



Online Software Status

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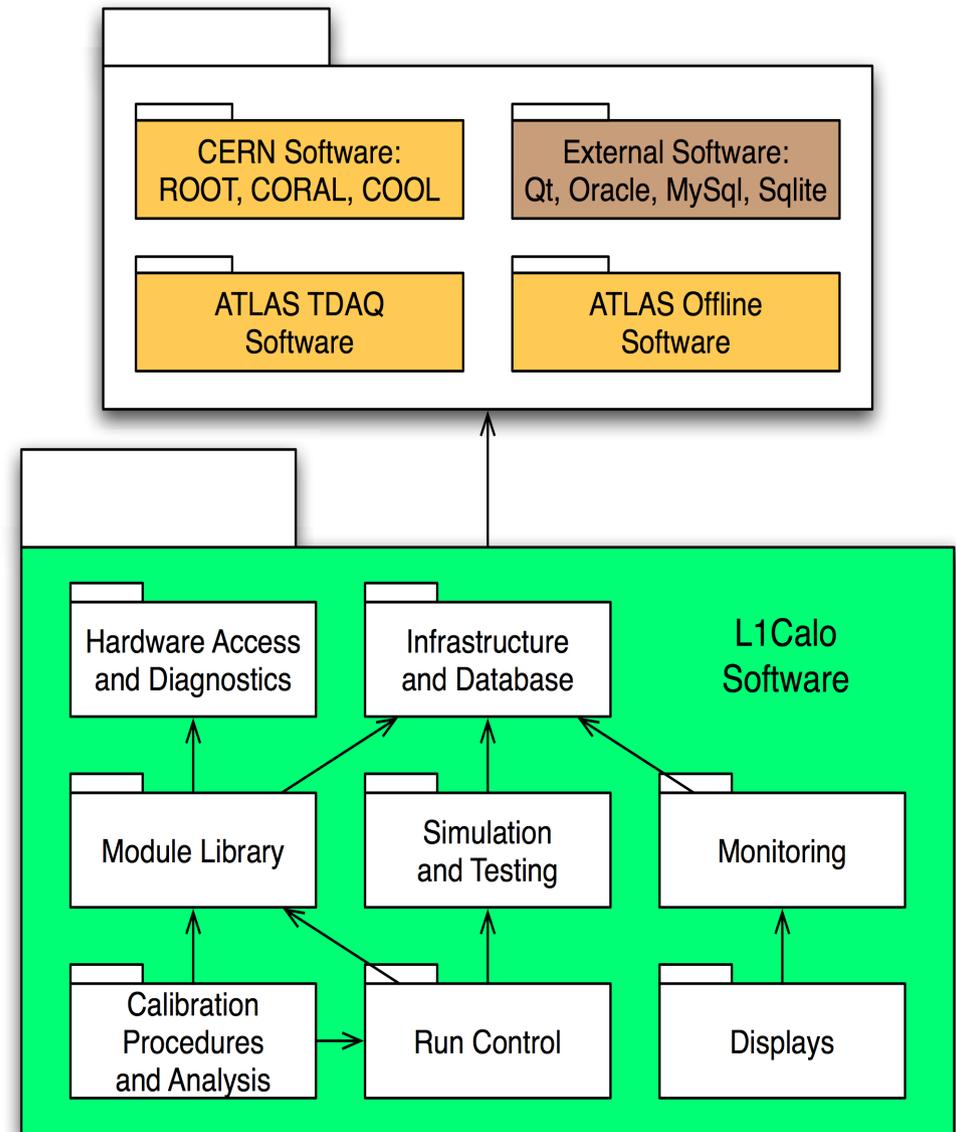
1 July 2009

- Overview
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- Upgrade
- 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)

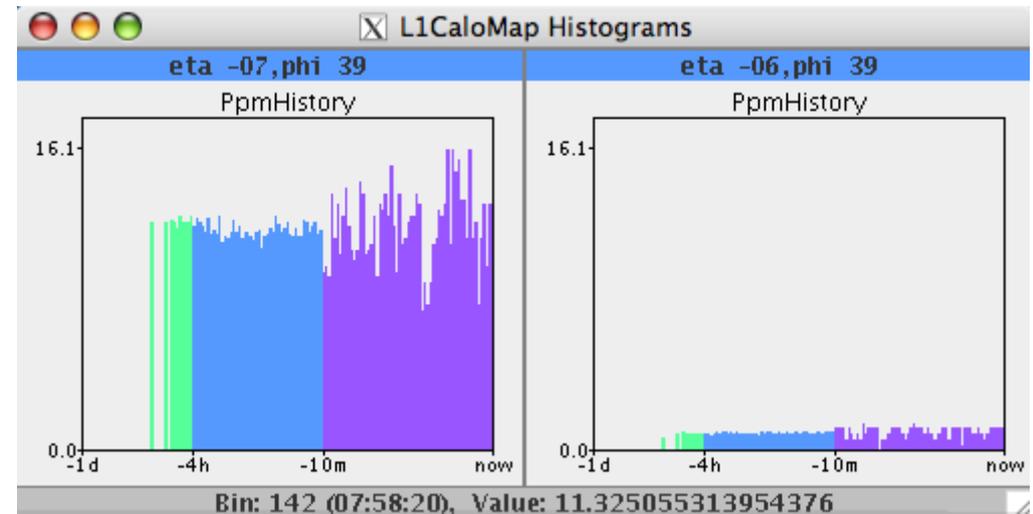
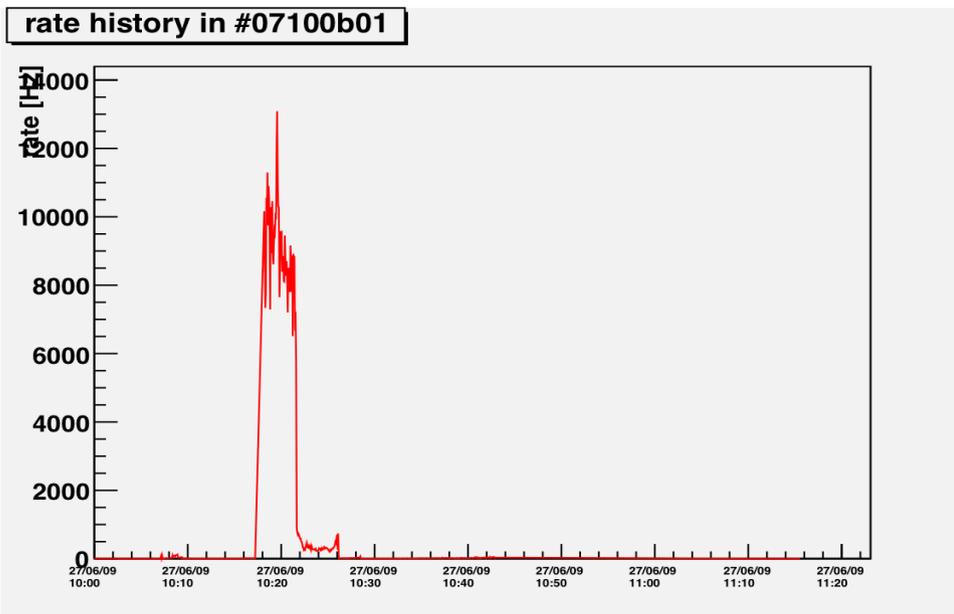
- **Calibration and test software**
 - Improvements in CPM and JEM calibration
 - Fixes to JEM simulation
 - Improvements in PPM calibration tools
 - Multistep run sequencer can step after number of L1As
 - Previously only after a fixed time
 - Still to be tested
 - Should make PPr calibrations easier 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