# Lmod modules

For more complex software, packages which conflict with others in command namespace or which need multiple versions of the same package to be available, the installation is maintained in /hpc/apps using the module command to add and remove these applications to and from the working environment as needed. We’ve chosen [Lmod modules](https://lmod.readthedocs.io/en/latest/) as the package to provide the module command, it’s based on the [Lua programming language](https://www.lua.org/) and has more flexibility and features than the TCL based environment-modules.

Some common module commands and usage are described below.

## module load

Using module managed software is as easy as module load APPLICATION, for example:

[john.hanks@cluster ~]$ which R  
/usr/bin/which: no R in (/home/john.hanks/.local/bin:/home/john.hanks/bin:/hpc/slurm/current/../utils:/hpc/slurm/current/bin:/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin)  
[john.hanks@cluster ~]$ module load R  
[john.hanks@cluster ~]$ which R  
/hpc/apps/x86\_64/r/4.1/bin/R  
[john.hanks@cluster ~]$ R --version  
R version 4.1.1 (2021-08-10) -- "Kick Things"  
Copyright (C) 2021 The R Foundation for Statistical Computing  
Platform: x86\_64-pc-linux-gnu (64-bit)  
  
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For more information about these matters see  
https://www.gnu.org/licenses/.  
  
[john.hanks@cluster ~]$

## module list

To see what software you have loaded, module list:

[john.hanks@cluster ~]$ module list  
  
Currently Loaded Modules:  
 1) slurm/current (S) 2) StdEnv 3) R/4.1  
  
 Where:  
 S: Module is Sticky, requires --force to unload or purge  
  
[john.hanks@cluster ~]$

## module unload|purge

As implied in the module list output, to remove things from the environment you can module purge to completely clean it or module unload to remove a specific package.

[john.hanks@cluster ~]$ which R  
/hpc/apps/x86\_64/r/4.1/bin/R  
[john.hanks@cluster ~]$ module unload R  
[john.hanks@cluster ~]$ which R  
/usr/bin/which: no R in (/home/john.hanks/.local/bin:/home/john.hanks/bin:/hpc/slurm/current/../utils:/hpc/slurm/current/bin:/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin)  
[john.hanks@cluster ~]$