

Online Database Work

Murrough Landon 27 June 2007

- Overview
- Work needed for OKS database
- Work needed for COOL database



Overview: online databases

- OKS
 - Configuration of the TDAQ and online system
 - Description of partition, segments, SW, applications, HW
 - Hardware includes crates, modules and cables connecting them
 - Presently also includes "static" module settings, run types, test vector specifications (so called "DataGenRecipes")
 - Also has old style calibration data and trigger menu
- COOL/CORAL
 - New trigger configuration DB (CORAL)
 - Calibration data (in progress)
 - Definition of run actions
 - May (partly) replace OKS run types?
 - Would also need specification of test vectors
 - Should also have configuration choices for modules



- Completed a few actions from the last "to do" list:
- Database installed at point 1 in the proper place
 - /db/tdaq-nn-nn-nn/l1calo (01-07-00 at present)
 - Includes ROS segments (data collection and ROS event building)
 - Database edited in place (no buildpkg)
 - Can then be synchronised (dbsync.sh) to /det/l1calo/db
 - This is a link to /det/l1calo/LVL1/l1calo/dbAtlas
 - This directory is archived to new CVS package dbAtlas
- Script to generate (ideal) complete L1Calo DB
 - Still a work in progress, but used for system simulation
 - Also used for LVDS cables in recent USA15 slice test
- Now using OKS style configuration of GNAM
 - Still some issues to be resolved?
- Still need to think about segment organisation...



- OKS has a long term future within TDAQ
 - Improve what we will continue to use of it
- Run types cleanup
 - Remove everything we never used
 - Remove sequence definitions (take from COOL)
 - Keep "data gen recipes" for the moment...
- Use "Resources"
 - Make modules (and crates?) inherit from Resource class
 - Can persistently enable/disable them from the IGUI (without IS)
 - Is it worth making groups of cables a Resource?
 - Helpful for a small set of readout configurations to a few RODs
 - But more work and little help if readout configurations remain very fluid
 - Investigate if (groups of) applications can be a resource
 - Eg to enable/disable calibration applications



- Cabling description
 - tdaq-01-08-00 introduces Cables to official OKS schema
 - Migrate our old cable classes to inherit from these
- Cable database
 - OKS cable database maintained by hand up to now
 - New script to generation ideal cabling (algorithm)
 - Useful for LVDS, but not Glinks/Slinks at the moment
 - TDAQ and LAr both working on tools to extract cabling description from TC database for use in OKS
 - They may converge on a single tool
 - We might use this to generate our OKS cables from the TC DB
 - Tools exist for equipment "owner" to update MTF database via the web
 - Not sure if cabling database is included yet



Software description

- OKS objects describing software can be generated
- Need to add macros to requirements files in each package
 - Done for my packages, would like to extend to all packages
 - Then SW description comes automatically with the release
- Firmware description
 - Would also like to distribute firmware description with the release, not as a separate database file
 - Not easy to do with the same SW generation script
 - Could just move it to another package, eg L1CaloRelease?
 - NB release size is dominated by firmware binaries
 - Remove any files (PPM, CPM) that are not required!
 - Completely remove those now done via System ACE (CMM, JEM)
 - But still keep descriptions of the expected versions



- We already have several different categories of data
- Folders of results from each calibration run
 - One (or more) folder for each different type of run
 - May have module and submodule level results from one run
- Folders of validated calibrations
 - Validation process may combine results from several different types of calibration run
 - One folder for the complete set of calibration data for a particular module type
- Folders of run parameters
 - One folder per type of calibration (or test, or physics) run
 - Definition of multistep run sequence
 - Analysis parameters (eg desired pedestal, quality thresholds, etc)



- Calibration run results folders
 - In use for PPM
 - Default values for configuration parameters
 - Pedestals, readout pointer, PHOS4 timing
 - Code for PPM "RegValMaker" which puts it all together
 - Nothing yet for FIR coefficients or energy calibration
 Coming from offline work?
 - In development for CPM
 - Still needed for JEM
 - Need to complete the original CMM prototype
 - Can use KTIDBExplorer to browse folders
 - No other custom tools to show trends yet though



- Validated calibration folders
 - Defined and tested for PPM
 - However need all calibration runs before you get final results
 - Validation procedure still required for regular use
 - Also need "Physics" run parameter set for RegValMaker
 - Defined (mostly?) for other modules
 - Not yet even tested (I think?)
- Validation procedure
 - Can we have a common framework for this?
 - Or is it too specific to each module/calibration?
 - Even basic copy functionality is still missing!
 - In principle simple, just no time yet



COOL Database Work To Do (3)

Run parameters

- Folders defined and in use for PPM calibration runs
- Skeleton placeholders for other module calibrations
- Main problem is lack of tools
 - Run parameter folder contents only defined (for PPM only) by running a program from Florian
 - Need a simpler and quicker way of doing this
- Online Oracle DB
 - So far all tests with local SQLite file
 - Need to start using Oracle database
- Module configuration parameters
 - Longer term aim: move configuration parameters for modules from OKS to COOL



(Lack of Our) COOL Tools

- COOL_IO
 - Simple uploading/downloading into ROOT/text files
 - However not supported yet for COOL2
 - Richard Hawkings has an alternative tool (to/from ROOT)
 - AtlCoolCopy.exe from offline release 13.0.10
- KTIDBExplorer
 - Now part of TDAQ release, works OK
 - Not sure if it supports SQLite though
- PixelDataViewer
 - Generic tool for viewing DCS (and other?) data from COOL
- Custom L1Calo (use of) tools
 - Needs work! Extracting results, comparing, plotting trend
 - Also simple way up viewing/editing/adding run parameters



- Archiving OKS/IS
 - Tools existing to archive OKS and IS to COOL/CORAL
 - OKS archiving is automatic at point 1
 - Need to arrange to archive our IS variables (what we keep of them)