Event Display Progress

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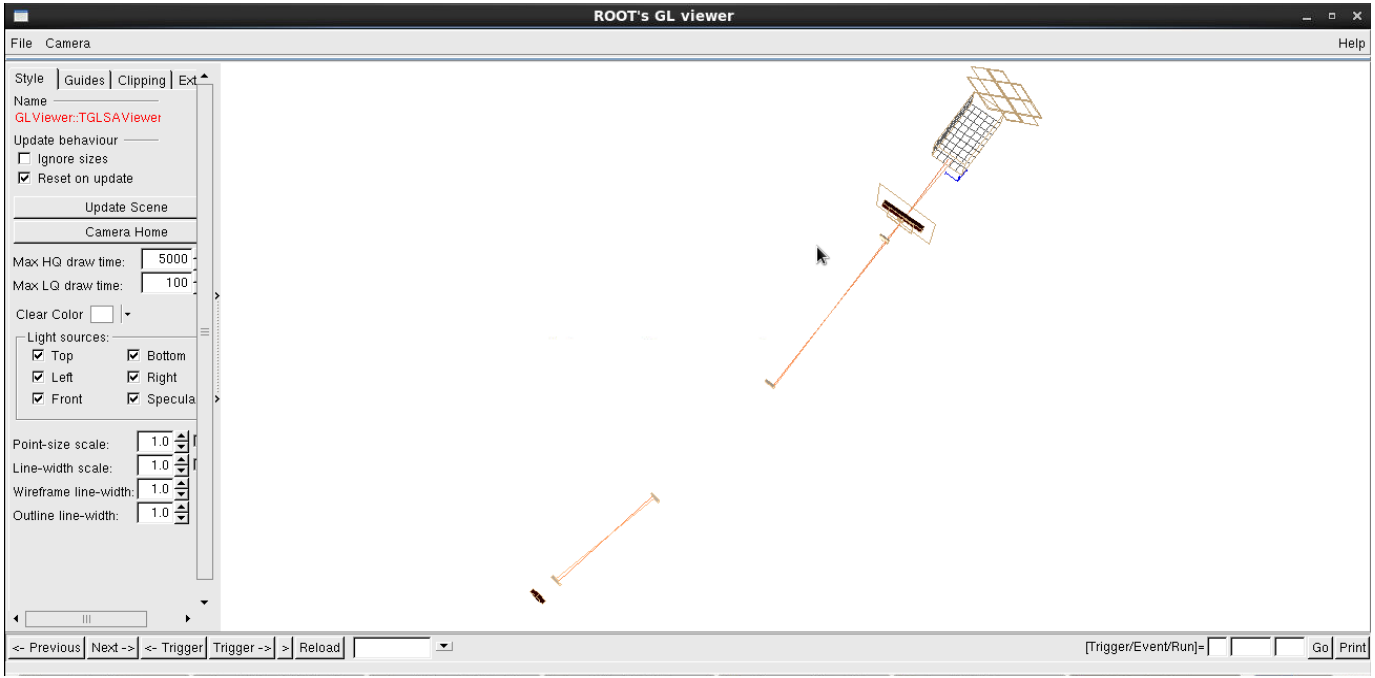


