

Customizing MESA with `run_star_extras.f90`

MESA Summer School 2025

KU Leuven

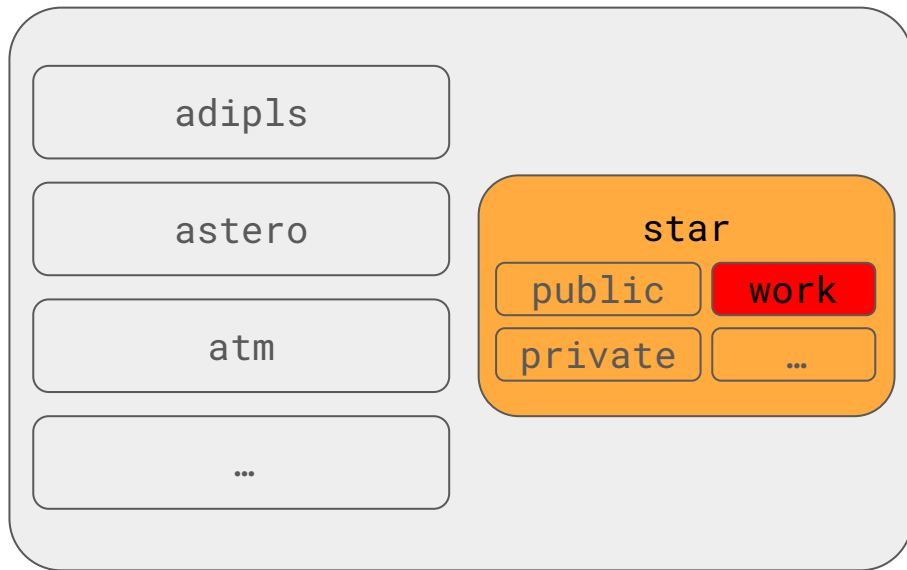
Bill Wolf

Associate Professor

University of Wisconsin–Eau Claire

You should **NEVER** modify code in MESA_DIR. Use `run_star_extras.f90` instead.

