
**Intelligent transport systems —
Framework for collaborative
telematics applications for regulated
commercial freight vehicles (TARV) —**

Part 24:

Safety information provisioning

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*Systèmes de transport intelligents — Cadre pour applications
télématiques coopératives pour véhicules réglementés (TARV) —*

Partie 24: Fourniture d'informations sur la sécurité

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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Abbreviated terms	2
5 Conformance	3
6 General overview and framework	3
7 Basic conceptual operational requirement	6
7.1 General.....	6
7.2 Basic requirement.....	7
8 Requirements for services using generic vehicle data	8
8.1 General.....	8
8.1.1 Introduction.....	8
8.1.2 Unregulated application services using only generic basic vehicle data.....	8
8.1.3 Unregulated application services using both generic vehicle data and additional application specific data.....	9
8.2 Conveyance identifiers.....	9
9 Concept of operations for unregulated application services with additional data requirements including roadside sensors	9
9.1 General.....	9
9.2 Statement of the goals and objectives of the system.....	9
9.3 Strategies, tactics, policies and constraints affecting the system.....	10
9.4 Organizations, activities and interactions among participants and stakeholders.....	11
9.5 Operational roles and processes for the system.....	11
9.5.1 Common role of the prime service provider.....	11
9.5.2 Common role of the application service provider.....	11
9.5.3 Role of the application service.....	12
9.5.4 Service requirements definition.....	12
9.5.5 Common role of user.....	12
9.5.6 Role of driver.....	12
9.5.7 Role of operator.....	12
9.5.8 Framework for operation.....	13
9.5.9 ROAM 'app' library and data pantry.....	13
10 Sequence of operations for identified unregulated application services with additional data requirements	14
10.1 Overview.....	14
10.1.1 General.....	14
10.1.2 Commands.....	14
10.1.3 GET TARV LDT.....	15
10.1.4 CREATE and GET core data.....	16
10.2 Quality of service requirements.....	17
10.3 Test requirements.....	18
10.4 Marking, labelling, and packaging.....	18
11 Common features of unregulated TARV application services	18
11.1 Generic operational processes for the system.....	18
11.2 Common characteristics for instantiations of unregulated application services.....	20
11.3 Common sequence of operations for unregulated application services.....	21
11.4 Quality of service.....	21
11.5 Information security.....	21

11.6	Data naming content and quality	21
11.7	Software engineering quality systems	22
11.8	Quality monitoring station	22
11.9	Audits	22
11.10	Data access control policy	22
11.11	Approval of IVSs and service provider	22
11.12	Approval of roadside sensors	22
12	Declaration of patents and intellectual property	22
Annex A	(informative) Application examples	23
Bibliography	26

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[ISO/PRF 15638-24](https://standards.iteh.ai/catalog/standards/sist/2aa3b991-dd4c-4c07-a087-bcc2e793ced0/iso-prf-15638-24)

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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*.

A list of all parts in the ISO 15638 series can be found on the ISO website.

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

Freight vehicles are heavy and therefore require longer reducing speed and manoeuvring distance in comparison to lighter vehicles. To achieve safer freight road transport of freight vehicles, an information provision service providing traffic status and incident situation well ahead of the freight vehicle is indispensable. This information provision can increase vehicle safety during freight road transport.

This document standardizes the conceptual operational framework of safety information provision provided by service providers. The ISO 15638 series of TARV application standards are based on a triumvirate of vehicle operators with in-vehicle systems, on-board application service providers and jurisdictions. The basic TARV 15638-1 standard focus on the transactions between these parties via ITS-stations and roadside sensors, and using this system architecture, additional safety information provision services to freight vehicles can be realized. The new means of safe road transport management and enforcement may be enabled by using this document where jurisdiction requires such regulated monitoring.

It therefore seems appropriate to include this additional document (Part 24) in the ISO 15638 series of standards to provide the means for adding safe road transport of freight vehicles.

It is necessary for telematic applications to be able to be integrated into the embedded computing systems available on the market. The need for interoperability of different solutions is also important as several actors with different solutions can be involved in information needs. Securing the data exchanged is also a particularly important point.

