

Logs

HWRF Python Scripts Training

Miami, FL

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Types of logs

- Rocoto
 - Rocoto tools to query job status in database
 - Rocoto logs in `pytmp/${EXPT}/log`
- jlogfile
- Standard error and standard output
- Individual output from components

Rocoto logs

- Located here: `pytmp/{EXPT}/log/rocoto_{SID}_{aYMDH}.log`
- Contains record of Rocoto tasks submitted, time, status, etc.

Rocoto logs

```
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Task init_GFS_0_E99, jobid=70464453, in state SUCCEEDED (C), ran for 641.0 seconds, exit status=0, try=
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Task init_GDAS1_3_E99, jobid=70464454, in state RUNNING (R)
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Task init_GDAS1_6_E99, jobid=70464455, in state SUCCEEDED (C), ran for 655.0 seconds, exit status=0,
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Task init_GDAS1_9_E99, jobid=70464456, in state RUNNING (R)
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submitting bdy_E99
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submitting relocate_GFS_0_E99
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submitting relocate_GDAS1_6_E99
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submission status of bdy_E99 is pending at druby://fe7:36193
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submission status of relocate_GFS_0_E99 is pending at druby://fe7:36193
Fri Nov 06 00:36:12 +0000 2015 :: fe7 :: Submission status of relocate_GDAS1_6_E99 is pending at druby://fe7:36193
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submission status of previously pending bdy_E99 is success, jobid=70466279
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submission status of previously pending relocate_GFS_0_E99 is success, jobid=70466280
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submission status of previously pending relocate_GDAS1_6_E99 is success, jobid=70466281
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Task bdy_E99, jobid=70466279, in state RUNNING (R)
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Task init_GDAS1_3_E99, jobid=70464454, in state SUCCEEDED (C), ran for 678.0 seconds, exit status=0,
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Task init_GDAS1_9_E99, jobid=70464456, in state SUCCEEDED (C), ran for 833.0 seconds, exit status=0,
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Task relocate_GFS_0_E99, jobid=70466280, in state RUNNING (R)
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Task relocate_GDAS1_6_E99, jobid=70466281, in state RUNNING (R)
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submitting relocate_GDAS1_3_E99
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submitting relocate_GDAS1_9_E99
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submission status of relocate_GDAS1_3_E99 is pending at druby://fe7:43622
Fri Nov 06 00:39:12 +0000 2015 :: fe7 :: Submission status of relocate_GDAS1_9_E99 is pending at druby://fe7:43622
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Submission status of previously pending relocate_GDAS1_3_E99 is success, jobid=70466787
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Submission status of previously pending relocate_GDAS1_9_E99 is success, jobid=70466788
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Task bdy_E99, jobid=70466279, in state RUNNING (R)
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Task relocate_GFS_0_E99, jobid=70466280, in state RUNNING (R)
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Task relocate_GDAS1_3_E99, jobid=70466787, in state RUNNING (R)
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Task relocate_GDAS1_6_E99, jobid=70466281, in state RUNNING (R)
Fri Nov 06 00:42:11 +0000 2015 :: fe7 :: Task relocate_GDAS1_9_E99, jobid=70466788, in state RUNNING (R)
```

jlog

- Located here: `pytmp/{EXPT}/log/jlogfile`
- Contains record of the completion of HWRF jobs
- Error or Critical level exceptions from any part of the system
- To write to the jlogfile:
 - `proditil.log.jlogger.info`
 - `proditil.log.jlogger.critical`

jlogfile

11/05 21:12:22Z run_hwrf-INFO: Successfully ran rocotorun for hwrf-Python_training-17W-2015082000.
11/05 21:20:05Z run_hwrf-INFO: Successfully ran rocotorun for hwrf-Python_training-17W-2015082000.
11/05 21:21:20Z hwrf_launch_17W_2015082000_E99-INFO: exhwrf_launch is starting
11/05 21:21:20Z hwrf_launch_17W_2015082000_E99-hwrf: ERROR: /com/hur/prod/inpdata/nstorms: error reading: [Errno 2] No such file or directory: '/com/hur/prod/inpdata/nstorms'.
Will read all storms.
11/05 21:21:24Z hwrf_launch_17W_2015082000_E99-INFO: ENS 99 (of 0) is not a perturbed ensemble member; not perturbing wind.
11/05 21:21:35Z hwrf_launch_17W_2015082000_E99-INFO: exhwrf_launch completed
11/05 22:52:18Z run_hwrf-INFO: Successfully ran rocotorun for hwrf-Python_training-17W-2015082000.
11/05 22:53:29Z hwrf_input_17W_2015082000_E99-INFO: HWRF input job starting
11/05 22:53:39Z hwrf_input_17W_2015082000_E99-hwrf.exhwrf_input: ERROR: [MainThread] Christina.Holt@dtm-zeus.rdhpcs.noaa.gov: cannot access; will skip
11/06 00:09:32Z hwrf_input_17W_2015082000_E99-INFO: HWRF input job completed
11/06 00:24:15Z run_hwrf-INFO: Successfully ran rocotorun for hwrf-Python_training-17W-2015082000.
11/06 00:26:56Z hwrf_init_17W_2015082000_GFS_0_E99-INFO: WPS Geogrid completed.
11/06 00:27:12Z run_hwrf-INFO: Successfully ran rocotorun for hwrf-Python_training-17W-2015082000.
11/06 00:27:37Z hwrf_init_17W_2015082000_GDAS1_6_E99-INFO: WPS Geogrid completed.
11/06 00:27:38Z hwrf_init_17W_2015082000_GDAS1_6_E99-INFO: WPS Ungrib completed
11/06 00:27:43Z hwrf_init_17W_2015082000_GFS_0_E99-INFO: WPS Ungrib completed
11/06 00:27:49Z hwrf_init_17W_2015082000_GDAS1_6_E99-INFO: WPS Metgrid completed
11/06 00:28:02Z hwrf_init_17W_2015082000_GDAS1_9_E99-INFO: WPS Geogrid completed.
11/06 00:28:03Z hwrf_init_17W_2015082000_GDAS1_3_E99-INFO: WPS Geogrid completed.
11/06 00:28:05Z hwrf_init_17W_2015082000_GDAS1_3_E99-INFO: WPS Ungrib completed
11/06 00:28:06Z hwrf_init_17W_2015082000_GDAS1_9_E99-INFO: WPS Ungrib completed
11/06 00:28:15Z hwrf_init_17W_2015082000_GDAS1_3_E99-INFO: WPS Metgrid completed
11/06 00:28:19Z hwrf_init_17W_2015082000_GDAS1_9_E99-INFO: WPS Metgrid completed
11/06 00:28:27Z hwrf_init_17W_2015082000_GDAS1_6_E99-INFO: fgat.t201508200000/realinit: completed

