

# Nix package manager

**Nix** is a cross-platform package manager that utilizes a purely functional deployment model where software is installed into unique directories generated through cryptographic hashes. It is also the name of the tool's programming language. A package's hash takes into account the dependencies, which is claimed to eliminate dependency hell.<sup>[2]</sup> This package management model advertises more reliable, reproducible, and portable packages.<sup>[3][4]</sup>

Nix packages are defined through a lazy functional programming language specifically designed for package management. Dependencies are tracked directly in this language through an intermediate format called "derivations". A nix environment keeps track of references automatically, which allows unused packages to be garbage collected when no other package depends on them. At the cost of greater storage requirements, all upgrades in Nix are guaranteed to be both atomic and capable of efficient roll-back. This also enables multiple users to safely install software on the same system without administrator privileges.

Nix has full support for Linux and macOS and can safely be installed side-by-side with an existing package manager.

## Nix package manager

<b><u>Stable release</u></b>	2.3.12 <sup>[1]</sup> / June 1, 2021
<b><u>Repository</u></b>	<a href="https://github.com/NixOS/nix">github.com/NixOS/nix</a> ( <a href="https://github.com/NixOS/nix">https://github.com/NixOS/nix</a> ) 
<b><u>Written in</u></b>	<u>C++</u>
<b><u>Platform</u></b>	<u>Linux</u> , <u>Unix-like</u>
<b><u>Type</u></b>	<u>Package management</u>
<b><u>License</u></b>	<u>LGPL</u>
<b><u>Website</u></b>	<a href="https://nixos.org/nix">nixos.org/nix</a> ( <a href="https://nixos.org/nix">http://nixos.org/nix</a> )

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## NixOS

NixOS<sup>[5]</sup> is a Linux distribution using Nix consistently for every piece of software in the system including the Linux kernel.<sup>[6]</sup>

## Nixpkgs

Nixpkgs is the package repository built upon the Nix package manager. It contains more than 80,000 packages<sup>[7]</sup> and is the most up-to-date package repository.<sup>[8]</sup>

## See also

- Maak - a build automation utility similar to make, designed to build complex software systems
- GNU Guix - another declarative package manager for Linux distributions, built on Nix but which uses GNU Guile for configuration and customization, instead of the domain-specific language of Nix
- Runbook automation - one of the potential applications of Nix

## References

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1. Dolstra, Eelco (2021-06-01). "Release 2.3.12" (<https://github.com/NixOS/nix/releases/tag/2.3.12>) (Mailing list). Retrieved 2021-06-08.
2. Prins, P., Suresh, J. and Dolstra, E., "Nix fixes dependency hell on all Linux distributions," (<http://www.linux.com/news/nix-fixes-dependency-hell-all-linux-distributions/>) *linux.com*, December 22, 2008
3. Dolstra, E., de Jonge, M. and Visser, E. "Nix: A Safe and Policy-Free System for Software Deployment." (<https://nixos.org/~eelco/pubs/nspfssd-lisa2004-final.pdf>) In Damon, L. (Ed.), *18th Large Installation System Administration Conference (LISA '04)* (<http://www.usenix.org/events/lisa04/>), pages 79–92, Atlanta, Georgia, USA. USENIX, November 2004.
4. Dolstra, E. *The Purely Functional Software Deployment Model*. (<https://nixos.org/~eelco/pubs/phd-thesis.pdf>) PhD thesis, Faculty of Science, Utrecht, The Netherlands. January 2006. ISBN 90-393-4130-3.
5. <http://nixos.org/>
6. Dolstra, E. and Löh, A. "NixOS: A Purely Functional Linux Distribution (<https://nixos.org/~eelco/pubs/nixos-jfp-final.pdf>)." In *ICFP 2008: 13th ACM SIGPLAN International Conference on Functional Programming* (<http://www.icfpconference.org/icfp2008/>), pages 367–378, Victoria, British Columbia, Canada. September 2008.
7. [https://repology.org/repository/nix\\_unstable](https://repology.org/repository/nix_unstable)
8. <https://repology.org/repositories/statistics/newest>

## External links

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- Official website (<http://nixos.org/nix>)
  - Comparison of (<http://0install.net/links.html>) Zero Install and systems such as Nix
  - Debian developer criticism (<http://lists.debian.org/debian-devel/2008/12/msg01027.html>) (2008)
  - Introduction: Purely Functional Configuration Management with Nix and NixOS (<http://www.infoq.com/articles/configuration-management-with-nix>)
  - NixOS Desktop Flow (<https://christine.website/blog/nixos-desktop-flow-2020-04-25>)
  - Nixpkgs Github Repository (<https://github.com/NixOS/nixpkgs>)
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