

1 Publishable summary

Accurate and up-to-date safety related road network attributes are particularly important for safe driving along the European road network. With ADAS systems becoming technically and commercially feasible, high quality map content becomes a prerequisite for their success.

Providers of digital maps for in-vehicle applications continuously update their map databases, by driving the roads and using a multitude of sources of information. Today, map database updates are typically delivered as full map updates, e.g. once every quarter on CD or DVD. In the future this is expected to evolve towards instantaneous incremental updating, which means that changes to the map database are provided by subscription broadcast and are integrated in the vehicle into the map database. When this becomes reality, also the provision of incremental updates to the map providers (and other users of such data) would be required, especially of safety related road attributes that concern traffic regulations and traffic signs. As public authorities are creating the changes of these road attributes, they would also be the most efficient source of such changes.

The Digital Maps Working Group of the eSafety Forum investigated this subject and has recommended in its Final Report³ to develop a closer cooperation between public road authorities and map providers for the provision and maintenance of road safety attributes. ROSATTE builds on the conclusions of the Working Group and aims to provide a significant contribution to implementation of the recommendations of the eSafety Forum.

Public/private cooperation key for quality updates

As shown in Figure 1, ROSATTE aims at establishing an efficient and quality ensured data supply chain for relevant core geographical data from public road authorities to commercial map providers with regards to safety related road content. The data provision chain addressed by ROSATTE concerns the flow of relevant attribute data from the road authorities to data users, who then integrate and aggregate the data. A major topic of the ROSATTE project is the design and development of an integrated set of flexible and interoperable tools for digital storage and maintenance of road attribute data by data providers (mainly public road authorities), for data exchange, and for data integration on the side of data users (mainly map providers). The road safety attributes will be processed further into suitable services to the end user. However, this processing is not within the scope of the ROSATTE project as the grey area in figure 1 illustrates.

Special attention will also be given to data availability and accessibility, data quality, and organisational aspects.

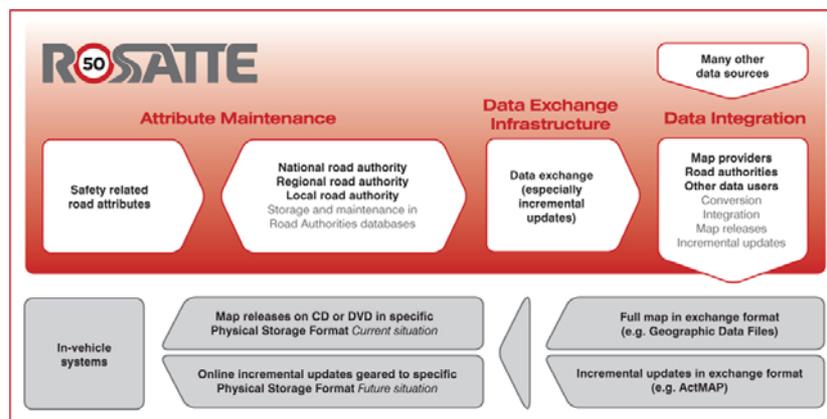


Figure 1 – Focus of the ROSATTE project

³ Digital Maps Working Group, eSafety Forum, "Final Report", Brussels, November 2005.

The project focuses on legal speed limits and traffic sign information as these both show the highest safety relevance and represent a real challenge in terms of maintenance. However, the developed specifications shall be equally applicable to any other ADAS attribute in real life situations.

ROSATTE at work

After defining functional, technical, quality and organisational requirements, common specifications for data maintenance and delivery tools and mechanisms are to be developed in the ROSATTE project. Tools to enable the exchange of safety attribute data between road authorities and potential users will then be implemented.

The effectiveness of the developed infrastructure and tools will be tested at field sites in Belgium, France, Germany (Bavaria), the Netherlands and Sweden/Norway. It is foreseen that fully automatic and timely integration of a specific set of attributes into pan-European digital map databases will be realised and demonstrated within these tests. The project partners prepared D5.1 which presents the test and validation activities in details. The ROSATTE consortium also intends to evaluate the expected public and commercial benefits for data providers and users, and to develop a deployment roadmap to promote the future exploitation of the project results across Europe.

During the first year of activities, the consortium focused on WP1 activities which mostly included carrying out a survey to identify the state-of-the-art regarding how safety related data is stored, exchanged, and updated in European countries and defining common requirements and an overall architecture. Two deliverables (D1.1 State-of-the-art and D1.2 Requirements and overall architecture) were released in September 2008.