stderr and stdout

- Located in the \$WORKhwrp directory
- stdout files contain all the logging (info, error, critical level) messages from the Python scripts
- stderr files contain all the error and critical messages, plus the submission information for the job (PROLOGUE, EPILOGUE)
- Separated into hwrp_*.out and hwrp_*.err. Name is set in Rocoto ent files.
- At least one set for each task.
- Multiple processor jobs have multiple sets of logs
 - post, products, tracker, etc.

Examples of stdout/stderr

```
ls ${WORKhwrfl}/*out
```

```
hwrfl_bdy.out  
hwrfl_bufrrprep.out  
hwrfl_check_init.out  
hwrfl_gsi_d02.out  
hwrfl_gsi_d03.out  
hwrfl_gsi_post.out  
hwrfl_init_GDAS1_3.out  
hwrfl_init_GDAS1_6.out  
hwrfl_init_GDAS1_9.out  
hwrfl_init_GFS_0.out  
hwrfl_input.out  
hwrfl_launch.out  
hwrfl_merge.out  
hwrfl_relocate_GDAS1_3.out  
hwrfl_relocate_GDAS1_6.out  
hwrfl_relocate_GDAS1_9.out  
hwrfl_relocate_GFS_0.out
```

```
ls ${WORKhwrfl}/*.err
```

```
hwrfl_bdy.err  
hwrfl_bufrrprep.err  
hwrfl_check_init.err  
hwrfl_gsi_d02.err  
hwrfl_gsi_d03.err  
hwrfl_gsi_post.err  
hwrfl_init_GDAS1_3.err  
hwrfl_init_GDAS1_6.err  
hwrfl_init_GDAS1_9.err  
hwrfl_init_GFS_0.err  
hwrfl_input.err  
hwrfl_launch.err  
hwrfl_merge.err  
hwrfl_relocate_GDAS1_3.err  
hwrfl_relocate_GDAS1_6.err  
hwrfl_relocate_GDAS1_9.err  
hwrfl_relocate_GFS_0.err
```


Output from components

- Many components have their own log files
- For example:
 - WRF: rsl.out.* and rsl.err.*
 - WPS: metgrid.log.*, geogrid.log.*, ungrib.log
 - GSI: stdout
 - Coupler: cpl.out

Python Exception Stacks

- Several lines you get when you fail.

```
Traceback (most recent call last):
  File "/pan2/projects/dtc-hurr/dtc/HWRF_training//scripts/exhwrfgsi.py", line 60, in <module>
    main()
  File "/pan2/projects/dtc-hurr/dtc/HWRF_training//scripts/exhwrfgsi.py", line 53, in main
    hwrfgsi_d02.run()
  File "/pan2/projects/dtc-hurr/dtc/HWRF_training/ush/hwrfgsi.py", line 982, in run
    self.grab_enkf_input()
  File "/pan2/projects/dtc-hurr/dtc/HWRF_training/ush/hwrfgsi.py", line 285, in grab_enkf_input
    self.grab_gfs_enkf()
  File "/pan2/projects/dtc-hurr/dtc/HWRF_training/ush/hwrfgsi.py", line 607, in grab_gfs_enkf
    %(there,))
GSIInputError: required input file is empty or non-existent: /pan2/projects/dtc-hurr/dtc/HWRF_training/pytmp/HWRF_training/2015082000/17W/hwrfgdata/enkf.2015081918/sfg_2015081918_fhr06s_mem001
```

Steps for Debugging

1. Check Rocoto status: `rocotostat`
2. Check `stderr` and `stdout` files for “CRITICAL” and other errors leading up to the failure
3. If component log exists, check there
4. Don't forget that a failure in one component may be related to a more innocuous error in a previous component!

Exercise

Determine why GSI failed.