

MON12: the CLAS12 monitoring GUI

The MON12 application is designed to provide shift takers with basic information based on CLAS12 raw data, such as occupancies, ADC and TDC spectra, to check the detectors functionality. The pictures below show the GUI front page and example of the detectors specific tabs.

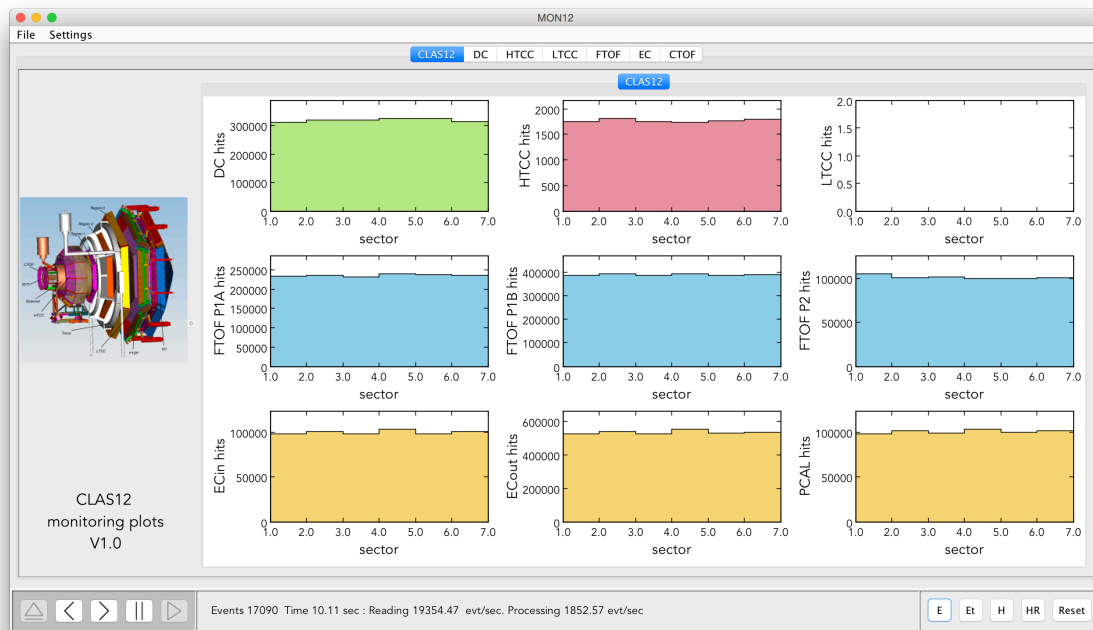


Figure 1: Front page of the MON12 GUI

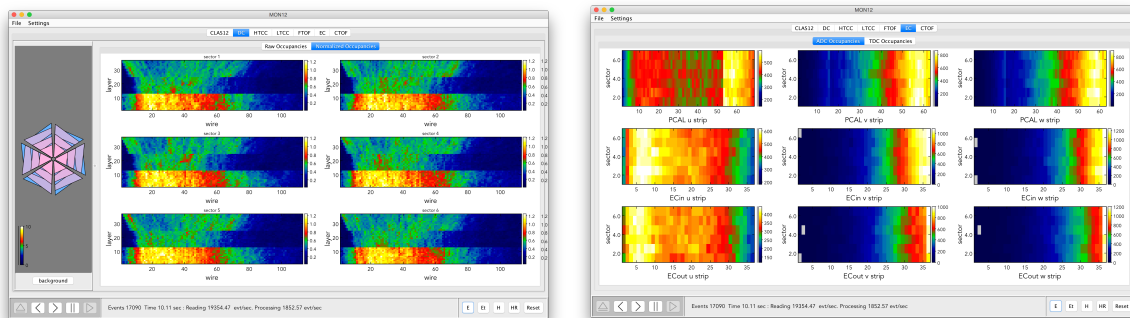


Figure 2: Example of the detector specific tabs, DC (left) and ECAL (right)

MON12 input sources

Input data for the MON12 GUI can be:

- EVIO raw data from file or DAQ ET ring,
- HIPO data from file or HIPO ring; these are obtained from the EVIO raw data running the CLAS12 common tool decoder.

The input data source can be selected clicking on the **E**, **Et**, **H** or **HR** buttons at the bottom right of the GUI.



The primary source of data for MON12 during data taking is the DAQ ET ring.

Launching MON12

To start the GUI, connect to clondaq4 as clasrun and, in a terminal, type
`mon12`

Once the GUI is opened, click on the **Et** button and enter
`localhost`

in the pop-up window that will open and click on **Ok**.

MON12 will establish a connection with the ET ring; once this operation is complete, the buttons in the bottom left part of the GUI will appear as in the following figure.



Click on the rightmost button to start accumulating events. At any time this process can be stopped with the pause button. Left and right arrows allow also moving backward and forward, one event at a time.

Once the accumulation process is in progress, plots both in the front panel and in the detector tabs will be updated every 2 sec. The update time can be modified from the **Settings** dropdown menu at the top left of the GUI. *This function presently only permits to reduce the update time.*

Resetting the histograms

At any time, histograms can be cleared clicking on the **Reset** button at the bottom right of the GUI.

Saving and printing the plots

All the plots in the GUI can be saved to HIPO file by:

- clicking on the **Save histograms to file** item of the **File** dropdown menu at the top left of the GUI;
- typing `ctrl s`.

A file chooser window will open to allow the user to choose the filename and destination folder. By default the GUI will use date and time to define the filename.

All the canvases in the GUI, including the front canvas and the detector specific ones, can be save to image files by:

- clicking on the **Print histograms to file** item of the **File** dropdown menu at the top left of the GUI;
- typing ctrl p .

MON12 will create a folder and save snapshots of all the canvases in PNG format. The folder name will be automatically defined based on the date and time.

Displaying histograms from file

Histograms that were previously saved to file can be displayed in the MON12 GUI by:

- clicking on the **Open histogram file** item of the **File** dropdown menu at the top left of the GUI;
- typing ctrl o .

A file chooser window will open to allow the user choosing the histogram file to be opened.

Available plots

Plots that are presently implemented include:

- Front canvas:
 - Number of hits per sector for DC, HTCC, LTCC, FTOF and PCAL. For detectors with both fADC and TDC readout, hits from both adc and tdc banks are included.
- DC:
 - Raw occupancies, i.e. number of accumulated hits as a function of wire and layer, for the 6 sectors.
 - Averaged occupancies obtained normalizing the raw occupancies to the total number of events.
- HTCC:
 - ADC and TDC occupancies.
 - ADC and TDC spectra.
- LTCC:
 - ADC occupancy.
 - ADC occupancy normalized to reference histogram (*not yet implemented*).
 - ADC and TDC spectra.
- FTOF:
 - ADC occupancy for the left and right PMTs in the different panels as a function of paddle and sector number.
 - TDC occupancy for the left and right PMTs in the different panels as a function of paddle and sector number.
- ECAL:

- ADC occupancy for different layers and views as a function of strip and sector number.
 - TDC occupancy for different layers and views as a function of strip and sector number.
- CTOF:
 - To be implemented.

Contact

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