TGC cabling Service

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TGCcabling Service

- TGCcabling Service (TGCcabling12 package) has
  information of cabling between chamber channels and readout and trigger electronics channels
  - All cabling information between each electronics components and chamber channels are described
  - It is used not only for converters
    - RDO : Readout ID ←→ Offline ID : PRD

    but also by LVL1 Trigger simulation
  - Cabling maps are described in ascii files
    - ASD2PP_12.db
    - PP_12.db
    - PP2SL_12.db
    - SLB2ROD_12.db

    } **12-fold symmetry**
    i.e. 'perfect' cabling

    - ASD2PP_diff_12.db

    Describes mis-cabling/swap etc.
    Will be migrated to COOL DB

Identifiers

- Offline ID
  - Identifiers for each wire/strip channel
    - *TGCIdHelper* provides an interface to the fields of the ID
  - Basic ID in PRD and used by many tools (tracking/DQA….)

- Online ID
  - Identifiers for each wire/strip channel
    - subsystemNumber
    - moduleNumber
    - rNumber
    - channelNumber
    - octantNumber
    - layerNumber
    - wireOfStrip
    - 1 to 1 correspondence between Online and Offline ID
  - TGC Private ID used by mechanical numbering (cable label etc…)
  - Used to convert Readout ID ←→Offline ID

Identifiers (cont.)

- Readout ID (corresponds Online ID in other Muon Cabling Svc)
  - Identifiers for each channel of readout electronics
    - subDetectorID
    - rodID
    - sswID
    - sbLoc
    - channelID
    - N to N correspondence between Online and Readout ID
  - ID in RDO (hit info) and simulation (*TrigT1TGC*)

- Trigger IDs
  - Identifiers for each trigger electronics component
    - Sector
    - HighPt
    - LowPt (tracklet)
    - SectorLogic
  - ID in RDO (trigger info) and simulation (*TrigT1TGC*)

TGCcabling: 8-fold cabling

- TGCcabling12 is describes actual cabling and has been used by analysis for commissioning/cosmic/single beam
- But, TGCcabling (8-fold cabling) has been used for simulation because of backward compatibilities of simulation BS/RDO
- Using TGCcabling12 (12-fold cabling) is mandatory to keep consistencies of
  - CW configuration
  - BS/RDO

  Between simulation and real data.
- We will move to TGCcabling12 for simulation and real data
  - i.e. TGCcabling package will be obsolete…

TGCgeometry

- TGCgeometrySvc is used only for LVL2 tracking
  i.e MuFast (and related)
- TGCgeometrySvc gives global position of channels described by Readout ID
  - TGCgeometrySvc creates LUT
    - Readout ID is converted to Offline ID by using cabling svc
    - Global position is obtained from Offline ID by using geometry service
- LUT should be re-calculated if
  - Cabling svc
    and/or are modified
  - Geometry