Analysis Tools

Status and Plans

ATLAS Software Workshop

1.12.99

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Overview

- New ATLAS analysis tools pages
  http://atlasinfo.cern.ch/Atlas/GROUPS/SOFTWARE/OO/domains/analysis/analysis_tools.html
- Analysis tools requirements and use cases
- CBNT with Objectivity/LHC++
  (presented at Reconstruction meeting 30.11.99)
- Plans

New ATLAS analysis tools pages

- Available tools and how to access/install and use them in ATLAS (in alphabetical order)
  - JAS
  - LHC++
  - Open Scientist
  - ROOT
- Event Display (links to Graphics, Aravis, Atlantis , PERSINT , WIRED)
- ATLAS pilot projects and evaluation exercises
  - with LHC++
  - with ROOT
- Developers' Corner
  - AIDA - Abstract Interfaces for Data Analysis
  - IGUANA - CMS Interactive Graphical User ANAlysis
- Requirements and Use Cases
- Analysis and Design
- News, Meetings, Presentations
- Interesting pages from other projects

Requirements and Use Cases (I)

- **Initial requirements** compiled by K. Sliwa and R. Somigliana
  - presented and discussed at the Analysis Tools Workshop in May
  - agreed to invite input (esp. in terms of use cases) from physics community
- **Questionnaire for requirements and use cases** circulated in mid-November
  - **Tool Check List**
    What tools do you use for each task (data storage and retrieval, event selection, interactive work, batch work, histogramming incl. histogram storage and retrieval, minimisation and fitting, plotting and visualisation, other (please specify) and what are their advantages and disadvantages
  - **Questionnaire for Use Cases**

    What events do you (expect to) look at? How do you select the events and which pieces of the event are needed? What processing steps are needed for the event analysis? How many times do you access the events?
    What tools do you use in each processing step? What are your performance requirements at this stage?

Requirements and Use Cases (II)

- **Questionnaire for requirements and use cases**
  8 replies received and posted on WWW - information regrouped as follows:
  - Tools used; advantages/disadvantages *(all)*
    - CERNLIB components
    - ROOT
    - JAS
    - LHC++ components
  - Generic use cases *(J. Collot)*
  - Physics use cases
    - A -> tau tau *(D. Cavalli, S. Resconi)*
    - B -> h+ h- *(D. Rousseau)*
    - Jet/EMiss *2 *(M. Bosman)*
    - Jet Trigger *(J. Pinfold)*
    - Pileup in calo *(J. Pinfold)*
    - Fast Monte Carlo *(E. Richter-Was)*
  - General suggestions *(N. Konstantinidis, E. Richter-Was)*
  - Extracted requirements *(initial compilation by F. Gianotti)*

Requirements and Use Cases (III)

- **First conclusions for requirements**
  - at least the same functionality as PAW but better minimisation and fitting as well as better interactivity in graphics
  - ability to use any reconstruction routine as well as all HEP libraries
  - hierarchical structure of stored information and event tags
  - access to ntuples, variety of input files
  - scripting interface (incl. History) as well as GUI
  - event display and event browser
  - **Critical issues: *must the tool have***
    - hooks to interactive simulation and reconstruction?
    - database access?
  - simplicity, documentation, user-friendliness
  - debugging facility
  - portability
  - price (free!)

Requirements and Use Cases (IV)

- **Plans**
  - Compile requirements using original source (K. Sliwa et al) and received input from physics community
  - Review requirements and submit to tool authors together with generic use cases
  - Start evaluation exercises using requirements, generic use cases and physics use cases in order to
    - evaluate short, medium and long term needs
    - give concrete feedback to the various tool providers
    - familiarise the user community with the new technologies and tools

    It is understood that no long-term recommendations can be expected at this stage

Plans

- Start evaluation exercises using collected requirements and use cases
- Continue on-going pilot projects and evaluation exercises (e.g. CBNT with Objectivity/LHC++)
- Participate in AIDA (Abstract Interfaces for Data Analysis) project and evaluate emerging prototypes
- Evaluate IGUANA (Interactive Graphical User ANAlysis by CMS) esp. as possible common project

Any volunteers?