Single Strip Event Display

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Motivation

Graphical tool to help comparing signals reconstructed/simulated/measured in a single scintillator strip on the event by event basis.

Features

- Graphical representations of signals registered by the photomultipliers on both sides of the scintillator strip.
- Display on event by event basis.
- All operations performed via the graphical user interface (GUI)

Features

- Supports various input formats (signal database, simulations, experiment)
- Simple graphical display of the hit position in the scintillator strip

Some technical details

- Written in C++, object-oriented approach
- Working on Linux operating system with ROOT framework installed.
- Modular architecture
- User interface based on GUI library (part of the ROOT framework)

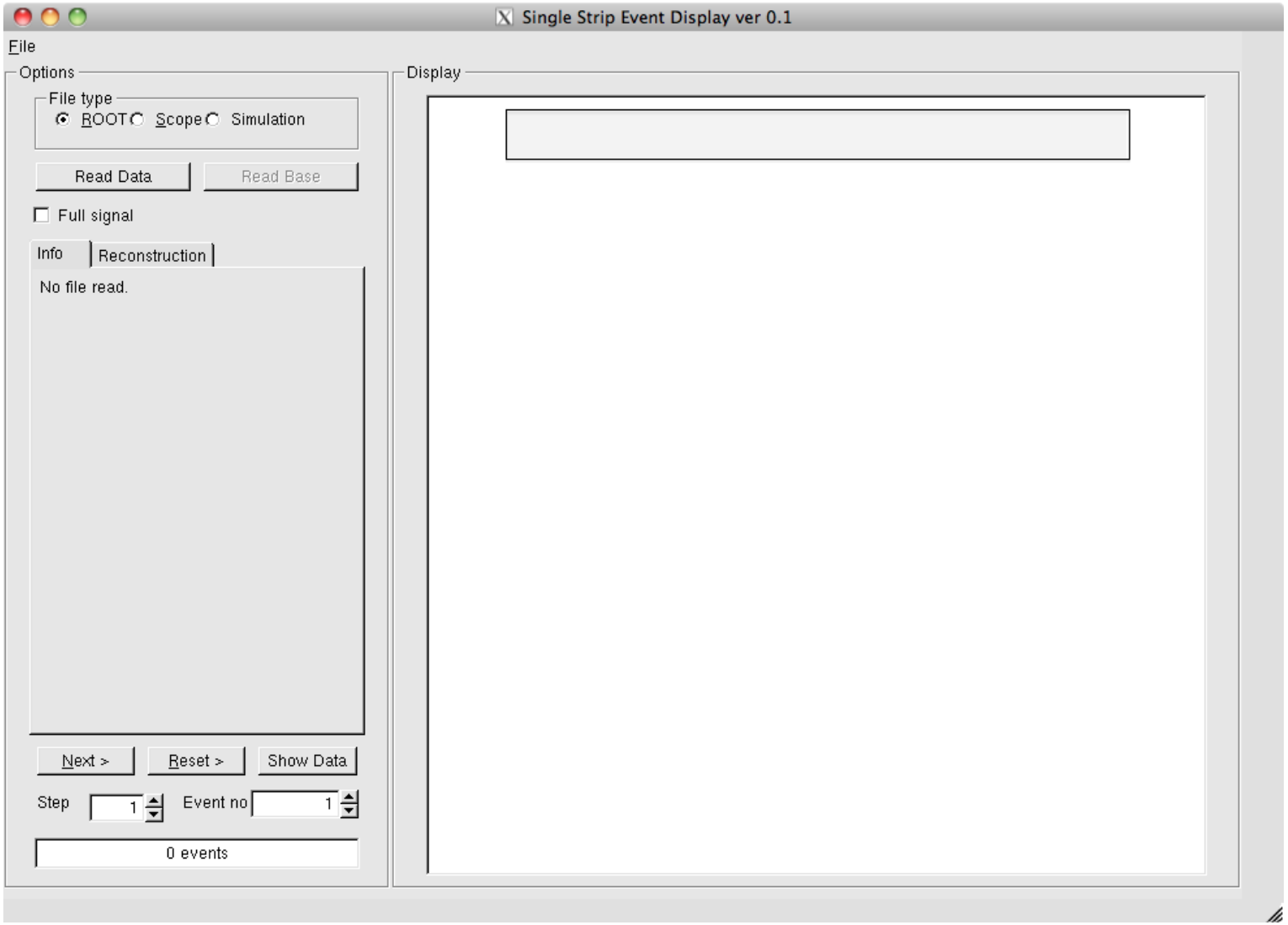
Some technical details

- User interface based on a GUI library (part of the ROOT framework)
- Installation via Makefile
- Unit testing methodology (BOOST)
- Code documentation (Doxygen)
- User documentation (J-Pet report 20/2013)

Supported input formats

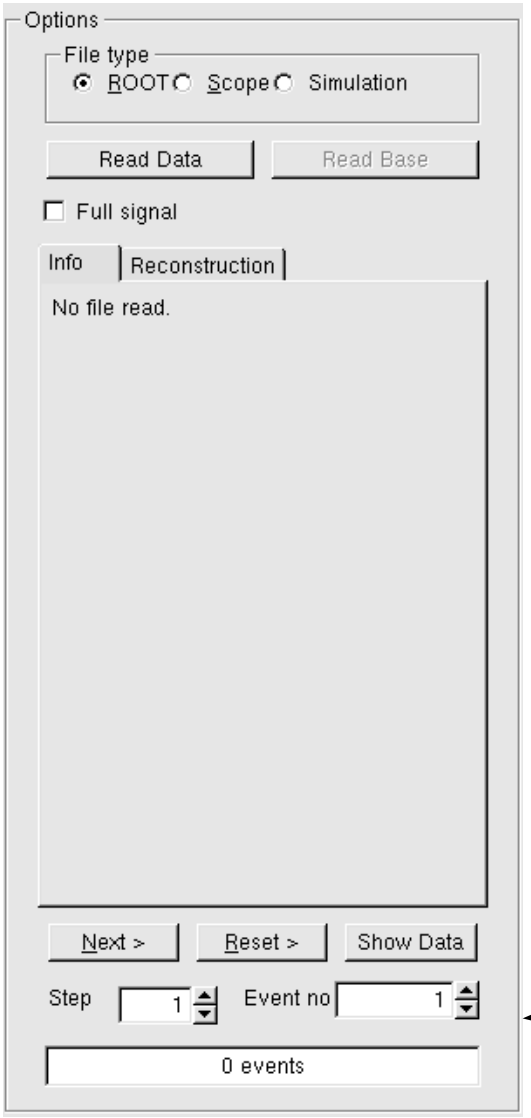
- Signal database (ROOT)
- Single signals from oscilloscope
- Simulation data
- Experimental data

