oniro

Connecting Worlds, Enabling Innovation

The Eclipse Oniro Open Source Approach

Jarosław Marek, PhD

Chair of the Eclipse Oniro Steering & Marketing Committees

Volla Community Days, 15.06.2025

About me

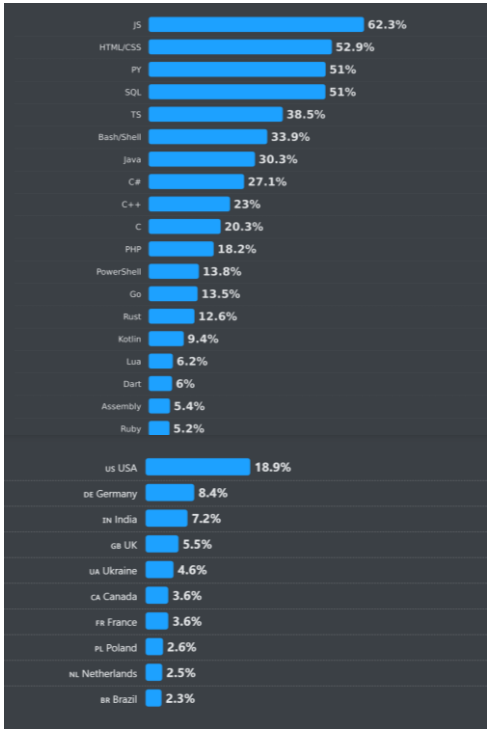
Dr. Eng. Jarosław Marek

- Chair of the Eclipse Oniro Steering and Marketing Committees
- Head of the Open Source Technology Center @Huawei Warsaw Research Center
- Co-founder of the Eclipse Oniro project
- Over a decade @Samsung driving research and large scale deployments of Android and Tizen, from mobile to IoT, across Europe
- Former researcher and software developer at Poznan University of Technology, specializing in multimedia engineering

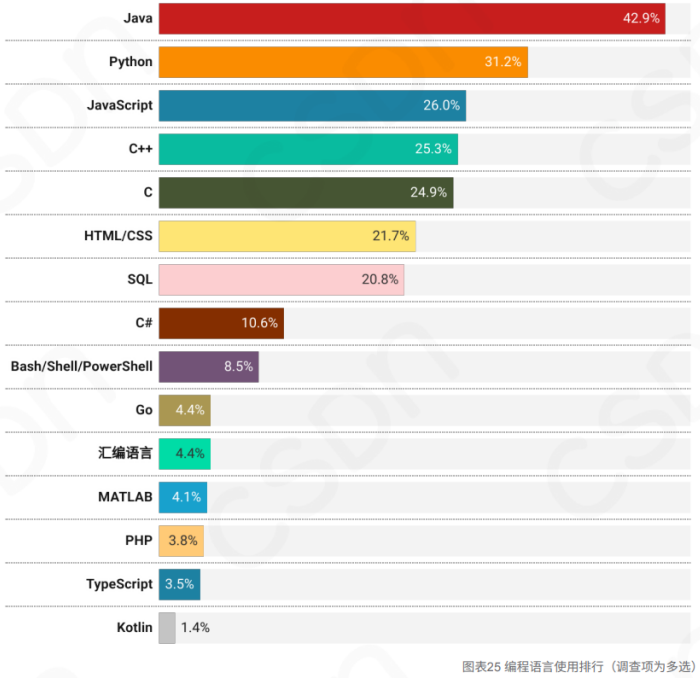
https://www.linkedin.com/in/jmarek/

Why another operating system and ecosytem?

Popularity of Programming Languages



Source: Stackoverflow developer survey 2024

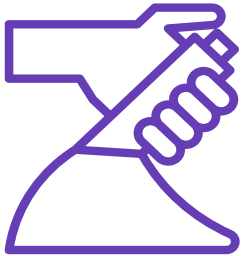


Source: CSDN developer survey 2024

https://survey.stackoverflow.co/2024/technology#most-popular-technologies-language

How many of these logos are you familiar with?

