



# Muon DAQ

# 12th LHCb Hackathon

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# Decoding Muon Hits at Upgrade

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## Reminder:

- Digits decoded in "**MuonRawBuffer**"
- These are logical channel 'strips' that are then combined to find crossings (MuonCoords) in "**MuonRec**"
  
- Our starting point:
  - MuonRec algorithm re-written for upgrade. Significant optimizations in memory management, readability etc...
  - Mostly ported to a Gaudi Transformer algorithm
  - Instead of accessing MuonRawBuffer inside the algorithm, which accesses the RawEvent, it is now written in a way to take RawEvent as an input to the Transformer and pass to MuonRawBuffer

## Our goals at the hackathon:

- Validate that the new **MuonRec** algorithm does not have state and that all relevant changes have been made
- Rewrite MuonRawBuffer to take the RawEvent and decode in a 'GaudiFunctional manner'

# Other minor tasks, if anyone is interested...

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Implementation of a new container for MuonCoords.

Accessed by PrepareMuonHits and some other algs

- Old one is very suboptimal and saving result of MuonRec alg to MuonCoords takes more time than the MuonRec alg. Itself...
- Worth a discussion on whether MuonCoords should be skipped completely and instead go straight to MuonHits (MuonCoords with extra information)

Tests writing!

- Not glamorous but has to be done.
- Testing the output itself is an interesting task. Many things can change – e.g order, but not the crossings themselves