MESA_DIR

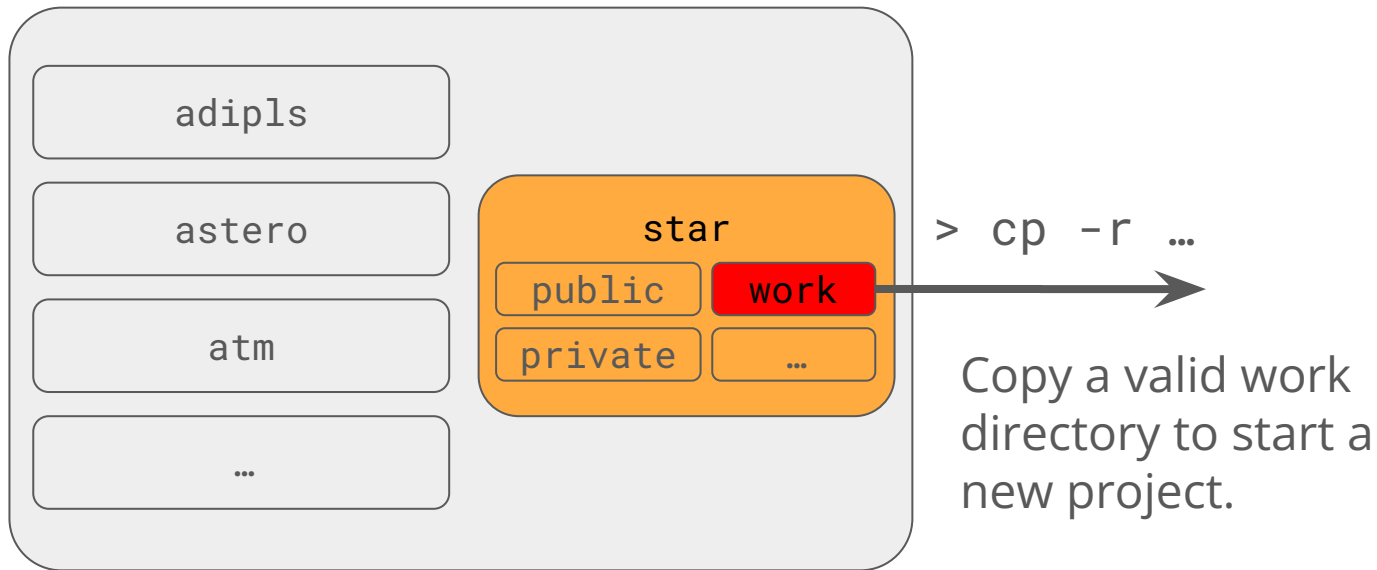


Never **edit** anything in MESA_DIR.

Reading and copying to somewhere else are fine and necessary.

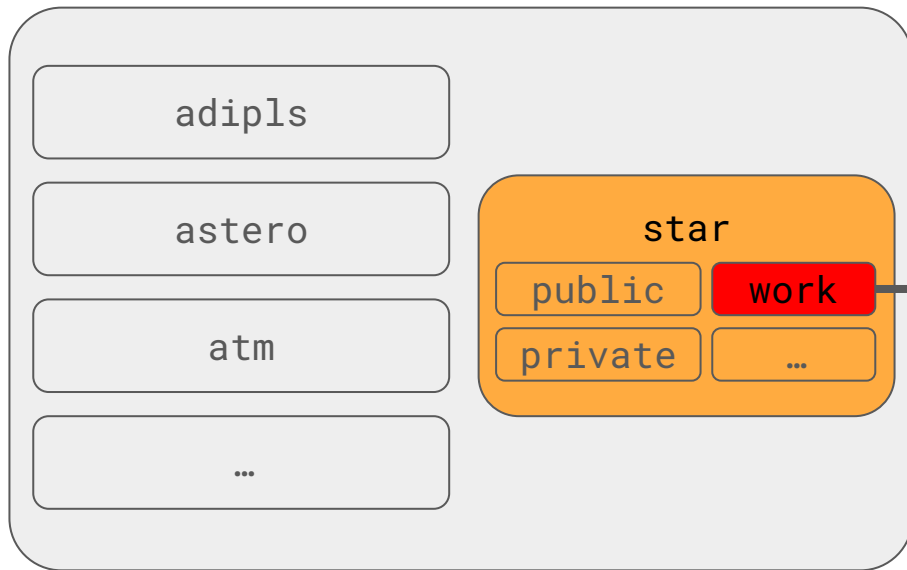
You should **NEVER** modify code in MESA_DIR. Use `run_star_extras.f90` instead.

MESA_DIR



You should **NEVER** modify code in MESA_DIR. Use `run_star_extras.f90` instead.

MESA_DIR



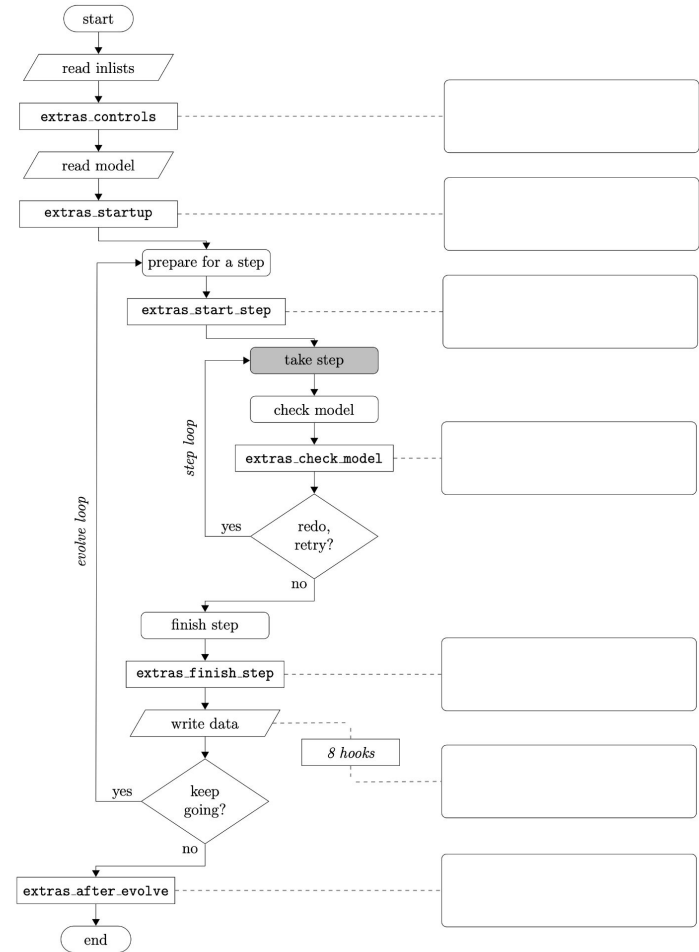
> cp -r ...

