

Online Monitoring Update

Rhys Gardener

MICE CM41
February 2015

Overview

- Changes to GUI since last running
- Report from the mock data challenge
- Reference plots discussion
- Comparison system

Reminder

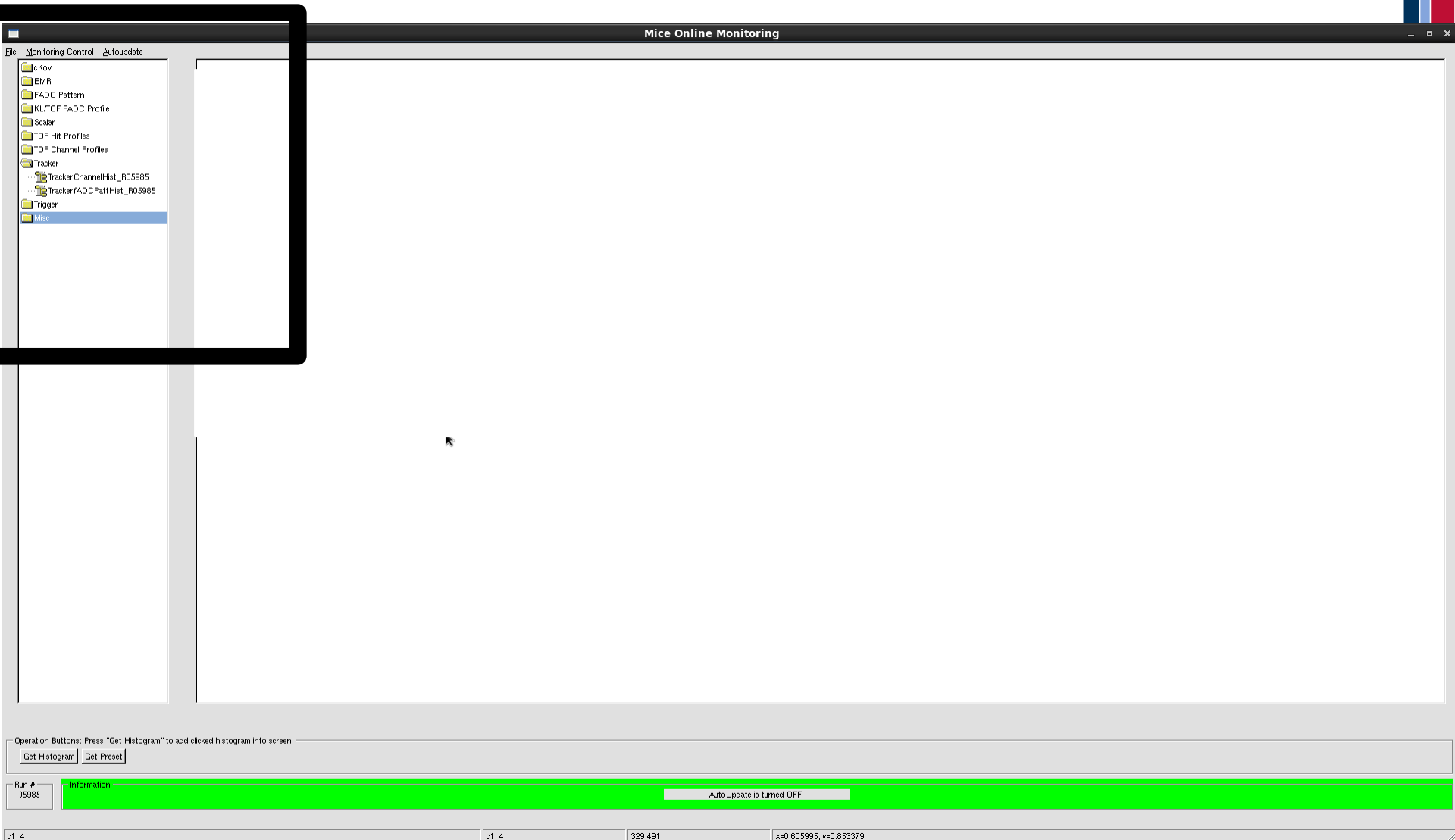
- Online Monitoring runs live using the DATE monitoring facility.
- Runs throughout data taking
- Produces plots for each type of board
- Should be used to provide immediate data quality check, and to debug unpacking operations/board health.
- No reconstruction takes place.
- Software uses a background program to produce plots, and a GUI which retrieves the plots live and shows them to the user.

