TriggerDecision update

PESA-Algorithms – 16 November 2006

Status in rel.12.0.4 nightlies
Next steps for TriggerDecision
Other random bits of news

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Status & changes

- ## Status
  - As far as I know, all working in 12.0.x nightlies
  - Please send me all error reports/requests asap

- ## TriggerDecisionMaker:
  - Added tauNoCut and e10, g10 to list of ignorable signatures
  - Copying L1 info from previous TriggerDecision
    - **Caveat**: only previous TriggerDecisions with the same base SG key are searched!
  - Printing out (lots) more summary info at the end of run
    - **Note**: L1 items will no longer have a prepended "i" (e.g. `iL1_2EM15I`)

- ## TriggerDecision:
  - Using MsgServiceProvider to print output info (instead of cout)

Problems found

- ## Segfault in Event Filter
  - EFResult::satisfiedSigs() was creating a segfault when called by TriggerDecisionMaker
  - In some situations (e.g. event failing L2) EFResult was created but "empty"
  - Tomasz solved this

- ## Short chains (e.g. L2 photon signatures)
  - The signature state was not correctly propagated correctly to the L2Result/EFResult
  - TriggerDecisionMaker gets results from L2/EFResult and was giving wrong results
  - Nicolas fixed this

- ## No L1 info when running on AODs
  - TriggerDecisionMaker gets L1 information from RoIBResult, not stored in ESD/AODs
  - So could not re-do L1 part when running from ESD/AODs
  - Problem solved in rel_3 nightly from 2 days ago:
  - Copying L1 map from existing TriggerDecision (suggested in parallel by Simon and Attila) into new TriggerDecision
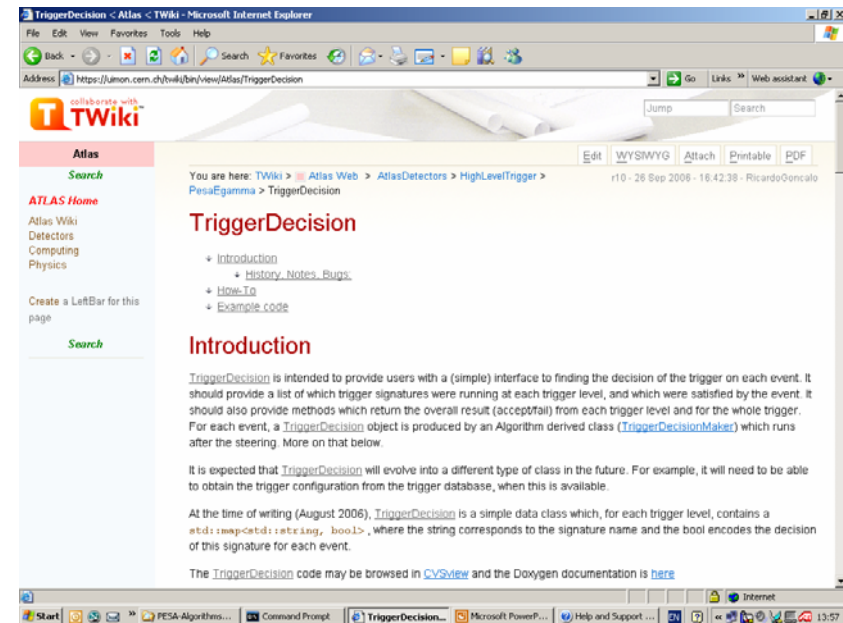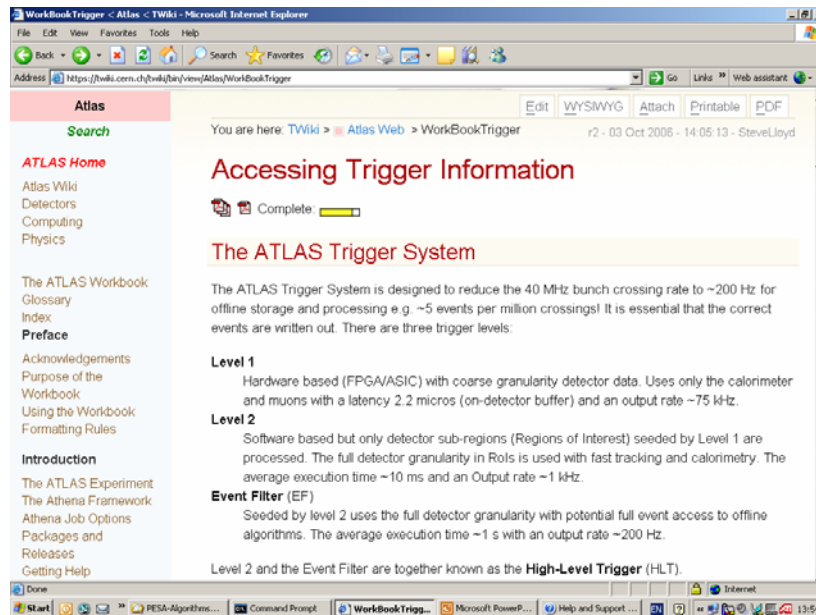
```
TriggerDecisionMaker              INFO Initializing TriggerDecisionMaker...
TriggerDecisionMaker              INFO Properties:
TriggerDecisionMaker              INFO  doL1            = True
TriggerDecisionMaker              INFO  doL2            = True
TriggerDecisionMaker              INFO  doEF            = True
TriggerDecisionMaker              INFO  TrigDecisionKey = MyTriggerDecision
TriggerDecisionMaker              INFO  TrigConfigL2Key = storeL2Location
TriggerDecisionMaker              INFO  TrigConfigEFKey = storeEFLocation
TriggerDecisionMaker              INFO  IgnoreItemNames = L2_e10 EF_e10 L2_g10 EF_g10
    tauNoCut tauNoCutef
. . .
TriggerDecisionMaker              INFO ==============================================
