DAQ report

1. The readout software used for the Tracker cosmic test has been reviewed .

2. The Particle Trigger System has been modified.

3. New unpacking software has been developed in order to fulfill the new requirement coming from the EMR and Tracker data.

4. EMR has been successfully integrated in MICE and the first data has been taken.

Tracker cosmic test

- The readout software used for the cosmic test of the tracker has been reviewed and upgraded in order to be fully compatible with the MICE DAQ already implemented in the Control Room.

- The new software is now used by the Tracker group in for the cosmic test of the tracker in Lab7 (see tracker talk).

- The tracker is ready for integration in the MICE DAQ system in the Control room.
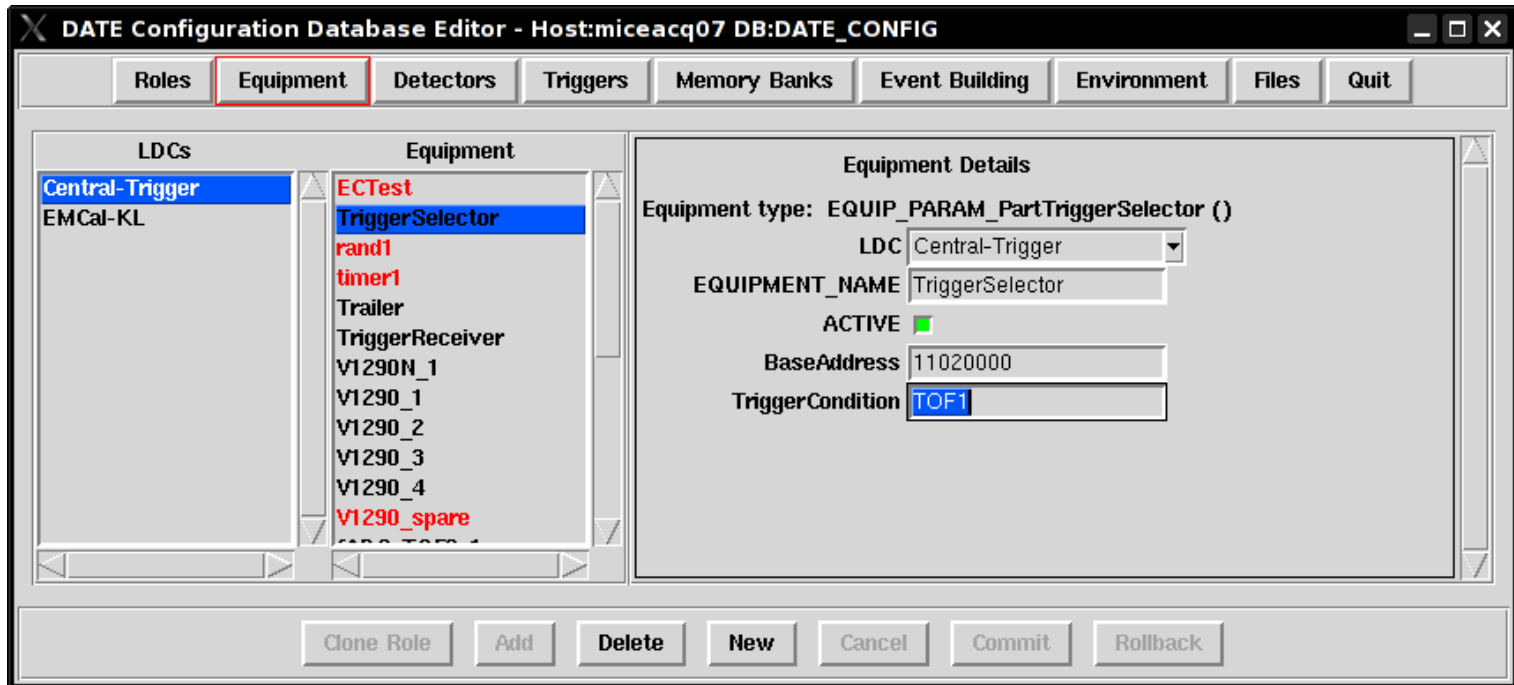
- The particle trigger condition (GVA, TOF0 or TOF1) is now selected by software.

- For the moment this can be done only by direct access to the DATE configuration database (editDb).

- In the final design the trigger selection will be made through the EPICS Control and Monitoring (CAM) system.

- The old way of changing the trigger condition is no longer supported!

Selection of the Particle trigger condition

editDb application

- Detailed manual describing how to change the Particle trigger condition is available at the MICO page.

Revision of the unpacking software

- The old unpacking software used in G4MICE was incompatible with the structure of the data coming from the tracker and from the EMR.

- The new structure of the unpacking has deep consequences on the way the data is accessed by online and offline software.

- The new unpacking is now compatible with MAUS and Online Monitoring.

- No support for the new unpacker in G4MICE.

Major improvement in the unpacking

- Each piece of data recorded by the DAQ system is now accessible during the unpacking.

- New unpacking has a better system for treating of the errors in the binary data stream.

- New test system for checking of the reliability of the unpacking software has been developed.

