The Abdus Salam
International Centre
for Theoretical Physics

2494-20

Workshop on High Performance Computing (HPC) Architecture and Applications in the ICTP

14 - 25 October 2013

Environment Modules on HPC Clusters

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Motivation

- On HPC clusters it is often desirable to have multiple versions of the same software installed
- Changing environment variables like $PATH manually to accommodate this is tedious
- Corresponding shell scripts would have to be written for multiple script languages
- All of these explicit steps are error prone and difficult to maintain
- There is no simple upgrade path

Environment Modules

- Written in Tcl as portable “meta language”
- Actions programmed in Tcl result in actions that are translated for a particular shell syntax
- Easy to append or prepend to a “path” variable
- Installation of individual software packages into specific individual directories
- Logical grouping of “module tree” (pkg/version)
  - usually “flat” but can be nested
  - scripting allows dependencies

Global module Commands

- module avail
  Displays the current available module tree
- module list
  Displays currently loaded modules
- module purge
  Deletes all modules from list of loaded
- module whatis
  Displays a 1-line info for all available modules

Individual Module Commands

- module load <*package*>
  Loads the current default module of *package*
- module load <*package*>/<*version*>
  Loads the specific version *version* of package
- module unload <*package*>
  Removes module *package* from environment
- module display <*package*>
  Displays commands triggered by module load
- module help <*package*>