

# Online Software: Run 2

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Migration to git
Migration to CMake/tdaq-07
Miscellaneous



# Git Migration (1)

#### Motivations

- •CERN will stop supporting SVN service in a year or so...
- •Many (younger!) developers much prefer git
- •Git offers more flexibility (and complexity) in development
  - •Eg easier and better handling of branches for parallel developments

## • Timescale

- •Big bang: so preferred to do this during the shutdown
  - •Prepared and tested (to some extent) since November/December
  - •Switched over weekend of 10-11 February

# •Style

- •Followed the TDAQ model
  - Despite some caveats from Giordan
  - •But I also consulted with LAr and CTP git experts who followed TDAQ
  - •One git repository per old SVN package (unlike new offline model)



#### •Final GitLab group: atlas-l1calo-online

- •https://gitlab.cern.ch/atlas-l1calo-online
- •Handful of group owners (as for atlas-l1calo group)
  - •Sasha, Ivana, Giordan, myself
- •Regular developers have Master privilege
  - Can commit to master branch on GitLab
- •Others have Developer privilege
  - •Cannot update the master branch: can submit merge requests

#### •Current setup

- •Hacked old SVN based scripts for git
  - •Keep old nightly build, point 1 release scripts at least until CMake
  - •Using more native git solutions (submodules) probably best in future



# Git Migration (3)

#### Conversion details

- Decided to migrate everything, even obsolete antiquities
  No need to checkout Run 1 only (or earlier) packages
- Some big files "cleaned" out of old packages
  - •Eg test vector data, logfiles, PDFs of documentation
  - •Even though git can handle large files and binary files it seems best to keep SW packages small - big files can go elsewhere, could be in other git repositories if really wanted
  - However firmware bitfiles (eg for PPM, CPM) kept for ease of use and to minimise changes
- •NB sign of the times: even software tools get political
  - •The "BFG" tool to remove big files from the entire SVN history told me: •You can rewrite history in Git - don't let Trump do it for real!

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## •Next migration is CMake and tdaq-07-00-00

- •Linked migrations: tdaq-07-00-00 is only built with CMake
- •CMake support could be added in parallel to CMT
  - Mostly done last September/October with a TDAQ prerelease
  - •Few tweaks made in the last few weeks with tdaq-07-00-00

## •CMake basics

- •Different philosophy to CMT: build all packages together
  - No longer need to know inter package dependencies
  - •But no longer get build files separated by package
    - •Bit more work required to point the finger at who broke the release
- •Parts of nightly/P1 build scripts still work
  - •But the old nightly build web pages are incompatible
- •Aim to use CDash in future
  - Dashboards showing multiple builds, also from continuous integration
  - •TDAQ example: https://atlas-tdaq-sw.web.cern.ch/atlas-tdaq-sw/cdash/



## •L1Calo SW built with tdaq-07-00-00

- •Both test rig and point 1 releases installed
- Superficially tested (they do configure and run)
  - •Not checked data
  - •In principle ROS and SBC drivers should be updated

#### Next version

•Expect a minor update: tdaq-07-01-00 next month?



# Miscellaneous

# Meanwhile there have been some SW developments... L1Topo

- Updates for real event playback
- •Various fixes related to firmware changes

## •ROD and TTC related

- •Various improvements from Bruce
  - •Playback trigger patterns from LTP (instead of antique DSS module)
  - Resuscitated "rodmon" to compare hardware and simulation

## Simulation

- •Had a simulation (half) week to get online simulation in shape
  - Several bugfixes for PPM and associated ROD simulation
  - •Also a long term bug in CMX-L1Topo simulation was found and fixed
  - •Still need to check CPM, JEM, CMX in more detail



# COOL Folders (High/Low Mu)

# •Existing PPM COOL folders did not foresee need for

- rapid switch between high/low mu conditions
  - Single folder (+ extra folder for late FW developments)
    Do allow different DAC/pedestal for different physics/calib timing
  - •But change between low and high mu requires lots of reloading

## Proposal for new set of folders

- •New folder for values independent of mu
  - •DAC, pedestal, timing, readout pointers, many LUT parameters
- •New pair of folders one each for low and high mu conditions •Filter coefficients, noise cuts, LUT slopes only
- •New strategy folder: just string to choose which mu folder

#### •Status

- •Development started (private git branch) untested
  - •Hopefully should be much easier to switch conditions in future



#### •Infrastructure

- •Use git more natively (submodules)
- •Continuous integration, virtual machines for building, use CMake dashboards, etc
- Simulation
  - •Still a few issues lurking I think

#### •L1Topo

- •Detailed playback checks still waiting on (a) time and (b) final FW fix for playback memories
- •Everything for FEXes and Run 3...