

CLAS12 DAQ and Trigger Operations Manual

Version 0.5

Contact Person: Sergey Boyarinov

1 Operations Manual

1.1 General Information

The CLAS12 Data Acquisition (DAQ) System is controlled by the application `RunControl`, which can be started on any clon cluster computer running Linux OS. Two environment variables (`$EXPID` and `$SESSION`) define the DAQ behavior and must be set before doing anything else. For all data taking operations the ‘clasrun’ account must be used, which will make sure that the environment is set correctly. For production running, `$EXPID=clasrun` and `$SESSION=clasprod`.

1.2 Startup Procedures

DAQ GUI always runs in VNC. To connect to VNC server run script `'daqvnc.py connect'`, open xterminal and start runcontrol in it. Sometimes VNC server have to be restarted. To do that, do `'ssh clasrun@clondaq6'` and run scripts `'daqvnc.py stop'` and `'daqvnc.py start'`. Those scripts will kill the existing daq vncserver, if it exists, and start a new one. After VNC server is restarted, connect to it using `'daqvnc.py connect'` script.

The command `runcontrol -rocs -log` will bring up the main DAQ GUI. The flag ‘-rocs’ will force the readout controller (ROC) screens to be included into the main GUI. This should always be used, unless you want to start the ROC screens in a separate GUI using the command ‘rocs’. The flag ‘-log’ will force the ROC screens to be logged into directory ‘/data/log’ if it exist. The GUI after startup is shown in Fig. ??.

To proceed, click the ‘Connect’ button. This will start the run control server rcServer in the background or connect to the existing one (see Fig. ??).

Next, click on ‘Configure’ and choose the DAQ configuration that you want to use. The DAQ configuration defines which ROCs have to be included into the readout process. The DAQ configurations are stored in the database on the host defined by the environment variable `$MYSQL_HOST`. After the configuration is selected, the corresponding xterms will emerge on the ‘rocs’ tab on the right side of the runcontrol GUI (see Fig. ??). When all processes are ready, ‘Download’ button will shows up.

Next, click on ‘Download’ and choose the trigger configuration that you want to use. The trigger configuration defines the settings to be loaded into the various electronic mod-

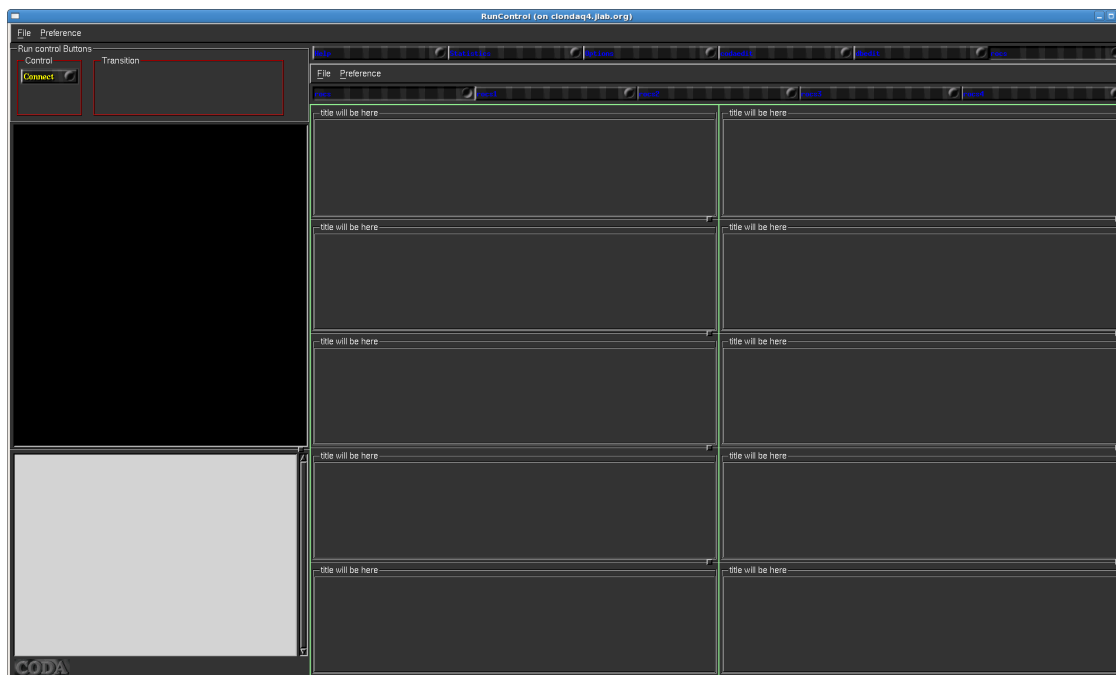


Figure 1: Runcontrol GUI after startup.

ules, both trigger- and DAQ-related. The trigger configuration files are located in the `$CLON_PARMS/trigger` directory and its subdirectories (see Fig. ??).

