
**Intelligent transport systems —
Framework for collaborative Telematics
Applications for Regulated commercial
freight Vehicles (TARV) —**

Part 6:

Regulated applications

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*Systemes intelligents de transport — Cadre pour applications
télématiques collaboratives pour véhicules de fret commercial
réglementé (TARV) —*

ISO/TS 15638-6:2013
Partie 6: Applications réglementées

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Contents

Page

1	Scope	1
2	Conformance	2
3	Normative references	2
4	Terms and definitions	3
5	Symbols (and abbreviated terms).....	9
6	General overview and framework	11
7	Requirements for services using generic vehicle data	14
7.1	General	14
7.1.1	Regulated application services using only generic <i>basic vehicle data</i>	14
7.1.2	Regulated application services using both generic vehicle data and additional regulated application specific data.....	14
7.1.3	'Instigated' and 'Interrogated' data.....	15
7.1.4	Get commands for specific TARV regulated application services	15
7.2	Conveyance identifiers	16
7.3	Consignment data	16
8	Application services that require data in addition to <i>basic vehicle data</i>	16
8.1	General	16
8.2	Concept of operations for identified regulated application services with additional data requirements.....	16
8.2.1	General	16
8.2.2	Statement of the goals and objectives of the system	17
8.2.3	Strategies, tactics, policies, and constraints affecting the system	18
8.2.4	Organisations, activities, and interactions among participants and stakeholders.....	18
8.2.5	Clear statement of responsibilities and authorities delegated.....	18
8.2.6	User.....	18
8.2.7	Application service provider	18
8.2.8	Application service.....	19
8.2.9	Operational processes for the system	19
8.2.10	Service requirements definition.....	19
8.3	Sequence of operations for identified regulated application services with additional data requirements.....	19
8.3.1	Framework for operations	19
8.3.2	ROAM 'App' library and data pantry.....	20
8.3.3	Concurrent multiple 'apps' and 'core data'	22
8.3.4	General sequence of operations.....	22
8.3.5	ACKnowledgements.....	29
8.3.6	Application specific sequences of operations	31
8.4	Quality of service requirements.....	31
8.5	Test requirements	31
8.6	Marking, labelling and packaging.....	31
9	Common features of regulated TARV application services.....	32
9.1	General	32
9.2	Generic operational processes for the system	32
9.3	Common role of the jurisdiction	33
9.3.1	General	33
9.3.2	Common role of the 'agent of the jurisdiction'	33
9.3.3	Common role of the 'approval authority'	33
9.4	Common role of the prime service provider.....	34

9.5	Common role of the application service provider	35
9.6	Common role of the user	35
9.6.1	Role of the driver	35
9.6.2	Role of the operator	36
9.7	Common characteristics for instantiations of regulated application services	36
9.8	Common sequence of operations for regulated application services	37
9.9	Quality of service	38
9.10	Information security	39
9.11	Data naming content and quality	39
9.12	Software engineering quality systems	41
9.13	Quality monitoring station	41
9.14	Audits	41
9.15	Access control policy	42
9.16	Approval of IVSs and service providers	42
10	Specified TARV regulated application services	42
10.1	General	42
10.2	Vehicle access monitoring (VAM)	42
10.3	Remote electronic tachograph monitoring (RTM)	42
10.4	Emergency messaging system/eCall (EMS)	42
10.5	Driver work records (work and rest hours compliance) (DWR)	42
10.6	Vehicle mass monitoring (VMM)	42
10.7	'mass' data for regulatory control and management (MRC)	43
10.8	Vehicle access control (VAC)	43
10.9	Vehicle location monitoring (VLM)	43
10.10	Vehicle speed monitoring (VSM)	43
10.11	Consignment and location monitoring (CLM)	43
10.12	Accord Dangereuses par Route (Dangerous Goods) monitoring (ADR)	43
10.13	Vehicle secure parking (VPF)	43
10.14	Other TARV regulated application services	43
11	Declaration of patents and intellectual property	44
Bibliography	45

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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. 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. 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.

