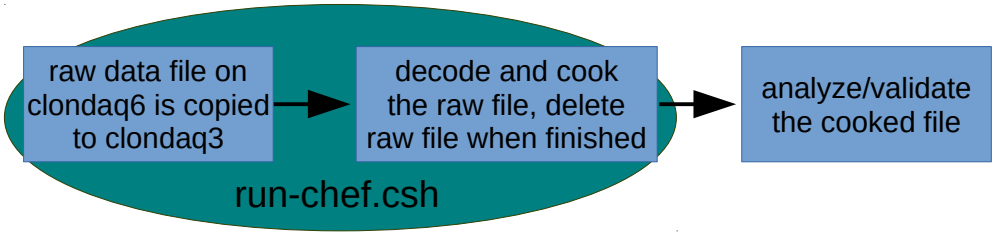
Instruction Manual for Off-line KPP Shift Takers

Overview
The responsibilities of off-line KPP shift takers ("shifters") is to decode, cook, and validate the KPP data in semi-real time.

Discussions about off-line KPP will take place on clasteam.slack.com. Contact Nathan H. if you need an invitation to join.

Workflow
Raw data files will be regularly produced while data is being taken (1 file every several minutes). Each raw file needs to be decoded and then cooked; therefore, at the end of this process there should be 3 separate files for each several minute interval – the raw file, the decoded file, and the cooked file. The raw files will be located on the clondaq6 machine and should never be deleted or moved from there by shifters. To minimize the risk of breaking anything on clondaq6, the raw files will be copied to clondaq3 where the decoding, cooking, and analysis will take place. Both the decoded file and the cooked file will be saved on clondaq3; the copies of the raw files on clondaq3 will be deleted after the cooking to save space. Most of this process is automated by a script on clondaq3 called /data/kpp/run-chef.csh. More details are described below.



Preliminary Steps
Shifters should read and understand this manual before beginning an offline shift. You should have already set up 2-step verification using SafeNet and selected your pin number; if not, go to the Help Desk ASAP.

To log into one of the clondaq machines, first do ssh -Y username@hallgw and enter the password: pin# + SafeNet Passcode. Note that your pin number never changes but SafeNet will generate a different passcode every time you login. If prompted with a Z Shell configuration, hit "q" to continue. Next, simply log into one of the clondaq machines by doing, for example, ssh clasrun@clondaq3 and entering the usual CLAS password (e1...). A special environment for the chef can be set up on clondaq3 by doing source /data/kpp/kpp-chef-env.csh .

You do not need to do this if you are working at the off-line shift station in the counting house. From

that machine, simply open a terminal and do ssh clondaq3 .

Procedure for Shift Takers
Please only do this procedure if you are the scheduled shifter, if two people try to do this at the same time it could cause problems!

1. Log into clondaq3 using the above instructions. Non-experts should never have to log into clondaq6!

2. Go to the appropriate working directory and set the chef environment:
cd /data/kpp/
source kpp-chef-env.csh

3. It is your responsibility to keep in close contact with the on-line shift leader; he/she will tell you what files need to be cooked. Raw files (which are in evio format) are specified by a run number and a file number, e.g. clas_000123.evio.45 has run number 123 and file number 45. If the shift leader tells you to cook files 0 through 10 of run 246, do:

./run-chef.csh 246 0 10

If he/she tells you to cook the entire run, simply do:

