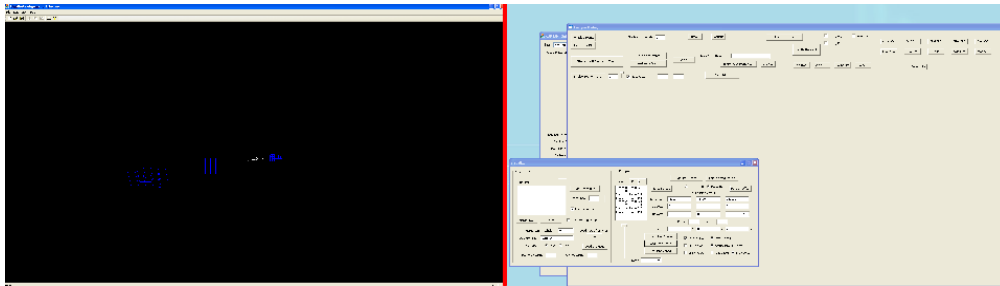# CAPTAN Telescope Analysis Guide

- Section I --   Steps to Create Text File of Hits and Tracks
- Section II --   Parsing the Hits and Tracks Text File

I. Steps to Create Text File of Hits and Tracks:

1. Open the CAPTAN Analysis tool and arrange the windows in both monitors. It can be found on your desktop at *Desktop\Indivual Apps\ Analysis*:

2. In the *Visualizer* dialog, click *Load Plane Config* and select the plane configuration file *E:\T995\Analysis\Merges\planeConfig.pcf*.
3. Enter the run name into the *Merge Filename* text field. The other fields should be setup as shown in the figure:
   a. Make sure *Use 3D Display* and *Use Default Run List* are checked.
   b. Make sure *Merge Run Threshold* = 0, *Time Stamp Width* = 1, and *Trig. Num. Width* = 0.
   c. Make sure Binary is the selected *File Type*.
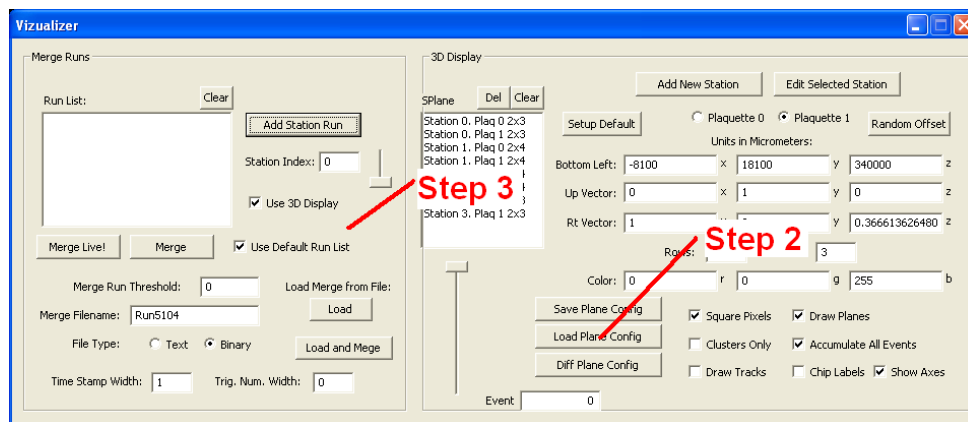
4. Click *Merge*.
   a. A message box will popup when done. The number of events with data can be seen in the bottom right of the *Visualizer*. E.g. In Run1504 there were 15345 events:
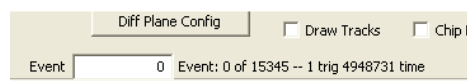
5. Switch to the *Analysis* dialog and click *Filter Multi-Hit Events for Tracks*.
   a. Locate the ADC to VCAL conversion file. Choose *E:\T995\Analysis\Merges\ telescope_ADC_to_VCAL.cal*.
   b. Select text as the file format by selecting *Yes*.
   c. Locate the SaveAs dialog (Note: it may get hidden behind all the windows but it can always be found on the taskbar) and save the normalized events with tracks file to the directory *E:\T995\Analysis\Merges*.

II. Parsing Hits and Tracks Text File:

The most important lines in the text file are the lines that start with "Trig" and "x:" because these lines convey the event trigger number and track parameters respectively. The first number in the Trig line is the trigger number. So in the file shown above, the first event is trigger number 1, then 5, and then 9 continues past the screenshot.

Only events with a valid track are in the file. The track is given as a point and a unit vector. So a track could be drawn by starting at the point and extending in the positive and negative direction of the vector. All units are micrometers.