The committee responsible for this document is ISO/TC 204, *Intelligent transport systems*

ISO 15638 consists of the following parts, under the general title *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV)*:

- *Part 1 Framework and architecture*
- *Part 2: Common platform parameters using CALM*
- *Part 3: Operating requirements, 'Approval Authority' procedures, and enforcement provisions for the providers of regulated services*
- *Part 5: Generic vehicle information*
- *Part 6: Regulated applications* [Technical Specification]
- *Part 7: Other applications*
- *Part 8: Vehicle access monitoring (VAM)* [Technical Specification]
- *Part 9: Remote electronic tachograph monitoring (RTM)* [Technical Specification]
- *Part 10: Emergency messaging system/eCall (EMS)* [Technical Specification]
- *Part 11: Driver work records (work and rest hours compliance) (DWR)* [Technical Specification]
- *Part 12: Vehicle mass monitoring (VMM)* [Technical Specification]
- *Part 14: Vehicle access control (VAC)* [Technical Specification]
- *Part 15: Vehicle location monitoring (VLM)* [Technical Specification]

ISO/TS 15638-6:2013(E)

- *Part 16: Vehicle speed monitoring (VSM)* [Technical Specification]
- *Part 17: Consignment and location monitoring (CLM)* [Technical Specification]
- *Part 18: ADR (Dangerous Goods) transport monitoring (ADR)* [Technical Specification]
- *Part 19: Vehicle parking facilities (VPF)* [Technical Specification]
- The following parts are under preparation:
- *Part 4: System security requirements* [Technical Specification]
- *Part 13: 'Mass' information for jurisdictional control and enforcement*

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Introduction

Many ITS technologies have been embraced by commercial transport *operators* (4.44) and freight owners, in the areas of fleet management, safety and security. *Telematics* (4.57) applications have also been developed for governmental use. Such regulatory services in use or being considered vary from *jurisdiction* (4.38) to *jurisdiction*, but include electronic on-board recorders, collection of penalties and levies, digital *tachograph* (4.56), on-board *mass* (4.42) monitoring, vehicle *access* (4.1) *methods*, *hazardous goods* (4.4) tracking and e-call (4.27). Additional applications with a regulatory impact being developed include, fatigue management, speed monitoring and measurement of *mass* (4.42), location, distance and time.

In such an emerging environment of regulatory and *commercial applications* (4.18), it is timely to consider an overall *architecture* (4.12) (business and functional) that could support these functions from a single platform within a commercial freight vehicle that operate within such regulations. International Standards will allow for a speedy development and *specification* (4.55) of new applications that build upon the functionality of a generic specification platform. A suite of standards documents is required to describe and define the *framework* (4.30) and requirements so that the on board equipment and back office systems can be commercially designed in an open market to meet common requirements of *jurisdictions* (4.38).

This suite of standards addresses and defines the *framework* (4.30) for a range of cooperative *telematics* (4.57) applications for *regulated commercial freight vehicles* (4.49) (such as *access methods* (4.2), driver fatigue management, speed monitoring, and on-board *mass* (4.42) monitoring). The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to *regulated commercial freight vehicles*, using an on-board ITS platform. The *framework* is based on a (multiple) *service provider* (4.53) oriented approach with provisions for the *approval* (4.10) and *auditing* (4.13) of *service providers*.

This suite of standards documents will: [ISO/TS 15638-6:2013](https://standards.iteh.ai/catalog/standards/sist/1da04bf6-8083-4088-bb35-91c6869d11e/iso-ts-15638-6-2013)

- provide the basis for future development of cooperative *telematics* (4.57) applications for *regulated commercial freight vehicles* (4.49). Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications* (4.55) will use existing standards (such as CALM) wherever practicable.
- allow for a powerful platform for highly cost-effective delivery of a range of *telematics* applications for *regulated commercial freight vehicles*.
- a business *architecture* (4.12) based on a (multiple) *service provider* (4.53) oriented approach
- address legal and regulatory aspects for the *approval* (4.10) and *auditing* (4.13) of *service providers*.

This suite of standards deliverables is timely as many governments (Europe, North America, Asia and Australia/New Zealand) are considering the use of *telematics* (4.57) for a range of regulatory purposes. Ensuring that a single in-vehicle platform can deliver a range of services to both government and industry through open standards and competitive markets is a strategic objective.

This part of the ISO 15638 family of standards documents provides general *specifications* (4.55) for communications and data exchange aspects of candidate *regulated applications* (4.47) which are specified in ISO 15638 parts 8 et sequential (parts 8 – 19 at the time of developing this part of ISO 15638, but further parts may be added later if a requirement for additional regulated applications to be standardised are identified) , the selection and implementation for all or any of which remain a decision for the implementing *jurisdiction* (4.38).

NOTE: The definition of what comprises a 'regulated' vehicle is regarded as an issue for national decision, and may vary from *jurisdiction* (4.38) to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of how they define a *regulated vehicle* (4.49).

NOTE: The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction* (4.38) to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in

respect of which services for *regulated vehicles (4.49) jurisdictions* will require, or support as an option, but will provide standardised sets of requirements descriptions for identified services to enable consistent and cost efficient implementations where implemented.