Obstacles to Innovation in the Smart Device Ecosystem



- Technological silos
- Vendor lock-in (walled gardens)
- Limited scalability and replicability
- High cost of development and integration

Pilars of EU Digital Sovereignty

- Technological independence
  Development of European solutions in cloud, AI, and cybersecurity
- Data protection
  GDPR as the foundation for control over citizens' data
- Digital market regulations
  Digital Services Act (DSA) and Digital Markets Act (DMA)
- Open Source Strategy
  Leveraging open-source technologies to reduce dependencies

Open Source to overcome some of the issues

- Open specification to develop compatible products
- Open implementation freely accessible
- Reduced licenses cost and also the reluctance to cooperate
- Embrace cooperation and new use cases
- Nurture technological innovation

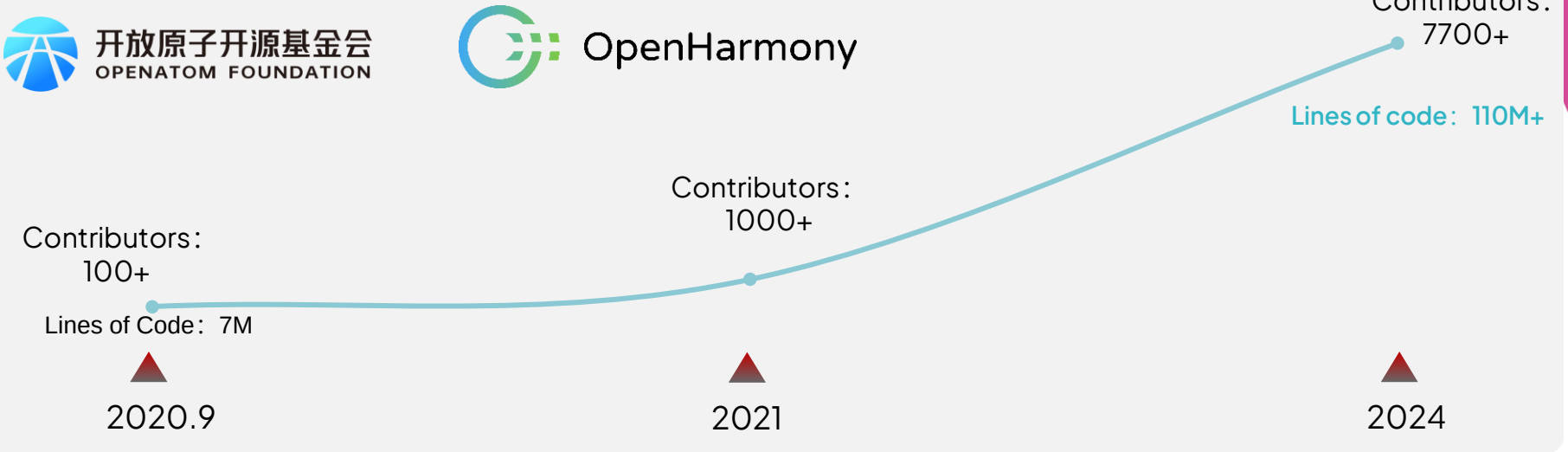
Source: https://license.md/free-versus-open-source-license/

OpenHarmony

A new open source contender in operating system space

开放原子开源基金会
OPENATOM FOUNDATION

OpenHarmony



Community Statistics

7700+	110M+	26K+	76K+	330K+	59
Contributors	Lines of Code	Stars	Forks	Pull Request	SIG Groups

48 OpenHarmony WG members

Category A

PATEO · HUAWEI · 京东 · HOPERUN 润和软件 · ecarx · I CS&S 中软国际 · OpenValley 开鸿智谷 · 九联开鸿 · 鸿湖万联 SWANLINK · kaihong 开鸿

