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

Part 11:

**Driver work records (work and rest hours
compliance) (DWR)**

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

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Contents

Page

1	Scope	1
2	Conformance	1
3	Normative references	2
4	Terms and definitions	2
5	Symbols (and abbreviated terms).....	7
6	General overview and framework requirements	9
7	Requirements for services using generic vehicle data	9
8	Application services that require data in addition to basic vehicle data	9
8.1	General	9
8.2	Quality of service requirements.....	10
8.3	Test requirements	10
8.4	Marking, labelling and packaging.....	10
9	Common features of regulated TARV application services.....	10
9.1	General	10
9.2	Common role of the jurisdiction, approval authority, service provider and user.	11
9.3	Common characteristics for instantiations of regulated application services.....	11
9.4	Common sequence of operations for regulated application services.....	11
9.5	Quality of service.....	11
9.6	Information security	11
9.7	Data naming content and quality.....	12
9.8	Software engineering quality systems.....	12
9.9	Quality monitoring station.....	12
9.10	Audits.....	12
9.11	Data access control policy	12
9.12	Approval of IVSs and service providers	12
10	TARV Driver work records (<i>DWR</i>).....	12
10.1	(Electronic) Driver work records service description and scope.....	12
10.1.1	TARV DWR use case	12
10.1.2	Description of TARV DWR application service	13
10.2	Concept of operations for (electronic) DWR	14
10.2.1	General	14
10.2.2	Statement of the goals and objectives of the TARV DWR system	14
10.2.3	Strategies, tactics, policies, and constraints affecting the TARV DWR system.....	15
10.2.4	Organisations, activities, and interactions among participants and stakeholders for TARV DWR	15
10.2.5	Clear statement of responsibilities and authorities delegated for TARV DWR	16
10.2.6	Equipment required for TARV DWR system.....	17
10.2.7	Operational processes for the TARV DWR system	20
10.2.8	Role of the jurisdiction in a TARV DWR system	20
10.2.9	Role of the TARV DWR prime service provider.....	20
10.2.10	Role of the TARV DWR application service provider	21
10.2.11	Role of the TARV DWR user	21
10.2.12	Generic characteristics for all instantiations of the TARV DWR application service	21
10.3	Sequence of operations for TARV DWR	22
10.4	Driver work records service elements	24
10.4.1	TARV DWR service element (SE) 1: Establish 'Driver work records' regulations, requirements, and approval arrangements	24
10.4.2	TARV DWR SE2: Request system approval	24

10.4.3 TARV DWR SE3: User (operator) contracts with prime service provider24

10.4.4 TARV DWR SE4: User (operator) contracts with application service provider.....24

10.4.5 TARV DWR SE5: application service provider uploads software into the TARV equipped vehicles of the operator24

10.4.6 TARV DWR SE6: The driver identification and authentication method for the IVS24

10.4.7 TARV DWR SE7: The driver obtains a driver records device (DRD)25

10.4.8 TARV DWR SE8: Driver use of DRD routines25

10.4.9 TARV DWR SE9: Creation of ‘Detail’ record26

10.4.10 TARV DWR SE10: Creation of ‘Work’ record26

10.4.11 TARV DWR SE11: Two-up driver situation (corroboration declared by second driver)26

10.4.12 TARV DWR SE12: ‘Interrogated’ request for driver work records.....26

10.4.12 TARV DWR SE13: End of session.....27

10.4.13 TARV DWR SE14: The driver’s records are available to the jurisdiction and agent of the jurisdiction.....27

10.4.14 TARV DWR SE15: The DWR records are available to the driver27

10.5 Generic driver work records - data naming content and quality27

10.5.1 TARV DWR Record naming and numbering27

10.5.2 TARV DWR Detail record28

10.5.3 TARV DWR Work record28

10.6 Specific driver work records data naming, content and quality for TARV DWR30

10.6.1 Format of detail record for TARV DWR30

10.6.2 Format of work record for TARV DWR32

10.7 TARV DWR application service specific provisions for quality of service.....34

10.8 TARV DWR application service specific provisions for test requirements.....34

10.9 TARV DWR application specific rules for the approval of IVSs and ‘Service Providers’34

11 Declaration of patents and intellectual property34

Annex A (Informative) Independent testing of the protocols defined in this Part of ISO 1563835

