CLAS12 – Pre-Release
Coatjava 4a.7.5 & GEMC 4a.2.0
August 09, 2017

Pre-Release: Coatjava 4a.7.5 - GEMC 4a.2.0

- **GEMC 4a.2.0**
  - **The GEMC simulations includes all detectors and beam line components except:**
    - FMT
    - LTCC BOX
    - MM tracking for the FT
    - Details of the moller shield from CAD model
    - DC RII & RIII bracket support
  - **The latest development of the DC Time to Distance in GEMC (but no B filed dependence at this stage)**
  - *Note: there is an overlap between CND and CTOF*
- **Coatjava 4a.7.5 includes:**
  - **The CVT (3MM + 3SVT) tracking (Does not take into account the detailed material budget in the BMM in the tracking)**
  - **The latest improvement to the DC tracking**
  - **The first version of the event builder PID**
  - *Note: No FMT tracking yet*

Instruction to run GEMC and ClaRA on the Farm

- working assumption : a generator for the reaction to be simulated has produced LUND format file lundFile.dat
- download the gcard file clas12.gcard from https://github.com/gemc/clas12Tags/tree/master/4a.2.0

- login into ifarm and cd into your working directory
  - place both the clas12.gcard and lundFile.dat files into this directory
  - edit the clas12.gcard with the correct scaling factors for the torus and solenoid magnets

```
<!-- you can scale the fields here. Remember torus -1 means e- INBENDING  -->
<option name="SCALE_FIELD" value="clas12-torus-big, -1"/>
<option name="SCALE_FIELD" value="clas12-solenoid, 1"/>
```

  - to process e.g. 1000 events from the lund file into gemc, run the following commands :

```
------
> source /group/clas12/gemc/environment.csh 4a.2.0
> gemc clas12.gcard -INPUT_GEN_FILE="LUND, lundFile.dat" -OUTPUT="evio, sim.evio" -RUNNO=11 -USE_GUI=0 -N=1000
------
```

  - at this point we have the gemc output file sim.evio which is then processed through reconstructions as per the following instructions

```
-----
wget --no-check-certificate https://claraweb.jlab.org/clara/_downloads/install-claracre-clas.sh
chmod +x install-claracre-clas.sh
setenv CLARA_HOME $PWD/myClara/
./install-claracre-clas.sh -v 4a.7.5
setenv COATJAVA $CLARA_HOME/plugins/clas12/

  -----
```

IMPORTANT: the decoding stage (following) must be run with the compatible magnetic fields scales according to the command

```
  ----
```

- $COATJAVA/bin/evio2hipo -r 11 -t -1.0 -s 1.0 -o sim.hipo sim.evio
- cp /volatile/clas12/nathanh/demo_16jun17/cook.clara
- sed -i "s|MY_WORKING_DIR|$PWD/|g" cook.clara
  sed -i "s|MY_NAME|`whoami`|g" cook.clara
  sed -i "s|MY_FILE_LIST|$PWD/files.list|g" cook.clara
  ls sim.hipo > files.list
  $CLARA_HOME/bin/clara-shell
  source cook.clara
  run local

- exit

```
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```