Category B

新大陆 Newland · iSoftStone · 东方创料 · SWAPC 奥思维 · SZZT 证通 · 芯海科技 CHIPSEA · 发掘科技 · 远信软件技术有限公司 · COMTECH 科通 · 诚迈科技 · TDTECH · 汇思博 WISBO · DUOLUN TECHNOLOGY 多伦科技 · NewStart 新支点操作系统

Category C

Midea · SPEEDATA 思必拓 · Neusoft · 中科鸿皓 · 优博终端 · 星网天合 · 孔辰智能 KJ-SMART · SHSANY · 思行达 THINGSTAR · UROVO 优博讯 · Industio 触觉智能 · 嘉强 EMPOWER · 荣联科技 RONGLIAN GROUP · 车凌科技 · Guanmeng · yarward · DNAKE 狄耐克 · coolpad 酷派集团 · 开鸿硬件生态 · 橙子云计算 ORANGEPI CLOUD · SANSI 三思

Special

ISCAS

Academic Institutions and Non-profit Organizations

CAICT 中国信通院

OpenHarmony

85+ chipsets from 35 vendors certified for compatibility

	2022 H1 +18 chipsets	2022 H2 +18 chipsets	2023 H1 +13 chipsets	2023 H2 +16 chipsets	2024 H1 +20 chipsets
Light (Wi-Fi/ Bluetooth/ MCU)	✓ ASR Soar ASR5822 ✓ Core Sea CS1262 ✓ (heart rate sensor) ✓ Lianshengde W800 ✓ Core Sea CST85F01 ✓ STMicroelectronics STM32F407 ✓ Hengxuan bes2600 ✓ Small HiSilicon Hi3861 ✓ Huiding GR5515 ✓ Tailing Micro TLSR9 Series ✓ Ruixin Micro RK2206	✓ Lexin esp32 ✓ Jerry AC6956 ✓ Zhan Rui 8910 ✓ Realtek RTL8720CM ✓ Ruiyue Micro RDW4073 ✓ Shanghai Broadcom BK7235 ✓ HPM6750IVM1	✓ Zhaoyi Innovation GD32F470 ✓ Core Sea CST92F30 ✓ Zhaoyi Innovation GD32F450 ✓ Boliu BL602C ✓ HiSilicon CB0201 ✓ Core transfer EC618	✓ Zhaoxun MH1903 ✓ Zhan Rui UIS8850 ✓ STMicroelectronics STM32F429ZI ✓ Core transfer EC616 ✓ ASR1602C ✓ ASR1803S ✓ ASR1606L ✓ Zhaoyi Innovation GD32F407VGT6 ✓ STMicroelectronics STM32F405RGT6 ✓ Ateli AT32F403 ✓ HPM6450 first	✓ EC626 ✓ CH32V208 ✓ GX8302B ✓ WS63E ✓ Hi3911V200 ✓ Hi3863V100 ✓ HPM6754 ✓ BK7231u ✓ STM32L4R5VGT6 ✓ BL604
Small (small screen)	✓ Small HiSilicon for Hi3516D V300 ✓ STMicroelectronics STM32MP157A	✓ ASR3603/3601/1603 ✓ Junzheng X2500 ✓ ASR1601 ✓ Loongson 2K1000	✓ Yizhi SV823 ✓ HiSilicon SD5151T ✓ Junzheng X2000 ✓ Loongson 2K500 ✓ Ruixin Micro RK3308	✓ Guoke Micro GK7205 V300 ✓ Ruixin Micro RV1126 ✓ HiSilicon Hi1156	✓ GK7205V510 ✓ HI3519DV500 ✓ Hi3516DV500 ✓ SV826 ✓ Hi5671YV200 ✓ Hi3536AV100
Standard (large screen)	✓ Ruixin Micro RK3568/RK3399 ✓ Small HiSilicon Hi3751 V351 ✓ Jingchen A311D ✓ NXP NXP NXP IMX8 Mini ✓ Quanzhi T507	✓ Ruixin Micro RK3566 ✓ Zhanrui 8541E/ T618 ✓ Qualcomm QRB5165 ✓ Jingchen S905L3A	✓ Ruixin Micro RK3588 ✓ Zhan Rui 7885	✓ Zhan Rui 7863 ✓ Flathead Brother Shadow TH1520	✓ GK6780V100 ✓ D2000 ✓ E2000 ✓ BCM2711

