

Instruction Manual for Off-line Shift Takers

Please do not attempt this procedure if you are not the scheduled shifter

Overview

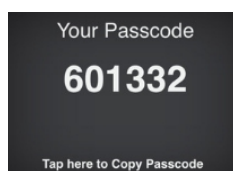
The responsibility of off-line shift takers (“shifters”) is to decode, cook, and validate the data in semi-real time. The monitoring of the results are discussed at the daily offline analysis meeting (10am) as well as the daily Run Coordinator meeting (3pm). Both meetings take place in the second floor of the counting room.

Shift location

The default location for the shifters is the dedicated desk 200-6 on the second floor of the counting house. The phone number for this desk is 6598. If space in the counting room allows, you can ask the shift expert if they can accommodate you there.

Preliminary Steps

Shifters should read and understand both the COO (Conduct Of Operation) and this manual before beginning an offline shift. The basic training requirements are the same as those for regular shift workers. We recommend that you take your shift in the counting house. There are available PCs on the second floor chpc01 to chpc11. If you want to take your shift from your office, you should have already set up 2-step verification using SafeNet and selected your pin number. If you do not have 2-step identification, and you wish to take your shift from your office, go to the Help Desk ASAP.



To log into one of the clondaq machines from off-site, you will first need to

```
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 from hallgw, or from a counting house computer, simply log into clondaq3 machines as clasrun

```
ssh clasrun@clondaq3
```

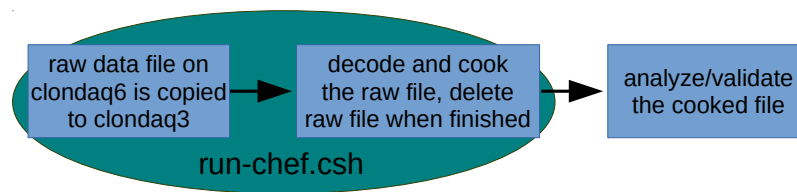
and entering the usual CLAS password.

Workflow

Raw data files will be regularly produced while data is being taken (1 file every several minutes). As a preliminary guideline, we intend to decode and then cook immediately about a 10% of those files. It is advised **not to process more than 10 files at a time**. Process consecutive files 10 files or less at a time. As an order of magnitude guideline, both decoding and reconstructing will take over 10 minutes per file. At the end of this process there should be 3 separate files for each interval : the raw file, the decoded file, and the cooked file. The raw files are copied from the clondaq6 machine. **It is imperative that you never never delete or move anything on clondaq6**. 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

```
clasrun@clondaq3:~/chef/run-chef.csh
```

More details are described below.



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! Since these processes take time, we suggest that work in a virtual terminal using the “screen” command to launch your processes in the background and allow your machine to disconnect from clondaq3

```
screen
screen -S offile-rec #this creates a specific name for your session
source setEnv-chef.csh # !!! important : you need to set the env in every screen
Ctrl-a d #detach from the current screen
screen -r #resume session
```

```
#other useful commands
screen -ls #it will list all the existing screen sessions
screen -r #attaches to default session. this works only if you have one screen session
screen -r <SCREENID> #attaches to particular screen session
Ctrl-a [ #enter scroll mode to see screen history
esc      # exit scroll mode
```

2 Go to the appropriate working directory and set the chef environment:

```
cd ~/chef
source setEnv-chef.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. Use the [Google Spreadsheet](#) to keep track of progress. 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, first you need to copy the files and decode them.

```
./get-decode-chef.csh 246 0 10
```

This command will copy the files from clondaq6 to the “raw” directory on clondaq3. Next it will launch a background job for each file to decode them. Since clondaq3 has 64 cores, you can in principle decode up to 64 files simultaneously. In practice, we only want to cook 10 to 20 files per run maximum, depending on how fast the run is progressing. Keep track of the progress of the background jobs by listing the content of the directory “decoded” regularly.

```
clasrun@clondaq5:clondaq3> ls -ltrh ~/chef/decoded
total 7.7G
-rw-rw-r-- 1 clasrun onliners 340M Dec 16 01:38 clas_002050.hipo.1
-rw-rw-r-- 1 clasrun onliners 340M Dec 16 01:39 clas_002050.hipo.3
```

Decoding can take of the order of 15 minutes depending on load and experimental configuration.

4 Next we launch the actual reconstruction with CLARA.

```
./run-chef.csh 246 0 10
```

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 and cooked files will respectively be in

```
~/chef/decoded
~/chef/cooked
```

and the copied raw files will have been deleted.

5 Once you have cooked files, produce the monitoring plots using

```
~/chef/RunMonitor.csh 246 0 10
```

6 The plots are created in the directory

```
~/chef/plots/
```

To check the plots before posting them, you use

```
publish_check.sh
```

Then open a browser page to

```
https://www.jlab.org/Hall-B/secure/clas12/rec\_mon/
```

You can create logbook entries in both HBLOG and CLAS12ANA by using

```
cd ~/chef
./upload-chef.sh -log run 246 plots
```

Troubleshooting and tips

- If CLARA gets stuck and Ctrl-c doesn't work, try running

```
$CLARA_HOME/bin/remove-dpe
```

- Since the file transfer out of clondaq6 is slow, take advantage of opportunities when DAQ is not running
- To see a list of files in the stage_in area of clondaq6 without logging into clondaq6, do

```
~/chef/ListCurrentData
```

- phone number 757-927-8150