

**National Access Point Reference Architecture**

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| Status: | Concept |  |
| Version: | 1.0 |
| Date: | 04.07.2025 |
|  | | |
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|  | This project has received funding from the European Commission’s Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.85223 |

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# **Introduction**

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The NAP Reference Architecture (NRA), developed under the NAPCORE project, provides a harmonised framework for designing, aligning, and evaluating National Access Points (NAPs) across Europe. It defines the minimum functional, organisational, and technical requirements for two key NAP types — Metadata Directory and Data Platform — and supports Member States in building interoperable, future-proof mobility data ecosystems. The NRA is based on the FRAME methodology and developed using Enterprise Architect tooling. It is continuously maintained and enriched through collaboration across NAPCORE working groups and is available free of charge for public use.

To support practical implementation, in supplements the legal documents, technical standards, and requirements are defined. The NRA also support the integration of the NAP Level of Service KPI Framework (NLKF).

The NRA is openly accessible via the [Reference Architecture Website](https://napcore.github.io/Reference-Architectures-website//t_blank), which offers a browsable model of the architecture. The full model, FRAME toolbox, and versioned releases are available on [GitHub](https://github.com/NAPCORE/NAP-Reference-Architecture/t_blank), including importable EA/XMI files for use in Enterprise Architect and maintenance guidelines ensure transparency and long-term usability.

To ensure transparency and long-term usability, users can submit feedback, raise issues, or suggest improvements directly through the [issue tracker](https://github.com/NAPCORE/NAP-Reference-Architecture/issues/t_blank).



**Figure:** NAP Reference Architecture

# **Glossary**

## **Definitions**

**Business Expectation** is what the ITS Stakeholders aim to achieve by the implementation / operation of the ITS Service. Business Expectations could be the political, economic, social, socio-economic, socio-political, operational, organisational, safety, and efficiency-related added values that are associated with an ITS service and are formulated as goals. These expectations are used together with the ITS Mission Statement to define the ITS Service

**Content Consumer** any stakeholder that is specified by the delegated regulations explicitly as the user of the data/services made available by Content Providers via NAP. It includes the Data User term as it is specified in MMTIS and RTTI regulations.

**Content Provider** any stakeholder that is required by the delegated regulations to provide data/information or services to the Content Consumers via NAP. It includes the Data Holder term as it is defined in MMTIS and RTTI regulations.

**Data Flow** the movement of data within the system, occurring between LLFs, between LLFs and Data Stores, or between LLFs and external entities

**Data platform** a data portal that contains descriptions of the data and services important for their identification, assessment, and subscription by consumer, i.e., metadata, together with the data and/or services themselves. It provides facilities to authenticate data provider, and optionally, data consumer and functionality to insert a data and metadata records to NAP internal database. The NAP provides search and discovery services of the hosted records to end users and via machine readable content to other portals and distribution interfaces for data dissemination. The NAP is an intermediary between data provider and consumer; the data however remain in the ownership of the data provider.

**Data Store** a repository for data, often managed by LLFs, that serves multiple other LLFs, linking to Functional Areas or HLFs.

**ITS Actor** part of an ITS value-added chain/network and is directly involved in value creation. It contributes to the added value of ITS benefits by using its ITS capabilities as part of its activities. It usually also represents the interests of ITS stakeholders who are not directly involved in the ITS value chain but have strong associated interests. The ITS end-user is also considered a special ITS actor.

**ITS Agreement** Contractual or lawful relationship between two roles, that defines obligations/responsibilities of the roles to each other and also the obligations/responsibilities of the roles in this relationship to other roles. The Agreement could take the form of a European or national legislative document, memorandum of understanding, contract, license, or terms and conditions.

**ITS Domain** a concept that categorizes the diverse applications of ITS into specific fields of application. It applies sector-specific knowledge and additional architectural knowledge to ITS. The domain also defines the boundaries of the ITS system or service at the start of an ITS architecture project, distinguishing it from similar or adjacent systems or services.

**ITS Interface** Facilitates information exchange between systems, defined by a protocol and data model, and utilized by ITS applications

**ITS Mission Statement** a short statement that highlights what is needed to be done by the ITS Stakeholders in the present to achieve the ITS Vision. It summarizes the purpose of the existence of the ITS Services and guides their use by the ITS Actors and/or the end users. It formulates a clearly structured, overarching policy objective of the defined ITS service deployment, considering the interests of stakeholders and end-users.

**ITS Role** Defines and describes responsibilities, tasks, and capabilities that are typical and necessary for the value creation of ITS services. Is taken by ITS actors and stakeholders depending on the requirements of the ITS service to be implemented. A single ITS actor or stakeholder can occupy one or more ITS roles.

**ITS Service** a formal description of an ITS service. It describes a value-added service provided by ITS actors to the end-users. The added value is created by combining technologies, organizations, processes, and people. The service can be delivered by a single actor or in cooperation with others, and it creates added value that may consist of individual benefits for end users, collective benefits for end-user groups or society, or a mixture of both. It describes the idea and functional elements of the ITS service as well as framework conditions.

**ITS Service Added Value** represents monetary and nonmonetary benefits that are gained by the implementation of the ITS Service. Each individual ITS Service Added Value outlines a particular, impact/benefit of implementing the ITS Service affecting one or more stakeholders.

**ITS Vision** the long-term objective and the aspirational goal for the future. The ITS Vision is shared by all ITS Stakeholders. It is a source of inspiration for the ITS Services and provides a clear goal to be adhered to by the ITS Services.

**Metadata directory** a data portal that contains descriptions of the data and services important for their identification, assessment, and subscription by consumer, i.e., metadata. It provides facilities to authenticate data provider and functionality to insert a metadata records. The NAP provides search and discovery services of the hosted records to end users and via machine readable content to other portals. The NAP is not directly involved in the data exchange between data providers and data consumers.

**Mobility data** Mobility data includes all data types that are directly related to a person or good movement via motorized or non-motorized, individual or public transport, or new transport modes. It includes general real-time and statistical information.

**Module** a computer programs within Sub-systems that perform ITS functions and communicate via ITS interfaces. They can be replicated wholly or partly across locations.

**Physical Data Flow** a communication channel in ITS, either Internal (linking Sub-systems/Modules) or External (connecting to Terminators/Actors). They're based on a pre-checked Functional View.

**Specification** detailed, precise description of the requirements, design, behaviour, or characteristics of a system, component, or process. Specifications are used to ensure that everyone involved in a project understands what is expected and to provide a basis for verifying that the final product meets the required standards.

**Stakeholder** any organization or individual interested in the deployment, operation, or outcomes of ITS services. They can be directly or indirectly affected by the decisions made during the entire lifecycle of ITS Services. They are usually decision-makers such as politicians, high-level managers, and others e.g., the general public or user groups, who typically have little or no knowledge of systems design and implementation beyond what they have acquired as end users.

**Sub-system** a high-level unit that may include multiple Modules but can also have none if simple. Each geographic location has its own Sub-system.

**Terminator** an external entity not modelled within the FRAME Architecture, such as different vehicle types or traveller roles.

**User Needs** a set of standardised high-level requirements that, in combination, describe all the ITS Services supported by FRAME.

## **Abbreviations**

**EA GUID** Enterprise Architect unique identifier, uniquely identifying the object within the model

**HLF** High Level Function

**ITS** Intelligent Transportation Systems

**KPI** Key Performance Indicator

**LLF** Low Level Function

**NAP** National Access Point

**NLKF** NAP LoS KPI Framework tool

**NRA** National Access Point Reference Architecture

# **Motivation Layer**

*version: 2.0*

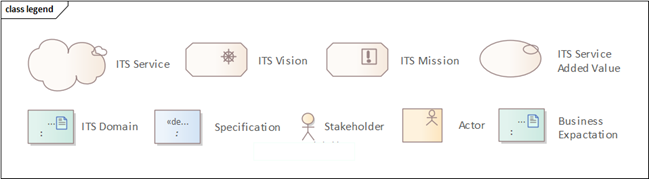
The Motivational Layer models the motivations, reasons for the necessity of the NAP, and the expectations to be fulfilled by its successful deployment and implementation.

Several stakeholders are depicted in the diagram, gathered around the NAP because they share a common vision. However, each stakeholder interacts with the NAP differently and has unique expectations. Together, they define the NAP as an ITS service, and this definition serves as the primary guideline for all other views in the architecture.

For this view we do **not distinguish** between **both NAP types**, Metadata Directory and Data Platform.



**Figure:** NAP Motivation Layer



## **ITS Service Elements**

In this chapter are definitions **Vision** and **Mission** of **ITS Service** the former two lead to and of **ITS Domain** in which the ITS Service operates.

### **Vision: Seamless EU-wide provision of data and services**

*Last changed: 27.06.2025, GUID: {BFC9524E-A1D0-415a-9CAA-50D01DACE293}*

To create a Single European Transport Area, underpinned by a digital layer that interlinks all elements of transport. This digital architecture, built on open and common standards and interfaces, will foster an efficient and secure data ecosystem.

### **Mission Statement: National Access Point mission statement**

*Last changed: 27.06.2025, GUID: {27C3C5F4-664F-4d48-A554-AF601321B267}*

National Access Points (NAPs) will be established across Europe, facilitating access, easy exchange, and reuse of transport-related data, thereby supporting the provision of EU-wide interoperable travel and traffic services to end users.

### **ITS Service: Fulfilling National Access Point obligations according to ITS directive**

*Last changed: 27.06.2025, GUID: {5BC72E89-BADD-4468-8CF6-53736DE6B090}*

The National Access Point of a Member State has specific tasks related to the Delegated Regulations of the ITS Directive 2010/40/EU, which are requested by the European Commission.

The main task is to provide non-discriminatory central access information to data listed in Delegated Regulations.

* NAP features shall be language-independent (English + local language)
* NAP supports the discovery of metadata and data samples without user registration
* NAP supports data exchange based on standards
* NAP fosters EU-wide interoperable ITS services for travellers
* NAP makes standardized (in prescribed formats) data accessible
* NAP data content is extendable to all ITS Directive domains
* NAP does not infringe the rights of the data owner for the use of data but can support the exchange (e.g. by a standardized license, agreed terms and conditions, technical support with a machine-readable interface definition.)

### **ITS Domain: Traffic and traveller information**

*Last changed: 27.06.2025, GUID: {8B164E93-51CD-4297-9892-68CF32915834}*

**Transport Network**

European road and railroad, tram and underground and ferry transport networks and extensible to Public Transport and Interfaces of other modes e.g. air and waterways.

**ITS Service**

EU-wide ITS services coverage with seamless handover between different member states for easier and consistent ITS service building at neighbouring regions, states, and at the EU level.

**ITS Service Type**

static, dynamic data and information sets as well as services of public and private stakeholders including parking, safety-related traffic information, real-time traffic information, and multimodal travel information.

**Level of detail**

Organizational view of NAP stakeholders and their cooperation, including a functional definition of the ITS service at the meta-level and including their data content coverage/contribution in the defined ITS domain.

**Perspective**

Policy perspective, with contribution from public and private stakeholders in the service development and delivery.

**Focus**

Cooperation between roles and Information systems, interfaces, and standards to foster regular data exchange.

## **Stakeholders**

In this chapter is the definition of **Stakeholders** involved in the ITS Service.

### **Stakeholder: Competent Authority / National Body**

*Last changed: 27.06.2025, GUID: {60AC1314-7147-4d43-89C6-2CD3B26BDEBE}*

A National Body (NB) typically refers to an organization, institution, or entity that operates at a national level. These bodies are established by the government or recognized by authorities to oversee, manage, regulate, or represent various aspects of national affairs. In this context, the main task of an NB is to support the quality of mobility data and services through an assessment process.

In line with the legal framework of the ITS Directive 2010/40 amended by Directive (EU) 2023/2661 and related Delegated Regulations NB operates in the field of mobility. A NB is designated by a government and has to be impartial and independent from data providers and service providers.

**has benefits**

1. Easier access to content providers
2. Easier validation process

**has expectations**

1. Access to the content providers and their services

### **Stakeholder: Content Consumer**

*Last changed: 27.06.2025, GUID: {77E9CEBA-B991-4860-A6D3-952CAD1B776E}*

Content consumers are national and international organizations using NAP-promoted data for added value services to their customers or parties using NAP-promoted data for enhancing their operational capabilities. Content Consumer includes the Data User term as it is specified in MMTIS and RTTI Regulations.

Content Consumers based on the perceived benefit could be grouped as follows:

* **Service providers:** These companies expect to utilize high-quality and verified information provided by NAP to provide traffic information services to its customers and update the road map information to make their journey more efficient.
* **Companies engaged in providing transport services and entities ensuring transport services:** These companies expect to utilize high-quality and verified information provided by NAP to ensure the availability of up-to-date information at transfer or multimodal public transport terminals as well as at parking areas along the network under ITS Directive. NAP data are intended by transport providers in the field of improving the organisational transport processes, managing access to the provided transport service through relevant information systems, and enhancing the overall attractiveness of services from the perspectives of passengers or drivers of freight vehicles - end users.
* **Vehicle manufacturers and their suppliers:** Infotainment, driving assistance systems, communication equipment, and cooperative ITS systems are now part of vehicle equipment. From the manufacturers' perspective, information services enhance the product's attractiveness to customers and fulfil specific operational needs (such as fleet management). Manufacturers and suppliers have a keen interest in both static and dynamic traffic information across the entire transportation system accessible via open data sources. Based on NAP data manufacturers can show the value of a vehicle to their customers because information, navigation, driving, reservation, or logistics systems can operate when receive proper NAP data.
* **Public Administration:** Public administration is the provider of public services, managing public affairs at both local and central levels, and ensuring matters in the public interest. These activities include the care for the development and operation of the transportation system, which is a key sector of the economy. NAP data can be used for planning the development of the road network or for optimizing the maintenance or reconstruction of individual sections of this network.
* **Scientific and Research institutions:** They are primarily established to create professional expertise, address research tasks, and acquire knowledge. The transport system, management models, and transport process organisation are natural interests of these institutions, as is the creation and development of European-wide information services related to transport and mobility. These organisations are interested in utilizing all provided NAP data, both for studies and analytical background on the transportation system in general, as well as for the verification of functionality and assessment of the transport system quality.
* **End Users:** The drivers and travellers (natural persons) that receive traffic or travel information via a third party. The end users are not direct users of NAP, but they are the primary beneficiaries.

**has benefits**

1. Public Administration benefit
2. Scientific and Research institutions benefit
3. Enhanced findability of data and services
4. Companies engaged in providing transport services and entities ensuring transport services benefit
5. Public (end users) benefit
6. Harmonized data for service provision
7. Vehicle manufacturers and their suppliers benefit

**has expectations**

1. Easy access to harmonized services

### **Stakeholder: Content Provider**

*Last changed: 27.06.2025, GUID: {4D7E0B7A-7D34-400b-AE00-68E04F93B7BA}*

Content Providers are national and international organizations, data holders, data, and service providers who are required by the Delegated Regulations of the ITS Directive to make data and/or service accessible via the National Access Point. Content Provider includes the Data Holder term as it is specified in MMTIS and RTTI Regulations.

According to the obligation to the Delegated Regulations Content providers are represented by:

* **Public and private road operators, service providers, and broadcasters** dedicated to traffic information [886/2013 (SRTI)]
* **public and private service providers, parking operators**, **and road operators** [887/2013 (SSTP)]
* **road authorities, road operators, digital map producers, and public or private service providers, where** ‘service provider’ means any **public or private provider of a real-time traffic information service**, excluding a mere conveyer of information, to users and end-users [2015/962 (RTTI)]
* **transport authorities, passenger transport operators, infrastructure managers, transport-on-demand service providers, and travel information service providers**. [2017/1926 (MMTIS)]

**has benefits**

1. Insight into Best Practices
2. Better service/data applicability

**has expectations**

1. Better data visibility and usability

### **Stakeholder: European Commission**

*Last changed: 27.06.2025, GUID: {26DD1383-1637-4356-B2EF-7671DCA5C5BC}*

The European Commission (EC) is part of the executive branch of the European Union (EU) responsible for proposing new European legislation, implementing the decisions of the European Parliament and the Council of the EU, and managing EU policies and budget.

**has benefits**

1. European Commission benefit
2. Lower negative traffic and travel externalities
3. Increased traveller comfort
4. Better oversight on the ITS Directive implementation

**has expectations**

1. EU-wide coverage and harmonized delivery of ITS services

### **Stakeholder: Member State**

*Last changed: 27.06.2025, GUID: {2DC22194-A127-42ba-9AEA-E8CBDD2EC795}*

A Member State of the European Union is a sovereign country that is a member of the European Union (EU), a political and economic union. There are 27 member states as of 2023. These states are party to the EU’s founding treaties and are subject to the rights and obligations of membership, including access to the EU single market. They have agreed to share their sovereignty through the institutions of the EU in certain aspects of government.

**has benefits**

1. Better oversight on the ITS Directive implementation
2. Member State benefit
3. Increased use of public data
4. Better cross border cooperation
5. Increased traveller comfort
6. Lower negative traffic and travel externalities

**has expectations**

1. Better mobility services for citizens

### **Stakeholder: NAP Operator**

*Last changed: 27.06.2025, GUID: {4B4D9772-CCE6-459c-B5E0-80E3C5C32674}*

A NAP is a mechanism set up by Member States to facilitate access, exchange, and reuse of transport-related data. The NAP Operator ensures that these points function efficiently and effectively, maintaining the robustness and resilience of the transport data infrastructure.

**has benefits**

1. Better defined operational environment

**has expectations**

1. Clear set of requirements

## **ITS Service Added Values**

In this chapter are definitions of **ITS Service Added Values** i.e. benefit of implementing the ITS Service affecting one or more stakeholders.

### **Benefit: Better cross border cooperation**

*Last changed: 27.06.2025, GUID: {1DCCB4B5-41EA-443b-999D-B9DECF471654}*

By sharing data with neighbouring countries, state planning services could increase the level of cooperation across borders. Enhance cooperation between public and private stakeholders in ITS.

### **Benefit: Better defined operational environment**

*Last changed: 27.06.2025, GUID: {FA246A00-5F05-4b78-B8B6-0C34D4F4BFDF}*

By introducing a legal and operational framework by the Member State when implementing the ITS Directive the nominated NAP Operator gets a clear set of requirements and obligations and practices to operate NAP as set up by the legal framework.

### **Benefit: Better oversight on the ITS Directive implementation**

*Last changed: 27.06.2025, GUID: {A714C199-95DF-45f6-8CD4-8777446E0378}*

By establishing one NAP, per member state, concentrating mobility data from all obligated content producers (see Content Provider stakeholder) the EC has easier access to evaluating how are stipulations of the delegated regulations being fulfilled in the member states and MS has an easier way to report about these obligations to the EC.

### **Benefit: Better service/data applicability**

*Last changed: 27.06.2025, GUID: {5621BC53-FB7E-4897-8C7E-760AC4A9C63A}*

By aligning to required formats and data specifications, the data or services get better usability by content consumers.

### **Benefit: Companies engaged in providing transport services and entities ensuring transport services benefit**

*Last changed: 27.06.2025, GUID: {86E4D6B0-ED82-4d90-BD37-D74AC3549849}*

Companies engaged in providing transport services and entities ensuring transport services benefit. Public transport dispatchers from traffic controller stations can better manage the PT fleet operations and ensure guaranteed transfers at terminals due to NAP up-to-date data/information about incidents and congestions that are currently causing delays of public transport vehicles. In this context, NAP information makes public transport more attractive and reliable. Also, truck dispatchers could better manage and organise freight transport based on information received from the NAP, in particular limitations for commercial vehicles on roads, bridges, and in tunnels.

### **Benefit: Easier access to content providers**

*Last changed: 27.06.2025, GUID: {507180A7-8EFB-4d7b-8902-37863826AB81}*

By having all relevant data and services listed at NAP including the contact information of the data and services providers, the National Body can easily select the data to evaluate and reach out to their owner/provider.

### **Benefit: Easier validation process**

*Last changed: 27.06.2025, GUID: {3D099575-489C-439e-B206-917BBA99E1AF}*

By having all information about the data and services of the content providers at NAP the National Body can perform compliance assessment easier.

### **Benefit: Enhanced findability of data and services**

*Last changed: 27.06.2025, GUID: {9846A13E-FF81-4e4c-A66A-6CA78395412E}*

By having all mobility data provided via the NAP the content consumers (Service providers) may use them to increase the value of their services to increase road safety and travel efficiency. Easier and more regular data exchange (e.g. ID verification of content providers once). Distribution of high-quality traffic data to a larger share of travellers.

### **Benefit: European Commission benefit**

*Last changed: 27.06.2025, GUID: {33CF1689-E6E9-4f50-8304-65272C5064B3}*

European Commission benefit. NAP data can be used to identify specific problems in transport networks and to propose EU-wide policy solutions, notably to define needs for major project spending, e.g. relevance and eligibility.

### **Benefit: Harmonized data for service provision**

*Last changed: 27.06.2025, GUID: {1A6AC210-FB97-4548-B8D1-D93EF2E51CCB}*

By fulfilling the obligations of the ITS Directive, the data and services shared via NAP are provided concerning a set of standards which makes it easier to integrate them into pan-European service. Better quality of ITS services for end users.

### **Benefit: Increased traveller comfort**

*Last changed: 27.06.2025, GUID: {5AED7075-81E8-4e4e-91D5-681CC60018C1}*

By having all modes of mobility data provided via the NAP, the multimodal service provider could provide better services to travellers, advising them of better, more convenient, travel options (accessibility and time) and thus increasing their comfort.

### **Benefit: Increased use of public data**

*Last changed: 27.06.2025, GUID: {33A07100-D868-4036-9001-3C4FA1ADB6F3}*

By having all relevant public mobility data listed at NAP and in a harmonized format, the data gets more value. It is easier to access and use by service providers in the end user-oriented services. Generating higher reuse of data created by public authorities. Enhance cooperation between public and private stakeholders in ITS.

### **Benefit: Insight into Best Practices**

*Last changed: 27.06.2025, GUID: {3160147A-9326-4fcf-8BF8-E5F0772B3EAF}*

By observing other data published at NAP, the content provider could analyse features of best practices to adopt them in their data. Also, the potential of content consumer feedback creates an opportunity to better the data. Regular quality management of ITS services and data content feedback procedures. Enhance experience with data exchange and improve the awareness of data value in the traffic domain.

### **Benefit: Lower negative traffic and travel externalities**

*Last changed: 27.06.2025, GUID: {719542A2-5B93-42f9-A7C5-207B4876615F}*

By making public and private data available via NAP and by increasing their visibility, the service provider could provide services based on more information, ultimately providing a better service to customers. This better service could result in a reduction of accidents, shorter travel time, and lower emissions.

More public and private stakeholders are involved in many EU MS with regular data exchange between them and used for creating high-quality ITS services. Enhanced road safety, traffic efficiency and reduced environmental impacts of transport by the extension to more public and private stakeholders in the distribution of traffic information and related ITS Services.

### **Benefit: Member State benefit**

*Last changed: 27.06.2025, GUID: {9C963A11-3E8E-4700-AC7F-66252C040E4A}*

Member State benefit. NAP data bring a wide range of information, resources, and decision-making approaches that lead to better outcomes. These data enable to perform analyses and predict the development of traffic. NAP data are also appropriate for transport organization planning and development of conceptual changes.

### **Benefit: Public (end users) benefit**

*Last changed: 27.06.2025, GUID: {8B9E0978-ED80-4621-B380-2B393ED06A32}*

Public (end users) benefit. Due to the availability and timely delivery of appropriate and technically harmonized static or dynamic NAP information/data users can have an insight into the current traffic situation or travel conditions and/or can use such information while driving or travelling, without being burdened with redundant information.

### **Benefit: Public Administration benefit**

*Last changed: 27.06.2025, GUID: {C0A4499B-2CA7-43e7-924C-EEBB0497229F}*

Public Administration benefit. Data from NAP may be used and more efficiently interconnected with other public administration information systems. These data are made available to other parties both from the public and the private sector, which strengthens the development of new services with added value.

### **Benefit: Scientific and Research institutions benefit**

*Last changed: 27.06.2025, GUID: {7E611DF3-9DDE-40bf-A855-BB079D9FBD73}*

Scientific and Research institutions benefit. Access to NAP data enables scientific and research teams to develop models of the traffic flow behaviour, assessment (based on historical data) of impacts of individual restrictions and their combinations on the level of provided services in the transport network, furthermore, prediction of traffic development, planning the transport of people and goods. These teams can produce a policy and scenario by estimating the impact of a transport policy scenario or a change in forecasting assumptions.

### **Benefit: Vehicle manufacturers and their suppliers benefit**

*Last changed: 27.06.2025, GUID: {D098ACC2-0448-4546-95D2-0A86426CF025}*

Vehicle manufacturers and their suppliers benefit. Concerning the competition in the automobile market vehicle/equipment manufacturers can offer their customers new advanced applications and systems using NAP data, which brings considerable added value to the producers and in particular consumers.

## **Business Expectations**

In this chapter are definitions of Stakeholders of Business Expectations of the ITS Service.

### **Expectation: Access to the content providers and their services**

*Last changed: 27.06.2025, GUID: {BEEC92A0-2D8F-4223-80CC-93C134836DD3}*

The National Body expects better and easier access to the content providers and their services (with their description and (observed) qualitative parameters) as they are being promoted through NAP, instead of finding and reaching out to the content consumer separately.

### **Expectation: Better data visibility and usability**

*Last changed: 27.06.2025, GUID: {A74A1B0F-B29F-4ef3-B785-89BF9BED3ACC}*

Content Providers expect to fulfil obligations stipulated by the ITS Directive and related Delegated Regulations and as side effects increase the visibility of their data by publishing them (or respective metadata) at the NAP and increase the usability of their data by adopting EU-wide recommended standards and profiles.

### **Expectation: Better mobility services for citizens**

*Last changed: 27.06.2025, GUID: {B1BC2597-7347-4c5e-AD8F-54DD1CD5430C}*

Member State is the main protagonist in creating and implementing European Policy through the European Parliament and legislature development process. It has similar expectations to the European Commission e.g. more efficient transport and fewer accidents. It also has expectations targeted to increased use of governmental data as well as data from private parties. Better cross-border traffic management and increased MS cooperation.

### **Expectation: Clear set of requirements**

*Last changed: 27.06.2025, GUID: {C5BF4F37-E65D-4998-BC18-CF0C0F8F8AF9}*

The NAP Operator is the main facilitator of the data and service exchange between provider and consumer. They expect an easy / defined operational and legislative environment laid out by Member States.

### **Expectation: Easy access to harmonized services**

*Last changed: 27.06.2025, GUID: {BC8FFFD0-5AB4-49dc-B949-BEB69CF1D447}*

The Content Consumer expects all mobility data or services accessible online at one place (NAP), uniformly described, accessible to all, and with content aligned by recommended standards and/or relevant profiles.

### **Expectation: EU-wide coverage and harmonized delivery of ITS services**

*Last changed: 27.06.2025, GUID: {40E6AD55-91B5-46d0-97FB-DAD263613E62}*

The European Commission is the main policy facilitator, it proposes and implements legislation. The EC expectations are stipulated within the EU mobility strategy documents and are ultimately focused, regardless of age, health, and gender, on reducing the environmental impact of European transport and reducing fatalities and accidents on European roads through the facilitation of easy-to-access-EU-wide harmonized traffic and travel data exchange. The European Commission establishes a common framework for EU harmonisation legislation for placing services on the market at the EU level to ensure that EU-wide ITS information service is provided following the EU specifications.

## **Specifications and Requirements**

Specifications and requirements affecting the implementation of the ITS Service and depicted on the diagram are described in a Specifications document.

# **User Needs**

*version: 2.0*

The results of the Motivation analysis are likely to contain several ideas, written in a variety of styles, and which may be open to interpretation. It is therefore necessary to re-write the ITS Service that was informally described by the stakeholders in a consistent manner. The User Needs provide a way of expressing these ideas in a way that is Unambiguous, Testable (with objective tests), Traceable (with unique reference numbers) and Singular (with only one idea at a time).

User Needs are tailored so that each User Need represents the smallest possible portion of an ITS Service. The minimum set of functionalities to realize the service described in the User Needs are cross referenced to these User Needs, so the creation of the Functional View starts by selecting a subset of User Needs that describes the intended ITS Service best. This initial selection is not sufficient however, additional functional elements might be added or removed to achieve the desired ITS Service.

For this view we do **not distinguish** between **both NAP types**, Metadata Directory and Data Platform.



**Figure:** NAP User Needs

## **User Needs Topic**

This chapter contains definitions of high-level User Needs created by groupings singular User needs per topic. Used only for presentation purposes.

