

# Nix for PHP Developers (and everyone else)

Oliver Davies (opdavies)

<https://www.oliverdavies.uk>

**This is a Nix talk with some PHP,  
not a PHP talk with some Nix**

# About Me

- HTML, CSS, PHP since 2007
- Drupal since 2008
- JavaScript, TypeScript, Go
- Full-time Linux since ~2015
- Nix/NixOS since 2022
- Homelabber since 2024







## **Presentations**

Since September 2012, I have given 104 public talks and workshops at various conferences and meetups, in-person and remotely, on topics including PHP, Drupal, automated testing, Git, CSS, and systems administration.

### **Building Static Websites with Sculpin**

How to use Sculpin to generate static HTML websites.

### **TDD - Test-Driven Drupal**

How to write automated tests for Drupal, and how to create a new Drupal module using test driven development.

### **Taking Flight with Tailwind CSS**

An introduction to the utility-first approach to writing CSS with a focus on the Tailwind CSS framework.



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2012  
2009



Airplane!  
1980



The Amazing Spider-...  
2012



Angels & Demons  
2009



Anger Management  
2003



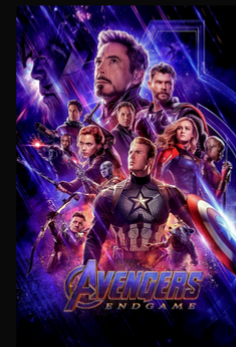
Apollo 13  
1995



Avatar  
2009



The Avengers  
2012



Avengers: Endgame  
2019



Back to the Future  
1985



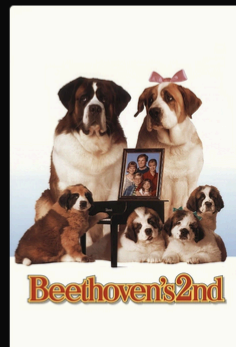
Back to the Future Pa...  
1989



Back to the Future Pa...  
1990



Beethoven  
1992



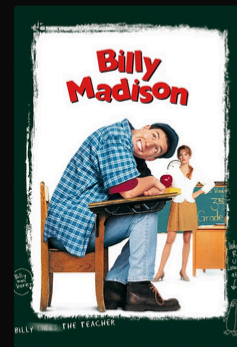
Beethoven's 2nd  
1993



Beetlejuice  
1988



Bill & Ted's Excellent ...  
1989



Billy Madison  
1995



The Bourne Identity  
2002



THE BOURNE LEGACY



THE BOURNE  
SUPREMACY



Bruce  
ALMIGHTY



THE BUCKET LIST



CAPTAIN AMERICA  
THE FIRST AVENGER



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Archive

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1.6 TiB of 1.8 TiB used

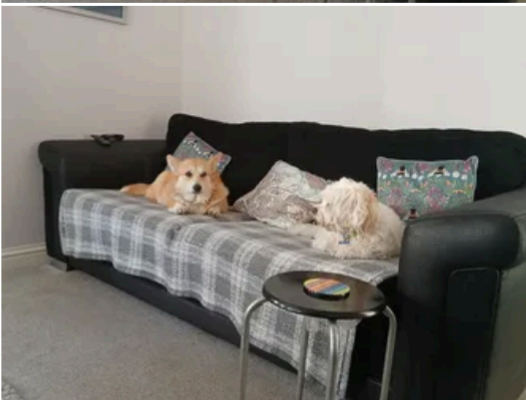
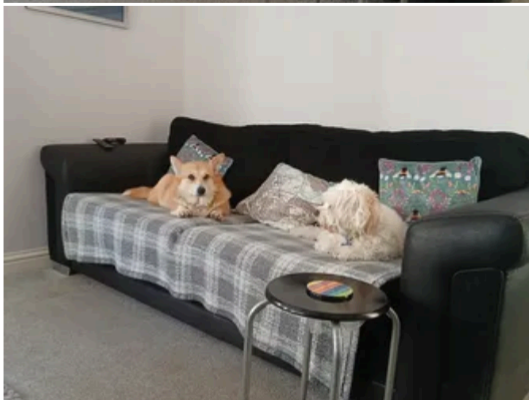
Buy Immich