TriggerDecisionMaker              INFO REGTEST Run summary:
TriggerDecisionMaker              INFO REGTEST  Events processed    : 5
TriggerDecisionMaker              INFO REGTEST  Level 1 passed      : 5
TriggerDecisionMaker              INFO REGTEST  Level 2 passed      : 5
TriggerDecisionMaker              INFO REGTEST  Event Filter passed : 5
TriggerDecisionMaker              INFO          Total passed        : 5
TriggerDecisionMaker              INFO REGTEST  Unprocessed events  : 0
. . .
TriggerDecisionMaker              INFO ----------------------------------------------
TriggerDecisionMaker              INFO Signature summary:
TriggerDecisionMaker              INFO Level   type    Sig. Name    events passed
TriggerDecisionMaker              INFO  L1   signature  iEM01   5
TriggerDecisionMaker              INFO  L1   signature  iHA01   5
. . .
TriggerDecisionMaker              INFO  L2   signature          0
TriggerDecisionMaker              INFO  L2   signature  L2IDmuon       0
TriggerDecisionMaker              INFO  L2    dummy    L2_e10  5
TriggerDecisionMaker              INFO  L2   signature  L2_e10L2_e10   0
TriggerDecisionMaker              INFO  L2    dummy    L2_e10TRTxK   5
. . .
TriggerDecisionMaker              INFO  L2   signature  teL2topoZee    2
TriggerDecisionMaker              INFO  L2   signature  teL2e10trSiTrack       0
```

Documentation

- Wiki pages with information and example code for TriggerDecision:
https://uimon.cern.ch/twiki/bin/view/Atlas/TriggerDecision
- And in Workbook (Steve Loyd):
https://twiki.cern.ch/twiki/bin/view/Atlas/WorkBookTrigger

- Will need to give users a list of all available signatures in menu

Next steps

For rel.13:
- Write AANT algorithm for TriggerDecision

- Adapt TriggerDecisionMaker to new steering

- Get configuration from database

- Provide access to other trigger objects (TrigParticles, track truth, etc)

Other random bits of news

- **TrigElectron and TrigPhoton:**
  - Now inherit from PtEtaPhiM, INavigable4Momentum and NavigableTerminalNode (can be used in EventView)
  - Will be created in a FEX algorithm soon (12.0.4? not sure…)

- **TrigEgammaHypo:**
  - Running by default
    - Dummy signatures e10, e10TRTxK, g10
    - "Real" signatures 2e15i, e25i, e60, 2g20i, g60
  - For "real signatures" default tracking algo is now IdScan
    - SiTrack tracks still produced by dummy signatures so all studies possible
    - TRTxK done in its own signature