### **Topic: 6.5.1 National Access Point**

*Last changed: 27.06.2025, GUID: {651C1658-2A42-4bc4-BAD0-2683E2EDC5D7}*

The user needs associated with managing the operation of a National Access Point (NAP)

## **User Needs**

This chapter contains definitions of low-level User Needs used to point to a particular functionality out of the FRAME.

### **User Need: 6.5.1.1**

*Last changed: 03.07.2025, GUID: {985EB741-B0FC-4294-AD8A-D7CF3FC3CB20}*

The system shall make sources of static and dynamic urban and inter-urban road and traffic information accessible to users, e.g. Information Service Providers (ISPs) and Broadcasters, who can then distribute it to their end-users.

### **User Need: 6.5.1.2**

*Last changed: 03.07.2025, GUID: {47DEE61C-A831-443c-B86A-C81B4C17C65F}*

The system shall provide a discovery service of static and dynamic urban and inter-urban road and traffic information for users, e.g. Information Service Providers (ISPs) and Broadcasters.

### **User Need: 6.5.1.3**

*Last changed: 03.07.2025, GUID: {111AFCF5-580A-44a5-99FF-B96920DD3A08}*

The system shall provide all the information available within to users as metadata and data or pointers (links) to where the actual data can be found.

### **User Need: 6.5.1.4**

*Last changed: 03.07.2025, GUID: {F525B57C-D6A6-4b83-9980-0C8464668FB2}*

The system shall be able to validate the identity of a Content Provider for a National Access Point (NAP).

### **User Need: 6.5.1.5**

*Last changed: 03.07.2025, GUID: {DAEF1273-CEE7-4b67-9847-EC11C3D0D274}*

The system shall be able to permit a validated Content Provider to update metadata and data or links where the actual data can be found directly.

### **User Need: 6.5.1.6**

*Last changed: 03.07.2025, GUID: {9397630D-1140-4889-9290-E2F5F6E94DD8}*

The system shall provide a search interface in the native language of the area covered and, at least, English.

### **User Need: 6.5.1.7**

*Last changed: 03.07.2025, GUID: {1DB1233F-F72B-48f0-BAC3-6E320C8128C4}*

The system shall provide Information Management tools for the NAP Operator.

### **User Need: 6.5.1.8**

*Last changed: 03.07.2025, GUID: {EA67410C-74A8-43dc-8A08-F5B90E59D7EE}*

The system shall provide information using "open" standard communication protocols.

# **Functional View**

*version: 2.0*

The Functional View focuses on the functional aspects of a system. Defines the architectural elements that deliver the system’s functionality documenting the system’s functional structure including the key functional elements their responsibilities the interfaces they expose and the interactions between them.

The View contains a chain of **Functions** connected via the **Functional data flows**, at both ends with a **Terminator.** This chain represents a process of data processing in a designed system. **Data stores** represent the ability of a function to store and retrieve data and model real databases.

Functions are for clarity purposes grouped into modules - see physical view.

The Functional View is elaborated with respect of minimum functionality of two NAP types: **Metadata Directory** and **Data Platform,** building upon the functionality of the previous type

Those types are presented via TWO diagrams, each depicting functionality of respective type.



**Figure:** Functional Tree of F3.6 Provide NAP



**Figure:** NAP Functional View - Metadata Directory



**Figure:** NAP Functional View - Data Platform



## **Functions**

This chapter defines functions for **both NAP types**, Metadata Directory and Data Platform.

Functions are categorized into various levels: High-Level Functions (HLF) and Low-Level Functions (LLF).

### **High level function: F3.6 Operate National Access Point**

*Last changed: 27.06.2025, GUID: {7ADE914E-925B-4d69-8E2A-6E26A0C42EEE}*

This High-level function shall provide the facilities needed to enable a National Access Point (NAP) to operate. It shall include functionality that enables information objects containing NAP data to be provided and stored. These information objects shall consist of meta-data describing the data that is available and pointers to the Internet address from which data may be obtained. NAP Content Consumers shall be able to discover, search for and obtain some or all the NAP information objects. These information objects will be provided to and entered for the first time by the NAP Content Provider once they have been approved as Content Providers.

### **Low level function: F3.6.1 Manage NAP Metadata Repository**

*Last changed: 27.06.2025, GUID: {28A2C553-2939-4542-B14B-8A13B25BC494}*

This Function shall be capable of providing the following facilities:

(1) The ability to manage the store of Metadata.

(2) The ability to ensure that all data sent to the store is stored in a coherent and logical manner.

(3) The ability to read, edit, update and erase data from the store as and when requested.

(4) The ability to enable Metadata to be created in advance of their publication on the NAP so it could be checked before its publication.

(5) The ability to carry out its activities in such a way that they do not interfere with one another, and that the integrity of the data being stored and read is preserved.

(6) This function manages all data mentioned in the mobilityDCAT-AP (https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html) and other relevant information (e.g. quality info, possible data comments etc.)

### **Low level function: F3.6.10 Provide Data Quality Checks**

*Last changed: 27.06.2025, GUID: {D01EFD87-A3E1-4216-81D9-855530ECE1B9}*

This Function shall be capable of providing the following facilities:

(1) The ability to provide periodical and initial checking of published data quality based on pre specified rules and procedures (including appropriate time frequencies). Main tests performed are schema validation and availability of provided data against the metadata information.

(2) The ability to retrieve data to be checked from the NAP Data store.

(3) The ability to disseminate and store the outcomes of data quality checks to the NAP Data store.

(4) The function shall be capable to request metadata from NAP Metadata store, to compare with data, by invoking the functionality of Manage NAP Data Repository for data validation purposes

(5) Ability to perform the checks based on data events (data insert, data update) in the NAP Data store

### **Low level function: F3.6.2 Manage Registrations and Provide Authorisation Service**

*Last changed: 27.06.2025, GUID: {15D991EA-63BC-40ac-936A-A0B8D3CBC28A}*

This Function shall be capable of providing the following facilities:

(1) The ability to receive and process a request from an entity that wants to become new NAP User.

(2) The ability to check the new NAP User in (1) above to include electronic identification, verification that the requesting entity exists based on information included in the request and agree with terms of the NAP User (different for NAP Content Provider and NAP Content Consumer)

(3) The ability to load information about the entity submitting the request in (1) above into the NAP Users data store, if the identification, verification, and acceptance in (2) above is successful.

(4) The ability to provide authorisation credentials to the requesting entity.

(5) The ability to send a rejection notice (including the reason for rejection) to the entity that submitted the request in (1) above if the identification, verification, and acceptance in (2) and (3) above was not successful.

(6) The ability to check the authorisation of an entity which sends its credentials to the NAP functions and to response to those functions if the authorisation check has been successful.

(7) The ability to process the information provided in an unsuccessful request for the update of NAP User data so that a suitable response can be sent to the entity that made the request and future unsuccessful update requests monitored.

(8) The ability to register multiple user accounts within a NAP User account, i.e. users' organization.

(9) The ability to register multiple machine accounts within a NAP User account, i.e. users' organization, for consuming or providing content from / to the NAP. The machine accounts stand for Data Requesting Systems and Data Supplying System.

(10) The ability to organize user and machine account registered under one NAP User into organization, where user accounts have different rights to access the NAP Users data store, i.e. view, modify, add, and delete records.

(11) The ability to remove electronic identity of the NAP User from the NAP Users data store based on reception of a request from a NAP User.

(12) The ability to register the as one or both NAP Content Provider and NAP Content Consumer with different rights / responsibilities to perform tasks assigned to provider or consumer in the NAP via Functions Manage Content Providers Metadata and Manage NAP Metadata Retrieval.

(13) Ability to provide registered NAP User data upon its successful authorization

(14) Ability to log in events connected with NAP User Activity to the NAP User data store

NOTE: one physical user can be part of more NAP Users but under the different electronic identity.

### **Low level function: F3.6.3 Manage Content Providers Metadata**

*Last changed: 27.06.2025, GUID: {E8D1212C-A787-4da1-A4EB-B4E1896ABD19}*

This Function shall be capable of providing the following facilities:

(1) The ability to receive and process request to upload new or updated metadata from a NAP Content Provider.

(2) The ability to forward the authorisation credentials of the NAP Content Provider to the Function Manage NAP User Registrations and to receive a result about the authorised registration of the NAP Content Provider from the Function Manage NAP User Registrations.

(3) The ability to perform basic and consistency checks on filled in metadata (e.g. the data are filled in expected manner and are structurally complete)

(4) The ability to send the metadata included in the request in (1) above to the Function Manage NAP Metadata Repository for loading into the data store if the checks in (2) above were successful.

(5) The ability to send a "failure" response to the entity that made the request in (1) above if the checks in (2) and (3) above were unsuccessful or a “success” response if the checks were successful.

(6) Ability to provide metadata created by the NAP Content Provider and data created by the NAP, i.e. quality records and NAP User event log to the NAP Content Provider.

(7) Ability to record NAP Content Provider Activity into the NAP Users data store.

(8) Ability to update, amend or delete existing metadata records.

NOTE: the ability to browse, search and view metadata is in the functionality F3.6.4 Manage Metadata Retrieval. It is assumed that NAP Content Provider is also logged in as NAP Content Consumer.

### **Low level function: F3.6.4 Manage Metadata Retrieval**

*Last changed: 27.06.2025, GUID: {2F2393E9-9A59-4344-A2C0-207945E7F438}*

This Function shall be capable of providing the following facilities:

(1) The ability to provide a query form or comparable search interface to define keywords or refine demands in different available metadata elements.

(2) The ability to receive and process requests from NAP Content Consumers to be provided with NAP metadata.

(3) The ability to process the request in (1) above so that all suitable search results to the request are retrieved from the Data Store NAP Metadata.

(4) The ability to format the NAP metadata search results obtained in (3) above and send it to the entity that made the request in (2) above or to display them in an overview results page.

(5) Ability to provide metadata at the NAP including data created by the NAP, i.e. quality records.

(6) Ability to provide all or parts of metadata stored in the NAP Metadata store in a machine-readable format for reasons of harvesting the metadata by Metadata Requesting System (machine to machine access).

(7) The ability to provide all relevant metadata without NAP Content Consumer registration

NOTE: It is assumed that NAP Content Provider could perform all the task of the NAP Content Consumer.

### **Low level function: F3.6.5 Provide NAP User Support**

*Last changed: 27.06.2025, GUID: {E4E0DD97-20AB-4868-B0DE-C0C3C14EA4BA}*

This Function shall be capable of providing the following facilities:

(1) The ability to receive and process support requests from any existing or potential NAP Content Provider or NAP Content Consumer.

(2) The ability to respond to user support requests adequately at least in a form of first-level support.

(3) The ability to consult other NAP roles for issues which cannot be responded with the own knowledge.

(4) The ability to manage issues and log the issue resolution for later use by NAP Users or by an Auditing entity

NOTE: this could be done via a ticketing system

### **Low level function: F3.6.6 Provide Metadata Quality Checks**

*Last changed: 27.06.2025, GUID: {15BFF38A-05D9-4775-84C9-6604B0EEA3C6}*

This function shall be capable of providing the following facilities:

(1) The ability to perform metadata quality checks based on pre specified rules and procedures (including appropriate time frequencies). The checks follow the MQA and InQMS methodology, at minimum it is an availability of the urls provided in metadata.

(2) The ability to retrieve data to be checked from the NAP Metadata store.

(3) The ability to disseminate and store the outcomes of data quality checks to the NAP Metadata store.

(4) Ability to perform the checks based on metadata events (data insert, data update) in the NAP Metadata store

### **Low level function: F3.6.7 Manage NAP Data Repository**

*Last changed: 27.06.2025, GUID: {57AEF510-D710-4920-9CCE-96BE708F6AAC}*

This Function shall be capable of providing the following facilities:

(1) The ability to manage the store of traffic and travel data.

(2) The ability to ensure that all data sent to the store is stored in a coherent and logical manner.

(3) The ability to read, create and overwrite data from the store as and when requested.

(4) The ability to hide data in the NAP Data store so it could be checked before it is made available.

(5) The ability to carry out its activities in such a way that they do not interfere with one another, and that the integrity of the data being stored and read is preserved.

(6) Ability to send request for Metadata from F3.6.1 Manage NAP Metadata Repository and provide this data to connected functionality,

(7) Ability to store data event logs

### **Low level function: F3.6.8 Manage Data Input**

*Last changed: 27.06.2025, GUID: {5B4F357F-A164-4a3f-8909-C370F4C0615F}*

This Function shall be capable of providing the following facilities:

(1) The ability to receive and process traffic and travel data in different message types from NAP Content Provider or Data Provision System.

(2) The ability to forward the authorisation credentials of the NAP Content Provider or of the Data Provision System to the Function Manage Registrations and Provide Authorisation Service and to receive a result about the authorised access.

(3) The ability to perform basic checks on filled in information about data access (for automatic data retrieval by NAP) or checks of data format and expected size of the NAP Content Provider manually uploaded data.

(4) The ability to send the data included in the request in (1) above to the Function Manage NAP Data Repository for loading into the data store if the checks in (2) and (3) above were successful.

(5) The ability to send a “failure" response to the entity that made the request in (1) above if the checks in (2) and (3) above were unsuccessful or a “success” response if the checks were successful.

(6) Ability to provide all data created by the NAP Content Provider and also data created by the NAP, i.e. quality records and data event log.

(7) Ability to record NAP Content Provider activity into the NAP Data store.

### **Low level function: F3.6.9 Manage NAP Data Retrieval**

*Last changed: 27.06.2025, GUID: {A3764B72-97E2-400c-81B8-C945964F9E0D}*

This Function shall be capable of providing the following facilities:

(1) The ability to receive and process request for data retrieval from a NAP Content Consumer or Data Requesting System.

(2) The ability to forward the authorisation credentials of the NAP Content Consumer or Data Requesting System to the Function Manage NAP User Registrations and Provide Authorisation Service and to receive a result about the authorisation of the said entities.

(3) The ability to send the request in (1) above to the Function Manage NAP Data Repository for retrieving data identified in the request from the NAP Data store if the checks in (2) above were successful.

(4) The ability to send a "failure" response to the entity that made the request in (1) above if the checks in (2) above were unsuccessful or a “success” response with the retrieved data if the checks were successful to the requesting entity.

(5) Ability to provide data retrieved from the NAP Data store to the NAP Content Consumer or Data Requesting System in a way which is requested.

(6) Ability to record NAP User Activity into the NAP Users data store.

(7) Requested data are either traffic or travel information or its support information stored in the NAP Data store (e.g. quality information, last update time) or both.

## **Functional Data Flows**

This chapter defines functional data flows for **both NAP types**, Metadata Directory and Data Platform.

### **Low Level Data Flows**

Low Level Functional Data Flows carry a specific data between two Low Level Functions.

#### **Functional Data Flow: fnap.cc-data\_request**

*Last changed: 27.06.2025, GUID: {AFB3FDE3-5682-463a-A966-CEF77741C6A9}*

It consists of inputs from the NAP Content Consumer containing data objects that provide request for retrieval of traffic or travel data stored in NAP Data store. Besides the identification of data to be retrieved the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity with right to access the data.

NOTE: authorisation credentials might be void if the data to be retrieved are freely available (i.e. open data)

#### **Functional Data Flow: fnap.cc-registration\_request**

*Last changed: 27.06.2025, GUID: {7777AD14-8D53-466c-9949-22CFAB635676}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a registration request of and information about a potential NAP Content Consumer which wants to register or a request with credentials of registered NAP Content Consumer for retrieval of its data upon a successful authorisation. (Details of the information about the NAP Content Consumer will be found in the description of the store of NAP Users).

The registration request contains relevant information about the entity to be registered under NAP Content Consumer account, including identity information, licence terms approval, users, machines, and organization information.

#### **Functional Data Flow: fnap.cp-data\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {60297FF0-CD09-4e8d-8221-0B0FF35E3239}*

It consists of inputs from the NAP Content Provider containing data objects that provide new or updated traffic or travel data to be loaded into the store of NAP Data store.

Besides the data itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

#### **Functional Data Flow: fnap.dps-data\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {8EC048EF-B06E-497b-A29E-EFB18412560E}*

It consists of inputs from the Data Provision System containing data objects that provide new or updated traffic or travel data to be loaded into the store of NAP Data store.

Besides the data itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

#### **Functional Data Flow: fnap.drs-data\_request**

*Last changed: 27.06.2025, GUID: {A57EDCA4-5B76-4808-9C68-5DDF06E70C93}*

It consists of inputs from the Data Requesting System containing data objects that provide request for retrieval of traffic or travel data stored in NAP Data store. Besides the identification of data to be retrieved the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity with right to access the data.

NOTE: authorisation credentials might be void if the data to be retrieved are freely available (i.e. open data)

#### **Functional Data Flow: fnap.mdrs-metadata\_request**

*Last changed: 27.06.2025, GUID: {1F8479D1-6CEC-42fd-8CD2-79F9AD3334A4}*

It consists of inputs from the Metadata Requesting System containing data objects that provide request for retrieval of information stored in NAP Metadata store as DCAT-AP records. The request shall contain keywords or any refining demand in at least one metadata element.

#### **Functional Data Flow: mt\_load\_NAP\_data**

*Last changed: 27.06.2025, GUID: {38D2C47E-7C5D-4d8d-B7B5-05AFC34DF3CA}*

It contains data objects that provide either new data to be loaded into the store of NAP Data, or a request for data to be retrieved. The data that is to be loaded into the store consist of traffic of travel information (static or dynamic) which are made accessible by the NAP Content Provider. The required data objects are further elaborated in NAP Data store.

Apart from real data content the information object loaded to data store shall contain data quality records and NAP Data event logs, Identification of the data and access information.

#### **Functional Data Flow: mt\_NAP\_data\_for\_quality\_check**

*Last changed: 27.06.2025, GUID: {12DD5935-707F-445e-B70C-4401AE81022C}*

It contains data objects with the traffic or travel information that has been retrieved from the store of NAP Data following a scheduled or triggered event. The data object also contains quality information that is to be updated after the quality check of the retrieved data content.

#### **Functional Data Flow: mt\_NAP\_data\_mod\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {E20BF73E-7630-4235-9E13-54B7C5C78E46}*

It contains data objects that provide credentials of a NAP Content Provider or Data Providing System to be checked against the data stored in NAP Users data store to authorize the claimant to insert data records in the store of NAP Data.

#### **Functional Data Flow: mt\_NAP\_data\_mod\_authorisation\_response**

*Last changed: 27.06.2025, GUID: {310CD8FD-F1FA-4b44-A502-9A7D061FD2BE}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Provider or Data Providing System that authorize the claimant to modify / insert data records in the store of NAP Data.

#### **Functional Data Flow: mt\_NAP\_data\_mod\_request**

*Last changed: 27.06.2025, GUID: {B7FC7C2F-C1AA-4bf8-82D4-0EA2370C6BC9}*

It contains data objects that provide either new data or updates to data that has been previously loaded into the store of NAP Data or a request for data objects to be retrieved. The updated data objects that are to be loaded into the store includes traffic or travel data objects and supporting metadata allowing linking the data object to information stored in NAP Metadata store and accessibility information by the NAP Content Consumers.

#### **Functional Data Flow: mt\_NAP\_data\_mod\_response**

*Last changed: 27.06.2025, GUID: {E340D2D2-B614-4c5f-BA76-FBD43E68CF5E}*

It contains data objects that provide information about the success of loading the newly provided or updated NAP Content Provider data into the store of NAP Data or provide data objects containing the NAP Data metadata (e.g. events associated with data access, quality information).

#### **Functional Data Flow: mt\_NAP\_data\_quality\_check\_result**

*Last changed: 27.06.2025, GUID: {8AE74C5A-125D-4ce5-ABD4-89818AAE054B}*

It contains data objects created by Provide Data Quality Checks after checking quality of data that has been retrieved from the store of NAP Data following a scheduled or triggered event. The data is timestamp and success of failure (with number of errors found) of the checks and aggregated information i.e. average of the characteristic per time period.

#### **Functional Data Flow: mt\_NAP\_data\_read\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {D487FAFF-4F5B-4520-BC53-427580A77997}*

It contains data objects that provide credentials of a NAP Content Consumer or Data Requesting System to be checked against the data stored in NAP Users data store to authorize the claimant to read data records from the store of NAP Data.

#### **Functional Data Flow: mt\_NAP\_data\_read\_authorisation\_response**

*Last changed: 27.06.2025, GUID: {C050FEDE-4276-4730-8B5C-0F605084BE69}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Consumer or Data Requesting System that authorize the claimant to read data records from the store of NAP Data.

#### **Functional Data Flow: mt\_NAP\_data\_read\_request**

*Last changed: 27.06.2025, GUID: {50A2D529-AAC6-4908-919C-7838C607386A}*

It contains a request for identified data objects to be retrieved from the NAP Data store together with requestor identification. The data objects that are to be retrieved include traffic or travel data objects and supporting metadata information related to the identified data including last update timestamp and quality information.

#### **Functional Data Flow: mt\_NAP\_data\_read\_response**

*Last changed: 27.06.2025, GUID: {3D6B17A5-0D0F-4944-9E8F-FB446B82FF2F}*

It contains data objects with traffic or travel information from the store of NAP Data following a previous request to retrieve data and last update timestamp and quality information.

#### **Functional Data Flow: mt\_NAP\_metadata\_for\_data\_check\_and\_store\_request**

*Last changed: 27.06.2025, GUID: {A65597A1-4E9A-40cc-9665-4640823B199F}*

It contains data objects that provide a request from Manage NAP Data Repository functionality for set of metadata related to NAP Data to be checked/stored/updated. The request shall contain keywords or any refining demand in at least one metadata element together with a request identifier.

#### **Functional Data Flow: mt\_NAP\_metadata\_for\_data\_check\_and\_store\_response**

*Last changed: 27.06.2025, GUID: {2FD69798-3950-48ea-B7F0-F52F39470F34}*

It contains data objects that provide items of NAP metadata which have been retrieved from the store of NAP Metadata following a previous request.

#### **Functional Data Flow: mt\_NAP\_metadata\_for\_quality\_check**

*Last changed: 27.06.2025, GUID: {EB72DA4A-A638-4946-B10F-21C536686F6C}*

It contains data objects with the metadata information that has been retrieved from the store of NAP Metadata following a scheduled or triggered event. The data object also contains quality information that is to be updated after the quality check of the retrieved metadata content.

#### **Functional Data Flow: mt\_NAP\_metadata\_quality\_check\_result**

*Last changed: 27.06.2025, GUID: {01233765-5DC4-4cf9-879E-4DC6961C9611}*

It contains data objects created by Provide Metadata Quality Checks after checking quality of metadata that has been retrieved from the store of NAP Metadata following a scheduled or triggered event. The data is timestamp and success of failure (with number of errors found, level of service achieved) of the checks and overall aggregated summary. The checks follow the MQA and InQMS methodology, at minimum it is an availability of the urls provided in metadata.

#### **Functional Data Flow: mt\_read\_NAP\_data**

*Last changed: 27.06.2025, GUID: {30332204-58C2-432d-A2FE-1801EA8E123F}*

It contains data objects that provide data that has been retrieved from the store of NAP Data following a request. The data that has been read from the store contains the traffic or travel information content together with its metadata which are made accessible to authorised NAP Functionality.

The required data objects are further elaborated in NAP Data store.

Apart from real data content the information object retrieved from data store may contain data quality records and NAP Data event logs, Identification of the data and access information.

#### **Functional Data Flow: ps\_metadata & data source**

*Last changed: 27.06.2025, GUID: {36B4BBF5-5B68-4d38-AF28-7669EFF35137}*

It consists of inputs from the Metadata Provision System containing data objects that provide updated metadata of a catalogue record to be loaded into the store of NAP metadata. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html. The API for metadata provision must allow for insert, modification and delete of any metadata of the Content Provider.

Besides the metadata itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

#### **Functional Data Flow: ps\_metadata & success report**

*Last changed: 27.06.2025, GUID: {1B63FEAE-619D-4b2e-B48D-663FEAC9BE9D}*

It contains outputs to the Metadata Provision System that informs about the status of the requested action (metadata inset, modification or deletion). The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”.

#### **Functional Data Flow: tnap.cc-data\_response**

*Last changed: 27.06.2025, GUID: {F7412343-95F0-4611-8149-58EA48466E80}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to retrieve data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials. Also based on the successful request it contains data objects representing traffic or travel data from the NAP Data store related to that request and last update timestamp and quality information.

#### **Functional Data Flow: tnap.cc-registration\_response**

*Last changed: 27.06.2025, GUID: {60E6A67C-C9D0-464b-900F-9F28DC71E886}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response (“acceptance” or “rejection”) to a previous registration request from a NAP Content Consumer. In case of a successful registration, it includes credentials for the Content Consumer to prove its authorisation to access NAP functionality that needs authorisation. Also based on the successful request it contains data of the registered NAP Content Consumer.

#### **Functional Data Flow: tnap.cp-data\_upload\_result\_report**

*Last changed: 27.06.2025, GUID: {A6E68B7A-7C94-474f-B168-C2A98537BC37}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request for newly provided or updated traffic or travel data to be loaded into the store of NAP Data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”. In case of invalid authorisation credentials, the Content Provider should be invited to (newly) register through the Manage NAP User Registrations and Provide Authorisation Service function.

#### **Functional Data Flow: tnap.dps-data\_upload\_result\_report**

*Last changed: 27.06.2025, GUID: {FBD65825-894B-415a-AE17-8AD14FDF8F08}*

It contains outputs to the Data Provision System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to upload data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials.

#### **Functional Data Flow: tnap.drs-data\_response**

*Last changed: 27.06.2025, GUID: {53ED8069-70B8-44ac-85D7-ED06B5283424}*

It contains outputs to the Data Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to retrieve data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials. Also based on the successful request it contains data objects representing traffic or travel data from the NAP Data store related to that request.

#### **Functional Data Flow: tnap.mdrs-metadata\_response**

*Last changed: 27.06.2025, GUID: {CA529868-7C49-48f9-AD5E-F796011DFDF5}*

It contains outputs to the Metadata Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP Metadata which have been retrieved from the store of NAP Metadata following a previous request. Data are formatted as DCAT-AP records compliant with mobilityDCAT-AP.

#### **Functional Data Flow: fnap.cc-metadata\_search\_request**

*Last changed: 27.06.2025, GUID: {CE5CAFBE-137B-4743-AB12-5EA3827B901A}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a request for information about accessible traffic, travel data and any other relevant information which are described with metadata in the store of NAP Metadata. The request shall contain keywords or any refining demand in at least one metadata element.

#### **Functional Data Flow: fnap.cc-support\_request**

*Last changed: 27.06.2025, GUID: {1309E545-2913-41f6-920A-68A496630817}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a request for support describing an issue the NAP User have and to which the NAP Operator shall respond. The data objects are used by functionality in the Manage Traffic Functional Area.

#### **Functional Data Flow: fnap.cp-metadata\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {8D75B934-0C29-40d6-9C80-4963B533B29D}*

It consists of inputs from the NAP Content Provider containing data objects that provide new or updated metadata to be loaded into the store of NAP metadata. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html .

Besides the metadata itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

#### **Functional Data Flow: fnap.cp-registration\_request**

*Last changed: 27.06.2025, GUID: {2165053D-3E67-4324-90F7-172FAA37E259}*

It consists of inputs from the NAP Content Provider containing data objects that provide a registration request of and information about a potential NAP Content Provider which wants to register or a request with credentials of registered NAP Content Provider for retrieval of its data upon a successful authorisation. (Details of the information about the NAP Content Provider will be found in the description of the store of NAP Users).

The registration request contains relevant information about the entity to be registered under NAP Content Provider account, including identity information, licence terms approval, users, machines, and organization information.

#### **Functional Data Flow: fnap.cp-support\_request**

*Last changed: 27.06.2025, GUID: {1ED4DEC1-3019-4933-A419-5FE60CC29FF4}*

It consists of inputs from the NAP Content Provider containing data objects that provide a request for support describing an issue the NAP User have and to which the NAP Operator shall respond. The data objects are used by functionality in the Manage Traffic Functional Area.

#### **Functional Data Flow: mt\_NAP\_metadata\_mod\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {D4D31515-ABC4-468d-964E-F6D5D4F77136}*

It contains data objects that provide credentials of a NAP Content Provider to be checked against the data stored in NAP Users data store to authorize the claimant to modify metadata records in the store of NAP Metadata.

#### **Functional Data Flow: mt\_NAP\_metadata\_mod\_authorisation\_result**

*Last changed: 27.06.2025, GUID: {C526D3EC-9CD9-465e-B6AB-D13F6308EBB3}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Provider that authorize the claimant to modify metadata records in the store of NAP Metadata.

#### **Functional Data Flow: mt\_load\_NAP\_metadata**

*Last changed: 27.06.2025, GUID: {B475FFED-C26D-4c49-A824-6030645EFB86}*

It contains data objects that provide either new metadata to be loaded into the store of NAP Metadata, or a request for metadata to be retrieved. The metadata that is to be loaded into the store shall give information about the contents which are made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a mobilityDCAT-AP https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html.

