

UCLA SSCERT

Social Sciences Center for Education, Research, and Technology

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Loading software modules

Identifying available software and identifying currently loaded software with *modules*.

module list

Use the command `module list` to list currently loaded modules.

```
[brian@sms ~]$ module list
```

```
Currently Loaded Modules:
```

```
  1) autotools      3) gnu9/9.4.0      5) ucx/1.11.2      7)  
openmpi4/4.1.1  
  2) prun/2.2       4) hwloc/2.5.0    6) libfabric/1.13.0 8) ohpc
```

```
[brian@sms ~]$
```

module avail

Use the command `module avail` to list currently available modules.

Please note that the modules listed will be subject to change depending on packages loaded; the list below may not reflect what is currently available.

```
[brian@sms ~]$ module avail

----- /opt/ohpc/pub/moduledeps/gnu9-openmpi4
-----
adios/1.13.1      netcdf-fortran/4.5.3  scalapack/2.1.0
boost/1.76.0      netcdf/4.7.4          scalasca/2.5
dimemas/5.4.2    omb/5.8               scorep/6.0
extrae/3.7.0      opencoarrays/2.9.2    sionlib/1.7.4
fftw/3.3.8        petsc/3.16.1          slepc/3.16.0
hypre/2.18.1      phdf5/1.10.8          superlu_dist/6.4.0
imb/2019.6        pnetcdf/1.12.2        tau/2.29
mfem/4.3          ptscotch/6.0.6        trilinos/13.2.0
mumps/5.2.1       py3-mpi4py/3.0.3
netcdf-cxx/4.3.1  py3-scipy/1.5.1

----- /opt/ohpc/pub/moduledeps/gnu9
-----
R/4.1.2          metis/5.1.0           openmpi4/4.1.1 (L)   scotch/6.0.6
gsl/2.7          mpich/3.4.2-ofi       pdtoolkit/3.25.1    superlu/5.2.1
hdf5/1.10.8      mvapich2/2.3.6        plasma/2.8.0
likwid/5.0.1     openblas/0.3.7        py3-numpy/1.19.5

----- /opt/ohpc/pub/modulefiles
-----
EasyBuild/4.5.0      hwloc/2.5.0          (L)  prun/2.2          (L)
autotools            (L)  libfabric/1.13.0 (L)  singularity/3.7.1
charliecloud/0.15    ohpc                  (L)  ucx/1.11.2        (L)
cmake/3.21.3         os                    valgrind/3.18.1
gnu9/9.4.0           (L)  papi/5.7.0

Where:
L:  Module is loaded
```

If the avail list is too long consider trying:

```
"module --default avail" or "ml -d av" to just list the default modules.  
"module overview" or "ml ov" to display the number of modules for each  
name.
```

```
Use "module spider" to find all possible modules and extensions.  
Use "module keyword key1 key2 ..." to search for all possible modules  
matching  
any of the "keys".
```

```
[brian@sms ~]$
```

module load

Use the command *module load module_name* to load a module.

For example, to load R/4.1.2, which first requires the gcc-11.2 toolchain:

```
module use /opt/ohpc/pub/eb-gcc112/modules/all  
module load R/4.1.2-foss
```

Doing a `module list` will then confirm R is currently loaded (#93 in this example).

```
[brian@sms ~]$ module list
```

Currently Loaded Modules:

1) autotools	48) libffi/3.4.2-GCCcore-11.2.0
2) prun/2.2	49) gettext/0.21-GCCcore-11.2.0
3) gnu9/9.4.0	50) PCRE/8.45-GCCcore-11.2.0

[text block snipped]

45) Mesa/21.1.7-GCCcore-11.2.0	92) libgit2/1.1.1-GCCcore-11.2.0
46) libGLU/9.0.2-GCCcore-11.2.0	93) R/4.1.2-foss-2021b
47) pixman/0.40.0-GCCcore-11.2.0	

```
[brian@sms ~]$
```

module show

Use the command `module show module_name` for information about a module, including the path to the files. This is one of many ways to show path to a module.

In this example we had previously loaded `hdf5/1.10.8` and now we look at its information with `module show`.

```
[brian@sms ~]$ module show hdf5/1.10.8
-----
-----
/opt/ohpc/pub/moduledeps/gnu12/hdf5/1.10.8:
-----
-----
whatis("Name: HDF5 built with gnu12 toolchain")
whatis("Version: 1.10.8")
whatis("Category: runtime library")
whatis("Description: A general purpose library and file format for storing
scientific data")
whatis("http://www.hdfgroup.org/HDF5")
prepend_path("PATH", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/bin")
prepend_path("INCLUDE", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/include")
prepend_path("LD_LIBRARY_PATH", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/lib")
setenv("HDF5_DIR", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8")
setenv("HDF5_BIN", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/bin")
setenv("HDF5_LIB", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/lib")
setenv("HDF5_INC", "/opt/ohpc/pub/libs/gnu12/hdf5/1.10.8/include")
family("hdf5")
help([[
This module loads the HDF5 library built with the gnu12 compiler toolchain.

Version 1.10.8

]])

[brian@sms ~]$
```

Unloading software modules

To conserve memory you may wish to unload a module with *module unload module_name*

For example, if you have *Stata* loaded and wish to unload it, you may use:

```
module unload Stata
```

```
[brian@sms ~]$ module unload Stata  
[brian@sms ~]$
```

easybuild

Many modules have been installed via *easybuild*.

If you run `module use /opt/ohpc/pub/easybuild/modules/all`

And then use `module avail`

You will show many more modules available.

Toolchains available

Many software packages require specific toolchains to be loaded first. As an example, we have several major versions of the gcc compilers.

i.e. gcc 8.3:

`/opt/ohpc/pub/eb-gcc83/modules/all`

```
module use /opt/ohpc/pub/eb-gcc83/modules/all
```

gcc 9.3:

`/opt/ohpc/pub/eb-gcc93/modules/all`

```
module use /opt/ohpc/pub/eb-gcc93/modules/all
```

gcc 10.2

/opt/ohpc/pub/eb-gcc102/modules/all

```
module use /opt/ohpc/pub/eb-gcc102/modules/all
```

gcc 10.3

/opt/ohpc/pub/eb-gcc103/modules/all

```
module use /opt/ohpc/pub/eb-gcc103/modules/all
```

gcc 11.2

/opt/ohpc/pub/eb-gcc102/modules/all

```
module use /opt/ohpc/pub/eb-gcc112/modules/all
```

Loading a specific software version

IN PROGRESS

If you wish to load a specific version of a software module that is listed as available, rather than the default version you may run *module load module_name/version*

For example, to load Python 3.8.2, you would first need to make sure you have loaded easybuild, i.e. *module use /usr/local/easybuild/modules/all*

Modules (Lmod) reference

https://lmod.readthedocs.io/en/latest/010_user.html