



CWP Workshop

6 January 2020

Golden, Colorado

Windows - How to get on Mio

- Instead of attempting to install Madagascar (M8R) on your Windows machine, we're going to install s/w that will get you on the CSM **Mio** cluster
- To do this you will need a few pieces of software:
 - A VPN client (if logging in from home; needs to be running!)
 - Mines VPN: <https://its.mines.edu/software-title/vpn/>
 - An X Server for Windows: <https://sourceforge.net/projects/xming/>
 - You will need to have Xming running
 - An SSH client with X11 forwarding: <https://www.putty.org/>
 - You need to have the X11 forwarding button ticked
 - Login to mio.mines.edu using your Putty client (you can save your profile for easy use later on)
 - Test Mio X11 graphics connection by typing: `xclock`

Mac O/S - How to get on Mio

- Instead of attempting to install Madagascar (M8R) on your Mac O/S machine, we're going to install s/w that will get you on the CSM **Mio** cluster
- To do this you will need a few pieces of software
 - XQuartz - <https://www.xquartz.org/>
 - You should be able to directly connect with your **xterm** program
 - `ssh -Y username@mio.mines.edu`
 - Test Mio X11 graphics connection by typing: `xclock`
 - You may need to edit your `sshd_config` file (typically found at `/etc/sshd_config` or `/etc/ssh/sshd_config`) if you have trouble using X forwarding. If `sshd_config` includes `#X11Forwarding no` (or just `X11Forwarding no`), uncomment out the line (remove the leading `#`), and change it to `X11Forwarding yes`.

Linux - How to get on Mio

- Instead of attempting to install Madagascar (M8R) on your Linux machine, we're going to install s/w that will get you on the CSM **Mio** cluster
 - You should be able to directly connect with your **xterm** program
 - `ssh -Y username@mio.mines.edu`
 - Test Mio X11 graphics connection by typing: *xclock*
 - You may need to edit your `sshd_config` file (typically found at `/etc/sshd_config` or `/etc/ssh/sshd_config`) if you have trouble using X forwarding. If `sshd_config` includes `#X11Forwarding no` (or just `X11Forwarding no`), uncomment out the line (remove the leading `#`), and change it to `X11Forwarding yes`.

Linux – Setup (first time login)

- You should be working in your home directory:
 - ~username/
- There is a shared GEOP workspace on Mio that can be used for communal software, data, etc:
 - /gpfs/lb/sets/geop
- We have installed a basic M8R version located at:
 - /gpfs/lb/sets/geop/M8R/RSF2.0.
- Workshop materials are located at:
 - /gpfs/lb/sets/geop/M8R/Workshop2020/
- To run M8R and have all of the correct environmental variables, you will need to set up your **bash** environment. We have prepared a script that you can use. **NOTE: IF YOU ALREADY HAVE YOUR BASH SETUP THEN YOU CAN JUST ADD TO YOUR .bash_profile FILE**
 - `mv ~/.bash_profile ~/.bash_profile_old`
 - `cp /gpfs/lb/sets/geop/M8R/bashrc_generic_geop ~/.bash_profile`
 - `source ~/.bash_profile`

Linux – Setup (current user)

- You can cut+paste from /gpfs/lb/sets/geop/M8R/bashrc_generic_geop
- These are the most important lines:

```
alias scons=/opt/python/gcc/2.7.11/bin/scons
## . . Load Mio utilities
module load utility >& /dev/null
##### Madagascar
# . . PYTHON
module load PrgEnv/python/gcc/2.7.11
# . . MPI
module load openmpi/gcc
source /gpfs/lb/sets/geop/M8R/RSF2.0/RSFSRC/env.sh
## . . Update PYTHONPATH
export PYTHONPATH=$RSFSRC/book/Recipes:/gpfs/lb/sets/geop/M8R/lib/scons-
2.5.1:${RSFROOT}/lib/python2.7/site-packages/rsf/${PYTHONPATH}
## . . Update PATH
export PATH=${RSFSRC}/book/Recipes:/gpfs/lb/sets/geop/M8R/lib/scons-
2.5.1/SCons:${PATH}
## . . RSF manual pages
export MANPATH=/gpfs/lb/sets/geop/M8R/RSF2.0/share/man
## . . Need to define this path
export GEOP=/gpfs/lb/sets/geop/
```

M8R Workshop Materials

- You can clone into the 2020 CSM GEOP Madagascar workshop materials from Github using the following command:
 - `git clone https://github.com/jshragge/CSM_GEOP_M8R.git`
- Your local machine may not have git installed (Windows), but you should be able to do it in your home directory on Mio

Today's Workshop – Rough Schedule

- From 8.30am – Coffee and Madagascar Package Introduction
- 9.00-9.15am – Introduction (Shragge)
- 9.15-10.15am – Using Madagascar on the Command Line (Girard)
- 10.15-10.30am – Break (informal)
- 10.30-11.30am – Introduction to Python and SConstruct (Shragge)
- 11.30-12.30pm – Madagascar+SConstruct (Girard) – Exercise I
- 12.30-1.30pm – Lunch
- 1.30-2.30pm – Seismic Modelling (Girard) – Exercise II
- 2.30-3.30pm – Adding your own programs (Shragge) – Exercise III
- 3.30pm onward – Wrap up / Sundowner (by donation)