Standards for public transport data

Support in the selection of standards for procurements and projects

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Samtrafiken
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Content

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Summary

To increase the use of public transportation, it is becoming increasingly important for information to be more accessible to both passengers and operators. This requires a standardized way of exchanging public transportation data. However, there are several standards in public transportation, and it can sometimes be difficult to know which ones to prioritize.
At Samtrafiken, we have many years of experience working with these standards, both for our owners and partners, as well as in European projects on standards in which we participate. To support future procurements and projects, we would like to highlight the standards that should be prioritized to promote the continued development of public transportation.
Samtrafiken recommends that systems handling traffic data be able to export this data in the following formats:

- For static traffic data, such as timetables, stop data, etc., NeTEx should be used. It can handle data at the required level of detail and is considered the best long-term option, as well as being regulated by the EU.
- For real-time data, such as positioning, passenger counting, etc., SIRI should be used. It can handle data at the required level of detail and is considered the best long-term option, as well as being regulated by the EU.

Background

Samtrafiken handles several open standards to manage and publish traffic data. This white paper aims to inform about these standards and serve as a guide for decision-making within Swedish public transport sector regarding which standards should be used and what requirements should be set during procurements and projects.

By traffic data, we refer to both static data, such as routes, timetables, stops, and vehicle information, as well as real-time data based on positioning information and passenger counting, along with processed forecast data.

In all aspects of public transport operations, from traffic planning and execution to passenger information, traffic data is managed, encompassing details on routes, stops, schedules, vehicle positioning, and passenger counting. This data is essential not only for internal operations but equally important for providing accurate information to travellers. Therefore, it is critical that this information remains accessible and open. The European Union has also mandated, through the ITS Directive and Regulation (EU) 2017/1926 (amended by (EU) 2024/490), that this data must be published as open data using the NeTEx (Network Timetable Exchange) and SIRI (Standard Interface for Real-time Information) standards.

NeTEx

- Is developed for static data such as routes, stops, and schedules.
- NeTEx is developed by CEN/CENELEC (CEN, the European Committee for Standardization, and CENELEC, the European Committee for Electrotechnical Standardization). Under the ITS Directive, public transport operators within the EU are required to publish their static data in this format.
- Samtrafiken has facilitated compliance with this regulation for our owners and partners by receiving data (often in NOPTIS DOI and NOPTIS DII formats, see below) and, when applicable, converting it to the NeTEx format before publishing it to the National Access Point for open data, managed by Trafikverket via Samtrafiken's Trafiklab service.

In the long term, it benefits all parties if data can be exported in the NeTEx format, and the number of system providers capable of this is continually increasing. Therefore, we recommend that, wherever possible, systems intended to manage routes, stop data, timetables, etc., should be required to export this data in the NeTEx format according to the Nordic profile. For more information, see Samtrafiken NeTEx import.

SIRI

- Is developed for real-time data such as vehicle positions and passenger counting.
- SIRI is also developed by CEN/CENELEC. According to the aforementioned EU legislation, public transport operators within the EU are obligated to publish their real-time information data in this format.
- Samtrafiken has facilitated compliance with this regulation for our owners and partners by receiving data (often in NOPTIS ROI format, see below) and, when necessary, converting it to the SIRI format before publishing it on the National Access Point for open data, managed by the Swedish Transport Administration, via Samtrafiken's Trafiklab service.

In the long term, it is desirable to receive real-time data directly in SIRI format without the need for data conversion. Therefore, we recommend that, wherever possible, systems handling real-time data be required to support exporting data in SIRI format. It is important to note that when real-time data is delivered in SIRI format, static traffic data must also be provided in NeTEx format, as SIRI specifies changes in relation to the static information.

Other standards

GTFS

- GTFS (General Transit Feed Specification) is an open standard that is widely used globally.
- GTFS also includes a format for real-time data, known as GTFS-RT.

- This standard is utilized by platforms like Google and Apple to publish public transport data on their maps, and it is extensively used by third-party developers to build applications that rely on transit data. While GTFS benefits from its widespread adoption, its definitions are not as comprehensive, making it insufficient for some types of public transport use cases. For this reason, Samtrafiken does not import traffic data in the GTFS format.

Just as Samtrafiken translates data to NeTEx and SIRI, we also translate data to GTFS and GTFS-RT, including data imported in NeTEx format. This means that traffic data on Trafiklab is available in both formats. When exporting data in NeTEx to Samtrafiken, it is therefore possible to meet any needs for GTFS-format data by retrieving the translated data from Trafiklab.

NOPTIS

- NOPTIS (The Nordic Public Transport Interface Standard) is developed by the Nordic public transport sector.
- It is utilized by Hogia's traffic data platform, PubTrans.
- Like NeTEx and SIRI, the standard is based on Transmodel (see below).
- The standard has gained widespread adoption, particularly among regional public transport authorities.

Samtrafiken receives data in this format for both static data (NOPTIS DOI and NOPTIS DII) and real-time data (NOPTIS ROI), subsequently converting it into NeTEx and SIRI formats, as well as GTFS and GTFS-RT.

Our recommendation is to gradually transition towards exporting data directly in NeTEx and SIRI formats over time.

Transmodel

- Transmodel is a critically important standard for transport data, primarily at a conceptual level rather than for practical application.
- It is developed by CEN/CENELEC.
- Unlike the standards mentioned above, Transmodel outlines data models for the information utilized within public transport, whereas the other standards specify how this data should be structured.
- NeTEx, SIRI, and NOPTIS are based on the data model described in Transmodel.

About Samtrafiken

Samtrafiken is a collaboration and development company operating in the public transport industry. By connecting public transport authorities as well as public and private transport operators in Sweden, we

create added value for the entire public transport industry. With our services, we make it easy to search, buy and travel by public transport in Sweden. For over 30 years, we have enabled multi modal Title: The Swedish Stop Registry Date of publication: 2024-04-16 SAMTRAFIKEN I SVERIGE AB 7 and multi carrier ticketing. Our Vision is to make Sweden a leading country within sustainable travel. We are owned by all regional public transport authorities as well as many of the commercial travel operators running a national service. www.samtrafiken.se