Graphical User Interface

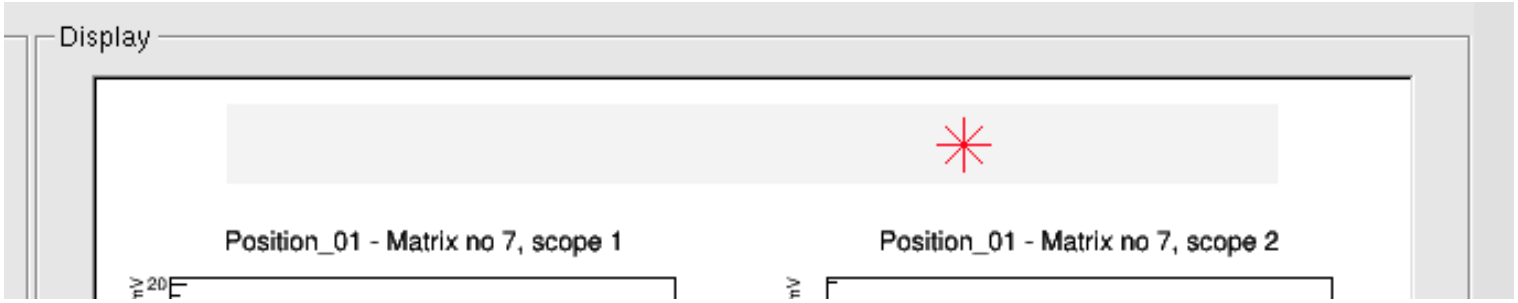


Menu

- File type checkbox
- File information
- Display options
  - Reconstruction
  - Event traverse
  - Optional full signal

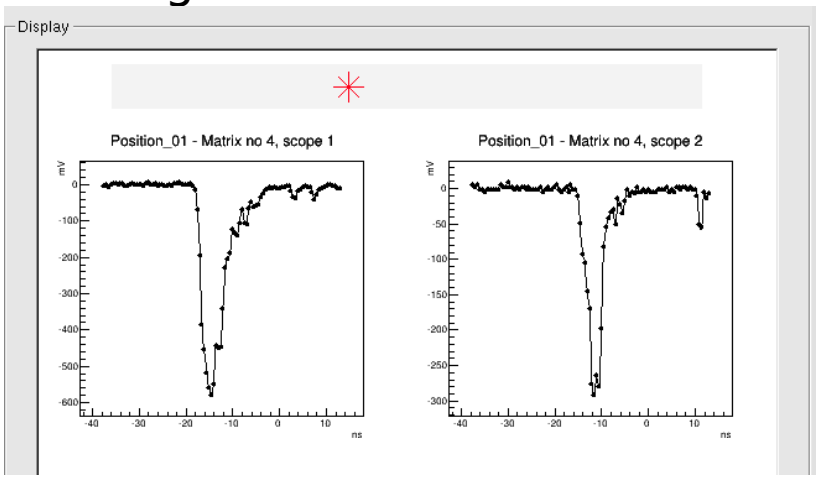


Simple visualization of the hit position

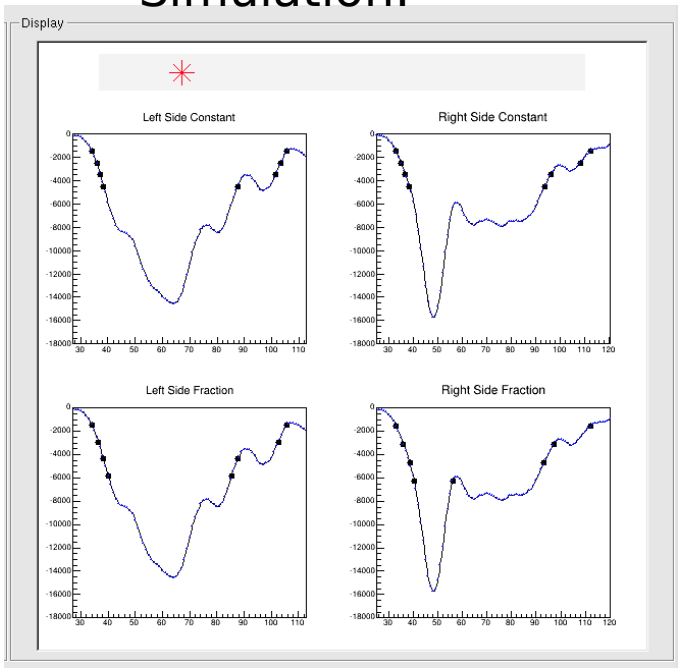


graphical display

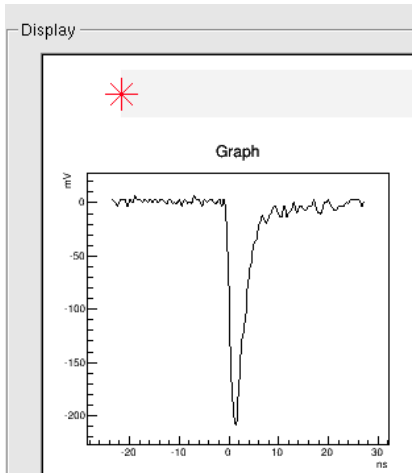
Signal from database:



