



Online Software Status

Murrough Landon

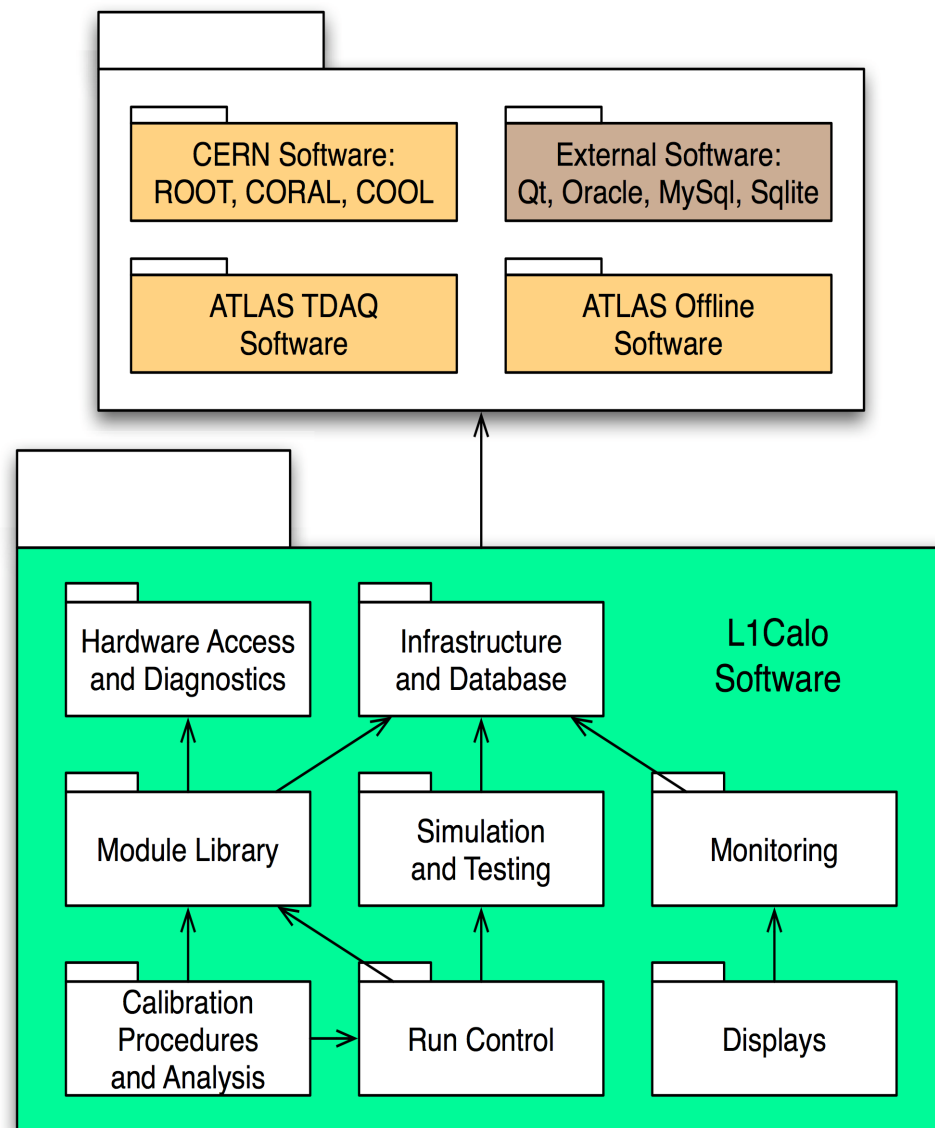
11 January 2010

- Overview
- Recent Changes
- Required Changes
- Desirable Changes
- 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...
 - but still a few things to do
 - TWEPP proceedings:
 - <http://cdsweb.cern.ch/record/1138902>





Recent Changes (1)

- Using latest TDAQ version tdaq-02-00-03
 - OK at CERN for months
 - Still problems with downloadable version?
- HDMC and module services use ERS exceptions
 - Still need to trawl the code for serious errors that are only reported in log files, not in messages visible to the user
- Run control “user commands”
 - Zero (or restore) LUT or set noise cut for PPM tower
 - Intended to be used by hot tower handling tools
- “Stopless removal” (of busy RODs)
 - Implemented but not tested



Recent Changes (2)

- **COOL Database**

- Yet another update to the PPM database schema
- Added subfolders for different timing regimes
 - Depending on ATLAS run type (Physics or calo calibrations)
 - Need for different DAC/pedestal values for different Phos4 delays
- These changes need to get into the offline code!
- Also added test vector generation to run parameters
 - Less for the user to choose when doing a calibration
- Moved from sqlite to oracle ("integration server")



Required Changes (1)

- Further COOL changes
 - Timestamps by lumi block (at least for some folders)?
 - Store conditions for each run (long, long overdue)
 - Select readout configuration in run parameters
 - Allow different number of FADC slices for some calibrations
 - At present we have to edit the DB each time
- Move from “integration” to production oracle server



Required Changes (2)

- Enable JetEtSum trigger again
 - Was disabled to avoid data quality errors!
 - JetEt weights were not being archived to COOL (now fixed)
- Readback and check writes to VME
 - Done “by hand” in some places
 - Ought to be part of the HDMC layer
- Finer control of ROD parameters in OKS
 - Tune FIFO lengths etc



Required Changes (3)

- Improve tools for hot channel handling
 - l1calomap shows hot towers visually
 - But can be confused by warm towers with low Et we dont disable
 - Existing l1chuck.py updates PpmDeadChannels folder in DB
 - Sets flags to kill channels or set higher noise cut
 - But so far only on next run start
 - GUI tool - but could be a bit more shifter safe?
 - New l1calmer.py script dynamically "calms" towers
 - Progressively raises noise cut via run control command
 - Reports noise cut required to reduce rate to a given target
 - Command line tool - so not available to non-expert shifters
 - Web tool to show rate history of hot towers
 - Under development?
- Need to converge on tool(s) for shifters to use
 - GUI hot tower spotter, calmer, disabler and DB updater



Required Changes (4)

- Calibration
 - More calibration validation and trending tools
 - Integrate the work of Robins summer student
 - Implement noise run
 - Derive noise cuts per tower from measurement of the noise
 - At present we have some global cuts for all towers
 - Except for a few (occasional) hand set higher cuts on noisy towers
 - Set saturated BCID parameters per channel
 - The current defaults are known to be “non-optimal”
 - Though worked OK for occasional beam splash like incidents



Required Changes (5)

- Remote monitoring
 - Nice work from Gabriel (using toolkit from Reiner Hauser)
 - But still problems with access to point 1?
 - Security issues to be resolved
- Alternative: produce more web pages ourselves
 - Use WMI (or standalone programs)



Desirable Changes (1)

- Data quality
 - We could add more to online L1Calo DQ checking...
- Error handling and reporting
 - Continue review of "hidden" errors only reported in logs
- Avoid crazy rates at configure step
 - Current get wild rates briefly during configuration
 - Might be unpleasant if L1Calo needs reconfiguration
 - Could be avoided by keeping CMM inputs disabled for longer?



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
- SVN repository for firmware
 - Anyone want to use it?



Summary

- We still have plenty to do (as ever)
 - Move to production COOL database
 - Calibration validation and tracking
 - Hot channel handling
 - Improve data quality reporting
- And better documentation
 - Backup paper...
 - I was supposed to provide a draft for this meeting
 - But unfortunately this was forgotten (again)