Compile and run RAPID on a Unix-like computer

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Short version

```
tar -xzf rapid-yyyymmdd.tar.gz
tar -xzf rapid_input_Domain_yyyymmdd.tar.gz
cd rapid/src/
make clean
make rapid
cd ../run/
ln -s rapid_namelist_Domain rapid_namelist
./rapid_script.sh
```

Long version

Hardware

In order to compile and run RAPID, one needs a Unix-like computer (e.g. Linux) with C, C++ and Fortran compilers.

Prerequisites

RAPID is designed to be portable and has been run on different machines. However, compilers do vary and some bugs may arise especially during the reading of input data.

RAPID uses version 3.3 of the PETSc scientific library (http://www.mcs.anl.gov/petsc/) and version 2.1 of the TAO optimization library (http://www.mcs.anl.gov/research/projects/tao/). Version 3.6.3 of netCDF also needs be installed (http://www.unidata.ucar.edu/software/netcdf/). Having MPI installed is not mandatory to install and run PETSc or TAO. However parts of the RAPID code may need to be disabled if one wants to run RAPID without using MPI. The current version of RAPID runs with MPICH2 version 1.4.1.

Make sure all scientific libraries are installed using the same compiler. RAPID currently uses 64-bit compilers from Intel version 11.1.

Proper installations of PETSc and TAO require setting several environmental variables. Other environmental variables are used to simplify the makefile. Following is list of environment variables that are needed:

```
PETSC_DIR
PETSC_ARCH
TAO_DIR
```

```
TACC_NETCDF_INC
TACC_NETCDF_LIB
```

Extracting archives

```
tar –xzf rapid-yyyymmdd.tar.gz
tar –xzf rapid_input_Domain_yyyymmdd.tar.gz
cd rapid
```

Cleaning, compiling and linking

```
cd ./src/
make clean
make rapid
cd ../
```

Making a symbolic link to the desired rapid namelist file

```
cd ./run/
ln –s rapid_namelist_Domain rapid_namelist
cd ../
```

Running RAPID

```
cd ./run/
./rapid_script.sh
```

Further information

RAPID website: http://rapid-hub.org/

RAPID source code: https://github.com/c-h-david/rapid/