

# NixOS Workshop

2024-10-08

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# Why NixOS?

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- All package inputs are hashed.
- In a pure build, same input  $\rightarrow$  same output.
- If you can build it now, you can still build it after months, or years.

- Entire system can be build from a single config file.
- Declarative config + reproducible builds = time machine.
- Changing a system component is as simple as changing the config file.
- Single interface for entire system setup. Good and bad.
- Ability to restore to previous state.

Repository	Total	N/u	Newest		Outdated		Unique		Problematic		Potentially vulnerable		Maintainers	Problems
<a href="#">nixpkgs unstable</a>	99249	80556	67576	89.0%	8251	10.9%	18693	18.8%	4724	4.8%	198	0.2%	3608	2627
<a href="#">nixpkgs stable 24.05</a>	96216	78689	54883	70.3%	23104	29.6%	17527	18.2%	4572	4.8%	235	0.24%	3346	2809
<a href="#">nixpkgs stable 23.11</a>	88079	71599	42940	60.5%	27987	39.4%	16480	18.7%	4401	5.0%	352	0.4%	2978	2842
<a href="#">nixpkgs stable 23.05</a>	83099	67350	36547	54.0%	31019	45.9%	15749	19.0%	4214	5.1%	461	0.55%	2613	2875
<a href="#">nixpkgs stable 22.11</a>	79644	64356	32964	50.7%	31921	49.1%	15288	19.2%	4037	5.1%	588	0.74%	2344	23812
<a href="#">nixpkgs stable 22.05</a>	71669	61674	30003	48.8%	31420	51.1%	9995	13.9%	3909	5.5%	691	0.96%	2164	22837
<a href="#">nixpkgs stable 21.11</a>	67323	58704	27078	46.8%	30743	53.1%	8619	12.8%	3752	5.6%	764	1.13%	1964	21755
<a href="#">AUR</a>	75356	38421	23488	73.8%	8285	26.0%	36935	49.0%	256	0.3%	395	0.52%	14345	7601
<a href="#">CRAN</a>	21110	21110	21096	99.9%	14	0.1%	n/a	n/a	0	0.0%	0	0.0%	?	0
<a href="#">Raspbian Testing</a>	41326	30706	20342	67.4%	9183	30.4%	10620	25.7%	1569	3.8%	380	0.92%	4195	4658
<a href="#">Debian Unstable</a>	38195	29149	20116	70.5%	7819	27.4%	9046	23.7%	1456	3.8%	284	0.74%	3677	3518
<a href="#">Devuan Unstable</a>	38178	29129	20090	70.4%	7830	27.4%	9049	23.7%	1457	3.8%	268	0.7%	3685	3515
<a href="#">FreeBSD Ports</a>	31175	26370	19436	75.2%	6320	24.5%	4805	15.4%	398	1.3%	385	1.23%	1644	1881
<a href="#">Kali Linux Rolling</a>	36815	28106	18944	68.6%	8062	29.2%	8709	23.7%	1454	3.9%	239	0.65%	3559	3261
<a href="#">Debian 13</a>	36201	27718	18896	69.5%	7710	28.3%	8483	23.4%	1400	3.9%	241	0.67%	3543	3214
<a href="#">PureOS landing</a>	35922	27590	18775	69.3%	7715	28.5%	8332	23.2%	1400	3.9%	231	0.64%	3539	3103
<a href="#">PyPI</a>	19408	19408	18366	94.6%	1039	5.4%	n/a	n/a	7	0.0%	20	0.1%	51223	5585
<a href="#">Ubuntu 24.10</a>	37840	28728	18114	63.3%	9884	34.5%	9112	24.1%	1494	3.9%	277	0.73%	3501	3511
<a href="#">Hackage</a>	17823	17823	17808	99.9%	14	0.1%	n/a	n/a	1	0.0%	1	0.01%	4218	3427
<a href="#">Fedora Rawhide</a>	23632	21330	15979	76.4%	4879	23.3%	2302	9.7%	425	1.8%	190	0.8%	?	2826
<a href="#">Ubuntu 24.04</a>	36798	28000	14832	51.1%	13576	46.8%	8798	23.9%	1428	3.9%	346	0.94%	3359	3656
<a href="#">Fedora 40</a>	23941	21490	13607	64.0%	7612	35.8%	2451	10.2%	402	1.7%	278	1.16%	?	2959

Figure 1: <https://repology.org/repositories/statistics/newest>

# You can do this...

```
nix-shell -p gimp --run gimp
```

```
nix-shell -p typst
```

```
nix-shell -p jdk8
```

```
nix-shell -p python312
```

```
nix-shell -p cargo
```

```
nix-shell -p whatever-you-want it-will-probably-work
```

Actually, you can do this on any Linux platform (and Mac(?)).

# How NixOS?

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- Graphic Calamares installer (very similar to other distros).  
<https://nixos.org/download/#nixos-iso>
- Manual installation also available.  
<https://nixos.org/manual/nixos/stable/#sec-installation-manual>  
Quicker than Arch since NixOS orchestrates for you.



- <https://search.nixos.org/options>
- <https://search.nixos.org/packages>
- <https://home-manager-options.extranix.com/>

# Show and tell

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