Developments for Trigger Configurations

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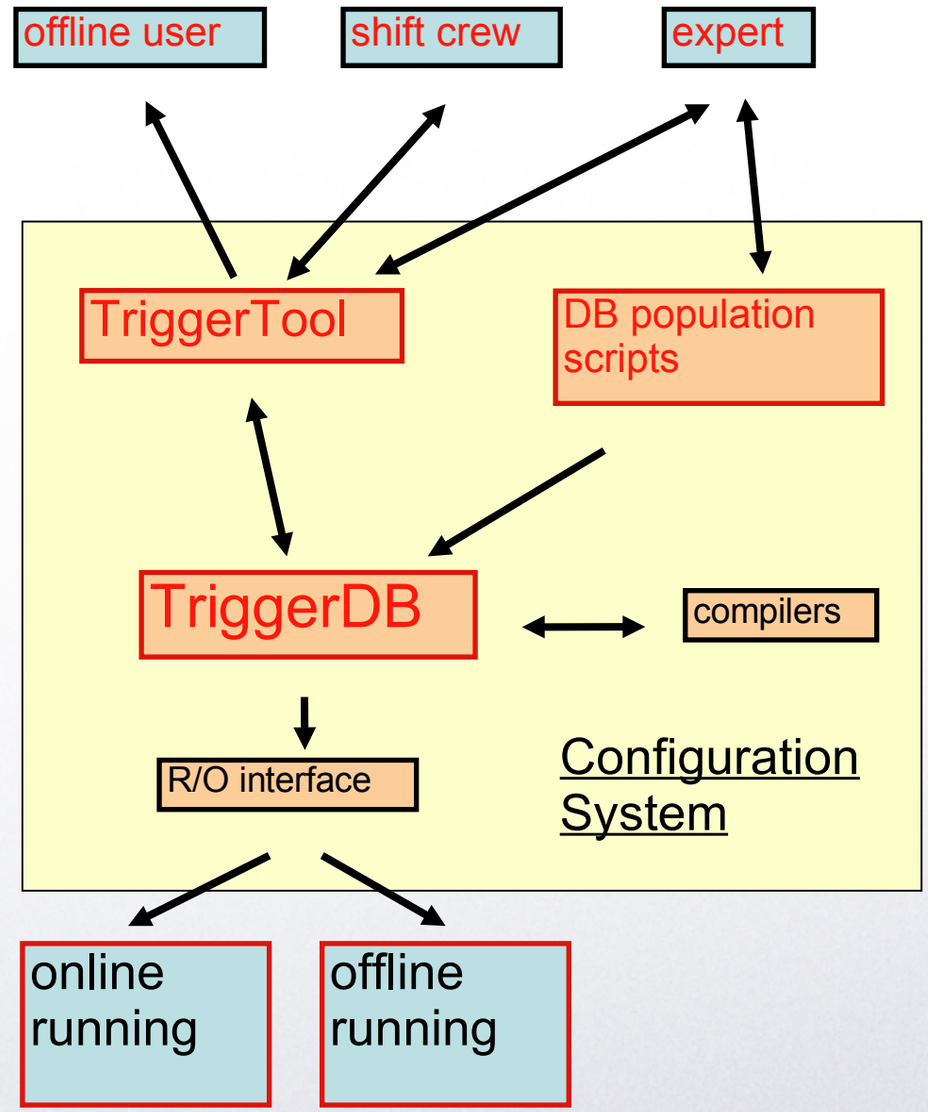
Introduction