Merged into the main branch

Adaptation completed, directed to the open source

OpenHarmony

As of May 15, 2024

320+ OpenHarmony Devices in the Market

Communication

Industry

Education

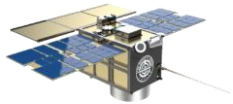
Transportation

Energy

Medical care

Finance

Spaceflight



230+ partners whose products have passed the OpenHarmony compatibility test

As of May 15, 2024

Recent OpenHarmony Devices

Pura X

MateBook Fold

Watch 5

Unique form factor

The first device in Europe

HUAWEI

Eclipse Oniro

Think Global Code Local

Eclipse Oniro – Glimpse of History

2020

- OpenHarmony debut in China under the OpenAtom Foundation
- A group of European open-source experts gathered to cooperate on creating a global ecosystem

2021

- **Eclipse Oniro Project and Working Group established**

2023

- OpenAtom and Eclipse Foundations sign an agreement to jointly develop projects and a global ecosystem

Pioneering open source collaboration for a global ecosystem

"The first instance of two open source foundations engaging in such detailed technical collaboration – a significant step towards cultivating a global ecosystem for open intelligent devices" *ref*

Mike Milinkovich
Executive Director at EF

开放原子开源基金会
OPENATOM FOUNDATION

ECLIPSE FOUNDATION

Objectives

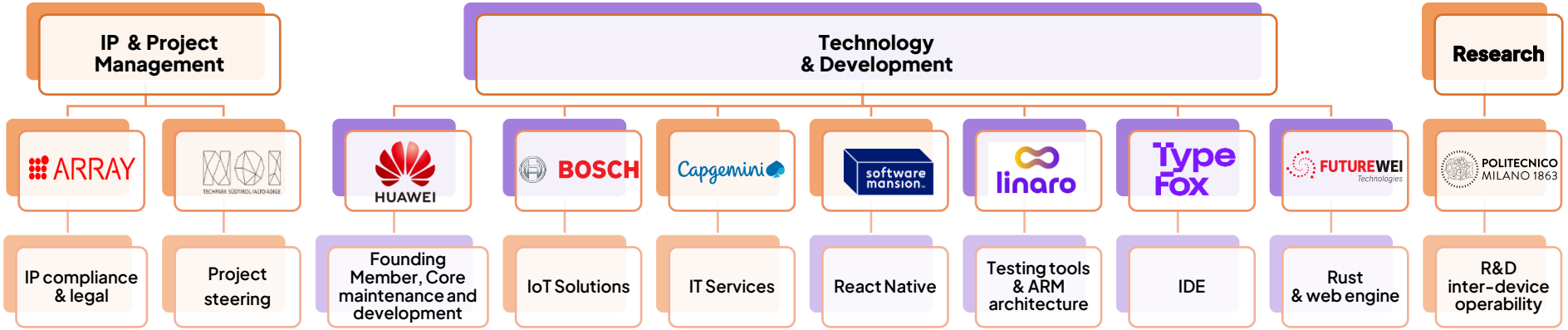
OpenHarmony

oniro

Actions

Building Partnerships Across Industries and Diverse Expertise

Eclipse Oniro Working Group



https://oniroproject.org/#working-group

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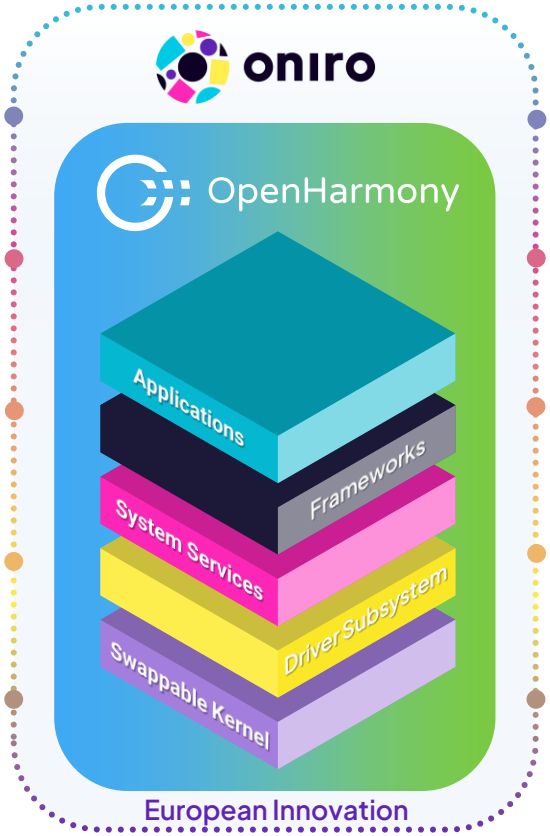
Fostering European Innovation through Collaboration and Compliance



React Native

Open Regulatory Compliance

EU Digital Identity Wallet

IP PIPELINE

DEVICES

kanto

THEIA

servo

Apps

TOOLS

European Innovation
driven by member contributions

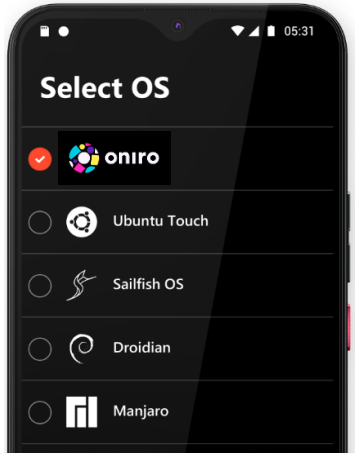
Global Ecosystem
through compatibilty with OpenHarmony

Local Friendly
guidelines, tooling and support

Aligned to European Regulations
by sharing members with Open Regulatory Compliance WG

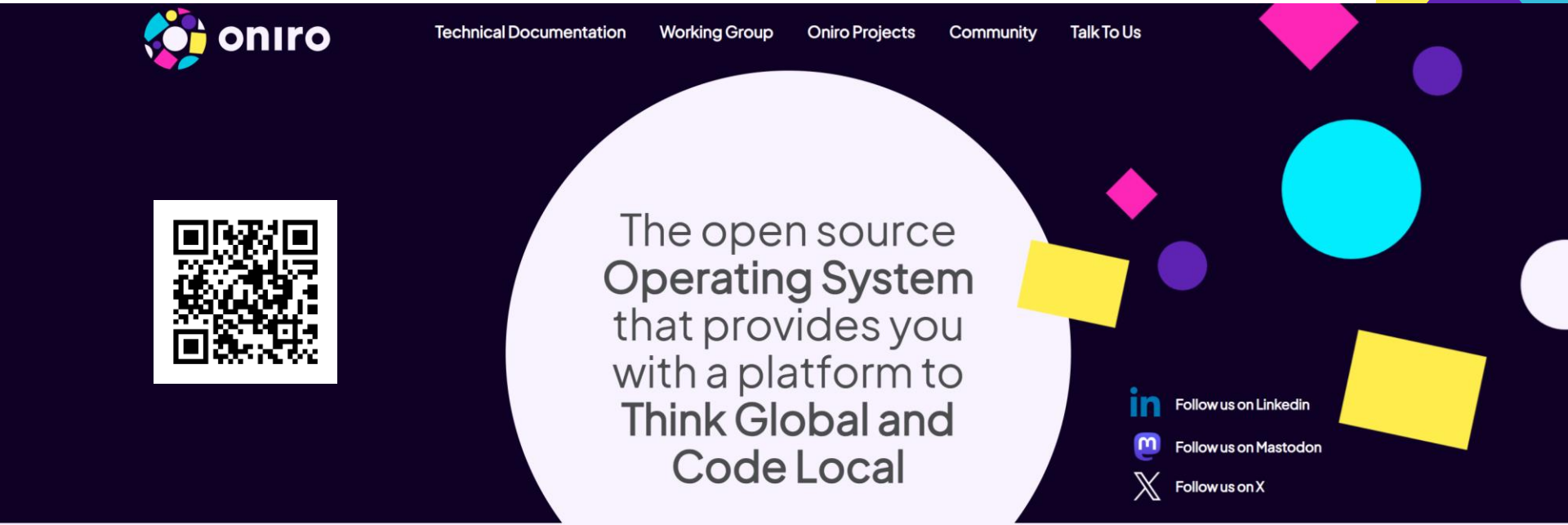
Capgemini · ARRAY · linaro · BOSCH · software mansion · HUAWEI · TECHPARK SÜDTIROL/ALTO ADIGE · TypeFox · FUTUREWEI Technologies · POLITECNICO MILANO 1863

