

Introduction



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- Background in data network, telecoms, infrastructure and build systems.
- Passionate about best practice, repeatability and knowledge sharing.
- Generally spends waking hours working with some kind of tech
- Gamer and private pilot also

Overview

- Define Nix
- Show a small project
- Demonstrate a dev shell using a Nix flake
- Demonstrate a container image using Nix flakes
- Talk about build pipelines with Nix
- Demonstrate a Nix package
- Answer questions

Definition

■ Nix is an overloaded term



■ Nix Language

Declarative, purely functional, lazily evaluated, dynamically typed, domain specific language for package development.

■ Nix Package Manager

Cross platform package manager for UNIX like systems (Linux, Darwin) with some support for Windows. Packages are source based with binary caching.

■ NixOS Linux Distro

Linux distribution built using Nix for package management and definition of the system configuration declaratively. It is immutable and has an atomic update model.

The traditional way

■ The project

Small C application which needs to be built and the artifacts deployed.

▣ Challenges

We need to have all the correct compilers, libraries and other dependencies on every developer workstation and every build runner for the build and deploy pipelines.

Dev Shell with Nix

■ Dependencies

- Nix package manager
- direnv

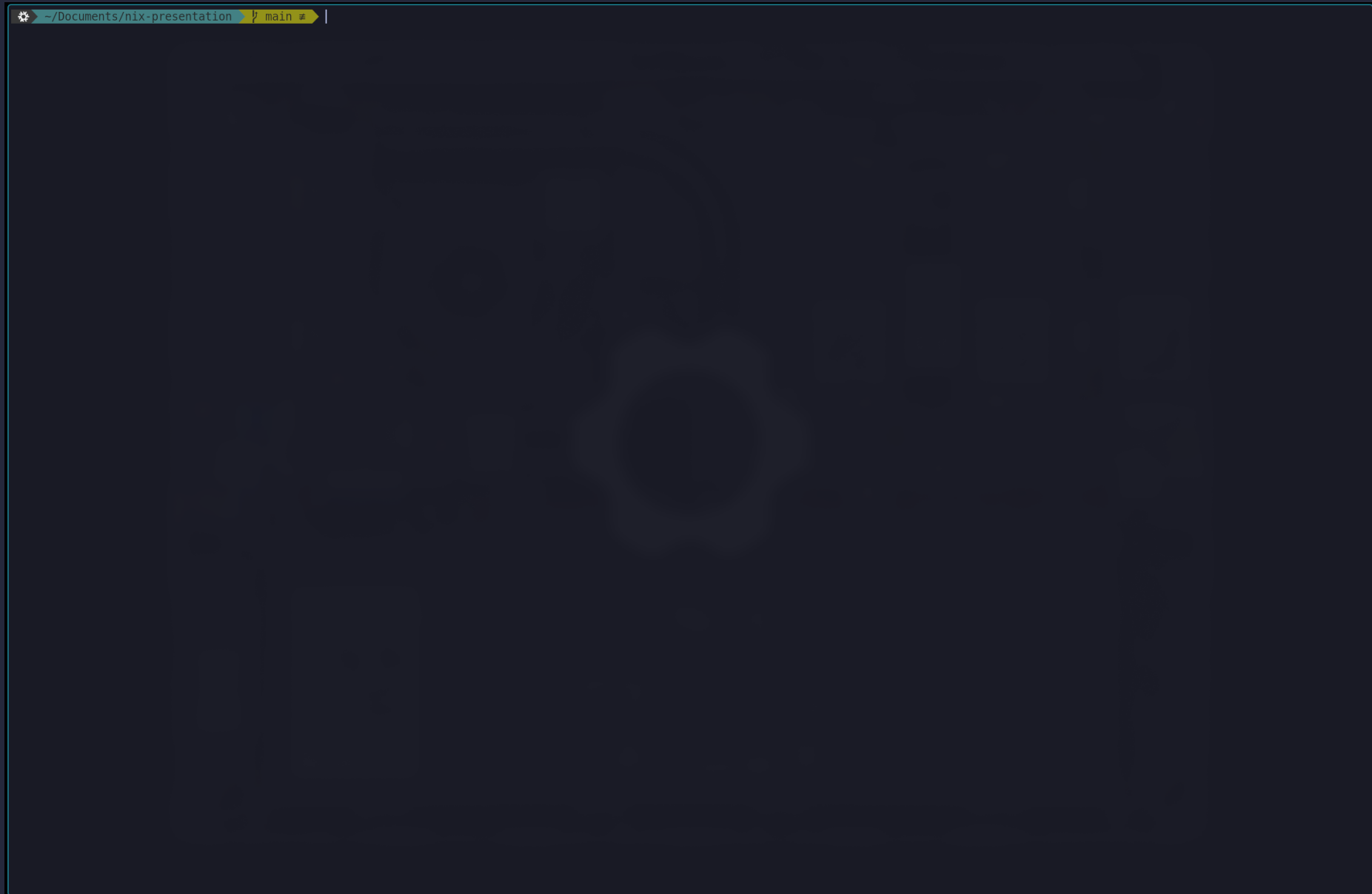
▣ Get started

<https://github.com/the-nix-way/dev-templates/tree/main>

```
nix flake init -t github:the-nix-way/dev-templates#c-cpp
```