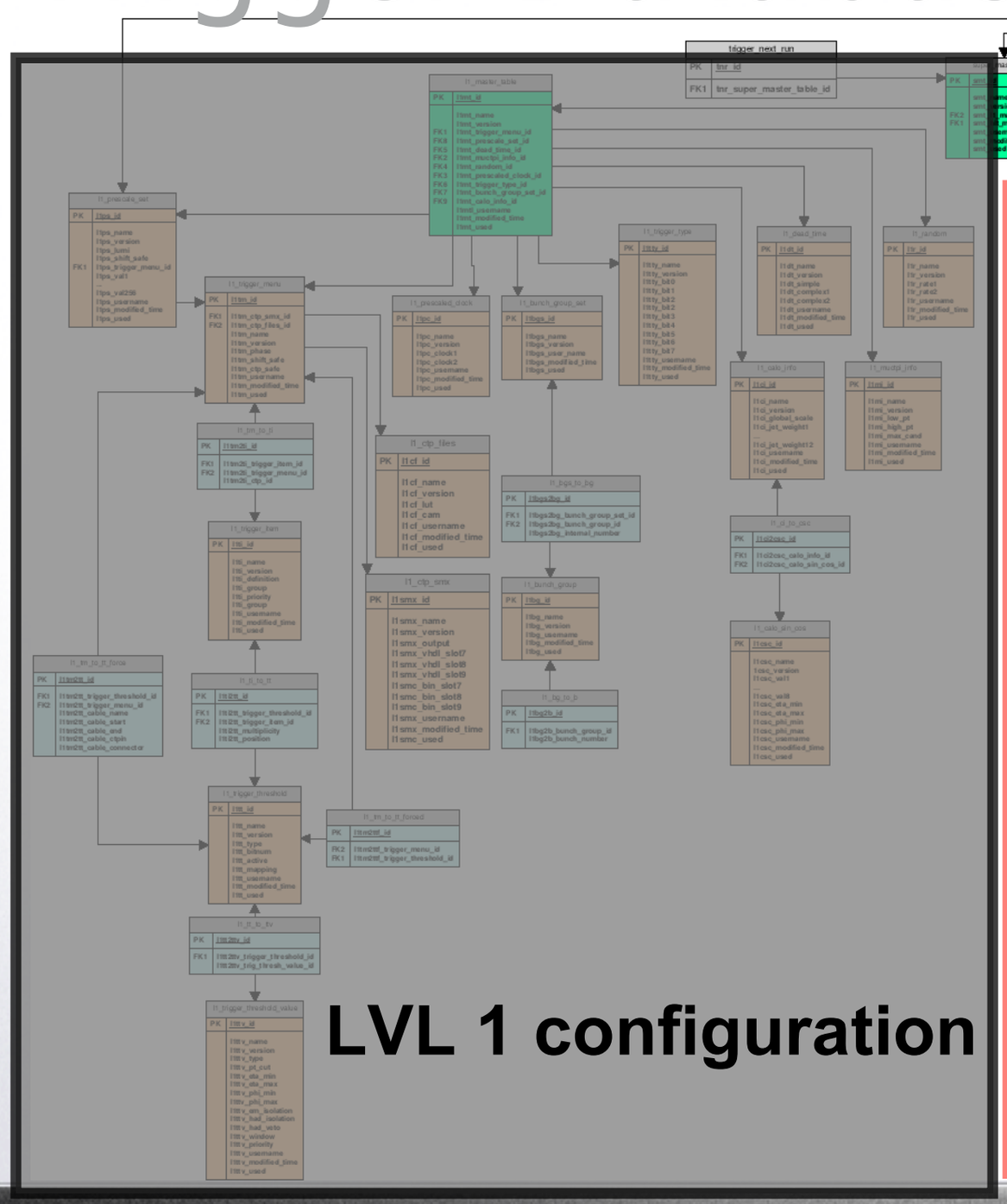
- Trigger configuration System
- Trigger DB
- Test of online running from TriggerDB
- Trigger Data Storage
- Summary