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Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) —

Part 6: Regulated applications

1 Scope

This part of ISO 15638 specifies the common roles and responsibilities of actors providing *regulated application* (4.47) systems which use *TARV* to provide *regulated application services* (4.48) for *regulated commercial freight vehicles* (4.49), and the interoperability of key operational steps and actions required to support all *TARV regulated application service* (4.48) systems.

This part of ISO 15638 specifies the general conditions for data exchanges between an *application service provider* (4.7) and vehicle *IVS* (4.32), and from other *ITS-stations* (4.34) to the *IVS* of the *regulated commercial freight vehicle* (4.49), and specifies generic data concepts for identified services, but it does not define the detailed aspects of the *application services* (4.6) or their implementation, application specific aspects being defined in defined in ISO 15638-8 et sequential for each identified application service.

ISO/TS 15638-6:2013

This part of ISO 15638 addresses the general and common requirements for the provision of *regulated application services* (4.48) that require data in addition to, or instead of, *basic vehicle data* (4.16) and *core application data* (4.23) (application specific aspects being defined in defined in ISO 15638-8 et sequential for each identified application service).

ISO 15638 provides common aspects of *specifications* (4.55) for communications and data exchange aspects of identified *application services* (4.6) (as defined in defined in ISO 15638-8 et sequentia) that a *regulator* (4.50) may elect to require or support as an option, including:

- a) high level definition of the service that a *service provider* (4.53) has to provide, (The service definition describes common service elements; but does not define the detail of how such an *application service* (4.6) is instantiated, not the acceptable value ranges of the data concepts defined)
- b) means to realise the service
- c) application data common to all parts as defined in defined in ISO 15638-8 et sequentia, naming content and quality that an *IVS* (4.32) has to deliver.

The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction* (4.38) to *jurisdiction*. This document does not impose any requirements on nations in respect of which services for *regulated commercial freight vehicles jurisdictions* will require, or support as an option, but provides standardised sets of requirements descriptions for identified services to enable consistent and cost efficient implementations where instantiated.

ISO 15638 has been developed for use in the context of regulated commercial freight vehicles [hereinafter referred to as 'regulated vehicles' (4.49)]. There is nothing, however, to prevent a jurisdiction extending or adapting the scope to include other types of regulated vehicles, as it deems appropriate.

2 Conformance

Requirements to demonstrate conformance to any of the general provisions or specific *application services* (4.6) described in this part of ISO 15638 shall be within the regulations imposed by the *jurisdiction* (4.38) where they are instantiated. Conformance requirements to meet the provisions of this International Standard are therefore deemed to be under the control of, and to the specification of, the *jurisdiction* where the *application service(s)* is/are instantiated.

3 Normative references

The following referenced 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.

ISO 14816	<i>Road transport and traffic telematics — Automatic vehicle and equipment identification — Numbering and data structure</i>
ISO 15638-1	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 1: Framework and architecture</i>
ISO 15638 -2	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 2: Common platform parameters using CALM</i>
ISO 15638 -3	<i>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</i>
ISO 15638 -4	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 4: System security requirements¹</i>
ISO 15638 -5	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 5: Generic vehicle information</i>
ISO 15638 -8	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 8: Vehicle access monitoring (VAM)</i>
ISO 15638 -9	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 9: Remote electronic tachograph monitoring (RTM)</i>
ISO 15638 -10	<i>Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 10: Emergency messaging system/eCall (EMS)</i>
ISO 15638 -11	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 11: Driver work records (work and rest hours compliance) (DWR)</i>
ISO 15638 -12	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 12: Vehicle mass monitoring (VMM)</i>
ISO 15638 -13	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 13: Mass Penalties and Levies (VMC)²</i>

¹ Under preparation.

ISO 15638 -14	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 14: Vehicle access control (VAC)</i>
ISO 15638 -15	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 15: Vehicle location monitoring (VLM)</i>
ISO 15638 -16	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 16: Vehicle speed monitoring (VSM)</i>
ISO 15638 -17	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 17: Consignment and location monitoring (CLM)</i>
ISO 15638 -18	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 18: ADR (Dangerous Goods) transport monitoring (ADR)</i>
ISO 15638 -19	<i>Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated Vehicles (TARV) — Part 19: Vehicle parking facilities (VPF)</i>
ISO 17262	<i>Intelligent transport systems — Automatic vehicle and equipment identification — Numbering and data structures</i>
ISO 24534-3	<i>Automatic vehicle and equipment identification — Electronic registration identification (ERI) for vehicles — Part 3: Vehicle data</i>
ISO TS 26683-1	<i>Intelligent transport systems — Freight land conveyance content identification and communication (FLC-CIC) — Part 1: Context, architecture and referenced standards</i>
ISO TS 26683-2	<i>Intelligent transport systems — Freight land conveyance content identification and communication (FLC-CIC) — Part 2: Application interface profiles</i>

