

L1Calo Databases

Murrough Landon 16 June 2008

- Overview
- Trigger Configuration DB
- L1Calo OKS Database
- L1Calo COOL Database
- ACE



L1Calo Database Overview

(LAr TileCal Patch Panels	Calibration Data	Configuration Data
Analogue Cabling	Receivers Patch Panels	Analogue Gains	Connectivity
		DAC, pedestal	Trigger menu
	Preprocessor	Pulse shape (filters)	Connectivity
		Lookup tables (linearity)	Operational choices
6		Liming	Trigger menu
plin	EM Cluster Jet/Energy	Timina	Connectivity
Ca	Processor Processor	liming	Operational choices
Digital	Merging Merging	More timing	Trigger menu Connectivity Operational choices
	CTP		



- Contents
 - complete description of Level 1 and HLT trigger menus
 - includes separate prescales and other CTP settings
 - developed by trigger configuration group
- L1Calo
 - until last week we were still using a private OKS based trigger menu that only contained L1Calo specific settings
 - satisfactory and stable for over six years
 - now (finally!) linked to trigger configuration database
 - requires DetCommon: dependency on tdag and offline SW
 - first successful load of L1Calo hardware from oracle DB last friday



L1Calo OKS Database

- Contents
 - usual description of segments, hardware and applications
 - most of our hardware objects are now also Resources
 - also description of internal digital cables
 - mainly via Cable objects (historical)
 - also added Resources and ResourceSets to link with ROS and to provide more granularity in disabling parts of the trigger hardware
 - definition of data sources/sinks for internal tests
 - private (L1Calo only) trigger menus
 - soon to be discontinued
- Source
 - hardware segments and cabling now generated by script
 - internal cabling is algorithmic, no connection to TC database yet



L1Calo COOL Database

- Contents
 - results of all calibration runs
 - historical record for trends
 - even if never used to configure the system
 - sets of "validated" calibrations
 - subset of calibration results that pass validation checks and are significantly different from previous validated calibration
 - run parameters
 - global settings for configuring both Physics and calibration runs
 - configuration parameters
 - operation settings, at module or channel level



- Operational model
 - configure calibration run from COOL
 - take calibration data
 - store calibration results
 - run validation procedure
 - update validated calibration results if appropriate
 - normal runs use latest
 validated calibration data





Implementation Status (1)

- General
 - Basic scheme in operation for over a year
 - Reasonably happy with it
- Improvements Required
 - Need better handling of error codes when validating
 Preprocessor calibrations (results of several different
 types of calibration get combined)
 - Consistent use of error codes across the L1Calo system
 - Need to track module IDs for the whole system
 - Only done for purely online procedures at the moment
 - Further schema changes need for some preprocessor data



Implementation Status (2)

- Preprocessor
 - analogue pulse pedestal measurement and setting
 - procedure presently running offline (could be online in GNAM)
 - works well, though further tuning of the algorithms desirable
 - coarse timing (BC level)
 - online timing scans OK within one calorimeter partition
 - not so easy to align different partitions (need beam!)
 - minor schema changes foreseen
 - pulse shape and fine timing
 - calibration procedures tested with pulsers but not really tuned
 - recently decided on schema changes
 - calculate filter coefficients offline rather than at time of use
 - pulse shape from calibration pulses not the same as from beam
 - energy calibration, Et correction
 - still under development...



- Cluster & Jet/Energy Processor
 - digital timing at module and channel level
 - all modules obtain timing calibration from COOL
 - most calibrations now automated and writing to COOL
 - still manual for final merger modules (CMMs): very few channels



- Use Oracle!
 - Still using SQLite at point 1
 - Convenient while we are still making schema changes
 - Aim to switch to ATONR before beam...
- Configuration data
 - Intend to move remaining configuration from OKS to COOL
- Tools
 - Need more work on extracting, analysing and presenting trends in calibration results



ACE: A Cool Editor (1)

- Features
 - COOL database browser and "editor"
 - Uses pure COOL API
 - Supports all LCG DB technologies including SQLite
 - Open multiple databases and folders
 - Select all IOVs or (by default) just the latest IOV [new]
 - Filters for selecting subset of channels [new]
 - "Edit" rows
 - clone existing row
 - modify values
 - commit updated row (gets new interval of validity)



ACE: A Cool Editor (2)

- Availability
 - ACE is now packaged with the LCG COOL release
 - Latest bug fixes in COOL_2_5_0 (not in ATHENA 14.2.0)
 - Needs Qt 4 and LCG packages
 - Source various LCG setup scripts
 - Or run via L1Calo script at

/afs/cern.ch/atlas/project/tdaq/level1/calo/bin/ace.sh

- runs private copy of latest version

Restrictions

- Only supports single version folders at the moment
- Support
 - Web page coming soon...
 - Bug reports and feature requests to the author:
 - Chun Lik (Alvin) Tan: clat@hep.ph.bham.ac.uk



ACE Screenshot 1: Connect to New DB

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		Password:	
		Schema:	ATLAS_COOL_TRIGGER
		Database:	STRMP200
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Online DB @ CERN

ACE Screenshot 2: Connect to Known DB

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Online DB @ CERN



ACE Screenshot 3: Browse Folders

Connection Folder Preferences View Help

Open Disconnect

🐔 😔 Filter Commit

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	PprChanCalib	
	PprMcmCalib	
	SerialiserCalib	
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ACE Screenshot 4: Filter Rows

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ACE Screenshot 5: Clone Row to Edit

Connection Folder Preferences View Help



Open Disconnect

Filter Commit

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ACE Screenshot 6: Commit Modification

Connection Folder Preferences View Help

-39

Open

<30

Disconnect

Filter Commit

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