Weather report

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FOSDEM’23, Brussels, February 5, 2023
Unikraft is a fast, secure and open-source Unikernel Development Kit

By tailoring the operating system, libraries and configuration to the particular needs of your application, it vastly reduces virtual machine and container image sizes, bringing down your software stack’s attack surface.

- Blazing fast
- Development environment
- Cloud-native ready
- POSIX-compliant
- Research-backed
- Features

GitHub Page:

Unikraft is an automated system for building specialized OSes known as unikernels. Unikraft can be configured to be POSIX-compliant. (Core repository)

Unikraft is a fast, secure and open-source Unikernel Development Kit. Extreme Specialization for Security and Performance.

At 67 followers
https://unikraft.org
@UnikraftSDK
user-discuss@unikraft.org
Verified

Overview
Repositories 189
Discussions
Projects 22
Packages
AI
Teams 193
People 72
Search or jump to...

Pinned

unikraft Public
Unikraft is an automated system for building specialized OSes known as unikernels. Unikraft can be configured to be POSIX-compliant. (Core repository)

1.2k 1.1k

docs Public
The front page and documentation for the Unikraft Open-Source Project.

27 31
The state of the community is strong!
<table>
<thead>
<tr>
<th><strong>FOSDEM 2022</strong></th>
<th><strong>FOSDEM 2023</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>around 500 GitHub stars</td>
<td>1210 GitHub Stars</td>
</tr>
<tr>
<td>around 300 Discord users</td>
<td>607 Discord users</td>
</tr>
<tr>
<td>release 0.7 (Mimas)</td>
<td>release 0.12 (Epimetheus)</td>
</tr>
<tr>
<td>1 online hackathon (USoC’21)</td>
<td>3 live hackathons, USoC’22, Hacktoberfest local online hackathons</td>
</tr>
<tr>
<td>1548 commits</td>
<td>2065 commits</td>
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</tbody>
</table>
Hackathons

weekly 4 hour hackathons on Saturday (online, face-to-face)

ENS Lyon, May 14-15, 2022

RWTH Aachen, June 25-26, 2022

TU Munich, October 22-23, 2022

Unikraft Summer of Code 2022, August 29-September 9, online
Thanks Anastassios, Babis, George, Manos, Michalis, Nectarios, Panagiotis!

https://unikraft.org/community/hackathons/2023-03-athens/
Unikraft Meetup
Unikraft Meetup
Unikraft Meetup

What happens in Sinaia stays in Sinaia!
Student Engagement

diploma, master, PhD projects

student mentorship

Google Summer of Code 2022

Unikraft Summer of Code “graduates”

hackathon challenges
Community Roles

1. support
2. tank
3. assassin
4. marksmen
5. fighter
6. mage

- maintainer
- owner
- tech lead
- reviewer
- community lead
Work Groups and Meetings

Discord channel
work group meetings
weekly community meeting
bi-weekly maintainers meeting
bi-weekly community leaders meeting
Welcome to Unikraft’s Documentation! 🙋

Unikraft is a Unikernel Development Kit and consists of an extensive build system in addition to core and external libraries which facilitate the underlying functionality of a unikernel.

This documentation is organized into guides for operators of Unikraft unikernels who wish to run lightweight VMs; developers who wish to integrate pre-existing applications into a unikernel; and, hackers, researchers and staff who wish to extend Unikraft itself.

What to read next

Get familiar with some of the core concepts which makes using a unikernel:

1. What's a unikernel?
   Learn about the core concepts and how Unikraft is able to achieve extreme performance and security benefits compared to existing technologies.

2. Building your first unikernel
   You're convinced of unikernels, "they're the future" now you want to learn how to quickly and easily build the tutorial for you.
Features since FOSDEM’23

- virtual memory support
- SMP support
- internal metrics (ukstore)
- Musl support
- binary compatibility (official!)
- ARM security features
- OSS roadmap
(Almost there) Features

tooling upgrade (kraftkit)

Rust support

integrated SMP support, synchronization

integration testing

Other security features (ASLR, W^X, shadow stack)

RISC-V support

VMware, Hyper-V, Firecracker support
Challenges

easy of use, adoption

porting new applications / libraries

attracting experienced contributors

maintaining / improving code quality

permeating good practices in community
Next Steps

full switch to kraftkit

full internal API documentation

unit tests in internal and external libraries

platform re-architecting

code conventions

improved documentation, common pitfalls
Come to the monkey side!

core: low-level programming, kernel, C, assembly

tooling: Go, containers, K8s, CI/CD

app/lang/lib support: Rust, Go, Javascript etc.

expansion: metrics, platforms, benchmarking
Unikernel Discussion Group

share knowledge, share code, share love

potential standardization (whatever that means)

evangelize unikernels in OSS, academia, tech groups

promote unikernels in business, research

suggestions welcome
The state of the community is strong!

https://unikraft.org/
https://github.com/unikraft