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4 Terms and definitions

<https://standards.iteh.ai/catalog/standards/sist/1da04bf6-8083-4088-bb35-1a0000000000/iso-ts-15638-6-2013>

For the purposes of this document, the terms and definitions given in ISO 15638-1 and the following apply.

4.1

access

admittance, entry, permit to use the road network and/or associated infrastructure (bridges, tunnels etc.)

4.2

access methods

procedures and protocols to provision and retrieve data

4.3

access monitoring

observation and recording of vehicle related data when using the road network and/or associated infrastructure (bridges, tunnels etc.)

4.4

Accord européen relatif au transport international des marchandises Dangereuses par Route ADR

UNECE regulations and declaration systems for agreements relating to dangerous goods/hazardous goods

4.5

app

small (usually) *Java*[™] (4.37) applets, organised as software bundles, that support *application services* (4.6) by keeping the *data pantry* (4.24) provisioned with up-to-date data

² Under preparation.

**4.6
application service**
service provided by a *service provider* (4.53) enabled by accessing data from the *IVS* (4.32) of a *regulated vehicle* (4.49) via a wireless communications network

**4.7
application service provider
ASP**
party that provides an *application service* (4.6)

**4.8
app library**
separately secure area of memory in *IVS* (4.32) where apps are stored [with different access controls to *data pantry* (4.24)]

**4.9
application service data file
ASD file**
file held in the *data pantry* (4.24) of the *IVS* (4.32) containing data specific to an *application service* (4.6)

**4.10
approval**
formal affirmation that an applicant has satisfied all the requirements for appointment as an *application service provider* (4.7) or that an application service delivers the required service levels.

**4.11
approval authority (regulatory)**
organisation (usually independent) which conducts *approval* (4.10) and ongoing *audit* (4.13) for *service providers* (4.53) on behalf of a *jurisdiction* (4.38)

**4.12
architecture**
formalised description of the design of the structure of *TARV* and its *framework* (4.30)

**4.13
audit/auditing**
review of a party's capacity to meet, or continue to meet, the initial and ongoing *approval agreements* (4.22) as a *service provider* (4.53)

**4.14
auditor**
person or organisation approved to *audit* (4.13) parts of a *regulated application service* (4.48) by a *approval authority (regulatory)* (4.11)

**4.15
authentication**
function intended to establish and verify a claimed identity

**4.16
basic vehicle data**
data that shall be maintained/provided by all *IVS* (4.32) [regardless of *jurisdiction* (4.38)]

**4.17
CALM communications access for land mobiles**
layered solution that enables continuous or quasi continuous communications between vehicles and the infrastructure, or between vehicles, using such (multiple) wireless telecommunications media that are available in any particular location, and which have the ability to migrate to a different available media where required and where media selection is at the discretion of *user* (4.58) determined parameters by using a suite of standards based on ISO 21217 (*CALM architecture*) and ISO21210 (*CALM networking*) that provide a

common platform for a number of standardised media using *ITS-stations* (4.34) to provide wireless support for applications, such that the application is independent of any particular wireless medium

4.18

commercial application(s)

ITS applications in *regulated vehicles* (4.49) for commercial (non-regulated) purposes

EXAMPLE Asset tracking, vehicle and engine monitoring, cargo security, driver management etc.

4.19

consignment

shipment of goods/cargo to a destination

4.20

consignment and location monitoring

CLM

collection, collation, and transfer of data from an *in-vehicle system* (4.32) to an *application service provider* (4.7) concerning the content of the load being carried and/or its condition and/or location

4.21

conveyance

vehicle or trailer used transport from one place to another

4.22

cooperative ITS C-ITS

ITS applications for both regulatory and commercial purposes that require the exchange of data between uncontracted parties using multiple *ITS-stations* (4.34) communicating with each other and sharing data with other parties with whom they have no direct contractual relationship to provide one or more *ITS services* (4.33)

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4.23

core application data/core data

basic vehicle data (4.16) plus any additional data required to provide an implemented *regulated application service* (4.48)

4.24

data pantry

secure area of memory in *IVS* (4.32) where data values are stored [with different access controls to *app library* (4.8)]

