SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 19468:2022

01-maj-2022

Nadomešča:
SIST-TS CEN ISO/TS 19468:2019

Inteligentni transportni sistemi - Podatkovni vmesnik med prometnimi informacijskimi centri in kontrolnimi sistemi - Specifikacije modela neodvisne platforme za protokole izmenjave podatkov za prometne informacijske in kontrolne sisteme (ISO/TS 19468:2022)

Intelligent transport systems - Data interfaces between centres for transport information and control systems - Platform-independent model specifications for data exchange protocols for transport information and control systems (ISO/TS 19468:2022)

Intelligente Verkehrssysteme - Datenschnittstelle zwischen Verkehrszentralen und Steuerungssystemen - Plattformunabhängige Modellspezifikationen für Datenaustauschprotokolle für Verkehrsinformationen und Steuerungssysteme (ISO/TS 19468:2022)

Systèmes de transport intelligents - Interface de données entre centres pour les systèmes de commande et d'information des transports - Spécification du modèle indépendant de plateforme pour les protocoles d'échange de données pour les systèmes de commande et d'information des transports (ISO/TS 19468:2022)

Ta slovenski standard je istoveten z: **CEN ISO/TS 19468:2022**

ICS:

03.220.20	Cestni transport	Road transport
35.240.60	Uporabniške rešitve IT v prometu	IT applications in transport

SIST-TS CEN ISO/TS 19468:2022 **en,fr,de**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN ISO/TS 19468

February 2022

ICS 03.220.20; 35.240.60

Supersedes CEN ISO/TS 19468:2019

English Version

Intelligent transport systems - Data interfaces between centres for transport information and control systems - Platform-independent model specifications for data exchange protocols for transport information and control systems (ISO/TS 19468:2022)

Systèmes de transport intelligents - Interface de données entre centres pour les systèmes de commande et d'information des transports - Spécification du modèle indépendant de plateforme pour les protocoles d'échange de données pour les systèmes de commande et d'information des transports (ISO/TS 19468:2022)

Intelligente Verkehrssysteme - Datenschnittstelle zwischen Verkehrszentralen und Steuerungssystemen - Plattformunabhängige Modellspezifikationen für Datenaustauschprotokolle für Verkehrsinformationen und Steuerungssysteme (ISO/TS 19468:2022)

This Technical Specification (CEN/TS) was approved by CEN on 1 February 2022 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.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. CEN ISO/TS 19468:2022 E

Contents

Page

European foreword

This document (CEN ISO/TS 19468:2022) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with 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 shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN ISO/TS 19468:2019.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO/TS 19468:2022 has been approved by CEN as CEN ISO/TS 19468:2022 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 19468

Second edition
2022-02

Intelligent transport systems — Data interfaces between centres for transport information and control systems — Platform-independent model specifications for data exchange protocols for transport information and control systems

Systèmes de transport intelligents — Interface de données entre centres pour les systèmes de commande et d'information des transports — Spécification du modèle indépendant de plateforme pour les protocoles d'échange de données pour les systèmes de commande et d'information des transports

Reference number
ISO/TS 19468:2022(E)

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO/TS 19468:2019), which has been technically revised.

The main changes are as follows:

- UML Communication diagrams have been improved (introduction of Agents and Interfaces to define actor subsystems interactions and addition of subclause 5.8 to describe UML modeling methodology adopted);
- Void input parameter has been defined;
- Description of FEP+EP implementation has been improved with appropriate normative language;
- Publish Subscrube Exchange Pattern has been removed;
- Collaborative Intellignet Transport Systems (ITS) services requirements and features have been reviewed and added in Clause 5 and Annexes B and E;
- Collaborative ITS service FEP+EP PIM description has been introduced in Clauses 10 and 11;
- Annex C has been reviewed, introducing new classes and attributes to support the implementation of features used in other exchange patterns;
- Annex H has been deleted;
- Certain figures have been improved.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document defines a common set of data exchange specifications to support the vision of a seamless interoperable exchange of traffic and travel information across boundaries, including national, urban, interurban, road administrations, infrastructure providers and service providers. Standardization in this context is a vital constituent to ensure interoperability, reduction of risk, reduction of the cost base, promotion of open marketplaces and many social, economic and community benefits to be gained from more informed travellers, network managers and transport operators.

Especially in Europe, delivering transport policy in line with the White Paper[13] issued by the European Commission requires co-ordination of traffic management and development of seamless pan European services. With the aim of supporting sustainable mobility in Europe, the European Commission has been supporting the development of information exchange mainly between the actors of the road traffic management domain for a number of years.

This document supports a methodology that is extensible.

To be able to successfully connect systems and start exchanging data in an interoperable and easy way, there is a need to describe and agree on how this exchange ought to be achieved. This is set out in a data exchange specification. Data exchanges in different scenarios can have different needs and requirements. Therefore, several data exchange specifications can be needed.

Data exchange specifications need to address two main issues. Firstly, they model the stakeholders and actors involved in data exchange, each potentially in different roles, as well as abstract exchange patterns for their interactions. Secondly, they select a suitable implementation platform and clearly specify how the abstract scenarios and patterns are effectively implemented on this platform.

The diagram in Figure 1 shows such an abstract communication scenario from the perspective of a road operator who requires data exchange interfaces between the different components of its own operational systems, either between centre-side components or between centre and field devices, but also to exchange information with other road operators or service providers.

