AMORE TOF User's Guide

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1   Starting the *amoreAgent*

To start monitoring within the AMORE scheme, the TOF *amoreAgent* has to be started. To start it, you have to log into **aldaqdqm06** machine

```
#  ssh aldaqdqm06
```

Generally, to start the agent it is enough to type

```
# amoreAgentTOF [runNb]
```

where [runNb] is the desired run number. We need to input the run number because the agent need to setup the active LDC list to retrieve the data. In principle, if the LDC list doesn't change it works using the LDC list of previous run. For instance, if for some reason the LDC list chas changed, or if we want nonetheless update the agent with the correct run number, it is enough to start a new agent

```
# amoreAgentTOF [newRunNb]
```

to stop the running agent and start a new one with the updated run number. Clearly all monitors are reset in this case. Generally the agent should run forever.

If you are not satisfied with this behaviour you can start yourself the agent setting up the monitoring data source

```
# amoreAgent -a amoreAgentTOF99 -s [dataSource] -u -t 10
```

where [dataSource] is the monitor data source as defined by DAQ (i.e. **@gdc-aldaqpc030**, ...) but you must be aware of what you are doing since some monitoring source could be not available.

2   Configuring the *amoreAgent*

To start the AMORE configuration browser type

```
# amoreConfingFileBrowser d TOF
```

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In the top part of the frame you have a list of files and there should be two belonging to TOF: **Full.conf** (agent configuration) and **UI.conf** (UI configuration). To configure the agent select Full.conf and press the **Edit** button (sorry for not providing screenshots). The file should open in another window. Actually the agent configuration should be changed by monitor expert because it affects the agent behaviour. If you change it you should know what you are doing.

Generally, what could be useful to change is:

- deltaBCCorrection: performs deltaBC correction on data;

- histoResetAuto: automatically resets histos when needed;

- fullResetUI: allows to fully reset the agent from the UI.

Anyway, the name of the fields should be almost clear. In case you doubt don't do anything or ask Roberto Preghenella.

3 Starting the *amoreUI*

To start the AMORE Graphical User Interface log into **aldaqdqm06** machine and type

```
# amoreTOF
```

In principle the amoreUI should see the monitors produced by the active agent, but it seems that if a new agent starts and the UI is running, the UI is not able to retrieve the monitors from the agent. In this case the UI has to be restarted.

4 Graphical User Interface

4.1 Main GUI

The AMORE's main frame (Figure 1) provides three buttons which allow to perform the following operations:

- *Start* button → start the update loop. Update rate is specified in the *Update View Period* field;

- *Stop* button → stop update loop;

- *Update* button → on-demand update.

The AMORE TOF GUI does not use the AMORE's main frame for any other purpose.
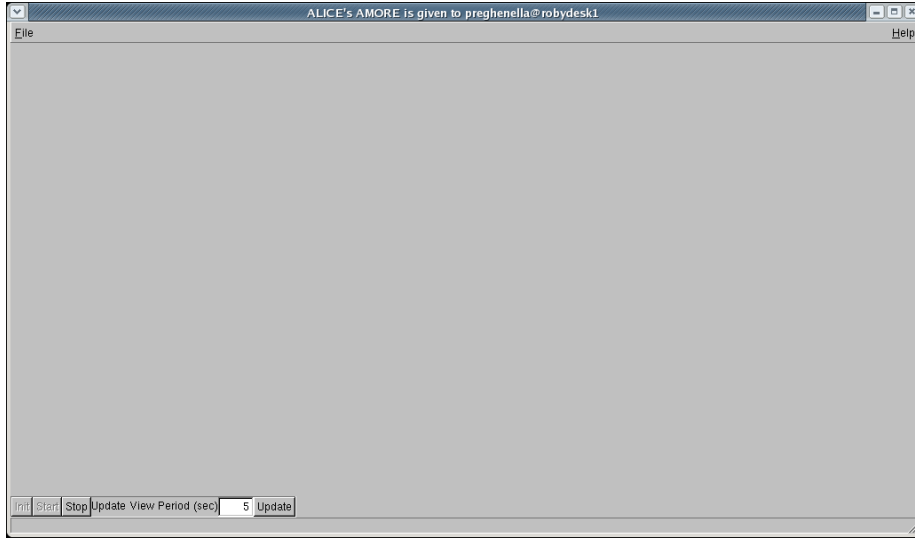
Figure 1: The AMORE's main frame.

