ISO/~~TS~~ DTS 7815-1:~~2023~~

ISO-/TC- 204~~/WG 7~~

Secretariat: ANSI

Date: 2024-10-01

Intelligent transport systems — Telematics applications for regulated commercial freight vehicles (TARV) using ITS stations

Part 1:
Secure vehicle interface framework and architecture

~~Systèmes intelligents de transport — Cadre pour applications télématiques collaboratives pour véhicules de fret commercial réglementé (TARV) utilisant les stations de ITS — Partie 1: Interface de véhicule sécurisée Cadre et architecture~~

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent* Transportation Systems, Working Group 7, Freight and Fleet Managementtransport systems.

A list of all parts in the ISO 7815 series can be found on the ISO website.

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~~Intelligent transport systems — Telematics applications for regulated commercial freight vehicles (TARV) using ITS stations — Part 1: Secure vehicle interface framework and architecture~~

Introduction

Many ~~ITS~~intelligent transport system (ITS) technologies have been embraced by commercial transport operators and freight owners~~,~~ in the areas of fleet management, safety and security. Telematics applications have also been developed for governmental use. Such regulatory services in use or ~~being considered~~under consideration vary from ~~country~~region to ~~country~~region, but include electronic on-board recorders, vehicle charging, digital tachograph, on-board mass monitoring, emissions monitoring, vehicle access monitoring, hazardous goods tracking and ~~e-Call~~eCall. Additional applications with a regulatory impact ~~being developed~~currently under development include~~,~~ fatigue management, speed monitoring and heavy vehicle charging based on mass, location, distance and time.

In ~~such an~~this emerging environment of regulatory and commercial applications, ~~during the period~~between 2008~~-~~ and 2012, ~~-~~ISO~~-~~15638-1 was developed and approved, ~~so that~~enabling on-board equipment and back-office systems ~~could~~to be commercially designed in an open market ~~to meet~~ , meeting the common requirements of jurisdictions.

Although the concept of co-operative ITS (C-ITS) was well advanced at this time, its implementation was not~~,~~ ~~and, particularly the.~~ In particular, provisions ~~to achieve~~for achieving the "bounded secure managed domain~~",~~" required by ISO~~-~~21217 ~~(now known as "ITS station and communication architecture"),~~ were still ~~at~~in their early stages of development. ~~Telematics Applications for Regulated commercial freight Vehicles (TARV) was designed to work with whatever wireless communications interface was available in the vehicle, and so security (these days called~~Security (i.e. "cybersecurity") was a significant concern, given that the communications means themselves were not necessarily very secure. ~~TARV~~Telematics applications for regulated commercial freight vehicles (TARV), designed to work with whatever wireless communications interface are available in the vehicle, offered a solution to this problem: the enquirer would provide a requested destination address and reference for the data. ~~However, the~~The vehicle response ~~from the vehicle~~ would then be to send the data~~, and~~ (along with the requested destination address and reference~~,~~) directly and only to its landside "application service provider" (ASP~~). The ASP is~~), a contracted secure provider ~~who.~~ As a trusted party approved by the jurisdiction, the ASP would validate the request and destination address before forwarding the information to that address~~, the ASP being a trusted party approved by the jurisdiction.~~ TARV ~~is~~was flexible in concept, and ~~can~~could be adapted to different jurisdictional arrangements.

ISO 15638-2 provided a migration path to C-ITS enabled vehicles, but remained devoid of the necessary security parameters, so the passage to data to the jurisdiction remained via the secure and trusted ASP.

In the decade since 2010, with the publication of ISO 21177, the necessary security and data exchange protocols have ~~now~~ been finalized to provide a "secure vehicle interface~~", and with the approval of ISO 21177 it is now completed.~~

~~The trust relation between~~" (SVI) in which two devices ~~is illustrated in~~ Figure 1~~. Two devices~~can cooperate in a trusted way, i.e. exchange information in secure application sessions with optional explicit bi-directional protection. The devices can thus only access data or request data for which they have the appropriate access credentials. The trust relation between two devices is illustrated in Figure 1.

