# Newsletter

**OPEN AIR interface**

We are pleased to present the latest edition of our OAI Summer Newsletter, featuring updates, recent achievements, and upcoming events.

As we continue to move forward together, our community remains strong and dynamic, and we're excited to share these developments with you. For insights into OAI RAN, Core, and OAM, keep reading.
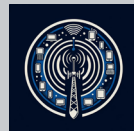
## New Members

### Strategic Member:

Open Cells Project

### Associate Member:

cohere technologies

## OAI Team:

**Shubhika Garg**
Test and Development Engineer

Welcome to our new teammate!

## Summer 2025 Workshop: The OpenAirInterface Path to AI-Driven 6G

Welcome to Ericsson

The OAI Summer Workshop took place on May 21–22 at Ericsson's headquarters in Kista, Sweden. The event gathered experts, developers, and researchers to discuss how OAI can support 6G and AI-driven networks. With presentations, demos, and exchanges, the workshop helped shape OAI's roadmap toward an AI-native 6G reference implementation. We thank Ericsson for hosting this OAI workshop at the heart of cellular innovation.

# OAI RAN

## Recent Developments for Handover

Handover has been discussed a couple of times in this newsletter, and basic handover support has been part of OAI for almost a year now. During this time, the OAI team has continued to extend the features. We are happy to announce that support for N2 handover will soon be merged into the OAI codebase. As with the existing F1 handover, interested readers will be able to try it out in OAI's RF-simulator environment, meaning no radio hardware is required to experiment with this functionality. For more information, the existing handover tutorial will cover the steps to reproduce an N2 handover. Additionally, to ensure these features remain functional, the CI tests both N2 and F1 handovers daily using RFsim. Of course, these features work across all splits supported by OAI. To further improve interoperability with COTS UEs, we have also implemented support for measurement gaps and verified inter-band handovers. A new CI test bench with tunable attenuators has been added to validate these COTS UE scenarios more thoroughly.

## LDPC Offload into Intel ACC20

Offloading demanding PHY functions, such as LDPC decoding, to dedicated accelerators reduces CPU load, improves energy efficiency, and delivers the performance required for advanced use cases. Building on the successful integration of LDPC processing offload with the AMD T2 accelerator card, we have redesigned the LDPC offload interface to align with the Accelerator Abstraction Layer (AAL) defined by the O-RAN Alliance, enabling support for other DPDK BBDEV lookaside accelerators. This approach ensures interoperability and flexibility across different hardware platforms. The new implementation has been validated with AMD T2, Intel ACC100, and ACC200 accelerators. Additionally, we have begun testing LDPC offload in over-the-air, high-throughput setups within our CI framework. These results demonstrate how open-source RAN software, combined with state-of-the-art hardware acceleration, can deliver scalable, high-performance, and energy-efficient 5G solutions.

## Support for FAPI and nFAPI Between OAI L1-L2

The Small Cell Forum's (SCF) FAPI split enables enhanced disaggregation, separating the Layer 1 (L1) PHY functionality from Layer 2 (L2) functionality, such as scheduling and radio resource management. In the past, we integrated and continue to support the NVIDIA Aerial L1 in-line accelerator, which exchanges data using the SCF FAPI split.

This year, the OAI team completed the integration of the FAPI and nFAPI splits between the OAI L1 and L2 functions. Specifically, we integrated the Intel WLS library to allow L1 and L2 to run as distinct processes. This enables further interoperability testing with other vendors' hardware and software. Furthermore, the integration of the nFAPI split allows L1 and L2 to operate across different machines, demonstrating OAI's versatility regarding split support.

In both cases, all OAI features (such as multi-layer transmission and support for various bandwidths) remain fully supported, along with other splits and offload functionality. This was also demonstrated at MWC 2025 earlier this year, where we showcased the nFAPI split alongside all other supported split and offload functionality at Gigabit speeds.

### New Features in Non-Terrestrial Networks

Support for Non-Terrestrial Networks (NTN) remains a hot topic in the development of cellular networks, enabling 5G services via satellites. We previously reported on initial features within the OpenAirInterface (OAI) RAN stack enabling communication over geostationary (GEO) satellites in last year's 2024 summer newsletter. These features allowed us to simulate a satellite remaining at a fixed distance and altitude above the Earth, with both the gNB and UE extended to support such connections.

