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The University of Texas at Austin

# Lmod 8.6 New Features

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- ▶ Release of Lmod 8.6
- ▶ New Features in Lmod web page
- ▶ `$LMOD_QUARANTINE_VARS`
- ▶ `/etc/lmod/lmod_config.lua` configuration file
- ▶ `source_sh()` sourcing shell scripts inside a modulefile
- ▶ `LmodBreak()`: Stop processing modulefile but keep going!
- ▶ Now released as Lmod 8.5.23

# New Features in Lmod web page

- ▶ [https://lmod.readthedocs.io/en/latest/025\\_new.html](https://lmod.readthedocs.io/en/latest/025_new.html)
- ▶ A place where new features are and will continue to be announced.

# \$LMOD\_QUARANTINE\_VARS

- ▶ A module at TACC turn-off \$LMOD\_PAGER
- ▶ This#%& module made me mad.
- ▶ Tmod has a new feature kinda like this.
- ▶ \$LMOD\_QUARANTINE\_VARS was invented.

# \$LMOD\_QUARANTINE\_VARS (II)

- ▶ export LMOD\_QUARANTINE\_VARS=LMOD\_PAGER:LMOD\_REDIRECT
- ▶ This means that a module can't change those variables.
- ▶ This only works with regular env. vars.
- ▶ You can't quarantine PATH like variables.
- ▶ A user sets this variable in their ~/.bashrc or similar file.
- ▶ This obviously won't work for modules loaded during the processing of /etc/profile.d/\*.sh files
- ▶ Use <https://github.com/TACC/ShellStartupDebug> support users.

# /etc/lmod/lmod\_config.lua configuration file

- ▶ This file is evaluated during Lmod startup.
- ▶ This location is the default during configuration.
- ▶ A site can change this location at configuration.

```
-- Example /etc/lmod/lmod_config.lua
require("strict")
local cosmic = require("Cosmic"):singleton()

cosmic:assign("LMOD_SITE_NAME", "XYZZY")
local function foo()
    ...
end
sandbox_registration { foo = foo }
```

# Sourcing shell scripts inside a modulefile w/ `source_sh()`

- ▶ This was implemented in Tmod 4.7
- ▶ Xavier told me that he did this during Covid Lockdown in France.
- ▶ Lmod 8.6 re-implements this feature in a similar way.
- ▶ It knows about env. vars and shell functions and aliases.

# source\_sh() Implementation

- ▶ It captures the env. vars/functions/alias before and after the running the shell script.
- ▶ It computes the difference and saves it into the ModuleTable in env.
- ▶ It can be safely unloaded, shown.
- ▶ script path and arguments must not change between load and unload.
- ▶ `module refresh` works
- ▶ Obvious points:
  - ▶ It is better to use `sh_to_modulefile` and convert once.
  - ▶ But `sh_to_modulefile` is not dynamic (e.g. `$HOME`)
  - ▶ Can't have run the script in the user environment before loading the script.

# ml -mt

```
_ModuleTable_ = {
  MTversion = 3,
  mT = {
    wrapperSh = {
      fn = "/home/user/w/lmod/rt/sh_to_modulefile/mf/wrapperSh/1.0.lua",
      fullName = "wrapperSh/1.0",
      loadOrder = 1,
      mcmdT =
        ["/home/user/w/lmod/rt/sh_to_modulefile/second.sh arg1"] = {
          "setenv(\"SECOND\", \"FOO_BAR\")",
        },
        ["/home/user/w/lmod/rt/sh_to_modulefile/tstScript.sh"] = {
          "setenv(\"MY_NAME\", \"tstScript.sh\")",
          "prepend_path(\"PATH\", \"/home/user/w/lmod/rt/sh_to_modulefile/bin\")",
          "set_alias(\"fooAlias\", \"foobin -q -l\")"
          , [[set_shell_function("banner", " \
local str=\"$1\";\
local RED='\27[1;31m';\
local NONE='\27[0m';\
echo \"\$RED$str\$NONE\" \
" )]],
        },
      },
    },
  },
}
```

# LmodBreak()

- ▶ Tmod3 had a function called `break`
- ▶ It stop processing current module
- ▶ But it kept going otherwise.
- ▶ So it is different than erroring out.
- ▶ Lmod: If there is an error, no modules are loaded.

# LmodBreak() (II)

- ▶ Lmod 8.6 adds `LmodBreak(msg)` function.
- ▶ TCL Modules use `break msg`
- ▶ No changes to environment from current module are kept.
- ▶ All other changes are kept.

# LmodBreak() (III)

```
--Stdenv.lua  
load(A)  
load(BRK)  
load(C)
```

```
--A/1.0.lua  
setenv("A", "1.0")
```

```
--BRK/1.0.lua  
setenv("BRK", "1.0")  
LmodBreak()
```

```
--C/1.0.lua  
setenv("C", "1.0")
```

# ml StdEnv

```
export A=1.0  
export C=1.0
```

# Conclusions

- ▶ Many new features added to Lmod 8.6
- ▶ `$LMOD_QUARANTINE_VARS`
- ▶ `/etc/lmod/lmod_config.lua` configuration file
- ▶ `source_sh()`
- ▶ `LmodBreak()`:

# Future Topics

- ▶ Lmod Testing System?
- ▶ More internals of Lmod?
- ▶ Settag?
- ▶ collections?
- ▶ Guest Presentation of special issues?