A.1 Objectives35

A.2 TEST SCRIPT 5 SERVICE: DWR DRIVER WORK RECORDS37

CTP 5.1.1 Instigated Driver Work Records using 2G41

CTP 5.1.2 Interrogated Driver Work Records using 2G43

CTP 5.1.3 Interrogated Driver Work Records using 5.9GHz and responding using 2G or 3G.....45

CTP 5.2.1 Instigated Driver Work Records using 3G47

CTP 5.2.2 Interrogated at 5.9 GHz and send of Driver Work Records using 3G49

CTP 5.3.1 Instigated Driver Work Records using 802.11p (WAVE) 5.9 GHz51

CTP 5.3.2 Interrogated Driver Work Records using 802.11p (WAVE) 5.9 GHz53

CTP 5.4.1 Instigated Driver Work Records using Mesh WiFi55

CTP 5.4.2 Interrogated Driver Work Records using Mesh WiFi57

Bibliography59

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ISO/TS 15638-11:2013
<http://standards.iteh.ai/catalog/standards/sist/af97f062-d0c6-41a6-a4d2-004036773200/iso-ts-15638-11-2013>

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.

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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 15638-11:2013(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* (4.31) and freight owners, in the areas of fleet management, safety and security. *Telematics* (4.42) applications have also been developed for governmental use. Such regulatory services in use or being considered vary from *jurisdiction* (4.25) to *jurisdiction*, but include electronic on-board recorders, digital *tachograph* (4.41), on-board *mass* (4.29) monitoring, 'mass' penalties and levies, vehicle *access* (4.1) *methods*, hazardous goods tracking and e-call. Additional applications with a regulatory impact being developed include, fatigue management, speed monitoring and heavy vehicle penalties imposed based on location, distance and time.

In such an emerging environment of regulatory and *commercial applications* (4.13), it is timely to consider an overall *architecture* (4.9) (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* (4.40) 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* (4.20) 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* (4.25).

This suite of standards addresses and defines the *framework* (4.20) for a range of cooperative *telematics* (4.42) applications for *regulated commercial freight vehicles* (4.35) (such as *access methods* (4.1), driver fatigue management, speed monitoring, on-board *mass* (4.29) monitoring, penalties and levies). The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to *regulated commercial freight vehicles* (4.35), using an on-board ITS platform. The *framework* is based on a (multiple) *service provider* (4.38) oriented approach with provisions for the *approval* (4.6) and *auditing* (4.10) of *service providers*.

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This suite of standards documents will:

- provide the basis for future development of cooperative *telematics* (4.42) applications for *regulated commercial freight vehicles* (4.35). Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications* (4.40) 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* (4.35) .
- a business *architecture* (4.9) based on a (multiple) *service provider* (4.38) oriented approach
- address legal and regulatory aspects for the *approval* (4.6) and *auditing* (4.10) 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* (4.42) 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 *specifications* (4.40) for driver work records.

NOTE: The definition of what comprises a 'regulated' vehicle is regarded as an issue for national decision, and may vary from *jurisdiction* (4.25) to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of how they define a *regulated vehicle* (4.35).

NOTE: The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction* (4.25) to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of which services for *regulated vehicles* (4.35) *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 11:

Driver work records (work and rest hours compliance) (DWR)

1 Scope

This part of ISO 15638 addresses the provision of ‘*Driver Work Records*’ and specifies the form and content of such data required to support such systems, and *access methods* (4.1) to that data.

This part of ISO 15638 provides *specifications* (4.40) for common communications and data exchange aspects of the *application service* (4.3) driver work records that a *regulator* (4.36) may elect to require or support as an option, including:

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- a) high level definition of the service that a *service provider* (4.38) has to provide, (The service definition describes common service elements, but does not define the detail of how such an *application service* (4.3) is instantiated, not the acceptable value ranges of the data concepts defined)
 - b) means to realise the service
 - c) application data, naming content and quality that an *IVS* (4.21) has to deliver.