Server Online

v1.132.3

Mon 7 Apr



- 2025
- 2024
- 2023
- 2022
- 2021
- 2020
- 2019
- 2018
- 2017
- 2016
- 2015



# Nix for PHP Developers

Oliver Davies

**Linux?**  
**macOS?**  
**Windows/WSL?**

**Who has PHP installed  
on their computer?**

**Who has multiple versions  
of PHP installed?**

# Installing PHP

- WAMP (Windows), MAMP (macOS), XAMPP
- Homebrew ( `brew install php` )
- `apt` , `dnf` , `yum` , `pacman` `yay`
- Laravel Herd/Sail
- Symfony CLI?
- `asdf`
- Containers (Docker, Podman, LXC, etc)
- Virtual machines (Vagrant, VMWare, Virtualbox, etc)



# What is Nix?

- Package manager with more than **120,000** packages ( `nixpkgs` )
- Operating system with more than **20,000** packages (NixOS)
- Tool for declaratively building software reproducibly
- A functional domain-specific configuration language
- Different implementations - Lix, Tvix
- Home Manager, `nix-darwin` , `devenv`
- Started as a research project by Eelco Dolstra around 2003

# What is Nix?

- Package manager
- Build tool
- Operating system
- Language



[Back to nixos.org](#)

[Packages](#)

[NixOS options](#)

[Flakes](#)

[Experimental](#)

[NixOS Wiki](#)

## 🔍 Search more than **120 000 packages**

**Channel:**

[25.05](#)

[unstable](#)

Please help us improve the search by [reporting issues](#).

♥️ Elasticsearch instance graciously provided by [Bonsai](#). Thank you! ♥️

## Package sets

php84Extensions 111

php83Extensions 111

php82Extensions 111

php81Extensions 111

No package set 49

emacsPackages 29

php84Packages 19

php83Packages 19

php82Packages 19

php81Packages 19

vimPlugins 7

haskellPackages 6

vscode-extensions 5

rPackages 5

python313Packages 4

python312Packages 4

## Showing results 1-50 of 643 packages.

Sort: Best match ▾

Data from nixpkgs [a58390ab](#).

### php

HTML-embedded scripting language

Name: [php-with-extensions](#) Version: 8.4.11 [Homepage](#) [Source](#) License: [PHP License v3.01](#)

▼▼▼ Show more package details ▼▼▼

### php83

HTML-embedded scripting language

Name: [php-with-extensions](#) Version: 8.3.24 [Homepage](#) [Source](#) License: [PHP License v3.01](#)

▼▼▼ Show more package details ▼▼▼

### php82

HTML-embedded scripting language

Name: [php-with-extensions](#) Version: 8.2.29 [Homepage](#) [Source](#) License: [PHP License v3.01](#)

▼▼▼ Show more package details ▼▼▼

### php81

HTML-embedded scripting language

Name: [php-with-extensions](#) Version: 8.1.33 [Homepage](#) [Source](#) License: [PHP License v3.01](#)

- kdePackages 3
- sbclPackages 2
- libsForQt5 2
- apacheHttpdPackages 1

### Licenses

- PHP License v3.01 302
- MIT License 127
- BSD 3-clause "New" or "Revised" License 53
- Apache License 2.0 48
- Unfree 22
- BSD 2-clause "Simplified" License 14
- GNU General Public License v2.0 or later 11
- GNU Library General Public License v2 or later 8
- GNU General Public License v3.0 or later 6

## phpunit

PHP Unit Testing framework

Name: `phpunit` Version: **12.1.5** [Homepage](#) [Source](#) License: [BSD 3-clause "New" or "Revised" License](#)

▼▼▼ Show more package details ▼▼▼

## phpactor

Mainly a PHP Language Server

Name: `phpactor` Version: **2025.04.17.0** [Homepage](#) [Source](#) License: [MIT License](#)

