

What is special about Lmod

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Outline



- ▶ What is Lmod?
- ▶ What makes Lmod special?

What is Lmod?

- ▶ Lmod is a tool that allows users to control their environment
- ▶ Users do “`module load acme`” to access the packages they need.
- ▶ The system doesn't choose, the users do!

What make Lmod special?

- ▶ Lmod invented here at TACC to solve a number of issues
- ▶ One of them was the software hierarchy.
- ▶ The problem is that libraries or applications depend on the compiler they were built with.
- ▶ Software built with one compiler won't work with another compiler
- ▶ Software built with two different versions of the same compiler won't work either.
- ▶ So users need to pick matching libraries or applications
- ▶ There are similar issues with the MPI libraries.

The Software Hierarchy: Core

- ▶ Many sites follow TACC lead by using the hierarchy
- ▶ We have Core applications which do not depend on Compilers
- ▶ Applications like git or cmake
- ▶ Also compilers are Core applications

Choosing a Compiler

- ▶ Load a compiler module prepend to `$MODULEPATH`
- ▶ This adds more packages to be loaded.
- ▶ In this case only package that will work are available!

Compiler dependent Libraries are available

- ▶ Only libraries like Boost (the C++ libraries) that match are available
- ▶ Libraries like Boost built for other compilers won't be available.

What happens when a user changes compilers?

- ▶ Lmod keeps track of changes to `$MODULEPATH`
- ▶ If `$MODULEPATH` changes then Lmod reloads modules that need to be reloaded.
- ▶ In other words if a user unloads gcc and loads intel then the appropriate boost module will be reloaded.
- ▶ Show example.

Conclusions

- ▶ Lmod has many many more features
- ▶ See the documentation here:
<https://lmod.readthedocs.io/en/latest/>
- ▶ The source code: <https://github.com/TACC/Lmod>