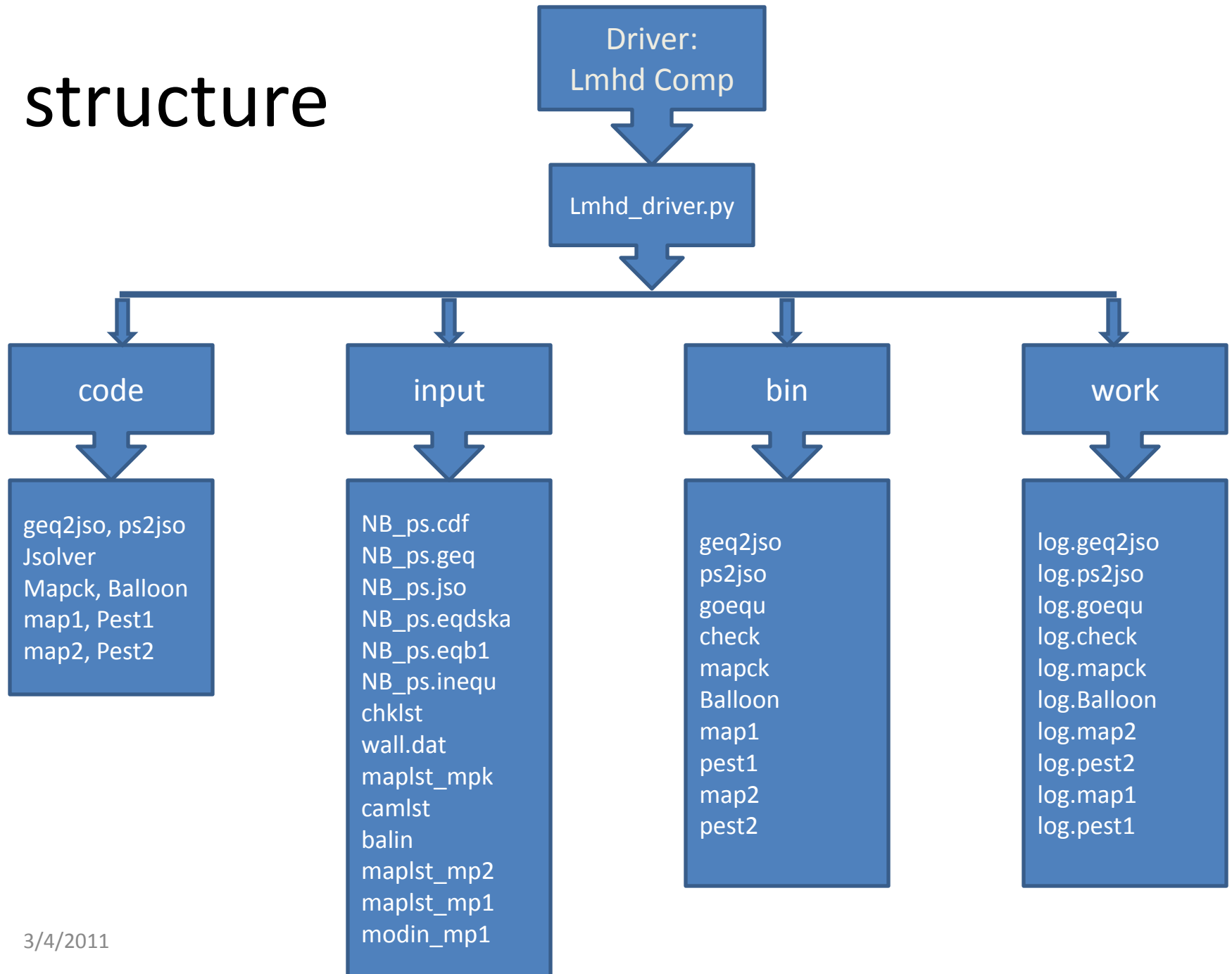


Linear MHD Component

<http://w3.pppl.gov/lmhd/index.html>

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CPPG

structure



Run

- python lmhd_driver.py opt:[geq2jso](#) file:NB_ps.geq npsi:129 nbdy:271 stability:pest1 c_ratio:0.9
- python lmhd_driver.py opt:geq2jso file:NB_ps.geq npsi:129 nbdy:271 stability:pest2 c_ratio:0.9
- python lmhd_driver.py opt:geq2jso file:NB_ps.geq npsi:129 nbdy:271 stability:camino c_ratio:0.9
- python lmhd_driver.py opt:geq2jso file:NB_ps.geq npsi:129 nbdy:271 stability:balloon c_ratio:0.9