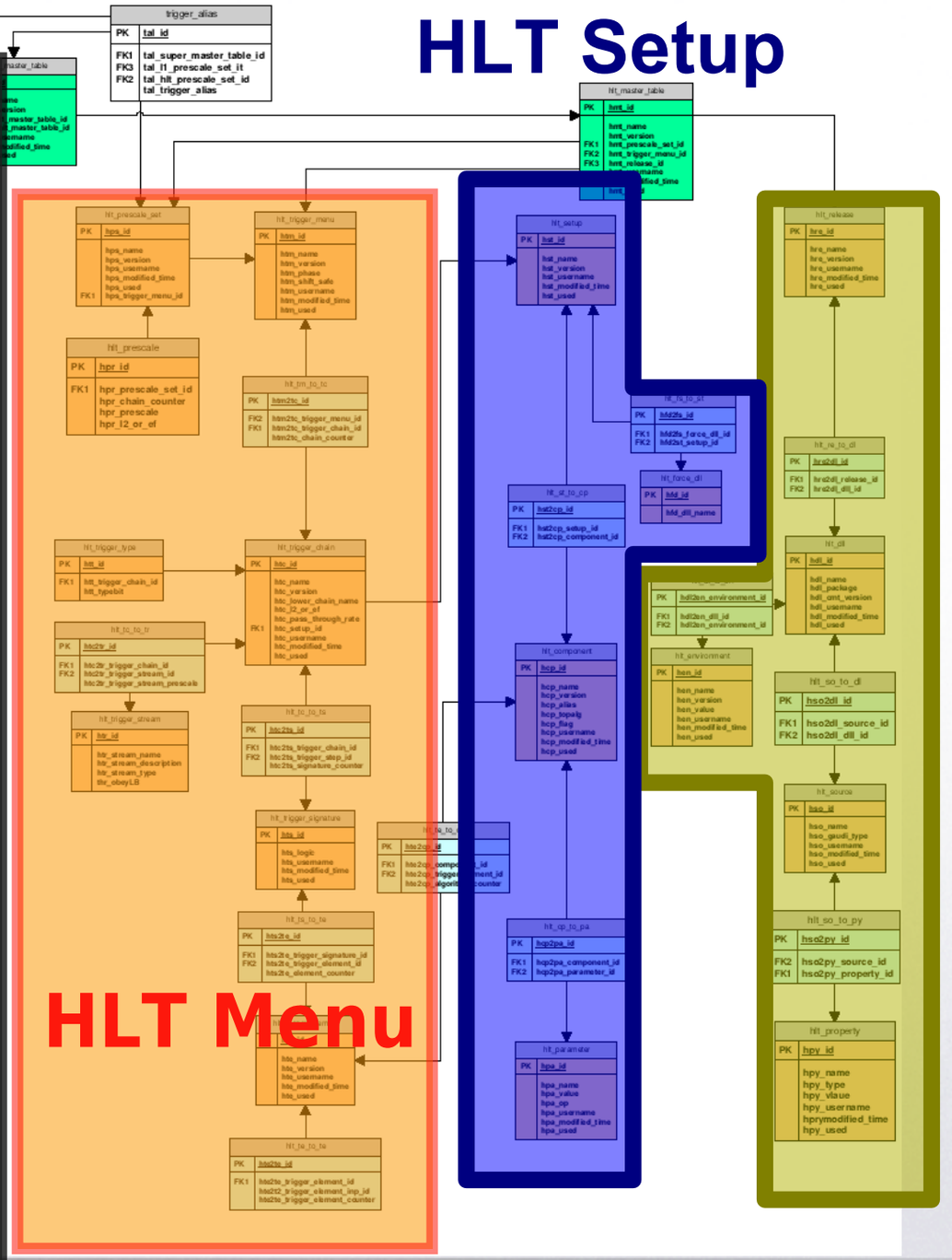
Trigger Configuration System

- **TriggerTool**
  - Java Front-End to TriggerDB
  - modification, browsing of TriggerDB
- **TriggerDB**
  - relational DB (Oracle and MySQL)
    - complete description of online event selection
- **Clients:**
  - online: central trigger, L1Muon, L1Calo, all nodes of HLT farm
  - offline: simulation jobs, also from TriggerDB



Trigger Database Schema





Contents of Trigger data in DB

- Master key for each configured menu
  (It is used by most of the applications as an input)
- Unique name, version and id for every item stored in DB
- Complete content of trigger configuration is stored on DB. e.g. Trigger elements, prescales, algorithms, parameters
- Intervals of validity (IOVs) of trigger data
  - Run : Masterkey, LVL1 items/HLT chains; HLT prescale/pass-through rates (Stored in DB)
  - LB : LVL1 prescale
  - Event : trigger decisions, algorithm instances, trigger elements, features