▼▼▼ Show more package details ▼▼▼

## vimPlugins.nvim-treesitter-parsers.php

Name: `vimplugin-treesitter-grammar-php` [Homepage](#) [Source](#)

▼▼▼ Show more package details ▼▼▼

## apacheHttpdPackages.php

HTML-embedded scripting language

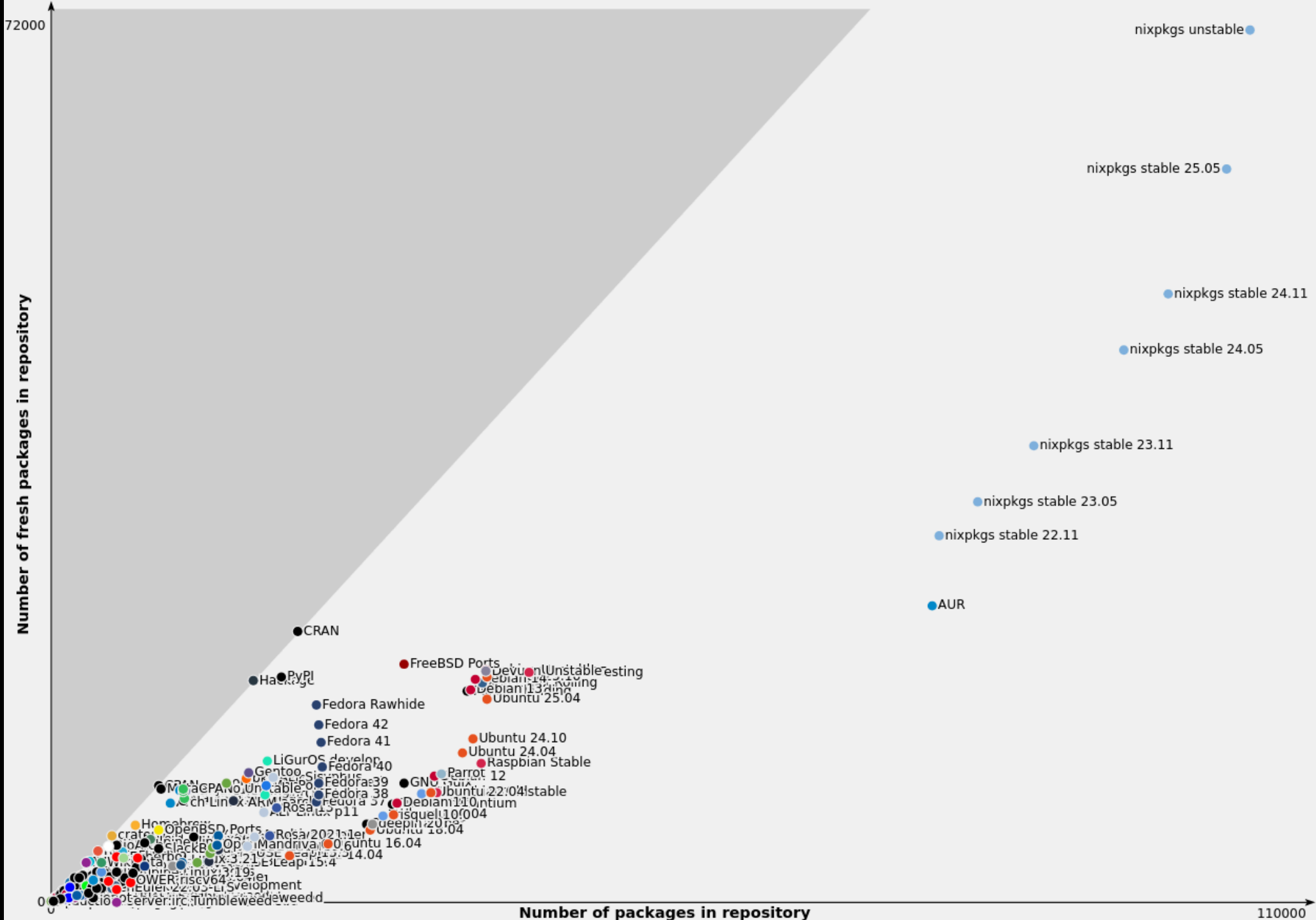
Name: `php-with-extensions` Version: **8.4.11** [Homepage](#) [Source](#) License: [PHP License v3.01](#)

