Moving Europe towards a sustainable □ and safe railway system without frontiers.

Agenda Rail Data Forum 2025

The 2025 Rail Data Forum is set to take place from 11 to 13 June in Cluj-Napoca, Romania.

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The conference agenda presented here is still a work in progress and may be subject to change. Click here to register for the conference (**registration closes on 2 June at 23:59 Brussels**

time/UTC+2). For any questions, please contact raildataforum2025@era.europa.eu.

08:30 - 09:00

Registration

09:00 - 09:15

Welcome

09:30 - 12:00

Workshops

Please choose between 1 Workshop and/or a Masterclass.

Workshop 1

Practical Data Consumption

Take your SPARQL skills to the next level in this advanced workshop designed for practitioners who already grasp the basics and are ready to explore the full power of querying RDF data. This session will focus on complex query patterns, complex optimization techniques, reasoning, and real-world scenarios using data from ERA Knowledge Graph.

Participants will engage in hands-on exercises to practice advanced features like property paths, subqueries, aggregates, and federated queries using ERA Knowledge graph endpoint. You'll also explore strategies and tips for query performance tuning, working with named graphs, reference data from other sources (e.g., Publications office endpoint).

Pre-requisite: knowledgeable of RDF or semantics or have registered previously to the master class on 'SPARQL for Beginners'.

Speakers

[Ghislain Atemezing](#)

[ERA](#)

[Jerónimo Padilla](#)

RailNetEurope

Luka Kalezić

RailNetEurope

Amine Chakir

SNCF Réseau – Route Compatibility Department

Workshop 2

Railway Data Modelling

This workshop will introduce participants to the principles and practices of data modelling and ontology engineering in the railway domain, supporting the development of interoperable, machine-readable data ecosystems aligned with EU digital rail initiatives. As the sector advances toward data-driven principles, semantic modelling becomes essential to represent complex railway infrastructures, positioning and location through the rail topology in a consistent manner. The railway infrastructure register will be an example to showcase how the micro-level was derived and integrated into the latest version of ERA ontology.

In this hands-on workshop, participants will explore the fundamentals of railway infrastructure data modelling using ontologies. This workshop will introduce how semantic technologies can be used to structure, integrate, and reason over complex railway infrastructure data.

By the end of this workshop, you'll be equipped to understand the key concepts and modelling choices of the ERA ontology, railway data in a way that is machine-readable, semantically rich, and ready for data-driven innovation in smart rail (infrastructure) systems.

No prior ontology experience required — just a curiosity for data, ontology and railway domain.

Speakers

09:30 - 10:30

Masterclasses

Please choose between Workshops and Masterclasses.

Masterclass A

Semantics for Beginners

Step into the world of meaning-driven data with this beginner-friendly master class on semantics. This session demystifies the key concepts behind semantic technologies and how they power the modern web, intelligent systems, and knowledge graphs. You'll learn how semantics help structure and interconnect data in ways that machines can understand — going beyond keywords to concepts. Through interactive examples and visual explanations, we'll introduce foundational ideas like ontologies, vocabularies, Resource Description Framework (RDF), and the Semantic Web stack, all without requiring a technical background.

Speakers

Pierre-Antoine Champin

W3C / Inria

Masterclass B

SPARQL for Beginners

Dive into the world of the Semantic Web with this hands-on masterclass designed for beginners eager to learn SPARQL, the query language of RDF data. This session will guide you through the foundations of Linked Data and how to extract meaningful insights using SPARQL.

Participants will explore real-world datasets, learn the basic structure of SPARQL queries, understand RDF triples, and get comfortable querying public knowledge graphs such as ERA Knowledge Graph, Reference data at Publications Office.

No prior experience with SPARQL or Semantic Web technologies is required — just a curiosity for data and a desire to learn!

Speakers

Vladimir Alexiev

GraphWise

Masterclass C

Data Transformation (RDFisation)

This master class offers a deep dive into the construction of RDF knowledge graphs using declarative mapping languages such as RML (RDF Mapping Language), YARRRML, and

other W3C-aligned technologies. The session will emphasize on scalable, reusable, and maintainable methods for transforming heterogeneous data sources into linked, machine-readable RDF graphs. Participants will explore the full lifecycle of knowledge graph creation — from understanding source data structures (CSV, JSON, XML, relational databases) to writing and executing mappings that produce semantically rich RDF output. Through guided hands-on exercises and real-world examples, you will gain practical experience in aligning data with vocabularies and ontologies, and publishing it as Linked Data.

Speakers

Ben De Meester

IDLab, imec - Ghent University

10:30 - 11:00

Coffee break

11:00 - 12:00

Masterclasses

Please choose one Masterclass

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Speakers

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IDLab, imec - Ghent University

12:00 - 13:15

Lunch break

13:15 - 14:00

Opening: Keynote Speeches

Speakers

Oana Gherghinescu

ERA

MI

Mariana Ioniță

Romanian Ministry of Transport and Infrastructure

14:00 - 15:40

Session 1: Digitalisation in the Railway Domain

Towards a harmonised topology provision for RBC configuration with CCS TMS ERA ontology extension

