



# Online Software Status

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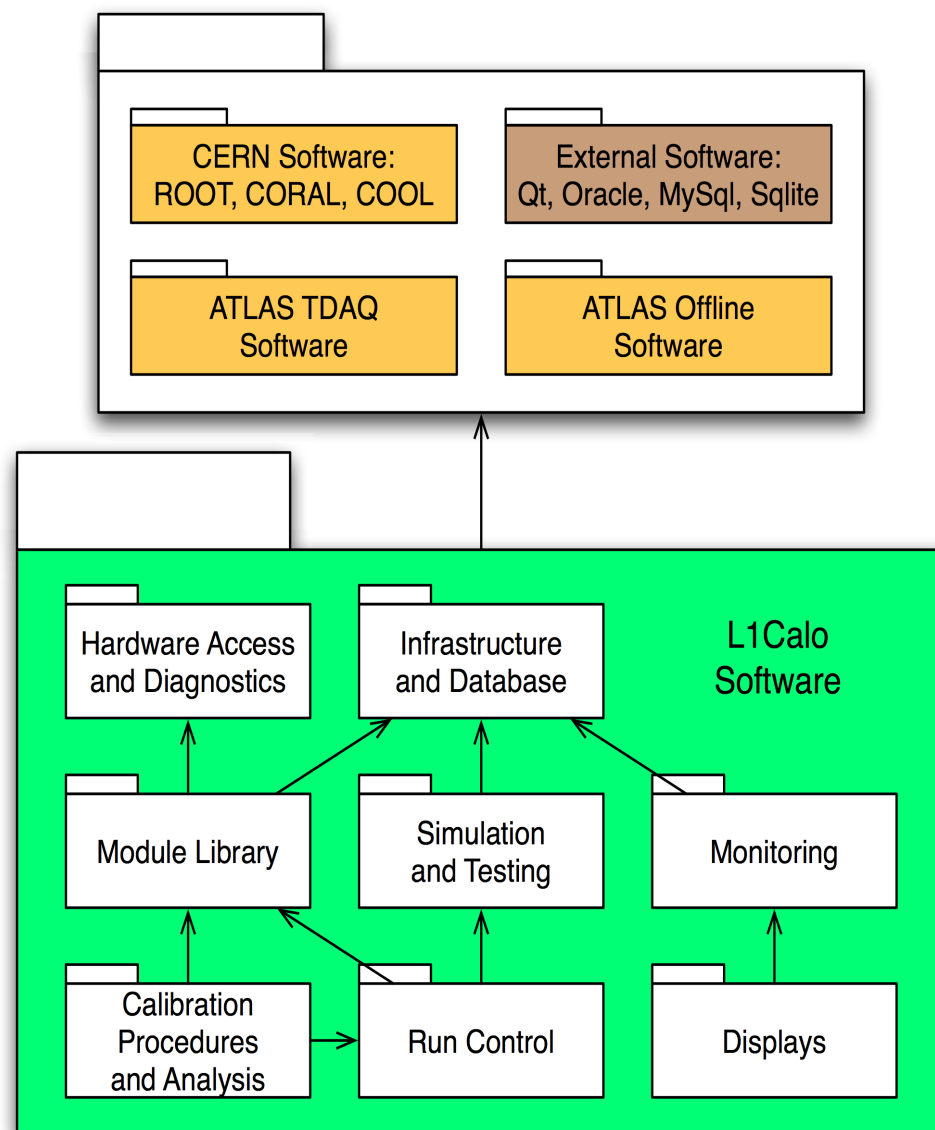
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- Overview
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- Summary



# Overview of L1Calo Online Software

- Configures, controls, tests, monitors & displays L1Calo
  - based on TDAQ software
    - also offline (DetCommon), LCG and other external libraries
  - 79 packages in C++/Java
    - grouped in several categories
  - developed over 10 years...
    - could do with some pruning?
    - but some further development is also needed
  - recent TWEPP proceedings:
    - <http://cdsweb.cern.ch/record/1138902>