▼▼▼ Show more package details ▼▼▼

## phpdocumentor

PHP documentation generator

Name: `phpdocumentor` Version: **3.7.1** [Homepage](#) [Source](#) License: [MIT License](#)



# Installing Nix

<https://nixos.org/download>

```
$ sh <(curl --proto '=https' --tlsv1.2 -L https://nixos.org/nix/install) \
--daemon
```

Different instructions for Linux, macOS and Windows (WSL2).

Different instructions for NixOS.

```
$ nix --version

nix (Nix) 2.28.4
```

This installation tool will set up your computer with the Nix package manager. This will happen in a few stages:

1. Make sure your computer doesn't already have Nix. If it does, I will show you instructions on how to clean up your old install.
2. Show you what I am going to install and where. Then I will ask if you are ready to continue.
3. Create the system users (uids [30001..30032]) and groups (gid 30000) that the Nix daemon uses to run builds. To create system users in a different range, exit and run this tool again with `NIX_FIRST_BUILD_UID` set.
4. Perform the basic installation of the Nix files daemon.
5. Configure your shell to import special Nix Profile files, so you can use Nix.
6. Start the Nix daemon.

# Installing PHP with Ubuntu

```
$ apt update -y
```

```
$ apt-get install php
```

```
$ which php
```

```
/usr/bin/php
```

```
$ php -v
```

```
PHP 8.3.6
```

# Running PHP with Nix

```
$ nix run nixpkgs#php -- -v
```

```
PHP 8.4.11
```

```
$ nix shell nixpkgs#php
```

```
$ which php
```

```
/nix/store/s4kv9bzqawhqcyjg9xm2hji3jap6d6kd-php-with-extensions-8.4.11/bin/php
```

```
$ php -v
```

```
PHP 8.4.11
```

# Running PHP with Nix

```
$ nix run nixpkgs#php83 -- -v
```

```
PHP 8.3.25
```

```
$ nix run nixpkgs#php82 -- -v
```

```
PHP 8.2.29
```

# Using a `shell.nix` file

```
{ pkgs ? import <nixpkgs> {} }:  
  
pkgs.mkShell {  
  packages = with pkgs; [  
    php  
    phpPackages.composer  
    phpactor  
  ];  
}
```

```
$ nix-shell shell.nix
```

```
[nix-shell:~/my-project]$ composer -V
```

```
Composer version 2.8.5 2025-01-21 15:23:40
```

# Using a `flake.nix` file

```
{
  inputs.nixpkgs.url = "github:nixos/nixpkgs/nixos-unstable";

  outputs = inputs:
    let
      system = "x86_64-linux";
      pkgs = import inputs.nixpkgs { inherit system; };
    in {
      devShells.${system}.default = (import ./shell.nix {
        inherit pkgs;
      });
    };
}
```

# Using a `flake.nix` file

```
{
  inputs.nixpkgs.url = "github:nixos/nixpkgs/nixos-unstable";

  outputs = inputs:
    let
      system = "x86_64-linux";
      pkgs = import inputs.nixpkgs { inherit system; };
    in {
      devShells.${system}.default = pkgs.mkShell {
        packages = with pkgs; [
          php
          phpPackages.composer
          phpfactor
        ];
      };
    };
}
```

# Structure of a Flake-based project

```
.
├── composer.json
├── composer.lock
├── flake.lock
├── flake.nix
├── output_dev
├── source
└── vendor
```

As well as **flake.nix**, we also get **flake.lock**.