Apart from data specified by the above said catalogue other data are managed by the load function these are data quality records and NAP User event log.

#### **Functional Data Flow: mt\_load\_NAP\_user\_data**

*Last changed: 27.06.2025, GUID: {EFA11DF3-9ABC-46b9-8E31-B15D7F357F69}*

It contains data objects that provide either new data to be loaded into the store of NAP Users, or a request for data objects to be retrieved. The data objects that are to be loaded into the store will include information about a previously unregistered NAP User or modifying, extending, deleting previously registered NAP User.

#### **Functional Data Flow: mt\_NAP\_metadata\_search\_result**

*Last changed: 27.06.2025, GUID: {F378C3C8-88CC-48f5-8713-7E685951CC86}*

It contains data objects that provide metadata items which have been retrieved from the store of NAP Metadata following a previous search request. A request identifier must be included so that it can be related to a particular request (there may be multiple requests being made from the same source) and returned to the requestor.

#### **Functional Data Flow: mt\_NAP\_metadata\_mod\_request**

*Last changed: 27.06.2025, GUID: {E5EE6235-7DA8-4f7c-B007-A5F039A31397}*

It contains data objects that provide either new metadata or updates to data that has been previously loaded into the store of NAP Metadata or a request for data objects to be retrieved. The updated data objects that are to be loaded into the store includes information that is being made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html

#### **Functional Data Flow: mt\_NAP\_metadata\_search\_request**

*Last changed: 27.06.2025, GUID: {F2F9B90C-BD35-4b2a-8DCB-4B8F834C419A}*

It contains data objects that provide a request from the NAP Content Consumer for information about traffic, travel data and any other relevant information which are described with metadata in the store of NAP Metadata. The request shall contain keywords or any refining demand in at least one metadata element together with a request identifier.

#### **Functional Data Flow: mt\_read\_NAP\_metadata**

*Last changed: 27.06.2025, GUID: {1E6C064E-67D4-4638-9588-0E0DCF2813ED}*

It contains data objects that provide metadata that has been retrieved from the store of NAP Metadata following a request. The metadata that has been read from the store gives information about the contents which are made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html

Apart from data specified by the above said catalogue other data are managed by the read function these are data quality records and NAP User event log.

#### **Functional Data Flow: mt\_read\_NAP\_user\_data**

*Last changed: 27.06.2025, GUID: {6D08A3DC-FB6E-47d7-B1BF-B68208337A4F}*

It contains data objects that provide data that has been read from the store of NAP Users, following a previous request for data to be retrieved. The data that is to be read from the store will be information about a registered NAP User, or a "no data" found response. (Details of the type of information about the NAP Users that is available will be found in the description of the store of their data).

#### **Functional Data Flow: mt\_NAP\_metadata\_mod\_result**

*Last changed: 27.06.2025, GUID: {3947BAD7-63D3-4efd-9308-DDBCD8C288F9}*

It contains data objects that provide information about the success of loading the newly provided or updated NAP Content Provider metadata into the store of NAP Metadata or provide data objects containing the NAP Content Provider metadata All information stored in the NAP Metadata store about the authorised NAP Content Provider may be retrieved this way.

#### **Functional Data Flow: tnap.cc-metadata\_search\_result**

*Last changed: 27.06.2025, GUID: {DDCEDB1B-C3C2-4d88-AAF0-8371D10BF745}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP metadata which have been retrieved from the store of NAP metadata following a previous search request.

#### **Functional Data Flow: tnap.cc-support\_response**

*Last changed: 27.06.2025, GUID: {27BFFD1B-0E50-4c8b-8CDF-8F958078802C}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the responses to previous requests for support, i.e. information about handling and resolving the issue.

#### **Functional Data Flow: tnap.cp-registration\_response**

*Last changed: 27.06.2025, GUID: {AFD11DEB-11FE-4692-8BEB-B81835B7A4AD}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response (“acceptance” or “rejection”) to a previous registration request from a NAP Content Provider. In case of a successful registration, it includes credentials for the Content Provider to prove its authorisation to access NAP functionality that needs authorisation. Also based on the successful request it contains data of the registered NAP Content Provider

#### **Functional Data Flow: tnap.cp-metadata\_&\_success\_report**

*Last changed: 27.06.2025, GUID: {169488F2-0C7D-4eef-8B43-C324785B730D}*

It contains outputs to the NAP Content Provider that have been as the response to a previous request to create, update or delete Content Provider related metadata in the store of NAP Metadata. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”. In case of invalid authorisation credentials, the Content Provider should be invited to (newly) register through the Manage NAP User Registrations function. Also based on the successful request it contains data objects from the NAP Metadata store related to that NAP Content Provider.

#### **Functional Data Flow: tnap.cp-support\_response**

*Last changed: 27.06.2025, GUID: {997937B5-775D-4297-8297-D9ABB198ACF2}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the responses to previous requests for support. i.e. information about handling and resolving the issue.

### **High Level Data Flows**

High Level Functional Data Flows carry a specific data between two High Level Functions. They always have component Low Level Functional Data Flows.

#### **Functional Data Flow: fnap-mt\_inputs**

*Last changed: 30.06.2025, GUID: {90829C59-D7DB-4ff9-8AB7-F4BBCEA7422B}*

It consists of data objects received from the NAP Actors that contain either Internet addresses from which data objects provided by ITS Services can be obtained, or requests for the Internet addresses.

#### **Functional Data Flow: From NAP Actors**

*Last changed: 30.06.2025, GUID: {C6FE2F39-008F-4811-AE0F-95EB671FFFD2}*

This data flow only appears in the Context Diagram and contains input from the NAP Actors Terminator. It contains data objects containing either the Internet address from which other data objects about ITS Services are available, or a request for access to these data objects.

#### **Functional Data Flow: tnap-mt\_outputs**

*Last changed: 30.06.2025, GUID: {B767384A-BAB2-4802-A07C-DA9BA8B1132A}*

It contains outputs to the NAP Actors that have been created from data objects provided by functionality in the Manage Traffic Functional Area and includes either confirmation of acceptance of inputs, or the Internet addresses from which access to data objects provided by ITS Services can be obtained.

#### **Functional Data Flow: tnap-mt\_outputs**

*Last changed: 30.06.2025, GUID: {EACAFE4C-395F-4a01-B251-D6ED49DAFC30}*

It contains outputs to the NAP Actors that have been created from data objects provided by functionality in the Manage Traffic Functional Area and includes either confirmation of acceptance of inputs, or the Internet addresses from which access to data objects provided by ITS Services can be obtained.

#### **Functional Data Flow: To NAP Actors**

*Last changed: 30.06.2025, GUID: {98E4FDFE-8123-4b37-B03A-5DCCED4FE24B}*

This data flow only appears in the Context Diagram and contains output to the NAP Actors Terminator. It contains data objects containing either confirmation that the Internet address from which other data objects about ITS Services are available has been recorded, or the result of aa request for access to these data objects.

#### **Functional Data Flow: To NAP Actors**

*Last changed: 30.06.2025, GUID: {ADFABE98-0117-47ee-946B-6FFF3043F214}*

This data flow only appears in the Context Diagram and contains output to the NAP Actors Terminator. It contains data objects containing either confirmation that the Internet address from which other data objects about ITS Services are available has been recorded, or the result of aa request for access to these data objects.

## **High Level Data Flows**

High Level Functional Data Flows carry a specific data between two High Level Functions. They always have component Low Level Functional Data Flows.

### **Functional Data Flow: fnap-mt\_inputs**

*Last changed: 30.06.2025, GUID: {90829C59-D7DB-4ff9-8AB7-F4BBCEA7422B}*

It consists of data objects received from the NAP Actors that contain either Internet addresses from which data objects provided by ITS Services can be obtained, or requests for the Internet addresses.

### **Functional Data Flow: From NAP Actors**

*Last changed: 30.06.2025, GUID: {C6FE2F39-008F-4811-AE0F-95EB671FFFD2}*

This data flow only appears in the Context Diagram and contains input from the NAP Actors Terminator. It contains data objects containing either the Internet address from which other data objects about ITS Services are available, or a request for access to these data objects.

### **Functional Data Flow: tnap-mt\_outputs**

*Last changed: 30.06.2025, GUID: {B767384A-BAB2-4802-A07C-DA9BA8B1132A}*

It contains outputs to the NAP Actors that have been created from data objects provided by functionality in the Manage Traffic Functional Area and includes either confirmation of acceptance of inputs, or the Internet addresses from which access to data objects provided by ITS Services can be obtained.

### **Functional Data Flow: tnap-mt\_outputs**

*Last changed: 30.06.2025, GUID: {EACAFE4C-395F-4a01-B251-D6ED49DAFC30}*

It contains outputs to the NAP Actors that have been created from data objects provided by functionality in the Manage Traffic Functional Area and includes either confirmation of acceptance of inputs, or the Internet addresses from which access to data objects provided by ITS Services can be obtained.

### **Functional Data Flow: To NAP Actors**

*Last changed: 30.06.2025, GUID: {98E4FDFE-8123-4b37-B03A-5DCCED4FE24B}*

This data flow only appears in the Context Diagram and contains output to the NAP Actors Terminator. It contains data objects containing either confirmation that the Internet address from which other data objects about ITS Services are available has been recorded, or the result of aa request for access to these data objects.

### **Functional Data Flow: To NAP Actors**

*Last changed: 30.06.2025, GUID: {ADFABE98-0117-47ee-946B-6FFF3043F214}*

This data flow only appears in the Context Diagram and contains output to the NAP Actors Terminator. It contains data objects containing either confirmation that the Internet address from which other data objects about ITS Services are available has been recorded, or the result of aa request for access to these data objects.

## **Low Level Data Flows**

Low Level Functional Data Flows carry a specific data between two Low Level Functions.

### **Functional Data Flow: fnap.cc-data\_request**

*Last changed: 27.06.2025, GUID: {AFB3FDE3-5682-463a-A966-CEF77741C6A9}*

It consists of inputs from the NAP Content Consumer containing data objects that provide request for retrieval of traffic or travel data stored in NAP Data store. Besides the identification of data to be retrieved the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity with right to access the data.

NOTE: authorisation credentials might be void if the data to be retrieved are freely available (i.e. open data)

### **Functional Data Flow: fnap.cc-registration\_request**

*Last changed: 27.06.2025, GUID: {7777AD14-8D53-466c-9949-22CFAB635676}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a registration request of and information about a potential NAP Content Consumer which wants to register or a request with credentials of registered NAP Content Consumer for retrieval of its data upon a successful authorisation. (Details of the information about the NAP Content Consumer will be found in the description of the store of NAP Users).

The registration request contains relevant information about the entity to be registered under NAP Content Consumer account, including identity information, licence terms approval, users, machines, and organization information.

### **Functional Data Flow: fnap.cp-data\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {60297FF0-CD09-4e8d-8221-0B0FF35E3239}*

It consists of inputs from the NAP Content Provider containing data objects that provide new or updated traffic or travel data to be loaded into the store of NAP Data store.

Besides the data itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

### **Functional Data Flow: fnap.dps-data\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {8EC048EF-B06E-497b-A29E-EFB18412560E}*

It consists of inputs from the Data Provision System containing data objects that provide new or updated traffic or travel data to be loaded into the store of NAP Data store.

Besides the data itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

### **Functional Data Flow: fnap.drs-data\_request**

*Last changed: 27.06.2025, GUID: {A57EDCA4-5B76-4808-9C68-5DDF06E70C93}*

It consists of inputs from the Data Requesting System containing data objects that provide request for retrieval of traffic or travel data stored in NAP Data store. Besides the identification of data to be retrieved the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity with right to access the data.

NOTE: authorisation credentials might be void if the data to be retrieved are freely available (i.e. open data)

### **Functional Data Flow: fnap.mdrs-metadata\_request**

*Last changed: 27.06.2025, GUID: {1F8479D1-6CEC-42fd-8CD2-79F9AD3334A4}*

It consists of inputs from the Metadata Requesting System containing data objects that provide request for retrieval of information stored in NAP Metadata store as DCAT-AP records. The request shall contain keywords or any refining demand in at least one metadata element.

### **Functional Data Flow: mt\_load\_NAP\_data**

*Last changed: 27.06.2025, GUID: {38D2C47E-7C5D-4d8d-B7B5-05AFC34DF3CA}*

It contains data objects that provide either new data to be loaded into the store of NAP Data, or a request for data to be retrieved. The data that is to be loaded into the store consist of traffic of travel information (static or dynamic) which are made accessible by the NAP Content Provider. The required data objects are further elaborated in NAP Data store.

Apart from real data content the information object loaded to data store shall contain data quality records and NAP Data event logs, Identification of the data and access information.

### **Functional Data Flow: mt\_NAP\_data\_for\_quality\_check**

*Last changed: 27.06.2025, GUID: {12DD5935-707F-445e-B70C-4401AE81022C}*

It contains data objects with the traffic or travel information that has been retrieved from the store of NAP Data following a scheduled or triggered event. The data object also contains quality information that is to be updated after the quality check of the retrieved data content.

### **Functional Data Flow: mt\_NAP\_data\_mod\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {E20BF73E-7630-4235-9E13-54B7C5C78E46}*

It contains data objects that provide credentials of a NAP Content Provider or Data Providing System to be checked against the data stored in NAP Users data store to authorize the claimant to insert data records in the store of NAP Data.

### **Functional Data Flow: mt\_NAP\_data\_mod\_authorisation\_response**

*Last changed: 27.06.2025, GUID: {310CD8FD-F1FA-4b44-A502-9A7D061FD2BE}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Provider or Data Providing System that authorize the claimant to modify / insert data records in the store of NAP Data.

### **Functional Data Flow: mt\_NAP\_data\_mod\_request**

*Last changed: 27.06.2025, GUID: {B7FC7C2F-C1AA-4bf8-82D4-0EA2370C6BC9}*

It contains data objects that provide either new data or updates to data that has been previously loaded into the store of NAP Data or a request for data objects to be retrieved. The updated data objects that are to be loaded into the store includes traffic or travel data objects and supporting metadata allowing linking the data object to information stored in NAP Metadata store and accessibility information by the NAP Content Consumers.

### **Functional Data Flow: mt\_NAP\_data\_mod\_response**

*Last changed: 27.06.2025, GUID: {E340D2D2-B614-4c5f-BA76-FBD43E68CF5E}*

It contains data objects that provide information about the success of loading the newly provided or updated NAP Content Provider data into the store of NAP Data or provide data objects containing the NAP Data metadata (e.g. events associated with data access, quality information).

### **Functional Data Flow: mt\_NAP\_data\_quality\_check\_result**

*Last changed: 27.06.2025, GUID: {8AE74C5A-125D-4ce5-ABD4-89818AAE054B}*

It contains data objects created by Provide Data Quality Checks after checking quality of data that has been retrieved from the store of NAP Data following a scheduled or triggered event. The data is timestamp and success of failure (with number of errors found) of the checks and aggregated information i.e. average of the characteristic per time period.

### **Functional Data Flow: mt\_NAP\_data\_read\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {D487FAFF-4F5B-4520-BC53-427580A77997}*

It contains data objects that provide credentials of a NAP Content Consumer or Data Requesting System to be checked against the data stored in NAP Users data store to authorize the claimant to read data records from the store of NAP Data.

### **Functional Data Flow: mt\_NAP\_data\_read\_authorisation\_response**

*Last changed: 27.06.2025, GUID: {C050FEDE-4276-4730-8B5C-0F605084BE69}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Consumer or Data Requesting System that authorize the claimant to read data records from the store of NAP Data.

### **Functional Data Flow: mt\_NAP\_data\_read\_request**

*Last changed: 27.06.2025, GUID: {50A2D529-AAC6-4908-919C-7838C607386A}*

It contains a request for identified data objects to be retrieved from the NAP Data store together with requestor identification. The data objects that are to be retrieved include traffic or travel data objects and supporting metadata information related to the identified data including last update timestamp and quality information.

### **Functional Data Flow: mt\_NAP\_data\_read\_response**

*Last changed: 27.06.2025, GUID: {3D6B17A5-0D0F-4944-9E8F-FB446B82FF2F}*

It contains data objects with traffic or travel information from the store of NAP Data following a previous request to retrieve data and last update timestamp and quality information.

### **Functional Data Flow: mt\_NAP\_metadata\_for\_data\_check\_and\_store\_request**

*Last changed: 27.06.2025, GUID: {A65597A1-4E9A-40cc-9665-4640823B199F}*

It contains data objects that provide a request from Manage NAP Data Repository functionality for set of metadata related to NAP Data to be checked/stored/updated. The request shall contain keywords or any refining demand in at least one metadata element together with a request identifier.

### **Functional Data Flow: mt\_NAP\_metadata\_for\_data\_check\_and\_store\_response**

*Last changed: 27.06.2025, GUID: {2FD69798-3950-48ea-B7F0-F52F39470F34}*

It contains data objects that provide items of NAP metadata which have been retrieved from the store of NAP Metadata following a previous request.

### **Functional Data Flow: mt\_NAP\_metadata\_for\_quality\_check**

*Last changed: 27.06.2025, GUID: {EB72DA4A-A638-4946-B10F-21C536686F6C}*

It contains data objects with the metadata information that has been retrieved from the store of NAP Metadata following a scheduled or triggered event. The data object also contains quality information that is to be updated after the quality check of the retrieved metadata content.

### **Functional Data Flow: mt\_NAP\_metadata\_quality\_check\_result**

*Last changed: 27.06.2025, GUID: {01233765-5DC4-4cf9-879E-4DC6961C9611}*

It contains data objects created by Provide Metadata Quality Checks after checking quality of metadata that has been retrieved from the store of NAP Metadata following a scheduled or triggered event. The data is timestamp and success of failure (with number of errors found, level of service achieved) of the checks and overall aggregated summary. The checks follow the MQA and InQMS methodology, at minimum it is an availability of the urls provided in metadata.

### **Functional Data Flow: mt\_read\_NAP\_data**

*Last changed: 27.06.2025, GUID: {30332204-58C2-432d-A2FE-1801EA8E123F}*

It contains data objects that provide data that has been retrieved from the store of NAP Data following a request. The data that has been read from the store contains the traffic or travel information content together with its metadata which are made accessible to authorised NAP Functionality.

The required data objects are further elaborated in NAP Data store.

Apart from real data content the information object retrieved from data store may contain data quality records and NAP Data event logs, Identification of the data and access information.

### **Functional Data Flow: ps\_metadata & data source**

*Last changed: 27.06.2025, GUID: {36B4BBF5-5B68-4d38-AF28-7669EFF35137}*

It consists of inputs from the Metadata Provision System containing data objects that provide updated metadata of a catalogue record to be loaded into the store of NAP metadata. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html. The API for metadata provision must allow for insert, modification and delete of any metadata of the Content Provider.

Besides the metadata itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

### **Functional Data Flow: ps\_metadata & success report**

*Last changed: 27.06.2025, GUID: {1B63FEAE-619D-4b2e-B48D-663FEAC9BE9D}*

It contains outputs to the Metadata Provision System that informs about the status of the requested action (metadata inset, modification or deletion). The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”.

### **Functional Data Flow: tnap.cc-data\_response**

*Last changed: 27.06.2025, GUID: {F7412343-95F0-4611-8149-58EA48466E80}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to retrieve data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials. Also based on the successful request it contains data objects representing traffic or travel data from the NAP Data store related to that request and last update timestamp and quality information.

### **Functional Data Flow: tnap.cc-registration\_response**

*Last changed: 27.06.2025, GUID: {60E6A67C-C9D0-464b-900F-9F28DC71E886}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response (“acceptance” or “rejection”) to a previous registration request from a NAP Content Consumer. In case of a successful registration, it includes credentials for the Content Consumer to prove its authorisation to access NAP functionality that needs authorisation. Also based on the successful request it contains data of the registered NAP Content Consumer.

### **Functional Data Flow: tnap.cp-data\_upload\_result\_report**

*Last changed: 27.06.2025, GUID: {A6E68B7A-7C94-474f-B168-C2A98537BC37}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request for newly provided or updated traffic or travel data to be loaded into the store of NAP Data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”. In case of invalid authorisation credentials, the Content Provider should be invited to (newly) register through the Manage NAP User Registrations and Provide Authorisation Service function.

### **Functional Data Flow: tnap.dps-data\_upload\_result\_report**

*Last changed: 27.06.2025, GUID: {FBD65825-894B-415a-AE17-8AD14FDF8F08}*

It contains outputs to the Data Provision System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to upload data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials.

### **Functional Data Flow: tnap.drs-data\_response**

*Last changed: 27.06.2025, GUID: {53ED8069-70B8-44ac-85D7-ED06B5283424}*

It contains outputs to the Data Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response to a previous request to retrieve data. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure” i.e. invalid authorisation credentials. Also based on the successful request it contains data objects representing traffic or travel data from the NAP Data store related to that request.

### **Functional Data Flow: tnap.mdrs-metadata\_response**

*Last changed: 27.06.2025, GUID: {CA529868-7C49-48f9-AD5E-F796011DFDF5}*

It contains outputs to the Metadata Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP Metadata which have been retrieved from the store of NAP Metadata following a previous request. Data are formatted as DCAT-AP records compliant with mobilityDCAT-AP.

### **Functional Data Flow: fnap.cc-metadata\_search\_request**

*Last changed: 27.06.2025, GUID: {CE5CAFBE-137B-4743-AB12-5EA3827B901A}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a request for information about accessible traffic, travel data and any other relevant information which are described with metadata in the store of NAP Metadata. The request shall contain keywords or any refining demand in at least one metadata element.

### **Functional Data Flow: fnap.cc-support\_request**

*Last changed: 27.06.2025, GUID: {1309E545-2913-41f6-920A-68A496630817}*

It consists of inputs from the NAP Content Consumer containing data objects that provide a request for support describing an issue the NAP User have and to which the NAP Operator shall respond. The data objects are used by functionality in the Manage Traffic Functional Area.

### **Functional Data Flow: fnap.cp-metadata\_&\_authorisation\_credentials**

*Last changed: 27.06.2025, GUID: {8D75B934-0C29-40d6-9C80-4963B533B29D}*

It consists of inputs from the NAP Content Provider containing data objects that provide new or updated metadata to be loaded into the store of NAP metadata. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html .

Besides the metadata itself the request must contain the authorisation credentials of the entity that is providing it, so that this can be checked to ensure that it is a registered entity.

### **Functional Data Flow: fnap.cp-registration\_request**

*Last changed: 27.06.2025, GUID: {2165053D-3E67-4324-90F7-172FAA37E259}*

It consists of inputs from the NAP Content Provider containing data objects that provide a registration request of and information about a potential NAP Content Provider which wants to register or a request with credentials of registered NAP Content Provider for retrieval of its data upon a successful authorisation. (Details of the information about the NAP Content Provider will be found in the description of the store of NAP Users).

The registration request contains relevant information about the entity to be registered under NAP Content Provider account, including identity information, licence terms approval, users, machines, and organization information.

### **Functional Data Flow: fnap.cp-support\_request**

*Last changed: 27.06.2025, GUID: {1ED4DEC1-3019-4933-A419-5FE60CC29FF4}*

It consists of inputs from the NAP Content Provider containing data objects that provide a request for support describing an issue the NAP User have and to which the NAP Operator shall respond. The data objects are used by functionality in the Manage Traffic Functional Area.

### **Functional Data Flow: mt\_NAP\_metadata\_mod\_authorisation\_request**

*Last changed: 27.06.2025, GUID: {D4D31515-ABC4-468d-964E-F6D5D4F77136}*

It contains data objects that provide credentials of a NAP Content Provider to be checked against the data stored in NAP Users data store to authorize the claimant to modify metadata records in the store of NAP Metadata.

### **Functional Data Flow: mt\_NAP\_metadata\_mod\_authorisation\_result**

*Last changed: 27.06.2025, GUID: {C526D3EC-9CD9-465e-B6AB-D13F6308EBB3}*

It contains data objects that provide information about the validity of the authorisation credentials of a NAP Content Provider that authorize the claimant to modify metadata records in the store of NAP Metadata.

### **Functional Data Flow: mt\_load\_NAP\_metadata**

*Last changed: 27.06.2025, GUID: {B475FFED-C26D-4c49-A824-6030645EFB86}*

It contains data objects that provide either new metadata to be loaded into the store of NAP Metadata, or a request for metadata to be retrieved. The metadata that is to be loaded into the store shall give information about the contents which are made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a mobilityDCAT-AP https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html.

Apart from data specified by the above said catalogue other data are managed by the load function these are data quality records and NAP User event log.

### **Functional Data Flow: mt\_load\_NAP\_user\_data**

*Last changed: 27.06.2025, GUID: {EFA11DF3-9ABC-46b9-8E31-B15D7F357F69}*

It contains data objects that provide either new data to be loaded into the store of NAP Users, or a request for data objects to be retrieved. The data objects that are to be loaded into the store will include information about a previously unregistered NAP User or modifying, extending, deleting previously registered NAP User.

### **Functional Data Flow: mt\_NAP\_metadata\_search\_result**

*Last changed: 27.06.2025, GUID: {F378C3C8-88CC-48f5-8713-7E685951CC86}*

It contains data objects that provide metadata items which have been retrieved from the store of NAP Metadata following a previous search request. A request identifier must be included so that it can be related to a particular request (there may be multiple requests being made from the same source) and returned to the requestor.

### **Functional Data Flow: mt\_NAP\_metadata\_mod\_request**

*Last changed: 27.06.2025, GUID: {E5EE6235-7DA8-4f7c-B007-A5F039A31397}*

It contains data objects that provide either new metadata or updates to data that has been previously loaded into the store of NAP Metadata or a request for data objects to be retrieved. The updated data objects that are to be loaded into the store includes information that is being made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html

### **Functional Data Flow: mt\_NAP\_metadata\_search\_request**

*Last changed: 27.06.2025, GUID: {F2F9B90C-BD35-4b2a-8DCB-4B8F834C419A}*

It contains data objects that provide a request from the NAP Content Consumer for information about traffic, travel data and any other relevant information which are described with metadata in the store of NAP Metadata. The request shall contain keywords or any refining demand in at least one metadata element together with a request identifier.

### **Functional Data Flow: mt\_read\_NAP\_metadata**

*Last changed: 27.06.2025, GUID: {1E6C064E-67D4-4638-9588-0E0DCF2813ED}*

It contains data objects that provide metadata that has been retrieved from the store of NAP Metadata following a request. The metadata that has been read from the store gives information about the contents which are made accessible by the NAP Content Provider. The required and optional elements of metadata can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html

Apart from data specified by the above said catalogue other data are managed by the read function these are data quality records and NAP User event log.

### **Functional Data Flow: mt\_read\_NAP\_user\_data**

*Last changed: 27.06.2025, GUID: {6D08A3DC-FB6E-47d7-B1BF-B68208337A4F}*

It contains data objects that provide data that has been read from the store of NAP Users, following a previous request for data to be retrieved. The data that is to be read from the store will be information about a registered NAP User, or a "no data" found response. (Details of the type of information about the NAP Users that is available will be found in the description of the store of their data).

### **Functional Data Flow: mt\_NAP\_metadata\_mod\_result**

*Last changed: 27.06.2025, GUID: {3947BAD7-63D3-4efd-9308-DDBCD8C288F9}*

It contains data objects that provide information about the success of loading the newly provided or updated NAP Content Provider metadata into the store of NAP Metadata or provide data objects containing the NAP Content Provider metadata All information stored in the NAP Metadata store about the authorised NAP Content Provider may be retrieved this way.

### **Functional Data Flow: tnap.cc-metadata\_search\_result**

*Last changed: 27.06.2025, GUID: {DDCEDB1B-C3C2-4d88-AAF0-8371D10BF745}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP metadata which have been retrieved from the store of NAP metadata following a previous search request.

### **Functional Data Flow: tnap.cc-support\_response**

*Last changed: 27.06.2025, GUID: {27BFFD1B-0E50-4c8b-8CDF-8F958078802C}*

It contains outputs to the NAP Content Consumer that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the responses to previous requests for support, i.e. information about handling and resolving the issue.

### **Functional Data Flow: tnap.cp-registration\_response**

*Last changed: 27.06.2025, GUID: {AFD11DEB-11FE-4692-8BEB-B81835B7A4AD}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the response (“acceptance” or “rejection”) to a previous registration request from a NAP Content Provider. In case of a successful registration, it includes credentials for the Content Provider to prove its authorisation to access NAP functionality that needs authorisation. Also based on the successful request it contains data of the registered NAP Content Provider

### **Functional Data Flow: tnap.cp-metadata\_&\_success\_report**

*Last changed: 27.06.2025, GUID: {169488F2-0C7D-4eef-8B43-C324785B730D}*

It contains outputs to the NAP Content Provider that have been as the response to a previous request to create, update or delete Content Provider related metadata in the store of NAP Metadata. The response can be either “successful” or “failed”, which must be accompanied by a reason for the “failure”. In case of invalid authorisation credentials, the Content Provider should be invited to (newly) register through the Manage NAP User Registrations function. Also based on the successful request it contains data objects from the NAP Metadata store related to that NAP Content Provider.

