L1T DQM News

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L1 DQM Development @ P5

Talked with Marco Rovere and there are in fact already machines to @ P5 for DQM development:

- The have the same DQM software profile as the production machines actually running DQM.
- We can access stream from those machines (DQM Stream and Playback). PLEASE BECAREFUL will using DQM Stream ALWAYS test you applications on local files and/or playback before testing them on data streams.
- **Machines are:** dqm-c2d07-[18-29].cms
- Will close current ticket for a L1T DQM machine.

L1T DQM Tracking @ Savannah

- From now on L1T Issues (Feature Requests, Bug Reports, Pending Issues, etc) will be tracked on CERN Savannah.
- We should use this extensively, will reduce the probability of issues fall through the crack, information is lost (example: someone leaving the group) and accountability (all messages are tracked).
- In the next few days I will put in Savannah all current open issues.

WbM fits DB Automatic Update

Savannah issue: 129639

WbM people contacted, we found that:

- Fits were updated in the database manually, by dropping all fit tables contents and re-writing them. This was done by Zongru Wan. Now he left so no more updates were done

Proposed and accepted solution:

- Temporarily WbM people (i.e. Sho Maruyama) will update manually the plots parameters on the old table, so the current tools keep working.
- In parallel create a new Oracle Schema for the L1T DQM, with tables to have the fits data historically according with trigger key and LHC conditions.
- When the information in the new schema is accessible current utilization of old tables will be deprecated and we will move to the new schema.

WbM fits DB Automatic Update

- The proposed solution will allow current tools to be useful again on monitoring rates, allowing them to be integrated asap on the monitoring and (maybe) with alarms.
- Will allow offline DQM to use the historically correct DQM fitts to the collected data and not just the last ones, possibly done with different trigger key and/or LHC conditions.
- Request made for new DB schema, presenting our case to AlcaDB next Tuesday.

Sync Problem
L1T Rates vs Instant Luminosity

- Savannah Issue: 122368
- First observed 1 year ago by L1TRates module, now finally, understood (not test by us yet)
- We saw a none integer ~1.3 LS shift between Instant Luminosity a and L1T Rates apparent when a LHC Luminosity scan was preformed.
- In last DQM/WbM meeting we discussed that this issues is apparently 2 issues.

Sync Problem
L1T Rates vs Instant Luminosity

- **Issue #1:** One LS shift on the recorded luminosity information since this is calculate by doing ls_lumi*(1-ls_gt_deadtime) and this can only be done on ls+1 and is labeled wrong as ls+1 information
- **Issue #2:** Additionally the caculation of the recorded luminosity is also shifted by a non constant number of luminosity nibbles (according do Kaori, between 1 and 4). Making the total ~1.3 LS shift observed on L1T DQM.
- According to Kaori issue #2 should not affect the the delivered luminosity.
- I will change to code on L1TRate to use delivered luminosity apply manually the GT deadtime and see if this fixes this issue.

Discussion
Certification Criteria

Currently there is a discussion going on about what exactly should the L1T mark data as bad. Two approaches are on the table:

- **L1T will mark data as bad only if it is something wrong on the L1T**. Example, is ECAL is stuck with a hot tower sending +100kHz triggers and this is a detector issue we will make L1T as good since its on the ECA**L side.**
- **L1T will mark data as bad if we see anything wrong on the trigger what ever is the reason.** The example given before would make the L1T be marked as bad.

Discussion
Certification Criteria

- From my point of view, the second option is the best one if the dead time is allocated the the offending system if it not the L1T. We should focus on fast identification of problems and proper data certification. This would be a more robust solution in the sense that if the offending subsystem does not see the problem, we MUST spot it.
- Currently our tools work using this paradigms, if we see variation on Rate, Sync or Occupancy, where ever they come from, we will put this LS as bad.
- Of course, other point of views have their arguments and the L1T should make statement about this.
- Meeting next week is being planned with Central DQM to establish this once and for all!

L1T DQM To Do List I

- **Urgent:** Update the L1T/L1TEMU Layouts: ECAL people already contacted, need to contact other systems.
- **Urgent:** Update L1TRate Xsec X axis to current lumi
- **Urgent:** Change the HLT paths filtered as input to L1TSync.
- **Urgent:** Update DB strings for offline usage.
- **Urgent:** Deploy new render plugin

L1T DQM To Do List II

- Monitor RCT error flags and connect them to Alarm
- Tune tests for L1TRate, L1TSync and L1TOccupancy and connect them to Summary plot.
- Ask subsystem to provide more plots that can be used with L1TOccupancy
- Implement L1TRate, L1TSync and L1TOccupancy and additional L1TEfficienty on offline DQM
- Other yet, defined tasks :)