4.25

driver

person driving the *regulated vehicle* at any specific point in time

4.26

driver work records

DWR

collection, collation, and transfer of *driver* (4.25) work and rest hours data from an *in-vehicle system* (4.32) to an *application service provider* (4.7)

4.27

eCall

specialised instantiation of an *EMS* (4.28) that provides incident messaging and communication with a public service assistance point via priority wireless telephone communications using its emergency call capabilities

4.28

emergency message system (EMS)

collection, collation, and transfer of emergency message data from an *in-vehicle system* (4.32) to an *application service provider* (4.7)

**4.29
facilities**

layer that sits on top of the communication stack and helps to provide data interoperability and reuse, and to manage applications and enable dynamic real time loading of new applications

**4.30
framework**

particular set of beliefs, ideas referred to in order to describe a scenario or solve a problem

**4.31
host management centre**

central point for *TARV-ROAM* management of *TARV* applications executing on the *TARV-ROAM* host

NOTE *HMC* enables remote management of vehicle applications by a trusted party.

**4.32
in-vehicle system
IVS**

ITS-station (4.34) and connected equipment on board a vehicle

**4.33
ITS service**

communication functionality offered by an *ITS-station* (4.34) to an *ITS-station* application

**4.34
ITS-station
ITS-s**

entity in a communication network, comprised of application, *facilities* (4.29), networking and access layer components specified in ISO 21217 that operate within a bounded secure management domain

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**4.35
IVS installer**

actor who installs *IVS* (4.32) on behalf of the vehicle manufacturer or the initial *prime service provider* (4.46)

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**4.36
IVS maintainer**

actor who maintains *IVS* (4.32) on behalf of the *prime service provider* (4.46)

**4.37
Java™**

object oriented open source operating language developed by SUN systems

**4.38
jurisdiction**

government, road or traffic authority which owns the *regulatory applications* (4.47)

EXAMPLE Country, state, city council, road authority, government department (customs, treasury, transport), etc.

**4.39
jurisdiction regulator**

agent of the *jurisdiction* (4.38) appointed to regulate and manage *TARV* within the domain of the *jurisdiction*; may or may not be the *approval authority (regulatory)* (4.11)

**4.40
local data tree
LDT**

frequently updated data concept stored in the on on-board *data pantry* (4.24) containing a collection of data values deemed essential for either a) *TARV regulated application service* (4.48), or b) *cooperative intelligent transport systems* (4.22)

4.41**map**

spatial dataset that defines the road system

4.42**mass**

mass of a given heavy vehicle as measured by equipment affixed to the *regulated vehicle* (4.49)

4.43**'mass' data for regulatory control and management****MRC**

collection, collation, and transfer of vehicle *mass* (4.42) data from an *in-vehicle system* (4.32) to an *application service provider* (4.7) to enable data provision to *jurisdictions* (4.38) for the control and management of equipped vehicles based on the *mass* of the *regulated vehicle* (4.49), or use of such data to enable compliance with the provisions of regulations.

4.44**operator**

fleet manager of a *regulated vehicle*

4.45**OSGi™**

open services gateway initiative

4.46**prime service provider**

service provider (4.53) who is the first contractor to provide *regulated application services* (4.48) to the *regulated vehicle* (4.49), or a nominated successor on termination of that initial contract

NOTE The *prime service provider* (4.46) is also responsible to maintain the installed *IVS* (4.32); if the *IVS* was not installed during the manufacture of the vehicle the *prime service provider* (4.46) is also responsible to install and commission the *IVS* (4.32).

4.47**regulated/regulatory application**

application arrangement using *TARV* utilised by *jurisdictions* (4.38) for granting certain categories of commercial vehicles rights to operate in regulated circumstances subject to certain conditions, or indeed to permit a vehicle to operate within the *jurisdiction*.

NOTE This can be mandatory or voluntary at the discretion of the *jurisdiction*.

4.48**regulated application service**

TARV application service to meet the requirements of a regulated application that is mandated by a regulation imposed by a *jurisdiction* (4.38), or is an option supported by a *jurisdiction*

4.49**regulated commercial freight vehicle/regulated vehicle (4.49)**

vehicle that is subject to regulations determined by the *jurisdiction* (4.38) as to its use on the road system of the *jurisdiction* in regulated circumstances, subject to certain conditions, and in compliance with specific regulations for that class of regulated vehicle

NOTE At the option of *jurisdictions*; this may require the provision of information via *TARV* or provide the option to do so.

4.50**regulator**

see *jurisdiction regulator* (4.39)