Open Source at CERN in 2025/2026

Report of Contributions

https://indico.cern.ch/e/ospo2025

Contribution ID: **2** Type: **not specified**

Welcome!

Thursday, 23 October 2025 14:00 (10 minutes)

Presenter: TENAGLIA, Giacomo (CERN)

Contribution ID: **3** Type: **not specified**

The Open Source Journey

Thursday, 23 October 2025 14:10 (25 minutes)

This talk will be a brief exploration of what open source is, why has it gained such phenomenal success in the last decade and what does this mean for open source? Why do both the private and public sector turn to it in our digitalised environments?

In a world of AI, geopolitics and Sovereignty what are the challenges and where does open source fit?

The audience will leave with a better understanding of open source today and the challenges it faces.

OpenUK CEO and Executive Producer State of Open Con, Amanda's 25 years'legal experience includes being instrumental in shaping open source's legal frameworks and internet law in 2000's. Sought-after international keynote speaker, tech press contributor and editor "Open Source: Law, Policy and Practice"(2022).

Recognition: Computer Weekly 50 Most Influential Women (2023, 2024) listed as #20 in 2024; Computing IT Leaders 100 (2023,2024,2025); Lifetime Achievement WIPL (2022); Women Who Will (2023); INvolve Heroes (2022, 2023); Novi Awards (2024); Raconteur 50 CEOs (2025).

Advisory: Boards -UK Open Standards Board; UKRI Digital Research Infrastructure; UKRI Exascale; KDE; Mimoto; Scarf; FerretDB and Space Aye; Fellow, Open Forum Academy; Distinguished Fellow, Rust Foundation; European Representative, OIN; Ambassador, Open Charge Alliance, Board Member Mojaloop Foundation and ITU Expert Network, Digital Innovation Board.

Project web page

Presenter: BROCK, Amanda (OpenUK)

Contribution ID: **4** Type: **not specified**

Empowering Public Sector Digital Sovereignty with Open Source

Thursday, 23 October 2025 15:00 (15 minutes)

ZenDiS - the German Centre for Digital Sovereignty - supports the public sector in building digital sovereignty through open-source solutions. This talk outlines how the openCode platform enables collaborative software development and sharing across public institutions, while openDesk provides an open, flexible workspace solution based on that shared code. Together, these initiatives demonstrate how coordinated open-source development can strengthen secure software supply chains, ensuring reliability and trust in the digital tools used by governments.

Project web page

Presenter: KUGLER, Leonhard (ZenDiS)

Contribution ID: **5** Type: **not specified**

Investing in the infrastructure of the 21st century

Thursday, 23 October 2025 14:40 (15 minutes)

Every modern digital technology—from AI to quantum computing—is built on open source software. When you send an encrypted email, collaborate on a document, or run a Python script, you're using foundational open source components. While open technologies have become the backbone of our digital infrastructure, these essential building blocks do not receive adequate support, investment, or even recognition.

The Sovereign Tech Agency addresses this through strategic public investment in the digital infrastructure of the 21st century. We focus on the essential building blocks that enable all software creation: programming language libraries, package managers, open communication protocols, developer tools, and encryption.

This talk will introduce the Sovereign Tech Agency and the programs it has developed to support these critical technologies: the Sovereign Tech Fund, which commissions work on critical open source components; the Sovereign Tech Fellowship, which provides effective support to essential maintainers; and the Sovereign Tech Resilience program, which takes a holistic approach to the security and stability of foundational technologies. These efforts ensure that individuals, organizations, companies, and governments have real choice and technological autonomy in an increasingly digital world.

Project web page

Presenter: GROH, Adriana (Sovereign Tech Agency)

Contribution ID: **6** Type: **not specified**

Building a sovereign system with Mistral AI

Thursday, 23 October 2025 15:40 (25 minutes)

This contribution presents the current Mistral ecosystem, the different offering of models, what's new, and then we will dive into the importance of Open-source and AI sovereignty, and general strategies to get more out of a specific GPU.

Project web page

Presenter: THOMAS, Joffrey (Mistral AI)

Contribution ID: **8** Type: **not specified**

OSPO 2025 and 2026

Thursday, 23 October 2025 16:45 (20 minutes)

Presenter: TENAGLIA, Giacomo (CERN)

Contribution ID: **9** Type: **not specified**

Feedback & discussion

Thursday, 23 October 2025 17:05 (30 minutes)

The OSPO needs your input: we do this for you, to help open-source projects. Please come with your ideas and concerns.
After the event, you can share your feedback by sending an email to Open.Source@cern.ch or at the forum.