## Recent Changes (1)

- Update to latest TDAQ version tdaq-02-00-02
  - Not much trouble - apart from new IGUI (see later)
- TDAQ (OKS) Database
  - Improved (ie correct) handling of parameters/environment
    - Required for integration of the ZDC also using our software
  - Related changes to database software
    - Proper handling of previously unique objects
  - Removed some obsolete classes from our schema
- COOL Database (Calibration/Conditions)
  - Minor schema changes
    - Added noise cut to PPM dead channels folder
      - NB not yet accessible in offline code?
    - Extra run parameter to flag use of simulated data in DAQ



## Recent Changes (2)

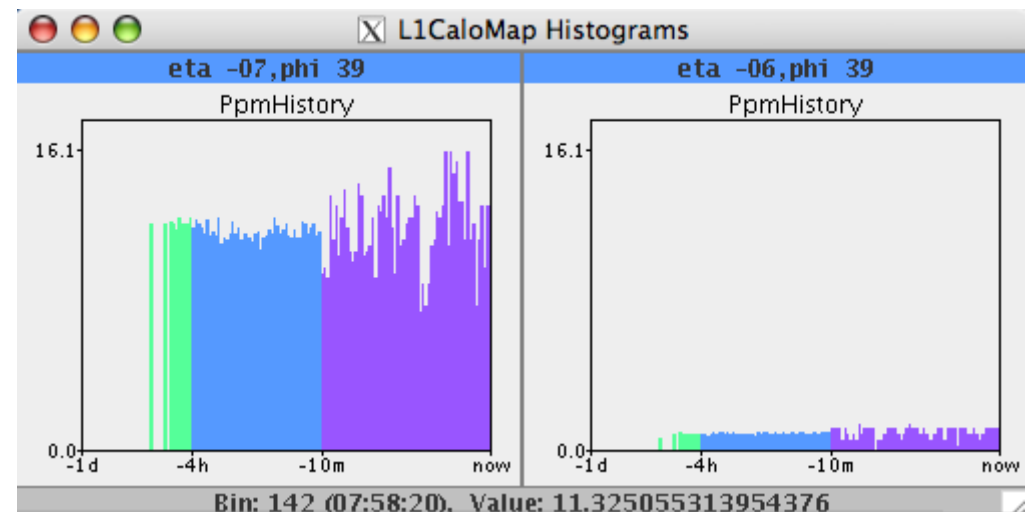
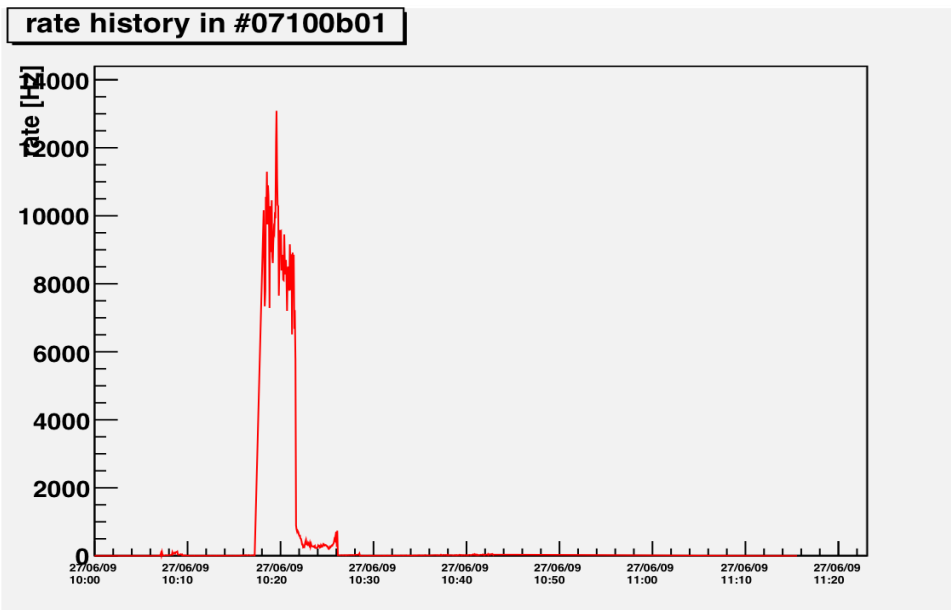
- Calibration and test software
  - Improvements in CPM and JEM calibration
  - Fixes to JEM simulation
  - Improvements in PPM calibration tools
  - Multistep run sequencer can step after number of L1As
    - Previously only after a fixed time
    - Still to be tested
    - Should make PPr calibrations easier and more reliable
- IGUI panels
  - Ported to completely new version of the IGUI
    - Some bug fixes and minor improvements along the way
  - Additional information shown for some modules: ROD, PPM
  - More enforcement of valid values



