**WCOSS Regional NMMB Launcher**

<https://svnemc.ncep.noaa.gov/projects/launcher/trunk/nmmb/wcoss>

**WCOSS Modules**

Before attempting to use the WCOSS launcher, a number of utility modules need to be loaded. Otherwise key components of the WCOSS launcher will be rendered inoperable. The following list of modules may be activated in any of the user specified login/setup files including: .profile, .cshrc, .bashrc, etc.

. /usrx/local/Modules/3.2.9/init/$shell where $shell may be your preferred unix/linux shell i.e. bash, csh, ksh, sh, tcsh, zsh

module load ibmpe

module load ics

module load lsf

module load GrADS/2.0.2

module load hpss

module load imagemagick/6.8.3-3

**Launcher run script**

Like with the CCS Launcher, the following flags are at the top of the run/run\_nmmb\_\* scripts. The following options that highlighted are currently working on WCOSS.

**RUN\_GET=1 #- Get input files from disk or hpss**

RUN\_GET\_ANL=0 #- Get 00h analysis files from disk or hpss every 6h; NAM

 #- (GFS\_IC=0) or GFS (GFS\_IC>0) (see ../templates/setup\_getanl)

**RUN\_INIT=1 #- Run NPS to initialize model if >0**

**RUN\_COLD\_START=1 #- Run Cold Start utility if > 0**

**RUN\_MODEL=2 #- Run model if >0**

 **#- =1 - run model only**

 **#- >=2 - run model and post + prdgen/copygb**

 **#- steps together (recommended)**

**RUN\_POST=0 #- If RUN\_MODEL=0 or 1, then set RUN\_POST>0 to run the post and prdgen/copygb:**

 **# =1 - runs prdgen if weights files are present,**

 **# otherwise runs copygb (recommended)**

 **# =2 - runs prdgen**

 **# >2 - runs copygb**

**RUN\_GRAPHICS=1 #- Run Grads-based graphics (if >0)**

**RUN\_VERIF=1 #- Run verification package to make vsdb files (if >0)**

RUN\_G2G=0 #- Run grid-to-grid verifcation step (if > 0)

**RUN\_FVS=1 #- Run FVS to make verification plots (if >0)**

**RUN\_PCPVER=1 #- Run precipitation verification, vsdb files + plots (if >0)**

RUN\_BUFR=0 #- Run BUFR processing

RUN\_PLTSND=0 #- Make GEMPAK skew-T sounding plots

**RUN\_ARCHIVE=1 #- Archives output on hpss in $HPSSDIR (note $CCSUSER needs to be defined)**

The steps RUN\_GET\_ANL, RUN\_G2G, RUN\_BUFR, & RUN\_PLTSND are not yet ready. Ed Colon is now working on RUN\_BUFR & RUN\_PLTSND.

The user sets up options within the /run subdirectory for one of the run\_nmmb\_\* templates:

run\_nmmb\_na12aq => 12-km air quality (AQ) domain

run\_nmmb\_1nest => 12-kmAQ parent, 4-km CONUS nest

run\_nmmb\_2nests => 12-km AQ parent, 4-km CONUS nest

run\_nmmb\_conus4 => 4-km CONUS domain (also has settings for the 3-km CONUS domain)

run\_nmmb\_tiny4 => tiny 4-km domain for quasi-1D physics testing

**run\_nmmb\_common => additional user-specified options**

**Never remove the run\_nmmb\_common file**, because the commands that are in it are called by all of the other run\_nmmb\_XXX scripts. If there was an option that you’re used to change in the CCS Launcher and you can’t find it in one of the blue scripts, please look in the red script. If it’s missing, then please contact either Ed Colon or Brad Ferrier. It’s OK to move options from the run\_nmmb\_common file into one of the blue scripts, be careful when you do an *svn update* of the code.

As before, edit one of the files in blue, select which options you want to run, set up the forecast cycle (CYCLE), experiment name (EXPER), etc. I would recommend setting the variable BSUBMIT=0 at the start, which is the variable that submits the job if it is set to a value >0. It’s located near the bottom of the run\_nmmb\_XXX scripts. The analog of *llsubmit* on the CCS is *bsub* on WCOSS. While we’re on the topic, below are some particularly useful links that will help you in this transition.