# Pinning packages

```
# flake.nix

inputs = {
  nixpkgs.url = "github:nixos/nixpkgs/nixos-unstable";
  nixpkgs-stable.url = "github:nixos/nixpkgs/nixos-24.11";
  nixpkgs-pinned.url = "github:nixos/nixpkgs/45570c299dc2";
}
```

```
{
  let
    pkgs-stable = import inputs.nixpkgs-stable { inherit system; };
  in {
    packages = [ pkgs-stable.php ];
  };
}
```

# Managing services

With NixOS:

```
services.mysql.enable = true;

services.mysql.initialDatabases = [
  { name = "my_project"; }
  { name = "another_project"; }
];
```

Without NixOS:

<https://github.com/juspay/services-flake>

# Managing services

```
{
  inputs = {
    flake-parts.url = "github:hercules-ci/flake-parts";

    nixpkgs.url = "github:nixos/nixpkgs/nixpkgs-unstable";

    process-compose.url = "github:Platonic-Systems/process-compose-flake";

    services.url = "github:juspay/services-flake";
  };

  # ...
}
```

# Managing services

```
imports = [  
  inputs.process-compose.flakeModule  
];  
  
perSystem = { config, lib, pkgs, ... }: {  
  process-compose."default" = {  
    imports = [  
      inputs.services.processComposeModules.default  
    ];  
  
    services = { # ... };  
  
    settings.processes = { # ... };  
  }  
}
```

# Managing services

```
services = {  
  mysql."mysql1" = {  
    enable = true;  
  
    initialDatabases = [  
      { name = "drupal_nix_flake_example"; }  
    ];  
  };  
};
```

# Managing services

```
settings.processes = {  
  php = {  
    command = pkgs.writeShellApplication {  
      name = "php-local-server";  
  
      text = "${getExe php} -S 127.0.0.1:${toString webPort} -t web";  
    };  
  
    depends_on."mysql1".condition = "process_healthy";  
  };  
};
```

# Managing services

```
devShells.default = pkgs.mkShell {  
  
    inputsFrom = [  
        config.process-compose."default".services.outputs.devShell  
    ];  
  
    nativeBuildInputs = with pkgs; [  
        php  
        phpPackages.composer  
    ];  
  
};
```

Run `nix run .` and go to <http://localhost:8000>.

Version: v1.46.0  
 Hostname: t480  
 Processes: 2/3  
 RAM | CPU: 104.3 MiB | 1.0%

PID(P)	NAME(N)	NAMESPACE(C)	STATUS(S)	AGE(A)	HEALTH(H)	MEM(M)	CPU(U)	RESTARTS(R)	EXIT CODE(E)
649743	mysql1	mysql.mysql1	Running	18s	Ready	101.0 MiB	0.9%	-	-
649759	mysql1-configure	mysql.mysql1	Completed	-	-	-	-	-	0
649760	php	default	Running	15s	-	3.2 MiB	0.1%	-	-