Contribution ID: **10** Type: **not specified**

Adaptyst: modular architecture-agnostic performance analysis tool

Thursday, 23 October 2025 16:38 (7 minutes)

Adaptyst is a novel open-source performance analysis project started at CERN as part of the SYCLOPS EU-funded project, currently in an early development phase with the ambitious roadmap for the next few years. The ultimate goal of the tool is using both static and dynamic methods to suggest the most optimal compute solution performance-wise (latency, throughput, energy efficiency, budget cost etc.) for a given workflow and requirements while considering all sides of computation (software, hardware, storage, networking etc.) regardless of whether this is embedded/edge, high-performance, distributed/WLCG, custom computing, or a combination of thereof.

Thanks to its modular design, Adaptyst can integrate existing work such as profilers and has potential of addressing users' software, hardware, and system performance needs in a future-proof way. The tool currently concentrates on profiling and already supports all CPUs running Linux (thanks to the linuxperf module), with the support of NVIDIA GPUs and bare-metal software running on SoC's coming soon.

In light of the fragmentation of performance analysis tools and increasing computing requirements at CERN at all levels due to e.g. HL-LHC upgrades, the project may become useful for various use cases in different parts of the Organisation.

Project web page

https://adaptyst.web.cern.ch

Author: GRACZYK, Maksymilian (CERN)

Presenter: GRACZYK, Maksymilian (CERN)

Session Classification: CERN Community projects

Contribution ID: **11** Type: **not specified**

OpenPHIGS: How an enthusiastic game developer accidentially helped to save LEP data

Thursday, 23 October 2025 16:10 (7 minutes)

Event displays are an excellent tool to visualise HEP events, for physicist but also for outreach. In the old days,these 3d visualisation tools were a challenge, and thus some experiments decided to use a commercial closed source back-end solution. This talk tells the story of how a little open source project of an enthusiastic game developer
helped to resurrect these useful tools for two of the LEP experiments.

Project web page

https://github.com/cern/openphigs

Author: Dr SCHWICKERATH, Ulrich (CERN)

Co-author: SCHROEDER, Matthias

Presenter: Dr SCHWICKERATH, Ulrich (CERN)

Session Classification: CERN Community projects

Contribution ID: **12** Type: **not specified**

A lib to Integrate OpenAPI Generator into CERN React Apps

Thursday, 23 October 2025 16:17 (7 minutes)

At CERN's Business Computing Group, we're developing a large-scale React UI for one of CERN's biggest business applications.
Integrating OpenAPI Generator into React brings clear benefits, but the process isn't always straightforward.
With no official guidelines or common patterns, developers often create their own strategies to integrate OpenApi Generator into React apps, which can lead to common pitfalls like excessive boilerplate and inefficient memory usage.
To address this, we built an open source React library that wraps and optimizes OpenAPI-generated clients using a custom hook, making a better use of memory and streamlining API calls.
In this talk, we'll share the challenges we faced, the mistakes we learned from, and how our open source solution helps making OpenAPI Generator work better in React applications, improving performance, maintainability, and the developer experience.

Project web page

https://github.com/CERN/react-openapi-generator-hook

Author: MARZO, Stefano (CERN)

Presenter: MARZO, Stefano (CERN)

Session Classification: CERN Community projects

Contribution ID: **13** Type: **not specified**

PixESL v1.0: An Open-Source Virtual Prototype Framework for Detector Electronics

Thursday, 23 October 2025 16:24 (7 minutes)

PixESL is an open-source virtual prototyping platform developed at CERN for the design and simulation of pixel detector electronics. Built in C++/SystemC, it enables realistic modeling of detector ASICs used in High Energy Physics experiments—from sensor signal generation to data readout. By allowing rapid and high-level exploration of detector architectures, PixESL accelerates development, aids verification, and improves collaboration between simulation and hardware design teams.

Project web page

https://gitlab.cern.ch/iod/pixesl-group/pixesl-project-template

Authors: CERESA, Davide (CERN); BRAMBILLA, Francesco Enrico (KU Leuven (BE)); DHALIWAL, Jashandeep (CERN); ZAHEDI, Mahdi

Presenter: ZAHEDI, Mahdi

Session Classification: CERN Community projects

Contribution ID: **14** Type: **not specified**

CERNBox, CERN's cloud collaboration storage platform

Thursday, 23 October 2025 16:31 (7 minutes)

CERNBox is an open-source cloud storage platform designed to serve the entire CERN community. Since its launch in 2014, the service has grown to manage more than four billion files and support over 8,000 daily users. Its open-source nature has enabled adoption by partner institutions such as the University of Paris-Saclay and the University of Vienna. Recent developments improved CERNBox's federation capabilities, leading to the implementation of the latest Open Cloud Mesh Protocol specification.

Project web page

https://cernbox.web.cern.ch, https://github.com/cs3org/reva

Authors: CASTRO, Diogo (CERN); Dr LO PRESTI, Giuseppe (CERN); GEENS, Jesse; WELANDER, Rasmus Oscar; PAVAO COFFANI NUNES, Rodrigo (CERN)

Presenter: WELANDER, Rasmus Oscar

Session Classification: CERN Community projects