



# An Approach to SLURM Configuration Verification

Kyle Reinholt

# View the Slides



[https://github.com/ResearchComputing/rmacc\\_2025/slurm\\_verification](https://github.com/ResearchComputing/rmacc_2025/slurm_verification)

# Introduction – Why Configuration Matters

- Misconfigured SLURM settings often lead to user confusion, job failures, and a spike in support tickets — creating friction for both researchers and support staff.

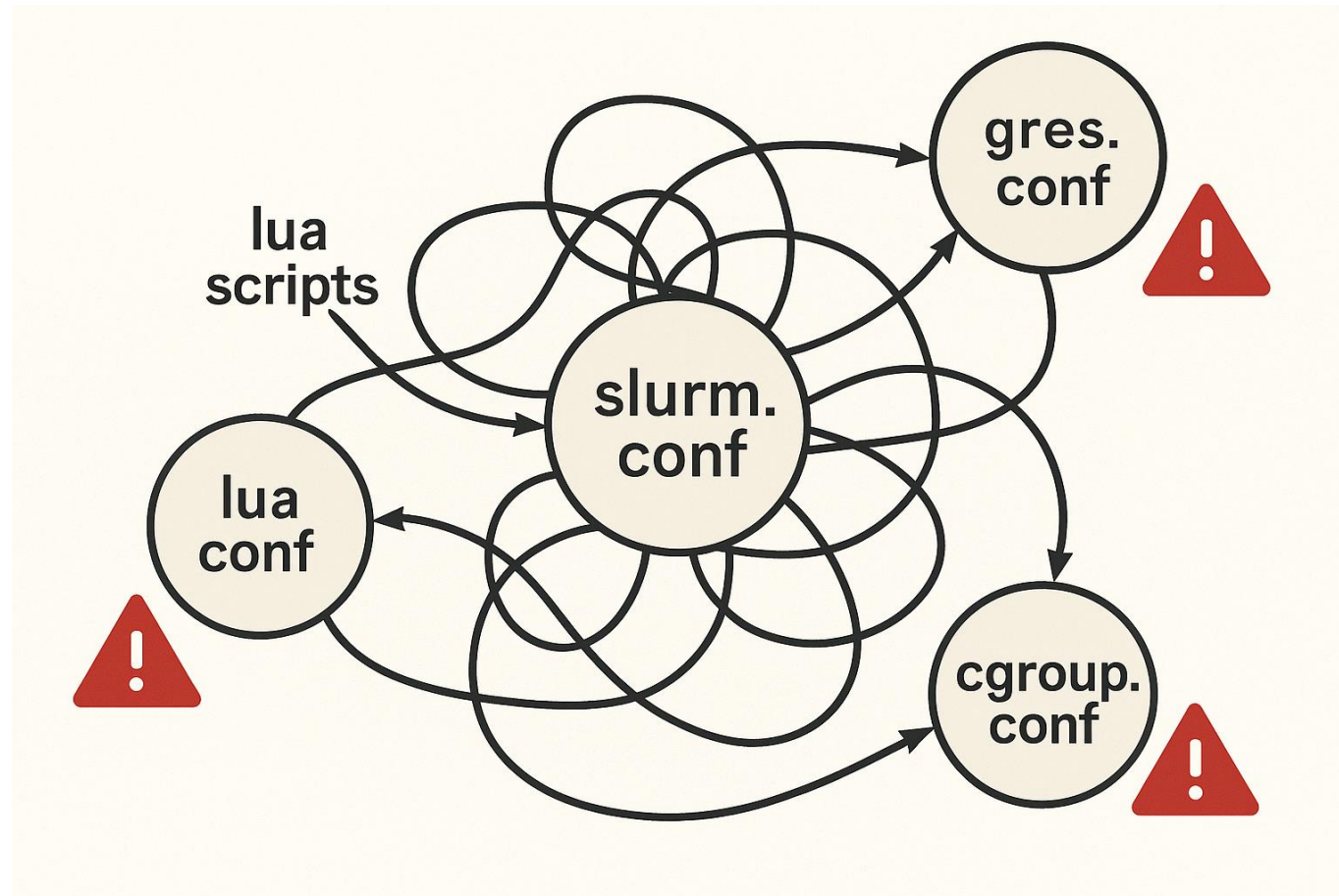


# The Problem

- Validating SLURM configs is painful
- Manual checks are error-prone
- You only get feedback *after* something breaks



# The Problem



# Current Approaches

- **Manual Reviews** — Time-consuming and error-prone
- **Cluster-Specific Scripts** — Custom, hard to reuse or share
- **Limited Tooling** — scontrol, slurmlint, UBCCR simulator offer partial checks

# An Approach to SLURM Configuration Verification

- Declarative validation schemas (e.g. JSON schema for YAML-like configs)
- Automated testing pipelines
- Community-driven validation rules



# Products Utilizing Schema Validation





# Conclusion

- Config correctness is essential → current tools fall short → better tooling is possible
- Email - [kyle@colorado.edu](mailto:kyle@colorado.edu)

# Prior Art in SLURM Configuration Checking

- <https://github.com/appeltel/slurmlint> – amazing work, does not use a schema, last updated 2019
- <https://ubccr-slurm-simulator.github.io/> - incredible project for simulating configurations, supports Slurm 17.11 – is currently being updated
- Spin up slurm controller in a container and see if fails
- “If it crashes, it's not right” – Joe Malingowski

# Limitations with Current Approaches

- Don't scale well
- Hard to generalize
- Not integrated into CI/CD