The definition of what comprises a ‘regulated’ service is regarded as an issue for national decision, and may vary from *jurisdiction* (4.25) to *jurisdiction*. This document does not impose any requirements on nations in respect of which services for *regulated 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’ (4.35). 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* (4.3) described in this part of ISO 15638 shall be within the regulations imposed by the *jurisdiction* (4.25) 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)* 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 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 -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 15638 -4 *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 4: System security requirements¹*
- ISO 15638 -5 *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 5: Generic vehicle information*
- ISO 15638 -6 *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 6: Regulated applications*

4 Terms and definitions

ISO/TS 15638-11:2013

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

4.1

access methods

procedures and protocols to provision and retrieve data

4.2

app

small (usually) Java™ (4.24) applets, organised as software bundles, that support *application services* (4.3) by keeping the *data pantry* (4.16) provisioned with up-to-date data

4.3

application service

service provided by a *service provider* (4.38) enabled by accessing data from the *IVS* (4.21) of a *regulated commercial freight vehicle* (4.35) via a wireless communications network

4.4

application service provider

ASP

party that provides an *application service* (4.3)

¹ Under preparation.

4.5**app library**

separately secure area of memory in *IVS* (4.21) where apps are stored [with different access controls to *data pantry* (4.16)]

4.6**approval**

formal affirmation that an applicant has satisfied all the requirements for appointment as an *application service provider* (4.4) or that an application service delivers the required service levels.

4.7**approval agreement**

written agreement made between an *approval authority (regulatory)* (4.8) and a *service provider* (4.38)

NOTE An *approval authority (regulatory)* (4.8) approval agreement recognises the fact that a *service provider* (4.38), having satisfied the *approval authority's* requirements for appointment as a *service provider*, is appointed in that capacity, and sets out the legal obligations of the parties with respect to the on-going role of the *service provider*.

4.8**approval authority (regulatory)**

organisation (usually independent) which conducts *approval* (4.6) and ongoing *audit* (4.10) for *service providers* (4.38) on behalf of a *jurisdiction* (4.25)

4.9**architecture**

formalised description of the design of the structure of *TARV* and its *framework* (4.20)

4.10**audit/auditing**

review of a party's capacity to meet, or continue to meet, the initial and ongoing *approval agreements* (4.7) as a *service provider* (4.38)

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4.11**basic vehicle data**

data that shall be maintained/provided by all *IVS* (4.21) [regardless of *jurisdiction* (4.25)]

4.12**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* (4.43) 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* (4.23) to provide wireless support for applications, such that the application is independent of any particular wireless medium

4.13**commercial application(s)**

ITS applications in *regulated commercial freight vehicles* (4.35) for commercial (non-regulated) purposes

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

4.14**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* (4.24) 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* (4.22)

4.15

core data

basic vehicle data (4.11) plus any additional data required to provide an implemented *regulated application service* (4.34)

4.16

data pantry

secure area of memory in *IVS* (4.21) where data values are stored [with different access controls to *app library* (4.5)]

4.17

driver

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

4.18

driver work records

DWR

collection, collation, and transfer of *driver* (4.17) work and rest hours data from an *in-vehicle system* (4.21) to an *application service provider* (4.4)

4.19

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

4.20

framework

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

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4.21

in-vehicle system

IVS

ITS-station (4.23) and connected equipment on board a vehicle

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4.22

ITS service

communication functionality offered by an *ITS-station* (4.23) to an *ITS-station* application

4.23

ITS-station

ITS-s

entity in a communication network, comprised of application, *facilities* (4.19), networking and access layer components specified in ISO 21217 that operate within a bounded secure management domain

4.24

Java™

object oriented open source operating language developed by SUN systems

4.25

jurisdiction

government, road or traffic authority which owns the *regulatory applications* (4.33)

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

4.26

jurisdiction regulator

agent of the *jurisdiction* (4.25) appointed to regulate and manage *TARV* within the domain of the *jurisdiction*; may or may not be the *approval authority (regulatory)* (4.8)

4.27**local data tree****LDT**

frequently updated data concept stored in the on-board *data pantry* (4.16) containing a collection of data values deemed essential for either a) *TARV regulated application service* (4.34), or b) *cooperative intelligent transport systems* (4.14)

4.28**map**

spatial dataset that defines the road system

4.29**mass**

mass of a given heavy vehicle as measured by equipment affixed to the *regulated commercial freight vehicle* (4.35)

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

collection, collation, and transfer of vehicle mass (4.29) data from an in-vehicle system (4.21) to an application service provider (4.4) to enable data provision to jurisdictions (4.26) for the control and management of equipped vehicles based on the mass of the regulated vehicle (4.35), or use of such data to enable compliance with the provisions of regulations.

