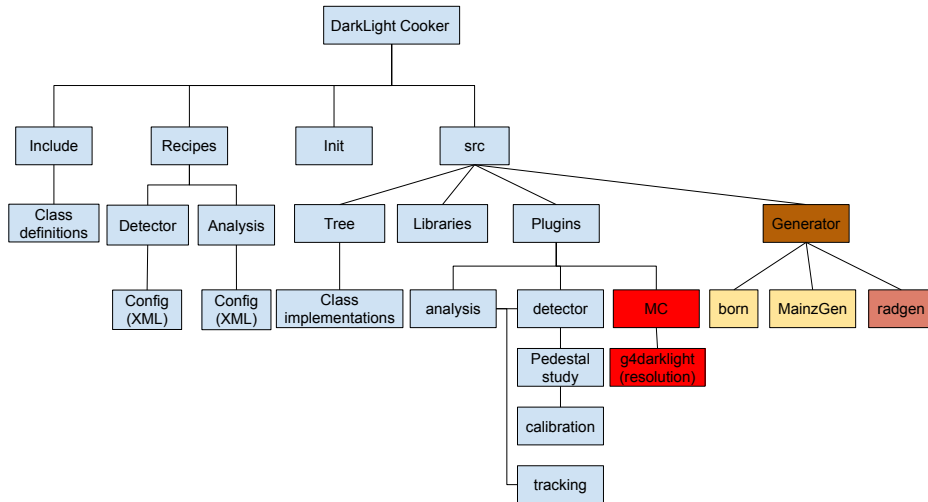


Cooker Integration

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Cooker Framework



Preliminaries

- Code located: [darklight-cooker](#) (click)
- Following directories have been added to the darklight-cooker repo: MainzGen, radgen & resolution (g4darklight)
- README contains best information of how to
- BUILD_OPTIONS are as follows:
cmake ../ -DDo_XX=ON
- cmake ../ -DDo_MC=ON: g4darklight (Geant4 simulation)
- cmake ../ -DDo_RadGen=ON: turn on radgen generator
- cmake ../ -DDo_MainzGen=ON: turn on MainzGen generator

recommended

- cmake ../ -DDo_MC=ON -DDo_RadGen=ON -DDo_MainzGen=ON
(turn everything ON)

g4darklight plugin

src/plugins/MC/g4darklight

- Currently standalone
- Fully functional from cooker
- **Fixed hard-coded paths**
- Use CMAKE_CURRENT_SOURCE_DIR to set file paths
- Add new files as follows:
SOURCE_DIR + "/stl/StainlessSteel/"
- In general: SOURCE_DIR + "/path/to/filedir/"
- Added config.h.in in where cmake VARIABLES can be defined for use in source files
- Run g4DL from the BUILD_DIR as follows:
./bin/g4DL

Issues Encountered

- Noticed that the DetectorConstruction.cc looks for field/B-Field.bin file
- This crashes if field/B-Field.bin file is not found
- Needs further investigation or discussion (renaming files in field/*.bin not viable)

```
G4MTO > 171 264 973 679 8.12 2.94e-25 10 1.69e+03 World StepLimiter
G4M1 > Thread-local run terminated.
G4M1 > Run Summary
G4MTO > 172 259 983 679 8.12 2.94e-25 10 1.7e+03 World StepLimiter
G4M1 > Number of events processed : 16
G4MTO > 173 255 992 679 8.12 2.94e-25 10 1.71e+03 World StepLimiter
G4MTO > 174 252 1e+03 679 8.12 2.67e-25 9.07 1.72e+03 OutOfWorld Transportation
G4MTO > OUTE1 e- 29 1 1 0.473661 -22.1141 9.50205 10 0 0 0 0

G4MTO > OUTE2 e- 29 1 1 1.38536 -11.2677 9.50205 10 0 0 0 0

G4MTO > OUT 29 1 1 0.473661 -22.1141 -10.8464 -0.911696 9.50205 10 0 0 0

G4MTO > Thread-local run terminated.
G4MTO > Run Summary
G4MTO > Number of events processed : 15
G4MTO > User=0.200000s Real=0.209599s Sys=0.070000s [cpu=93.2%]
G4M1 > User=0.190000s Real=0.223601s Sys=0.060000s [cpu=111.0%]
G4MTO > There are 33 background events in electron spect
G4M1 > There are 33 background events in electron spect
G4MTO > There are 0 background events in positron spect
G4M1 > There are 0 background events in positron spect
G4M1 > IndexOfIP: 0StepsOfIP: 90
G4M1 > IndexOfIP: 0StepsOfIP: 70
G4M1 > IndexOfOOP: 0StepsOfOOP: 120
G4MTO > IndexOfIP: 0StepsOfIP: 90
G4MTO > IndexOfIP: 0StepsOfIP: 70
G4MTO > IndexOfOOP: 0StepsOfOOP: 120
Run terminated.
Run Summary
Number of events processed : 31
User=0.200000s Real=0.846423s Sys=0.070000s [cpu=31.9%]
There are 33 background events in electron spect
There are 0 background events in positron spect
IndexOfIP: 0StepsOfIP: 90
IndexOfIP: 0StepsOfIP: 70
IndexOfOOP: 0StepsOfOOP: 120
0 events have been kept for refreshing and/or reviewing.
*/vis/review keptEvents" to review them one by one.
*/vis/enable", then "*/vis/viewer/flush" or "*/vis/viewer/rebuild" to see them accumulated.
Idle= -
```

Work to Do

- Fully incorporated formerly independent submodules: resolution, radgen, MainzGen
- Renamed resolution to g4darklight which is fully functional
- Working on making radgen to be standalone
- More work needed: Reach out to the simulation folks