Introduction to the Tutorial Computing Environment

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Outline

- Supercomputer: bluefire
- Analysis Machines: mirage
- Practical sessions (lecture/lab)

Computing machines

- Supercomputer – bluefire
- Data analysis and visualization – mirage

- Accounts are set up on both machines

Supercomputer (bluefire)

- CESM runs on parallel supercomputers
- Bluefire is a 4,096 Power6 processor (128 nodes) machine and has a peak computation rate of 77 TFLOPS
- We will be running a low resolution version of CESM on 1 node, 32 proc
- Throughput
  - 21 model yrs/wall clock day
  - 6-7 wall clock min/model month

Supercomputer (bluefire)

- Compile, modify, and run CESM
- Special reserved nodes for this tutorial
- Approximately 40 paired users will be competing for resources
- There will be waiting time before your job gets into queue
  - be respectful of other students, take the opportunity while you wait to poke around through user's guide, familiarize yourself with files and directories, look through CESM web page

Data Analysis & Visualization Machines (DAV, mirage and storm)

- Dedicated servers
- To visualize model output & run diagnostics
- Cross mounts with data (/ptmp) directories on bluefire

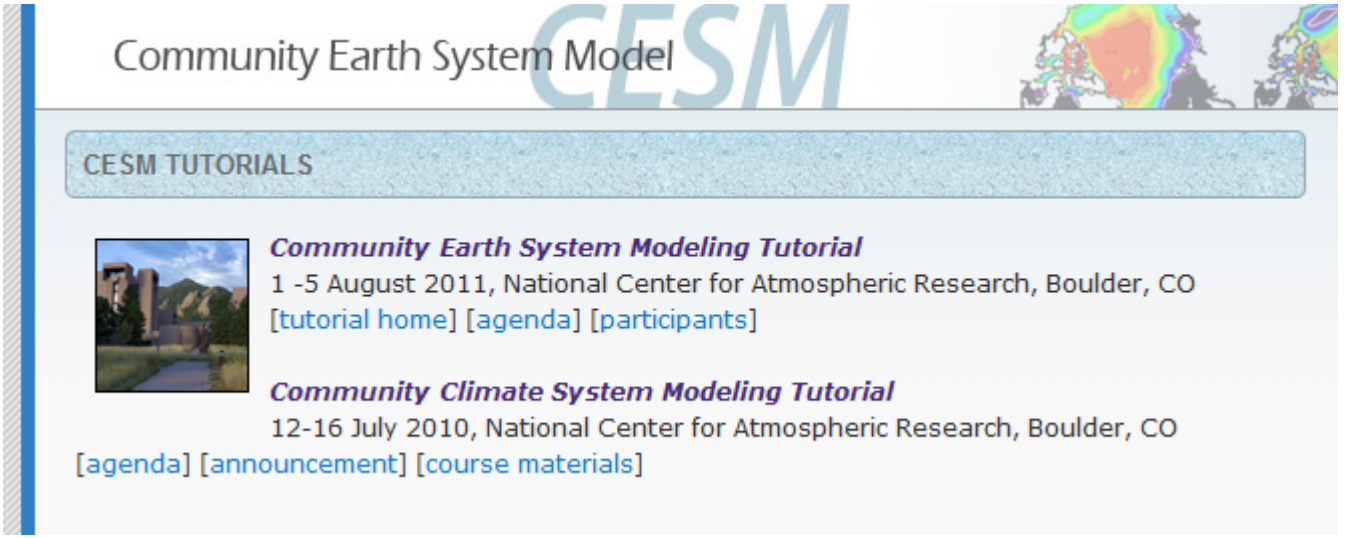
Analysis Machines (2)

- Some location information on mirage:
  - local is /glade/home/username
  - scratch is /ptmp/username

- To access output from bluefire:
  - bluefire scratch: /gpfs/ptmp/username
  - bluefire home: /gpfs/blhome/username

Practical Sessions

- Lectures
  - Monday: Intro to CESM
  - Tuesday: Simple Modifications
  - Wednesday: Diagnostics and Output
  - Thursday: Namelist and Code Modifications
  - Friday: Breakouts (atm/chem/WACCM; land/biogeo; ocean/ice)
- www.cesm.ucar.edu/events/tutorials (click on tutorial home)



Practical Sessions

- Two groups (work in pairs in both groups)
  - Damon room: 20 linux terminals
    - Login with the username / password (stays with machine, files on this machine will be 'temporary'
    - Printer: '`a2ps -P damon <filename>`'
  - Cafeteria: personal laptops (will go through our guest network)
    - Plug in an ethernet cable
    - Use X windows terminal for access to NCAR machines (mirage, bluefire)
    - Linux: X terms, Mac should have X11, Windows: secureCRT

Practical Sessions Computer Lab

- Logging On to NCAR machines
- Open an x-terminal window:

```
ssh -X -Y <username>@mirage0.ucar.edu
ssh -X -Y <username>@bluefire.ucar.edu
```

Use token for 'Token_Response:' (insert yu
port, enter PIN, then push button)

Yubikey can be removed after you login

Practical Sessions Lab

- Consult lectures for exercises www.cesm.ucar.edu/events/tutorials
- Several NCAR staff will be available to help/answer questions – ask early, ask often!
- Have Fun!