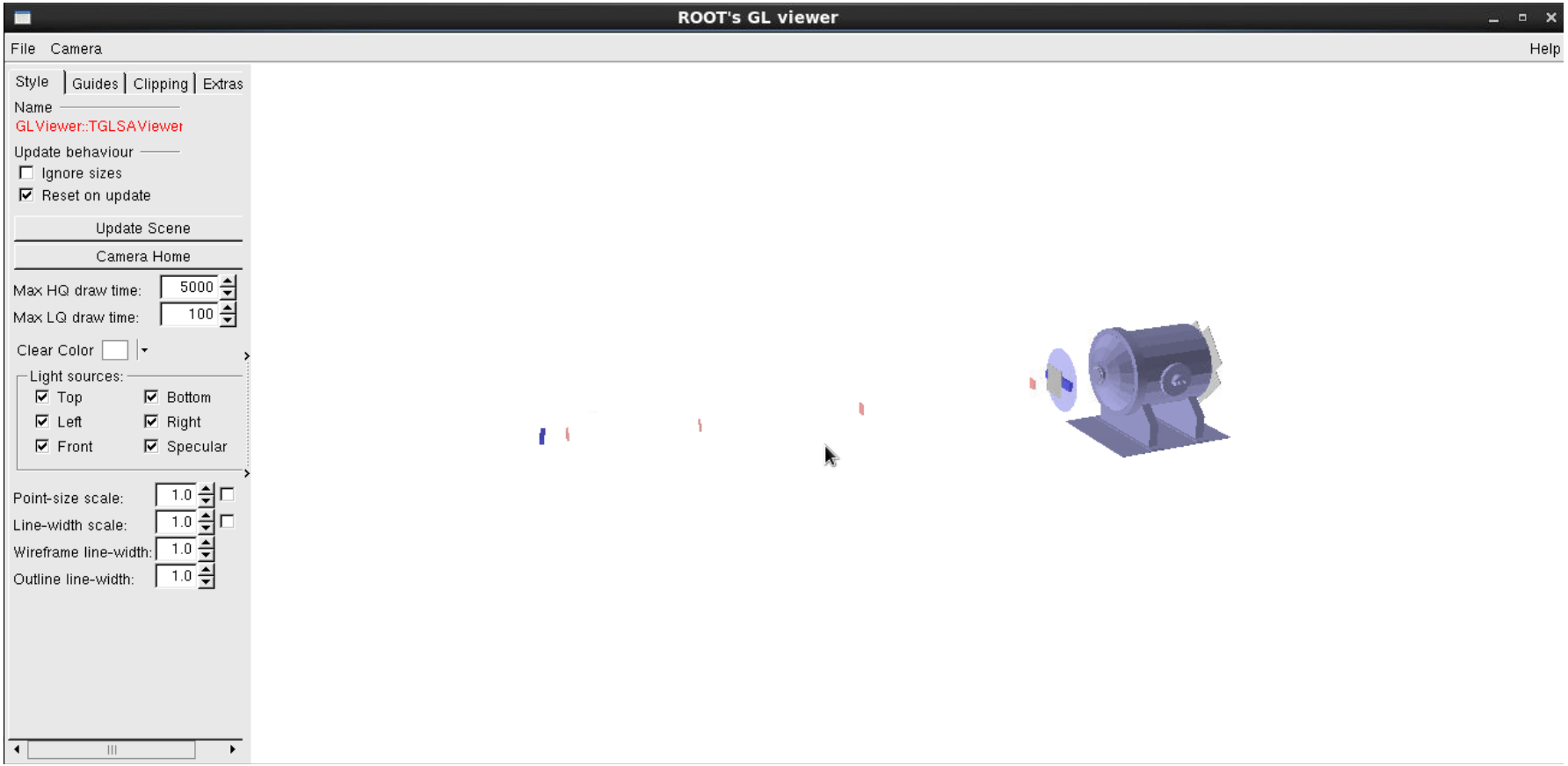
Original Objectives

- Draw beamline detectors in event display
- Draw Beamline detectors close together to be seen easily
- Draw data from beamline detectors in same view

Detector Geometries

- LArIAT geometry described by a gdml file in LArSoft
- LArIAT geometry included only TPC and Minos Near Detector
- Generated geometry file from LArIAT beamline simulation in G4Beamline, but still missing some details...