NOTE Related to EC regulations, ISO 15638-9 already covers provisions consistent with EC 165/2014. This document is complementary to and not competitive with ISO 15638-9, and is therefore consistent with EC 165/2014.

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Intelligent transport systems — Framework for collaborative telematics applications for regulated commercial freight vehicles (TARV) —

Part 24: Safety information provisioning

1 Scope

The ISO 15638 series (Parts 1 to 23) define the framework for online fleet management of regulated commercial freight vehicles utilizing data communication between in-vehicle systems and an application service provider via an on-board communication unit interfacing with road monitoring infrastructure and roadside sensors. This document defines an unregulated service architecture framework for freight vehicle safety information provision architecture. This statement does not preclude the regulated service where a jurisdiction requires such a function.

The objective of this document is to provide a freight vehicle safety information provision service function/application for non-enforcement applications (and sometimes for regulated application services [RAS]). This is for the road transport safety management purposes of regulated commercial freight vehicle movements.

This document intends to reinforce vehicle safety for non-enforcement and other purposes by providing safety advisory information provisions to the freight vehicle drivers/operators transporting heavy goods on freight vehicles.

This document defines the framework for remote vehicle safety information provision for non-enforcement and the conceptual operation of other management purpose applications.

This document is complementary to, and does not replace, any other documents in the ISO 15638 series. This document is beneficial to vehicle safety management purpose entities and it provides additional use cases for TARV service applications.

This document is specifically oriented towards the realization of safer road transport of freight vehicles by providing safety advisory information to the vehicle from the service provider. It utilizes the ISO 15638 series basic architecture framework, as defined in ISO 15638-21. The service provider provides users with safety information such as recommended safety information for that vehicle and gives adequate safety advice messages, as necessary. The various V2X communication paths can be used according to the various use cases.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 15638-1, *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 1: Framework and architecture*

ISO 15638-2, *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 2: Common platform parameters using CALM*

ISO 15638-24:2021(E)

ISO 15638-3, *Intelligent transport systems — Framework for collaborative telematics applications for regulated commercial freight vehicles (TARV) — Part 3: Operating requirements, 'Approval Authority' procedures, and enforcement provisions for the providers of regulated services*

ISO/TS 15638-4, *Intelligent transport systems — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 4: System security requirements*

ISO 15638-5, *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 5: Generic vehicle information*

ISO 15638-7:2013, *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 7: Other applications*

ISO 15638-21, *Intelligent transport systems — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 21: Monitoring of regulated vehicles using roadside sensors and data collected from the vehicle for enforcement and other purposes*

ISO 14816, *Road transport and traffic telematics — Automatic vehicle and equipment identification — Numbering and data structure*

ISO 17262, *Intelligent transport systems — Automatic vehicle and equipment identification — Numbering and data structures*

ISO 24534-3, *Intelligent transport systems — Automatic vehicle and equipment identification — Electronic registration identification (ERI) for vehicles — Part 3: Vehicle data*

ISO 26683-2, *Intelligent transport systems — Freight land conveyance content identification and communication — Part 2: Application interface profiles*

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3 Terms and definitions

ISO/PRF 15638-24

For the purposes of this document, the terms and definitions given in ISO 15638-21 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Abbreviated terms

ASD file	application service data file
ASP	application service provider
CALM	communications access for land mobiles
C-ITS	cooperative intelligent transport system
CONOPS	concept of operations
GNSS	global navigation satellite system
ID	identity
ITS-S	intelligent transport system station
IVS	in-vehicle system
LDM	local dynamic map

QoS	quality of service
RAS	regulated application service
RTM	remote tachograph monitoring
TARV	telematics applications for regulated vehicles

5 Conformance

Requirements to demonstrate conformance to any of the general provisions or specific application services described in this document shall be within the requirements defined by the service provider. Conformance requirements to meet the provisions of this document are therefore deemed to be under the control of, and to the specification of, the service provider where the application service(s) is/are instantiated.

