Management of Geant3 geometry

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Outline

- Status of geometry description in DICE
- Geometry update
  - To be updated
  - Some consequences
- Summary

Status of geometry description

- Inner Detector & Calorimeters
  - ~ stable since February 1998
    - digitization routine for the COIL
    - bug fix to crack scintillator position
  - new digitization for the TILE calorimeter implemented
- Muon
  - M 2.8 database in October 1998
    - new matter
    - new digitization
- No modifications after October 1998

Status of geometry description

- Physics TDR data
  - Production based on
    - 97_6 Jets, some calorimeter & B-physics studies
    - 98_2 (a) if 'muon' not critical
    - 98_2 (b) with AMDB M.2.8 for muon studies
  - All executables based on CMZ version
  - PCSF (NT) intensively used for data production

Status of geometry description

- Everything ported to srt/cvs in June 1999
  - new (reduced) simulation performed at the same time
- testing requested to the 'Physics' community
  - to validate the "srt/cvs" DICE simulation
  - took more time than expected
  - See http://www.cern.ch/Atlas/GROUPS/SOFTWARE/HELP/testing/
- decided to build the 'Production Release'
  - 1.0.0 completed 26 April 2000
- ready for a new version!

Geometry update ...

- Inner Detector
  - PIXB minor + digitization
  - PIXE 5 disks instead of 4
  - SCTT minor (straw shorter in all directions)
  - ZSCT minor (electronic & cooling)
  - XTRT modular geometry by default
  - INAF new services
  - request to have non-homogeneous magnetic field by default
- Beam pipe
  - size, external radius (+1 cm).
  - consequences on B-layer !!
  - Meeting on May 15th!

Geometry update ...

- Muon Spectrometer
  - more complete detector description from AMDB database
    - considered as consolidation from Physics TDR
  - RPC layout updated (overlapping)
  - CSC new type of chambers
    - new geometry
    - new digitization
    - new code

Geometry update ...

- Packages to be modified
  - commons
    - cleaning of 'structure'
      - avoid duplication (introduced for historical reasons)
    - add dedicated directories (e.g. atutil)
  - dice, atutil
    - new 'structure'
    - new code
- Who
  - responsible from the sub-detectors

To be updated ...

- 1st step (end May)
  - AMDB Database
    - new matter added (used for reconstruction only)
    - new RPC layout
  - ATUTIL
    - UTAMDB
      - matter description from database
    - UTMUON
      - some utilities transferred from Muonbox
    - UTFIELD
      - minor changes
  - DICE
    - RPC related code
    - Inner Detector part
      - already intensively tested
  - COMMONS

To be updated ...

- 2nd step (mid July?)
  - Database
    - AMDB introduce CSC's
  - ATUTIL
    - UTAMDB
      - for CSC's
  - DICE
    - CSC related code
      - heavy
    - beam pipe
    - B-layer
  - COMMONS

Some consequences ...

- Update of reconstruction code
  - AxxxRec
    - data preparation to be adapted
  - iPatRec
    - take into account geometry modifications
  - xKalMan ++ instead of xKalMan
    - magnetic field (non homogeneous)
    - new pixel geometry
    - TRT modular geometry to be added
  - MuonBox
    - obvious reasons (see J.F. Laporte talk)

Summary ...

- Geometry modifications
  - essential for Detector studies
  - essential for Trigger studies (TDR next year)
- Update at least in 2 steps
  - still modifications till the end of the year (?)
- Serious modifications of reconstruction packages will be needed