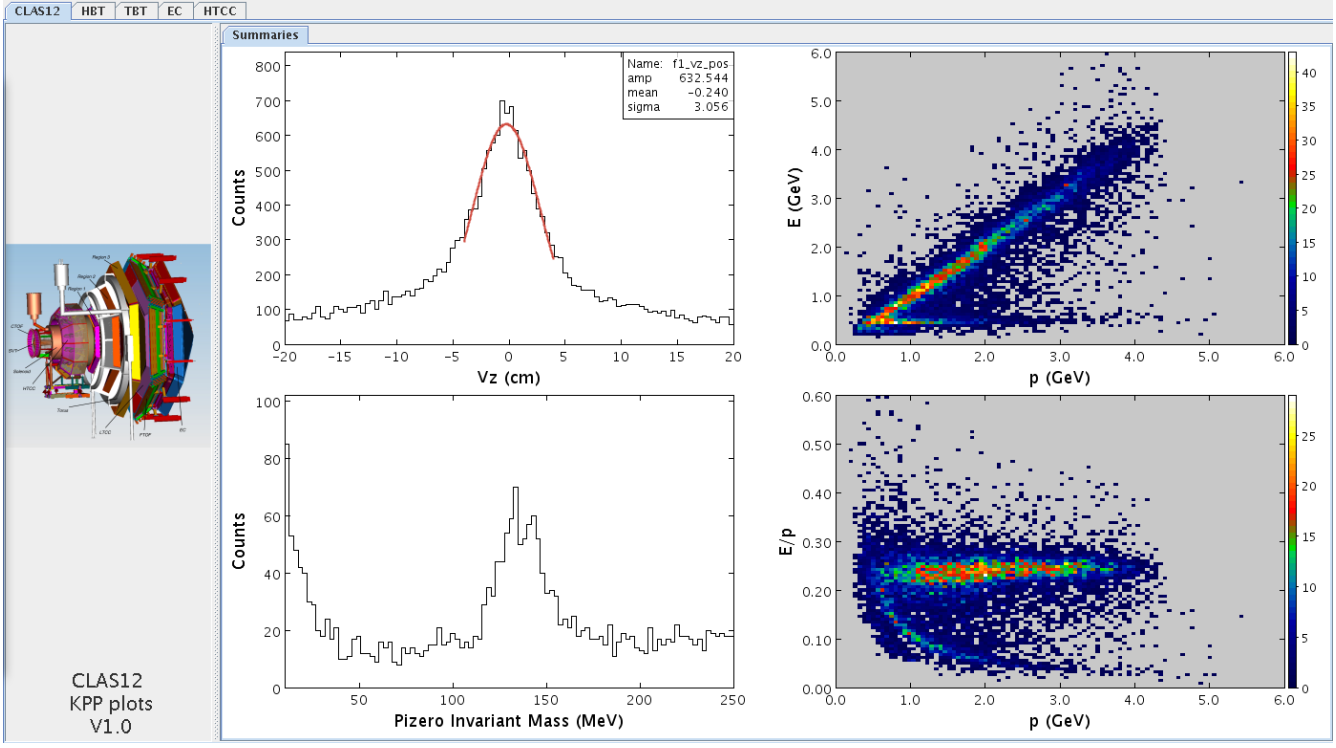
./run-chef.csh 246

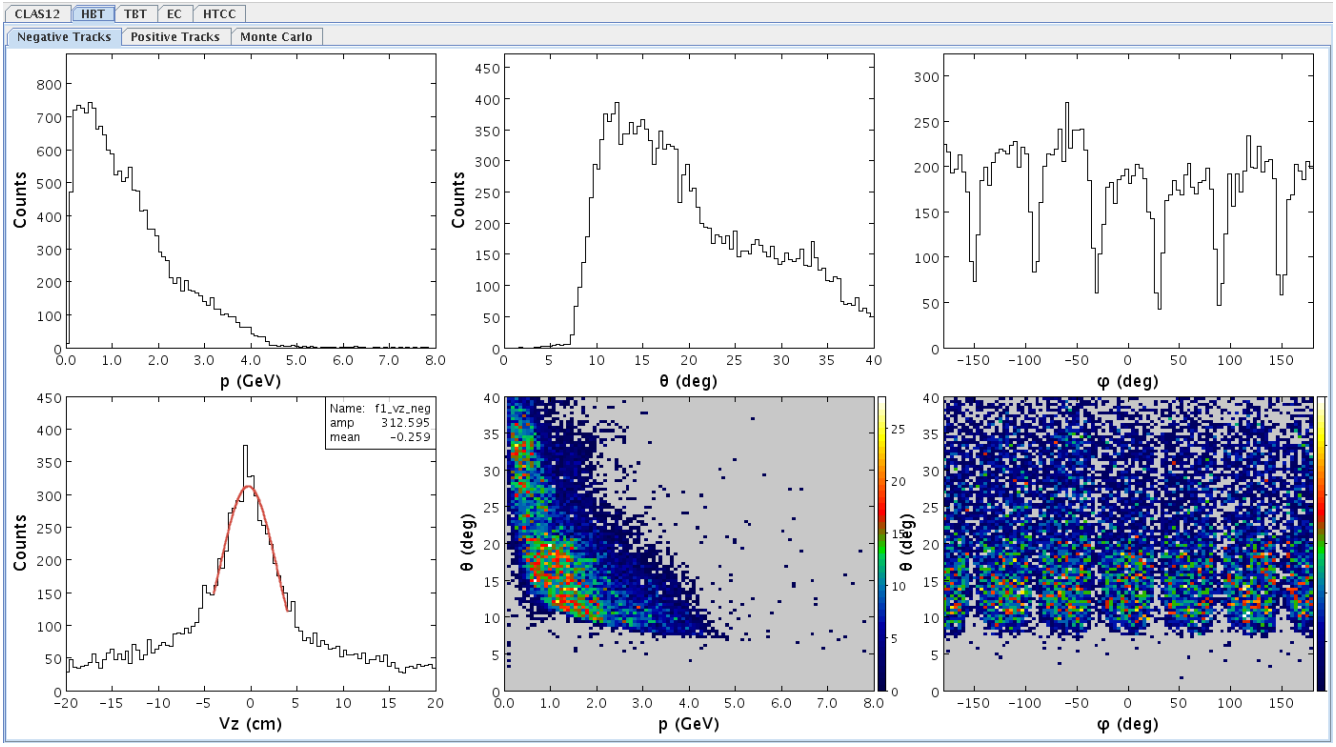
This script will take a while to run but it should give regular updates on its progress. You should make sure nothing freezes/crashes. When the script finishes the decoded files will be in /data/kpp/decodedFiles/ and the cooked files will be in /data/kpp/cookedFiles/ and the copied raw files will have been deleted.

4. Once you have cooked files they should be validated using kpp-plots and dc-monitor. If you have multiple files that you would like to merge for higher statistics, do run-groovy /data/kpp/chef-tools/mergeHipo.groovy file1.hipo file2.hipo … You will get an output file named big.hipo in your working directory. The monitoring GUIs can be launched from the command line with the kpp-plots or dc-monitor commands. Once the GUIs pop up, open your cooked file using the processor pane:

Since these are hipo files, click the “H” button. Next, start the analysis by clicking the triangular “play” button:

Make sure the plots look reasonable, below are examples from simulated data:





5. Create regular logbook entries by going to logbooks.jlab.org (sign in with CUE username and password) and clicking Add content --> LogEntry and then choosing the HBLOG Logbook. You should include what files you cooked and attach plots of the validation results. To save the plots from kpp-plots, do File -> Print histograms to file... (Ctrl + p); the output files will be in /data/kpp/kpp-picture/ in a directory named with the current date and time. The plots can be merged into a single pdf file and (optionally) uploaded to the logbook by doing ./upload-chef.sh kpp-pictures/dir-name or ./upload-chef.sh kpp-pictures/dir-name -log where the former only merges and the latter merges and creates a log entry. The merged pdf file will also be in the kpp-pictures directory with the filename dir-name.pdf.

Troubleshooting

● Contact one of the following people if you encounter trouble with:

this manual/procedure – Nathan H. ((518) 221-8875)
decoding/reconstruction – Gagik G. ((757) 218-5796)
tracking – Veronique Z. ((650) 464-7974)

● If CLARA gets stuck and Ctrl-c doesn't work, try running $CLARA_HOME/bin/remove-dpe

● To see a list of files in the stage_in area of clondaq6 without logging into clondaq6, do chef-tools/list-clondaq6-stage_in.csh

● To get a list of raw files that haven't been cooked yet, do chef-tools/find-uncooked-files.csh