4.2 Histogram GUI

4.2.1 Histograms

The histogram GUI allows to show the monitor histograms. The available monitor histograms are included in different *Histogram Tabs* (Figure 2):

- *Enable Map* tab → map of the channels enabled in the monitoring scheme. One bin corresponds to one FEA card and the bin content correspond to the number of enabled FEA channels (channels can also be disabled by the monitor process);

- *Noise Map* tab → map of the channels declared as noisy. One bin corresponds to one FEA card and the bin content corresponds to the number of noisy channels in the FEA;

- *Hit Map* tab → (top) map of the number of hits. One bin corresponds to one FEA card and the bin content corresponds to the number of hits in the FEA; (bottom) histogram of the normalized FEA hit rate;

- *Time spectrum* tab → (top) map of the time spectrum as a function of the crate; (bottom) time spectrum of selected crate (all TOF or specific crate);

- *TOT spectrum* tab → (top) map of the TOT spectrum as a function of the crate; (bottom) TOT spectrum of selected crate (all TOF or specific crate);
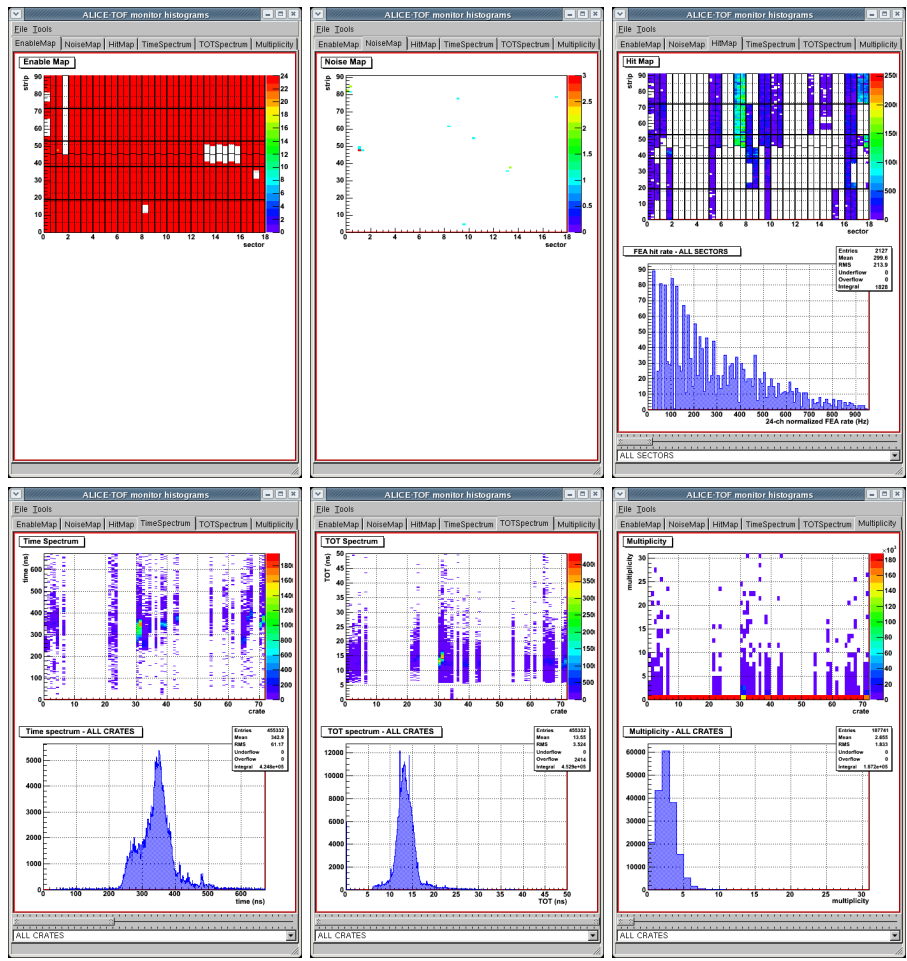
3

Figure 2: The available *Histogram Tabs* and the corresponding histograms.
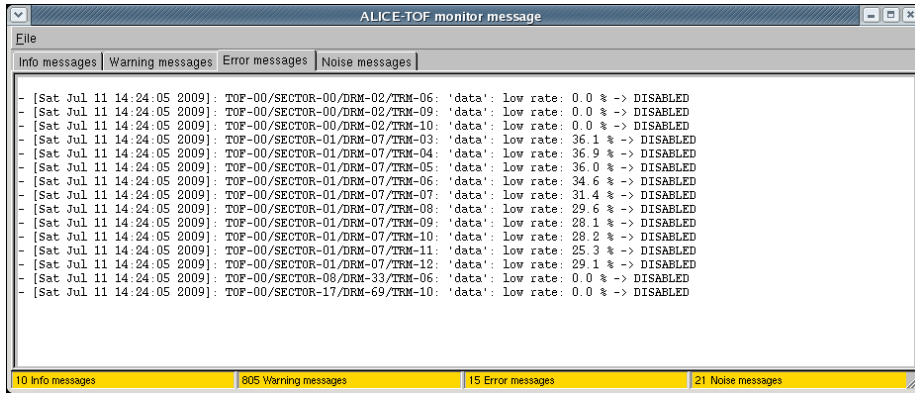
Figure 3: The TOF message GUI.

- *Multiplicity* tab → (top) map of the multiplicity as a function of the crate; (bottom) multiplicity of selected crate (all TOF or specific crate).