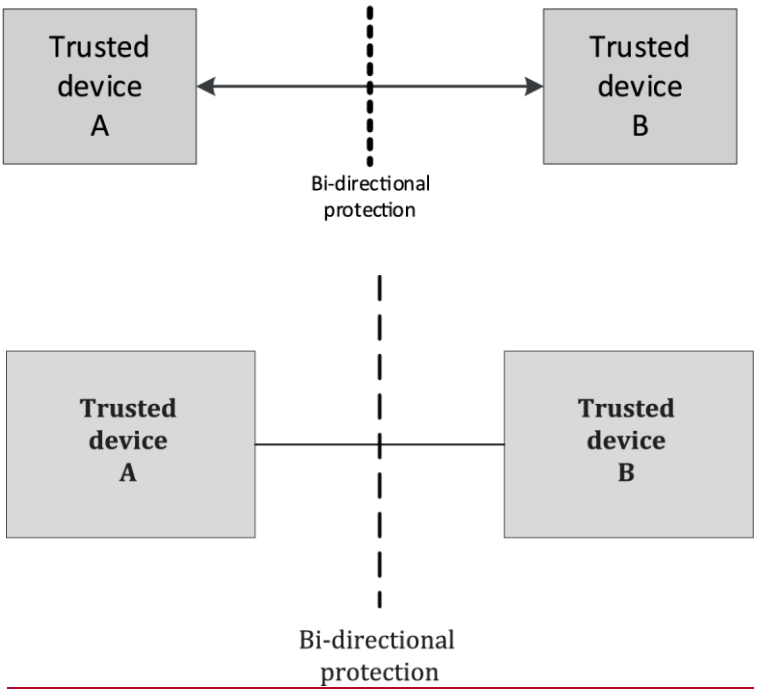

Figure 1 — Interconnection of trusted devices (ISO 21177)

~~This enables two devices to cooperate in a trusted way, i.e. to exchange information in secure application sessions, and thus only access data or request data that it has the appropriate credentials to access.~~

~~While~~Taking these developments into account, while the ISO 15638 series remains valid and appropriate in many cases, it is also appropriate to provide specifications for the direct transfer of data using a ~~"Secure Vehicle Interface".~~secure vehicle interface. This document provides the specification of the architecture and framework within which ~~these~~such transactions can be undertaken.

Intelligent transport systems — Telematics applications for regulated commercial freight vehicles (TARV) using ITS stations —

Part 1:
Secure vehicle interface framework and architecture

1 Scope

This document ~~provides~~specifies the following elements for cooperative telematics applications for regulated commercial freight vehicles directly communicating via a ~~"Secure Vehicle Interface"~~secure vehicle interface:

a) ~~a) A~~ framework for the provision of cooperative telematics application services for regulated commercial freight vehicles;

b) ~~b) A~~a description of the concept of operation, regulatory aspects and options and the role models;

~~c) A~~a conceptual architecture using an on-board platform and wireless communications to a regulator
c) or their agent;

d) ~~d) References~~references for the key documents on which the architecture is based;

e) ~~e) Specification of~~ the architecture of the facilities layer;

f) ~~f) A~~a taxonomy of the organization of generic procedures~~;~~.

This document does not replace, but is complementary to ISO 15638-1~~, and~~. It provides an alternative communication architecture ~~to achieve~~for achieving similar service provision by means of a standardized ~~"Secure Vehicle Interface".~~secure vehicle interface.

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/~~CD~~ TS 7815-2, *Intelligent transport systems — Telematics applications for regulated commercial freight vehicles (TARV) using ITS stations — Part 2: Specification of the secure interface*

~~ISO/TR 12859, Intelligent transport systems — System architecture — Privacy aspects in ITS standards and systems~~