* [WCOSS Wiki page](http://wcossdocs.ncep.noaa.gov/userwiki/index.php/Main_Page) (general WCOSS resource page, quite extensive). The most useful pages from this main page are the following two:
	1. [LSF on WCOSS (bsub, bjobs, bkill, etc.) ⇔ Load Leveler on CCS analog commands](http://wcossdocs.ncep.noaa.gov/userwiki/index.php/LSF_analogs_for_LoadLeveler_commands) (llsubmit, llq, llcancel etc)
	2. [LSF keywords and commands on WCOSS ⇔ Load Leveler keywords on CCS](http://wcossdocs.ncep.noaa.gov/userwiki/index.php/LSF_analogs_for_LoadLeveler_keywords) (# @ commands)
* [Launcher web page with commands, options, etc.](http://www.emc.ncep.noaa.gov/NEMS/launcher.php) - i.e., the EMC => NEMS => Launcher page
* [Launcher on Trac (graphical subversion)](https://svnemc.ncep.noaa.gov/trac/launcher/browser/trunk/nmmb/wcoss)

As with the CCS Launcher, every variable that is listed in the scripts above is defined with comments within the script.

The command used to checkout the WCOSS Launcher via subversion is

*svn co* [*https://svnemc.ncep.noaa.gov/projects/launcher/trunk/nmmb/wcoss*](https://svnemc.ncep.noaa.gov/projects/launcher/trunk/nmmb/wcoss)

**Sample “Token” Run (BSUBMIT=0)**

Below is a sample listing of a special directory I made on Tide. I also copied it over to Gyre in case you need to access it there too. I created a new script, **run\_nmmb\_example**, which was copied from *run\_nmmb\_na12aq* along with just 2 changes made, setting RUN\_ARCHIVE=1 and setting BSUBMIT=0.

t14a2 /meso/save/Brad.Ferrier/launcher/svn/example/wcoss/run ls -al

total 2176

drwxr-sr-x 8 Brad.Ferrier meso 131072 Jul 31 23:16 .

drwxr-sr-x 10 Brad.Ferrier meso 512 Jul 31 22:17 ..

drwxr-sr-x 6 Brad.Ferrier meso 131072 Jul 31 22:14 domains

drwxr-sr-x 3 Brad.Ferrier meso 131072 Jul 31 22:14 g2g\_series

**drwxr-sr-x 2 Brad.Ferrier meso 131072 Jul 31 23:16 jobs.2013010100.nmmb\_na12aq\_ctl**

**-rw-r--r-- 1 Brad.Ferrier meso 36487 Jul 31 23:16 nmmb\_na12aq\_ctl\_2013010100.log**

-rw-r--r-- 1 Brad.Ferrier meso 5100 Jul 31 22:15 README\_Zeus

-rwxr-xr-x 1 Brad.Ferrier meso 13619 Jul 31 23:15 run\_nmmb\_1nest

-rwxr-xr-x 1 Brad.Ferrier meso 13889 Jul 31 23:15 run\_nmmb\_2nests

-rwxr-xr-x 1 Brad.Ferrier meso 13902 Jul 31 23:15 run\_nmmb\_common

-rwxr-xr-x 1 Brad.Ferrier meso 13530 Jul 31 22:14 run\_nmmb\_conus4

**-rwxr-xr-x 1 Brad.Ferrier meso 13606 Jul 31 23:15 run\_nmmb\_example**

-rwxr-xr-x 1 Brad.Ferrier meso 13606 Jul 31 23:15 run\_nmmb\_na12aq

-rwxr-xr-x 1 Brad.Ferrier meso 14894 Jul 31 23:15 run\_nmmb\_tiny4

drwxr-sr-x 3 Brad.Ferrier meso 512 Jul 31 22:14 series

**-rwxr-xr-x 1 Brad.Ferrier meso 123 Jul 31 23:16 start.2013010100.nmmb\_na12aq\_ctl**

drwxr-sr-x 6 Brad.Ferrier meso 512 Jul 31 23:15 .svn

drwxr-sr-x 3 Brad.Ferrier meso 512 Jul 31 22:14 timeseries

Like with the CCS, the command to run the job is

*run\_nmmb\_example <ret>*

and the new files that created are highlighted in colors above, which are:

* **start.2013010100.nmmb\_na12aq\_ctl - the script used to submit the job**
* **nmmb\_na12aq\_ctl\_2013010100.log - the log file of output showing the commands that were run**
* **jobs.2013010100.nmmb\_na12aq\_ctl - a directory of LSF (“bsub”) scripts that will be run automatically by the Launcher**

When the flag BSUBMIT=0 is selected, the **start.2013010100.nmmb\_na12aq\_ctl** script is not run. It will be run automatically if the user selects BSUBMIT=1. For the user to run the job, the command is simply,