### **Functional Data Flow: tnap.cp-support\_response**

*Last changed: 27.06.2025, GUID: {997937B5-775D-4297-8297-D9ABB198ACF2}*

It contains outputs to the NAP Content Provider that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are the responses to previous requests for support. i.e. information about handling and resolving the issue.

## **Data Stores**

This chapter defines data stores for **both NAP types**, Metadata Directory and Data Platform.

### **Data Store: D3.18 NAP Data**

*Last changed: 27.06.2025, GUID: {B1156E38-B7ED-4dcd-BD87-C003C660A85A}*

This Data Store shall be used within the Manage Traffic Functional Area. It shall contain information objects that provide traffic and travel data.

Each information object in the Store shall contain the following data objects:

(1) actual stored traffic or travel related data that is considered as a compact and comprehensive data content

(2) data quality information

(3) relation of the data content to the metadata elements, allowing to identify data distribution

(4) access credentials to stored content identifying the information object creator and updater and its readers

(5) last update time information

(6) size of the object

Data content to be stored in the data store is given mainly by the obligations to make certain data content accessible via the NAP. The obligation together with a list of data is stipulated in the ITS Directive 2010/40/EU and its revised version (EU) 2023/2661 and complementary Delegated Regulations 885/2013, 886/2013, 2015/962, 2017/1926, 2022/670 and 2023/1804.

### **Data Store: D3.15 NAP Metadata**

*Last changed: 27.06.2025, GUID: {107C58F6-DF90-4243-BEBB-A50AAACE3DF0}*

This Data Store shall be used within the Manage Traffic Functional Area. It shall contain information objects that provide metadata about traffic, travel data and any other relevant information. The required and optional elements of metadata have been harmonised and can be found in a metadata catalogue: https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html.

Metadata is structured in the data store to:

(1) describe data provider, where each data provider may list multiple of

(2) data sets or services and each of such can be provided by more than one way by specifying its

(3) distribution parameters.

The content and the structure are governed by the mobilityDCAT-AP.

Further on the data store also contains:

(4) log of events with respect of metadata creation, update and

(5) quality information per data set.

### **Data Store: D3.17 NAP Users**

*Last changed: 27.06.2025, GUID: {6EFCE4AC-8716-4e03-A229-875C0AA05392}*

This Data Store shall be used within the Manage Traffic Functional Area. It shall contain information objects that provide details of NAP Users, i.e. NAP Content Providers and NAP Content Consumers (for Data Platform NAP type) . The Data Store contains private information used by NAP Users to access the NAP, to provide agreement on terms and conditions. Public metadata about traffic and travel information and other related information are stored in NAP Metadata store (D3.15).

For Content Providers the data store contains following data objects:

(1) organization with name (1.1), postal address (1.2), website (1.3), agreement on licence terms (1.4), unique identifier assigned to organization (1.5), name and contact details of a responsible person to act as a contact (1.6).

(2) user account(s) with name (2.1), email (2.2), credentials (2.3), user type (2.4).

\*(3) machine account with url (3.1), connection type (3.2), credentials (3.3).

For Content Consumers the data store contains following data objects:

\*(1) organization with name (1.1), postal address (1.2), website (1.3), agreement on licence terms (1.4), unique identifier assigned to organization (1.5), name and contact details of a responsible person to act as a contact (1.6).

\*(2) user account(s) with name (2.1), email (2.2), credentials (2.3), user type (2.4).

\*(3) machine account with url (3.1), connection type (3.2), credentials (3.3).

\* Optional data object for Data Platform NAP type and even there it is optional provided the data is not openly accessible.

Additionally, for both:

(4) Event information (log in, log out, change of data)

## **Terminators**

This chapter defines terminators for **both NAP types**, Metadata Directory and Data Platform.

### **Terminator: Data Provision System**

*Last changed: 27.06.2025, GUID: {13412496-2C40-428c-B961-F0F374D991C8}*

The generic terminator role Data Provision System represents any interested entity in traffic, travel data storage. The Data Provision System can request storing traffic and travel data in the NAP Data store. Therefore, Function F3.6.8 Manage Data Input offers an access interface for machine-to-machine data upload. Authorisation is necessary, the Data Provision System must use credentials obtained by Content Provider. When registering the Content Provider will obtain credentials and / or to set up a machine account from which data are pushed.

**Key issue**: Request to store data at NAP.

**Area of responsibility**: Be compliant with the agreement with content provider

**Tasks**: Upload content

**Mnemonic**: nap.dps

### **Terminator: Data Requesting System**

*Last changed: 27.06.2025, GUID: {6CBF0F02-2909-4086-A608-C5EA1E42A9F6}*

The generic terminator role Data Requesting System represents any interested entity in traffic, travel data. The Data Requesting System can request traffic and travel data available in the NAP Data store. Therefore, Function F3.6.9 Manage NAP Data Retrieval offers a data distribution interface for machine-to-machine data retrieval.

In some cases, especially when the data are pushed to the Content Consumer systems and / or authorisation is necessary the Data Requesting System must use credentials obtained by Content Consumer. When registering the Content Consumer will obtain credentials and / or to set up a machine account to which data are pushed.

**Key issue**: Request data stored at NAP.

**Area of responsibility**: Be compliant with the agreement with content provider

**Tasks**: Receive content

**Mnemonic**: nap.drs

### **Terminator: Metadata Provision System**

*Last changed: 27.06.2025, GUID: {0DEEF50F-C3BA-4005-A27B-57A30C4C009C}*

The generic terminator role Metadata Provision System represents any compatible entity in metadata storage.

The Metadata Provision System can request storing metadata in the NAP Metadata store. Therefore, Function Metadata Management Module offers an access interface for machine-to-machine data upload. Authorisation is necessary, the Metadata Provision System must use credentials obtained by Content Provider. When registering the Content Provider will obtain credentials and / or to set up a machine account from which data are pushed.

**Key issue**: Request to store metadata at NAP.

**Area of responsibility**: Be compliant with the agreement with content provider

**Tasks**: Upload metadata

**Mnemonic**: nap.mdps

### **Terminator: Metadata Requesting System**

*Last changed: 27.06.2025, GUID: {DEB4AC48-7332-4f57-99D5-79169FCA6F1F}*

The generic terminator role Metadata Requesting System represents any interested entity in traffic and transport metadata dissemination. The Metadata Requesting System can request information stored in the NAP Metadata store in a standardized format (mobilityDCAT-AP) to incorporate said data into its information services (i.e. metadata harvesting). Therefore, Function F3.6.4 Manage NAP Metadata Retrieval offers a data distribution interface for machine-to-machine data retrieval.

**Key issue**: Request metadata stored at NAP.

**Area of responsibility**: Be compliant with the agreement with the NAP operator

**Tasks**: Receive information about the content in a standardized manner, i.e. metadata

**Mnemonic**: nap.mdrs

### **Terminator: NAP Actors**

*Last changed: 30.06.2025, GUID: {E89EDD6C-D939-4b97-AB60-AAD3FA5FE237}*

This Terminator shall represent the actors that participate in the National Access Point (NAP) ITS Service. This ITS Service provides a mechanism that enables organisations to access data available from other ITS Services. It shall consist of the following Terminators.

* NAP Content Provider
* NAP Content Consumer

**Mnemonic**: nap

#### **Terminator: NAP Content Consumer**

*Last changed: 27.06.2025, GUID: {6713B765-606E-4208-8FE8-99B0D50851A5}*

The generic terminator role of the NAP Content Consumer represents any interested entity in traffic and transport data. The Content Consumer can find available data via the NAP. Therefore, Function F3.6.4 Provide Access for NAP Meta-Data Retrieval offers an interface (typically a graphical user interface freely accessible via the Internet) to search the meta-data in D3.15 NAP Meta-Data

**Key issue**: Request high-quality services; provide feedback about relevant content

**Area of responsibility**: Be compliant with the agreement with the NAP content provider

**Tasks**: Receive content

**Mnemonic**: nap.cc

#### **Terminator: NAP Content Provider**

*Last changed: 27.06.2025, GUID: {7F7723C2-1334-495d-8C3F-1CA486951DD2}*

The generic terminator role of the NAP Content Provider represents any provider of traffic and transport data.

The NAP Content Provider describes traffic and transport data with meta-data on the NAP (stored in D3.15 NAP Meta-Data). Information about the Content Provider, such as contact details, kept in D3.17 NAP Content Providers.

Content Providers are public and private road operators, road authorities, service providers, transport authorities, transport operators, infrastructure managers, and transport on-demand service providers. The obligations to make traffic and transport data accessible via the NAP depend on the type of data according to the ITS Directive and its respective delegated regulations (see Content Provider Actor)

**Key issue**: Provide and publish content (which the content provider has the legal rights to publish); collect content.

**Area of responsibility**: Provide timely and accurate traffic and transport data.

**Tasks**: Provide content relevant to the ITS domain and according to contracts with the NAP and content consumers

**Mnemonic**: nap.cp

# **Organisational View**

*version: 2.0*

The Organizational View provides information about the actors, their roles and responsibilities, and relationships between roles in terms of lawful or contractual relationships. It also depicts desired business results and business processes for the ITS deployment which are related to the sub-set ITS architecture (owns, plans, maintains, deploys, implements, tender, …).

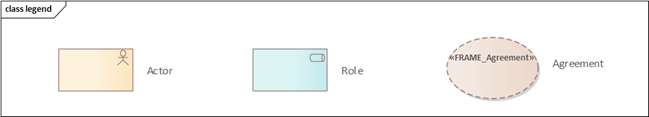
The View consists of **Actors** performing one or more **Roles**, **Agreements** between the Roles, and relations to the **Components** and **Modules**.

In the NAP Reference Architecture, the main Actors are the NAP Operator, the NAP Content Provider, the NAP Content Consumer, the National Body, the Member State, the European Commission, and the NAP Technical Operator. The Organizational View describes their responsibilities/obligations and identifies typical representatives of those roles. It also describes what lawful obligations these roles have (modelled as the relationship between the law-making roles and other roles) and what shall be the content of a contractual relationship between the roles.

**IMPORTANT**: All lawful obligations come from the policy maker roles towards other roles, i.e., contracts between two non-policy-making roles do not contain what is already given, for the relationship of those roles, by the law.



**Figure:** NAP Organisational View



## **Actors**

This chapter defines Actors interacting with the NAP in Organizational View, irrespective of the **NAP type**.

### **Actor: Content Consumer**

*Last changed: 27.06.2025, GUID: {0E811D0A-2C79-462f-B560-DD0A48A6E545}*

Public and private organizations that are using static or dynamic traffic and travel information or any other relevant content, made accessible, under the Delegated Regulations obligations, via NAP, to create multimodal or traffic and travel or mobility information or were provided by the terms and conditions using the data for other related purposes. They are one or a group of actors who get added value by using data promoted by NAP.

**NOTE1**: We do not create objects for each Content Consumer actor type.

**NOTE2:** Content Consumer includes the Data User term as it is specified in MMTIS and RTTI regulations.

Content Consumer actor represents and fulfils the interests of the Content Consumer Stakeholder.

**Represented by:**

* road authorities
* public or private road operator/s
* traffic managers
* tolling operators
* service providers\*
* broadcasters dedicated to traffic information
* transport authorities,
* transport operators,
* travel information service providers,
* digital map producers,
* transport on-demand service providers
* infrastructure managers
* data users, any public or private entity or any other entity using data listed in the Delegated Regulations

### **Actor: Content Provider**

*Last changed: 27.06.2025, GUID: {3F2BCF06-A0E6-4aac-BD7A-3395E43C395B}*

Any legal person, data subject, or public or private entity/organization who has the right to grant access to or to share the data under its control. The subject in question shall hold the data that are required to be made accessible via NAP by or more of the Delegated Regulations.

**NOTE1**: We do not create objects for each Content Provider actor type.

**NOTE2:** Content Provider includes the Data Holder term as it is specified in MMTIS and RTTI regulations.

Content Provider actor represents and fulfils the interests of the Content Provider Stakeholders.

**Represented by:**

For the RTTI (2022/670) concerning:

* **data on infrastructure**: road authorities, public or private road operator/s, tolling operators, recharging and refuelling-related stakeholders
* **data on regulations and restrictions**: road authorities, public or private road operator/s, tolling operators
* **data on the state of the network**: road authorities, public or private road operator/s, holders of in-vehicle generated data, service providers\*
* **data on the real-time use of the network**: road authorities, public or private road operator/s, holders of in-vehicle generated data, service providers\*, recharging and refuelling-related stakeholders

\* ‘service provider’ means any public or private provider of a real-time traffic information service, excluding a mere conveyer of data to data users;

For the SRTI (886/2013) concerning:

* **road safety-related traffic data**: Service providers, public and/or private road operators, broadcasters dedicated to traffic information, and automotive industries (as service providers when processing vehicle data) [886/2013, art. 7]

For the SSTP (885/2013) concerning:

* **static and dynamic information related to safe and secure parking**: public or private parking operators and service providers (any public or private body that provides the information service to users) [885/2013 art. 5]

For the AFIR (2023/1804) concerning:

* **static and dynamic information related to alternative fuel infrastructure**: operators of publicly accessible recharging points and refuelling points for alternative fuels, or, under the arrangements between them, the owners

For the MMTIS (2017/1926 amended by 2024/490) concerning:

* **static, historic and observed travel and traffic data**: transport authorities, transport operators, infrastructure managers, transport on demand service providers
* **dynamic travel and traffic data**: see above
* **linking travel information services**: travel information service provider

### **Actor: European Commission**

*Last changed: 27.06.2025, GUID: {142DFBFF-40C1-4f03-A7A7-E5125A5DE9FE}*

European Union responsible entity for the creation of the law and its publication.

European Commission actor represents and fulfils the interests of the European Commission Stakeholder.

**Represented by:**

The European Commission.

### **Actor: Member State**

*Last changed: 27.06.2025, GUID: {28852F78-1BF6-4858-8E67-E45CF403D4E7}*

European Union Member State is the responsible entity for the application and transposition of ITS-related EU laws and the creation of the national legal framework for the operation of the NAP and its surrounding entities.

Member State actor represents and fulfils the interests of the Member State Stakeholder.

**Represented by:**

Usually, the MS through the Ministry responsible for the transport area.

### **Actor: NAP Operator**

*Last changed: 27.06.2025, GUID: {B0B3260D-C376-4e8f-A620-72BC71353D5D}*

Any public or private organization responsible for collecting and publishing information about content generated by Content Providers (metadata) under the Delegated Regulations obligations, to any interested party (Content Consumers) without prejudice.

The NAP (National Access Point) Actor represents and fulfils the interests of the NAP (National Access Point) Stakeholder.

**Represented by:**

Usually, a department of the MS relevant Ministry (responsible for Transport matters), a state-owned organization, or a research organization. Usually, based on the explicit stating of the entity in the national law.

### **Actor: National Body / Competent Authority**

*Last changed: 27.06.2025, GUID: {B4E9C168-C4F3-4026-B334-9511627C14AC}*

Independent entity performing compliance assessment of the Content Providers, their specific content, the NAP operation, and reporting its findings to the MS.

The NB/CA (National Body / Competent Authority) actor represents and fulfils the interests of the National Body / Competent Authority Stakeholder.

**Represented by:**

Usually, a department of the MS Ministry of Transport and an independent body. Based on the explicit naming of the entity in the national law. The NB/CA shall be independent of CPs and NOs since it checks its compliance.

## **Roles**

This chapter defines Roles taken by Actors in Organizational View, irrespective of the **NAP type**.

### **Role: European Commission (EC)**

*Last changed: 27.06.2025, GUID: {1BC0C89E-82C2-4b54-8EF3-C2F663049E05}*

**Key issue:**

Creation of the EU law that responds to the action plan and white/green books defining the advances in the health, safety, or environmental agendas.

**Tasks and responsibilities:**

Create a legal document (based on the Expert input and MS consultation) to be adopted by the defined approval procedure. To observe the adoption of those legal documents (assessing the obligations of MSs and reacting in case of non-adoption).

### **Role: Member State (MS)**

*Last changed: 27.06.2025, GUID: {6F6F2869-325C-42f0-BF2D-A1998A4C3C70}*

**Key issue:**

Transposition of the ITS Directive to the national law and setting up responsibilities for NAP and NB/CA operation.

**Tasks and responsibilities:**

Create a legal framework for the operation of the NAP and NB/CA, including clear definitions of their responsibilities, duties, and rights. Clear definition of obligations of Content Providers and selected Content Consumers.

### **Role: NAP Content Consumer (CC)**

*Last changed: 27.06.2025, GUID: {D6B4B664-6BE7-4041-8FFE-448812935D1D}*

**IMPORTANT**: Content Consumer includes the Data User term as it is specified in MMTIS and RTTI regulations

**Key issue:**

Specific Content Consumers shall integrate data shared at NAP and/or provide feedback to Content Providers.

**Tasks and responsibilities:**

Provision of the service based on the consumed data, or any other task related to data processing and analysis. Sign a contract for content consumption with a content provider or with a proxy. Feedback to content providers. Timely and accurate integration of the subscribed content to their products and services.

### **Role: NAP Content Provider (CP)**

*Last changed: 27.06.2025, GUID: {0BAD153C-6775-4495-9098-8C8115DD8867}*

**IMPORTANT**: Content Provider includes the Data Holder term as it is specified in MMTIS and RTTI regulation.

**Key issue:**

Publish metadata (and in certain cases data) at the NAP. Provide self-declaration and assistance in case of compliance assessment. Provide data in the prescribed format and with the desired level of quality.

**Tasks and responsibilities:**

Publish content they generate based on requirements from the Delegated Regulations under the FRAND conditions. In cases of safety-related traffic information publish content for free. Be of assistance to the NB/CA when performing a compliance assessment and correct any issues found promptly. Publish data with a desired level of quality in a timely fashion and in a prescribed format.

### **Role: NAP IT Provider (NIT)**

*Last changed: 27.06.2025, GUID: {273E7961-AD50-416e-AC9A-92FA926DD4A7}*

**Key issue:**

Manage IT allowing NAP operation under the service level agreement.

**Tasks and responsibilities:**

Set up the IT infrastructure. Scale the IT infrastructure according to the CPs, CCs, and NO demands. Operate, manage, and secure the infrastructure. Report to the NO and resolve promptly any technical issues. Provide technical user support.

### **Role: NAP Operator (NO)**

*Last changed: 27.06.2025, GUID: {234C8914-6D8F-43fd-B3A7-34118A92FBA3}*

**Key issue:**

Publish information about Content Providers (CP) and their content in a transparent and timely manner. Provide free-to-all, barrier-free access to information collected by NO.

**Tasks and responsibilities:**

Publish information about the responsibilities of the Content Providers (CP), and the purpose of the NAP. Provide guidance and help to entities obliged to publish metadata to the NAP. Publish metadata about Content Providers and their content, free-to-all, barrier-free at the NAP. Enable CP to update/insert any information about their content or their organization. Publish metadata quality guidelines. Handle the exceptions about metadata/data not meeting threshold conditions for its publication (i.e., content is not in prescribed format). Promote the NAP and provide support for the Content Providers and Content Consumers. Monitor metadata quality and, potentially, data usage and provide this information either at NAP (if in the public interest) or to MS. Report to the MS about its operation. Keep the NAP-published metadata up to date. Provide a mechanism to collect feedback from the Content Consumers (CC) on the Content Providers' content.

The tasks of the NAP Operator (or NAP) are NOT data processing, they publish Content Providers (meta)data in one place.

**NOTE**: The organization performing the NAP Operator (NO) role can also perform other roles (i.e. Content Provider and Content Consumer) these roles do not intersect and shall be performed in such a way as to avoid conflict of interest.

### **Role: National Body / Competent Authority (NB/CA)**

*Last changed: 27.06.2025, GUID: {43A7EC8B-5AD2-462b-8F3A-F564FD31B71C}*

**Key issue:**

Provide a compliance assessment of the Content Providers (CP) and NAP operator (NO) with the Delegated Regulations and share these assessments with the CPs and NO. To operate objectively and independently from the NO and CPs.

**Tasks and responsibilities:**

Randomly and regularly check the compliance of CPs and the NO with the Delegated Regulations (data and metadata are compliant and processes of sharing the data and reporting are compliant with the rules set up by Delegated Regulations). Follow up on non-compliant results, and report results to the MS and NO. Collaborate with CP to reach a successful Compliance Assessment. Identify and contact entities obliged to publish (meta)data to the NAP.

## **Agreements**

This chapter defines Agreements between Actors in Organizational View, irrespective of the **NAP type**.

### **Agreement: Collaboration Agreement (NB/CA to NO)**

*Last changed: 27.06.2025, GUID: {0B562BCC-408D-4b46-9039-5A275BDFDD86}*

**Parties**: National Body / Competent Authority (NB/CA) and NAP Operator (NO).

**Objective**: To address all possible issues NB/CA might have towards the NO, that are not dealt with by the law.

**Form**: National law, Collaboration agreement, memorandum of understanding.

**Obligations:**

> NB/CA to NO:

* To provide information about the performed audit (assessment) to the NO.
* To be compliant with any GDPR rules (as they are stated between NO and CP).

> NO to NB/CA:

* To fully disclose all received information/evidence to the NB/CA assisting in the assessment process.

**Reference to the EU law:**

NONE

### **Agreement: Content usage contract (CP to CC)**

*Last changed: 27.06.2025, GUID: {0EC776B9-D6B3-48c4-906E-FF1A89AEBAFC}*

**Parties**: Content Provider (CP) and Content Consumer (CC).

**Objective**: To set up terms under which the content can be used, and obligations of the CP in terms of quality and accessibility, that are not dealt with by the law.

**Form**: Contract, terms of conditions, license.

**Obligations:**

> CP to CC:

* To provide up-to-date and accurate data with a desired level of quality, in the prescribed format.

> CC to CP:

* To use the data according to the granted license by the CP (reuse, resell, change, modify).

### **Agreement: EU Legal Framework (EC to MS)**

*Last changed: 04.07.2025, GUID: {D91DD8AD-EAF3-4d4d-97EC-2668B2AFB9EC}*

**Parties**: European Commission (EC) and Member State (MS).

**Objective**: To set up obligations of the MS towards the EC and of the national stakeholders.

**Form**: the ITS Directive and Delegated Regulations

**Obligations:**

> EC to MS: ---

> MS to EC:

* To implement of EU Directives into a national law, that reaches the goals set in the ITS Directive, and direct execution of EU Regulations and Delegated Acts including an enforcement process.
* To periodically report of the progress on the achievement of the goals established in the ITS Directive (and its delegated regulations).
* To establish the NAP Operator (NO), in the national law; either delegate its establishment to a responsible ministry or directly state the party responsible for NAP operation.
* To establish the National Body / Competent Authority (NB/CA) in the national law; either delegate its establishment to a responsible ministry or directly state the party responsible for NB/CA operation; create a legal framework for its operation.
* To ensure compliance with the obligations laid down in EU and national legislation.
* To establish a legal obligation in national law for ITS service providers to use only ITS components that comply with the specifications set out in EU delegated acts and to provide ITS services in a manner consistent with those specifications
* To support the EU’s goals under the Alternative Fuels Infrastructure Regulation (AFIR) – European commitment to energy transition and sustainable mobility.
* To support of accessibility of AFIR-data by establishing procedures to (a) regularly monitor compliance of the data and information on the APIs (at NAP), (b) facilitate the exchange of information between operators or owners of publicly accessible recharging points and refuelling points and their NAPs and (c) address widespread and persistent data quality issues, including issues affecting the overall automated and uniform data exchange via APIs through their NAPs.

**Reference to the EU law:**

The obligations of the MS are related to the following European laws:

* 2010/40/EU (ITS Directive)
* 886/2013 (SRTI)
* 885/2013 (SSTP)
* 2017/1926 (MMTIS)
* 2022/670 (RTTI in force from 1. January 2025)
* 2023/2661 (ITS Directive amendment)
* 2024/490 (MMTIS amendment)
* 2023/1804 (AFIR)

**Selected references to the law:**

* Each Member State shall set up a National Access Point [2015/962 art. 3, 2017/1926 art. 3, 2022/670 art. 3].

### **Agreement: European or national law (MS to CC)**

*Last changed: 03.07.2025, GUID: {C7C1A638-F3DE-4b70-9BD0-F24DB573079A}*

**Parties**: Member State (MS) and selected Content Consumer (CC); Only digital map producers, service providers, and broadcasters are relevant Content Consumers for this "agreement".

**Objective**: To identify CCs and set up obligations of the CCs.

**Form**: National law implementing the ITS Directive and direct execution of EU Regulations and Delegated Acts.

**Obligations:**

> MS to CC: ---

> CC to MS (EC):

* To report to the content provider (CP) any inaccuracies related to the data without delay
* To include any traffic circulation plans and traffic regulations and restrictions, temporary traffic management measures developed by the competent authorities, and made accessible via NAP, in the service. [Service providers]
* When presenting information to end users, processes relevant data updates on infrastructure, regulations, and restrictions [digital map producers], data updates on the state of the network / the real-time use of the network within a timeframe fitting to the reliable and effective use of the data in real-time traffic information services. [service providers]
* To provide SRTI information service to ensure the widest reach of end users concerned, where possible free of charge to end users.

**Reference to the EU law:**

The obligations of the CC are related to the following laws:

* National law transposing 2010/40/EU (ITS Directive)
* 886/2013 (SRTI)
* 2022/670 (RTTI in force from 1. January 2025)
* National law transposing 2023/2661 (ITS Directive update)

**Selected references to the law:**

* Data users using the data referred to in paragraph 1 and data holders **shall** collaborate in order to ensure that any inaccuracies related to the data are signalled without delay to the data holder from which the data originates. [2022/670, Art 4, par 3; Art 5, par 3; Art 6, par 3]
* Service providers **shall** process and include, without additional costs to the end-user, in the relevant services they provide, any traffic circulation plans and traffic regulations and restrictions / temporary traffic management measures developed by the competent authorities and made accessible via the national or common access point in a digital machine-readable format. [2022/670, Art 5, par 4, Art 6, par 4]
* When digital map producers and service providers present information to end users, they **shall** ensure that relevant data updates on infrastructure / on regulations and restrictions are processed within a timeframe fitting to the reliable and effective use of the data in real-time traffic information services. [2022/670, Art 8, par 4, Art 9, par 4]
* When service providers present information to end users, they **shall** ensure that relevant data updates on the state of the network / the real-time use of the network are processed within a timeframe fitting to the reliable and effective use of the data in real-time traffic information services. [2022/670, Art 10, par 5, Art 11, par 3]
* The accessibility and regular update of data by road authorities and road operators are essential for enabling the production of up-to-date and accurate digital maps that are a key asset for reliable ITS applications. The digital map producers **should** be encouraged to integrate relevant data updates into their existing map and map update services in a timely manner. In order to comply with public policies such as road safety, service providers and digital map producers **should** collaborate with public authorities to correct inaccuracies in their data. [2022/670, preamble, 15]
  + The information service shall fulfil the following conditions: [2013/886 Art. 8, par 2]  
    (a) it **shall** be provided in such a way as to ensure the widest reach of end users concerned by the given event or condition referred to in Article 3;  
    (b) it **shall** be made available by public and/or private road operators and/or service providers and/or broadcasters dedicated to traffic information, where possible free of charge to end users.

### **Agreement: European or national law (MS to CP)**

*Last changed: 27.06.2025, GUID: {E3368E4F-07D4-4e14-9043-DE0ED31E471E}*

**Parties**: Member State (MS) and Content Provider (CP).

**Objective**: To identify CPs and set up obligations of the CPs.

**Form**: National law implementing the ITS Directive and direct execution of EU Regulations and Delegated Acts.

**Obligations:**

> MS to CP: ---

> CP to MS:

* To ensure that data is provided in a correct format to the content consumers (CC) under fair, reasonable, and non-discriminatory (FRAND) conditions.
* To publish relevant information about data/services (e.g., Metadata) and information on the data quality at the NAP.
* To provide data compliant with the EU requirements (Provide self-declaration towards the NAP and NB/CA and assistance in case further proof of compliance is required).
* To ensure that required data is updated at the appropriate and recommended time intervals.
* To provide a description of the data, digital map, or real-time traffic information services they provide as well as the information on the quality thereof and the conditions of re-use of these data and an evidence-based declaration of compliance to the NB/CA. And to cooperate in the compliance assessment process.

