

Configure & Build & Run PORT

PORT is released as part of CESM1 or on any development branch since cam4_1_05.

Note that **configure -rad_driver** produces PORT rather than CAM. Under this configuration, the only CAM process that runs is CAM initializations and radiation.

Note the build_namelist which will read data from **rad_drv_infile** and produce a corresponding file **rad_drv_case** containing results of computing radiative transfer on atmosphere specified in rad_drv_infile. (If you are using the data generated by [Create Data](#) you will have 4 time samples of atmospheric state, and this run of PORT will create 4 time samples of heating rates and fluxes.)

Additional calls to radiation can be performed using the usual namelist specifications rad_diag_1 = ... as described in the CAM user's guide.

```
#!/bin/tcsh -f
#
set ntasks = 4

setenv USER_FC lf95
##setenv USER_FC pgf90

setenv USER_CC gcc

if ( $USER_FC == "lf95" ) then

    set NETCDF = /usr/local/netcdf-lf95
    set mpich = /usr/local/mpich2-lf95

else if ( $USER_FC == "pgf90" ) then

    set NETCDF = /usr/local/netcdf-3.6.2-pgf90
    set mpich = /usr/local/mpich2-pgf90

endif

setenv INC_NETCDF ${NETCDF}/include
setenv LIB_NETCDF ${NETCDF}/lib
setenv MOD_NETCDF $INC_NETCDF

setenv INC_MPI ${mpich}/include
setenv LIB_MPI ${mpich}/lib
setenv ${mpich}/bin:${PATH}

setenv MPI_TYPE_MAX 100000

## Do our best to get sufficient stack memory
limit stacksize unlimited

## ROOT OF CAM DISTRIBUTION - probably needs to be customized.
## Contains the source code for the CAM distribution.
## (the root directory contains the subdirectory "models")

set curdir = `pwd`

set camroot = /path_to_cesm_with_tag_after/cesm1_0_rel_01_cam5_0_00

## ROOT OF CAM DATA DISTRIBUTION - needs to be customized unless running at NCAR.
## Contains the initial and boundary data for the CAM distribution.
## (the root directory contains the subdirectories "atm" and "lnd")
setenv CSMDATA /path_to_cam_inputdata/cam-in

## Default namelist settings:
## $case is the case identifier for this run. It will be placed in the namelist.
## $runtype is the run type: initial, restart, or branch.

## $nelapse is the number of timesteps to integrate, or number of days if negative.
set case          = RAD_DRV
set runtype       = startup
set stop_n        = 1
```

```

## $wrkdir is a working directory where the model will be built and run.
## $blddir is the directory where model will be compiled.
## $rundir is the directory where the model will be run.
## $cfgdir is the directory containing the CAM configuration scripts.
set wrkdir      = /data/$LOGNAME
set blddir      = $wrkdir/$case/bld
set rundir      = $wrkdir/$case
set cfgdir      = $camroot/models/atm/cam/bld

rm $blddir/cam

## Ensure that run and build directories exist
mkdir -p $rundir/timing || echo "cannot create $rundir" && exit 1
mkdir -p $blddir || echo "cannot create $blddir" && exit 1

echo " "
echo "before configure..."
echo " "

## If an executable doesn't exist, build one.
if ( ! -x $blddir/cam ) then
  cd $blddir || echo "cd $blddir failed" && exit 1
  $cfgdir/configure \
    -rad_driver \
    -phys cam4 \
    -fc $USER_FC \
    -chem none \
    -rad camrt\
    -debug \
    -spmd \
    -nosmp \
    -res 10x15 \
    -dyn fv \
    -ntasks $ntasks\
    -ice csim4\
  || echo "configure failed" && exit 1
  echo " "
  echo "building CAM in $blddir ..."
  echo " "

rm -f Depends
/usr/bin/gmake -j4 >&! MAKE.out || echo "CAM build failed: see $blddir/MAKE.out" && exit 1
# rm -f *.o *.mod
endif

echo " "
echo "build complete"
echo " "

## Create the namelist
cd $blddir || echo "cd $blddir failed" && exit 1
$cfgdir/build-namelist -case $case -runtype $runtype -d $rundir -ignore_ic_date -test \
  -namelist "&camexp stop_n=$stop_n, stop_option='nsteps' \
    iradsw = 1 \
    iradlw = 1 \
    iradae = 1 \
    ndens=1,1,1,1,1,1\
    nhtfrq = 0,1,1,1,1,1\
    avgflag_pertape = 'A','I','I','I','I','I'\
    mfilt = 1,100,100,100,100,100\
    empty_htapes=.false.\
    fincl3 = 'SOLIN', 'QRS', 'FSNS', 'FSNT','FSNSC', 'FSDSC',\
             'FSNTOA', 'FSUTOA', 'FSNTOAC', 'FSNTC', 'FSDSC', 'FSDS', 'SWCF',\
             'QRL', 'FLNS', 'FLDS', 'FLNT', 'LWCF', 'FLUT', 'FLUTC', 'FLNTC', 'FLNSC', 'FLDSC'\
    rad_drv_case = 'RAD_drv_test'\
    rad_drv_infile = '/Location_of_offline_data_to_be_analyzed/RAD_BASE.cam2.h1.0000-01-01-00000.nc'\
    rad_data_output = .true.\
    start_ymd = 00000101\
  / " || echo "build-namelist failed" && exit 1
#exit 0

```

```
## Run CAM
cd $rundir || echo "cd $rundir failed" && exit 1
echo "running CAM in $rundir..."

mpirun -l -np $ntasks $blddir/cam || echo "CAM run failed" && exit 1
```