***start.2013010100.nmmb\_na12aq\_ctl***

Viewing the contents of this file will show that the script simply goes into the **jobs.2013010100.nmmb\_na12aq\_ctl** directory and submits (*bsub < $script*) the first set of job(s) or run step(s) in the sequence. The next page will show the new set of messages sent to the screen from this sample job. Although the model was not run, sample output from this “token” step was generated on

/ptmp/Brad.Ferrier/2013010100 ,

but I have also copied over to the “permanent” directories at the following locations:

/gpfs**/td1**/emc/meso/noscrub/Brad.Ferrier/2013010100 on **Tide**
/gpfs/**gd1**/emc/meso/noscrub/Brad.Ferrier/2013010100 on **Gyre**

**Sample Screen Messages**

Input GRIB and prepbufr files are in /ptmp/Brad.Ferrier/2013010100/com

NPS files (model input) are in /ptmp/Brad.Ferrier/2013010100/com/nps\_nmmb\_na12aq\_ctl

Output is in /ptmp/Brad.Ferrier/2013010100/nmmb\_na12aq\_ctl

**\*\*\* IMPORTANT! User action is needed! \*\*\***

**Run the following commands in jobs.2013010100.nmmb\_na12aq\_ctl subdirectory after all jobs have finished:**

**"bsub < run\_copy\_com" to copy input files to noscrub**

**"bsub < run\_copy\_data" to copy output files to noscrub**

**\*\*\* IMPORTANT! User action is needed! \*\*\***

**Run the following command in jobs.2013010100.nmmb\_na12aq\_ctl subdirectory after all jobs have finished:**

**"bsub < run\_archive" to archive the run to hpss**

You requested not to run start.2013010100.nmmb\_na12aq\_ctl.

To start the run enter "start.2013010100.nmmb\_na12aq\_ctl <ret>" from the current directory.

The user can run the steps individually, if they know what the order is, by going into the **jobs.2013010100.nmmb\_na12aq\_ctl** directory and entering the command,

*bsub < get\_221*

if they want to run just the job that retrieves (fetches) the NAM grid 221 files from hpss. Users can see the initial job submissions within the **start.2013010100.nmmb\_na12aq\_ctl** script created in their current working directory (i.e., in the /run directory).

Regarding the screen message on the previous page highlighted in magenta, unlike on the CCS the scripts used to copy output from /ptmp to .../emc/meso/noscrub and to archive on hpss cannot be done automatically. For now, the user should wait until all of the model output has finished, review it, and then decide if they want to save it. Hopefully the instructions provided in the magenta-colored screen messages will serve as a helpful reminder. For example, if I want to copy the input data from

/ptmp/$USER/2013010100/com

to

/gpfs**/td1**/emc/meso/noscrub/Brad.Ferrier/2013010100/com (on Tide),

then I can either do it myself (by cp -R) or run the following commands:

***cd /gpfs/td1/emc/meso/save/Brad.Ferrier/launcher/svn/example/wcoss/run/jobs.2013010100.nmmb\_na12aq\_ctl***

*bsub < run\_copy\_com*

The same procedure can be followed for copying the model output (*bsub < run\_copy\_data*) or archiving the model output to hpss (*bsub < run\_archive*).

**Dependencies Between Job Steps**

Unlike on the CCS or on Zeus, job dependencies does not currently work on WCOSS, despite Ed’s valiant efforts to try and figure this out. Therefore, what we’ve done is built in these dependencies by having the end of one job step (e.g., the model) to run the command in orange above and then submit the next logical job in the sequence. This process gets a little tricky for transitioning from one job to another, and while we think this is working correctly, you will likely find flaws in the logic. This is why the users ***won’t*** see large Load-Leveler (XXX.ll) scripts, but instead a much smaller set of simple “*bsub < $script*” commands within **start.2013010100.nmmb\_na12aq\_ctl** .

As with the CCS, if the user sets RUN\_MODEL>1, that will result in the post and its interpolator (usually copygb) running side-by-side with the model.

**Final Remarks**

Do expect bugs and glitches with this version, even with the steps that we think are working right. We’ve not tested the following:

* high-resolution domains
* nesting
* the “series” capability, i.e., the ability to run a series of Launcher runs

Users will need to spend time setting up their ssh keys in order to get keyless password access to Tempest if users want to get GEMPAK sounding observation files for plotting soundings.

 ***We ask for your patience as we muddle through this transition!* If you have any problems, please let contact either Ed Colon or Brad Ferrier.**