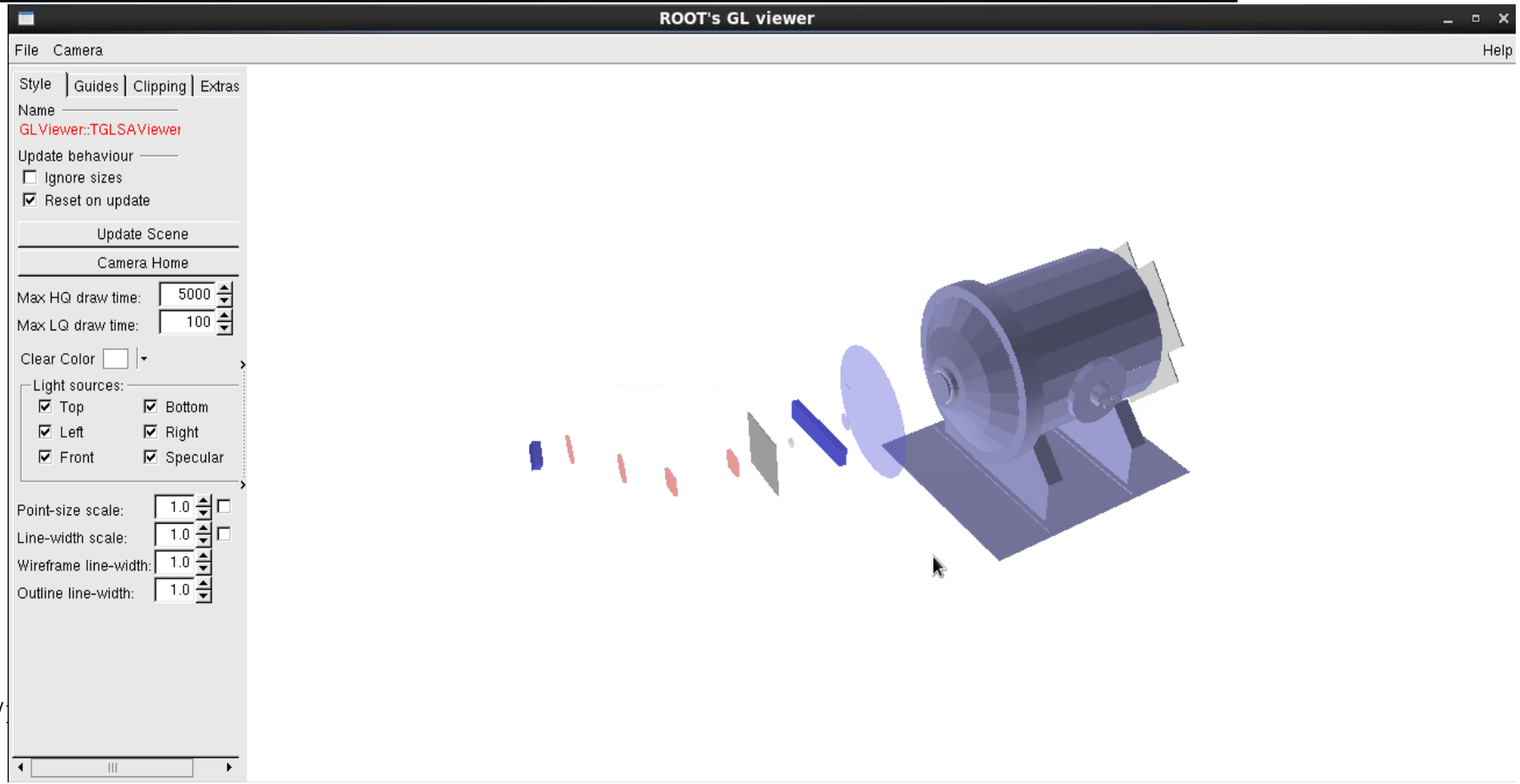
LArIAT Beamline Geometry



Remaining Geometry Problems

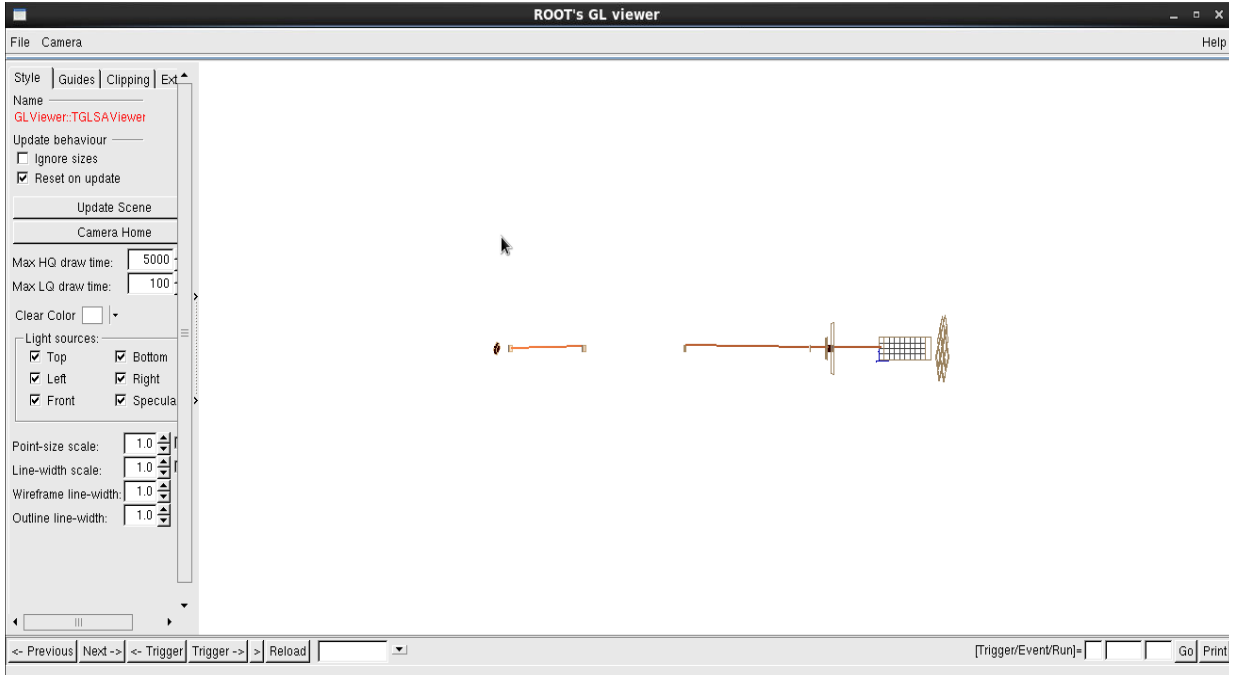
- Punch-through veto is inside the cryostat!
- Does not include the Muon range stack, cosmic counters, and aerogel counters
- Please let me know if you have good estimates or schematics of the dimensions and positions of these detectors.

