Introduction to Modules at CHPC

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Overview of Talk

- Why Modules
- Where to find information
- How to setup to use modules
- Module basics
- Advanced Modules
- Demonstration
What modules do

• Modules are a way of managing the user environment
Why Modules

• Modules lets users dynamically change the environment – including easily adding and removing directories from $PATH – without needing to log out and back in

• Easy to switch between version of a package or application – again without having to log out and back in

• Useful when need to regularly use packages that have conflicts
Module Documentation at CHPC

- https://www.chpc.utah.edu/documentation/software/modules.php
- https://www.chpc.utah.edu/documentation/software/modules-advanced.php

We make use of TACC’s LMOD

- https://www.tacc.utexas.edu/research-development/tacc-projects/lmod
- LUA based
All accounts automatically use modules –
CHPC uses two modules to set up environments upon login, even if you have older dot files:
xalt/0.6  chpc/1.0
Moving to use ONLY modules

• MAKE A COPY OF YOUR OLD ~/.bashrc AND ~/.tcshrc FIRST – especially if you have customizations!

• Copy the CHPC bashrc and tcshrc to your home directory
  
  cp /uufs/chpc.utah.edu/sys/modulefiles/templates/bashrc ~/.bashrc
  cp /uufs/chpc.utah.edu/sys/modulefiles/templates/tcshrc ~/.tcshrc

• Also copy
  
  cp /uufs/chpc.utah.edu/sys/modulefiles/templates/custom.sh ~/.custom.sh
  cp /uufs/chpc.utah.edu/sys/modulefiles/templates/custom.csh ~/.custom.csh

These allow you to customize your shell environment
Recommendations & Helpful Hints

- Keep both the cshell and bash versions in your home directory
- DO NOT make changes in the .tcshrc and .bashrc
- Use the .custom.csh/.custom.bash to load modules for programs you want access to in ssh sessions
- Use .aliases file to create aliases – but do not set other environment variables in this file; if this file exists it will be sourced during login
- The software database mentions which installations have modules – if there is one you would like us to create, let us know!
Basic Module commands

- `module` - shows the list of module commands
- `module load <name>` - loads a module (shortcut: ml)
- `module unload <name>` - unloads a module
- `module avail` - shows a list of "available" modules
- `module list` - shows a list of loaded modules (also ml)
- `module help <name>` - prints help for a module
- `module show <name>` - prints the modulefile
- `module purge` - unload all modules
- `module swap <name1> <name2>` - swap two modules
CHPC Module Organization

• Core
  – Contains modules for applications independent of both the compiler and MPI implementation

• Compiler
  – Contains modules for applications dependent on a compiler (& version) but not on a MPI implementation

• MPI
  – Contains modules for applications dependent on both a compiler and a MPI implementation
Module spider command

• Some modules are dependent on other modules
  – these modules are not listed when you do “module avail” unless the modules they depend on are loaded

• "module spider" shows all modules, including modules that aren't available

• Use "module spider <name>" to see a subset of modules, and how to load a specific module
Advanced Module

- Users can create “save lists” for commonly needed environments
- Users can write and use their own modules, creating modules for their own installations
- Contact CHPC if you want assistance with doing this
Getting Help

• CHPC website and wiki
  – [www.chpc.utah.edu](http://www.chpc.utah.edu)
    • Getting started guide, cluster usage guides, software manual pages, CHPC policies

• Jira Ticketing System
  – Email: [issues@chpc.utah.edu](mailto:issues@chpc.utah.edu)

• Help Desk: 405 INSCC, 581-6440 (9-5 M-F)

• We use [chpc-hpc-users@lists.utah.edu](mailto:chpc-hpc-users@lists.utah.edu) for sending messages to users; also have Twitter accounts for announcements -- @CHPCOutages & @CHPCUpdates