Speakers

Ralph Müller

DB InfraGO

Micro-Level modelling in ERA ontology

Speakers

Ghislain Atemezing

ERA

Infrastructure Managers as data innovators

Speakers

RC

Rémi Collet

Infrabel

LO

Linnea Olsen

Bane NOR

SS

Shahrom Hosseini Sohi

Research Associate ÖBBxWU Vienna

Train Information System for efficient operations

Speakers

15:40 - 16:10

Coffee break

16:10 - 17:50

Session 2: Advancing digital ticketing

Towards interoperable ticketing in railway

Speakers

EB

Einar Bjørkevoll

ENTUR

EU policy on rail ticketing

Speakers

17:50 - 18:00

Day 1 Closure - Concluding words

Speakers

CC

Chris Carr

ERA

18:00 - 19:30

Cocktail reception

08:30 - 09:00

Welcome - Day 2 Opening

09:00 - 10:30

Session 3: Who needs Interoperable Data Anyway? Efficiency and practical implementation

Service Function Diagnostics & Data Sharing

Speakers

KK

Karl-Albrecht Klinge

Europe's Rail

Asset management - Connecting systems

Speakers

MP

Matti Pesu

Finish Transport Infrastructure Agency

Rail Data from Ontology to Daily Use - Best practices derived from European and Worldwide projects

Speakers

10:30 - 11:00

Coffee break

11:00 - 12:30

Session 4: The Future for Mobility Data in the European Union

European Mobility Dataspace

Speakers

CJ

Coen Janssen

European Commission (DG CONNECT)

Capacity & Traffic Management

The Data Act & Interoperable Europe Act

Speakers

12:30 - 13:30

Lunch break

13:30 - 15:15

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GraphWise

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Speakers

Ben De Meester

IDLab, imec - Ghent University

Masterclass D

Telematics for Beginners

This workshop offers a foundational overview of the European Union's Telematics Applications for Freight (TAF) and Telematics Applications for Passengers (TAP) Technical Specifications for Interoperability (TSI). The session will demystify how these specifications enhance data exchange and operational efficiency across European rail networks. The workshop will emphasize on how standardised data exchange improves interoperability between

different rail stakeholders.

Speakers

15:15 - 16:00

Coffee break

16:00 - 17:45

Workshops

Please choose one Workshop

Workshop 3

The problem of positioning in railways - how can ontologies contribute to its solution

The workshop will mainly deal with the generic concept for locating railway infrastructure in micro, meso and macro level of detail and additionally, ontology as a tool for validating and verifying this concept (e.g. for Railway infrastructure ...).

This workshop is addressed to interested parties that want to bring railway infrastructure description into digitalised standardised format using topology models (e.g., ERA ontology) and markup languages (e.g., railML).

Speakers

LZ

Larissa Zhuchyi

railML

Workshop 4

Data Validation

As data quality becomes mission-critical in digital ecosystems, this workshop focuses on how semantic technologies can be used to validate data effectively and declaratively. Participants will explore how RDF data can be validated using technologies like SHACL (Shapes Constraint Language) and SPIN, enabling consistency, compliance, and interoperability in knowledge graphs and Linked Data applications.

Through hands-on examples, this workshop will teach participants how to define constraints on data models, detect errors or inconsistencies, and integrate validation into data pipelines — all using semantic web standards.

Speakers

Veronika Heimsbakk

Capgemini

JL

José Emilio Labra

Universidad de Oviedo

Workshop 5

Linked Data supporting Vehicle Authorisation

This hands-on workshop explores how Linked Data and Semantic Web technologies can streamline and enhance the railway vehicle authorization process across borders and systems. Aimed at professionals in rail transport, regulatory bodies, and data engineering, the session focuses on applying RDF, ontologies, and Linked Data principles to model, share, and validate vehicle data in alignment with EU Rail interoperability regulatory frameworks.

Participants will learn how to represent key vehicle characteristics, compliance documentation, and authorization workflows using semantic models, improving data interoperability, traceability, and machine-readable compliance checks.

Speakers

MD

Maarten Duhoux

ERA

Philipp Wachsmuth

Siemens Mobility GmbH

Workshop 6

Digitalisation of Driver/Signaller communication

This workshop focuses on the digital transformation of Driver–Signaller communication in the railway sector, a critical area for enhancing safety, efficiency, and interoperability across rail networks. As part of broader efforts in railway digitalisation, the session explores how structured data, semantic technologies, and communication standards can modernise traditional voice-based exchanges.

Participants will examine how communication events can be digitised, modelled, and validated — enabling better traceability, automation, and integration with operational systems such as traffic management, safety reporting, and driver advisory platforms.

Speakers

 Workshop 7

Dynamic digital timetable for rail services in the Union

This workshop explores the vision, challenges, and technical enablers of implementing dynamic digital timetables for rail services across the European Union. As mobility becomes more data-driven and passenger expectations evolve, the rail sector must move to deliver a real-time, interoperable, and machine-readable timetables that support seamless journey planning, operational efficiency, and multimodal integration.

Participants will learn how semantic technologies, Linked Data, and European standards can support the creation, distribution, and querying of dynamic timetable information — enhancing transparency and enabling innovation across national systems.

Speakers

17:45 - 18:00

Closing remarks

19:00 - 22:30

Networking dinner

08:30 - 08:45

Opening remarks day 3

08:45 - 10:30

Workshop feedback
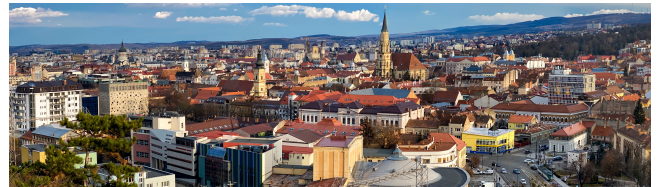
10:30 - 11:00

Coffee break

11:30 - 12:00

Concluding remarks and Conference Closure

Related links

- Rail Data Forum 2025

Cluj-Napoca, Romania

Source URL: *https://www.era.europa.eu/agenda/agenda-rail-data-forum-2025*