



Containers for CORSIKA8

Lukas Nellen
ICN-UNAM
lukas@nucleares.unam.mx

Build chain

- Use buildah/podman
 - Run scripts directly
 - Easy access to container filesystem if needed
 - Mount of temporary build support tools
- Export
 - Direct to docker
 - OCI as intermediate format
 - apptainer from OCI
 - Possible with additional entry points for multi-application use
- Repo with documentation in README.md

<https://gitlab.com/lukasnellen/container-base/>

Experience with chain

- Evolved via
 - Dockerfiles
 - Buildah + ansible: overkill, harder to maintain
- Currently script based
 - Easy to maintain
 - Example to detect distribution and handle special cases

Build stages

1. Import base container for distribution
 - Debian
 - Ubuntu
 - Fedora
 - RHEL / CentOS / Rocky / Alma
 - Arch
2. Install tools from distribution
 - Compilers
 - Debug aids
 - CI support
3. Common path: Install conan, pythia, ...
 - Can be used by developers locally
4. Install CORSIKA 8
 - End user
 - Possible to have more than one entry point

Base development containers

- Worked to be less project dependent
 - Originally used only for Auger
- Have C8 base containers
- Working on installation of conan, pythia
- Will provide new project for CORSIKA8

Experience

- Auger Offline
 - Developer container
 - Build tools
 - Distribution container
 - SIF image for download
 - unpacked on CVMFS
- CORSIKA 7 for local grid project
 - Distributed through storage
 - Massive production done

Pending

- new CORSIKA 8 container build project
 - Current with Dockerfile hard to maintain
- Build C8 containers
 - Build container for developers
 - (Example of) End-User container
- Local caching (e.g. for additional PROPOSAL tables)
 - In user space
 - Keep container read-only
 - In apptainer overlay
 - Need to experiment ...
- Run-time only containers
 - Reduce size