



TEXAS ADVANCED COMPUTING CENTER

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TEXAS

The University of Texas at Austin

EUM '25 Lmod

Robert McLay, Matthew Cawood

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Introduction



- ▶ Recent changes that are worth repeating

- ▶ Future of Lmod?

- ▶ This talk:

https://github.com/TACC/Lmod/blob/main/my_docs/25/EUM_25/presentation.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.

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 modultable 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!?

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

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 in amount of data per day
- ▶ Redesigned 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.

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

Future of Lmod?

- ▶ I am now working half-time.
- ▶ Matthew Cawood from TACC is helping with Lmod
- ▶ This spring we will start joining HPSF

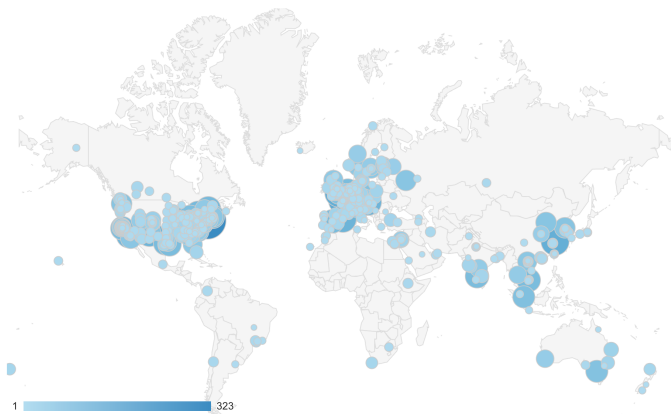
Looking for others to join the Lmod team

- ▶ Lmod's success is in part 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



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/24/sc_24_booth_t
- ▶ https://github.com/TACC/Lmod/blob/main/my_docs/24/sc_24_booth_presentation.pdf