## mysql1

```

2025-08-20 8:47:56 0 [Note] Starting MariaDB 10.11.11-MariaDB source revision e69f8cae1a15e15b9e4f5e0f8497e1f17bdc81a4 server_uid SBUT5+V4gzRHX5cSl7/yqJApnrs= as process 649743
2025-08-20 8:47:56 0 [Note] InnoDB: Compressed tables use zlib 1.3.1
2025-08-20 8:47:56 0 [Note] InnoDB: Number of transaction pools: 1
2025-08-20 8:47:56 0 [Note] InnoDB: Using crc32 + pclmulqdq instructions
2025-08-20 8:47:56 0 [Note] InnoDB: Using liburing
2025-08-20 8:47:56 0 [Note] InnoDB: Initializing buffer pool, total size = 128.000MiB, chunk size = 2.000MiB
2025-08-20 8:47:56 0 [Note] InnoDB: Completed initialization of buffer pool
2025-08-20 8:47:56 0 [Note] InnoDB: File system buffers for log disabled (block size=512 bytes)
2025-08-20 8:47:56 0 [Note] InnoDB: End of log at LSN=46980
2025-08-20 8:47:56 0 [Note] InnoDB: 128 rollback segments are active.
2025-08-20 8:47:56 0 [Note] InnoDB: Setting file './ibtmp1' size to 12.000MiB. Physically writing the file full; Please wait ...
2025-08-20 8:47:56 0 [Note] InnoDB: File './ibtmp1' size is now 12.000MiB.
2025-08-20 8:47:56 0 [Note] InnoDB: log sequence number 46980; transaction id 14
2025-08-20 8:47:56 0 [Note] Plugin 'FEEDBACK' is disabled.
2025-08-20 8:47:56 0 [Note] InnoDB: Loading buffer pool(s) from /home/opdavies/tmp/drupal-nix-flake-example/data/mysql1/ib_buffer_pool
2025-08-20 8:47:56 0 [Note] InnoDB: Buffer pool(s) load completed at 250820 8:47:56
2025-08-20 8:47:56 0 [Note] Server socket created on IP: '0.0.0.0'.
2025-08-20 8:47:56 0 [Note] Server socket created on IP: '::'.
2025-08-20 8:47:56 0 [Note] mysql: ready for connections.
Version: '10.11.11-MariaDB' socket: '/home/opdavies/tmp/drupal-nix-flake-example/data/mysql1/mysql.sock' port: 3306 MariaDB Server

```

# Drupal 11.1.6

1 Choose language

2 Choose profile

3 Verify requirements

4 Set up database

5 Install site

6 Configure site

## Choose language

English, British



Translations will be downloaded from the [Drupal Translation web-site](#). If you do not want this, select [English](#).

**Save and continue**

# Multiple PHPs

- Laravel Herd/Sail
- Containers
- `phpenv` , `brew-php-switcher` , `phpbrew`
- `asdf` (not just for PHP)
- Vagrant, VMWare, VirtualBox
- Different physical machines?

**Nix is like `nvm`  
for everything**

# My ideal environment

```
$ php -v
```

```
The program 'php' is currently not installed.
```

```
$ cd ~/my-project
```

```
$ php -v
```

```
PHP 8.4.10
```

```
$ cd ~/another-project
```

```
$ php -v
```

```
PHP 8.3.24
```

# Using direnv

<https://direnv.net>

It augments existing shells with a new feature that can load and unload environment variables depending on the current directory.

In NixOS:

```
{
  programs.direnv.enable = true;
  programs.direnv.nix-direnv.enable = true;
}
```

# The .envrc file

If you have a `flake.nix`:

```
use flake
```

Using a remote Flake:

```
use flake "git+https://git.oliverdavies.uk/opdavies/dev-shells#php84"
```

```
use flake "github:opdavies/dev-shells#php84"
```

# Packaging for Nix

```
stdenv.mkDerivation (finalAttrs: {
  pname = "hello";
  version = "2.12.2";

  src = fetchurl {
    url = "mirror://gnu/hello/hello-${finalAttrs.version}.tar.gz";
    hash = "sha256-wpqZbcKSzCTc9BH06H6S9qr luNE72caBm0x6nc4IGKs=";
  };

  env = lib.optionalAttrs stdenv.hostPlatform.isDarwin {
    NIX_LDFLAGS = "-liconv";
  };

  doCheck = true;
  doInstallCheck = true;

  # ...
```

# Packaging for Nix

```
pkgs.writeShellApplication {
  name = "preview";

  runtimeInputs = with pkgs.nodePackages; [
    browser-sync
  ];

  text = ''
    browser-sync start
      --ignore '**/*.*' \
      --no-notify \
      --no-ui \
      -SW
  '';
}
```