HLT Trigger DB structure

- HLT Trigger Menu (Lumi etc.)
  - HLT Trigger Chain (e10, Higgs) *L2 or EF*
    - HLT Trigger signature
      - HLT Trigger Element
- HLT Setup (setup for chains)
  - HLT Component (services, manager, algorithms)
    - HLT Parameter (component parameters)
- HLT Release

Trigger configuration databases
(Upload scripts)

MySQL or Oracle

xml files:

EF Setup
L2 Setup
HLT Signature
HLT Sequence
HLT Release

python scripts:

xml2db.py

DB

python scripts:

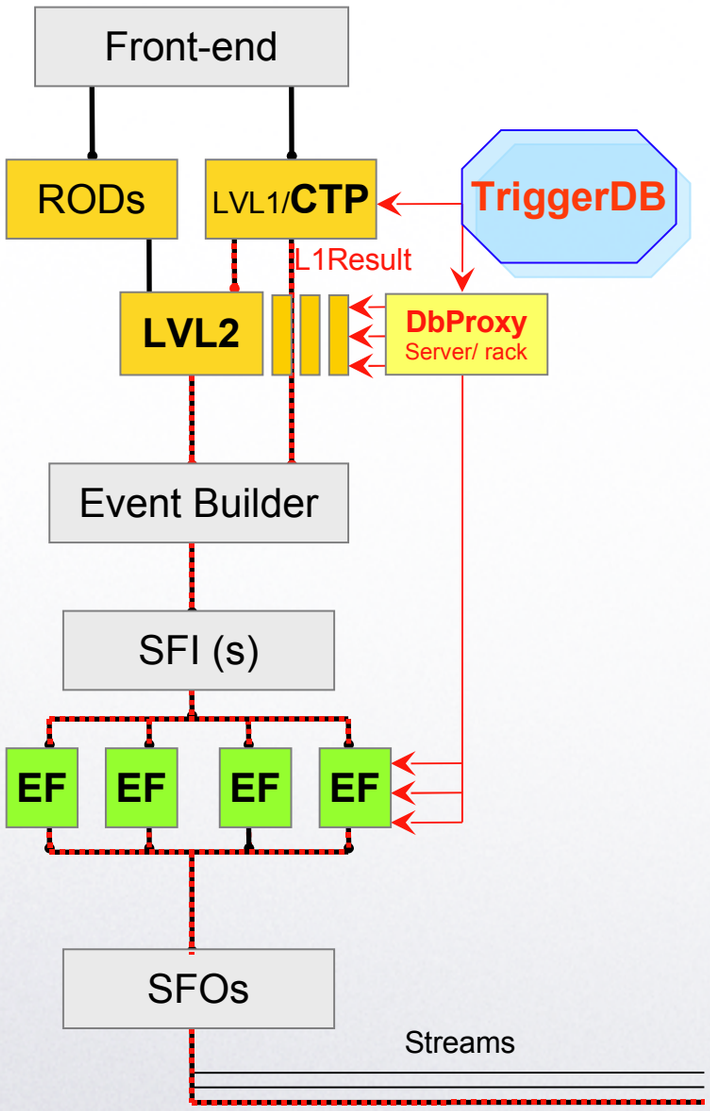
db2xml.py

xml files:

EF Setup
L2 Setup
HLT Signature
HLT Sequence
HLT Release

Small differences between databases.
For both is used SQL language.
Oracle will be most probably the main one.

Online running from TriggerDB



Tested in Technical run:

10 different configurations (slices):
Electron, Photon, Muon, Tau, Jet ...

Combined physics slice:
Electron + Gamma + Tau + Jet + Muon

Successful running

Trigger Data Storage

- Trigger configuration storage:
- **TriggerDB** - all configuration stored (once the trigger menu was used flag is set)
- Essential configuration data stored as conditions: **CondDB (COOL)**
- During data taking: event trigger data stored in **Raw Byte Stream (BS)**
- During reconstruction: trigger conditions and event data into **ESD/AOD**
- From merged AOD files create TAG files+DB with essential trigger data

??? Store the Trigger Content in TAG DB after reprocessing the ESD/AOD ???
(under discussions)

Summary

- The Trigger DB schema is under constant development
- Preparing the technical run 21-25th May
- How to implement changes on more abstract level?
- How to store older data in DB after change of schema? etc.