Prefix.dev

Cross-platform Package Management for Modern C++ with Pixi

Ruben Arts | CppCon 2025 | September 17th 2025

About Us

- Europe based Startup
- 3 Years old
- Solving our own problems
- Focus on package management

Prefix.dev

Pixi is not a C++ package manager

Nor Python or Rust or any language

Why should I still care about Pixi?

Generic package management

Support multiple languages

Support for Windows, macOS, and Linux

Binary and Source dependencies

Reproducibility

FreeCAD

Dependencies

See also Dependencies

FreeCAD depends on many other open source projects to provide the basic foundations of the program. There are many ways of installing these dependencies: for details and the complete list, see the following Wiki pages:

- Linux: https://wiki.freecad.org/Compile_on_Linux
- Windows: https://wiki.freecad.org/Compile_on_Windows
- Mac: https://wiki.freecad.org/Compile_on_MacOS

https://github.com/FreeCAD/DevelopersHandbook/blob/main/gettingstarted/index.md
https://upload.wikimedia.org/wikipedia/commons/a/a9/Freecad_logo_large.svg

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- Linux: https://wiki.freecad.org/Compile_on_Linux
- Windows: https://wiki.freecad.org/Compile_on_Windows
- Mac: https://wiki.freecad.org/Compile_on_MacOS

Pixi

One of the easiest ways of creating a standalone FreeCAD build environment with its dependencies in a way that does not affect the rest of your system is to use Pixi.

1. Install `pixi` using the following command:

- Windows (PowerShell): `iwr -useb https://pixi.sh/install.ps1 | iex`
- Linux/macOS: `curl -fsSL https://pixi.sh/install.sh | bash`

2. Configure FreeCAD for your platform. There are additional steps necessary on Windows outlined in the next subsection.

   ```
   pixi run configure
   ```

3. Build FreeCAD

   ```
   pixi run build
   ```

   If your computer has less ram than is necessary to run a compiler per processor core, then you can reduce the number of parallel compiler jobs. For example, if you wish to limit to 4 parallel compiler processes use the following command:

   ```
   pixi run build -j 4
   ```

https://github.com/F
https://upload.wikime

Pixi global

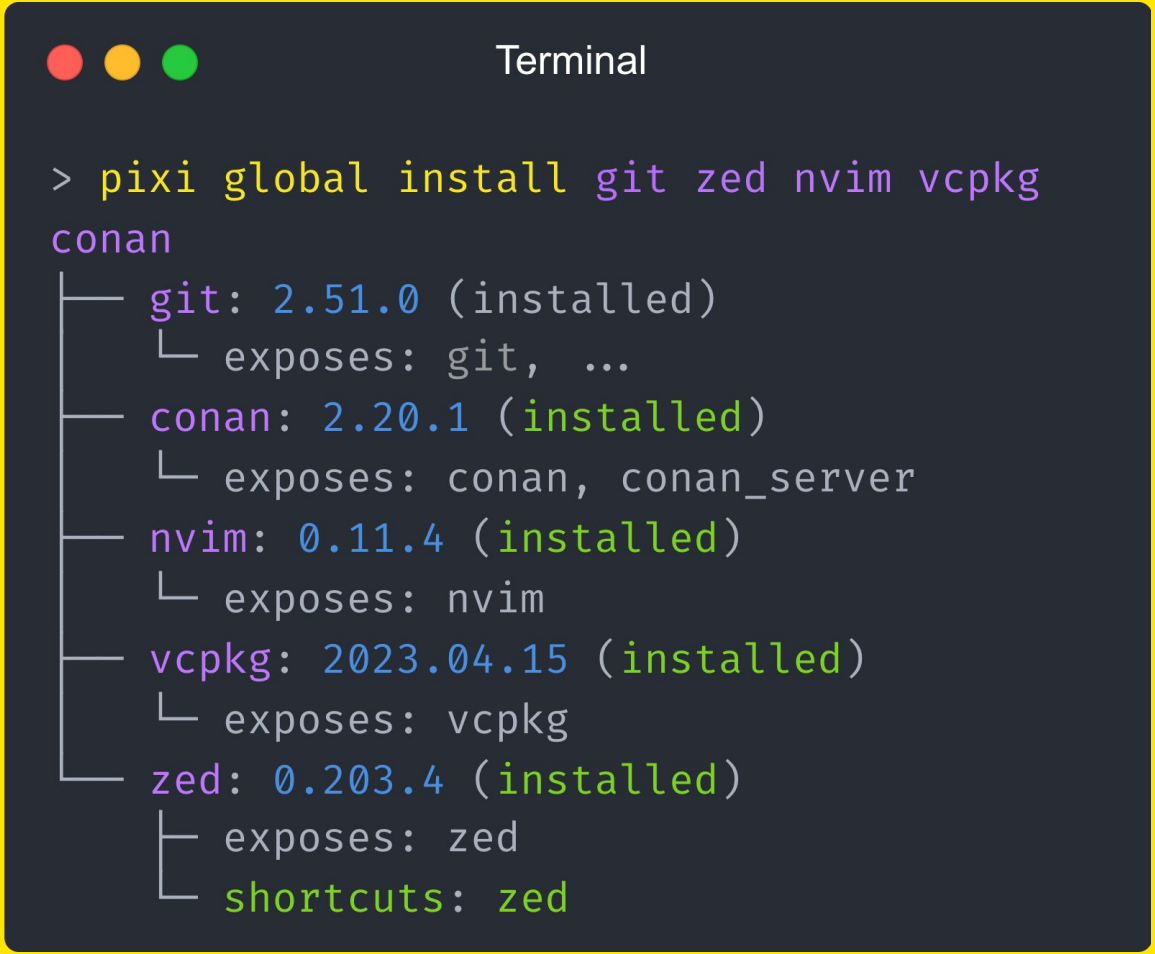
Isolated

No activation

Shortcuts

Autocompletion

Tools



Pixi workspaces

Demo

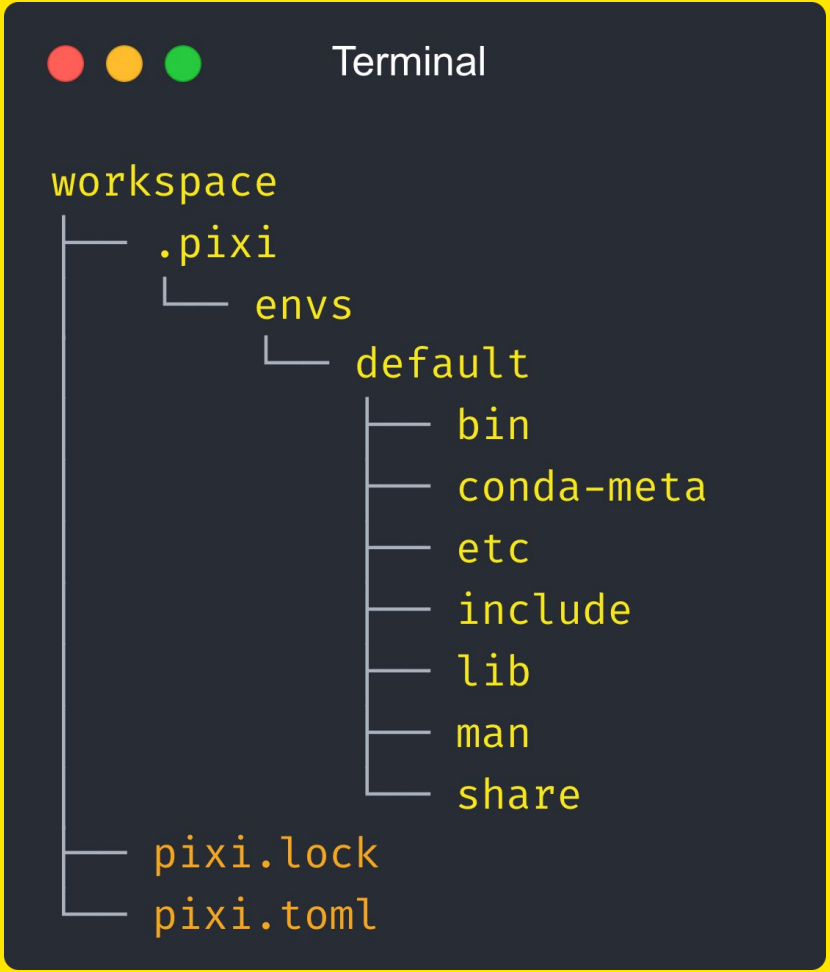
Environments

No global installation

Requires activation

- pixi run
- pixi shell

Linked from cache



Tasks

Makefile but cross-platform

Shipping integrated shell

Makefile

```
.PHONY: configure build test this

configure:
    cmake -B build -DCMAKE_BUILD_TYPE=Release

build: configure
    cmake --build build --config Release

test: build
    ctest --test-dir build -C Release

this:
    python -c 'import this'
```

pixi.toml

```
[tasks]
configure = "cmake -B build -DCMAKE_BUILD_TYPE=Release"
this = "python -c 'import this'"

[tasks.build]
cmd = "cmake --build build --config Release"
depends-on = ["configure"]

[tasks.test]
cmd = "ctest --test-dir build -C Release"
depends-on = ["build"]
```

Lockfiles

Reproducibility

All platforms

Deterministic CI/CD

Auditable

