## **Environment Modules**

Environment Modules (http://modules.sourceforge.net) are designed to manage custom package installations. Software in our department is all installed to a network filesystem mounted over NFS where each package available is installed to it's own directory. This allows us to manage a wide range of software across different Linux distributions without users having to deal with any configuration. We can include different versions of software, letting users choose which they want to use.

## **Using Modules**

On any Linux system in our department, you can run module avail from your shell to get a list of available software.

```
ktm5j@applecake ~ $ module avail
```

```
------/sw/centos/Modules/modulefilesaltera_promodelsim_aephp7python3.6.2cuda-toolkit-9.0modelsim_asephp7.1.10qsysemacsnios2edspythonquartusmatlabphppython3
```

After deciding what software you want to use, load the package using

```
module load
```

. Now the software is ready to use.

ktm5j@applecake ~ \$ module load python3
ktm5j@applecake ~ \$ which python
/sw/centos/python/3.6.2/bin/python

After loading several modules in your session,

module list

will show what modules have been loaded.

```
ktm5j@applecake ~ $ module load matlab
ktm5j@applecake ~ $ module load php
ktm5j@applecake ~ $ module list
Currently Loaded Modulefiles:
   1) matlab 2) python3 3) php
```

module display will show specific information about the environment variables that will be modified by a module.

ktm5j@applecake ~ \$ module display python	
/sw/centos/Modu	iles/modulefiles/python:
module–whatis	Python current
prepend–path	PATH /sw/centos/python/current/bin
prepend–path	LD_LIBRARY_PATH /sw/centos/python/current/lib
prepend–path	LD_INCLUDE_PATH /sw/centos/python/current/include
prepend–path	MANPATH /sw/centos/python/current/share/man
ktm5j@applecake	e ~ \$ echo \$LD_LIBRARY_PATH
/sw/centos/pyth	non/3.6.2/lib

You can switch, changing one version of software for another, or unload modules when you are done or no longer want this software.

ktm5j@applecake ~ \$ module switch python3 python2 ktm5j@applecake ~ \$ module unload php

## Things to keep in mind

## Shell Scripting/Slurm Batch

If you write shell scripts or slurm batch files that make use of these software packages, remember that you must still load modules from inside of your script. For example, your script must contain the line module load python3 before you can use python from inside of your script.