Collapsed Geometry



Wire Chamber Tracks

- Ryan's wire chamber tracks look great
- Not drawing segment between magnets



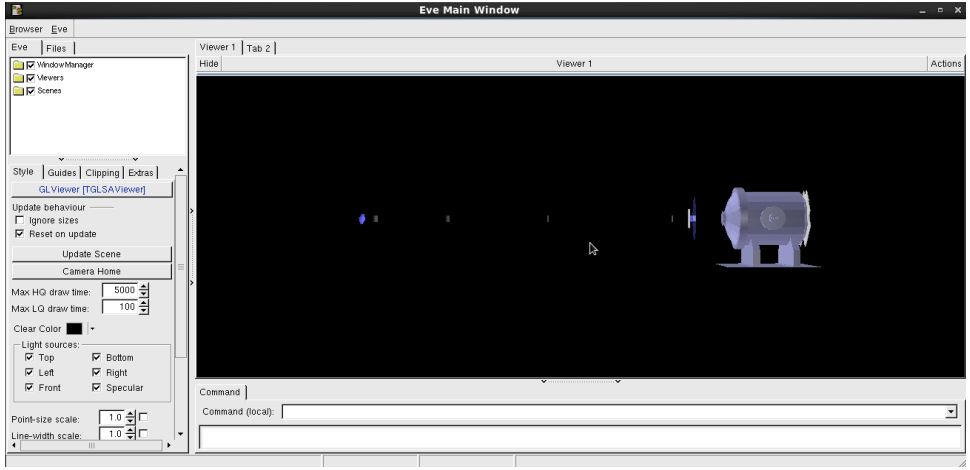
Looping Over Triggers

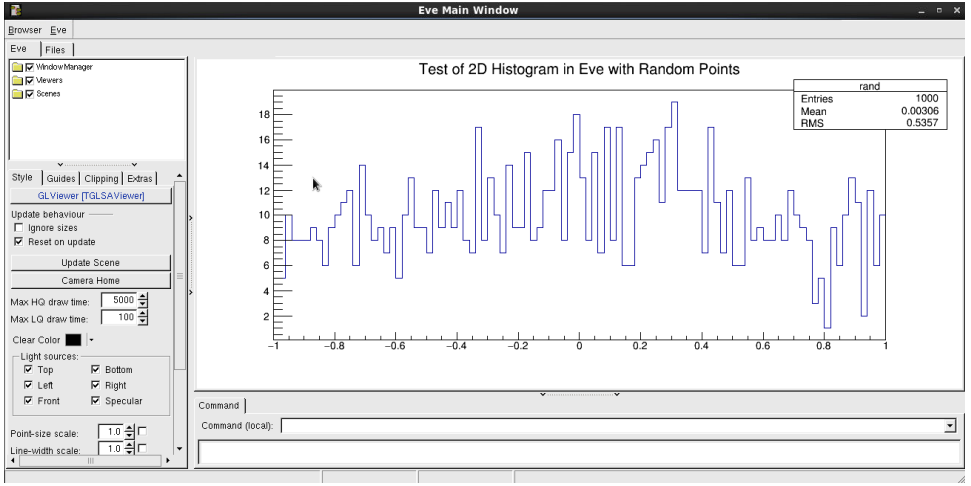
- Want to view data trigger by trigger as well as with all triggers
- Art does not facilitate this very well
- Much of nutools' EventDisplayBase as well as LArSoft's lareventdisplay has to be rewritten to make this work
- Close to making LArSoft draw trigger by trigger, but Brian suggested a better solution...

ROOT's Eve display

- ROOT developed an event display package called Eve around 2007
- Claims to be able to draw individual detector elements
- Draws 3D geometry in default view, but supports 2D views like time versus wire view
- Requires overhaul of most of the event display, but I think I can make it compatible with LArSoft drawers until they can be rewritten

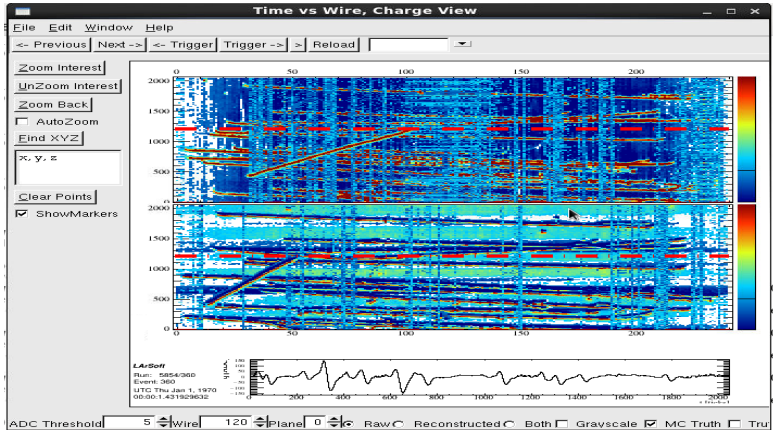
Eve Macro with LArIAT Geometry





Other Small Fixes

- Updated event display parameters
  - readout window size for LArIAT
  - Draw time versus wire view in color by default
- Added lines at T0 and T0+maximum drift time to time versus wire view



Future Work

- Close to drawing 3D and time versus wire views in Eve from within LArSoft
- Need to complete the beamline geometry
  - Implement sensitive volumes for muon range stack and wire chambers
- Include particle momentum and TOF tags in wire chamber track view
- Add trigger information to 3D display
- To use any of my changes so far, get them from the LArIATevd feature branch