No solving

Rollbacks

(pseudo) pixi.lock

```
version: 6
environments:
  default:
    channels:
      - url: https://prefix.dev/conda-forge/
    packages:
      linux-64:
        - conda: prefix.dev/conda-forge/linux-64/pokeget-1.6.3.conda
      osx-arm64:
        - conda: prefix.dev/conda-forge/osx-arm64/pokeget-1.6.3.conda
      win-64:
        - conda: prefix.dev/conda-forge/win-64/pokeget-1.6.3.conda
packages:
- conda: prefix.dev/conda-forge/linux-64/pokeget-1.6.3.conda
  sha256: 4c5ecb880
  license: MIT
  timestamp: 1742482521406
```

GitHub Actions

workflow.yml

```yaml
jobs:
  test:
    strategy:
      matrix:
        os: [ubuntu-latest, windows-latest, macos-latest]
    runs-on: ${{ matrix.os }}
    steps:
      - uses: actions/checkout@v5
      - uses: prefix-dev/setup-pixi@v0.8.1
      - run: pixi run test
```

Conda-forge

Default binary package source

Packaging multiple languages: C/C++, Rust, Python, Go, Fortran, etc.

Available packages:

- Conda-forge: **30K** Packages
- Conan: **9K** Packages
- Vcpkg: **3K** Packages

