

Julia + VS Code on Perlmutter

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VS Code → Perlmutter

Run VS Code on a cluster node via SSH

Login node

- Works great, just connect to (more later)
 - `trainXY@perlmutter.nersc.gov`

Compute node

- SSH ProxyJump
 - **(requires regular NERSC account, doesn't work with training accounts 😞)**

Side comment: “remote tunnels” instead of SSH

On the target node

- Download the [code](#) CLI and run
 - `code tunnel --verbose \`
`--cli-data-dir=$SCRATCH/.code_cli_data_dir`

Don't do this now

Locally

- Press [F1](#) and run the [Remote Tunnels: Connect to Tunnel](#) command.

(also works with NERSC training accounts 😊)

Julia Setup

Use standard Julia binaries or a system module.

- Regular binaries from
 - [juliaup](#) or [julialang.org](#)
- Generally, no need to compile from source.
- System module (can help you with packages)
 - **On Perlmutter:**
 - `module use`
`/global/common/software/nersc/n9/julia/modules`
 - `module load julia`

Put the Julia depot on the parallel file system (PFS).

- PFS is often \$SCRATCH
 - High quotas
 - Writable (also from within compute jobs)
 - No backup of redundant data
- Set **JULIA_DEPOT_PATH** environment variable
- Watch out for **automatic deletion**
 - Workaround: touch files periodically 😊

Use a Julia wrapper for the Julia VS Code extension

- [Julia: Executable Path](#) should point to a wrapper script. For Perlmutter:

```
#!/bin/bash

# Make julia available
module use /global/common/software/nersc/n9/julia/modules
module julia

# Pass on all arguments to julia
exec julia "${@}"
```

([julia_wrapper.sh](#) in the workshop repository)

Let's do it!

Let's run VS Code on a Perlmutter login node.

Do this now!

- Press **F1** and then run **Remote-SSH: Open SSH Host...**
- Enter: **trainXY@perlmutter.nersc.gov**
 - replace **trainXY** by your account name
- **Enter your password** in the popup input box.

Let's prepare everything on Perlmutter.

“Prepare for the workshop” part in [README.md](#)

- Clone the materials to `$SCRATCH/juliacon24-hpcworkshop`
- Run `setup.sh`
- Install VS Code Julia extension and point it to `julia_wrapper.sh`

We're ready! 🎉

Fallback: Jupyter

Only use NERSC's Jupyter as a fallback.

If VS Code (or a pure terminal approach) doesn't work

- <https://jupyter.nersc.gov/>

Run `help/jupyter-kernel/install.sh` once.