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

Transport public - Interface de service pour les informations en temps réel relatives aux opérations de transport public - Partie 5: Service d'interface fonctionnelle - Échange de l'état de l'exploitation et de son contexte

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 25 February 2016 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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European foreword

This document (CEN/TS 15531-5:2016) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, 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 supersedes CEN/TS 15531-5:2011.

The 15531 series consists of the following parts, under the general title *Public transport - Service interface for real-time information relating to public transport operations*

— 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

The following corrections and modifications have been in this new version of CEN/TS 15531-5:

— Correct spec to include projection attributes for affectedStopPlaceComponent

— Document FacilityRef as part of request

— Document Access Mode as part of request

— Document Scope as part of request

— Document RoadFilter and Accessibility need filter as part of request

— Correct Documentation of AffectedRoads as part of Delivery

— Correct Documentation of capability Matrix

— Correct Documentation of Reason codes

— Added Annex D to Doc on GTFS real-time mapping

— StopMonitoringDelivery upgrade to DatexII

All changes are available in the file ReadMe.txt which is accompanying the XSD-schema, available from http://www.siri.org.uk.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta,

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Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

Public transport services rely increasingly 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.

This further 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.

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. It 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: EN 15531-1);

b) the mechanisms to be adopted for data exchange communications links (SIRI Part 2: EN 15531-2);

c) data structures for a series of individual application interface modules (SIRI Part 3: EN 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).

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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: CEN/TS 15531-4).

— **Situation Exchange (SIRI-SX):** this document. The SIRI Situation and 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: CEN/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.

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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 EN 15531-1 and EN 15531-2 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).

SIRI-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. TPEG is maintained by the Traveller Information Services Association (TISA). To this end, the SIRI-SX situation classification model has been harmonized 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 harmonization 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.

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2 Normative references

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

EN 15531-1:2015, *Public transport — Service interface for real-time information relating to public transport operations — Part 1: Context and framework*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15531-1:2015 and the following apply.

NOTE In accordance with Transmodel conventions, capital letters are used to indicate conceptual model entities from Transmodel, for example VEHICLE JOURNEY, STOP PLACE, etc., and also those from IFOPT and SIRI. Later in this document, the names of classes and attributes expressing these entities in the UML diagrams and the XML schema are shown in Upper Camel Case, e.g. ***VehicleJourney***. Not all conceptual entities are expressed as classes and not all concrete classes and attributes relate directly to a conceptual entity.

3.1
Access Space – IFOPT & NeTEx
passenger area within a STOP PLACE such as a concourse or booking hall, immigration hall or security area that is accessible by pedestrians, but without a direct access to vehicles

Note 1 to entry: Direct access to a VEHICLE is always from a QUAY and/or BOARDING POSITION. An ACCESS SPACE may be a Room, Hall, Concourse, Corridor, or bounded open space within a STOP PLACE.

3.2
Accessibility – IFOPT
possibility of a user with a specific USER NEED, such as a disability or encumbrance, to access either fixed or moving Public Transport facilities

3.3
Accessibility Assessment – IFOPT & NeTEx
ACCESSIBILITY characteristics of an entity used by PASSENGERs such as a STOP PLACE, or a STOP PLACE COMPONENT

Note 1 to entry: Described by ACCESSIBILITY LIMITATIONs, and/or a set of SUITABILITies.

3.4
Accessibility Limitation – IFOPT & NeTEx
categorisation of the mobility characteristics of a STOP PLACE COMPONENT such as a STOP PATH LINK or ACCESS SPACE to indicate its ACCESSIBILITY by mobility constrained users, for example those needing wheelchair access, step-free access or wanting to avoid confined spaces such as lifts

Note 1 to entry: A small number of well-defined categories are used that are chosen to allow the consistent capture of data and the efficient computation of ROUTEs for different classes of user.

3.5
Affects Scope – SIRI-SX
scope of a SITUATION ELEMENT or consequence of a SITUATION ELEMENT in terms of the specific entities such as OPERATORs, NETWORKs, LINEs, SCHEDULED STOP POINTs, STOP PLACEs, PLACEs, etc that are affected

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