Since then, several partners, led by Fraunhofer IIS, have further developed the NTN feature set. Most notably, work has been completed to support low-earth orbit (LEO) satellites, which move quickly across the Earth and require additional signaling and tracking from both the gNB and UE. It is now possible to simulate such channels within OAI's RFsimulator, and the gNB and UE support the necessary 3GPP features. Interested users can find documentation as part of the general RAN documentation, and NTN features for GEO and LEO satellites are continuously tested in our CI.
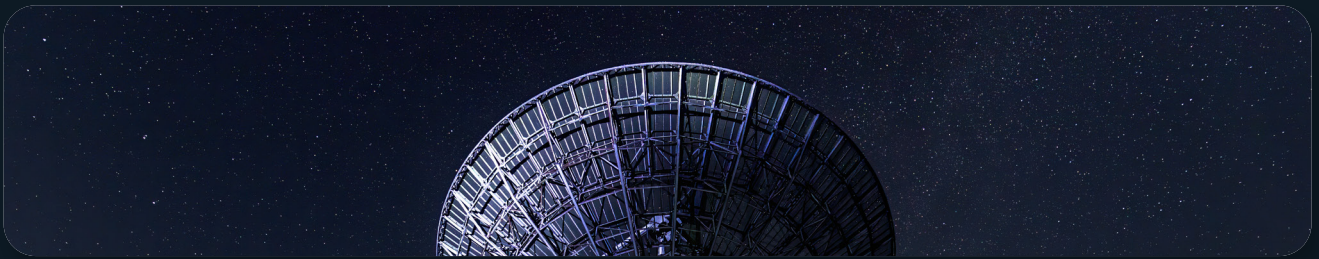


# OAI CORE NETWORK

**Improving Code Quality and Enhancing Functionality of the 5G Core Network**

We focus our development efforts on two key areas: the continuous improvement of the OAI 5G CN codebase and the integration of new, critical features.

- **Code Quality and Stability:** We are committed to continuously optimizing and simplifying the code to enhance the stability, robustness, and maintainability of the OAI 5G CN. This ongoing work is vital for supporting future developments in 5G Advanced and 6G.

- **New Feature Development:** We are actively integrating new features to expand the capabilities of the OAI 5G CN. Key features include:
  * End-to-End QoS Support for both the control and user planes;
  * Ethernet PDU Session Support, which is essential for TSN applications;
  * Support of Framed Routing;
  * Enhanced Interoperability: Conducting extensive interoperability tests and implementing fixes to ensure the main OAI CN components (AMF, SMF, UPF) can seamlessly function with other open-source CN solutions. It provides end-users with the flexibility to create a customized CN by mixing components from various providers.
  * 3GPP Release Alignment: Updating the Service-Based Interface (SBI) to conform with 3GPP Release 17 specifications, with plans for a future update to Release 18.

## OAI CN Version 2.2.0: Coming Soon

We are excited to announce the upcoming release of OAI CN Version 2.2.0, arriving one year after our last major release. The primary goal of this release is to significantly improve the overall quality and performance of our 5G CN. Key highlights include:

- **Enhanced Stability and Reliability:** We have focused on improving the stability of core network functions and enhancing the quality of the codebase. This release also incorporates numerous bug fixes reported by end-users, making the OAI CN more stable and compatible with a wider range of COTS UEs.
- **New Features**: This release introduces critical new features, including Quality of Service (QoS) support for both the control and data planes, support for framed routing, and support for Ethernet PDU session (for TSN applications).
- **Performance Breakthrough:** We are introducing a brand-new User Plane Function (UPF) that leverages eBPF/XDP, providing a significant boost to user-plane performance.
- **Enhanced User Experience:** We have made improvements to make the OAI CN more intuitive and user-friendly.

OAI CN v2.2.0 is a valuable step forward in delivering a more robust, feature-rich, and high-performance Core Network solution

# OAI OAM

## Update on FlexRIC

We have successfully integrated the contribution developed by the winners of the Spring of Code hackathon. This enhancement introduces the E2SM-RC extension of REPORT Service Style 1, enabling subscription to and reception of:

- RRC Messages (DL/UL-DCCH)
- UE IDs

These updates are now available in both the OAI RAN and FlexRIC repositories. Additionally, we have extended xApp functionality to support flexible runtime durations, improving usability across different deployment scenarios.

