FCC Software Status Update

Hadron Detector Meeting

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Re-cap of status shown at FCC week (I)

Fast and Full Simulation

- Full Simulation functional
- Fast Simulation progress:
  - Tracking:
    - Momentum dependent formulas (done)
    - Input from tkLayout (done)
    - Obtaining resolutions from full simulation (need track reco)
    - Based on reconstruction geometry (part of ACTS)
  - Calorimetry:
    - GFlash (done)
    - Frozen showers (possible to be provided)

Re-cap of status shown at FCC week (II)

Tracking

- A first release of ACTS (imminent)
- Integration with FCCSW (on-going)

Delphes integration

- Ready to be used
  - No canonical analysis example from FCC-EDM to final plots (volunteers needed)
  - Currently validating code clean-up (on-going)

Analysis framework

- Example workflows are ready:
  - Uses Pythia+Delphes in FCCSW
  - Analysis based on HEPPY
    - Analysis skeleton ready, waiting to be used :-)
    - Tutorial being worked on

Detector Geometry

- ECal and HCal
  - FCCSW versions being validated against stand-alone implementations
- Tracker
  - Rather out-dated mock-up
  - Discussions on tkLayout geometry export on-going
- Magnets
  - Volumes defined (dipole version)
  - Concrete magnetic field provider still missing

Infrastructure

Installation of FCC software on CVMFS (CernVM File System)

- Prerequisite for running on the grid (no support of afs at most sites)
- A small pilot validation with ATLAS grid resources on-going
  - Need FCC Virtual Organisation to gain official grid quota
  - Simultaneously trying to get lx-batch quota

Planned:

- Integration with CLIC grid tools

Summary

Progress in several areas

- First ACTS release around the corner
- Base-line geometry for calorimetry being integrated
  - Valuable feed-back for Geant 4 interfaces and infrastructure
- Full Simulation ready, Fast Simulation being extended
  - More tools for monitoring coming soon
- Delphes and Analysis framework ready to be used
  - Would be great to see first use-cases

Expanding documentation - fccsw.web.cern.ch