# Packaging PHP for Nix

```
php.buildComposerProject2 (finalAttrs: {
  pname = "phpactor";
  version = "2025.07.25.0";

  src = fetchFromGitHub {
    owner = "phpactor";
    repo = "phpactor";
    tag = finalAttrs.version;
    hash = "sha256-9XWlWwq+xvqPgKIc7IGoMVTxajjYsrPo/ra/0JIE168=";
  };

  vendorHash = "sha256-3xkt0QjytW4B0CgZdevat7zkSuZTPPvwz3yptiq5zoo=";

  # ...
```

# Packaging PHP for Nix

```
php.buildComposerProject2 (finalAttrs: {
  pname = "pest";
  version = "3.7.4";

  src = fetchFromGitHub {
    owner = "pestphp";
    repo = "pest";
    tag = "v${finalAttrs.version}";
    hash = "sha256-ddsdVx/Vsg7GG11fGASouBU3HAJLSjs1AQGHx52TWzA=";
  };

  composerLock = ./composer.lock;
  vendorHash = "sha256-r0J6PFp4Xfe89usoH455EAT30d2Tu3zd3+C/6K/kGBw=";

  # ...
```

# Packaging Sculpin

Packaging Sculpin was essentially the same:

<https://git.oliverdavies.uk/opdavies/lab/src/branch/main/nix/sculpin>

```
nix build  
  
./result/bin/sculpin generate
```

```
.  
├── flake.lock  
├── flake.nix  
├── output_dev  
│   └── index.html  
└── source  
    └── index.md
```

# Packaging npm

```
pkgs.buildNpmPackage rec {
  pname = "openapi-generate-html";
  version = "0.5.3";

  src = pkgs.fetchFromGitHub {
    owner = "qazsato";
    repo = pname;
    rev = "v${version}";
    hash = "sha256-+RmwoRhvfkaj/d3EwID7E6noVV+M3h6pe7IEVYyuUwk=";
  };

  dontNpmBuild = true;

  npmDepsHash = "sha256-7yYM43fAR2HLAC0QNw7N/t8Lk+17qNfeDKzfb1wx/0U=";
}
```

# Packaging Go

```
pkgs.buildGoModule rec {
  pname = "openapi-mock";
  version = "0.3.9";

  src = pkgs.fetchFromGitHub {
    owner = "muonsoft";
    repo = pname;
    rev = "v${version}";
    hash = "sha256-7u//uwcVV1/EI6Rr3ju7K0wMYt/dXivyvBWIpTaoWZk=";
  };

  vendorHash = "sha256-KPCRUnuCIbBX+YpHgshixmrXM3Ey0LIdeC0Z4CtpQoI=";
}
```

# Building Nix packages

```
$ nix repl  
Nix 2.28.4  
Type :? for help.
```

```
nix-repl> :l .  
Added 24244 variables.
```

```
nix-repl> :b phpactor
```

This derivation produced the following outputs:

```
out -> /nix/store/nhq4js2lsj8lb1cz6dj4vrf6xb2r2zbd-phpactor-2025.03.28.0
```

```
/nix/store/nhq4js2lsj8lb1cz6dj4vrf6xb2r2zbd-phpactor-2025.03.28.0/bin/phpactor
```

```
Phpactor 2025.03.28.0
```

# NixOS in production?

```
services.phpfpm.enable = true;  
services.mysql.enable = true;  
services.nginx.enable = true;
```

# NixOS in my homelab

```
services.jellyfin.enable = true;  
services.immich.enable = true;  
services.paperless.enable = true;
```

# Not sure?

Want to try it, but you're not sure?

```
$ docker run --rm -it nixos/nix
```

```
$ podman run --rm -it nixos/nix
```

# Thanks!

- <https://nixos.org>
- <https://github.com/nixos/nixpkgs>
- <https://wiki.nixos.org/wiki/PHP>
- <https://nixos.org/manual/nixpkgs/stable/#ssec-building-php-projects>
- <https://git.oliverdavies.uk/opdavies/lab>
- <https://git.oliverdavies.uk/opdavies/nix-config> (laptop, Neovim, home server)
- <https://books.oliverdavies.uk/nix-for-php-developers> (book, in progress)