## M-Plane Integration in OAI 7.2 Split

We have successfully integrated the Fronthaul Management Plane into the OAI source code, delivering support for start-up procedures, configuration management, and performance management between the OAI DU (nr-softmodem) and commercial RUs.

The initial implementation was based on M-plane v05.00, and we have since upgraded to M-plane v16.01. The integration has been extensively validated with Benetel RUs, demonstrating robust operation across both 40 MHz and 100 MHz bandwidths, multiple MIMO configurations (including 4x2 and 4x4), as well as a multi-RU deployment that enables an 8x8 distributed antenna array. Furthermore, the performance management implementation provides comprehensive monitoring of RU fronthaul counters, ensuring seamless communication.
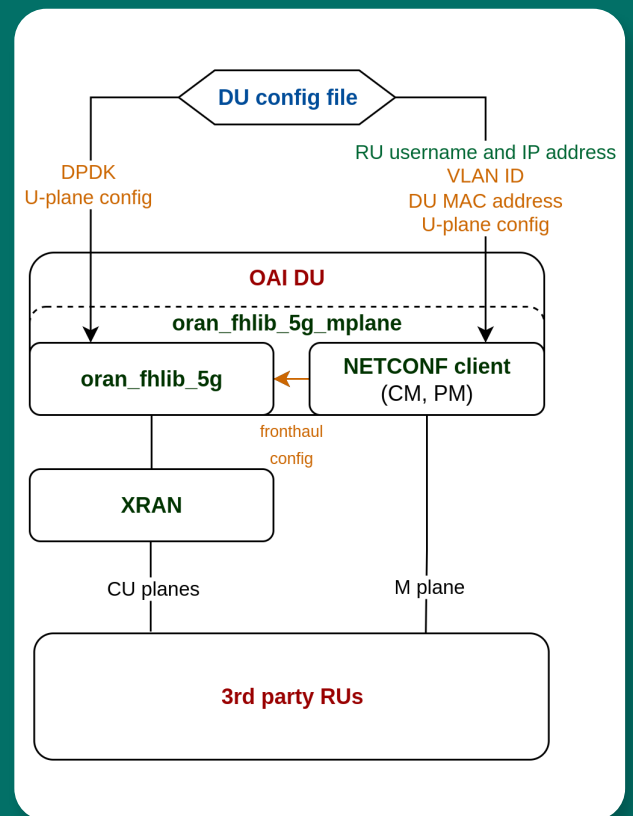


# OAI EVENTS

## LF Networking and OSA Collaborate to Announce Duranta to Advance Open Source RAN Innovation

We are pleased to announce that the Linux Foundation Networking (LFN) and OpenAirInterface Software Alliance (OSA) are collaborating through a new incubation project at LFN called Duranta, an initiative designed to advance open-source RAN innovation.

Through Duranta, OSA is supporting the long-standing 5G Superblueprint goals of LFN. Thanks to OAI software, the community (particularly industry players) now has access to a complete cellular stack, including integration with LFN's Nephio for CNF deployment and automation.
OSA invites LFN members and new companies to participate by supporting its RAN stack development and radio CICD expertise. This collaboration will strengthen industry alignment within Duranta, enable the delivery of mature, deployment-ready open RAN solutions, and continue to foster academic and research collaborations that are central to evolving the CU/DU stack towards 6G.