6 General overview and framework

This document utilizes the framework and architecture for freight vehicle stability monitoring defined in ISO 15638-21. The general conceptual operation description of the roles of the actors in "extended" TARV architecture is defined in ISO 15638-21.

To gain an in-depth understanding of the extended TARV framework, architecture, and detailed specification of the roles of the actors involved, the user shall consult ISO 15638-1, ISO 15638-7 and ISO 15638-21.

As a summary, [Figure 1](#) shows the "extended" role model conceptual architecture showing the key actors and their relationships as defined in ISO 15638-21.

[ISO/PRF 15638-24](#)

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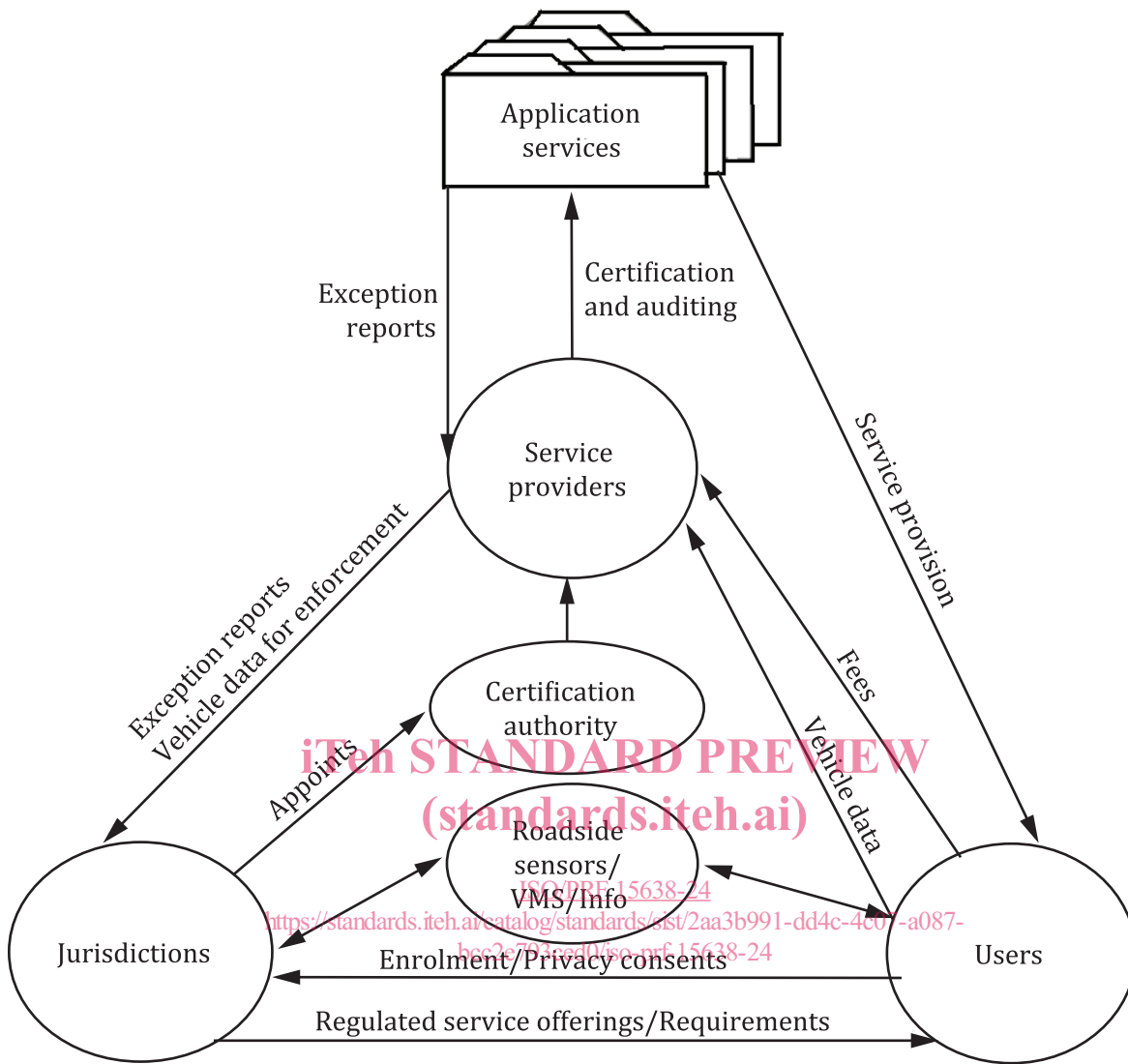