**Reference to the EU law:**

The obligations of the CP are related to the following laws:

* National law transposing 2010/40/EU (ITS Directive)
* 886/2013 (SRTI)
* 885/2013 (SSTP)
* 2017/1926 (MMTIS)
* 2022/670 (RTTI in force from 1. January 2025)
* 2023/1804 (AFIR)
* National law transposing 2023/2661 (ITS Directive amendment)
* 2024/490 (MMTIS amendment)

**Selected references to the law:**

* For the sole purposes of providing the information service, public and private road operators and/or service providers **shall** set up or use the means to detect events or identify conditions, and shall collect the relevant road safety-related traffic data. The deployment of these means shall comply with the conditions and requirements set out in national law. [886/2013, art. 6].
* Public and/or private road operators and/or service providers shall share and exchange the data they collect pursuant to art. 6 of DR 886/2013. For that purpose, they shall make these data available in the DATEX II (CEN/TS 16157) format or any fully compatible and interoperable with DATEX II machine-readable format through an access point [886/2013, art. 7].
* Public or private parking operators and service providers shall share and exchange data referred to in paragraph 1 of art. 4 of DR 885/2013. For these purposes, they shall use DATEX II (CEN/TS 16157) format or any DATEX II compatible international machine-readable format. Data shall be accessible for exchange and reuse by any public or private information service provider and/or parking operator on a non-discriminatory basis and in accordance with access rights and procedures defined in Directive 2003/98/EC [885/2013 art. 5].
* Road authorities and road operators, in cooperation with digital map producers and service providers (any public or private provider of a real-time traffic information service, excluding a mere conveyer of information, to users and end-users), shall ensure that they provide the appropriate metadata in order to allow users to discover and use the datasets to which access is provided through the national access points [2022/670 art. 3].
* The travel and traffic data listed in the Annex and the corresponding metadata including information on the quality thereof shall be accessible for exchange and reuse within the Union on a non-discriminatory basis, via the national access point set up in accordance with Article 3 and within a timeframe allowing reliable and effective reuse of the data. Such data shall be accurate and up to date and based on minimum data quality requirements [2024/490 art. 8].
* The data referred to in paragraph 1 and the corresponding metadata including information on the quality thereof shall be accessible for exchange and re-use by any data user within the Union:  
  (a) on a non-discriminatory [2022/670, art. 4, par 2, art. 5, par 2]  
  (a) on a non-discriminatory basis when provided by road authorities and road operators; [2022/670, art. 6 par 2, art. 7, par 2]  
  (b) following minimum quality requirements that Member States shall agree upon in cooperation with relevant stakeholders;  
  (c) within a time-frame fitting to the reliable and effective use of the data to create real-time traffic information;  
  (d) via the national or common access point referred to in Article 3;
* NB/CA (competent authorities of the Member States) may request from the data holders and travel information service providers the following documents: [2024/490 art. 9]  
  1 a description of the travel and traffic data accessible via the national access point, the information on the quality thereof and the conditions of reuse of that data;  
  2 a description of the travel information services available including connections with other services where applicable;  
  3 an evidence-based declaration of compliance with the requirements set out in Delegated Regulations;  
  4 the licence or contractual agreements with travel information service providers.

### **Agreement: IT-operation contract (NO to NIT)**

*Last changed: 27.06.2025, GUID: {A4F1EAAE-9BC4-407b-BD46-63A87F19C315}*

**Parties**: NAP operator (NO) and NAP IT Provider (NIT).

**Objective**: To set up terms under which the NIT manages the IT infrastructure (level of service), that are not dealt with by the law.

**Form**: Contract, service level agreement.

**Obligations:**

> NO to NIT:

* To set up maintenance requirements

> NIT to NO

* To operate the NAP IT infrastructure under specific conditions of availability and security given by the service level agreement.
* To respond to an incident in a proper response time given by the service level agreement.
* To regularly report IT usage and NAP operation to the NO.
* To agree on liability, confidentiality and termination.

### **Agreement: Metadata provision contract (NO to CP)**

*Last changed: 27.06.2025, GUID: {BEED600A-C5D2-4829-9BF5-6E6649CB3D14}*

**Parties**: NAP operator (NO) and Content Provider (CP).

**Objective**: To set up terms under which the metadata content provided to the NAP can be used. Set up obligations and responsibilities of the NAP towards the CP, that are not dealt with by the law.

**Form**: Contract, terms of conditions, license.

**Obligations:**

> CP to NO

* To provide the right to reuse the metadata including consensually provided personal information.
* To provide accurate, timely, and complete metadata.

> NO to CP

* To assist in publishing (meta)data to the NAP
* To communicate to CP any provided metadata insufficiency, that, as a consequence, results in not publishing or removing published datasets.
* To ensure CP that the provided metadata, data/services are not tampered with by the NAP in any manner.

NOTE: The obligations to the CP, coming from the EU or national law, are part of the “Agreement” between MS and CP.

**Reference to the EU law:**

NONE

### **Agreement: National Law or Contract (MS to NB/CA)**

*Last changed: 27.06.2025, GUID: {7328A6B7-6F92-4b97-9F8D-A12E0B3807B9}*

**Parties**: Member State (MS) and National Body / Competent Authority (NB/CA).

**Objective:** Setting up the framework and responsibilities of the NB/CA operation.

**Form**: National law implementing the ITS Directive and direct execution of EU Regulations and Delegated Acts or a contract for nonessential parts of the NB/CA duty.

**Obligations:**

> MS to NB/CA: ---

> NB/CA to MS:

* To identify relevant stakeholders (CPs) that are obliged to make data accessible via NAP.
* To periodically and randomly assess the compliance of the Content Providers (CP) with the Law.
* To provide information about the performed compliance assessment to the MS and to NO.
* To cooperate with NO on the ITS directive implementation.

### **Agreement: National Law or Contract (MS to NO)**

*Last changed: 27.06.2025, GUID: {832264BF-9750-421b-9BFF-C77CE32FA053}*

**Parties**: Member State (MS) and NAP Operator (NO).

**Objective**: Setting up the framework and responsibilities of the NAP operation.

**Form**: National law implementing the ITS Directive and direct execution of EU Regulations and Delegated Acts or a contract for nonessential parts of the NO duty.

**Obligations:**

> MS to NO: ---

> NO to MS:

* To allow CPs to register their metadata at NAP and to check the quality thereof.
* To provide appropriate discovery services to NAP users / Content Consumers (CP).
* Report to the MS about the NAP usage statistics related to the ITS directive implementation for the progress reporting of the MS to EC.
* To allow the NB/CA to access stored information about the CPs at the NAP.
* To provide a feedback mechanism to allow CC and CP cooperation on reporting and resolving any inaccuracies.
* To cooperate with NB/CA on the ITS directive implementation.

**Reference to the EU law:**

The obligations of the NO are related to the following laws:

* national law transposing 2010/40/EU (ITS Directive)
* 886/2013 (SRTI)
* 885/2013 (SSTP)
* 2017/1926 (MMTIS)
* 2022/670 (RTTI in force from 1. January 2025)
* 2024/490 (MMTIS amendment)
* national law transposing 2023/2661 (ITS Directive amendment)

**Selected references to the law:**

* National Access Points shall provide appropriate discovery services to users [2022/670 art. 3].

### **Agreement: Privacy agreement (CC to NO) and general terms and conditions**

*Last changed: 27.06.2025, GUID: {AF555DF2-4535-42f6-993A-5BE72947BD12}*

**Parties**: NAP operator (NO) and Content Consumer (CC)

**Objective**: To set up terms and conditions under which CC could access and reuse the (meta)data published and the obligations of the NO towards the CC, that are not dealt with by the law.

**Form**: Terms and conditions, license.

**Obligations:**

> NO to CC:

* To inform about the best effort to publish up-to-date and accurate (meta)data about content providers (CP) and their data at the NAP.
* To reject responsibility for the published data by CPs.
* If subscribed: to notify CC about any outages and, optionally, additions to the NAP. NO must ensure that personal data is not misused, General Data Protection Regulation (GDPR) and to whom can it be disclosed. NO must provide the CC the right to delete the account on the NAP.

> CC to NO:

* To reuse the (meta)data shared by NAP according to the terms and conditions.

**Reference to the EU law:**

NONE

# **Physical View**

*version: 2.0*

The Physical View Depicts the system from a system engineer’s point of view. This view is used to describe the arrangement of physical elements, such as system elements and their connections that provide the solution for a product, service, or enterprise. It is intended to satisfy logical architecture elements and system requirements.

The View contains **Subsystems** with **Modules**. **Physical data flows**, grouping functional data flows passing between subsystems or modules.

The Physical View is always based on a particular Functional View. The Physical View consists of Sub-systems and, optionally, Modules and Physical Data Flows between them.

The Physical View is elaborated with respect of minimum functionality of two NAP types: **Metadata Directory** and **Data Platform.**

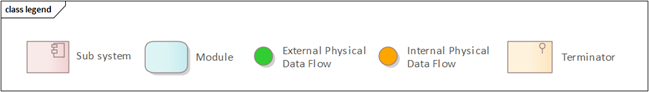
Those types are presented via TWO diagrams, each leveraging functionality of respective type.



**Figure:** NAP Physical View - Metadata Directory



**Figure:** NAP Physical View - Data Platform



## **Sub-Systems**

This chapter defines Subsystems for **both NAP types**, Metadata Directory and Data Platform.

### **Subsystem: Data Platform NAP**

*Last changed: 27.06.2025, GUID: {E5881292-2F25-4bc1-8840-23C9D1CC23A4}*

The Data Platform NAP sub system represents the hardware/software implementation of the ITS Service. It consists of modules performing data and metadata quality checks, hosting data and metadata, user data, and credentials, allowing the creation and retrieval of metadata records as well as real data from the internal database and user support.

**has physical data flows**

**has requirements**

1. K.1.1.1 On-line availability
2. L.2.9 NB/CA access
3. K.7.1.1 Terms and conditions for reuse of metadata and NAP website content
4. K.1.3.1 Load time website
5. K.1.9.1 Security – Technical
6. L.1.2 Platform accesibility
7. K5.4.1 Data visualization
8. K.1.4.1 Responsiveness
9. K.1.2.1 Compatibility

### **Subsystem: Metadata Directory NAP**

*Last changed: 27.06.2025, GUID: {1B971F1C-E2FC-46e2-97A3-CCB248436727}*

The Metadata Directory NAP sub system represents the hardware/software implementation of the ITS Service. It consists of modules performing metadata quality checks, hosting metadata, user data, and credentials, allowing the creation and retrieval of metadata records from the internal database as well as user support.

**has physical data flows**

**has requirements**

1. L.2.9 NB/CA access
2. K.1.1.1 On-line availability
3. K.1.3.1 Load time website
4. K.1.9.1 Security – Technical
5. L.1.2 Platform accesibility
6. K.1.2.1 Compatibility
7. K.5.5.1 Metadata Visualization
8. K.7.1.1 Terms and conditions for reuse of metadata and NAP website content
9. K.1.4.1 Responsiveness

## **Modules**

This chapter defines modules for **both NAP types**, Metadata Directory and Data Platform.

### **Module: Data Management Module**

*Last changed: 27.06.2025, GUID: {919C23BB-5FFF-4300-A416-F084AB9FE538}*

This Module handles traffic and transport data input (upload, update, or deletion) from NAP content providers and its retrieval by NAP content users. It uses the NAP Data store to store all data and related information.

**has physical data flows**

1. Data to Data Requesting System
2. Data from Data Provision System
3. Data Quality Check
4. User and Data Management
5. Metadata and Data Management
6. Data to Content Consumer

**has requirements**

1. K.1.14.1 Authentication and security mechanisms for data upload
2. K.1.15.1 Data security and access restrictions for data downloading
3. K.1.11.1 Personal data protection
4. L.6.3 Aggregated AFIR data maybe provided via API to European access point
5. K.1.12.1 providing metadata or data

### **Module: Data Quality Checks Module**

*Last changed: 27.06.2025, GUID: {2E455170-A8C4-4ffc-BF75-1D058FC191B2}*

This Module enables and supports the periodical and initial checking of published data quality. Main tests performed are schema validation and availability of provided data against the metadata information. The results of the check are stored in NAP Data store.

**has physical data flows**

1. Data Quality Check

**has requirements**

### **Module: Metadata Management Module**

*Last changed: 27.06.2025, GUID: {4C1A7740-ADB9-4654-9703-57AC92DD6D54}*

This Module handles metadata input (upload, update, or deletion) from NAP content providers and its retrieval by NAP content users. It uses the NAP Metadata store to store all metadata and related information.

**has physical data flows**

1. Metadata and Data Management
2. Metadata and User Management
3. Metadata to Content Consumer
4. Metadata Quality Check
5. Metadata from Metadata Provision System
6. Metadata to Requesting System

**has requirements**

1. K.5.3.1 Metadata field for Quality description
2. K.5.2.1 Classification of datasets
3. K.5.1.2 Supporting documentation of datasets
4. L.2.5 Information provision on NAP
5. L.6.2 Made AFIR data accessible
6. K.7.2.1 Data reuse – data provider
7. K.1.8.1 Used Languages
8. K.5.3.2 Reference field for used quality guidline or framework
9. K.1.12.1 providing metadata or data
10. K.1.13.1 Metadata output and access restrictions
11. K.7.6.1 Association of published datasets with Delegated Regulations
12. K.3.3.1 Provision of machine – readable metadata
13. K.5.1.1 Description of datasets
14. K.6.1.1 Metadata specification

### **Module: Metadata Quality Check Module**

*Last changed: 27.06.2025, GUID: {B9BC9F94-BAF8-465c-A024-66944F4C302E}*

This Module periodically and initially checks the quality of provided metadata. The main tests performed are the availability of provided links and structural and contextual soundness based on predefined criteria. The results of the check are stored in the NAP Metadata store.

**has physical data flows**

1. Metadata Quality Check

**has requirements**

1. K.4.2.1 Link checking frequency

### **Module: Support (ticket) Module**

*Last changed: 27.06.2025, GUID: {02101F2C-788B-49ea-8C0D-AD3B498E1E53}*

This Module handles and allows the processing of requests for support and reported issues by NAP Users, (Content Providers and Content Consumers).

**has physical data flows**

1. Support of Content Consumer
2. Support of Content Provider

**has requirements**

1. K.1.8.1 Used Languages

### **Module: User Management Module**

*Last changed: 27.06.2025, GUID: {83B61A0E-1086-4216-B72F-38DA9E185D9B}*

This Module handles user (NAP Content Providers and NAP Content Consumers) registrations and authorizations. It stores all relevant user information along with credentials in NAP Users data store.

**has physical data flows**

1. User and Data Management
2. Metadata and User Management
3. Content Consumer Authorization and Registration

**has requirements**

1. K.1.15.1 Data security and access restrictions for data downloading
2. K.1.13.1 Metadata output and access restrictions
3. L.7.1 GDPR compliance
4. K1.10.1 providers verification
5. K.1.11.1 Personal data protection
6. K.1.14.1 Authentication and security mechanisms for data upload

## **Physical Data Flows**

This chapter defines physical data flows for **both NAP types**, Metadata Directory and Data Platform.

### **Physical Data flow: Content Consumer Authorization and Registration**

*Last changed: 27.06.2025, GUID: {96C4145B-D427-423c-8272-54CE77DBDE7F}*

This Physical Data Flow facilitates information exchange between NAP Content Consumer and User Management Module. This exchange concerns Content Consumers data objects for registration requests and credentials for data retrieval upon authorization. The registration request contains entity information, license terms approval, and organization details. Outputs include responses to registration requests and credentials for accessing NAP functionality.

### **Physical Data flow: Data from Content Provider**

*Last changed: 27.06.2025, GUID: {1F6F7D4C-BAFE-43db-AF7B-C8043CC6E31F}*

This Physical Data Flow facilitates information exchange between Data Management Module and Content Provider. This exchange concerns inputs from the NAP Content Provider with new or updated data objects, requiring authorisation credentials.

### **Physical Data flow: Data from Data Provision System**

*Last changed: 27.06.2025, GUID: {1DE55835-B3EB-461f-BAF4-61B9F635EDBD}*

This Physical Data Flow facilitates information exchange between Data Management Module and Data Provision System. This exchange concerns inputs from the Data Provision System with new or updated data objects, requiring authorisation credentials.

### **Physical Data flow: Data Quality Check**

*Last changed: 27.06.2025, GUID: {1587F034-1363-447d-8BFA-2234BA04649C}*

This Physical Data Flow facilitates information exchange between Data Quality Check and Data Management modules. This exchange concerns data retrieved from the NAP Data store after scheduled or triggered events. The data object includes updated quality information, time stamps, success or failure status, error counts, service levels, and an aggregated summary.

### **Physical Data flow: Data to Content Consumer**

*Last changed: 27.06.2025, GUID: {B82B3A07-B464-4905-B517-04B74942E5AA}*

This Physical Data Flow facilitates information exchange between Data Management Module and Content Consumer. This exchange concerns requests from the NAP Content Consumer for data content and responses with data if the authorisation is successful.

### **Physical Data flow: Data to Data Requesting System**

*Last changed: 27.06.2025, GUID: {F785EA75-B3BD-4be6-9374-06DC89A98B73}*

This Physical Data Flow facilitates information exchange between Data Requesting System and NAP Data Management Module. This exchange concerns requests from the Data Requesting System for data content and responses with data if the authorisation is successful.

### **Physical Data flow: Metadata and Data Management**

*Last changed: 27.06.2025, GUID: {8DE1FAAE-FC95-48f3-B1BD-F0F67A00B135}*

This Physical Data Flow facilitates information exchange between Metadata Management and Data Management modules. This exchange concerns metadata retrieval/check/update with regards data stored in the Data Store.

### **Physical Data flow: Metadata and User Management**

*Last changed: 27.06.2025, GUID: {252899F7-3651-40d5-A2A6-1A59A8185657}*

This Physical Data Flow facilitates information exchange between Metadata Management and User Management modules. This exchange concerns request for authorisation of Content Provider to access and change data in Metadata Management Module.

### **Physical Data flow: Metadata from Content Provider**

*Last changed: 27.06.2025, GUID: {48F2D92D-8E82-4032-B932-CD8D2CB855B0}*

This Physical Data Flow facilitates information exchange between Metadata Management Module and Content Provider. This exchange concerns inputs from the NAP Content Provider with new or updated metadata objects, requiring authorisation credentials.

### **Physical Data flow: Metadata from Metadata Provision System**

*Last changed: 27.06.2025, GUID: {A75E9CBB-5B13-4249-B1EE-F51C9EC0BD9D}*

This Physical Data Flow facilitates metadata exchange between Metadata Management Module and metadata Provision System. This exchange concerns inputs from the Metadata Provision System with new or updated data objects, requiring authorisation credentials.

### **Physical Data flow: Metadata Quality Check**

*Last changed: 27.06.2025, GUID: {4FB08435-DE36-46a7-B970-3E2B0A3CD452}*

This Physical Data Flow facilitates information exchange between Metadata Quality Check and Metadata Management modules. This exchange concerns metadata retrieved from the NAP Metadata store after scheduled or triggered events. The data object includes updated quality information, time stamps, success or failure status, error counts, service levels, and an aggregated summary.

### **Physical Data flow: Metadata to Content Consumer**

*Last changed: 27.06.2025, GUID: {C25F8BCA-DCD4-4894-956E-40D0218D3ACA}*

This Physical Data Flow facilitates information exchange between NAP Content Consumer and NAP Metadata Management Module. This exchange concerns search requests sent by the NAP Content Consumer and search results returned by the NAP Metadata Management Module.

### **Physical Data flow: Metadata to Requesting System**

*Last changed: 27.06.2025, GUID: {5681386B-AB60-4a6c-B51B-4BD4F745FDD5}*

This Physical Data Flow facilitates information exchange between Metadata Requesting System and NAP Metadata Management Module. This exchange concerns search requests sent by the Metadata Requesting System and search results returned by the NAP Metadata Management Module.

### **Physical Data flow: Support of Content Consumer**

*Last changed: 27.06.2025, GUID: {0B43348A-F713-49fe-A684-A88D53A58D67}*

This Physical Data Flow facilitates information exchange between Support (ticket) Module and Content Consumer. This exchange concerns support requests sent by the Content Consumer and handled by the Support (ticket) Module.

### **Physical Data flow: Support of Content Provider**

*Last changed: 27.06.2025, GUID: {BA985F0C-2C6F-4329-BABC-91890CC23954}*

This Physical Data Flow facilitates information exchange between Support (ticket) Module and Content Provider. This exchange concerns support requests sent by the Content Provider and handled by the Support (ticket) Module.

### **Physical Data flow: User and Data Management**

*Last changed: 27.06.2025, GUID: {5C212D22-87C8-423c-A4EE-D4FACC7598C7}*

This Physical Data Flow facilitates information exchange between User Management and Data Management modules. This exchange concerns credentials of a NAP Content Provider or Data Providing System, which are checked against the NAP Users data store to authorize the claimant to insert or modify data records in the NAP Data store. They also provide information about the validity of these authorization credentials.

### **Physical Data flow: User Management of Content Provider**

*Last changed: 27.06.2025, GUID: {C5A68539-7FA7-4245-9B3A-F55B6668B579}*

This Physical Data Flow facilitates information exchange between Content Provider and User Management Module. This exchange concerns user registration requests.

# **Communication View**

*version: 2.0*

The **Communications View** is a perspective that focuses on the interaction and data exchange between different components of the system. It outlines the communication protocols, data formats, and interfaces used for data transmission between different system elements.

The Communications View is elaborated with respect of minimum functionality of two NAP types: **Metadata Directory** and **Data Platform.**

Those types are presented via TWO diagrams, each leveraging Physical View of respective type.



**Figure:** NAP Communication View - Metadata Directory



**Figure:** NAP Communication View - Data Platform

## **Interfaces**

This chapter defines Interfaces for **both NAP types**, Metadata Directory and Data Platform.

### **Interface: Content Consumer Data Access**

*Last changed: 04.07.2025, GUID: {46EF7C20-D17A-4964-9EEC-CFC8A2161BB1}*

**Identification:** CC-DMM; Content Consumer - Data Management Module

**Type**: User interface

**Description**: This interface is used by the Content Consumer to retrieve Content Providers data stored or proxied via NAP. User selects data he/she has access to in the web interface and downloads them to his/her workstation. The Interface shall be a web-based application that any authorised NAP CC could access. It should support all common web browsing tools / devices. It should have an access authorisation mechanism and a graphical interface which at least support the local language.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size and interval and maximum delay varies by the type of the data, **see Machine Data Provision Interface**.

For Content Consumer access it is expected that this is mostly used for static data, other data are just sampled by the CC and then a subscription is set up via machine interface. To maximize efficiency data should be compressed (gzip).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Data to Content Consumer | fnap.cc-data\_request | Request + credentials | 1 kB | 100 ms | On request 5 min | Medium |
| tnap.cc-data\_response | Response + data | 1 kB + up to 2GB | 5 minutes | 6 months | Low |
| Minimum data rate for link | | 33 MB/sec \* 5a = 166 MB/sec | | |  | Medium |
| Minimum Inter message gap | | 300 Seconds | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 5, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Consumer Management**

*Last changed: 04.07.2025, GUID: {572A0DDD-F3CD-426f-B920-5E8E986DFC0C}*

**Identification:** CC-UMM; Content Consumer - User Management Module

**Type**: User interface

**Description:** This interface enables content consumer to access NAP to change and modify account details including potential machine accounts. The Content Consumer registration is voluntary and at minimum NAP metadata shall be accessible without user registration. The Interface is a web-based application which is supposed to be a part of the NAP web page. The authorised person should be able to access this application through all possible browsers / devices and the graphical interface should at least support the local language.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size may vary based on what is the content consumer provides for the registration, if these are some documents then the size could be up to 1 MB. Message intervals hint the resolution date of the request and max delay the time of the system to confirm that the request has been received.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Content Consumer Authorization and Registration | fnap.cc-registration\_request | Request + data + (credentials) | 1 kB + up to 1 MB | 30 s | On request | Medium |
| tnap.cc-registration\_response | Response | 1 kB + | 60 s | 1 day | Medium |
| Minimum data rate for link | | 1/30 MB/sec \* 3a = 0,1 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 3, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Consumer Metadata Access**

*Last changed: 04.07.2025, GUID: {ECF5445C-50A8-4ca3-8C86-50DB480DBD8C}*

**Identification**: CC-mdMM; Content Consumer - Metadata Management Module

**Type**: User interface

**Description:** This interface is used by content consumer to search the NAP for data and metadata. User selects data he/she has access to in the web interface and downloads them to his/her workstation. The Interface shall be a web-based application that any NAP CC could access. It should support all common web browsing tools / devices. It should have a graphical interface which at least support the local language and should support metadata standard mobilityDCAT-AP

**Related Documents**: ---

**Communications Requirements**

Data size may vary based on what is requested, usually only few catalogue records is requested at a time also hierarchically optimised, which accounts to 10 kB to 500 kB per request.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Metadata to Content Consumer | fnap.cc-metadata\_search\_request | Request + credentials | 1 kB | 100 ms | On request 5 min | Medium |
| tnap.cc-metadata\_search\_result | Response + metadata | 1 kB + up to 500 kB | 500 ms | 1 day | Low |
| Minimum data rate for link | | 1 MB/sec \* 5a = 5 MB/sec | | |  | Medium |
| Minimum Inter message gap | | 300 Seconds | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 5, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.5.1 Simplicity / Usability
2. K.1.7.1 Consistency and Navigability

### **Interface: Content Consumer Support**

*Last changed: 04.07.2025, GUID: {9D010BE5-6592-4e26-86F6-6D16140A0A39}*

**Identification:** CC-SM;Content Consumer - Support Module

**Type**: User interface

**Description:** This interface enables information exchange between the content consumer and the NAP support and handles the support requests. Users post a question which is responded to in an organised manner. The Interface shall be a web-based application that any authorised NAP CC could access. It should support all common web browsing tools / devices. It should have an access authorisation mechanism and a graphical interface which at least support the local language.

**Related Documents**: ---

**Communications Requirements**

Data size may vary based on what is requested, and how is the request phrased, e.g. the request might contain images or data that are passed to the NAP Operator. Message intervals hint the resolution date and max delay the time of the system to confirm that the request has been received.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Support of Content Consumer | fnap.cc-support\_request | Request + data + credentials | 1 kB + up to 10 MB | 30 s | On request | Medium |
| tnap.cc-support\_response | Response | 1 kB + | 60 s | 5 days | Low |
| Minimum data rate for link | | 1/3 MB/sec \* 3a = 1 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 3, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Provider Data Provision**

*Last changed: 04.07.2025, GUID: {C03CF47C-96E7-4733-B905-CB836A908BB7}*

**Identification:** CP-DMM; Content Provider - Data Management Module

**Type**: User interface

**Description**: This interface is used by the Content Provider to provide data to be stored in the NAP. User selects data he/she wants to store (associated with a catalogue record entry) and via web interface uploads to the NAP. The Interface shall be a web-based application that any authorised NAP CP could access. It should support all common web browsing tools / devices. It shall have an access authorisation mechanism and a graphical interface which at least support the local language.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size may vary based on what is the content provider intends to upload to the NAP. It is assumed that this is performed by the Content Provider only static data (see Machine Data Provision Interface), Other types of data will be uploaded by the system or be only proxied by NAP. Therefor data may vary from several MBs (small static parking) to several GBs in case of large network files.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Data from Content Provider | fnap.cp-data\_&\_authorisation\_credentials | Request + data + (credentials) | 1 kB + up to 2 GB | 5 minutes | 6 months | Medium |
| tnap.cp-data\_upload\_result\_report | Response | 1 kB | 100 ms | - | Medium |
| Minimum data rate for link | | 6 MB/sec \* 1b = 6 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*b It is not assumed that multiple providers will be uploading their data to NAP at the same time, for this the communication requirement analysis employ a safety value of 1, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Provider Management**

*Last changed: 04.07.2025, GUID: {D137DB55-A2D0-4a62-9A98-6144AC1C5404}*

**Identification:** CP - UMM; Content Provider – User Management Module

**Type**: User interface

**Description:** This interface enables content provider to access NAP to change and modify account details including potential machine accounts. It is assumed that the NAP shall have a registration procedure for metadata provider. The registration can differ in Member States. The authenticity of the registered content provider shall be guaranteed and shall follow international standards. The Interface is a web-based application which is supposed to be a part of the NAP web page. The authorised person should be able to access this application through all possible browsers / devices and the graphical interface should at least support the local language.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size may vary based on what is the content provider provides for the registration, if these are some documents then the size could be up to 1 MB. Message intervals hint the resolution date of the request and max delay the time of the system to confirm that the request has been received.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| User Management of Content Provider | fnap.cp-registration\_request | Request + data + (credentials) | 1 kB + up to 1 MB | 30 s | On request | Medium |
| tnap.cp-registration\_response | Response | 1 kB + | 60 s | 1 day | Medium |
| Minimum data rate for link | | 1/30 MB/sec \* 3a = 0,1 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 3, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Provider Metadata Provision**

*Last changed: 04.07.2025, GUID: {DAA1010E-3FD1-49b7-AC66-2080DB101A8E}*

**Identification:** CP-mdMM; Content Provider - Metadata Management Module

**Type**: User interface

**Description:** This interface enables Content Provider to insert, modify, delete metadata into NAP. The Interface shall be a web-based application that any authorised NAP CP could access. NAP returns success codes or information about error. It should support all common web browsing tools / devices. It shall have an access authorisation mechanism and a graphical interface which at least support the local language. Data adheres to mobilityDCAT-AP standard.