Read the Press Release here.
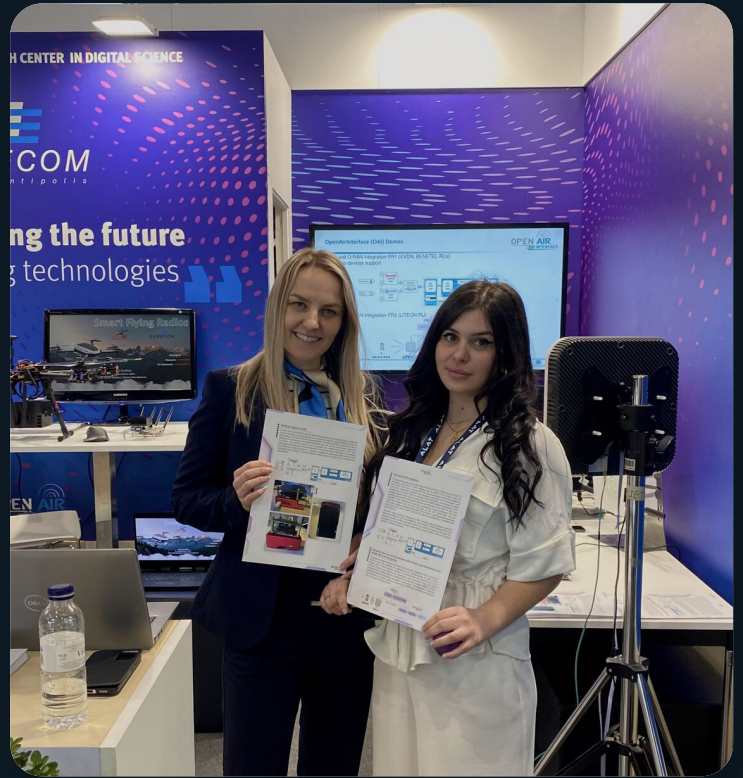
## Mobile World Congress (MWC) Barcelona 2025

In March, the OpenAirInterface team participated in MWC Barcelona 2025, presenting three demonstrations that showcased our recent advancements in open-source 5G and O-RAN. These included OAI and O-RAN integration, the deployment of open-source 5G mmWave with LiteOn FR2 O-RU integration, and RedCap support in OAI.

## OAI at the OSCAR Workshop

OpenAirInterface participated in the first edition of the OSCAR (Open-Source Core, Applications and RAN) Workshop, organized by 5G-MAG on June 12, 2025. The event brought together representatives from several open-source mobile network projects to present their work and explore synergies across core networks, RAN, applications, orchestration, and testing tools. OAI was represented by several contributors across the program. Robert Schmidt (presentation of OpenAirInterface), Tien-Thinh Nguyen (OAI 5G Core), Jaroslava Fiedlerova (OAI RAN), and Teodora Vladic (OAI OAM). The OSCAR workshop is a 5G-MAG initiative aimed at strengthening collaboration across open-source projects supporting mobile network development.

## O-RAN Alliance Global PlugFest Spring 2025

In May, OpenAirInterface demonstrated the configuration and partial performance management of the Metanoia O-RU through the OAI 7.2 CUSM interface. Using the NETCONF protocol, the OAI gNB established a connection with the O-RU, retrieved its capabilities, subscribed to notifications, and performed CU-plane configuration along with performance measurements. With the O-RAN SC fronthaul library configured from the O-RU information, the system seamlessly completed the setup, enabling packet exchange once the O-RU was ready. This confirmed that the OAI gNB can configure the O-RU via the fronthaul M-plane without requiring manual intervention.

## O-RAN F2F Meeting in Paris

In February, OpenAirInterface show-cased two live demonstrations. The first highlighted the integration of the OAI stack with the O-RAN O1 interface and E2 support, featuring ONAP-based RAN management and FlexRIC for near-real-time control and performance monitoring. The second focused on OAI and O-RAN integration, demons-trating interoperability with commercial O-RUs through the 7.2 CUSM interface, O-RAN FHI library, AMD hardware ac-celeration, and multiple split options. These demos highlighted OAI's pro-gress in 5G and O-RAN, showcasing seamless configuration, management, and high-throughput performance in open-source RAN deployments.





## First OAI Foundation U.S. Hands-on Workshop

The OpenAirInterface (OAI) Foundation will host its first U.S. Hands-on Workshop from November 17–19 at the University of Texas at Austin.

The event will begin with a day of presenta-tions, featuring keynotes from industry and academia, panel discussions, technical talks, and demonstrations of recent OAI develop-ments. The following two days will be dedi-cated to hands-on training sessions, during which participants will work directly with OAI technical leaders to deploy and confi-gure software components, test use cases, and engage in technical exchanges.

This workshop is designed for developers, contributors, and students interested in working with OAI code and gaining prac-tical experience with 5G, 6G, and AI-native networks.



First OAI Foundation U.S. Hands-on Workshop
17-19 November 2025
University of Texas at Austin



- **Workshop program** _here_
- **Book your ticket** _here_