European open source OS for European phone



- Providing European HW platform to developers
- Developed in collaboration with Volla company
- Offering to the community a device for building innovations
- Complements the already available development board

The Eclipse Foundation's Project and Working Group



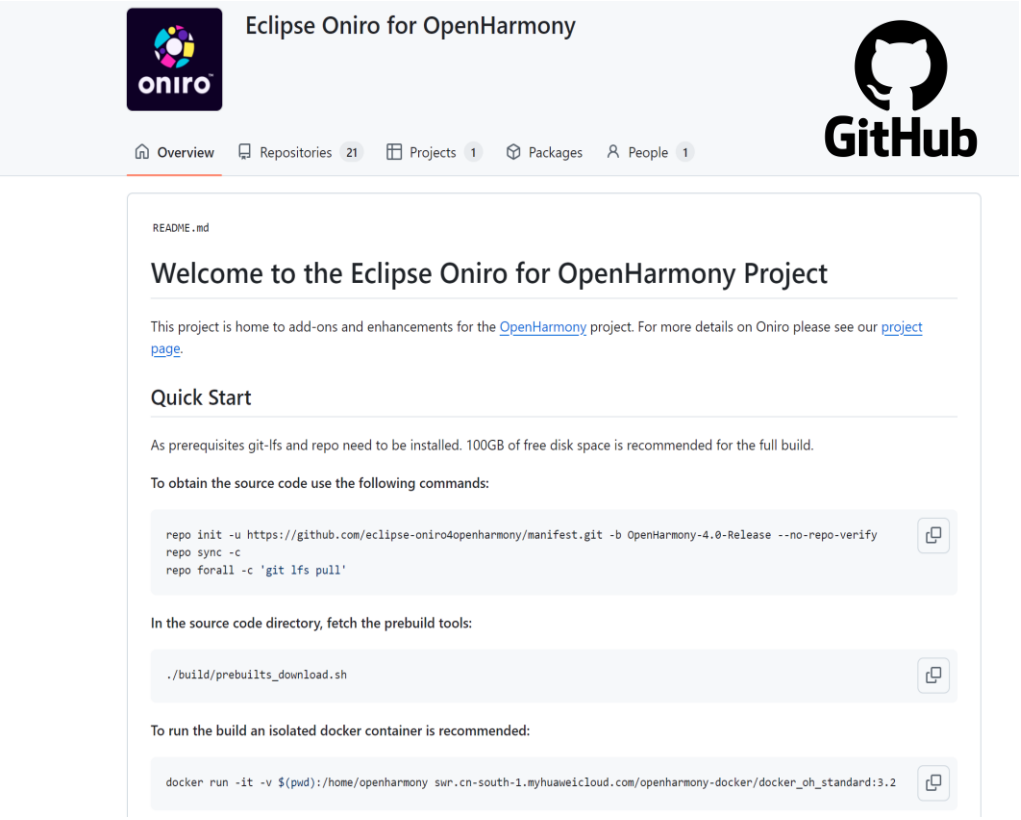
https://oniroproject.org/

The Oniro Platform

Oniro is an Eclipse Foundation Project dedicated to the development of an open source vendor-neutral Operating System (OS) platform. The Oniro Project was established through a collaboration between two global open source foundations: The Eclipse Foundation and The OpenAtom Foundation. Leveraging the solid foundation of OpenHarmony, an open source project operated by the OpenAtom Foundation, Oniro builds upon an operating system platform known for its versatility across a wide range of smart devices.