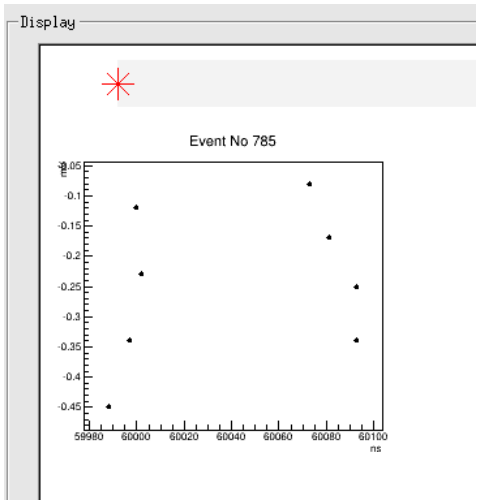
Simulation:



Oscilloscope:

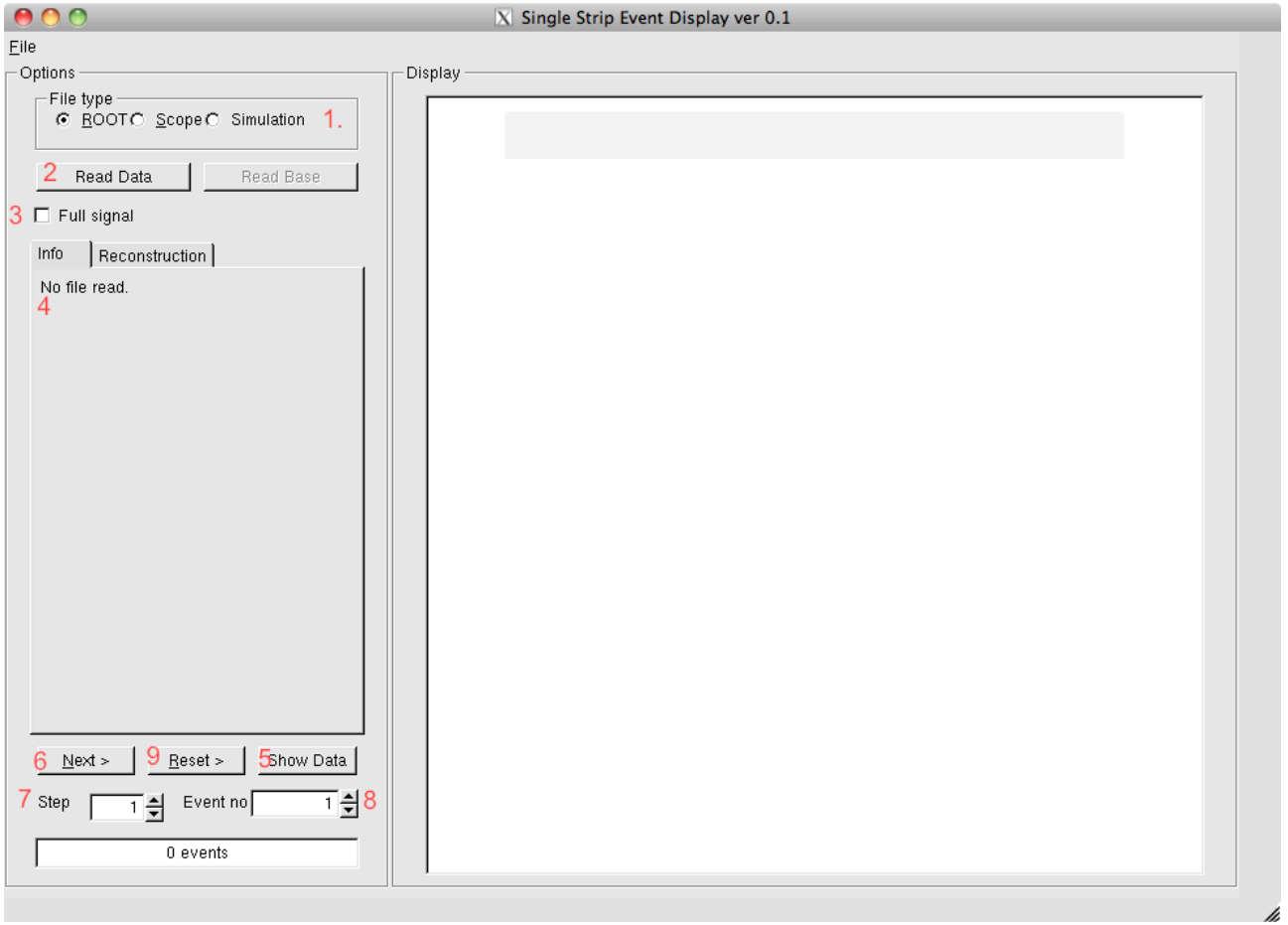


Experiment:

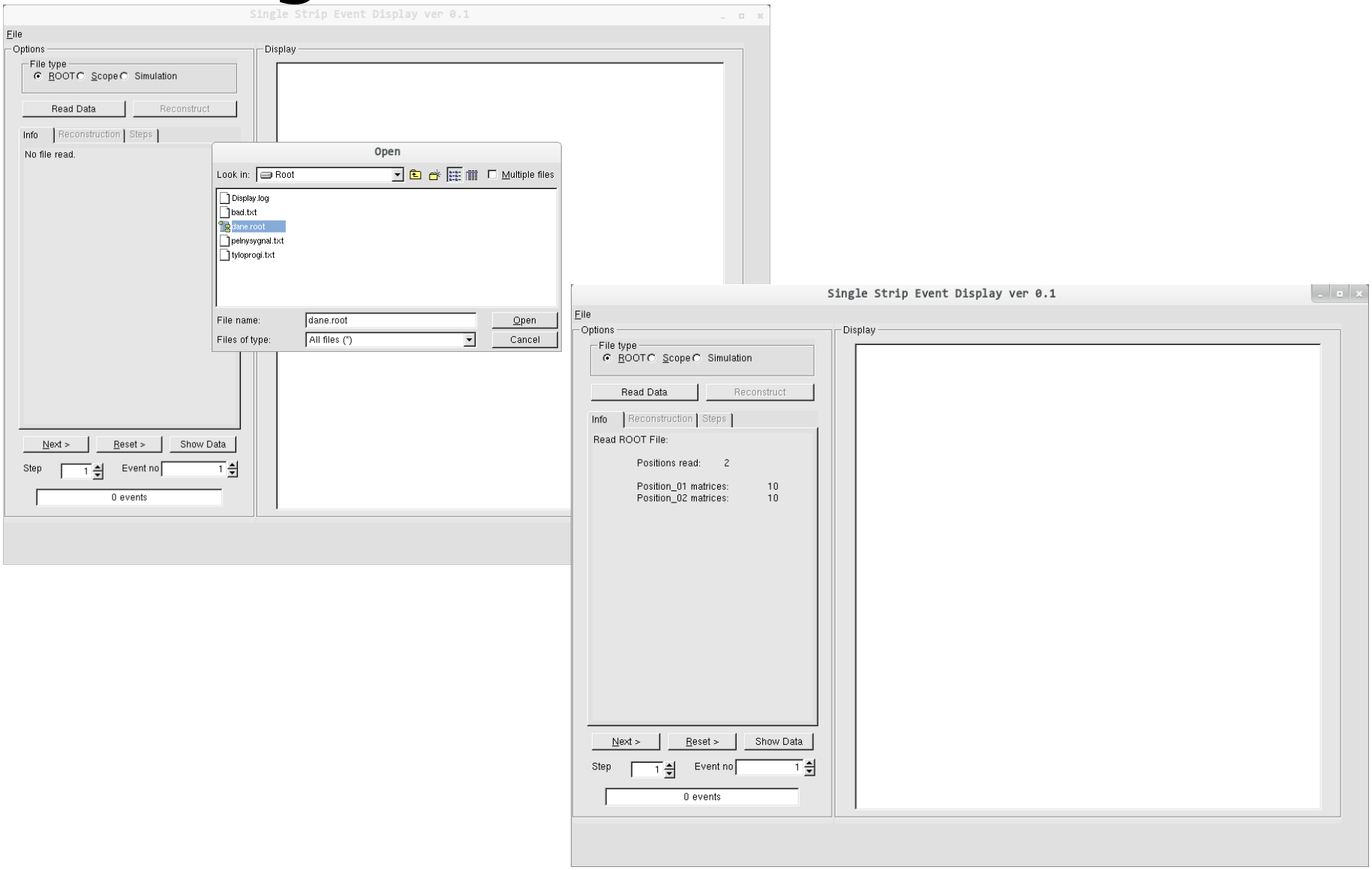


Usage of GUI

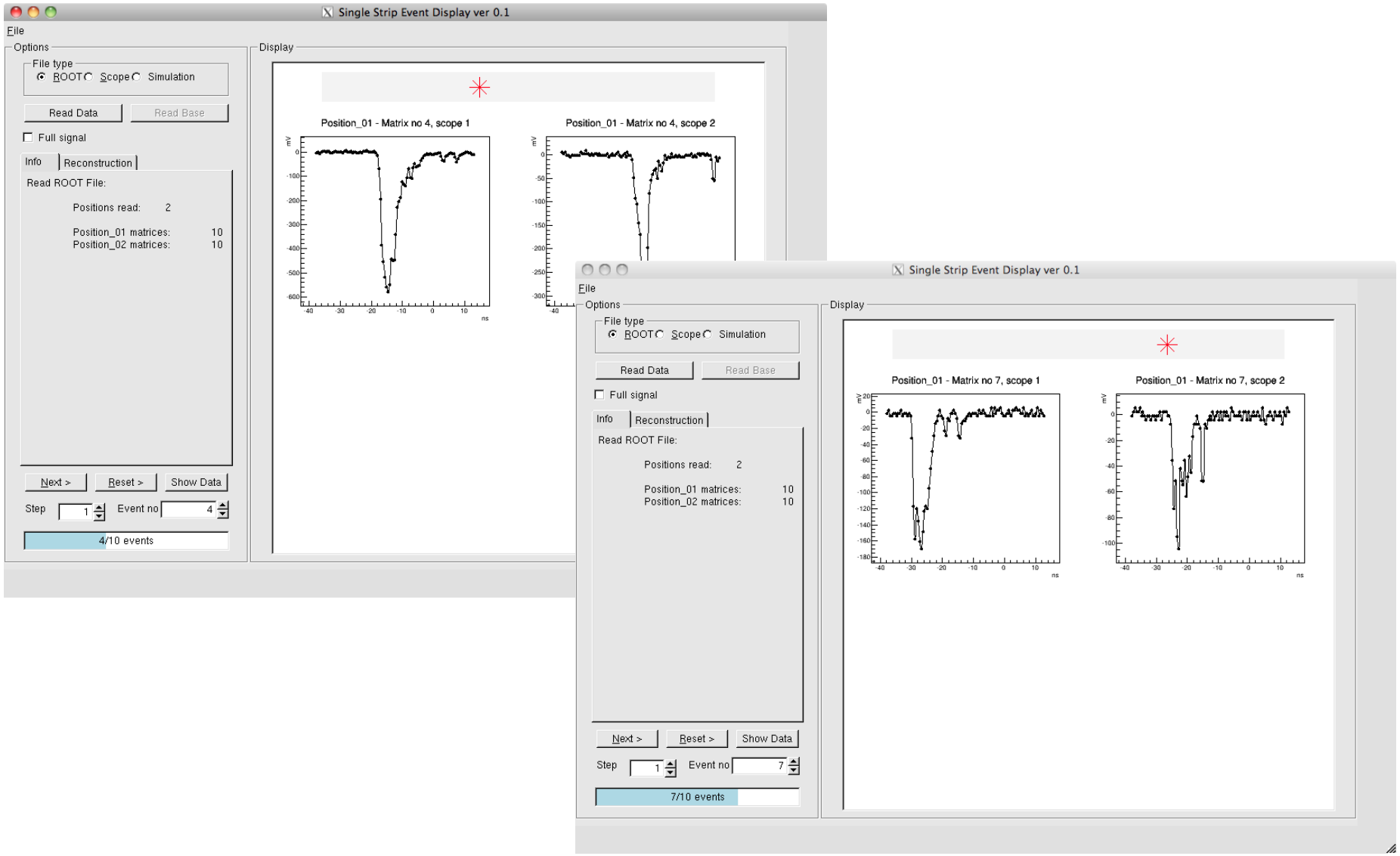
1. Select file type.
2. Open file and read data
3. Display full signal
4. Show file info
5. Plot data
6. Jump to next event (plot).
7. Set jump rate.
8. Set event number.
9. Clear display and set step and event no values to 1.



