

ICS

English Version

**Public transport - Service interface for real-time information  
relating to public transport operations - Part 5: Functional  
service interfaces - Situation Exchange**

Service d'échanges de données temps réel pour le  
Transport en Commun - Partie 5: interfaces de service  
fonctionnel - Echanges de perturbation structurés (causes  
et conséquences détaillées)

Öffentlicher Verkehr - Diensteschnittstelle für den  
Echtzeitaustausch von Betriebsinformationen des ÖPNV  
(SIRI) - Teil 5: Funktionelle Serviceschnittstelle: Situativer  
Austausch

This Technical Specification (CEN/TS) was approved by CEN on 19 March 2011 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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## Foreword

This document (CEN/TS 15531-5:2011) has been prepared by Technical Committee CEN/TC 278 "Road transport and traffic telematics", the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document describes the SIRI Situation Exchange service, one of a modular set of services for the exchange of Real-time information. The Situation Exchange service (SIRI-SX) is concerned with the exchange of planned events and unplanned incident data among systems, including incident capture, real-time management and dissemination systems.

The SIRI Situation Exchange service (SIRI-SX) is an additional functional service based on the European Technical Specification known as "SIRI" – Service Interface for Real-time Information. SIRI provides a framework for specifying communications and data exchange protocols for organisations wishing to exchange Real-time Information (RTI) relating to public transport operations.

The specification for the base SIRI framework on which SIRI-SX is built is presented in three parts:

- a) context and framework, including background, scope and role, normative references, terms and definitions, symbols and abbreviations, business context and use cases (SIRI Part 1: CEN/TS 15531-1);
- b) the mechanisms to be adopted for data exchange communications links (SIRI Part 2: CEN/TS 15531-2);
- c) data structures for a series of individual application interface modules (SIRI Part 3: CEN/TS 15531-3):
  - 1) Production Timetable (SIRI-PT);
  - 2) Estimated Timetable (SIRI-ET);
  - 3) Stop Timetable (SIRI-ST);
  - 4) Stop Monitoring (SIRI-SM);
  - 5) Vehicle Monitoring (SIRI-VM);
  - 6) Connection Timetable (SIRI-CT);
  - 7) Connection Monitoring (SIRI-CM);
  - 8) General Message (SIRI-GM).

Additional documents are used for additional functional services, to date these are:

- Facilities Management (SIRI-FM) service is used to exchange information on the current status of facilities such as lifts, escalators or ticketing machines. It provides a short description of the facility itself, expresses any change to its operational status and specifically the accessibility status for the disabled or those with special needs people. It provides all the current relevant information relating to all facilities fulfilling a set of selection criteria (Part 4: prCEN/TS 15531-4).
- Situation Exchange (SIRI-SX): this document. The SIRI Situation & Incident Exchange service is used to exchange information messages between identified participants in a standardised structured format

suitable for travel information services. It enables messages to be sent and to be revoked (Part 5: FprCEN/TS 15531-5, this document).

The XML schema can be downloaded from <http://www.siri.org.uk/>, along with available guidance on its use, example XML files, and case studies of national and local deployments. The SIRI-SX service is included in version 1.3 of the schema onwards.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## Introduction

Public transport services increasingly rely on information systems to ensure reliable, efficient operation and widely accessible, accurate passenger information.

Well-defined, open interfaces have a crucial role in improving the economic and technical viability of Public Transport Information Systems of all kinds. Using standardised interfaces, systems can be implemented as discrete pluggable modules that can be chosen from a wide variety of suppliers in a competitive market, connecting diverse systems; rather than as monolithic proprietary systems from a single supplier. Interfaces also allow the systematic automated testing of each functional module, vital for managing the complexity of increasing large and dynamic systems. Furthermore, with a well defined, version interface, individual functional modules can be replaced or evolved, without unexpected breakages of obscurely dependent function.

The SIRI framework is a European Technical Specification that provides a specification for a number of functional interfaces that allow public transport data of specific types to be exchanged readily using structured interfaces.

Furthermore, this European Technical Specification specifies an additional SIRI functional service to exchange incident and event information about disruptions to public transport between servers containing real-time public transport vehicle or journey time data. These include the control centres of transport operators as well as information systems that deliver passenger travel information services.

## 1 Scope

The SIRI Situation Exchange service (SIRI-SX) allows the efficient exchange of data about situations caused by planned and unplanned incidents and events and is intended to support the use cases identified in Annex C. Situations are actual or potential perturbations to normal operation of a transport network. The SIRI-SX service uses the common SIRI communication framework and services which are described in CEN/TS 15531-1 and not repeated in this document.

The Situation Exchange service has a rich Situation model, allowing a structured description of all aspects of multimodal travel Situations, including cause, scope, effect and rules for distribution to an audience. The structured values enabling computer based distribution through a wide variety of channels, and the presentation of data in different formats for different device and different audiences. The Situation Exchange Service allows the exchange of incident and event information between, amongst others:

- Control centres;
- Operations staff;
- Public information systems;
- Alert systems and personalised alert systems;
- UTMC systems;
- Journey planners;
- AVMS (Automatic Vehicle Management Systems).

SIR-SX uses a network model based on the CEN Transmodel conceptual model for public transport networks, schedules and operations, along with the CEN Identification of Fixed Objects in Public Transport (IFOPT) model for describing physical transport interchanges.

The Situation Exchange service is envisaged as a 'back office' capture and exchange service that will feed other public facing travel information dissemination systems, in particular those using the TPEG format. Transport Protocol Expert Group (TPEG) is a European Broadcasting Union fostered standard for broadcasting travel data over Digital Assisted Broadcasting (DAB) radio and other channels. To this end, the SIRI-SX situation classification model has been harmonised as far as possible with that of TPEG and DATEX2 so that full interoperability can be achieved. Uses of structured elements from TPEG, for which translations already exist in most European languages, also facilitates human readability in different national languages. Maintaining and improving a harmonisation with TPEG will be a continuing objective. In addition to the TPEG exchangeable content, SIRI-SX messages contain additional structured information which allows them to be processed in additional ways.

Situation and computer systems and applications are typically *distributed*, that is information will be captured on one system and exchanged with others for dissemination and further processing. This means that a message design is needed that allows the management of the identity of distributed messages over time and across different systems, so that subsequent updates to a Situation can be reconciled by different systems over a network, and obsolete messages can be retired automatically. The SIRI-SX situation model is designed to support the distributed management of Situations.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 15531-1:2007, *Public transport — Service interface for real-time information relating to public transport operations — Part 1: Context and framework*