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This twiki describes how to use MoniGUI that is a graphical user interface based on Root for the offline alignment monitoring which can be found in Quality under the LHCb software project. It is based on the original version of GUI developed for VELO.

More details can be found in the note LHCb-INT-2009-027 [↗](#)

How to get

On lxplus using your account

Login to any lxplus machine.

Get and set up the package:

- *getpack Quality/MoniGUI v0r0*
- *cd Quality/MoniGUI/cmt*
- *cmt config*
- *source setup.csh*

How to start

Now go into the Quality/MoniGUI/root directory and open Root. To run the tool:

1. Load and execute the macro:

- *.L AlignMoniGUI.C*
- *new AlignMoniGUI*

2. Execute directly the macro:

- *.x AlignMoniGUI*

A graphical interface appears with several tabs (one for the PV and one for each subdetector) and buttons.

How to close

Click in the menu *Data*, then *Exit* .

How to visualize the monitoring plots

To visualize the plots for the alignment open a Root file:

Click in the menu *Data*, then *Open ROOT file* .

Once the file is open choose the tab:

- Tab for **Primary Vertex** (*drawVertexPlots.C*): click on *PV* to visualize the plots
 - ◆ *Difference between PV evaluated with tracks reconstructed in the left or in the right half of Velo*

- ◆ *x, y, z coordinates of PV*

- Tab for **VELO** (*drawVeloPlots.C*): click on *Misalignment* to visualize the plots
 - ◆ *Misalignment above warning threshold*
 - ◆ *Misalignment significance*
 - ◆ Clicking on green-red buttons one can show more details for each individual sensor
 - ◇ Overview of R and Phi sensors misalignment along x and y evaluated by sinusoidal fit of the *residual distribution versus phi* (*alignOfflineMoni.py*)
- Tab for **IT** (*drawITPlots.C*):
 - ◆ *Number of measurements*
 - ◆ *Residual pull*
- Tab for **TT** (*drawTTPlots.C*):
 - ◆ *Number of measurements*
 - ◆ *Residual pull*
- Tab for **OT** (*drawOTPlots.C*):
 - ◆ *Number of measurements*
 - ◆ *Residual pull*
- Tab for **MUON** (*drawMuonPlots.C*):
 - ◆ *Number of measurements*

How to Add new plots

To add or change plots open the correspondent Root macro and modify the method "draw". This method draws a page with a canvas that contains the histograms. In this method one can set the histograms that should be visualized inside. It is possible to visualize any histograms produced by any standard Brunel job.

How to Add new tabs

It is possible to add new tabs for other subdetectors. Open *AlignMoniGUI.C*:

1. Define the new tab in Constructor;
2. Clear canvases in the tab with the *ClearCanvases* method;
3. Describe the contents of the tab with a new method (ex. *ContentsTabNewTab*);
4. Display documentation on the monitoring available in a tab;
5. Handle the buttons in the tab.

This topic: [LHCb > HowToUseTheGUIForTheOfflineAlignmentMonitoring](#)

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