# Recent Changes (3)

- **Monitoring**

- See Taylors talk for improvements to GNAM & AthenaPT based monitoring and developments in OHP
- Rate metering tools updated
  - scan/replay L1Calo rate archives (current or previous runs)
  - tower rate histories published to OH (current run)
    - can now be viewed in OHP or mapping tool





# Required Changes

- **COOL Database**
  - Still needs to be moved to Oracle...
    - After some further schema changes?
  - See talk in calibration session for more details
- **Code repository**
  - CERN is moving from CVS to SVN
    - ATLAS TDAQ and Offline have already migrated
  - Level1 (L1Calo and CTP) should move soon
    - First need to convert all our little scripts...
    - Then fix a date to migrate all our online software to SVN
  - Our CVS repository also has some firmware
    - The firmware repository never really went beyond the test phase
    - Whats there is incomplete and out of date
    - It is proposed to abandon it and start afresh with SVN



# Desirable Changes (1)

- **Calibration**
  - More calibration validation and trending tools
  - No tests yet of deriving and uploading saturated BCID and energy scan results to databases: changes may be needed?
- **Hot channel handling**
  - Need better DB update tool for hot channels
  - Killing hot cells needs to be linked with run control
    - Pause, update, change lumi block, resume
  - Would like tool to derive new noise cuts for noisy towers
    - Eg by looking at PPM spectra online
  - Existing and new tools should be “shifter safe” (& friendly)
- **Data quality**
  - We could add more to online L1Calo DQ checking...



## Desirable Changes (2)

- **Firmware description and binaries**
  - Firmware for PPM and CPM described in the database
  - No longer really done for modules using ACE & flash cards
  - Would like to extend the present system to include them
    - Add container of possible configurations
  - Firmware binaries for PPM and CPM in the software CVS
  - If the firmware is to be saved properly in SVN, would like the binaries to be kept there too
    - Download binaries from SVN appropriate to a software release
- **Error handling and reporting**
  - Move old custom exceptions to use ERS
  - Continue review of "hidden" errors only reported in logs





# Upgrade

- A common model for upgrade firmware is proposed
  - What about online software for the upgrade?
- Upgrade system may be mixed: VME and ATCA?
  - We will probably want to treat old and new in a common framework - similar to or extended from the current one
  - Existing module specifications included a common section on rules for the “programming model”
    - We should review and reiterate that for upgrade modules
  - Our online software has evolved and accreted over roughly a decade
  - On some timescale (not now!) we can consider rewriting some components from scratch



# Summary

- The current software works well
  - For us and ZDC!
- But we still have plenty to do (as ever)
  - Move to production COOL database
  - Calibration procedures and validation
  - Dynamic hot channel killing (GUI and Run Control)
  - Improve data quality reporting
- And better documentation
  - Backup paper...
    - I was supposed to provide a draft for this meeting
    - But unfortunately this was forgotten



## ...and finally

- Best wishes to Eric for his forthcoming retirement
- And many thanks
  - for leading me into the trigger field (23 years ago!)
  - for a most enjoyable and friendly collaboration ever since