Dev Shell with Nix

Demo

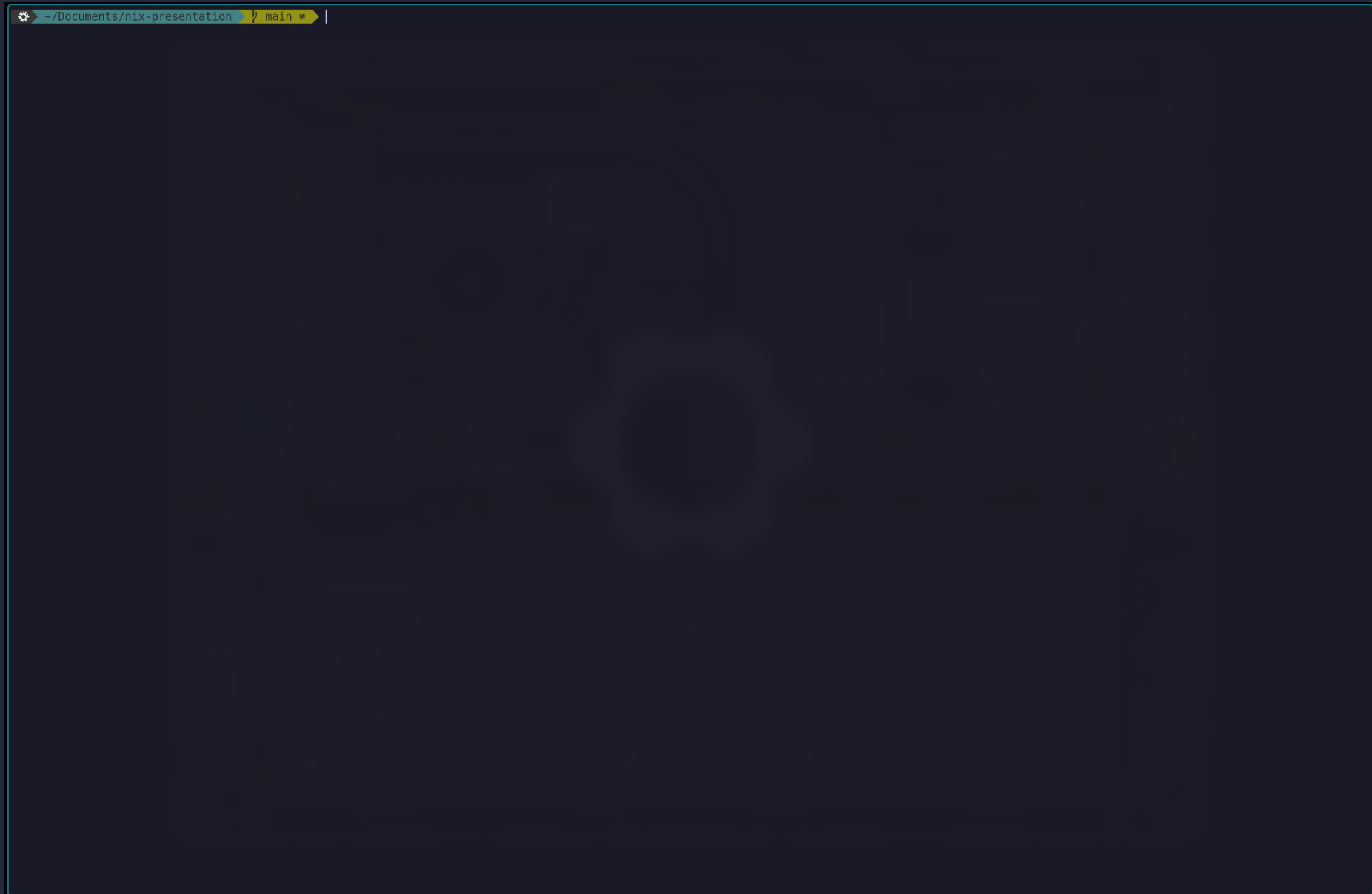


■ Benefits

- Dependencies are part of the repository
- Versions of all dependencies are pinned
- Onboarding of developers becomes easy
- Makes environments modular and re-usable