The state-of-the-art survey has shown clearly the heterogeneous stages in road database development and in safety attributes storage. Few road authorities own a well developed road database with safety attributes integrated in the database. Most others have just started to create a database or to store safety attributes. As a consequence, differences occur between countries in the number of safety attributes available in databases. Great variations are also revealed by this survey concerning the percent of roads covered by safety attributes in databases and the degrees of safety data quality in general.

The requirements and overall architecture were defined taking into account external factors such as the INSPIRE directive, EuroROADS, and other projects and initiatives that were used as guides in the process of identifying requirements. The overall architecture is made up of functional viewpoint, information viewpoint, process viewpoint and component viewpoint, giving an overall view of the envisioned system.

Some detailed use needs described in use cases were derived from the definition of the actors involved and the data flow between them.

The relevant users and roles, and the connection between them, are shown in the figure below.

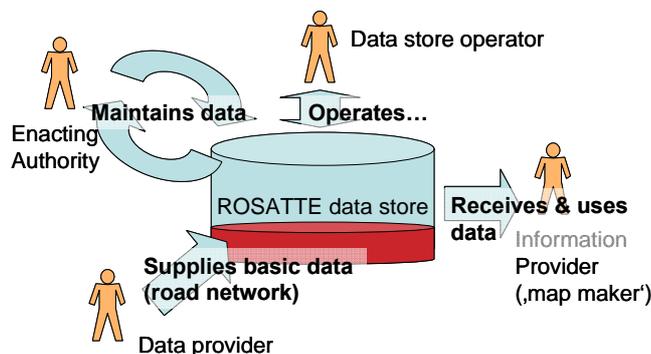


Figure 2 – Overview of roles identified within ROSATTE

The overall use case presented in the use case diagram in Figure 3 shows the three main areas of the ROSATTE infrastructure. These are *Maintain attributes*, *Exchange attributes* and *Integrate attributes*.

- The *Maintain attributes* concerns the initiation of the Data store, the data import, the maintenance of attributes, and the quality management of road safety attributes up until the point where they are published. In addition, reception of feedback is a part of this use case scenario.
- The *Exchange attributes* composite use case is concerned about the actual exchange procedures and services involved in the road safety attribute exchange process. Three services are defined and these are described in more detail in sub use cases.
- The *Integrate attributes* composite use case concerns the location of road safety attributes and integration of them at the Information provider side.

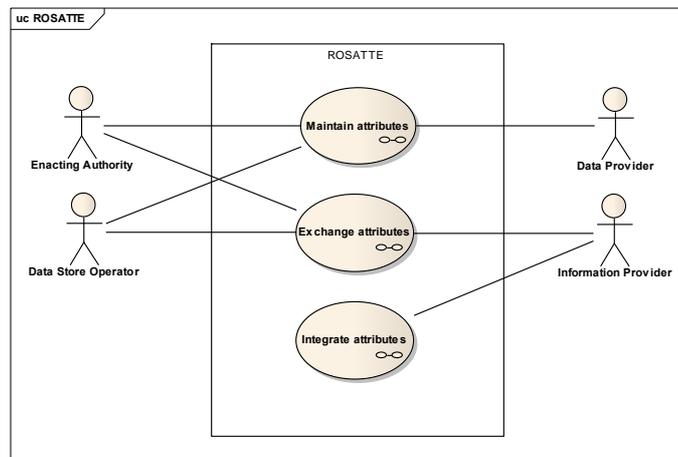


Figure 3 – ROSATTE top-level use case

Partners are currently working hard to refine the identified use cases and define specifications for data storage, exchange and integration. Specifications on how to establish a data store compliant with ROSATTE were released in the first quarter of 2009. Some discussions are still ongoing to finalise specifications related to data exchange and data integration. These should be released in the forthcoming months.

Paving the way to a new era in map updates...

The expected added value will have a direct impact on both public and private sectors and are expected to provide a significant benefit to all European citizens in their role as road users. ROSATTE will contribute to:

- Considerably decrease the time delay between the update of an attribute in the road database at a road authority and its availability in the end-user map database;
- Significantly extend the coverage of up-to-date safety-related road information in digital map databases;
- Provide mechanisms to assure high attribute value quality;
- Establish at road authorities more efficient processes for maintaining safety related data;
- Facilitate smooth and efficient data integration at map providers.

It is expected that the ROSATTE results in the long term will contribute to decrease the number of casualties and injuries on European roads by enabling the deployment of map-based ADAS applications.

ROSATTE at a glance

ROSATTE is cofinanced by the European Commission (DG INFSO)

Project coordinator: ERTICO – ITS Europe

Project duration: 30 months

Project budget: €4.6 million with EC contribution of €3 million

For more information about ROSATTE, please consult <http://www.rosatte.eu> or contact ROSATTE_info@mail.ertico.com