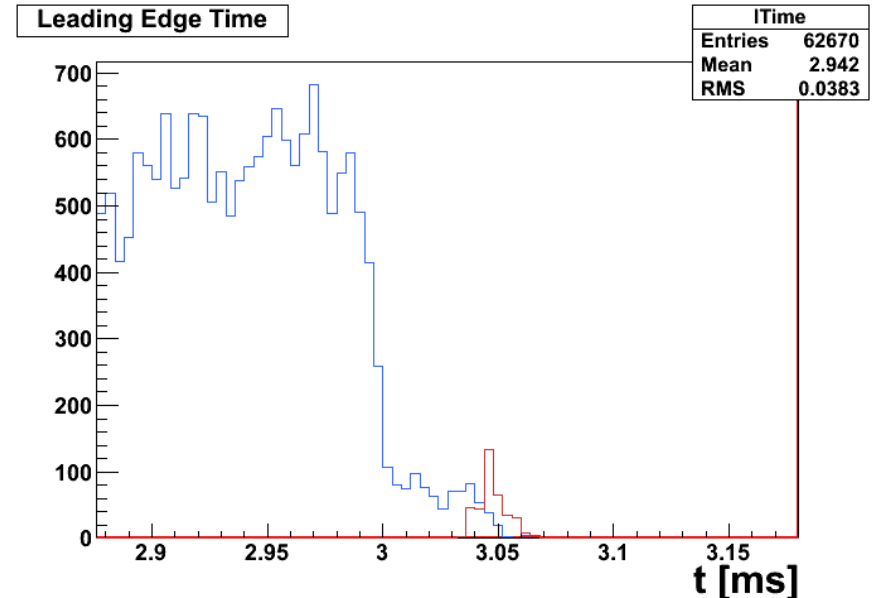- Possibility for switching on and off the equipments has been implemented.
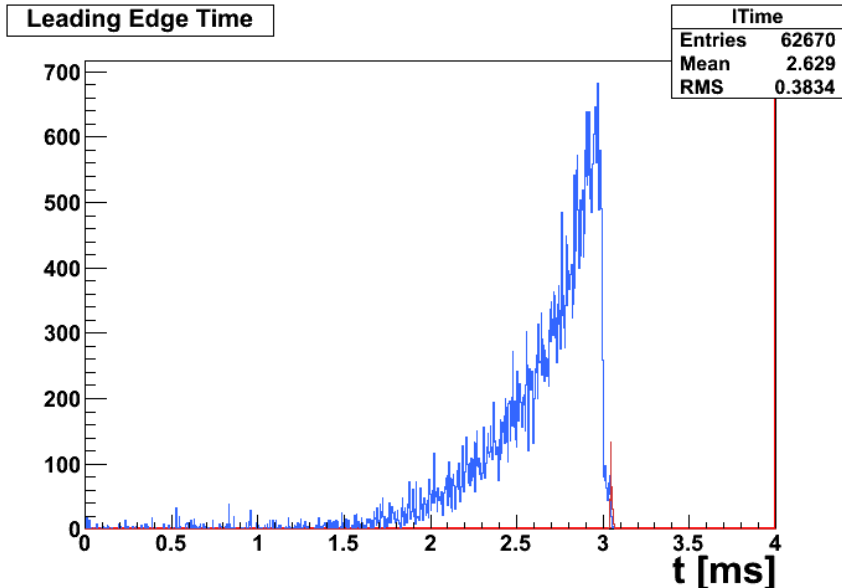
First EMR Plots

1. EMR detector has been successfully incorporated in the MICE DAQ system .

2. First 3 days of data taking in MICE Beam (30/06 – 02/07).
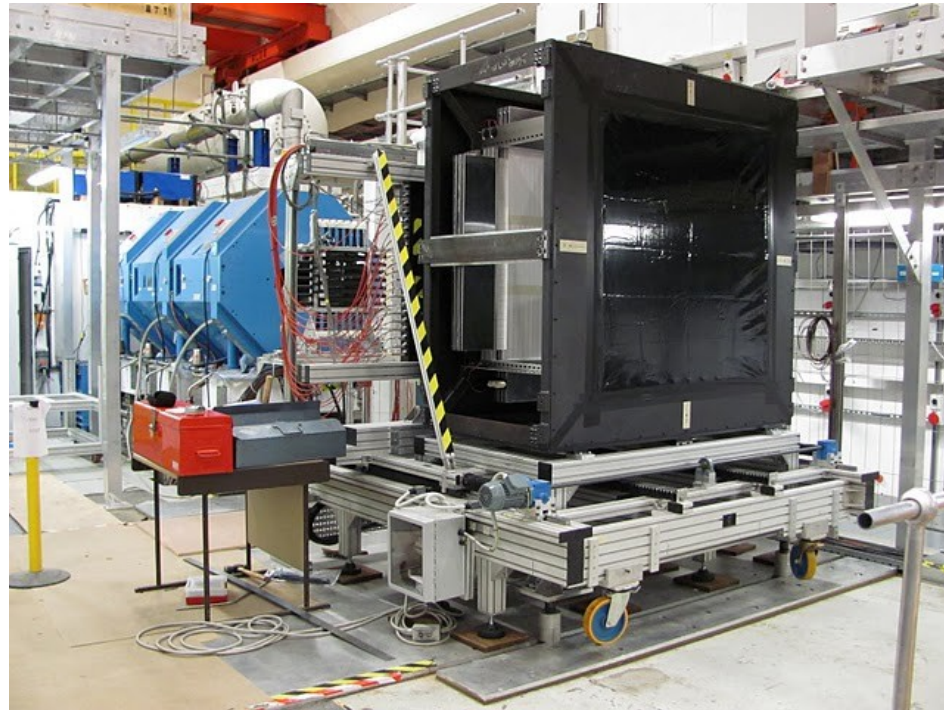
Time distribution of the EMR hits

Leading Edge Time of the EMR hits is shown in blue and the spill width (as measured by the DBB boards) is in read.

Left: time distribution of the EMR hits inside the spill window.

Right: zoom over the end of spill.

Conclusions

- First EMR data tacking exploiting the MICE DAQ system and MICE Beam channel was successful.

- All components of the detector electronics performs as expected.

- The new data unpacking software has been developed and is ready to be used.

- The new version of the Tracker software was tested in the cosmic test. Tracker is ready for integration in MICE DAQ system.