Generate a container

Demo



Generate a container

■ Benefits

- Can be used for development or build pipelines
- In webapp and similar contexts this could also be used as a deployable production environment
- Multiple container definitions could be contained in the flake with shared code

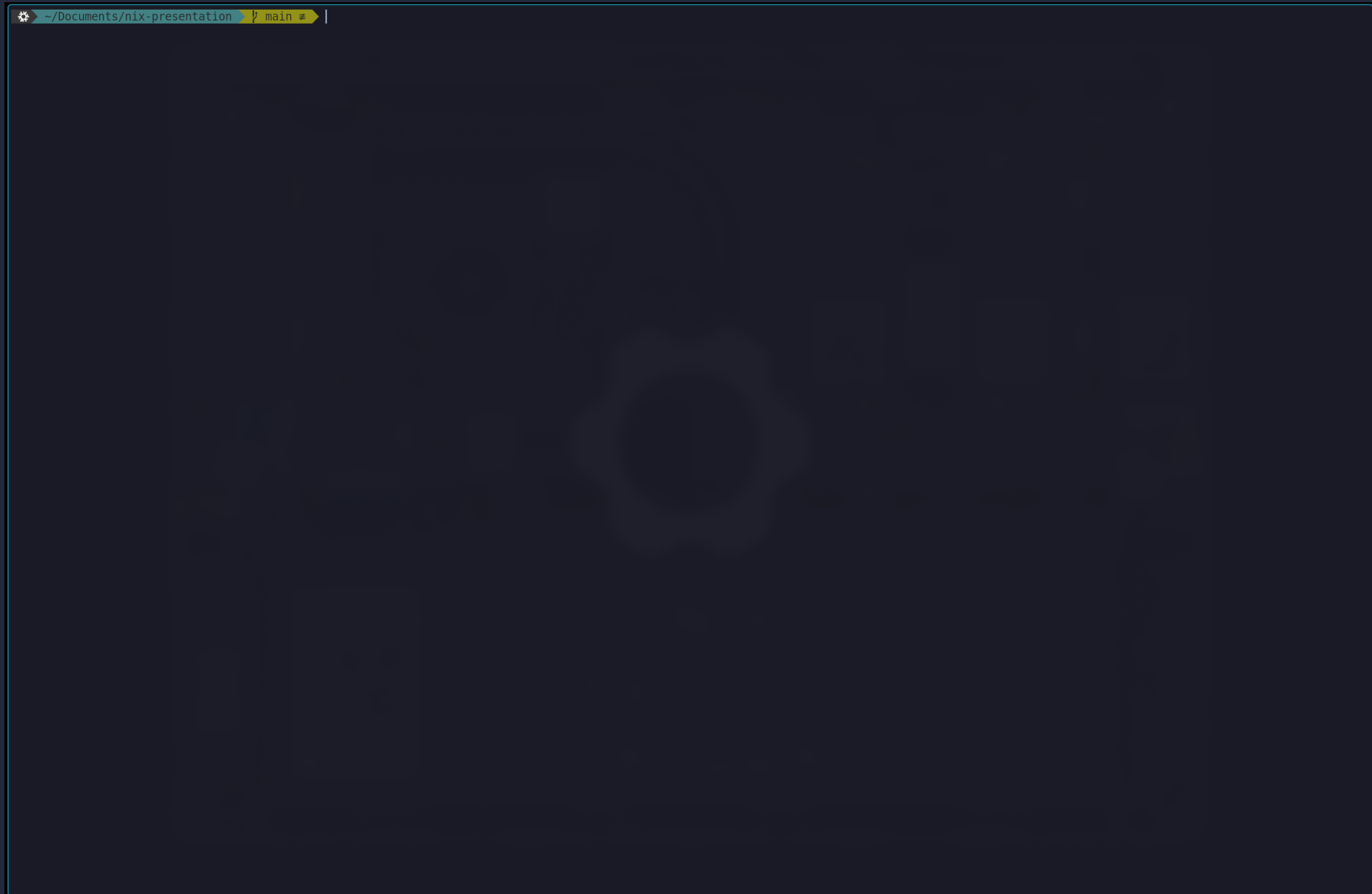
Build pipelines

■ Multiple approaches

- Build inside the generated container
- Run the devShell from the flake to build
- Use nix to build the package directly

Build a Nix package

Demo



Nix Details

- Nix Store
- Binary Caching
- Garbage Collection

Links

Presentation

<https://github.com/deephack1982/nix-presentation>

More information about Nix

<https://www.nixos.org>

More information about direnv

<https://direnv.net/>

My BlueSky

<https://bsky.app/profile/deephackontech.bsky.social>