. Reset DAQ statics counters
2) **Check** that the **DAQ** statistics counters are counting. Check that the BRIKEN spectrum is incrementing. Check that the new **dlt** file has been opened and is incrementing.
3) Make the corresponding entry in the **ELOG**: Start time, BRIKEN DLT filename, BRIKEN run number, AIDA run number (filename), BigRIPS run number, Run info (Beam, BigRIPS setting, …)
4) Fill the **run-sheet**
5) During the measurement. **Check** the important **histograms** periodically: BRIKEN, Clovers, F11_PL_R, Si_T, V_PL_T, AIDA_PL, ... Check the Rate* histograms. Check the Corr* histograms. **Check the Sync Monitoring**.
6) Stop the measurement:
    a. **Stop File**
    b. **Stop Online**
    c. **Stop DAQ**
    d. **Save online histograms** (enter ROOT filename: **YYMMDD_HHMM_*.root**)
7) **Check** that the ***.root** file has been written.
8) Fill the information in the **ELOG** (Stop time, BRIKEN run number, AIDA run number, BigRIPS run number, Rates, additional info)
9) Complete the **run-sheet** info
10) **Clear online histograms**