

ACQUISITION SYSTEM - TRB3 (GSI) based

QUICK START USER GUIDE (no GUI, *manual acq.*)

In a nutshell, there are two essential scripts and one config file (.xml) to have the acquisition system running. The steps below assume that the trb3 software is installed in a Odroid-C2 mini-PC and that the acquired files will be saved in a desktop PC (or external disk connected to it).

Note that the steps below are for manual launching of the acquisition scripts (not using any GUI).

1. On the Odroid-C2 – TRB3 controller machine

Static IP address: 10.0.0.1 and running a **DHCP server** (assigning IPs to the machines connected to the same LAN through a switch)

User: odroid, **Pass:** odroid

[if desktop environment for some reason does not launch automatically, start it: \$startx]

1.1 Access **script directory**:

```
$ cd /home/odroid/trbsoft/userscripts/trb49
```

1.2 **Startup** TRB3 and initialize ADC AddOns (configure FPGAs) by running the script:

```
$/startup_TRB49.sh
```

→ wait until cts_gui_monitor appears (pink GUI window)

1.3 Open chromium **web browser** and access to the Central Trigger System (CTS):

1) **localhost:1234/cts/cts.htm**

- Here one can switch on and off the acquisition channels (#9 and #10) to start and stop acquisitions.

Note that the **acquisition is only** possible if:

- The IP address of the destiny machine (where the .HLD files are saved) is defined in the file 'register_configgbe_ip.db' - explained somewhere else. The script 'startup_TRB49.sh' (step 1.2) uses this information in the configuration of the acquisition.
- If in the destiny machine, the script startDABCnoSleep.sh is already executed (see step 2.2)

2) **localhost:1234/addons/adc.pl?BufferConfig**

- Here one can set some parameters on the ADCs AddOns.

Some parameters:

- Number of samples (e.g. 30)
- Thresholds of the acquisition channels (e.g. For the LYSO crystal to have equal trigger rates in both channels: ch#9: 80 and ch#10 220; for GAGG crystal: ch#9: 80 and ch#10: 160)

2. On the “Destiny Machine” (e.g. Laptop or Desktop) → Where the .HLD files will be saved

In the B16 Linux Mate 18.04, delta PC

User: daq | Pass: *****

2.1 Access the **scripts** directory:

```
$ cd home/daq/DAQ_Software/TRB_DAQ_using_DABC
```

2.2 Run the **script that launches the DABC** (GSI) based acquisition application ('dabc_exe'):

```
$/startDABCnoSleep.sh
```

Note that this script executes the command below ('dabc_exe' with a file as argument), which needs that the configuration file called '**EventBuilder_TRB49.xml**' exists. It is in the same directory.

Command executed by the startDABCnoSleep.sh script:

```
| dabc_exe /home/daq/DAQ_Software/TRB_DAQ_using_DABC/EventBuilder_TRB49.xml'
```

This .xml config. file, among other settings, have the directory and size (MB) of the .HLD files that will be sent by the TRB3 board (through the Gbit Ethernet connection). The line in the file where that settings are defined has the structure below:

```
| <OutputPort name="Output1" url="hld://path_of_hlds_files_directory/dabc.hld?maxsize=size"/>
```

Example for a directory in the external disk called 'B16_Archive' and files of size 100 MB:

```
<OutputPort name="Output1" url="hld:///mnt/B16_Archive/hlds/2019-01-17/Acquisition1/dabc.hld?maxsize=100"/>
```

Please, also note that the **directory should be created** “manually” first.

In the Acquisition GUI (it is an ANTS2 script GUI) the directory is defined in a text field and created automatically.