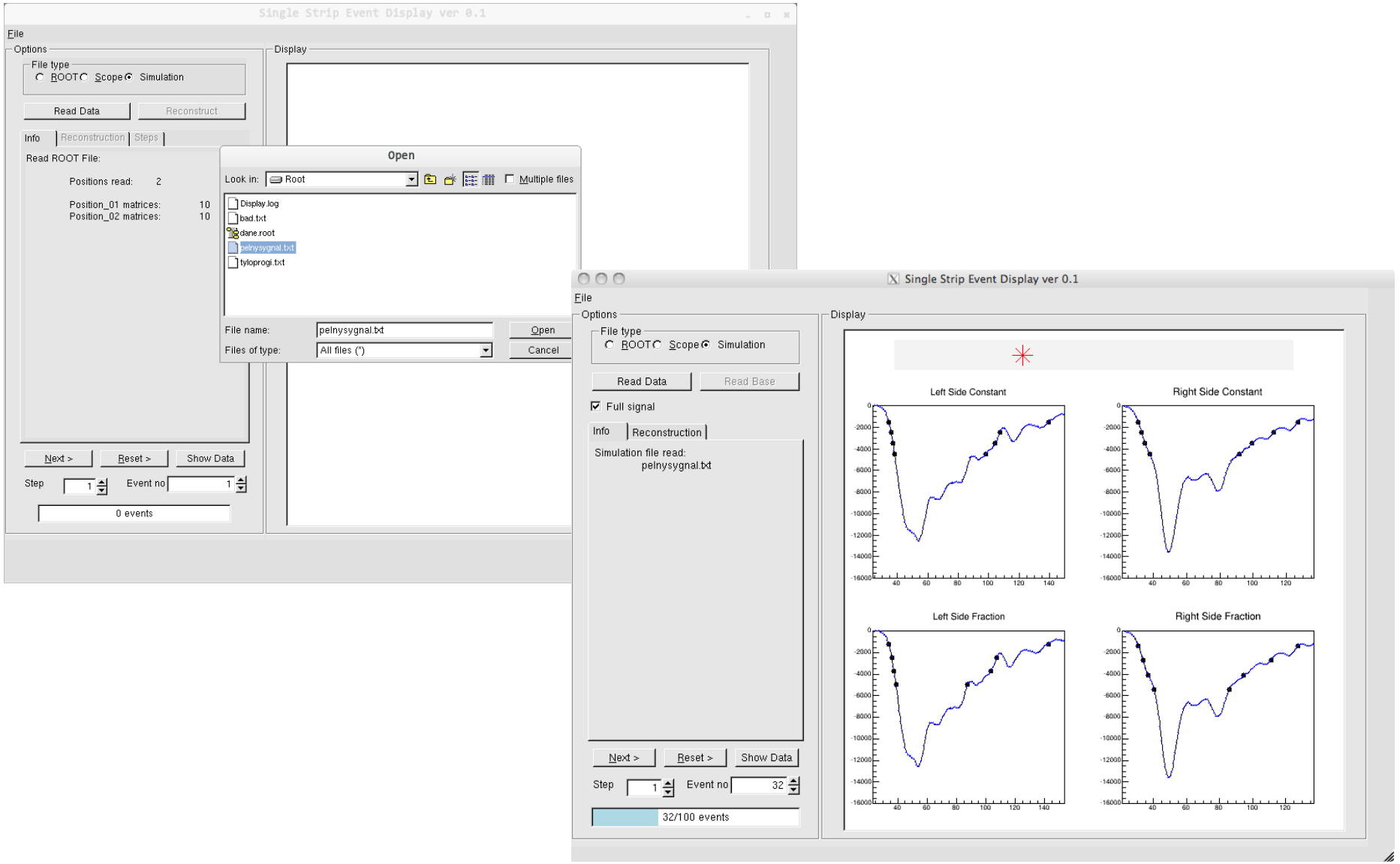
Signals from database



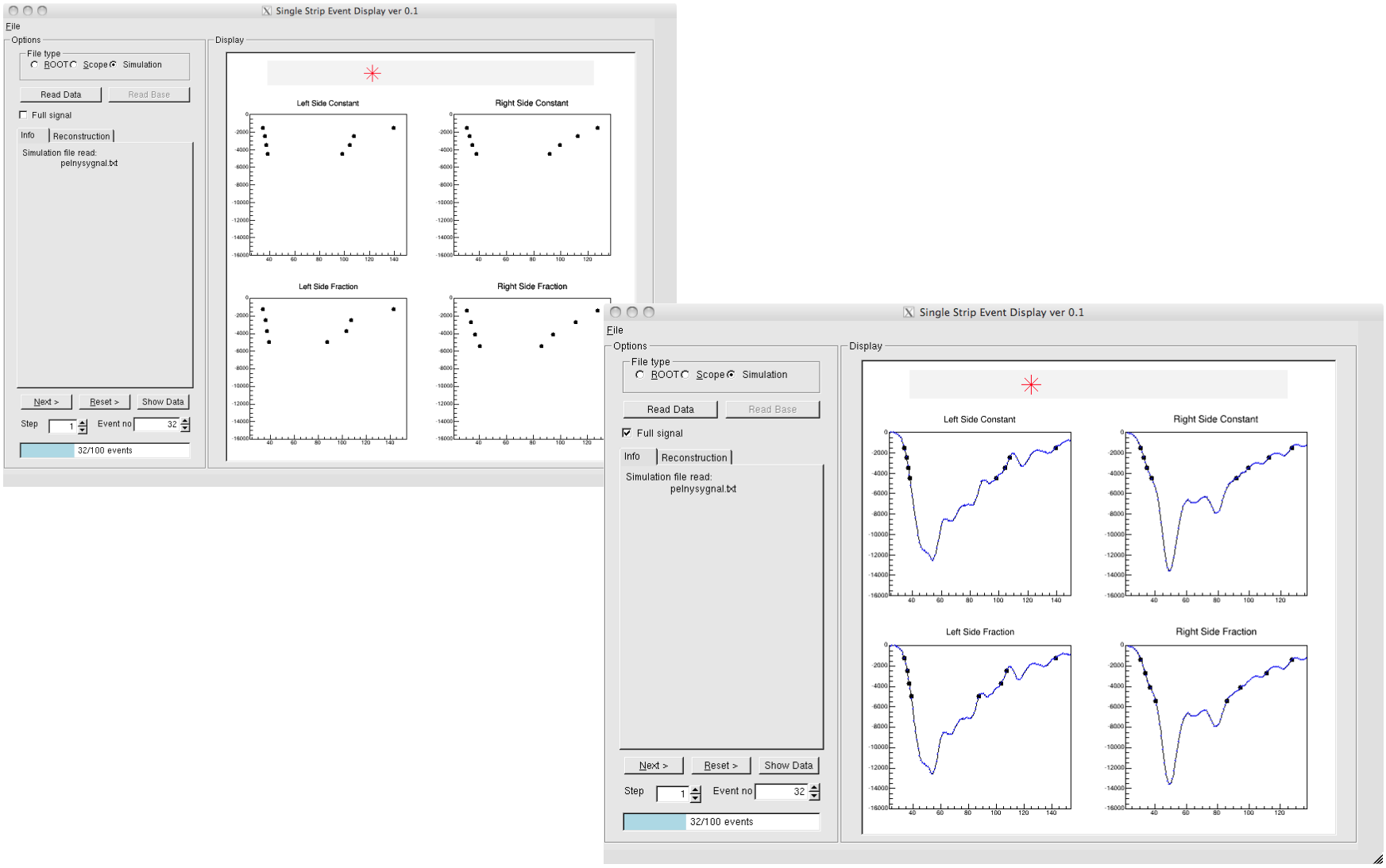
Signals from database



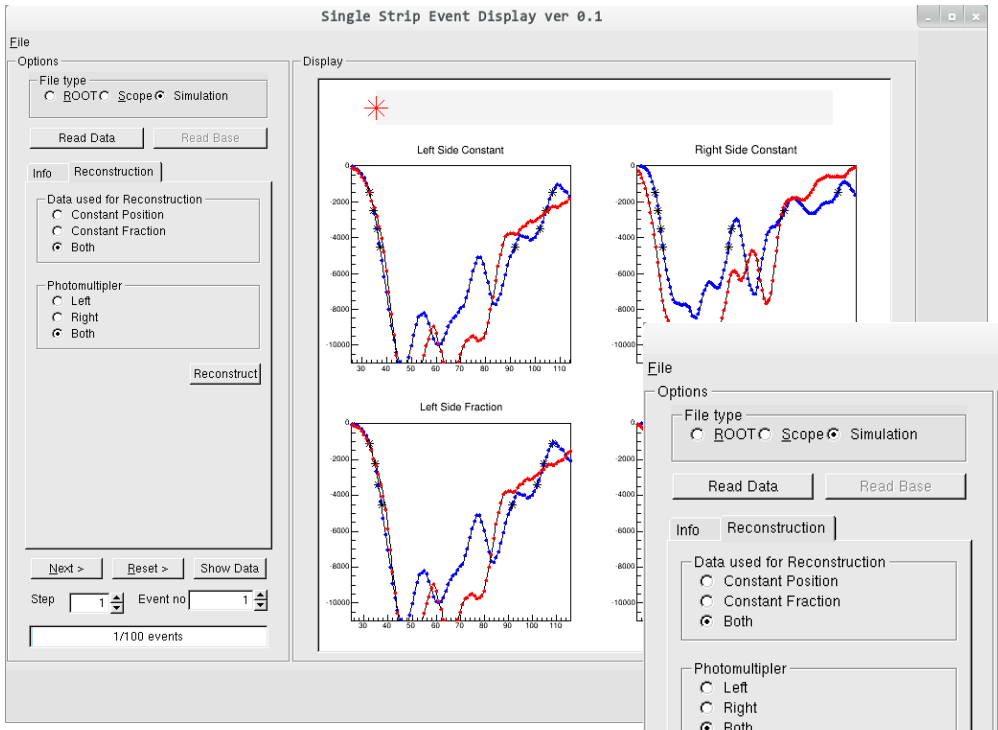
Simulation file

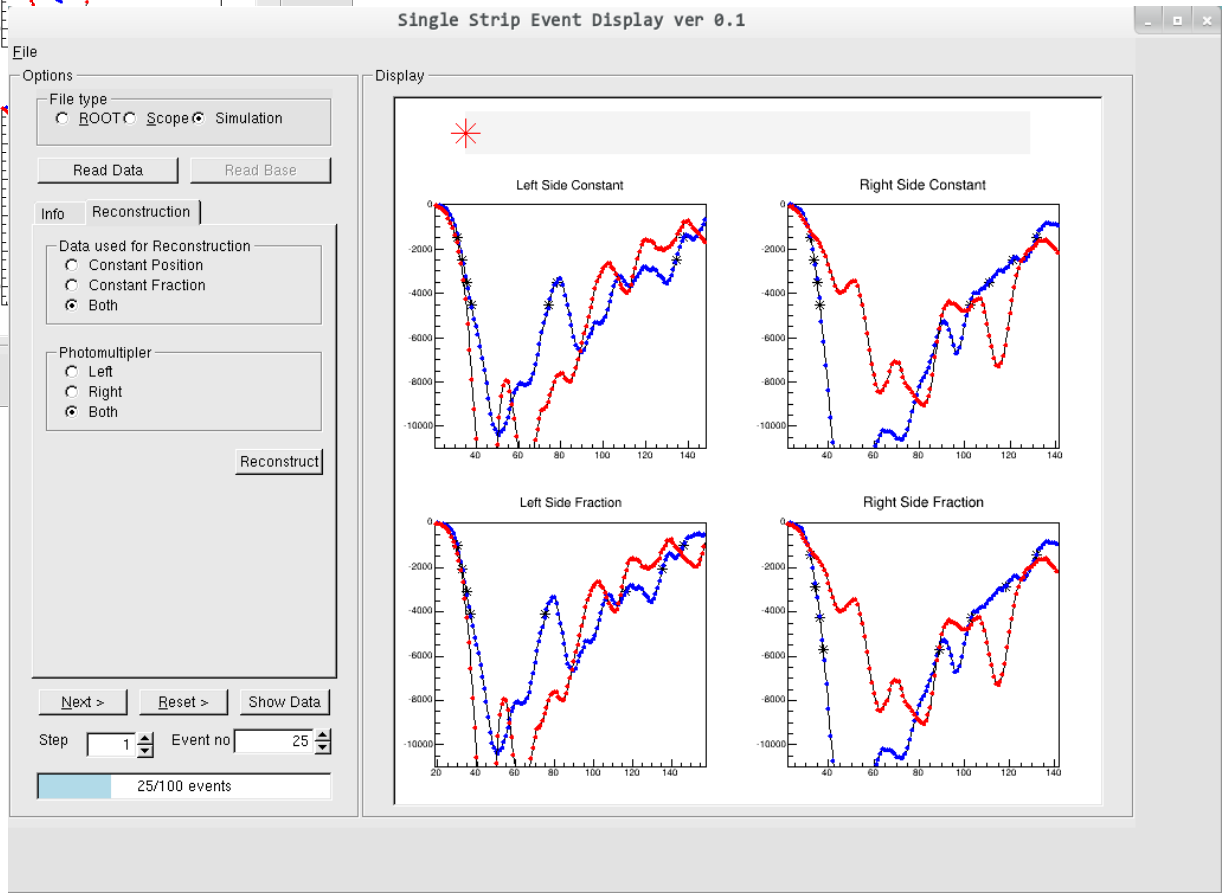


Full signal

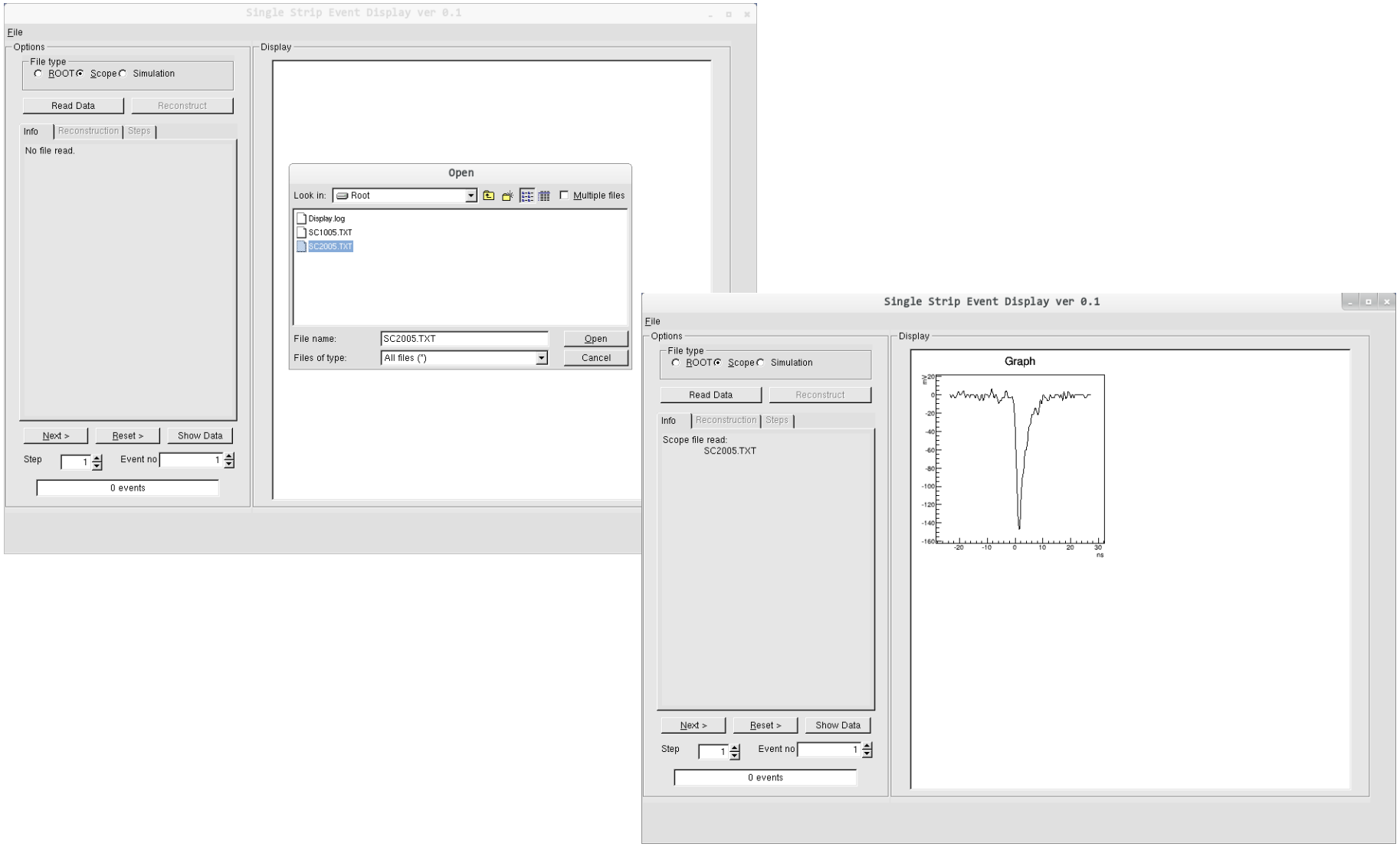

