

Murrough Landon 12 September 2007

- Overview
- Preprocessor status
- CP/JEP status
- Tools
- Outlook



• Ideal procedure

- Calibration run: store results of each run in COOL folder(s)
- Separate validation step: copy/merge new calibrations to set of "validated" calibration folders
 - Both above sets of data are output from programs
- Run controller normally uses only the validated set
 - But allow use of unvalidated folders in Ppr calib run sequences
- Calibration run, acceptance and validation criteria taken from folders of "run parameters" also in COOL
 - This information needs to be hand tuned by experts



- Set of calibration runs
 - DAC scan: find DAC settings for chosen pedestal
 - Pedestal run: sanity check, no new calibration data
 - Readout pointer scan: find signals for DAQ readout
 - PHOS4 timing scan:
 - find both fine timing: ADC strobe at pulse peak (1ns steps)
 - and coarse timing: align all channels in real time path (BC steps)
 - "Results run": sanity check for timing
 - Energy scans: check linearity, decide how to fill LUT
- Implementation status of scans
 - DAC, pedestal, readout scans all well tested
 - PHOS4 scan little tested (with ROD readout)
 - Energy scans not tested at CERN (SW tested at HD)



- Implementation status of scans
 - DAC, pedestal, readout scans all well tested
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 - Energy scans not tested at CERN (SW tested at HD)
- Implementation status of database
 - Done:
 - COOL folders exist for results of all scans
 - Run parameter folders for using them (or not) also defined
 - Not yet done:
 - Validation step or use of validated folders
 - Folders for common defaults (configuration settings)
 - Still have common values replicated for all channels



- Problems and questions
 - Existing scheme assumes calibrations done online with ROD data processed in real time in a GNAM monitoring task
 - However with tdaq-01-08-01 there is an as yet unresolved conflict between GNAM and COOL
 - For M4, the analysis was done "by hand" after the run
 - Whats the right strategy?
 - Present SW produces new results (or failures) for all channels at once (take it or leave it)
 - At least while commissioning, need to be able to update calibration for parts of the system while leaving the rest unchanged
 - Part of as yet missing validation step perhaps?
 - How to treat bad channels?
 - Is zeroing the LUT the answer to all types of problem?
 - People: Florian is busy with finishing his thesis



- All CP/JEP "calibrations" are timing scans
 - Either input timing (CPM/JEM LVDS, CMM backplane)
 - Or interconnection (backplane fan in/out, CMM cables)
- Implementation of scans
 - CPM & JEM with standalone programs (not multistep runs)
 - CMM software not yet updated to recent TDAQ versions
 - Did use multistep run but is that still the best idea?
- Implementation of database
 - COOL infrastructure defined for all CP/JEP calibrations
 - CPM scans now write to COOL, tested in Bham, not CERN
 - New JEM scan and COOL access SW still in development
 - People: Christian Göringer is now busy with exams...
 - CMM scans need update (BP) or implementation (cables)



- Quick and dirty (for experts)
 - Variety of little programs and python scripts cobbled together to allow us to get something going for M4
- COOL editor
 - Alvin is making good progress here and aims to have a first prototype in about a month
 - Should allow easier editing of run parameter settings
 - Though not really suitable for bulk calibration data
 - Apart from the occasional little tweak perhaps
- Other tools
 - No one is looking at tools for trends, analysing successive calibrations, stability, etc, etc



What might we have for M5?

- Still not what we ought to have...
- Preprocessor
 - Would like simple LUT filling scheme
 - Present scheme assumes we do lots of energy scans
 - Also use of "validated" folder, and default settings
- · CP/JEP
 - CPM: Real time settings might all be there for M5?
 - JEM: Constraints on peoples time restricts chances of testing new software at CERN by the developer(s)
 - CMM: May not be enough time to update scans
 - But little enough data that we may be able to survive with little scripts
 - Readout pointers: still done by hand capture in code?



- Still using a local SQLite file at point 1
- Need to move to Oracle
 - Long term solution
 - Reliably backed up
 - Available to offline monitoring
 - Propogated to tier1
- However COOL folder details may still evolve
 - COOL doesnt really handle "schema evolution"
 - Tier1 copying has problems if online DB drops and recreates tables



- We just about made it through M4
- M5 should be better
 - But maybe not by much
 - Key developers are otherwise occupied
- Theres still a long way to go