Figure 1 — Extended role model conceptual architecture

The ISO 15638 series provides a suite of deliverables addresses and defines the framework for a range of cooperative telematics applications for regulated vehicles (such as electronic tachograph monitoring, driver work records, emergency messaging/eCall, mass monitoring, 'Mass' information for jurisdictional control and enforcement, speed monitoring, access control, access methods, location monitoring, weigh in motion, freight vehicle stability monitoring, tyre monitoring, etc.). The overall scope includes the concept of operation, legal and regulatory issues, and the generic C-ITS service platform. The framework is based on a (multiple) service provider-oriented approach, including provisions for the certification and auditing of service providers.

This document is intended for an unregulated service provision application for safe road transport by freight vehicles, achieved through the safety information provision to the vehicle, such as safe driving information provision (including information such as recommended safe speed and recommended driving lane change advice information). [Figure 2](#) shows the architecture from the viewpoint of the provision of an unregulated (commercial) application service, using the common "extended" TARV platform defined in ISO 15638-21.

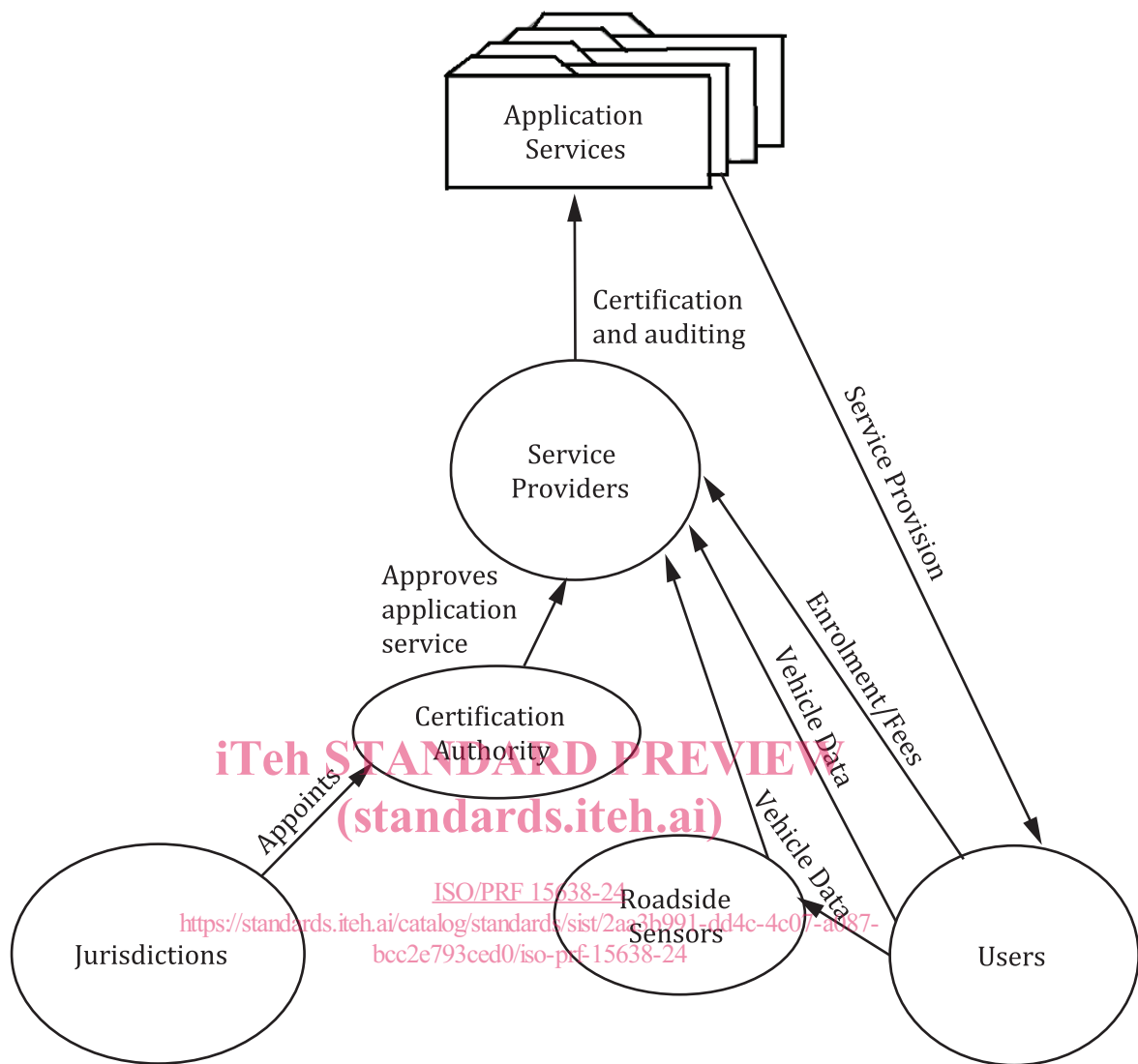


Figure 2 — Role model conceptual architecture unregulated service provisioning

Freight vehicles are heavy and therefore require longer reducing speed and manoeuvring distance in comparison to lighter vehicles. To achieve safer freight road transport of freight vehicles, an information provision service providing traffic status and incident situation well ahead of the freight vehicle is indispensable. The purpose of this document is to realize safe freight vehicle road transport, in particularly increasing the vehicle safety by maintaining the safe speed and lane change of a freight vehicle transporting freight and container. The proper recommended speed and lane information given to the vehicle driver/operator is generated at the service provider; they monitor vehicle speed/lane and give safety advisory messages to the driver when necessary. This document enables safe freight vehicle road transport stability realization and efficient freight fleet transport operation of the user vehicles by avoiding accidents or serious incidents on the roadways.