Your Project

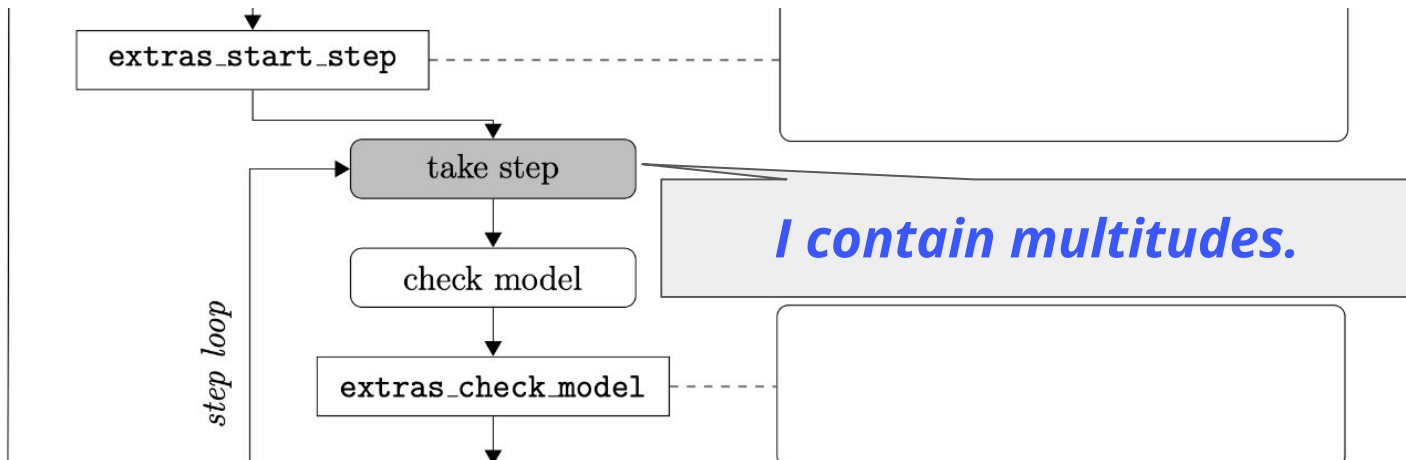


There are functions and subroutines called at specific points in a MESA run that we can customize.

- **Function:** inputs don't change and it **returns** something.
- **Subroutine:** inputs can change, and it might **do** something.



The “take step” box is where most of the physics happens. We can influence that, too, with hooks.



Templates for hooks are stored in `$MESA_DIR/star/other`. Today, we'll use the `other_energy` hook, which allows us to add a new source of power.

Navigate to this morning's exercise and get started!

A few thoughts:

1. You'll get to practice *all* of this again in later labs.
2. Don't let any one activity take too long; use the **hints** and **answers** to keep up speed.
3. Don't spend too much time reading the Fortran guide near the top; just skim over it and return to it as you need it.

Enjoy, and good luck!