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Visualizing I3 Files

An interactive tour of steamshovel and datio-pyshovel

Visualizing I3Files

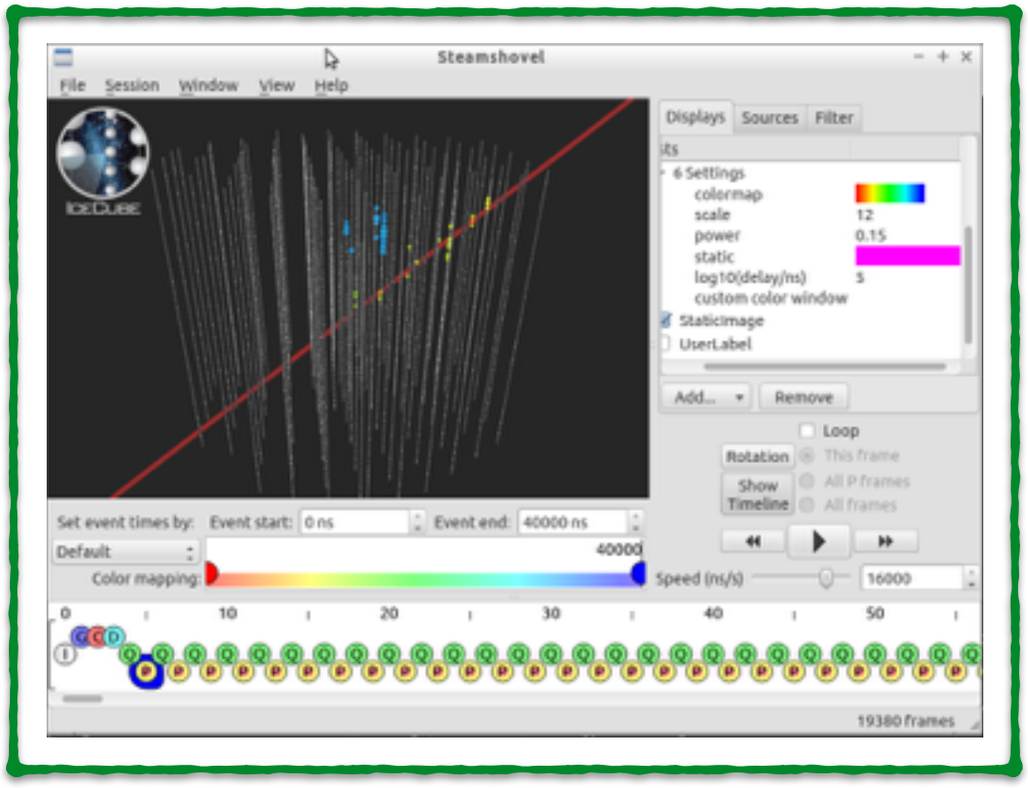
- All data from IceCube physics runs and official simulations are stored in the .i3 file format

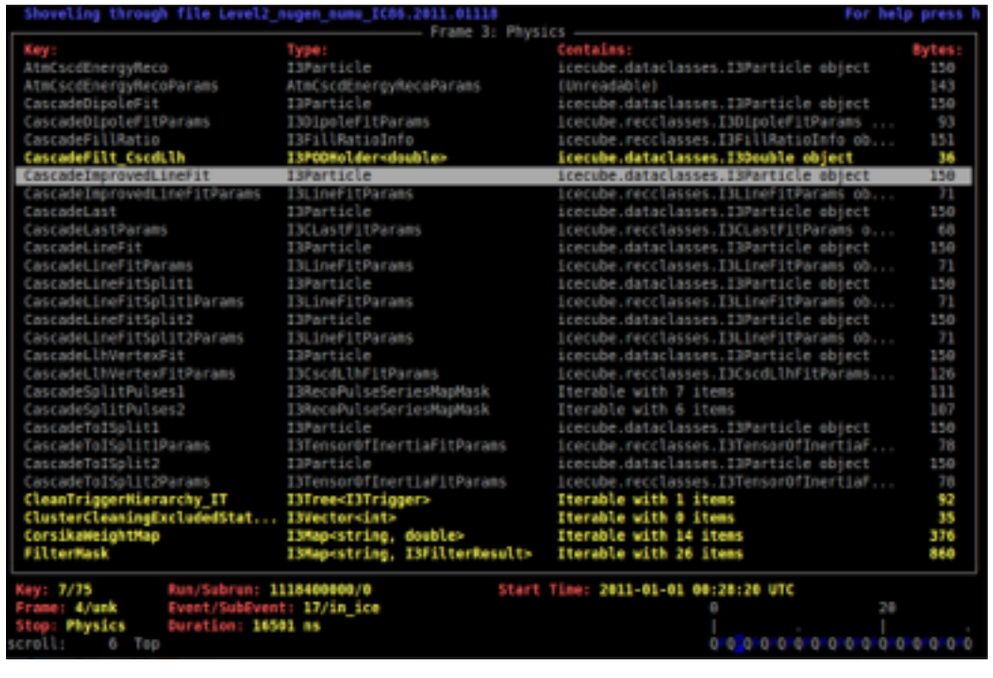
- Data in I3 files are commonly viewed in 3 different ways

- **Steamshovel**: GUI for seeing events develop over time in IceCube (and IceTop)

- Dataio-pyshovel: TUI for easy reading of stored information frame-by-frame

- ipython: useful for finding out what you can do with objects in the frame, and that what you do does what you expect





How to View Events in Steamshovel

- To start up Steamshovel:

  1. Enter an IceTray environment

     on the VM enter: *~/i3_software/combo/build/env-shell.sh*

  2. Use this syntax on the command line:

     steamshovel *GCD-File.i3(.gz) Data-File.i3(.gz)*

How to View Events in Steamshovel

- Relevant Frame Types in i3 Files
  - G (geometry) frames hold information about the IceCube geometry such as DOM positions.
  - Q (short for DAQ, or data acquisition) frames hold data for a particular event window. This includes triggers, filters, and uncleaned pulses.
  - P (physics) frames hold all processing information. Reconstructions and pulse cleanings exist in these frames. There may be multiple P frames to one Q frame.

How to View Events in dataio-pyshovel

- To start up dataio-pyshovel:

  1. Enter an IceTray environment

     on the VM enter: *~/i3_software/combo/build/env-shell.sh*

  2. Use this syntax on the command line:

     dataio-pyshovel *Data-File.i3(.gz)*

How to View Events in dataio-pyshovel

- Some useful commands
  - *x* to open a module to read in XML format, or
  - *enter* to open a module to read in a cleaned, human-readable format
  - *g* to get a prompt to enter the frame number you wish to go to
  - *i* to enter an ipython shell
  - *L* to import a library
  - *h* for a list of command options

Useful Links

- Steamshovel Documentation:
- http://software.icecube.wisc.edu/offline_trunk/projects/steamshovel/index.html