Finally, click on ‘Prestart’ and ‘Go’ to start a run and click ‘End’ to end it, and then click ‘Abort’. Proceed with the cycle ‘Download’-‘Prestart’-‘Go’-‘End’-‘Abort’ to take more runs.

If the DAQ has crashed, click ‘Abort’ and ‘Reset’ and start from ‘Download’.

If you want to change the DAQ configuration, click ‘Abort’ and ‘Reset’ and start from ‘Configure’.

To exit DAQ completely, click on the ‘File’ menu on the runcontrol GUI and choose ‘Exit’.

1.3 DAQ and Trigger Configuration Files

The DAQ and Trigger systems are controlled by configuration files stored in subdirectories of the `$CLON_PARMS` directory. Every DAQ module has a designated subdirectory, for example, the configuration files for the JLab FADC250 modules are stored in the subdirectory ‘fadc250’, the files for the CAEN TDC1190/1290 modules are stored in the subdirectory ‘tdc1190’, and so on. During the ‘Download’ transition, the DAQ will load the configuration

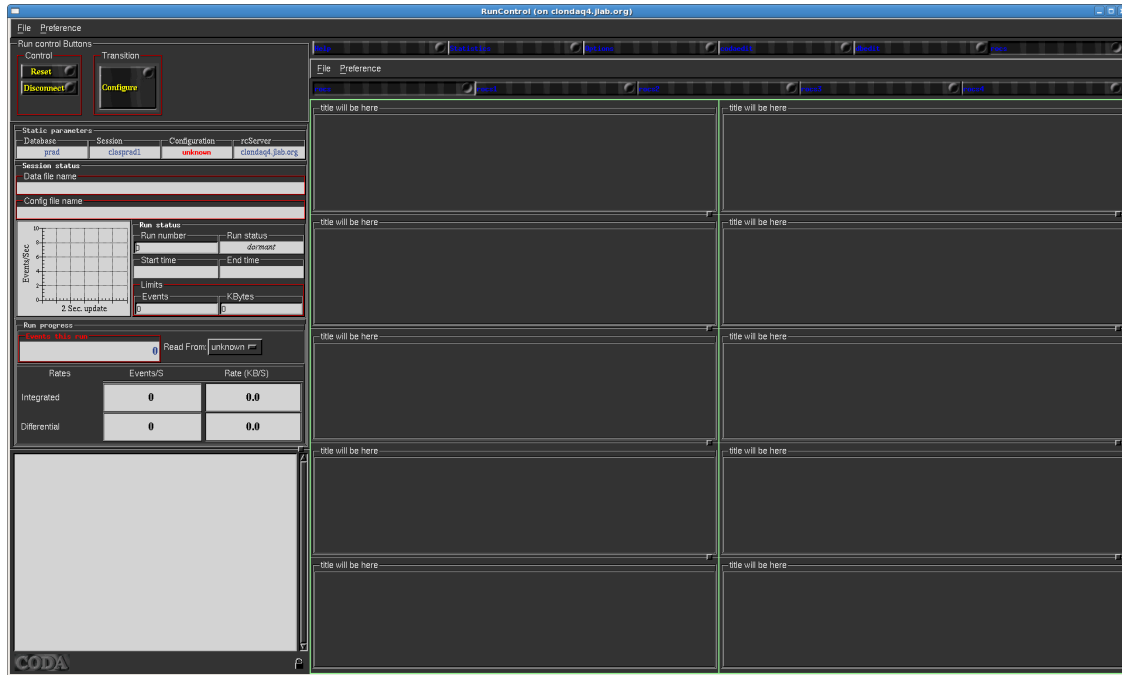


Figure 2: Runcontrol GUI after clicking on 'Connect'.

files according to the following rule: if the file 'XXX'.cnf exist (where XXX is the ROC IP name), it will be loaded, otherwise the file '\$EXPID'.cnf will be loaded. After that, the configuration file from the 'trigger' subdirectory (chosen in the 'Download' transition using the popup GUI) will be loaded, overwriting previously loaded settings if necessary.