**Related Documents**: https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/

**Communications Requirements**

Metadata size may vary based on what is the content provider intends to upload to the NAP just texts are 100 kB, but images, samples, schema and documentation could be several MBs.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Metadata from Content Provider | fnap.cp-metadata\_& \_authorisation\_credentials | Request + metadata + credentials | 1 kB + up to 10 MB | 10 seconds | 1 month | Medium |
| tnap.cp-metadata\_&\_success\_report | Response | 1 kB | 100 ms | - | Medium |
| Minimum data rate for link | | 1 MB/sec \* 1b = 1 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*b It is not assumed that multiple providers will be uploading their metadata to NAP at the same time, for this the communication requirement analysis employ a safety value of 1, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Content Provider Support**

*Last changed: 04.07.2025, GUID: {2B49F77B-92D8-4494-B75B-7482740303ED}*

**Identification:** CP - SM; Content Provider - Support Module

**Type**: User interface

**Description:** This interface enables information exchange between the content provider and the NAP support and handles the support requests. Users post a question which is responded to in an organised manner. The Interface shall be a web-based application that any authorised NAP CP could access. It should support all common web browsing tools / devices. It should have an access authorisation mechanism and a graphical interface which at least support the local language.

**Related Documents**: https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/

**Communications Requirements**

Data size may vary based on what is requested, and how is the request phrased, e.g. the request might contain images or data that are passed to the NAP Operator. Message intervals hint the resolution date and max delay the time of the system to confirm that the request has been received.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Support of Content Provider | fnap.cp-support\_request | Request + data + credentials | 1 kB + up to 10 MB | 30 s | On request | Medium |
| tnap.cp-support\_response | Response | 1 kB + | 60 s | 5 days | Low |
| Minimum data rate for link | | 1/3 MB/sec \* 3a = 1 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 3, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.1.7.1 Consistency and Navigability

### **Interface: Machine Data Access**

*Last changed: 04.07.2025, GUID: {B5381D32-D813-436f-8E09-B87BD10B5F64}*

**Identification:** DRS - DMM; Data Requesting System - Data Management Module

**Type**: Programming Interface

**Description:** This interface is used for the retrieval of the data stored at or proxied via NAP by automated system of Content Consumer. To allow for basic service provision and as a protection from denial-of-service attacks and to identify data requesting system this interface shall require authorization. The API shall provide data retrieval functionality as web-based user-oriented UI. The authorization is envisaged via machine account preregistration by content consumer.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size and interval and maximum delay varies by the type of the data, **see Machine Data Provision Interface**.

Usually, use of this interface is expected all data types, requesting in periodical time new data. For data requesting interface several other considerations must be made to maximize efficiency: data compression (gzip), conditional data request, data request limiting, cashing data, etc. This interface assumes PULL access.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Data to Data Requesting System | fnap.drs-data\_request | Request + credentials | 1 kB | 100 ms | On request 5 min | Medium |
| tnap.drs-data\_response | Response + static data | 1 kB + up to 2GB | 5 minutes | 6 months | Medium |
| Response + semi-static data | 1 kB + up to 500 kB | 5 minutes | 1 day | Medium |
| Response + dynamic data | 1 kB + up to 500 kB | 3 minutes | 5 minutes | Medium |
| Response + status data | 1 kB + up to 1GB | 30 sec | 5 minutes | Medium |
| Minimum data rate for link | | 33 MB/sec \* 5a = 166 MB/sec | | |  | Medium |
| Minimum Inter message gap | | 300 Seconds | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 5 (that many users simultaneously download the most resource intensive data), that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

### **Interface: Machine Data Provision**

*Last changed: 04.07.2025, GUID: {EBF272EF-DE4F-4939-83C4-C3924574983A}*

**Identification:** DPS - DMM; Data Provision System - Data Management Module

**Type**: Programming Interface

**Description:** This interface is used for the automatic upload of the data to be stored at the NAP by system of Content Provider. To allow for basic security and to identify data requesting system this interface shall require authorization. The API shall provide data insert, modify and delete functionality as web-based user-oriented UI. The authorization is envisaged via machine account preregistration by content provider.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size and interval and maximum delay varies by the type of the data:

* static data: small parking static data (500 kB/semester) to detailed road trajectory and attributes (2+ GB/semester)
* semi-static data: road closures and traffic measures (500 kB/day)
* dynamic data: incidents accidents, event data (500 kB/5 minutes)
* status data: small area with parking sensors (200 kB/5 minutes) to travel time data for whole network (1 GB/5minutes)

Usually, use of this interface is expected for semi static, dynamic and status data, it could be to difficult to set up a machine for uploading static data twice a year.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Data from Data Provision System | tnap.dps-data\_upload \_result\_report | response + credentials | 1 kB | 100 ms | On request 5 min | Medium |
| fnap.dps-data\_&\_ authorisation\_ credentials | Request + static data | 1 kB + up to 2GB | 5 minutes | 6 months | Medium |
| Request + semi-static data | 1 kB + up to 500 kB | 5 minutes | 1 day | Medium |
| Request + dynamic data | 1 kB + up to 500 kB | 3 minutes | 5 minutes | Medium |
| Request + status data | 1 kB + up to 1GB | 30 sec | 5 minutes | Medium |
| Minimum data rate for link | | 33 MB/sec \* 2a = 99 MB/sec | | |  | Medium |
| Minimum Inter message gap | | 300 Seconds | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 2 (not really expected at the content provision side), that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

### **Interface: Machine Metadata Access**

*Last changed: 04.07.2025, GUID: {373128AD-1078-42bc-A0B2-F5E56522B7B8}*

**Identification:** mdRS – mdMM; Metadata Requesting System - Metadata Management Module

**Type**: Programming Interface

**Description:** This interface is used for the retrieval of the metadata stored at NAP by automated system of Content Consumer. To allow for basic service provision and as a protection from denial of service attacks this interface may require authorization. The API shall provide similar search and retrieve functionality as web-based user-oriented UI. This interface shall support metadata exchange as specified by mobilityDCAT-AP.

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

Data size may vary based on what is requested, if the catalogue record only then it is up to 100 kB, depending on textual directly transferred content of the record, up to 10s of MBs if whole site catalogue is returned.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Metadata to Requesting System | fnap.mdrs-metadata\_request | Request + credentials | 1 kB | 100 ms | On request 5 min | Medium |
| tnap.mdrs-metadata\_response | Response + metadata | 1 kB + up to 10 MB | 500 ms | 1 day | Low |
| Minimum data rate for link | | 1 MB/sec \* 3a = 3 MB/sec | | |  | Medium |
| Minimum Inter message gap | | 300 Seconds | | |  |

*a Multiple users must be expected to access NAP at the same time, for this the communication requirement analysis employ a safety value of 3, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**

1. K.6.2.1 Metadata harvesting

### **Interface: Machine Metadata Provision**

*Last changed: 04.07.2025, GUID: {70F2112F-B845-4d29-AECD-17CD9D7B4B7D}*

**Identification:** mdPS - mdMM; Metadata Provision System - Metadata Management Module

**Type**: Programming Interface

**Description:** This interface is used by content consumer system to automatically insert, modify or delete metadata at NAP. The interface must allow authorised access. The Interface shall be an API based application that any compatible system could access. It should support metadata standard mobilityDCAT-AP

**Related Documents**: <https://napcore.eu/activity-wg2-interoperability-and-level-of-service-of-naps/>

**Communications Requirements**

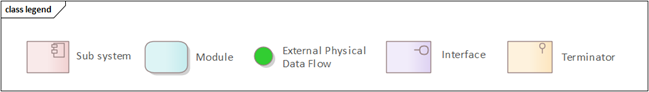
Metadata size may vary based on what is the content provider intends to upload to the NAP just texts are 100 kB, but images, samples, schema and documentation could be several MBs.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PDF | FDFs | Data type | Max Bytes / message | Max Delay (sec) | Message Interval (sec) | Security level |
| Metadata from Metadata Provision System | ps\_metadata & data source | Request + metadata + credentials | 1 kB + up to 10 MB | 1 second | 1 month | Medium |
| ps\_metadata & success report | Response | 1 kB | 100 ms | - | Low |
| Minimum data rate for link | | 10 MB/sec \* 1b = 10 MB/sec | | |  | Medium |
| Minimum Inter message gap | | Not relevant | | |  |

*b It is not assumed that multiple providers will be uploading their metadata to NAP at the same time, for this the communication requirement analysis employ a safety value of 1, that multiplies computed maximum data rate for a link.*

**has physical data flows**

**has requirements**



# **Specifications and Recommendations**

*version: 2.0*

The **Specifications and Requirements** document describes legal and technical specifications as well as recommendations and profiles used for the ITS Service in different Views. The specifications could be linked to different objects defining is technical or organizational parameters, its usage, interaction requirements behaviour etc.

The **Specifications and Requirements** is elaborated with respect of minimum functionality of two NAP types: **Metadata Directory** and **Data Platform.**



**Figure:** Specifications and Requirements

## **Legal Specifications**

This folder contains European legislative documents (directives, regulations, decisions) that are relevant to the NAP ecosystem.



**Figure:** Legal requirements

### **Legal Specification: Directive (EU) 2019/1024 - Open Data**

*Last changed: 27.06.2025, GUID: {A47BBEAA-7629-4fb8-A2B9-082D024A3B64}*

**Type**: Legal

**Full Name:** Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (recast)

**Link:** <https://eur-lex.europa.eu/eli/dir/2019/1024/oj>

**Description**: Directive (EU) 2019/1024, also known as the Open Data Directive, establishes binding rules for the release and reuse of public sector information across the EU. It obliges Member States to ensure that data produced, held, or funded by public bodies is made available in machine-readable formats, via Application Programming Interfaces (APIs), and under open licences with minimal legal, technical, or financial restrictions. It defines categories of high-value datasets, including transport, which are subject to specific publication and reuse obligations.

**Additional details:** In the context of National Access Points (NAPs) under Directive 2010/40/EU (ITS Directive), the Open Data Directive applies where the transport-related data hosted or disseminated via NAPs is produced or funded by public sector bodies. It imposes legal obligations on such data to be openly licensed, structured for automatic processing, accessible through APIs, and free of charge. This directly impacts the way NAPs must provide access to static and dynamic ITS data, ensuring compliance with both the ITS legal framework and the horizontal open data obligations. If the NAP environment includes private stakeholders, applicability may depend on whether the data provision is mandated by law or publicly funded.

**Related Documents:**

* [Commission Implementing Regulation (EU) 2023/138](https://eur-lex.europa.eu/eli/reg_impl/2023/138) – Defines high-value datasets, including transport, and mandates their free availability via APIs and bulk download.
* [Data Governance Act (Regulation (EU) 2022/868)](https://eur-lex.europa.eu/eli/reg/2022/868) – Supports secure data sharing across sectors, relevant for public-private cooperation in NAPs.
* [INSPIRE Directive (2007/2/EC)](https://eur-lex.europa.eu/eli/dir/2007/2) – Ensures interoperability of geospatial data, often used in transport datasets.
* **ITS Delegated Regulations** – Specify data types and access requirements under Directive 2010/40/EU, aligning with open data principles.

### **Legal Specification: L1 Directive (EU) 2016/2102 - Website Accessibility**

*Last changed: 04.07.2025, GUID: {0F8F6863-97AA-4c8f-916B-9E76E080D254}*

**Type**: Legal

**Full Name:** Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies

**Link**: <https://eur-lex.europa.eu/eli/dir/2016/2102/oj>

**Description**: Directive (EU) 2016/2102 on the accessibility of websites and mobile applications of public sector bodies ensures that digital services are usable by all, including people with disabilities. This is directly relevant to the National Access Points (NAPs) established under Directive 2010/40/EU (ITS Directive) and its recast, which require Member States to provide access to transport-related data through digital platforms.

**Additional details**: Since NAPs are typically operated by public authorities or on their behalf, they fall under the scope of the Web Accessibility Directive. This means that the websites and mobile apps used for publishing transport data—such as real-time traffic, public transport schedules, or multimodal travel information—must comply with accessibility standards like EN 301 549.

**Related Documents:**

* [Commission Implementing Decision (EU) 2018/1523](https://eur-lex.europa.eu/eli/dec_impl/2018/1523): Establishing a model accessibility statement
* [Commission Implementing Decision (EU) 2018/2048](https://eur-lex.europa.eu/eli/dec_impl/2018/2048): Establishing the monitoring methodology and arrangements for reporting by Member States

### **Legal Specification: L10 [Title Pending] – Data Specifications for Alternative Fuels Infrastructure (AFIR)**

*Last changed: 04.07.2025, GUID: {B7ADA655-593E-48ce-A50C-97CB4684F009}*

**Type:** Legal (Implementing Act – in preparation)

**Full Name:** Commission Implementing Regulation laying down technical specifications regarding the format, frequency, and quality of data on alternative fuels infrastructure pursuant to Regulation (EU) 2023/1804

**Link:** <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14345-_en>

**Description:** This implementing regulation will define harmonised technical specifications for the format, update frequency, and quality of data relating to publicly accessible alternative fuels infrastructure in the EU. It supports Regulation (EU) 2023/1804 (AFIR) and applies to electric recharging points, hydrogen refuelling stations, and other designated fuel types. The regulation aims to standardise machine-to-machine data exchange and improve accessibility, reliability, and cross-border interoperability.

**Additional details:** The act will mandate the use of DATEX II for structured data exchange by April 2026. Static data (location, capacity, connector types, operational status) must be updated at least every 24 hours; dynamic data (availability, malfunction, real-time energy status) must be refreshed at intervals no greater than 1 minute. EV charging point operators will be required to disclose roaming capability, smart charging readiness, and communication interfaces. Hydrogen stations must signal low-fuel warnings (<100 kg). NAPs will act as the central access points for compliant data publication and retrieval.

**Related Documents:**

* [Regulation (EU) 2023/1804 – AFIR](https://eur-lex.europa.eu/eli/reg/2023/1804/oj) – Legal base establishing mandatory deployment and data reporting obligations for alternative fuels infrastructure.
* [Public Consultation Summary](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14345-Data-on-alternative-fuels-infrastructure-technical-specifications-format-frequency-and-quality-_en) – Data Specification Initiative – Commission platform outlining scope and stakeholder feedback.
* [DATEX II Electric Vehicle Charging Profile](https://docs.datex2.eu/v3.2/reference_profiles/rsp/alternativefuel/index.html) – Technical profile defining data elements and structure for compliant AFIR data exchange.

### **Legal Specification: L11 Regulation (EU) 2025/655 – AFIR Data Specifications**

*Last changed: 04.07.2025, GUID: {BB34947F-7458-46e4-B45C-28338EDB244A}*

**Type:** Legal

**Full Name:** Commission Implementing Regulation (EU) 2025/655 of 2 April 2025 laying down rules for the application of Regulation (EU) 2023/1804 as regards specifications and procedures relating to the availability and accessibility of data on alternative fuels infrastructure

**Link:** <https://eur-lex.europa.eu/eli/reg_impl/2025/655/oj>

**Description:** This regulation establishes binding technical specifications and procedures for the provision of data on publicly accessible alternative fuels infrastructure under Regulation (EU) 2023/1804 (AFIR). It defines harmonised requirements for data format, update frequency, quality, and accessibility to ensure interoperability and transparency across the EU. The act applies to electric recharging points, hydrogen refuelling stations, and other AFIR-regulated infrastructure types.

**Additional details:** Operators must publish static data (e.g. location, connector types, access conditions) with a maximum update interval of 24 hours, and dynamic data (e.g. availability, operational status) with a maximum latency of 1 minute. The use of the DATEX II format is mandatory from 14 April 2026. Additional obligations include disclosure of roaming capability, smart charging features, and hydrogen low-fuel alerts (<100 kg). NAPs serve as the designated access points for compliant data exchange.

**Related Documents:**

* [Regulation (EU) 2023/1804 – AFIR](https://eur-lex.europa.eu/eli/reg/2023/1804/oj) – Legal base establishing mandatory deployment and data reporting obligations for alternative fuels infrastructure.
* [Public Consultation Summary](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14345-Data-on-alternative-fuels-infrastructure-technical-specifications-format-frequency-and-quality-_en) – Data Specification Initiative – Commission platform outlining scope and stakeholder feedback.
* [DATEX II Electric Vehicle Charging Profile](https://docs.datex2.eu/v3.2/reference_profiles/rsp/alternativefuel/index.html) – Technical profile defining data elements and structure for compliant AFIR data exchange.
* [Commission News Release – 11 April 2025](https://transport.ec.europa.eu/news-events/news/commission-enhances-interoperability-and-transparency-alternative-fuels-infrastructure-data-2025-04-11_en) – Summary of the adopted implementing regulation and legislative package.

### **Legal Specification: L12 Directive (EU) 2022/2555 - NIS2**

*Last changed: 04.07.2025, GUID: {4960CAB3-98F8-4f09-94E1-62AFA0954523}*

**Type**: Legal

**Full Name:** Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)

**Link:** <https://eur-lex.europa.eu/eli/dir/2022/2555/oj>

**Description**: Directive (EU) 2022/2555, also known as the NIS 2 Directive, establishes a common framework for cybersecurity risk management and reporting obligations across the EU. It replaces the original NIS Directive (EU) 2016/1148 and significantly expands the scope of entities subject to cybersecurity requirements, including operators of essential and important services in sectors such as transport, energy, and digital infrastructure.

**Additional details:** National Access Points (NAPs), as defined under Directive 2010/40/EU, typically qualify as essential or important entities under NIS 2 if they are operated by public authorities or provide critical digital services related to transport data exchange. As such, they are subject to obligations including Implementation of technical and organizational cybersecurity measures, incident notification to national CSIRTs or competent authorities and Participation in cybersecurity supervision and enforcement mechanisms.

**Related Documents:**

* [Directive (EU) 2016/1148](https://eur-lex.europa.eu/eli/dir/2016/1148) – The original NIS Directive, now repealed, provides historical context and may still influence transitional arrangements.
* [Commission Recommendation (EU) 2017/1584](https://eur-lex.europa.eu/eli/reco/2017/1584) – Offers guidance on coordinated response to large-scale cybersecurity incidents, relevant for NAPs involved in cross-border data exchange.
* [Regulation (EU) 2019/881 (Cybersecurity Act)](https://eur-lex.europa.eu/eli/reg/2019/881) – Establishes the EU cybersecurity certification framework, which may apply to ICT products and services used by NAPs.
* [ENISA Guidelines and Sectoral Guidance](https://www.enisa.europa.eu/publications/guideline-on-security-measures-under-the-eecc) – While not legally binding, ENISA’s technical guidance supports implementation of NIS 2 requirements in transport and digital infrastructure sectors.

### **Legal Specification: L2 Regulation (EU) No 886/2013 - SRTI**

*Last changed: 04.07.2025, GUID: {4B31C570-BDB3-4ccd-A917-C3680106BA2A}*

**Type**: Legal

**Full Name:** Commission Delegated Regulation (EU) No 886/2013 of 15 May 2013 supplementing Directive 2010/40/EU with regard to data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users

**Link:** <https://eur-lex.europa.eu/eli/reg_del/2013/886/oj>

**Description:** This regulation defines the minimum requirements for the provision of safety-related traffic information (SRTI) services across the EU road network. It mandates that specific categories of safety-critical events (e.g. wrong-way drivers, unprotected accident areas, reduced visibility) be made available to users free of charge, where possible. It sets obligations for data collection, processing, quality assurance, and dissemination, and requires Member States to ensure interoperability and continuity of service through harmonised procedures and formats.

**Additional details:** NAPs are the designated interface for publishing SRTI-relevant data. They must provide machine-readable access to static and dynamic datasets covering the event categories defined in the regulation. Data must comply with update frequency, latency, and quality requirements. NAPs must also support metadata publication, service documentation, and conformity assessment. The harmonised DATEX II Reference Profile for SRTI must be used to ensure semantic and syntactic interoperability across Member States.

**Related Documents:**

* [European Commission SRTI Guidance](https://transport.ec.europa.eu/transport-themes/smart-mobility/road/its-directive-and-action-plan/safety-related-traffic-information-srti-real-time-traffic-information-rtti_en) – Technical guidance and implementation context under the ITS Directive.
* [DATEX II Reference Profile for SRTI](https://docs.datex2.eu/recommended-profiles/rrp/srti/) – Defines the mandatory data elements and structure for compliant SRTI data exchange.
* [NAPCORE SRTI Workstream Summary (PDF)](https://napcore.eu/wp-content/uploads/2025/05/DD_886_2013.pdf) – Implementation overview and harmonisation activities across Member States.

### **Legal Specification: L3 Regulation (EU) No 885/2013 - SSTP**

*Last changed: 04.07.2025, GUID: {1C6BB576-3649-41fd-BF57-B029DC1A37E4}*

**Type:** Legal

**Full Name:** Commission Delegated Regulation (EU) No 885/2013 of 15 May 2013 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the provision of information services for safe and secure parking places for trucks and commercial vehicles

**Link:** <https://eur-lex.europa.eu/eli/reg_del/2013/885/oj>

**Description:** This regulation defines functional and technical specifications for the provision of information services related to safe and secure parking places for trucks and commercial vehicles (SSTP). It supplements Directive 2010/40/EU (ITS Directive) and establishes requirements for static and dynamic data collection, dissemination, quality assurance, and compliance assessment. It applies to parking areas located along the trans-European road network (TERN) and aims to improve driver safety, rest compliance, and freight security through harmonised digital services.

**Additional details:** NAPs are designated as access points for SSTP-related data. Where Member States or service providers implement SSTP services, NAPs must ensure machine-readable access to static data (e.g. location, capacity, equipment, security features) and dynamic data (e.g. availability, occupancy). Data must conform to the regulation’s quality, update frequency, and metadata requirements. NAPs must also support compliance monitoring by national bodies and provide documentation on data coverage, dissemination methods, and service reliability.

**Related Documents:**

* [FAQ on Delegated Regulation (EU) No 885/2013](https://transport.ec.europa.eu/system/files/2016-09/2015-07-09-faq-on-del-reg-885-2013-itp.pdf) – European Commission – Clarifies scope, applicability, and compliance procedures for SSTP services under the ITS Directive.
* [DATEX II Reference Profile for SSTP (RRP 885/2013)](https://docs.datex2.eu/recommended-profiles/rrp/truck-parking/) – Defines the mandatory data elements and structure for static and dynamic SSTP data exchange, based on CEN/TS 16157-6:2022.

### **Legal Specification: L4 Regulation (EU) 2022/670 - RTTI (recast)**

*Last changed: 04.07.2025, GUID: {4DC0BF48-4C3D-4352-AC06-151C3D8DE95D}*

**Type**: Legal

**Full Name:** Commission Delegated Regulation (EU) 2022/670 of 2 February 2022 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the provision of EU-wide real-time traffic information services

**Link:** <https://eur-lex.europa.eu/eli/reg_del/2022/670/oj>

**Description:** This regulation defines binding technical specifications for the provision of EU-wide real-time traffic information (RTTI) services. It repeals Delegated Regulation (EU) 2015/962 and introduces updated requirements for the availability, accessibility, and reusability of static and dynamic road traffic data. Compared to the repealed act, it clarifies data categories, strengthens obligations for dynamic data updates, and adjusts performance requirements to reflect the current state of ITS deployment and operational data exchange practices. It enforces harmonised data formats and minimum service levels to ensure interoperability and continuity of RTTI services across Member States.

**Additional details:** National Access Points (NAPs) are the mandatory interface for publishing RTTI-relevant datasets. Under this regulation, NAPs must:

* Provide **machine-readable access** to static and dynamic data elements listed in Annex I and II,
* Ensure **data quality control** and **update frequency** in line with Annex III,
* Use **DATEX II** or equivalent formats to guarantee semantic and syntactic interoperability,
* Support **cross-border data exchange** by aligning with EU-wide service coverage and latency thresholds,
* Maintain **metadata and service documentation** to enable automated discovery and integration by third parties.

**Related Documents:**

* [Implementing Guidelines for RTTI (EU) 2022/670](https://transport.ec.europa.eu/transport-themes/smart-mobility/road/its-directive-and-action-plan/safety-related-traffic-information-srti-real-time-traffic-information-rtti_en) – Version 1.0 (2022) – Provides operational interpretation of the regulation, including data categories, update intervals, and validation procedures for NAP operators.
* [DATEX II Technical Specification (CEN/TS 16157)](https://datex2.eu/specifications/) – Defines the mandatory data model for RTTI exchange, including profiles for event, measurement, and situation publications.
* [DATEX II Reference Profile for RTTI](https://docs.datex2.eu/recommended-profiles/rrp/rtti/) – Defines the harmonised data model for compliant RTTI data exchange.
* [TISA RTTI 5-Star Rating Scheme (Draft Proposal)](https://www.napcore.eu/documents/MDD2024ppt/16RTTI.pdf) – A voluntary self-assessment framework inspired by EuroNCAP, enabling road authorities and NAP operators to evaluate RTTI data quality and usability across five levels. It supports transparency and encourages alignment with service provider expectations for data reliability and accessibility.

### **Legal Specification: L5 Regulation (EU) 2017/1926 - MMTIS**

*Last changed: 04.07.2025, GUID: {9A0AAF44-DAED-4b89-81B3-12DD2B666F55}*

**Type**: Legal

**Full Name:** Commission Delegated Regulation (EU) 2017/1926 of 31 May 2017 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the provision of EU-wide multimodal travel information services.

**Link:** <https://eur-lex.europa.eu/eli/reg_del/2017/1926/oj>

**Description**: It establishes specifications for the provision of EU-wide multimodal travel information services (MMTIS). The regulation aims to ensure that static and dynamic travel and traffic data from various transport modes (road, rail, air, maritime, etc.) are made accessible in a harmonised, interoperable, and machine-readable format to support seamless multimodal journey planning across the EU.

National Access Points (NAPs) are the designated platforms for publishing and accessing the datasets required under this regulation. MMTIS data providers—such as transport operators, authorities, and infrastructure managers—must make their data available via the NAP in accordance with the technical and organisational requirements set out in the regulation. This includes metadata, data formats, update frequencies, and accessibility conditions. NAPs thus serve as the core infrastructure for enabling compliance and interoperability under MMTIS.

**Additional details**: <https://transport.ec.europa.eu/transport-themes/smart-mobility/road/its-directive-and-action-plan/multimodal-travel-information_en>

Related Documents:

* [Delegated Regulation (EU) 2024/490](https://eur-lex.europa.eu/eli/reg/2024/490) – Amends and updates the original 2017/1926 regulation, refining data categories, deadlines, and technical specifications for MMTIS implementation.
* [MMTIS Implementation Handbook (2024)](https://transport.ec.europa.eu/document/download/0b75db16-35b1-41df-8229-5c8abfec534d_en?filename=MMTIS_implementation_handbook.pdf) – A non-binding guidance document published by the European Commission to support Member States and stakeholders in applying the regulation. It includes practical examples, timelines, and FAQs.
* [INSPIRE-MMTIS Technical Report (JRC, 2019)](https://interoperable-europe.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/inspire-support-multi-modal-travel-information-services) – Analyses overlaps between MMTIS and the INSPIRE Directive, offering recommendations on harmonising geospatial and transport data standards in the NAP context

### **Legal Specification: L6 Regulation (EU) 2023/1804 - AFIR**

*Last changed: 04.07.2025, GUID: {0FF49A13-ACA1-4574-BC6C-56ECA1698F91}*

**Type**: Legal

**Full Name:** Regulation (EU) 2023/1804 of the European Parliament and of the Council of 13 September 2023 on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU

**Link:** <https://eur-lex.europa.eu/eli/reg/2023/1804/oj>

**Description**: The new **Alternative Fuels Infrastructure Regulation (AFIR)**, which repeals Directive 2014/94/EU. It establishes binding targets for the deployment of **publicly accessible recharging and refuelling infrastructure** for electric and hydrogen vehicles, vessels, and aircraft across the EU. It aims to ensure full **interoperability**, **user-friendliness**, and **data transparency** to support the EU’s climate and mobility goals.

