

L1Calo View of New CondDB

Murrough Landon for L1Calo 19 September 2017

- •Executive summary: we do not like it!
- How we currently use COOL
- •Requirements if we have to move to new style DB
- Short, medium and long term timescales
- Summary



How L1Calo Uses COOL (1)

•Offline

- Our tierO monitoring needs to read our online COOL DB
 Compares hardware performance against simulation
- •But we are not part of reconstruction, calibration loops, etc
 - •We are not part of and have no use for the global tag system (UPDx) •Possibly except MC production?

•Online

- •COOL was originally promoted as relational DB with time axis
- •We have electronics with many channels; each channel has attributes to be configured at run start; these may vary with time, either collectively or individually
- •The COOL functionality is absolutely perfect for this!
- •Removing channels with attribute lists and individual timestamps would be a huge step backwards (off a cliff)



How L1Calo Uses COOL (2)

•Usage from C++

- •Reading current calibration and configuration values to load into L1Calo hardware
- Saving new calibration results from many online analyses
- •Validating selected calibrations for use in future runs
- The COOL C++ API is also used by the ACE tool (next slide)

Usage from Python

- •Dumping calibrations for various graphical displays
- •Uploading results produced by offline calibration analyses
- •Many custom scripts which "know" about L1Calo folders

•General

- •Mostly we assume only setup of TDAQ and LCG software
- •Little or no use of Athena tools (eg AtlCoolConsole) online

L1Calo Requirements on New DB

•Present functionality with new BLOBs

- •A new API should support a common way of describing internal structure of a BLOB in terms of channels and their attributes and last change time per channel (separate from whole BLOB)
 - •Basically reimplement COOL channels, attributes and since timestamp
 - •We do not use closed IOVs so do not need the until timestamp
- •Available in C++ and python
- •Single version folders: no risk of overwriting used IOV
- ACE or new equivalent
 - ACE (COOL graphical viewer/"editor") is well used by us online
 Manual updates to small folders
 - •Visually checking changes for subsets of channels and time ranges
 - •ACE was originally developed by L1Calo: it was offered as contributed code to COOL and is also used by some other systems (certainly LAr)



ACE Screenshot

o o (Conne	stion Folder Professions, View Hole	X ACE - A COOL Editor					Open COOL Folder	
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http://www.ep.ph.bham.ac.uk/software/ACE/ (from 2008)

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L1Calo



•Now (preparing for Run 3)

- •We urgently need to develop software for testing prototypes of the three new FEX systems
 - This will involve loading new modules with (channel based) data from DB
 - •We can hack something for a few months, but from, say the next TDAQ release (~December?) we either need a fairly final version of a new DB API (with channels, individual IOVs) or we have to keep using the old one

• Early Run 3

- •We are required to keep the present L1Calo running untouched
 - •In case one or more of the new FEX systems runs late or has problems
 - •Anyway as baseline comparison with the new system for about a year
 - •We do not want to change DB implementation for this to avoid risking mistakes (eg an embarrassing error moving from COMP200 to CONDBR2 led to missing high pt jets for two months in early 2015)
 - •Hence we need COOL untouched at least in early Run 3



Timescales (2)

•Rest of Run 3

- •Part of the current system (preprocessor for TileCal towers) is needed for the whole of Run 3
 - •We do not want to change DB for this in early run 3 (previous slide) so much prefer to keep the existing COOL solution going until LS3

•Run 4

- •Current (legacy) L1Calo will finally all be retired
- •Only the new Run3 FEX systems would be left these could use a new "COOL-like" DB API if it is provided <u>soon</u>

•If not, we might still be clinging to COOL...

•And we will again be commissioning another new global trigger system so will likely want to keep the Run 3 system stable at the start of Run 4



•COOL is very well matched to L1Calo requirements

- •We have little or no use for proposed improvements
 - •Mainly aimed at offline, tags, etc

•For us the new conditions DB offers only extra work

- •But might be usable if a COOL-like API to internal structure of BLOBs is centrally provided very soon
 - The twiki has "if", "could" we would need to see "will" and a timescale
- •Our priorities for Run 3 are commissioning a whole new

trigger system, not developing new database support

•We need to keep COOL for the present L1Calo system in Run 3