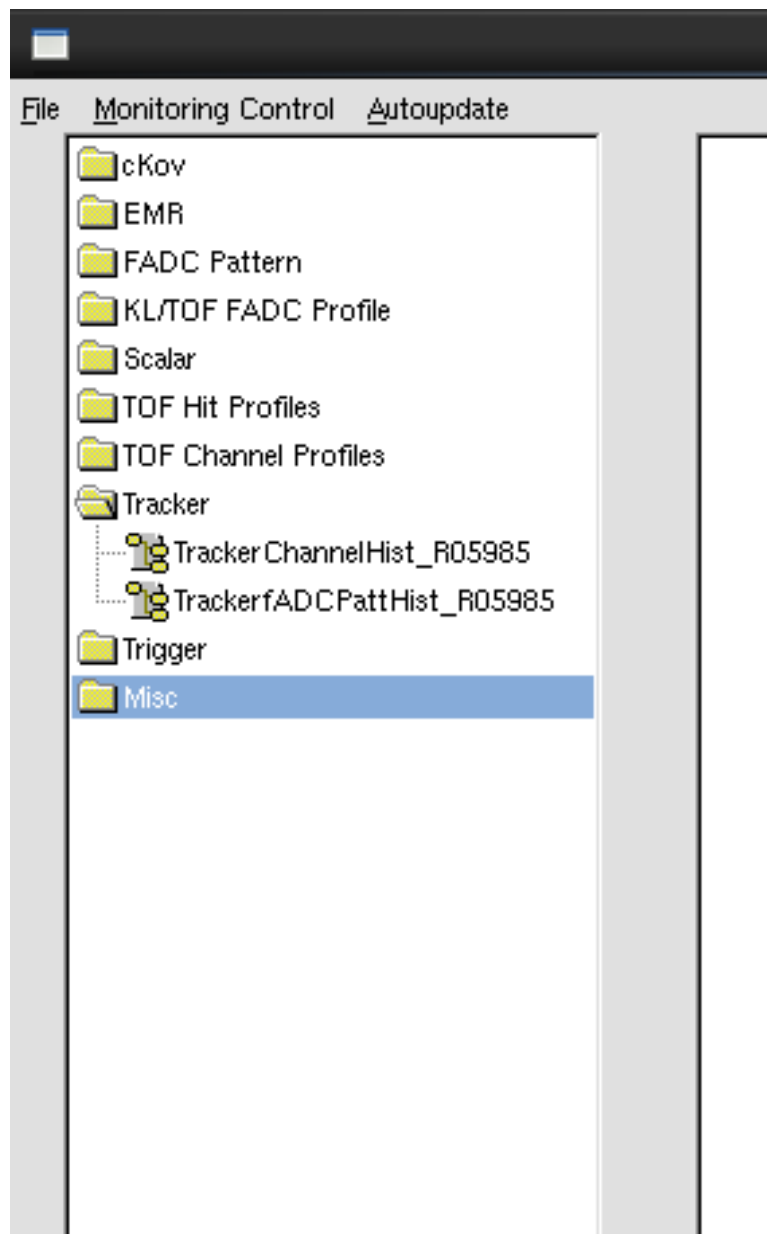
Equipment Monitored

- TDC V1290 (TOF)
 - Hits per channel, dt spectra
- FADC V1724 (TOF and KL)
 - ADC spectra for all boards/per board
- FADC V1731 (CKOV and EMR)
 - Hits per channel, ADC spectra per board
- Scalar V830 – Scalar plots
- VLSB (Tracker) (recently added)
 - Hits per channel, ADC/TDC per channel
- Also info from DAQ Triggers for Start/End of burst, number of physics events, equipment triggers.

GUI/Usability

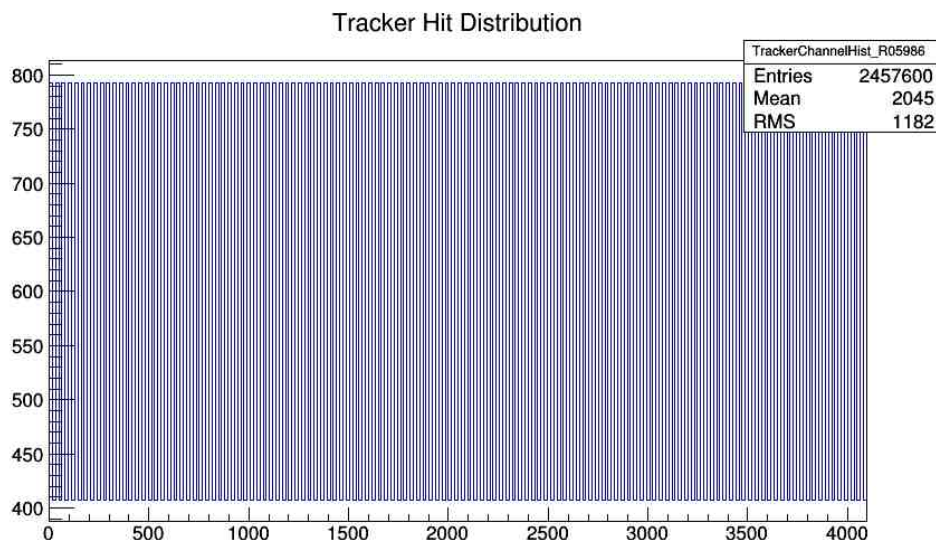
- Feedback from previous running indicates difficulty in locating appropriate histograms for shifter and expert alike.
 - All histograms in one long list.
- Addressed issue by sorting plots into detector categories.
 - I.E. TDC plots associated with TOF can be found under TOF heading.
 - This is not reconstruction, just for ease of use..





Mock Data Run - report

- Early issues with unpacking – resolved.
- Triggers seen from V1290 boards when running TOF detector triggers from DAQ.
- Tracker plots added to OnMon, signals seen.
 - Raw TDC/ADC for each channel
 - Hits per channel.



Reference Plots

- Now have plots for all detectors/equipment
- Document with full list will be made available.
- In process of choosing plots with good data to use as reference plots.
 - Have step I data for TOF, KL, Ckov, EMR.
 - Will need to wait for first batch of Step IV data for Tracker
- Will send reference plots to detector groups for validation.

Comparison Methods

- Adapting Chi2Test method in ROOT to compare reference data to live data.
 - Histograms are normalised.
 - Method takes 2 histograms.
 - Returns data (residuals → Q-Q plot) which tests agreement of the 2 plots.
 - Can reject or accept agreement based on these parameters.
- Tested for 1D histograms. i.e. Channel hit plots.
- Parameters can be tweaked.
- Can also check for empty channels/plots!

Future Development

- Detector groups should contact me (soon) if any more plots are desired.
- Chosen reference plots will be sent out soon for each group to check.
- Integrate the histogram comparison method into the OnMon data pipeline. Test for slowdown/adverse effects.
 - Add alarms for shifter benefit
 - Add options for detector/DAQ experts to modify reference plots or comparison parameters.
- Integrate into MAUS??