At its core, Oniro prioritizes seamless interoperability, modularization, and a visually appealing user interface. These priorities are realized through an array of enhancements,

Eclipse Oniro for OpenHarmony

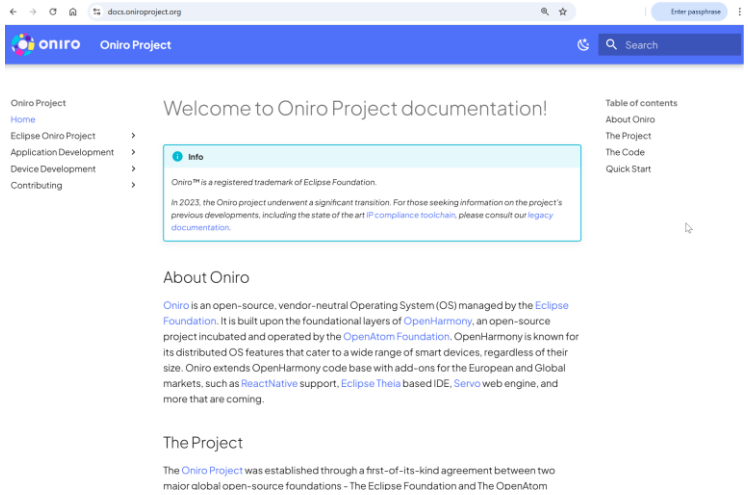


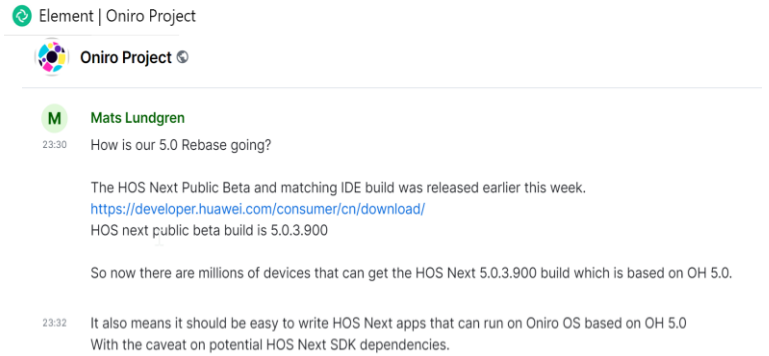
- The Eclipse Oniro codebase
- The code developed by the Oniro community

Think Global

Code Local

Oniro Documentation and Community Chat





matrix

Eclipse Oniro's Vibrant Community

- Oniro & OpenHarmony Workshops (Europe&China)
- Conference keynotes Mike Milikovich & prof. Haibo Chen
- Conference talks
  (OW2conf , GOSIM, OCX, esLibre, LinaroConnect, SFSCON)
- Conference booths
  (FOSDEM, EmbeddedWorld, OW2con, OSS, OCX, HCE, App.js, RustWeek)
- Webinars
- Community days (Oniro Community,Volla Community)








Thank you!

https://oniroproject.org