

Installation Overview

OpenLane 2 offers two primary methods of installation: using **Nix** and using **Docker**.

Nix (Recommended)

Nix is a build system for Linux and macOS allowing for *cachable* and *reproducible* builds, and is the primary build system for OpenLane.



Compared to the Docker method, Nix offers:

- **Native Execution on macOS:** OpenLane is built natively for both Intel and Apple Silicon-based Macs, unlike Docker which uses a Virtual Machine, and thus requires more resources.
- **Filesystem integration:** No need to worry about which folders are being mounted like in the Docker containers- Nix apps run natively in your userspace.
- **Smaller deltas:** if one tool is updated, you do not need to re-download everything, which is not the case with Docker.
- **Dead-simple customization:** You can modify any tool versions and/or any OpenLane code and all you need to do is re-invoke `nix-shell`. Nix's smart cache-substitution feature will automatically figure out whether your build is cached or not, and if not, will automatically attempt to build any tools that have been changed.

Because of the advantages afforded by Nix, we recommend trying to install using Nix first. Follow the installation guide here: [Nix-based Installation](#)

Docker (Alternative)

Docker containers offer:

- Support for Windows, Mac and Linux on both `x86-64` and `aarch64`
- **Sandboxing:** A completely different environment  [Read the Docs](#)  [latest](#)
- **Familiarity:** Users of previous versions of OpenLane will already have Docker installed

If Nix doesn't work for you for whatever reason, you may want to try Docker. Follow the installation guide here: [Docker-based Installation](#).

Other Options

You may elect to somehow provide the tools yourself. Here is a non-exhaustive list:

- [Python 3.8 or higher](#)
- [Yosys](#)
- [OpenROAD](#)
- [KLayout](#)
- [Magic](#)
- [Netgen](#)

However, as the versions will likely not match those packaged with OpenLane, some incompatibilities may arise, and we will not be able to support them.



Copyright © 2020-2023 Efabless Corporation and contributors
Made with [Sphinx](#) and @pradyunsg's [Furo](#)