The freight vehicle information can be obtained from various sources, such as roadside embedded sensors, freight vehicle on-board equipped sensors. The sensor information is sent to the service provider to realize real time remote monitoring of freight vehicles and the service provider provides the safety driving advice for that part of the road for that vehicle. By providing the freight vehicle location (GNSS) data to the service provider, the service provider can provide adequate safe road transport driving information for that part of the road and for that vehicle (model).

The service provider provides this application service to/for a user who is an individual or party that enrolls in and operates within an unregulated application service or commercial application service

to meet specific aspects of the requirements of a service provider for the operation of the regulated vehicle.

Examples of users are a transport operator, driver, freight owner, etc. Most commonly the user is the transport operator.

For basic TARV information, refer to ISO 15638-1.

This document defines the basic conceptual operational requirement for this application service, the freight vehicle safety information provision.

It is important to note that where a commercial (unregulated) service can be instantiated using only the generic vehicle data specified in ISO 15638-5, no further standardization is required. Where a TARV commercial application is simply instantiated as a commercial application conforming to the requirements of this document, no further standardization is required so long as conformance to the requirements of this document can be demonstrated, and service offerings may vary from service provider to service provider. The service provider provides the application service to/for a 'user' who is an individual or party that enrolls and contracts to receive the commercial/civic application service.

7 Basic conceptual operational requirement

7.1 General

The basic conceptual framework is described as shown in [Figure 3](#).

The telematic application generates adequate safety information so that an accident is avoided (tail end collision, crush, rollover, jack-knifing). This safety information depends on the road characteristic and the dynamic behaviour of the vehicle configuration.

It is important that dealing with the vehicle model/configuration (power unit and connected trailer(s)) is based on the interaction between the road and the vehicle, because this depends on the vehicle model/configuration.

Moreover, the quality of the estimated speed is based on the accuracy of the model.