Online SW, DB & Calibration

Murrough Landon
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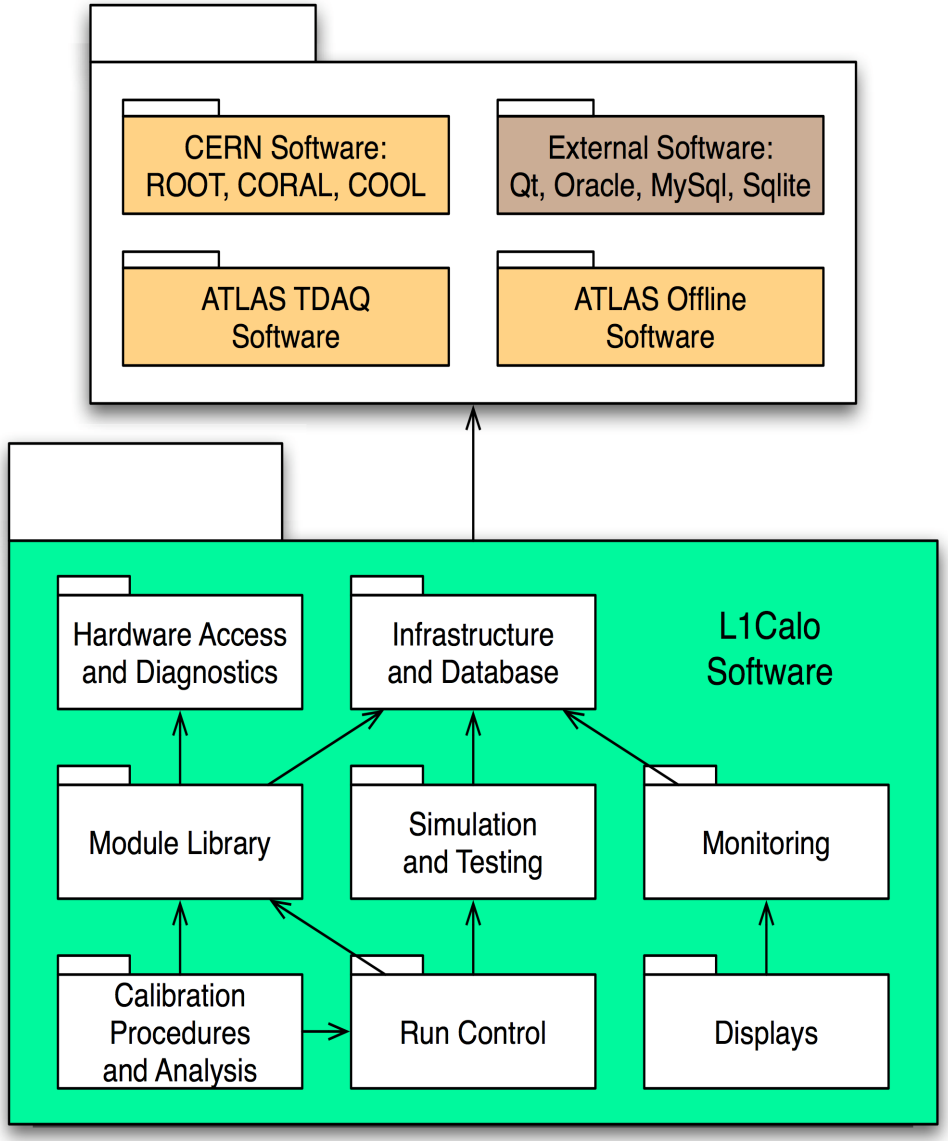
- Overview
- Recent SW and DB Changes
- Calibration Operation Issues
- To Do Lists

Overview of L1Calo Online Software

- Configures, controls, tests, monitors & displays L1Calo
  - based on TDAQ software
    - also offline (DetCommon), LCG and other external libraries
  - 75 packages in C++/Java
    - grouped in several categories
  - developed over 10 years...
    - but still a few things to do
  - TWEPP proceedings:
    - http://cdsweb.cern.ch/record/1138902



