MADAGASCAR

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)