4.31**operator**

fleet manager of a *regulated commercial freight vehicle*

4.32**prime service provider**

service provider (4.38) who is the first contractor to provide *regulated application services* (4.34) to the *regulated commercial freight vehicle* (4.35), or a nominated successor on termination of that initial contract

NOTE The *prime service provider* (4.32) is also responsible to maintain the installed *IVS* (4.21); if the *IVS* was not installed during the manufacture of the vehicle the *prime service provider* (4.32) is also responsible to install and commission the *IVS* (4.21)

4.33**regulated/regulatory application**

application arrangement using *TARV* utilised by *jurisdictions* (4.25) 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*; may be mandatory or voluntary at the discretion of the *jurisdiction*

4.34**regulated application service**

TARV application service to meet the requirements of a regulated application that is mandated by a regulation imposed by a *jurisdiction* (4.25), or is an option supported by a *jurisdiction*

4.35**regulated commercial freight vehicle/regulated vehicle**

vehicle that is subject to regulations determined by the *jurisdiction* (4.25) 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.

4.36
regulator

see *jurisdiction regulator* (4.26)

4.37
remote tachograph monitoring

RTM

collection, collation, and transfer of data from an on-board electronic *tachograph* (4.41) system to an *application service provider* (4.4)

4.38
service provider

party which is approved by a approval *authority (regulatory)* (4.8) as suitable to provide regulated or commercial ITS *application services* (4.3)

4.39
session

wireless communication exchange between the *ITS-station* (4.23) of an *IVS* (4.21) and the *ITS-station* of its *application service provider* (4.4) to achieve data update, data provision, upload apps, or otherwise manage the provision of the *application service* (4.3), or a wireless communication provision of data to the *ITS-station* of an *IVS* (4.21) from any other *ITS-station*

4.40
specification

explicit and detailed description of the nature and functional requirements and minimum performance of equipment, service or a combination of both

4.41
tachograph

sender unit mounted to a vehicle gearbox, a tachograph head and a digital driver card, which records the *regulated vehicle* (4.35) speed and the times at which it was driven and aspects of the *driver's* (4.17) activity selected from a choice of modes

4.42
telematics

use of wireless media to obtain and transmit (data) from a distant source

4.43
user

individual or party that enrolls in and operates within a regulated or *commercial application* (4.13) *service* (4.3)

EXAMPLE *Driver* (4.17), *transport operator* (4.31), freight owner, etc.

4.44
vehicle access control

VAC

control of *regulated vehicles* ingress to and egress from controlled areas and associated penalties and levies

4.45
vehicle access management

VAM

monitoring and management of *regulated vehicles* approaching or within sensitive and controlled areas

4.46
vehicle location monitoring

VLM

collection, collation, and transfer of vehicle location data from an *in-vehicle system* (4.21) to an *application service provider* (4.4)

4.47**vehicle mass monitoring****VMM**

collection, collation, and transfer of vehicle *mass* (4.30) data from an *in-vehicle system* (4.21) to an *application service provider* (4.4)

4.48**vehicle parking facility****VPF**

system for booking and access (4.1) to and egress from a *vehicle parking facility* (VPF) (4.48)

4.49**vehicle speed monitoring****VSM**

collection, collation, and transfer of vehicle speed data from an *in-vehicle system* (4.21) to an *application service provider* (4.4)

5 Symbols (and abbreviated terms)**ADR**

Accord européen relatif au transport international des marchandises Dangereuses par Route (dangerous goods)

app

applet (JAVA™ application or similar) (4.2)

AS

application service (4.3)

ASP

application service provider (4.4)

CALM

communications access for land mobiles (4.12)

CAN

controller area network

C-ITS

cooperative intelligent transport systems (4.14)

DLR

driving licence reader

DRD

driver records device

DWR

driver work records (4.18)

eDL

electronic *driver* (4.17) licence

GNSS

global navigation satellite system

H&S

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