- python lmhd_driver.py [ps2jso](#) file:NB_ps.cdf npsi:129 nbdy:271 stability:pest1
- python lmhd_driver.py ps2jso file:NB_ps.cdf npsi:129 nbdy:271 stability:pest2
- python lmhd_driver.py ps2jso file:NB_ps.cdf npsi:129 nbdy:271 stability:camino
- python lmhd_driver.py ps2jso file:NB_ps.cdf npsi:129 nbdy:271 stability:balloon

- python lmhd_driver.py [opt:jso](#) file:NB_ps.eqdska npsi:129 nbdy:271 stability:pest1
- python lmhd_driver.py opt:jso file:NB_ps.eqdska npsi:129 nbdy:271 stability:pest2
- python lmhd_driver.py opt:jso file:NB_ps.eqdska npsi:129 nbdy:271 stability:camino
- python lmhd_driver.py opt:jso file:NB_ps.eqdska npsi:129 nbdy:271 stability:balloon

- python lmhd_driver.py opt:[map](#) file:NB_ps.eqb1 npsi:129 nbdy:271 stability:balloon
- python lmhd_driver.py opt:map file:NB_ps.eqb1 npsi:129 nbdy:271 stability:camino
- python lmhd_driver.py opt:map file:NB_ps.eqb1 npsi:129 nbdy:271 stability:pest1
- python lmhd_driver.py opt:map file:NB_ps.eqb1 npsi:129 nbdy:271 stability:pest2

Details

```
#get parent directory
    lmhdDir = os.getcwd()

#create work dir if there is none
    workDir=os.path.abspath("work")
    mymkdir(workDir)

#get executables from bin dir
    binDir=os.path.abspath("bin")

#get input files from input dir
    inputDir=os.path.abspath("input")
    inputFiles=os.listdir(inputDir)
    for s in inputFiles:
        cpFiles(s, inputDir, workDir)

# go to work dir and run
    os.chdir(workDir)
```

Cont'd

```
#decide where to start
```

```
    opt,file,c_ratio,npsi,nbdy,opt_stability = parse_command_line_options()
```

```
# start from geq file
```

```
    if opt == 'geq2jso':
```

```
# start from a plasma state file
```

```
    elif opt == 'ps2jso':
```

```
# start from Jsolver
```

```
    elif opt == 'jso':
```

```
# start from mapping
```

```
    elif opt == 'map':
```

```
        if opt_stability == 'balloon' or opt_stability == 'all':
```

```
            mapck_status = run(binDir, workDir, 'mapck')
```

```
            Checkgs_status = run(binDir, workDir, 'check')
```

```
            baloon_status = run(binDir, workDir, 'Balloon')
```

```
        elif opt_stability == 'pest2' or opt_stability == 'all':
```

```
            map2_status = run(binDir, workDir, 'map2')
```

```
            pest2_status = run(binDir, workDir, 'pest2')
```

```
        elif opt_stability == 'pest1' or opt_stability == 'all':
```

```
            map1_status = run(binDir, workDir, 'map1')
```

```
            pest1_status = run(binDir, workDir, 'pest1')
```

Snapshot from TRANSP D3D 141069B06

python lmhd_driver.py opt:geq2jso file:NB_ps.geq npsi:129 nbdy:271 stability:pest2

L M H D C O M P O N E N T

```
current dir: /p/swim/jchen/mhd_work/lmhd
work dir /p/swim/jchen/mhd_work/lmhd/work
bin dir: /p/swim/jchen/mhd_work/lmhd/bin
copy files from binDir /p/swim/jchen/mhd_work/lmhd/bin to workDir /p/swim/jchen/mhd_work/lmhd/work:
  cp NB_ps.jso from input to work
  cp NB_ps.cdf from input to work
  cp fort.26 from input to work
  cp NB_ps.inequ from input to work
  cp NB_ps.eqdska from input to work
  cp fort.20 from input to work
  cp maplst_mp2 from input to work
  cp balin from input to work
  cp camlst from input to work
  cp modin_mp1 from input to work
  cp maplst_mpk from input to work
  cp NB_ps.eqb1 from input to work
  cp maplst_mp1 from input to work
  cp NB_ps.geq from input to work
  cp chklst from input to work
  cp rmfile from input to work
  cp wall.dat from input to work

cd to work dir
  L M H D starts from geq2jso with npsi=129 nbdy=271 c_ratio=0.100000 to analyze pest2

  Run geq2jso
    cp NB_ps.inequ inequ
    geq2jso completes successfully.
    lmhd Component continues ...

  Run goequ
    goequ completes successfully.
    lmhd Component continues ...

  Run map2
    map2 completes successfully.
    lmhd Component continues ...

  Run pest2
    pest2 completes successfully.
    lmhd Component continues ...
```

Results and Postprocessing

Work Dir

log.geq2jso

log.ps2jso

log.goequ

log.mapck

log.check

log.Balloon

log.map2

log.pest2

log.map1

log.pest1