Single Strip Event Display ver 0.1
File
Options
File type
ROOT Scope Simulation
Read Data
Read Base
Full signal
Info
Reconstruction
Simulation file read:
pelnysygnal.txt
Next >
Reset >
Show Data
Step
1
Event no
32
32/100 events
Display
Left Side Constant
Right Side Constant
Left Side Fraction
Right Side Fraction

Fake reconstruction

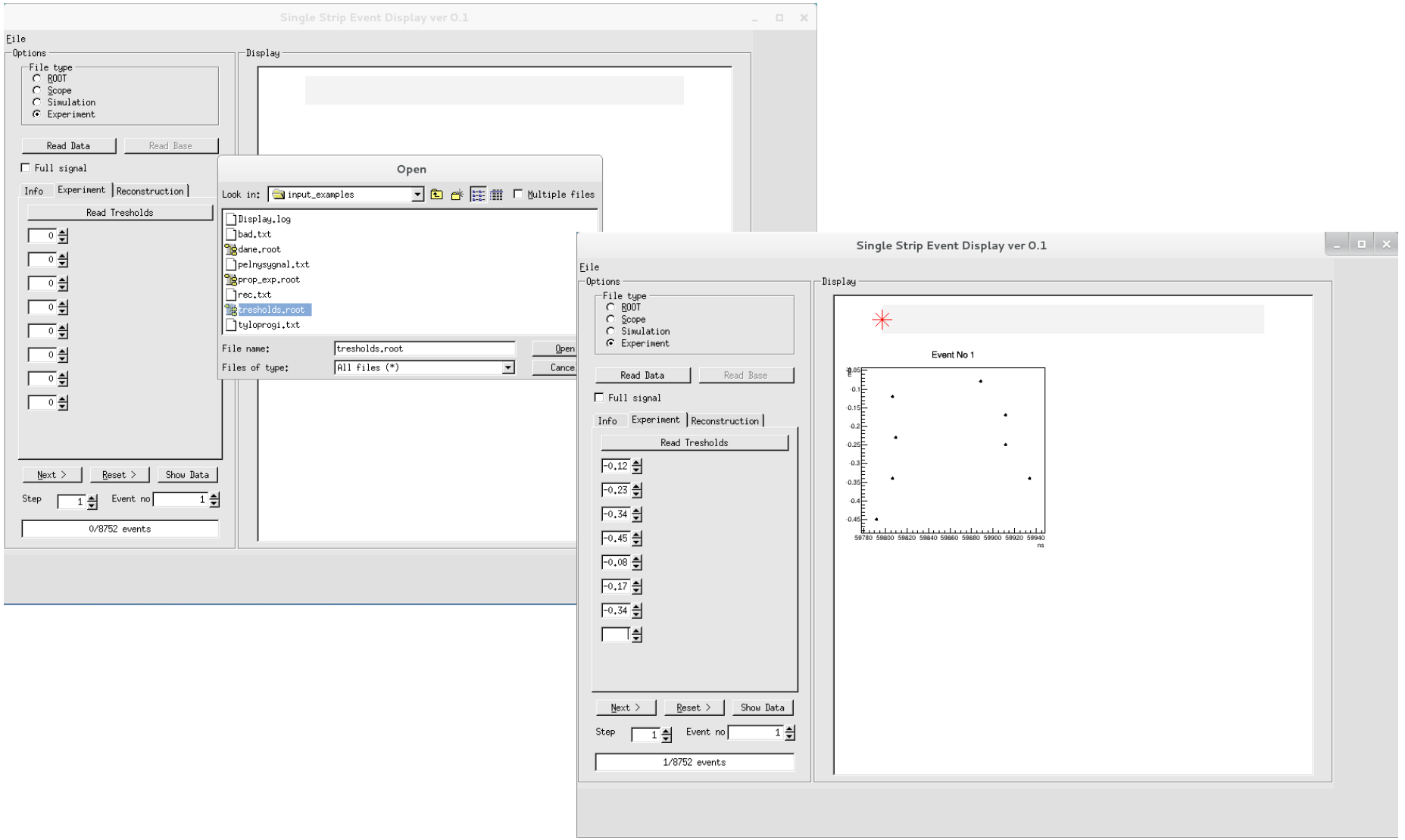




Oscilloscope file



Experimental file (setting thresholds)



Reader classes

- Every input format is processed by a dedicated class (called Reader):
  - EDRootReader
  - EDScopeReader
  - EDSimReader
  - EDExpReader

Summary

- Program is ready to use.
- Possibility to add external modules (reconstruction procedures etc)
- More information about the application can be found in:

  J-PET UJ Report 20/2013