Histogram range can be modified using the *Horizontal Slider* located just below the *Histogram Canvas* in the *Histogram Tabs*. Histograms displayed in the bottom part of the *Histogram Canvas* are obtained from the top histograms and can be modified using the *Select ComboBox* located below the *Horizontal Slider* by choosing the required histogram (i.e. it is possible to display the time spectrum of all crates or the time spectrum of a single crate).

4.2.2   Message GUI

The message GUI (Figure 3) can be opened using the *Open messages* tool. The message GUI shows the messages coming from the agents. They are divided in:

- *Info* messages → messages informing the user about the status of the agent. Reset requests are logged in this section as well as start-of-run messages;

- *Warning* messages → warning messages due to warnings in the electronics monitor sub-system;

- *Error* messages → error messages coming from the electronics monitor sub-system. A part of the electronics in error is generally disable from the monitoring scheme;

- *Noise* messages → noise messages coming from the noise monitor subsystem. Noisy channels are generally disabled from the monitoring scheme.
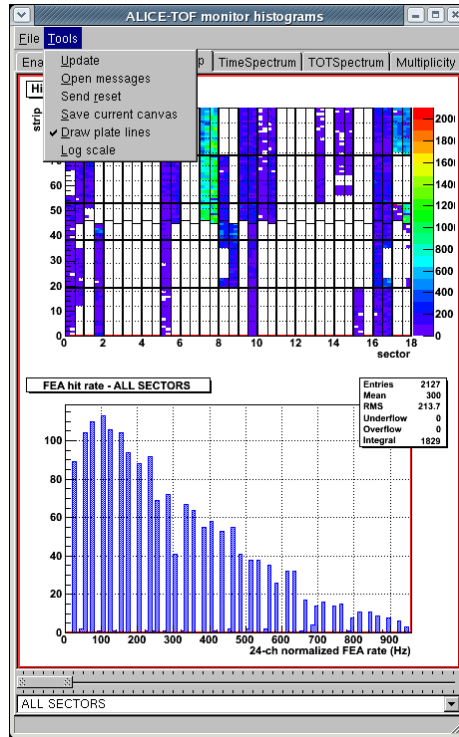
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Figure 4: The TOF histogram GUI and the *Tools* menu.

4.2.3   Tools

The histogram GUI's menu bar provides a set of *Tools* (Figure 4) which can be selected:

- *Update* → on-demand update;

- *Open messages* → open the messages GUI;

- *Send reset* → send a reset command to all agents. The behaviour of the agents depends on their current configuration: a full reset or a histogram reset could be triggered;

- *Save current canvas* → save current canvas in a file;

- *Draw plate line* → enable/disable draw lines superimposed to histograms in order to easily discriminate between different parts of the detector (Figure 5);

- *Show DeltaBC histo* → show the DeltaBC histo of recorded hits, useful to check/debug the DeltaBC offset and to setup DeltaBC correction. Dis-
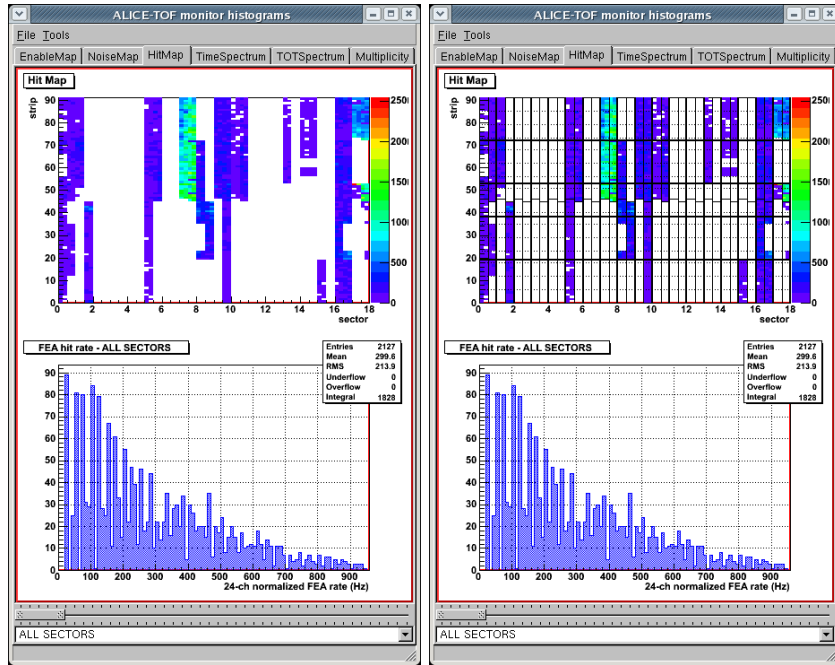
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Figure 5: Hit map histogram display with and without plate lines. The lines allow to discriminate between different sectors (solid lines), different DDLs (bold lines), different plates and different groups of FEA cards (dashed lines).

abled boards do not contribute;

- *Log scale* → enable/disable draw all histograms with log scale.