EUM '25 Lmod

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March. 25, 2025

Introduction

- ▶ Recent changes that are worth repeating
- ▶ Future of Lmod?
- ▶ This talk:
  https://github.com/TACC/Lmod/blob/main/my_docs/25/EUM_25/pre-sentation.pdf

Features

- ▶ Current version is Lmod 8.7.59
- ▶ Release of 8.8 is next week.
- ▶ Reads for TCL and Lua modulefiles
- ▶ One name rule.
- ▶ Support Software Hierarchy (but not required!)
- ▶ Spider Cache: fast `$ module avail`
- ▶ Properties (gpu, beta. ...)
- ▶ family("compiler") family("mpi") support
- ▶ Optional Tracking: What modules are loaded?
- ▶ Many other features: ml, collections, hooks, extended default, nag ...
- ▶ Google analytics report about 2000 unique users around the world read docs every month.

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Recent Feature of Lmod 8+

- Updated sh_to_modulefile and `source_sh()` function (First in Tmod)
- Downstream Conflicts and Dynamic defaults via modulerc files
- More powerful hide/forbid functions (First in Tmod)
- Improvements in module usage tracking: Space and Time saving
- Irreversible: setenv and load other modules while unloading
- New Hook: `decorate_module`

Updated **source_sh()**

- ▶ Allows sites to place a shell script inside a modulefile
- ▶ It dynamically converts the shell script into a modulefile
- ▶ It stores the module commands in the moduletable in your env.
- ▶ sh_to_modulefile is better if there are no dynamic vars like $HOME.
- ▶ It knows about env. vars and shell functions and aliases.
- ▶ Older versions could get lost with path like variables
- ▶ This is now fixed!?

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Dynamic $LMOD_MODULERC and Downstream Conflicts

► $LMOD_MODULERC controls defaults (along with .modulerc.lua etc)

► With this dynamic a site can change what are the defaults

► The conflict() function says you can't load the current modulefile if

► Downstream Conflicts allows sites to fail depend_on() loads

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New to Lmod: hide and forbid

- ▶ First implemented in Tmod.
- ▶ A Spack developer requested support for this in Lmod

hide{}

- ▶ A more powerful hide function with controls for users and/or groups
- ▶ Can hide before or after certain dates
- ▶ Can hide modules from being listed
- ▶ Can hide modules so that they can't be seen or loaded.
- ▶ This hide when listed can be overridden (-A, LMOD_SHOW_HIDDEN)
- ▶ The env. var. LMOD_SHOW_HIDDEN support was requested Alexandre Strube!

`forbid{}`

- ▶ A forbid function which displays with ml avail but can't be loaded.
- ▶ Can forbid before or after certain dates
- ▶ Can mark certain users or groups special privileges

Improvements to Module Usage Tracking

- ► Forced to move DB from an old VM to new VM
- ► Noticed that users loaded same module multiple times per day
- ► Only need to know once per day
- ► 10x reduction is amount of data per day
- ► Redesiged table means that TACC keeps 12 months of data.
- ► Much smaller db with much much faster searching.

New to Lmod: Irreversible (I)

► Loading a module set env. vars and adds entries to path-like vars etc.

► Unloading a module unsets env. vars and remove entries to path-like vars etc.

► New feature: modulefiles can optionally setenv or load when unloading a module.

► It is a rare need.

► It could be needed when changing styles like: Cray modules to not.

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Irreversible (II)

```
load{"dep_load", modeA={"load"}}
load{"dep_unload", modeA={"unload"}}
setenv{"AAA", "BBB", modeA={"unload"}}
```

Hook: decorate_module

- ▶ Sites that do not want to modify modulefiles
- ▶ They can use this hook to add Lua functions to the modulefile
- ▶ This hook is called loading a modulefile.
- ▶ Text must be in Lua.
- ▶ TCL file will have been converted to Lua

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Future of Lmod?

- ▶ I am now working half-time.
- ▶ Matthew Cawood from TACC is helping with Lmod
- ▶ This spring we will start joining HPSF
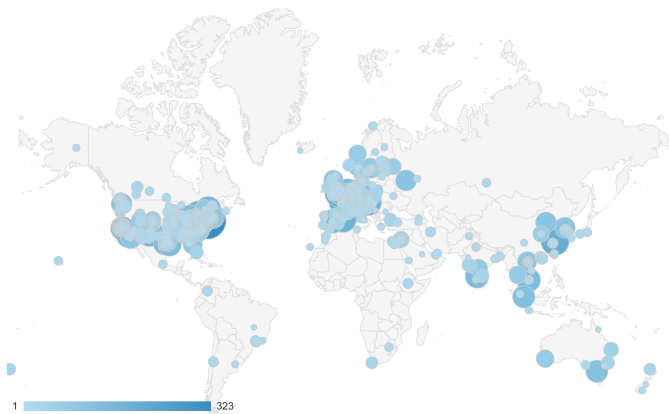
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Looking for others to join the Lmod team

▶ Lmod's success is in part to due the mailing list and Github

▶ Answering the mail

▶ Hidden reason is the Large Regression test system.

▶ This makes it harder to break current behavior.

Why join Lmod team?

- I have travelled the world
- I'm here!

Lmod Doc usage by City

1 ▭ 323

Conclusions: Lmod 8+

- ▶ Latest version: https://github.com:TACC/lmod.git
- ▶ Documentation: http://lmod.readthedocs.org
- ▶ Talks: https://github.com/TACC/lmod/tree/main/my_docs/25
- ▶
  https://github.com/TACC/Lmod/blob/main/my_docs/25/EUM_25/pre-sentation.pdf