**Additional details**: While AFIR does not explicitly mandate publication via NAPs, it requires **real-time and static data** on alternative fuels infrastructure (e.g. location, availability, pricing, technical characteristics) to be made **publicly accessible** in **machine-readable formats**. This aligns with the role of NAPs under the ITS Directive and its delegated acts, making them a **natural access point** for such datasets—especially where they support routing, parking, or multimodal travel services.

**Related Documents:**

* [Directive 2014/94/EU– Alternative Fuels Infrastructure Directive (repealed)](https://eur-lex.europa.eu/eli/dir/2014/94/) – The predecessor to AFIR, it laid the groundwork for infrastructure deployment and data requirements. Still useful for understanding the evolution of obligations, especially where national frameworks are based on it.
* [AFIR Implementation Guidelines (2024)](https://transport.ec.europa.eu/transport-themes/clean-transport/alternative-fuels-sustainable-mobility-europe/alternative-fuels-infrastructure_en) – European Commission Provides practical guidance on applying AFIR, including data formats, reporting obligations, and user information requirements—highly relevant for NAP operators managing infrastructure metadata.

### **Legal Specification: L7 Regulation (EU) 2016/679 - GDPR**

*Last changed: 04.07.2025, GUID: {B5E9322B-D985-449e-A4A9-D740A3AEF211}*

**Type**: Legal

**Full Name:** Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

**Link:** <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

**Description**: Regulation (EU) 2016/679, known as the General Data Protection Regulation (GDPR), establishes a uniform legal framework across the EU for the protection of personal data. It governs how personal data of natural persons is collected, processed, stored, and shared, and grants individuals enforceable rights over their data. It applies to both public and private entities that process personal data within the EU or target EU residents.

**Additional details**: Even though NAPs don't generate or determine the content of the data they distribute, they may still be considered to be processing personal data if that data includes, for instance, vehicle trajectories, location-time stamps, or user-specific transport service data—especially in multimodal travel information services or dynamic datasets.

In GDPR terms, this processing—listing, storing, or facilitating access to personal data on behalf of data holders—may place the NAP operator in the role of a data processor, or in some setups, even a joint controller. This depends on the nature of its involvement, contractual arrangements, and whether it has any influence over the purpose or means of processing. Therefore, under GDPR:

* A Data Processing Agreement (DPA) is needed between the NAP operator and each data controller.
* The NAP must implement security and organisational safeguards (Art. 32 GDPR).
* If the platform enables discovery or access to personal data, data subject rights (e.g. access, erasure) must be supported—typically redirected to the original controller.

If the National Access Point (NAP) merely provides metadata listings or pointers (e.g. links, APIs) to datasets without storing, transforming, or transmitting personal data, and has no access to the actual payload or content, then it’s technically not processing personal data within the meaning of Article 4(2) of the GDPR. In such cases, a Data Processing Agreement (DPA) would indeed not be required, as the NAP does not act as a processor or controller.

**Related Documents:**

* [Guidelines 01/2020 on Processing Personal Data in the Context of Connected Vehicles and Mobility-Related Applications (EDPB)](https://www.edpb.europa.eu/our-work-tools/our-documents/guidelines/guidelines-012020-processing-personal-data-context_en) – Clarifies how GDPR applies to vehicle-generated data, location tracking, and ITS services.
* [Guidelines 07/2020 on the Concepts of Controller and Processor (EDPB)](https://www.edpb.europa.eu/our-work-tools/our-documents/guidelines/guidelines-072020-concepts-controller-and-processor-gdpr_en)– Helps define roles and responsibilities of NAP operators and data providers under GDPR.
* [Guidelines 06/2020 on the Interplay of the Second Payment Services Directive and the GDPR (EDPB)](https://www.edpb.europa.eu/our-work-tools/our-documents/guidelines/guidelines-062020-interplay-second-payment-services_en) – While sector-specific, it illustrates how GDPR interacts with domain-specific EU legislation—relevant for interpreting overlaps with ITS legal acts.
* [Article 29 Working Party Opinion 13/2011 on Geolocation Services](https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2011/wp185_en.pdf) – Though predating GDPR, it remains informative for interpreting location data processing in transport contexts.

### **Legal Specification: L8 Directive (EU) 2023/2661 - ITS (recast)**

*Last changed: 27.06.2025, GUID: {4FEB9792-F5AB-4f30-A299-4A2EB59732D5}*

**Type**: Legal

**Full Name:** Directive (EU) 2023/2661 of the European Parliament and of the Council of 22 November 2023 amending Directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport

**Link:** <https://eur-lex.europa.eu/eli/dir/2023/2661/oj>

**Description**: Directive (EU) 2023/2661 is the recast of the original ITS Directive 2010/40/EU. It updates the legal framework for the deployment of Intelligent Transport Systems (ITS) in road transport and their interfaces with other transport modes. The recast reflects technological advancements and policy priorities such as multimodal mobility, digitalisation, and safety. It introduces mandatory availability of certain transport data in digital formats and strengthens interoperability and data accessibility across the EU.

**Additional details:** National Access Points (NAPs), as defined under the ITS Directive, are central to implementing the recast. The updated directive reinforces their role as mandatory digital platforms for publishing and accessing static and dynamic transport data. It expands the scope of data types to be made available (e.g. speed limits, roadworks, multimodal travel info) and introduces stricter requirements for data quality, timeliness, and accessibility, including through APIs and machine-readable formats.

**Related Documents**:

* [Commission Delegated Regulation (EU) No 885/2013](https://eur-lex.europa.eu/eli/reg/2013/885) – On the provision of information services for safe and secure parking places for trucks and commercial vehicles.
* [Commission Delegated Regulation (EU) No 886/2013](https://eur-lex.europa.eu/eli/reg/2013/886) – On the provision of road safety-related minimum universal traffic information.
* [Commission Delegated Regulation (EU) 2015/962](https://eur-lex.europa.eu/eli/reg/2015/962) – On the provision of EU-wide real-time traffic information services. *Partially superseded by 2022/670 but still relevant for transitional provisions.*
* [Commission Delegated Regulation (EU) 2017/1926](https://eur-lex.europa.eu/eli/reg/2017/1926) – On the provision of EU-wide multimodal travel information services.
* [Commission Delegated Regulation (EU) 2022/670](https://eur-lex.europa.eu/eli/reg/2022/670) – Updates and replaces parts of 2015/962; sets new specifications for real-time traffic information services.
* [Delegated Regulation (EU) 2024/490](https://eur-lex.europa.eu/eli/reg/2024/490) – Amends and updates the original 2017/1926 regulation, refining data categories, deadlines, and technical specifications for MMTIS implementation.
* [Commission Delegated Regulation (EU) 2022/1012](https://eur-lex.europa.eu/eli/reg/2022/1012) – Adds further specifications for the availability and exchange of parking data; complements but does **not** repeal 885/2013.

### **Legal Specification: L9 Regulation (EU) 2018/1724 - Single Digital Gateway**

*Last changed: 04.07.2025, GUID: {7FE3EFFF-05E1-4d46-83EE-48FE16A10E46}*

**Type**: Legal

**Full Name:** Regulation (EU) 2018/1724 of the European Parliament and of the Council of 2 October 2018 establishing a single digital gateway to provide access to information, to procedures and to assistance and problem-solving services and amending Regulation (EU) No 1024/2012

**Link:** <https://eur-lex.europa.eu/eli/reg/2018/1724/oj>

**Description**: Regulation (EU) 2018/1724, known as the *Single Digital Gateway (SDG) Regulation*, establishes a unified EU-wide portal—**Your Europe**—that offers cross-border users streamlined access to public services, procedures, and information. The regulation aims to improve the usability, accessibility, and multilingual availability of digital public services. It also introduces the **once-only principle**, meaning that public administrations should not ask citizens or businesses to resubmit information already provided to another authority.

While not transport-specific, the regulation applies to National Access Points (NAPs) when they serve as public-facing digital platforms operated by authorities. If NAPs provide access to regulated datasets or procedures relevant to cross-border users, they must meet accessibility, quality, and multilingual standards. The once-only principle also supports federated data publishing, reducing duplication between NAPs and national open data portals.

**Additional details**: The SDG’s **once-only principle** supports a more streamlined and federated approach to data publishing. The goal is to **avoid redundant data publication and collection**—public sector data should be published *once* and reused or accessed via interoperable systems rather than duplicated. This has practical implications for NAPs and open data portals:

* Transport datasets required under ITS delegated regulations must be made available via the NAP.
* The same datasets may also be subject to publication obligations under the Open Data Directive, typically via a national open data portal.

To resolve this, Member States should implement a **federated data publishing model** where the NAP serves as the authoritative data provider and the open data portal **references or harvests** its metadata. This avoids duplication while ensuring discoverability, open licensing, and machine-readability under both legal regimes.

**Related Documents:**

* [Your Europe Portal](https://europa.eu/youreurope/index_en.htm) – The operational interface of the Single Digital Gateway, which may link to or integrate with national portals like NAPs for transport-related procedures.
* [Commission Implementing Regulation (EU) 2020/1463](https://eur-lex.europa.eu/eli/reg_impl/2022/1463) – Sets out detailed rules on the quality of information and procedures provided via the gateway, including accessibility, findability, and user-centric design—relevant for NAP interfaces.
* [Commission Implementing Regulation (EU) 2022/1121](https://eur-lex.europa.eu/eli/reg_impl/2022/1121) – Defines the technical and operational requirements for the feedback mechanism under the gateway, which may apply to NAPs if integrated into the SDG ecosystem.

### **Legal Specification: Regulation (EU) 2024/490 – MMTIS (Amendment)**

*Last changed: 04.07.2025, GUID: {E1524B08-D6A6-42b4-8B5C-0136C4A9D6D4}*

**Type:** Legal

**Full Name:** Commission Delegated Regulation (EU) 2024/490 of 29 November 2023 amending Delegated Regulation (EU) 2017/1926 supplementing Directive 2010/40/EU with regard to the provision of EU-wide multimodal travel information services

**Link:** https://eur-lex.europa.eu/eli/reg\_del/2024/490/oj

**Description:** This regulation amends Delegated Regulation (EU) 2017/1926 by expanding the scope of mandatory data accessibility for EU-wide multimodal travel information services (MMTIS). It introduces new obligations for the availability of dynamic, historic, and observed datasets, and strengthens requirements for data quality, update frequency, and interoperability. The amendment supports the European Green Deal and Sustainable and Smart Mobility Strategy by enhancing the usability of multimodal travel services and enabling better integration of active modes (e.g. walking, cycling) and real-time operational data.

**Additional details:** NAPs must ensure machine-readable access to newly mandated datasets, including dynamic data (e.g. delays, disruptions), historic performance data, and observed occupancy levels. The regulation reinforces the use of harmonised formats and metadata, and requires service providers to maintain data accuracy and timeliness. The amendment also introduces provisions for monitoring compliance and supporting cross-border continuity of MMTIS services.

**Related Documents:**

* [Delegated Regulation (EU) 2017/1926](https://eur-lex.europa.eu/eli/reg_del/2017/1926/oj) – MMTIS – Original legal act establishing the MMTIS framework.
* [DATEX II MMTIS Profile (Draft)](https://docs.datex2.eu/recommended-profiles/rrp/mmtis/) – Defines the data model for compliant multimodal travel information exchange.
* [NeTEx European Passenger Information Profile (EPIP)](https://data4pt-project.eu/wp-content/uploads/2024/09/D.3.2-Profile-Preparation_v.f1.pdf) – Defines the subset of NeTEx (CEN/TS 16614) elements required for compliance with MMTIS obligations, including static, dynamic, and accessibility-related data.
* [NAPCORE MMTIS Data Dictionary](https://github.com/NAPCORE/Data-dictionary) (NeTEx/SIRI Mapping) – Provides alignment between MMTIS data categories and NeTEx/SIRI elements, supporting harmonised implementation across Member States.
* [DATA4PT National Implementations](https://data4pt.org/w/index.php?title=National_Implementations) – NeTEx Profiles Overview – Inventory of national and transnational NeTEx and SIRI profiles, including the Czech Republic’s specification status. It outlines profile alignment with the European Passenger Information Profile (EPIP) and categorises data coverage by Level of Service (LOS) in accordance with MMTIS Regulation (EU) 2024/490.

### **Legal Specification: Regulation (EU) No 1305/2014 – TAF TSI**

*Last changed: 04.07.2025, GUID: {1C65E621-1EED-47c9-AD18-66A51CC0A9F4}*

**Type:** Legal

**Full Name:** Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing Regulation (EC) No 62/2006

**Link:** <https://eur-lex.europa.eu/eli/reg/2014/1305/oj>

**Description:** This regulation establishes the mandatory Technical Specification for Interoperability (TSI) for the rail telematics applications for freight (TAF) subsystem, applicable to railway undertakings, infrastructure managers, wagon keepers, and other actors involved in freight operations. It replaces Regulation (EC) No 62/2006 and introduces extended message sets, a structured implementation governance model (including Change Control Management), and mandatory reference data alignment. It defines XML-based message exchange formats, interoperability interfaces, data models, and operational procedures to ensure seamless, real-time information sharing between rail freight stakeholders.

**Additional details:** When a National Access Point supports integration with rail freight data services, this regulation becomes binding for any data publication or relay function that involves TAF-compliant messages. NAPs interacting with these datasets must ensure message conformity with TAF TSI schemas, maintain full alignment with central reference data registries (e.g. company and location codes), and apply consistent semantic mapping if integrating with other ITS domains. NAPs must not alter the structure, content, or identification of regulated message types during conversion to other formats. Data quality assurance and interface documentation must be traceable to the latest applicable TAF TSI baseline.

**Related Documents:**

* [ERA TAF TSI Portal](https://www.era.europa.eu/domains/technical-specifications-interoperability/telematics-applications-freight-service-tsi_en) – Maintained by the European Union Agency for Railways; includes official message catalogues, implementation baselines, and interface control documents.
* [TAF TSI Implementation Reports](https://taf-jsg.info/wp-content/uploads/2025/03/TAP-RU-IM-JSG_2024-report-v1.0-1.pdf) – National-level deployment progress and milestone documentation, including XML mapping guides.
* [TAP/TAF Reference Data Portal](https://rne.eu/it/products/ccs/crd/) – Central management system for code lists (e.g. RICS location codes, company codes) required under the regulation.
* [Commission Implementing Regulation (EU) 2021/541](https://eur-lex.europa.eu/eli/reg_impl/2021/541/oj) – Updates the TAF TSI annexes; includes revised process flow diagrams and implementation dates.

### **Legal Specification: Regulation (EU) No 454/2011 – TAP TSI**

*Last changed: 04.07.2025, GUID: {1D4FBC58-0459-48fd-82D8-411F6693B4A7}*

**Type:** Legal

**Full Name:** Commission Regulation (EU) No 454/2011 of 5 May 2011 on the technical specification for interoperability relating to the subsystem ‘telematics applications for passenger services’ of the trans-European rail system

**Link:** <https://eur-lex.europa.eu/eli/reg/2011/454/oj>

**Description:** This regulation defines the Technical Specification for Interoperability (TSI) for the telematics applications for passenger services (TAP) subsystem of the trans-European rail system. It mandates standardised data exchange between railway undertakings, infrastructure managers, ticket vendors, and other actors involved in passenger rail services. It covers journey planning, real-time information, reservation, ticketing, and after-sales processes. The regulation enforces the use of harmonised message formats, reference data registries, and interface protocols to ensure cross-border interoperability. It has been amended to reflect updated IT architectures, governance models, and implementation deadlines.

**Additional details:** In NAP environments that expose or aggregate rail passenger data, TAP TSI applies where data originates from or conforms to TAP-compliant systems. NAPs must ensure interface compatibility with TAP message structures, maintain alignment with central reference data (e.g. company and location codes), and preserve semantic integrity when mapping to other ITS domains. Any transformation or relay of TAP messages must comply with the regulation’s baseline and versioning rules.

**Related Documents:**

* [ERA TAP TSI Portal](https://www.era.europa.eu/domains/technical-specifications-interoperability/telematics-applications-passenger-service-tsi_en) – Official source for baselines, message schemas, and implementation guidance.
* [TAP TSI Implementation Reports](https://taf-jsg.info/wp-content/uploads/2025/03/TAP-RU-IM-JSG_2024-report-v1.0-1.pdf) – Status reports on national deployment and compliance.
* [TAP/TAF Reference Data Portal](https://rne.eu/it/products/ccs/crd/) – Central management system for code lists (e.g. RICS location codes, company codes) required under the regulation.
* [Commission Implementing Regulation (EU) 2019/775](https://eur-lex.europa.eu/eli/reg_impl/2019/775/oj) – Updates Annexes and implementation timelines.

## **Technical specifications**

**Technical specifications are used to specify:**

**Performance**: Outline the required performance metrics, such as speed, capacity, and reliability. They strictly define the measurable criteria that the system must meet, without specifying the functions or design details.

**Technical**: Provide detailed technical information, including materials, dimensions, and manufacturing processes. They focus exclusively on the technical aspects and physical characteristics of the system or component.

**Design**: Detail the design aspects, including drawings, schematics, and design principles. They concentrate on the visual and structural design elements, without specifying the technical details or performance metrics.

**Interface**: Define how different systems or components will interact with each other, including communication protocols and data formats. They focus on the interaction and integration points, without detailing the functions, performance, or design aspects.



**Figure:** Technical specifications

### **Technical Specification: CKAN API**

*Last changed: 27.06.2025, GUID: {B4E47D3C-D1FF-49d5-AF14-7E82F76D74E6}*

**Type:** Technical Standard / Open API

**Full Name:** CKAN Action API – Comprehensive Interface for Open Data Portals

**Link:** <https://docs.ckan.org/en/2.9/api/>

**Description:** The CKAN API is a powerful, RPC-style interface that exposes the full functionality of CKAN-based open data portals. It allows external applications to create, read, update, and delete datasets, resources, organizations, and metadata records. The API supports JSON-based requests and responses and is widely used for automating data publication, harvesting, and integration with third-party systems. CKAN’s modular architecture also includes APIs for FileStore and DataStore extensions, enabling file uploads and structured data querying.

**Additional details:** Highly relevant for National Access Points (NAPs) and mobility data portals built on CKAN. The API enables programmatic access to metadata records (e.g. mobilityDCAT-AP), supports dataset harvesting and federation, and allows integration with validation pipelines and monitoring tools. It is often used in conjunction with DCAT-AP-compatible metadata schemas and can be extended via plugins to support domain-specific workflows (e.g. transport, environment, energy).

**Related Documents:**

* [CKAN API Guide – Official Docs](https://docs.ckan.org/en/2.9/api/) – Full reference for Action API endpoints and usage
* [CKAN FileStore & DataStore APIs](https://docs.ckan.org/en/2.9/maintaining/datastore.html) – Interfaces for file uploads and tabular data access
* [CKAN GitHub Repository](https://github.com/ckan/ckanext-harvest) – Source code, issue tracking, and plugin ecosystem
* [CKAN Harvesting Extension](https://github.com/ckan/ckanext-harvest) – Plugin for federated metadata harvesting across portals

### **Technical Specification: DATEX II**

*Last changed: 27.06.2025, GUID: {F9A9AFD3-AF4D-4391-9AE4-2FB290C7C9F9}*

**Type:** Technical Standard

**Full Name:** DATEX II – CEN/TS 16157: Road Traffic and Travel Information Exchange

**Link:** <https://datex2.eu/specifications/>

**Description:** DATEX II is the European standard for the structured exchange of road traffic and travel information between traffic management centres, service providers, and other ITS actors. It defines a modular, extensible data model and exchange framework for publishing real-time and static data on traffic conditions, incidents, roadworks, parking, regulations, and energy infrastructure. DATEX II is mandated or recommended under multiple EU delegated regulations (e.g. RTTI, SRTI, SSTP, AFIR) to ensure semantic and syntactic interoperability across Member States.

**Additional details:** Highly relevant for the publication of National Access Point (NAP) data under multiple delegated acts. DATEX II Reference Profiles define required content and encoding rules for RTTI, SRTI, AFIR, and SSTP implementations. It supports machine-readable, versioned XML payloads, structured metadata, and standardized update frequencies. NAPs must enable pull or push access using Exchange 2020 protocols, and ensure conformance to regulation-specific subsets derived from the CEN/TS 16157 series.

**Related Documents:**

* [DATEX II Documentation Portal](https://docs.datex2.eu/) – Official reference for content specifications, profiles, and implementation guidance.
* [DATEX II Exchange Specification (Exchange 2020)](https://docs.datex2.eu/exchange-2020/) – Defines the protocol for data delivery and subscription.
* [DATEX II Reference Profiles](https://docs.datex2.eu/recommended-profiles/) – Harmonised subsets for delegated regulations (e.g. RTTI, SRTI, SSTP, AFIR).
* [DATEX II Schema Generation Wizard](https://webtool.datex2.eu/wizard/) – Interactive tool for generating custom DATEX II XML schemas based on selected profiles and extensions.
* [NAPCORE DATEX II Workstream](https://napcore.eu/standards/) – Coordination of DATEX II evolution and cross-domain alignment under the NAPCORE project.
* CEN/TS 16157 p1- p15: Part 1: Context and framework; Part 2: Location referencing; Part 3: Situation publication; Part 4: Variable Message Sign (VMS) publications; Part 5: Measured and elaborated data publications; Part 6: Parking publications; Part 7: Common data elements; Part 8: Traffic management publications and urban extensions; Part 9: Traffic signal management publications; Part 10: Energy infrastructure publications; Part 11: Publication of machine interpretable traffic regulations; Part 12: Facility related publications; Part 13: Status & Fault; Part 14: TN-ITS (Upcoming); Part 15: JSON Mapping (Upcoming)

### **Technical Specification: deployEMDS**

*Last changed: 27.06.2025, GUID: {7E203B2F-A441-4204-A6A1-9B2B669C5C12}*

**Type:** Technical Framework / Project Specification

**Full Name:** deployEMDS – Technical Specifications for the European Mobility Data Space

**Link:** <https://deployemds.dev/>

**Description:** deployEMDS is a European project co-funded under the Digital Europe Programme that defines the technical architecture, governance, and interoperability mechanisms for the **European Mobility Data Space (EMDS)**. It aims to enable secure, sovereign, and standardised data sharing across public and private mobility actors. The specifications support real-life implementations in nine cities and regions and are aligned with the European Data Strategy and Sustainable and Smart Mobility Strategy.

**Additional details:** The deployEMDS technical specifications define common building blocks for **data interoperability**, **data sovereignty**, and **data accessibility**. They include reference architectures, metadata vocabularies, trust frameworks, and APIs for federated data exchange. The framework supports integration with existing standards (e.g. DCAT-AP, mobilityDCAT-AP, DATEX II, OCPI) and enables cross-domain use cases such as multimodal routing, traffic management, and SUMI monitoring. The specifications are being piloted in 16 use cases across 9 EU countries.

**Related Documents:**

* [deployEMDS Technical Documentation](https://deployemds.dev/) – Architecture, components, and implementation guidance
* [deployEMDS Project Portal](https://deployemds.eu/) – Project overview, use cases, and governance
* [EU Transition Pathways](https://transition-pathways.europa.eu/projects/deployemds-transforming-european-mobility-data-sharing) – deployEMDS Summary – Strategic context and policy alignment
* [Digital Europe Programme – EMDS Objectives](https://digital-strategy.ec.europa.eu/en/policies/data-spaces) – Background on European data space initiatives

### **Technical Specification: GBFS**

*Last changed: 27.06.2025, GUID: {B33AF3D7-0DE6-4244-975F-A8E2E508930F}*

**Type:** Technical Standard

**Full Name:** General Bikeshare Feed Specification (GBFS)

**Link:** <https://www.gbfs.org/>

**Description:** GBFS is an open, real-time data standard for shared mobility systems (e.g. bikeshare, scooters, mopeds). It defines a uniform JSON-based structure for publishing system status, vehicle availability, pricing, and station metadata. GBFS is designed for public consumption by trip planners, mobility apps, and data aggregators. It is read-only and does not support transactional operations.

**Additional details:** -

**Related Documents:**

* [GBFS GitHub Repository](https://github.com/MobilityData/gbfs) – Specification source, schemas, governance model.
* [GBFS v3.0 Specification](https://github.com/MobilityData/gbfs/blob/master/gbfs.md) – Latest stable version with feed definitions and field requirements.
* GBFS Validator Tool – Online tool for schema validation and feed diagnostics.
* [GBFS Systems Catalog](https://github.com/MobilityData/gbfs/blob/master/systems.csv) – List of known GBFS-compliant deployments.
* [GBFS website](https://gbfs.org/): GBFS specification web site

### **Technical Specification: GTFS**

*Last changed: 27.06.2025, GUID: {CAEF2437-B0BA-4aac-BFEB-3A8CE86835D6}*

**Type:** Technical Standard

**Full Name:** General Transit Feed Specification

**Link:** <https://gtfs.org/>

**Description:** GTFS is an open, machine-readable data format for publishing public transport schedules, routes, stops, and associated geographic and fare information. It enables transit agencies to share static and real-time data with developers, trip planners, and mobility platforms. GTFS consists of two components: **GTFS Schedule (static)** and **GTFS Realtime**, both defined using structured text or protocol buffer formats.

**Additional details:** *(none)*

**Related Documents:**

* [GTFS Schedule Reference](https://gtfs.org/documentation/schedule/reference/) – Defines required and optional files (e.g. stops.txt, routes.txt, trips.txt) and field-level specifications.
* [GTFS Realtime Specification](https://gtfs.org/documentation/realtime/reference/) – Protocol buffer-based format for vehicle positions, trip updates, and service alerts.
* [GTFS Community Forum](https://groups.google.com/g/gtfs-changes/about) – Governance and change proposal process.

### **Technical Specification: GTFS-RT**

*Last changed: 27.06.2025, GUID: {BD5ADEA6-B249-4fad-ACB8-298D1542C33F}*

**Type:** Technical Standard

**Full Name:** General Transit Feed Specification – Realtime

**Link:** <https://gtfs.org/realtime/>

**Description:** GTFS-RT is an open data format for sharing real-time public transport information. It extends the static GTFS Schedule specification by enabling transit agencies to publish live updates on vehicle positions, trip progress, and service alerts. GTFS-RT uses Protocol Buffers for compact, efficient data exchange and is designed for integration with trip planners, mobility apps, and real-time dashboards.

**Additional details:** *(none)*

**Related Documents:**

* [GTFS Realtime Reference](https://gtfs.org/documentation/realtime/reference/) – Defines feed types (TripUpdates, VehiclePositions, Alerts) and message structure.
* [GTFS Realtime Best Practices](https://gtfs.org/documentation/realtime/realtime-best-practices/) – Implementation guidance for latency, update frequency, and feed architecture.
* [GTFS Realtime GitHub Repository](https://github.com/MobilityData/gtfs-realtime-bindings?tab=readme-ov-file) – Official bindings and protocol definitions.
* [GTFS Realtime Libraries & Demo Apps](https://gtfs.org/resources/gtfs-realtime/): Tools and applications for producing and consuming GTFS-RT feeds.

### **Technical Specification: IATA SSIM**

*Last changed: 27.06.2025, GUID: {EEC79522-E329-4da9-89B6-82617E53E335}*

**Type:** Technical Standard

**Full Name:** IATA Standard Schedules Information Manual

**Link:** <https://www.iata.org/en/publications/manuals/standard-schedules-information/>

**Description:** SSIM is the authoritative IATA standard for the structured exchange of airline schedule data, slot coordination messages, and minimum connecting time (MCT) information. It defines message formats, data elements, and transmission protocols used by airlines, airports, and slot coordinators to ensure consistency and interoperability in global aviation scheduling systems.

**Additional details:** *(none)*

**Related Documents:**

* [SSIM Format Overview](https://en.wikipedia.org/wiki/Standard_Schedules_Information_Manual) – Wikipedia – Summary of SSIM structure, use cases, and data hierarchy.
* [IATA Publications Portal –](https://www.iata.org/en/store/publications/manuals-standards-and-regulations/standard-schedules-information-manual-ssim__ssim/?code=9179-35) Access to the latest SSIM editions and related manuals (subscription required).

### **Technical Specification: INSPIRE**

*Last changed: 27.06.2025, GUID: {5A823122-0DEE-44ec-A7CC-E8C8B7ED8F8D}*

**Type:** Technical Standard

**Full Name:** Infrastructure for Spatial Information in the European Community (INSPIRE) – Data Specifications and Implementing Rules

**Link:** <https://knowledge-base.inspire.ec.europa.eu/data-specifications-technical-guidelines_en>

**Description:** INSPIRE defines a harmonised framework for the interoperability of spatial datasets and services across the EU. It provides legally binding Implementing Rules and non-binding Technical Guidelines covering metadata, data models, network services, and data sharing. The specifications apply to 34 spatial data themes grouped under Annexes I–III of Directive 2007/2/EC and are aligned with ISO 19100-series standards.

