

# Offline Software Status

## GlueX Collaboration Meeting

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# Outline

- HDGeant4 Meetings
- halld\_recon version control and launches
- XROOTD server
- Crash fixes
- Event Generator Realism (EvtGen)
- Time-History Plots
- Upgraded Time-of-Flight software
- New database servers for use on the farm
- Summary/Conclusions

# HDGeant4 Meetings

- Meetings continue
- Summer slowdown in activity
- Issues still being raised and studied
- Biggest differences seen in response of calorimeters to charged tracks, especially in timing.
- Compare HDG3 vs. HDG4 vs. real data

## halld\_recon Version Control and Launches

- Reconstruction launch creates REST data with one version of halld\_recon.
- Analysis launch uses REST data as input, creates ROOT trees, uses newer version of halld\_recon.
- Monte Carlo needs **both** versions of halld\_recon. One to produce REST files, the other to produce trees.
  - ▶ Justin succinctly summarized the problem.
- Implemented solution: new table to keep track of history of these pairs.
  - ▶ MCwrapper can read table, only allow valid pairs.

# XROOTD Server

- XROOTD server up and running on scosg16.jlab.org (the submit host)
- Allows streaming of files (no need to copy to remote disk)
- MCwrapper uses XROOTD to stream random triggers from JLab
- Next step: stream input data for reconstruction/analysis jobs

# Crash Fixes

- Started as the “crash in ST matching”
- Alex A. reported the problem. Sean, Beni, Simon, Justin, and David studied it. David diagnosed it.
  - ▶ Create an object from the heap in brun
  - ▶ Use it in evnt
  - ▶ Launch multiple event threads all with same pointer
  - ▶ When thread ends, object gets deleted
  - ▶ An early exiting thread leaves with the punch bowl
  - ▶ Party ends abruptly (segfault)
  - ▶ Blame assigned to the innocent
- Bug pattern found in many plugins. Appears to have propagated via copy-and-paste. Sean scanned through plugins and fixed them.
- Crashes from multi-run analysis jobs similar: objects created at beginning of each run not propagated correctly. –Sean

# Event Generator Realism (EvtGen)

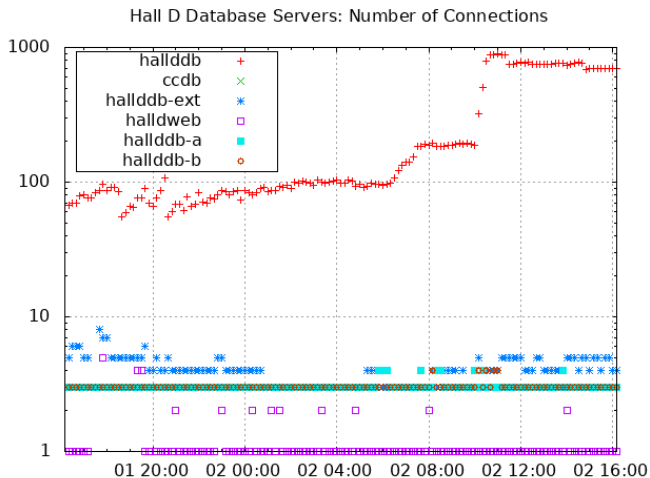
- Sean brings in the EvtGen package “industry standard”
- Better models for particle decays
- Uses text configuration files
- Implemented as post-processor for HDDM-formatted event files

# Time-History Plots

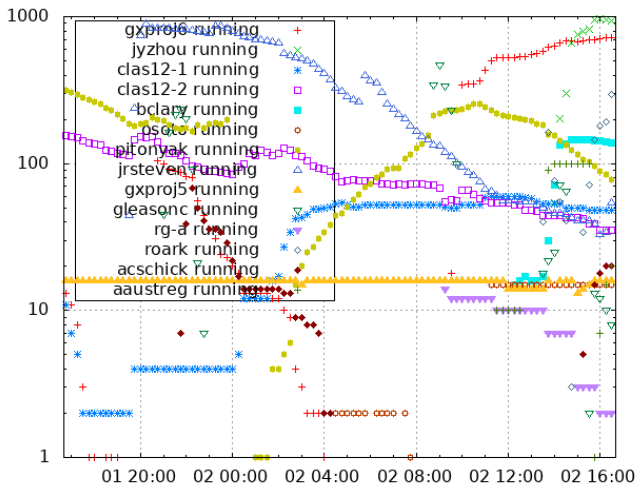
- New package to keep track of time dependent quantities
- CSV files for data (this is on you)
- Text configuration files for plotting



# Number of MySQL Server Connections



# Job Count, Currently Active Users



# New Database Servers for Use on the Farm

- halddb-farm.jlab.org
- DNS alias for pair of new servers
- Went into production this week

# Summary and Conclusions

- HDGeant4 in widespread use by the Collaboration
- Need to get XROOTD streaming going
- Documentation...