Recent SW and DB Changes

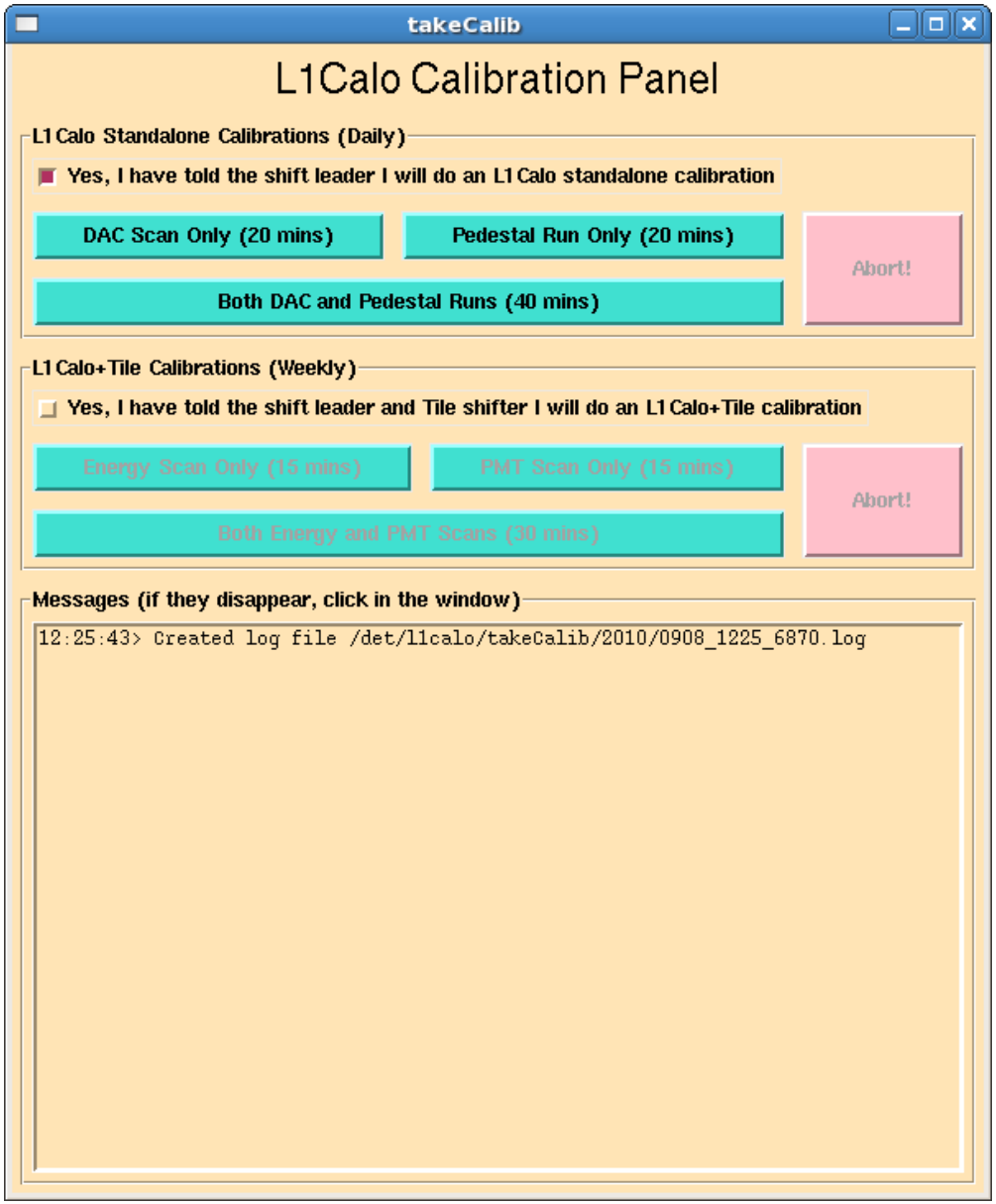
- Fairly stable during LHC running
  - No major changes, but variety of improvements
- COOL Database: storing more "conditions"
  - L1Calo run parameters, pointers to used calibrations
  - Conditions folders indexed run run/lumiblock (not time)
    - New version of ACE will allow browsing these (coming soon)
- Rate metering and display
  - Optimisation of rate metering, WMI pages coming...
  - Can now use l1calomap from outside point 1 (via WebIS)
- Calibration runs now properly registered in DDM
  - Filename tags like L1CaloEnergyScan, etc
  - Should allow fully automatic processing on the CAF
    - Currently still need to be initiated manually

Calibration Operation (1)

- Current model:
  - L1Calo DAC and pedestal runs taken by on-call expert
  - Energy scans with calorimeters taken (mainly) by Martin
    - Would like to lighten the burden on the experts!
- Plan (with suitable tools):
  - L1Calo standalone calibrations taken by Trigger shifter
  - L1Calo+Tile energy scans taken by Trigger and/or Tile shifter
  - L1Calo+LAr energy scans taken by LAr shifter (with Trigger shifter?)

Shifter Calibration GUI

- New GUI for shifters to take (some of) our calibrations:
  - L1Calo standalone runs
  - L1Calo+Tile scans
    - Thanks to some software development in TileCal
- L1Calo+LAr calibrations to be included in LAr shifter tools
  - Still to be done...



Calibration Operation (2)

- "Validation" of new calibrations
  - Results of L1Calo calibrations (DAC/pedestal runs) are always stored in the DB, but only "validated" for use in subsequent runs by expert (after checking plots)
  - Currently no comparison with previous results
  - No checking of trends over weeks or months
  - Validation "tool" just copies results on demand
    - And even this simple tool is getting a bit unmanageable
  - Typically we only validate new DAC/pedestal runs:
    - After making some significant change (replace MCM, change timing)
    - If we suspect pedestal drift
  - We would like to do better...

Calibration To Do List

- Should have checks of new vs old calibration results
- Sets of parameters for expected/allowed fluctuations
  - Perhaps derived from analysis of the results we have so far
- Tools to display trends
  - Improve draft tool started last year by Robins student?
- Noise Run?
  - We have discussed adding an extra standalone run to measure noise eg to derive or at least check noise cuts per tower
- More automation of offline analyses on the CAF?

Other Online SW To Do List

- Hot towers – further improvement in tools?
- Online Data Quality: add more to L1Calo DQ
- Firmware description & binaries
  - Missing from SW/DB for some modules

- Online SW for upgrade…