**Additional details:** INSPIRE’s Transport Networks theme is referenced in Delegated Regulation (EU) 2022/670 as the normative basis for describing road network links and their physical attributes (e.g. geometry, width, number of lanes, gradients, junctions). Implementers of RTTI services may use INSPIRE-compliant representations (e.g. GM\_Curve objects from ISO 19107) to encode road topology and ensure semantic consistency across Member States.

**Related Documents:**

* [INSPIRE Transport Networks – Road Theme](https://knowledge-base.inspire.ec.europa.eu/publications/inspire-data-specification-transport-networks-technical-guidelines_en) – Guidance for representing road links, nodes, and attributes.
* [INSPIRE Registry](https://inspire.ec.europa.eu/registry) – Central repository for code lists, application schemas, and metadata elements.
* [INSPIRE Metadata Guidelines](https://knowledge-base.inspire.ec.europa.eu/publications/inspire-metadata-implementing-rules-technical-guidelines-based-en-iso-19115-and-en-iso-19119_en) – Based on EN ISO 19115 and EN ISO 19119.
* [NAPCORE RTTI Workstream Summary (PDF)](https://napcore.eu/wp-content/uploads/2025/05/DD_2022_670.pdf) – Clarifies INSPIRE’s role in RTTI data provision.

### **Technical Specification: mobility DCAT-AP**

*Last changed: 27.06.2025, GUID: {E2577D77-AFB9-46e3-818C-9764DC209E14}*

**Type:** Technical Standard

**Full Name:** mobilityDCAT-AP – Metadata Specification for Mobility Data Portals

**Link:** <https://w3id.org/mobilitydcat-ap/releases/>

**Description:** mobilityDCAT-AP is a metadata specification tailored for describing datasets and services in the mobility domain, particularly those published via National Access Points (NAPs) and other transport data portals. It extends the general-purpose DCAT-AP standard to support harmonised, machine-readable metadata for Intelligent Transport Systems (ITS) and mobility-related datasets. The specification enables cross-border discoverability, semantic interoperability, and metadata exchange across the European mobility data ecosystem.

**Additional details:** Highly relevant for structuring and publishing metadata on National Access Points (NAPs). It enables consistent representation of transport datasets, data services, access conditions, update frequency, and conformance indicators — all essential for delegated ITS regulations. It supports RDF serialisation and is aligned with the EU Metadata Core Vocabulary, ensuring compatibility with the European Data Portal and NAPCORE interoperability targets.

**Related Documents:**

* [mobilityDCAT-AP Specification (current version)](https://mobilitydcat-ap.github.io/mobilityDCAT-AP/releases/index.html) – Official release with RDF schemas, usage notes, and conformance rules.
* [NAPCORE Metadata Workstream](https://napcore.eu/metadata/) – Coordination activities and governance of mobilityDCAT-AP under the NAPCORE project.
* [mobilityDCAT-AP GitHub Repository](https://github.com/mobilityDCAT-AP/mobilityDCAT-AP/wiki/Chapter-2:-Recommendations-for-the-deployment-of-mobilityDCAT%E2%80%90AP) – Source files, issue tracking, and version history.
* [mobilityDCAT-AP Vocabularies](https://github.com/mobilityDCAT-AP/controlled-vocabularies) – Repository – source files for the vocabularies used in mobilityDCAT-AP
* [mobilityDCAT-AP Generator Tool](https://mobilitydcat-ap.github.io/mobilitydcatap-ui/) – Web interface for generating RDF metadata records.
* [mobilityDCAT-AP wiki](#2-when-should-i-implement-mobilitydcat-ap) - official recommendation for implementation and guidelines

### **Technical Specification: NeTEx**

*Last changed: 27.06.2025, GUID: {477B7D19-AF4F-483d-BF7D-70FEBB8AE8BB}*

**Type:** Technical Standard

**Full Name:** Network Timetable Exchange (NeTEx) – CEN/TS 16614

**Link:** <https://transmodel-cen.eu/index.php/netex/>

**Description:** NeTEx is a modular XML-based CEN technical standard for exchanging public transport data, including network topology, timetables, and fare structures. It is based on the Transmodel conceptual framework and supports multimodal, multilingual, and versioned data exchange between systems. NeTEx is designed for use in journey planning, timetable publishing, fare calculation, and real-time information systems.

**Additional details:** *(none)*

**Related Documents:**

* [NeTEx Overview](https://transmodel-cen.eu/index.php/netex/) – Transmodel – Official CEN portal with schema structure, parts, and implementation guidance.
* [NeTEx GitHub Repository](https://github.com/NeTEx-CEN/NeTEx) – XML schemas, UML models, and example datasets.
* [DATA4PT NeTEx Wiki](https://data4pt.org/w/index.php/NeTEX) – Implementation support, validation tools, and national profile references.
* [NeTEx European Passenger Information Profile (EPIP)](https://data4pt-project.eu/wp-content/uploads/2024/09/D.3.2-Profile-Preparation_v.f1.pdf) – Subset of NeTEx elements required for MMTIS compliance.
* [NeTEx National Implementations – DATA4PT](https://data4pt.org/w/index.php?title=National_Implementations) – Overview of country-specific profiles and Level of Service (LOS) alignment.
* CEN/TS 16614 p1 – p6: Part 1: Public Transport Network topology; Part 2: Scheduled Timetables; Part 3: Fare Information; Part 4: European Passenger Information Profile – EPIP; Part 5: Alternative Modes Exchange Format; Part 6: European Passenger Information Accessibility Profile – EPIAP

### **Technical Specification: OAI-PMH**

*Last changed: 27.06.2025, GUID: {B2EDFAA0-DF8A-4744-A9E6-FBEBA0011D75}*

**Type:** Technical Standard

**Full Name:** Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)

**Link:** <https://www.openarchives.org/pmh/>

**Description:** OAI-PMH is a low-barrier, HTTP-based protocol developed by the Open Archives Initiative for harvesting structured metadata from distributed repositories. It enables service providers to collect metadata records from data providers using a standardised set of six verbs (e.g. ListRecords, GetRecord, Identify). OAI-PMH supports XML-based responses and is widely used in digital libraries, research infrastructures, and open data portals to enable metadata federation and interoperability.

**Additional details:** Highly relevant for metadata harvesting across National Access Points (NAPs) and open data ecosystems. OAI-PMH allows third-party services to synchronise metadata records (e.g. mobilityDCAT-AP) from CKAN-based or custom portals. It supports selective harvesting using datestamps and sets, and is compatible with Dublin Core and other metadata schemas. While not domain-specific, it provides a foundational mechanism for metadata aggregation and cross-portal discoverability.

**Related Documents:**

* [OAI-PMH Specification v2.0](https://www.openarchives.org/OAI/openarchivesprotocol.html) – Core protocol definition and XML schema
* [OAI-PMH Implementation Guidelines](https://www.openarchives.org/OAI/2.0/guidelines.htm) – Best practices for data and service providers
* [OAI-PMH Static Repository Specification](https://www.openarchives.org/OAI/2.0/guidelines-static-repository.htm) – Lightweight approach for small metadata collections
* OAI-PMH Community Resources – Tools, validators, and registration services
* [OAI-PMH Metadata Harvesting Overview (CLARIN)](https://www.clarin.eu/sites/default/files/oai-pmh_PRAGUE_final.pdf) – Presentation on protocol structure and use cases
* [Technical Recommendations for Member States – Harvesting Guidelines (PDF)](https://data.europa.eu/sites/default/files/course/v1.3_ERPD_Technical%20recommendations%20for%20member%20states_Harvesting%20guidelines.pdf) – EU guidance on metadata harvesting for open data portals and NAPs

### **Technical Specification: OCPI**

*Last changed: 27.06.2025, GUID: {4472B597-2F44-461b-B7B1-74BCACB02E64}*

**Type:** Technical Standard

**Full Name:** Open Charge Point Interface (OCPI)

**Link:** <https://github.com/ocpi/ocpi>

**Description:** OCPI is an open, modular protocol that enables seamless communication between electric vehicle (EV) charging infrastructure operators (CPOs) and eMobility service providers (eMSPs). It supports roaming, real-time availability, pricing transparency, smart charging, and billing interoperability. OCPI is maintained by the EVRoaming Foundation and is widely adopted across Europe to facilitate cross-network EV charging access.

**Additional details:** OCPI is commercially focused and used for direct exchange between CPOs and eMSPs, but its data structures are often reused to populate **DATEX II-compliant datasets** required for publication via **National Access Points (NAPs)** under **RTTI** and **AFIR** delegated regulations. Static and dynamic data from OCPI (e.g. connector types, availability, tariffs) can be programmatically mapped to the DATEX II EnergyInfrastructure and Parking publications. This ensures regulatory compliance without duplicating data sources. Field-level mappings and data transformation practices have been standardised by IDACS and NAPCORE profiles.

**Related Documents:**

* [OCPI GitHub Repository](https://github.com/ocpi/ocpi) – Official specification, modules, changelogs, and implementation resources.
* [OCPI Guide](https://www.ampeco.com/guides/the-complete-ocpi-guide/) – AMPECO – Practical overview of OCPI modules, roles, and use cases.
* [EVRoaming Foundation](https://evroaming.org/) – Governance body responsible for OCPI development and stakeholder coordination.
* [OCPI–DATEX II Mapping Guidance](https://docs.datex2.eu/recommended-profiles/rrp/mmtis/ls2b-availability-publicly-accessible-charging-and-refueling-stations/function2rsp/) – NAPCORE – Field-level correspondence for NAP-compliant integration.

### **Technical Specification: OJP**

*Last changed: 27.06.2025, GUID: {77DBDD7C-6A16-4195-AFE6-3D44A30E8033}*

**Type:** Technical Standard

**Full Name:** Open Journey Planner – CEN/TS 17118: Open API for Distributed Journey Planning

**Link:** <https://transmodel-cen.eu/index.php/ojp/>

**Description:** OJP is a CEN technical specification that defines a standardised XML-based interface for distributed, multimodal journey planning. It enables real-time and scheduled trip planning across multiple transport operators and regions by allowing systems to exchange routing requests and responses. OJP is based on the Transmodel conceptual framework and aligned with NeTEx and SIRI data models. It supports cross-border interoperability and is referenced in Delegated Regulation (EU) 2017/1926 (MMTIS), as amended by Regulation (EU) 2024/490.

**Additional details:** Highly relevant as a standardised API for National Access Points (NAPs) under the MMTIS delegated regulation. OJP enables NAPs to expose distributed journey planning services in a harmonised, machine-readable format, allowing third-party applications to query multimodal routes across borders. It supports integration of real-time and scheduled data using NeTEx and SIRI structures. OJP’s distributed architecture allows interlinking of journey planning services across adjacent or remote regions, enabling systems to forward routing requests and compose seamless itineraries from multiple sources — a capability already demonstrated in cross-border deployments such as LinkingAlps

**Related Documents:**

* [OJP Specification – Transmodel Portal](https://transmodel-cen.eu/index.php/ojp/) – Overview of the standard, architecture, and use cases.
* [Swiss OJP Implementation](https://opentransportdata.swiss/de/cookbook/routing-cookbook/open-journey-planner-ojp/) – OpenTransportData.ch – National profile and deployment example.
* [OJP GitHub Repository (Unofficial)](https://github.com/VDVde/OJP) – Sample implementation and interface bindings.

### **Technical Specification: OpRa**

*Last changed: 27.06.2025, GUID: {1240A1C8-FD0D-4239-8295-88D948622D90}*

**Type**: Technical Standard

**Full Name**: Operational Raw Data and Statistics for Public Transport – CEN Technical Report (OpRa)

**Link**: https://transmodel-cen.eu/index.php/opra/

**Description**: OpRa is a CEN initiative focused on the identification, collection, and exchange of raw operational data in public transport systems. It defines the conceptual framework and data requirements for recording actual, measured events — such as delays, cancellations, and vehicle movements — to support performance monitoring, service quality analysis, and strategic planning. OpRa complements Transmodel by formalising the “recorded reality” of operations, enabling consistent statistical reporting and historical analysis.

**Additional details**: OpRa is highly relevant for transport authorities and operators seeking to analyse operational efficiency and service reliability. It supports the study and control phase of the public transport lifecycle, bridging the gap between real-time data (e.g. SIRI) and strategic planning (e.g. NeTEx). OpRa data can be used to generate KPIs, inform policy decisions, and optimise resource allocation. It is aligned with Transmodel Parts 4 and 8 and is being developed into a full Technical Specification under CEN governance.

**Related Documents:**

* [OpRa Overview – Transmodel Portal](https://transmodel-cen.eu/index.php/opra/) – Scope, use cases, and conceptual alignment
* [DATA4PT OpRa Workstream](https://data4pt-project.eu/data-models/transmodel/) – Coordination of OpRa evolution and implementation support

### **Technical Specification: SIRI**

*Last changed: 04.07.2025, GUID: {E14C46B0-7A08-4284-BF7D-294B3FD4373B}*

**Type:** Technical Standard

**Full Name:** Service Interface for Real-time Information (SIRI) – CEN/EN 15531

**Link:** <https://transmodel-cen.eu/index.php/siri/>

**Description:** SIRI is a European CEN standard for the exchange of real-time public transport information between distributed computer systems. It defines a modular XML-based interface for delivering updates on vehicle positions, estimated timetables, service disruptions, and facility status. SIRI is aligned with the Transmodel conceptual framework and complements NeTEx by providing the dynamic counterpart to scheduled data. It supports both request/response and publish/subscribe architectures.

**Additional details:** *(none)*

**Related Documents:**

* [SIRI Overview – Transmodel Portal](https://transmodel-cen.eu/index.php/siri/) – Specification structure, parts, and use cases.
* [DATA4PT SIRI Wiki](https://data4pt.org/w/index.php/SIRI) – Implementation support, national profiles, and validation tools.
* [SIRI–NeTEx Integration Guidance](#SIRI_and_NeTEx) – Explains how SIRI complements NeTEx in real-time data ecosystems.
* SIRI Parts (EN 15531-1 to -7): Part 1 Context and Framework; Part 2 Communications; Part 3 Functional Service Interfaces; Part 4 Functional Service Interfaces: Facility Monitoring; Part 5 Functional Service Interfaces: Situation Exchange; Part 6 Functional Service Interfaces: Control Actions; Part 7 the European Real Time Passenger SIRI Information Profile

### **Technical Specification: TAP-TSI**

*Last changed: 27.06.2025, GUID: {682395F9-50B7-41f0-A637-3327735690CE}*

**Type:** Technical Standard

**Full Name:** Telematics Applications for Passenger Services – Technical Specification for Interoperability (TAP-TSI)

**Link:** https://www.era.europa.eu/domains/technical-specifications-interoperability/telematics-applications-passenger-service-tsi\_en

**Description:** TAP-TSI is a legally binding EU technical specification that governs the interoperability of telematics applications for passenger rail services across the trans-European rail system. It defines common procedures, message formats, and data exchange protocols for timetable publication, reservation, ticketing, real-time information, and intermodal coordination. TAP-TSI ensures that railway undertakings, infrastructure managers, and ticket vendors can exchange data in a harmonised, machine-readable format.

**Additional details:** *(none)*

**Related Documents:**

* [TAP-TSI Overview](https://www.era.europa.eu/domains/technical-specifications-interoperability/telematics-applications-passenger-service-tsi_en) – European Union Agency for Railways – Scope, implementation phases, and governance structure.
* [Commission Regulation (EU) No 454/2011](https://eur-lex.europa.eu/eli/reg/2011/454/oj) – Legal basis for TAP-TSI adoption and enforcement.

### **Technical Specification: TN-ITS**

*Last changed: 27.06.2025, GUID: {8DC75ED7-5F93-4ef6-A530-A0751B86F9D9}*

**Type:** Technical Standard

**Full Name:** Transport Network ITS Spatial Data Exchange – CEN/TS 17268

**Link:** <https://tn-its.eu/standardisation/>

**Description:** TN-ITS is a CEN Technical Specification (TS 17268) that defines a harmonised framework for the exchange of static road attribute changes (e.g. speed limits, access restrictions, lane configurations) between road authorities and map providers. It enables near real-time updates of digital maps by providing trusted, machine-readable notifications of authoritative changes to road infrastructure. TN-ITS supports safety-critical ITS applications, such as ADAS and automated driving, by ensuring that digital maps reflect the latest road conditions.

**Additional details:** Highly relevant for National Access Points (NAPs) as a mechanism for publishing authoritative road attribute updates. TN-ITS enables road authorities to deliver structured change notifications to map makers and service providers, improving data freshness and regulatory compliance. It is referenced in NAPCORE and supported by schema files, code lists, and API definitions hosted by the TN-ITS platform.

**Related Documents:**

* [TN-ITS Standardisation Overview](https://tn-its.eu/standardisation/) – Specification background, governance, and CEN/TS 17268 scope.
* [TN-ITS Schema Files](https://spec.tn-its.eu/schemas) – XML schemas for message structure and validation.
* [TN-ITS API Description (WADL)](https://spec.tn-its.eu/api/) – Interface definition for data exchange.
* [TN-ITS GitHub Repository](https://github.com/ERTICO-TN-ITS/TN-ITS-Open) – Open source tools and implementation examples.
* [NAPCORE TN-ITS Workstream](https://napcore.eu/tn-its/) – Coordination of TN-ITS deployment and integration with NAPs.

### **Technical Specification: TOMP API**

*Last changed: 27.06.2025, GUID: {FBBB2596-1666-4708-B010-04F9227229DB}*

**Type:** Technical Standard

**Full Name:** Transport Operator to Mobility-as-a-Service Provider API (TOMP API)

**Link:** [https://github.com/TOMP-WG/TOMP-API](https://github.com/tomp-wg/tomp-api)

**Description:** TOMP API is an open, modular interface specification that standardises communication between Transport Operators (e.g. bikeshare, carshare, public transport) and Mobility-as-a-Service (MaaS) Providers. It enables seamless integration of planning, booking, trip execution, support, and payment services across diverse mobility offerings. TOMP API facilitates interoperability, reduces integration costs, and supports the development of MaaS platforms by providing a common “language” for service orchestration.

**Additional details:** Highly relevant for enabling NAP-aligned MaaS ecosystems. TOMP API allows mobility providers to expose their services in a harmonised, machine-readable format, supporting integration with journey planners, booking platforms, and real-time service aggregators. While not mandated by delegated regulations, it complements standards like NeTEx, SIRI, and OJP by enabling transactional MaaS interactions. National profiles (e.g. Switzerland) and pilots under NAPCORE explore its role in federated MaaS architectures.

**Related Documents:**

* [TOMP API GitHub Repository](https://github.com/TOMP-WG/TOMP-API) – Specification, OpenAPI definitions, and implementation resources
* [TOMP Working Group Website](https://tomp-wg.org/¨) – Governance, use cases, and stakeholder engagement
* [TOMP API Swiss Profile (PDF)](https://www.tp-info.ch/sites/default/files/2023-03/tomp-api-skiprofil-0.5.pdf) – National implementation guidance
* [TOMP API SwaggerHub Documentation](https://app.swaggerhub.com/apis/Ximedes/tap_connect_tomp_api/1.1.4) – Interactive OpenAPI interface

### **Technical Specification: Transmodel**

*Last changed: 27.06.2025, GUID: {0D35A5A5-9321-4869-84CD-A33C1C285172}*

**Type:** Technical Standard

**Full Name:** Public Transport Reference Data Model – EN 12896 (Transmodel)

**Link:** <https://transmodel-cen.eu/>

**Description:** Transmodel is the European conceptual data model for public transport information systems. It provides a harmonised, implementation-independent framework for representing transport networks, timetables, fares, operations, and real-time information. Transmodel defines entities, relationships, and attributes in Unified Modeling Language (UML), serving as the semantic foundation for derived standards such as NeTEx, SIRI, and OJP. It supports multimodal, multi-operator, and multilingual transport systems, enabling consistent data exchange and system interoperability across Europe.

**Additional details:** Highly relevant as the semantic backbone for multiple NAP-aligned standards. Transmodel underpins NeTEx (scheduled data), SIRI (real-time data), and OJP (distributed journey planning), ensuring conceptual consistency across their implementations. It enables NAPs to align data structures, terminology, and integration logic across domains. Transmodel is also referenced in the ITS Directive and supports harmonisation of TAP-TSI rail standards with other modes.

**Related Documents:**

* [Transmodel Overview – Official Portal](https://transmodel-cen.eu/index.php/siri/) – Conceptual structure, functional areas, and standard evolution
* [Transmodel on Data4PT](https://data4pt-project.eu/data-models/transmodel/) – Strategic role in EU public transport data harmonisation
* [Standards for Implementation – Transmodel](https://transmodel-cen.eu/index.php/standards-for-implementation/) – Mapping to NeTEx, SIRI, OJP, and OpRa

## **Profiles**

Datex II provides a set of Recommended Reference Profiles (RRPs) and Recommended Service Profiles (RSPs). While the RRPs establish minimum set of data-elements required to provide the information meant by the specific data categories in the specific delegated regulation (SRTI, RRTI and MMTIS), the RSPs support harmonised uses cases for the provision of data from the road operator’s point of view.

NeTEx, also a recommended profile – European Passenger Information Profile (EPIP), which is part of the CENT/TNS 16614 Standard and used for the following use cases:

* Provision of data for journey planners
* Provision of data to a path mapping software tool on an (interactive) map
* Provision of timetable printout data
* Provision of station information

In addition to these general profiles (RRPs and RSPs for Datex II and the EPIP for NeTEx), some MS build their own national profiles related those 2 Standards and SIRI as well.

### **Profile: DATEX II Recommended Reference Profiles**

*Last changed: 04.07.2025, GUID: {0284859D-C83B-423b-909A-05291C3F0B08}*

STUB: Recommended Reference Profiles ([RRP's](https://docs.datex2.eu/recommended-profiles/rrp/)) give a harmonised interpretation of the data categories in the Delegated Regulations A, B, C and E of the EU ITS-Directive 2010/40.

This concerns the following Delegated Regulations:

* Delegated Regulation 886/2013 (SRTI, Action C)
* Delegated Regulation 962/2015 (RTTI, Action B)
* Delegated Regulation 1926/2017 (MTIS, action A)

### **Profile: EIP Recommended Service Profiles**

*Last changed: 04.07.2025, GUID: {3D7BA083-1874-45c0-9B49-E81F3F261DF9}*

STUB: The **EIP Recommended Service Profiles** aim to update and harmonize service descriptions for Intelligent Transport Systems (ITS) in Europe. This effort incorporates the latest advancements in digitalization and Cooperative Intelligent Transport Systems (C-ITS), as well as insights from best practices and EU EIP activities.

Key goals include:

* **Modernizing service descriptions** to reflect current technologies and regulatory contexts.
* **Simplifying information** to make it more accessible and understandable.
* **Eliminating redundancies** by merging separate documents into a comprehensive guide.

The profiles, developed jointly by the EU EIP and DATEX II PSA, are available for free and provide guidance on data sharing for ITS services. They describe interfaces for communication between systems and vehicles, ensuring compliance with European regulations and standards like DATEX II.

You can get the Recommended Service Profiles at the [DATEX II webtool](https://webtool.datex2.eu/wizard/t_blank).

* [Forecast and Realtime Event Information](https://docs.datex2.eu/recommended-profiles/rsp/forecastandrtti/)
* [Traffic Condition and Travel Time Information](https://docs.datex2.eu/recommended-profiles/rsp/trafficconditition/)
* [Speed Limit Information](https://docs.datex2.eu/recommended-profiles/rsp/speedlimitinformation/)
* [Road Weather Information](https://docs.datex2.eu/recommended-profiles/rsp/roadweatherinformation/)
* [Multi-Modal Traveller Information](https://docs.datex2.eu/recommended-profiles/rsp/multimodal/)
* [Dynamic Lane Management](https://docs.datex2.eu/recommended-profiles/rsp/dynamiclanemanagement/)
* [Variable Speed Limits](https://docs.datex2.eu/recommended-profiles/rsp/variablespeedlimits/)
* [Ramp Metering](https://docs.datex2.eu/recommended-profiles/rsp/rampmetering/)
* [Hardshoulder Running](https://docs.datex2.eu/recommended-profiles/rsp/hardshoulderrunning/)
* [Incident Warning and Management](https://docs.datex2.eu/recommended-profiles/rsp/incidentwarningandmanagement/)
* [HGV Overtaking Ban](https://docs.datex2.eu/recommended-profiles/rsp/hgvovertakingban/)
* [Traffic Management for Corridors and Networks](https://docs.datex2.eu/recommended-profiles/rsp/trafficmanagementcorridors/)
* [Intelligent and Secure Truck Parking](https://docs.datex2.eu/recommended-profiles/rsp/intelligentsecuretruckparking/)

### **Profile: EPIP Profile**

*Last changed: 04.07.2025, GUID: {483C3636-0B3E-4cf4-BCA0-788C9923AF24}*

STUB: The profile contains information such as details of used services, details of the objects used in an exchange, details on the options proposed by the standard, details on optional elements. NeTEx profiles are available to facilitate the implementation of the standard and to improve interoperability by focusing only on the elements that are needed and to fill small gaps voluntarily left by the standard to enable customisation. The European Passenger information profile (EPIP – NeTEx Part 4)6 is a profile focusing on minimum information required to be exchanged to feed passenger information systems (stop displays, mobile applications, journey planners etc.) based on DR MMTIS 2017/1926. The European Passenger Information Accessibility Profile (EPIAP- NeTEx Part 6)7 focuses on the accessibility facilities in stops, stations, vehicles (e.g., ramps, lifts, escalators etc.) for static data, according to MMTIS DR requirements. The respective real time data for both profiles are included in SIRI. The European profiles aim to facilitate the implementation of NeTEx but also to be the basis for the specification of national or local profiles, ensuring interoperability between countries and regions. The EU profiles consider also the existing national profiles, whenever exist, to focus on the common needs between countries and to adopt best approaches.

### **Profile: IDACS Recommended Service Profiles**

*Last changed: 04.07.2025, GUID: {87698942-37BC-4e11-ABA4-EA4038A0791C}*

In the course of the Programme Support Action (PSA) “Data collection related to recharging/refuelling points for alternative fuels and the unique identification codes related to e-Mobility actors” that was subsequently given the name IDACS, or “ID and Data Collection for Sustainable fuels in Europe”, the 15 member states of the consortium mandatorily have to collect data related to alternative fuels infrastructures, namely electric charging points and hydrogen refuelling stations (HRS) as part of activity 2. Other alternative fuels, such as CNG, LNG, LPG and highly-blended biofuels can be covered optionally.

As data collection mandatorily has to take place via the National Access Points (NAP) as defined in directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport, it is the aim of these profiles to give guidance on how this can be achieved.

### **Profile: UVARBox**

*Last changed: 04.07.2025, GUID: {C5FEBBBE-152B-47a6-8892-5C453997CEBA}*

STUB: UVARBox digitized five types of UVARs for which five profiles are available as RSP in the . The five UVAR types are: - low emission zones - limited traffic zones - pedestrian zones - congestion charging - parking zones

As these profiles are based on un unstable version of DATEX II Traffic Regulations users have to be aware of non-interoperable changes are expected in a stable future v3 release of TrafficRegulation and ControlledZone.

[UVARBox website](https://uvarbox.eu//t_blank)

## **Recommendations**

**Recommendation**: Provide guidelines or best practices that are not mandatory but are suggested to achieve optimal performance, compliance, or quality. These can include industry standards, advisory notes, or expert recommendations.



**Figure:** Recommendations - Requirements

### **Recommendation: Assistance**

*Last changed: 04.07.2025, GUID: {0D28759C-0D39-4657-95CF-58C45787B5DC}*

NAPs shall assist in publishing (meta)data to the NAP

### **Recommendation: Metadata insufficiency**

*Last changed: 04.07.2025, GUID: {BC945A8B-01D0-4f70-9484-586F0F7F9325}*

NAPs shall communicate to content provider any provided metadata insufficiency, that, as a consequence, results in not publishing or removing published datasets.

### **Recommendation: not tampered by the NAP**

*Last changed: 04.07.2025, GUID: {C1EA86E6-A64D-41b8-9E07-E71ACD5F9088}*

NAP shall ensure content provider that the provided metadata, data/services are not tampered by the NAP in any manner.

### **Recommendation: Notification**

*Last changed: 04.07.2025, GUID: {8DE95B47-D58D-4339-BE76-DBACC7909669}*

If subscribed: to notify CC about any outages and, optionally, additions to the NAP. NO must ensure that personal data is not misused, General Data Protection Regulation (GDPR) and to whom can it be disclosed. NO must provide the CC the right to delete the account on the NAP.

### **Recommendation: Reuse metadata**

*Last changed: 04.07.2025, GUID: {D01BC616-BDA0-4444-9C0E-AE363B819E22}*

NAPs shall provide the right to reuse the metadata including consensually provided personal information.

To provide accurate, timely, and complete metadata.