https://vcpkg.io/en/packages
https://conan.io/center
https://conda-forge.org/

13+ years old
Binary Distribution of compiled libraries

Source builds

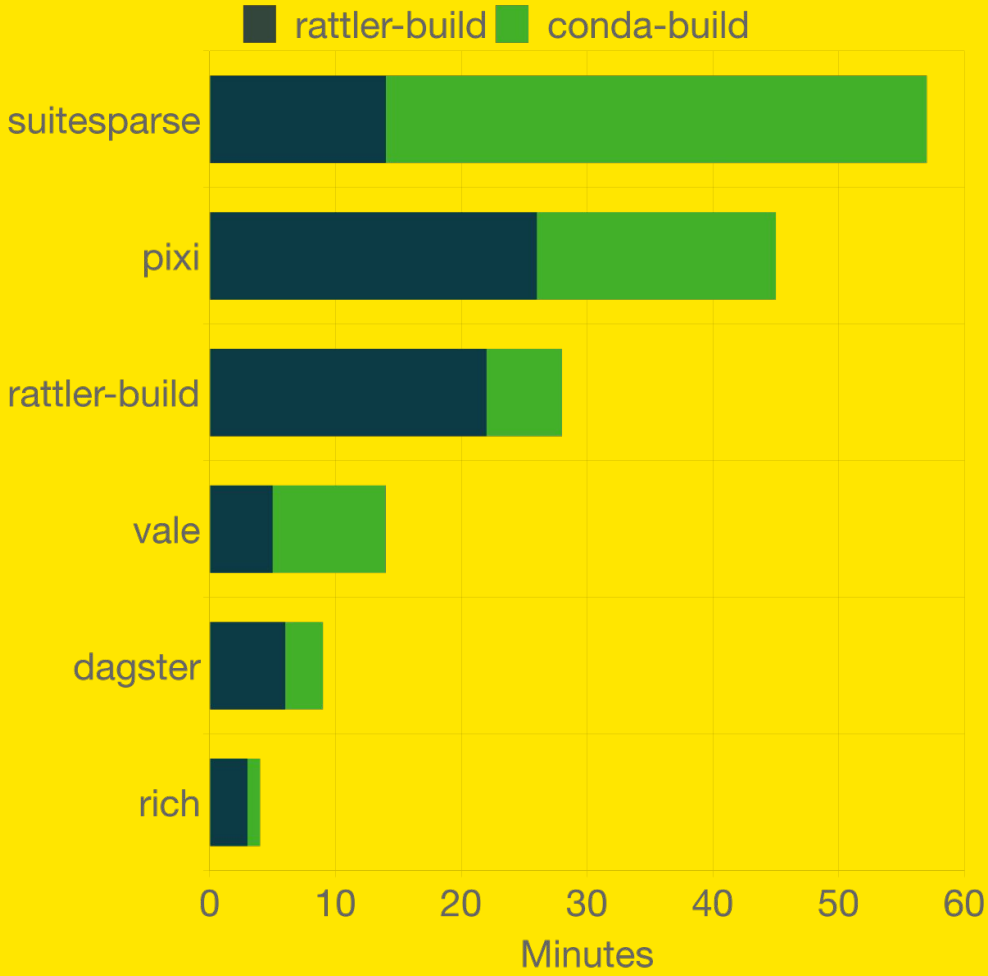
Demo

Rattler-build

conda-build replacement

Pure yaml recipe

More info: https://rattler.build



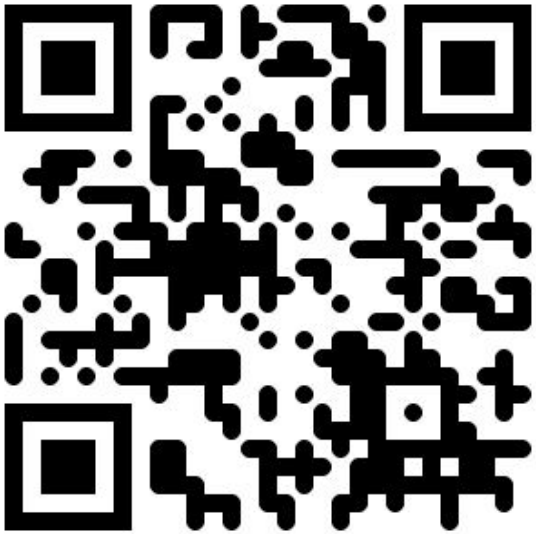
When to use Pixi?

- Reproducible developer workflows
- Not breaking other projects
- Easy CI setup
- Easy Distribution
- Cross-platform projects and applications

Try it today!

Terminal

```
~ > curl -fsSL https://pixi.sh/install.sh | sh
```



https://pixi.sh

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Thanks!