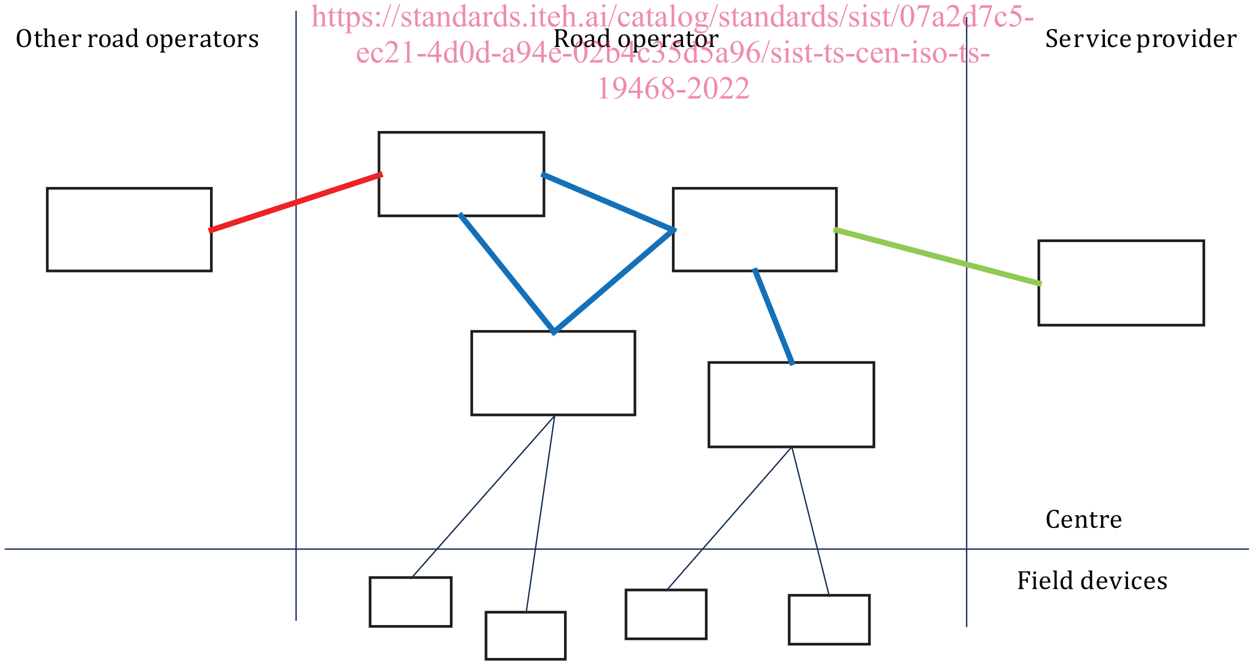

Figure 1 — Abstract communication scenario

While the black links between centre-side components and field devices may use a variety of communication protocols, mostly depending on the physical link conditions, the vast majority of other coloured links between centre-side components, internal to one organization or external to others, are based on an internet protocol (IP) network and mostly use the transmission control protocol (TCP) transport layer protocol (user datagram protocol, UDP, is also possible in a few cases).

Nevertheless, as the different colours indicate, they can very well have significantly different requirements. Internal links (blue) can reside in one domain of trust, hence do not require protocols compatible with security gateways. This can already be different for links to other road operators (red) and will certainly not hold for links to other types of organizations, like service providers, via the Internet (green).

While different security requirements offer the most striking and obvious example, there are more criteria that can lead to different preferences on different types of links, e.g. scalability, robustness and integration complexity.

In broad terms, the colours blue – red – green form a hierarchy from more internal, closely-coupled, well-integrated systems towards external, loosely-coupled and non-integrated systems. The world of information and communication technology (ICT) offers a broad range of solutions for these different scenarios, offering different advantages and disadvantages. It is clear that the one-size-fits-all principle will not provide the most efficient way of working here. Even on the highest level of abstraction and inside the ICT domain itself, a well-known battle of paradigms between remote-procedure-call (RPC) type service specifications and RESTful architectures exists. The same clusters of options are found in the domain of ITS standards, where for example the European standard for the real-time information interface relating to public transport operations (SIRI; see the EN 15531 series) introduces both concepts as complementary options: Publish-Subscribe and Request-Response.

Furthermore, the ITS station architecture is not in contradiction with this document but is complementary to what is defined in this document. According to the principles and the taxonomy defined in ISO 21217, this document defines a conceptual notion of:

— How two central ITS (sub-)stations could communicate to:

  — deliver information (application data units);

  — negotiate functional service behaviour for collaborating traffic management functions (even if this use case could not directly be matched to ISO 21217 as it is not about information delivery).

— How a central ITS (sub-)station could communicate to deliver information (application data units) to another ITS station with the characteristics of a central ITS station.

This document specifies the process of defining the exchange characteristics by use case-driven feature selection of relevant parameters for the relevant OSI layers as defined in ISO 21217. Two exchange schemas are considered: information delivery and functional service negotiation between central ITS stations.

The drafting of this document was guided by the following principles:

— interoperability, such that different implementations can successfully engage in a data exchange process;

— supporting of legacy implementations which are based on existing (exchange) specification, in order to maximize investments already made by stakeholders;

— addressing other user profiles, not only road operators, thus making this document available to a broader audience;

— reusing existing (communications) standards, in order to reduce implementation complexity and take benefit of proven and already existing solutions for common ICT problems;

— maintaining a clear separation between the payload content and the exchange model.

Annex A details the adopted methodology for defining this exchange platform-independent model (PIM).