

Running/understanding HLT

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 - Configuring Hlt2 algorithms and writing lines
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Moore and Hlt2

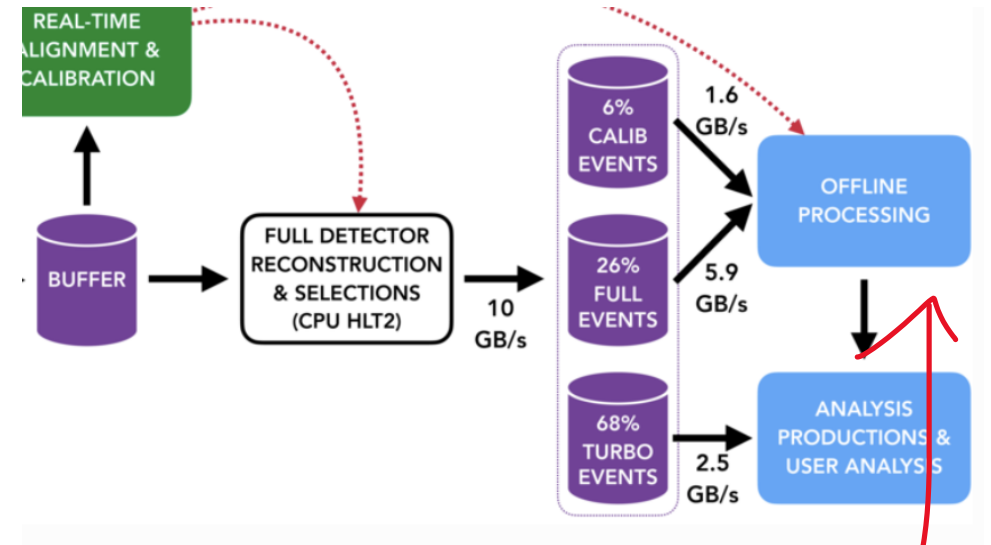
“HLT2, which performs a high-fidelity reconstruction and makes a decision based on the full detector read-out information.”

Docs:

<https://lhcbdoc.web.cern.ch/lhcbdoc/moore/master/index.html>

MM Channel :

`Upgrade Hlt2` for help/advice/discussion.
(**SEARCH** before asking!)



Sprucing,
also in
Moore

Running Moore

For purposes other than development, can use the lhcb releases mounted on CVMFS.

lb-run Moore/<version> gaudirun.py <options>

```
source /cvmfs/lhcb.cern.ch/lib/LbEnv
```

For development, see: yesterday's Talk by Andy on lb-dev

Specifies appropriate binary tag.

For Data: dd4h For MC: currently requires `+detdesc` builds

ep (default) builds

```
lb-run -c x86_64_v3-e19-gcc13+detdesc-opt+g Moore/v55r0 gaudirun.py options/hlt2/v0.py 2>&1 | tee hlt2_v0.log
```

Line Development

[\[gitlab repo\]](#)

Parameters of Interest

Physics use-case -> mode/topology:

e.g. precision electroweak analyses in Run3 -> high pt single muon and dimuon triggers

Rate [kHz]:

*On modern Hlt1 minbias, ($\# \text{ pass} * \text{ input_rate} (\sim 1\text{MHz}) / \# \text{ events}$)*

Bandwidth [MB/s]:

*On modern Hlt1 minbias, $\text{Rate} * \text{ avg. Event Size.} \sim \text{Rate} * \text{ filesize} / \# \text{ events}$*

Purity [%]:

Rate estimated from cross-section and luminosity / Rate of line acceptance

Signal Efficiency [%]:

On modern Hlt1 signal MC,

Retention ($\# \text{ pass} / \# \text{ events}$) or `CanRecoChildren` efficiency or ...

($\# \text{ pass} / \# \text{ events}$ with long-charged children particles within LHCb Acceptance)

Instructions

There's many existing lines and therefore many many examples per WG of how to do things

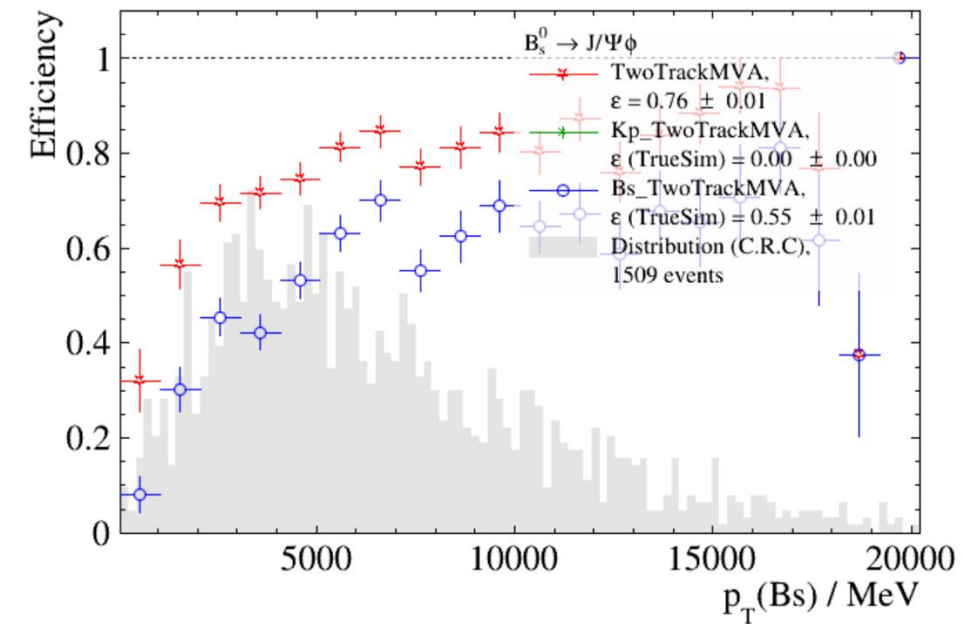
- Really the first call is to contact the relevant [PAWG RTADPA Liaisons](#) for your lines
- They'll point you towards their own scripts/guidelines for contributing.

HltEffChecker: [docs]

A tool to study HLT efficiencies, rates and overlaps

Bandwidth Tests: [docs]

The bandwidth tests emulate a trigger, reports bandwidths (and rates/overlaps) per stream, WG and line.



Hlt2 (output to tape)

