

Summary of Combined Testbeam Software Discussion

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Introduction

- The following is intended to be a “football version” that we kick around.
 - Comments are welcome (necessary!).
- There is general agreement that the amount of work is large and that we should be careful to develop a work plan that fits with the number of people that we have available.
 - Please comment on the scope of what I propose
- An approximate list of people involved in the discussion (please point out people that I missed):
 - Chafik, Fido, Mogens, Daniel, Peter, Paul, FL, Ken, Jolanta, Roberto, Ole, Anatoli, Serge, Vladimir, Andrei, Yura + NBI student?

Task Blocks

- Ken asked for a “block diagram” of the tasks and I will make it next week. Here are the current tasks:
 - **Monitoring:**
 - ROD-based monitoring
 - Standalone monitoring
 - Athena-based combined monitoring
 - **Database:**
 - Identifying data needs to be stored
 - Contact with rest of the project
 - **DCS**
 - **Calibration**
 - **Event display**
 - **Offline:**
 - Reconstruction of TRT Data
 - GEANT4 Monte Carlo
 - Comparison with GEANT3

Monitoring

- We want a standalone monitoring (based on existing code) to guarantee that we can setup our hardware.
- Three separate monitoring areas:
 - Rod-based monitoring to confirm ROD data integrity
 - Should be fast & simple...
 - Primarily for making sure that readout hardware is working properly
 - People: Paul, Ole
 - Standalone monitoring
 - Code reusable for Athena-monitoring?
 - Needs to deal with the practicalities of monitoring 420,000 straws
 - Does this read data from a ROD spy stream or does it run in the crate?
 - People: Serge Sm, Paul
 - Athena-based combined monitoring
 - Based on offline
 - Needs to deal with the practicalities of monitoring 420,000 straws
 - People: Roberto, Peter?

Database

- Developing a database containing the full set of TRT information is potentially a large effort.
- We need to generate a list of what information the database will contain.
 - It is much more pressing to identify what TRT information the database must contain then to choose a database system.
 - That said Serge Sm. suggests using Nova
- I have received mixed opinions about whether we need a TRT database coordinator.
 - I agree with Fido that now is the time to select one person to be the contact.
- I would like to see this “hot potato” assigned to a specific person who will come back with a skeletal working document quickly (say two weeks).

Database Content:

- Partial list of what we need to store in the database:
 - Parameters in rd6data file (e.g. module locations)
 - Parameters in rd6config file (e.g. thresholds)
 - The buffer mapping
 - Geometry of modules and straw positions
 - Rt parameters (how many point per straw?)
 - Alignment parameters
 - DCS (e.g. LV values, HV values, gas gain parameters)
 - Channel masks (dead, noisy)
- This data needs to be connected to the Interval of Validity Service (IOV) which tracks for which time frame (e.g. run number range) a datum is valid.

DCS, Calibration, Alignment, Reco

- These are the tasks that feed data to the database
 - Strong connection with database task (obviously)
 - Must have feedback loop with offline tasks to verify validity of data provided by these areas.
- Alignment data is a special case because to generate it requires offline reconstruction of tracks (i.e. the full reconstruction chain).
- People:
 - DCS: Jolanta
 - Calibration: Paul, Ole
 - Alignment: Peter

Event Display

- We should not forget event display.
- Two possible event display work areas:
 - Standalone event display for debugging mapping and hardware problems.
 - TRT portion of a combined event display.
- People: ??????

Offline Software

- This category encompasses both the offline processing of the actual data from the testbeam and Monte Carlo simulation of the testbeam setup.
 - Clearly large parts of this work overlap with the general monitoring task and we should make every effort to ensure that the code is usable for online and offline work.
- There seems to be a considerable range of opinions among ourselves on how aggressive we should be in going for a full scale implementation of this in Athena.
 - Daniel is keen to use this year's data to construct routines necessary for getting data into Athena and to test reconstructing tracks.
- One good news is that working with Mogens, Jakob Nielsen has simulated this summer's testbeam setup.
 - This simulation is in GEANT4

Dataflow Proposal (Daniel)

- Daniel suggested the following possibility for getting data into Athena:
 1. Start with this summer's data. Serge Sm says that it is very similar in format to the official DAQ format.
 2. Convert it to bytestream format.
 - People: Serge Sm with help from Andrei and Yura.
 3. Run RDO converter.
 4. Try to reconstruct the tracks using xkalman++ & Athena
 - Use a simple external seed initially
 - People: Vladimir, Roberto
 - This will require treating Si telescope data as data from a “fake” subdetector (could use average beam track initially).
 - Roberto will probably be the Athena monitoring contact.
- The goal would be to have this working with both Monte Carlo and 2003 TB data by the Christmas.

Summing Up

- We need to designate contact people for tasks:
 - Database content (urgent)
 - Alignment
 - Athena monitoring
 - Calibration
 - Event Display
 - Others?
- We need to schedule a series of follow-up meetings.