Nix Reproducible packages

CONCEPTS

The nix command and flakes are experimental. Enable them once: experimental-features = nix-command flakes in ~/.config/nix/nix.conf.

flake.nix inputs and outputs
↓ lock
flake.lock pinned revisions
↓ evaluate
Derivation .drv build recipe
↓ build
/nix/store hash-addressed path

An installable is flakeref#attr, e.g. nixpkgs#hello or .#myapp. A bare . means the flake in the current directory. Flakes only see files tracked by git: git add new files.

RUN AND TRY

nix run *<installable>* **[--** *<args>***]**
Run an app from a flake

nix shell *<installable>***...**
Shell with packages on PATH

nix shell *<installable>* **-c** *<cmd>*
Run one command with the package

nix run nixpkgs#*<pkg>*
Run a nixpkgs package

nix run .
Run this flake's default app

nix run github:*<owner>***/***<repo>*
Run a flake from GitHub

nix run nixpkgs/*<branch>***#***<pkg>*
Use a specific nixpkgs branch

BUILD

nix build
Build default package of ./flake

nix build *<installable>*
Build a given installable

nix build .#*<name>*
Build a named package of this flake

nix build --no-link --print-out-paths
Build and print store path only

BUILD (cont.)

nix build -L
Show full build logs

nix log *<installable>*
Show a build log

DEVELOP

nix develop
Shell with the dev environment

nix develop .#*<name>*
Use a named devShell

nix develop -c *<cmd>*
Run a command in that environment

nix develop nixpkgs#*<pkg>*
Build environment of a package

nix fmt
Format with the flake's formatter

direnv: use flake
Load the dev shell via nix-direnv

FLAKES

nix flake init
Flake from the default template

nix flake init -t *<template>*
Flake from a given template

nix flake show [*<flakeref>***]**
List a flake's outputs

nix flake check
Evaluate and run flake checks

nix flake update
Update all inputs in the lock

nix flake update *<input>*
Update a single input

nix flake lock
Create missing lock entries

nix flake metadata
Show inputs and revisions

Flake references

Form	Example
`Registry`	nixpkgs, nixpkgs/nixos-unstable
`GitHub`	github:NixOS/nixpkgs/<ref>
`Git`	git+https://<host>/<repo>?ref=
`Path`	./dir, path:/abs/dir
`Tarball`	https://<host>/<f>.tar.gz

PROFILE

nix profile add *<installable>*
Install into your profile

PROFILE (cont.)

nix profile list
List installed packages

nix profile remove *<name>*
Uninstall a package

nix profile upgrade --all
Upgrade installed packages

nix profile rollback
Back to the previous generation

nix profile history
List profile generations

SEARCH AND INSPECT

nix search nixpkgs *<regex>*
Search packages by name or description

nix eval *<installable>*
Evaluate and print an attribute

nix eval --expr '*<expr>***'**
Evaluate a Nix expression

nix repl
Interactive evaluator

nix repl nixpkgs
Repl with nixpkgs loaded

STORE AND CLEANUP

nix store gc
Delete unreachable store paths

nix store optimise
Hard-link identical files

nix config show
Show effective settings

RECIPES

Minimal dev shell (flake.nix)

```
{
  inputs.nixpkgs.url =
    "github:NixOS/nixpkgs";
  outputs = { nixpkgs, ... }: {
    devShells.x86_64-
linux.default =
      nixpkgs.legacyPackages
        .x86_64-linux.mkShell {
          packages = [ ];
        };
  };
}
```

Try a tool without installing

```
nix search nixpkgs ripgrep
nix shell nixpkgs#ripgrep -c rg
--version
nix run nixpkgs#cowsay -- hi
```