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Road vehicles — Standardized access to automotive repair and maintenance information (RMI) —

Part 2: Technical requirements

Véhicules routiers — Normalisation de l'accès aux informations relatives à la réparation et à la maintenance pour l'automobile (RMI) —
Partie 2: Exigences techniques

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Foreword

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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).

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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 22, *Road vehicles*, Subcommittee SC 31, *Data communication,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 301, *Road vehicles,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 18541-2:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

— security-related RMI according to SERMI scheme moved to Annex A;

— previous Annex A "PC specification" has been removed; the corresponding subclauses 9.2 and 9.3 were updated accordingly;

— Figures 2, 3 and 4 were updated (security-related RMI has been deleted);

— correction of errors and improvement of formulations in the entire document.

A list of all parts in the ISO 18541 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

The ISO 18541 series includes the requirements to be fulfilled by repair and maintenance information (RMI) systems as applied by the European Commission — Enterprise and Industry Directorate-General, Consumer goods — Automotive industry EC mandate M/421,[6] dated Brussels, 21 January 2008.

This mandate relates to the EC type-approval system for vehicles falling into the scopes of Directives 70/156/EEC (replaced by 2007/46/EC [9]), 2002/24/EC [replaced by (EU) 168/2013 [7]] and 2003/37/EC [replaced by (EU) 167/2013 [8]] and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

The purpose of the EC Mandate M/421 is to develop a standard or set of standards which specify the requirements to provide standardized access to automotive repair and maintenance information (RMI) for independent operators.

The ISO 18541 series only covers access to automotive repair and maintenance information for light passenger and commercial vehicles [see (EC) No 715/2007 [15], (EC) No 692/2008 [14] and (EU) No 566/2011 [11]] and heavy-duty vehicles [see (EC) No 595/2009 [13], (EU) No 582/2011 [12] and (EU) No 64/2012 [10]] based on Directive 2007/46/EC [9] and for two-or three-wheel vehicles and quadricycles based on regulation (EU) 168/2013 [7].

The information included in the ISO 18541 series derives from the legislative requirements on European level in the field of RMI and related security requirements and can be referenced by legislation in other countries.

Road vehicles — Standardized access to automotive repair and maintenance information (RMI) —

Part 2: Technical requirements

1 Scope

This document includes technical requirements which are related to automotive repair and maintenance information (RMI) systems in order to standardize access to RMI for independent operators.

This document specifies the minimum set of technical requirements related to a vehicle manufacturer's RMI system. These requirements will reflect the deriving needs from the use cases as specified in ISO 18541-1.

Furthermore, this document defines requirements for granting access to security-related RMI in Annex A following the SERMI scheme.

This document is applicable to light passenger and commercial vehicles as defined in regulation (EC) 715/2007 Article 2 [15].

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 18541-1, *Road vehicles — Standardized access to automotive RMI — Part 1: General information and use case definition*

ISO 18541-3, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 3: Functional user interface requirements*

ISO 22900-2, *Road vehicles — Modular vehicle communication interface (MVCI) — Part 2: Diagnostic protocol data unit application programming interface (D-PDU API)*

SAE J2534-1, *Recommended Practice for Pass-Thru Vehicle Programming*

SAE J2534-2, *Optional Pass-Thru Features*

SERMI scheme[1] — *Scheme for accreditation, approval and authorization to access security-related repair and maintenance information*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18541-1 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/

1) Available at https://www.vehiclesermi.eu/.

4 Abbreviated terms

API	application programming interface
CSP	certificate status protocol
DB	database
DLC	data link cable
DLL	dynamic link library
D-PDU	diagnostic – protocol data unit
DVD	optical disc storage media format
ECU	electronic control unit
FAQ	frequently asked questions
IO	independent operator
IT	information technology
LAN	local area network
MVCI	modular vehicle communication interface
NAT	network address translation
OBD	on-board diagnostics
OCSP	online certificate status protocol
PC	personal computer
PKCS	public key certificate status
RMI	repair and maintenance information
SERMI	forum for access to security-related vehicle repair and maintenance information
TREQ-	technical requirement
TC	trust centre
USB	universal serial bus
VAT No.	value added tax number
VM	vehicle manufacturer
WWH-OBD	World-wide harmonized on-board diagnostics

5 Requirements overview and principles

5.1 Basic principles for requirements definition

Basic principles have been established as a guideline to define the requirements.

— BP1: the requirements stated in this document shall not specify any implementation details.

— BP2: requirements shall be expressed in terms of performance rather than design or descriptive characteristics. This approach leaves maximum freedom to technical development.

— BP3: a requirement is identified by a TREQ-xx, where 'xx' is the requirement number. Each requirement consists of a "Main title", "Requirement definition", "Requirement description", "Explanatory/example" and "Classification".

— BP4: The requirements in clusters 4 and 5 in this document have been formulated with the aim of minimizing the number of IO clients (PC, laptop, etc.) required to access different VM RMI systems.

5.2 Requirements clustering

Figure 1 illustrates the technical requirements clusters. Figure 1 shall provide an overview about all technical requirements clusters and the specific technical requirements. Each technical requirement is identified by the mnemonic "TREQ-" and an alpha-numeric number. The name of the technical requirement is descriptive for the area.

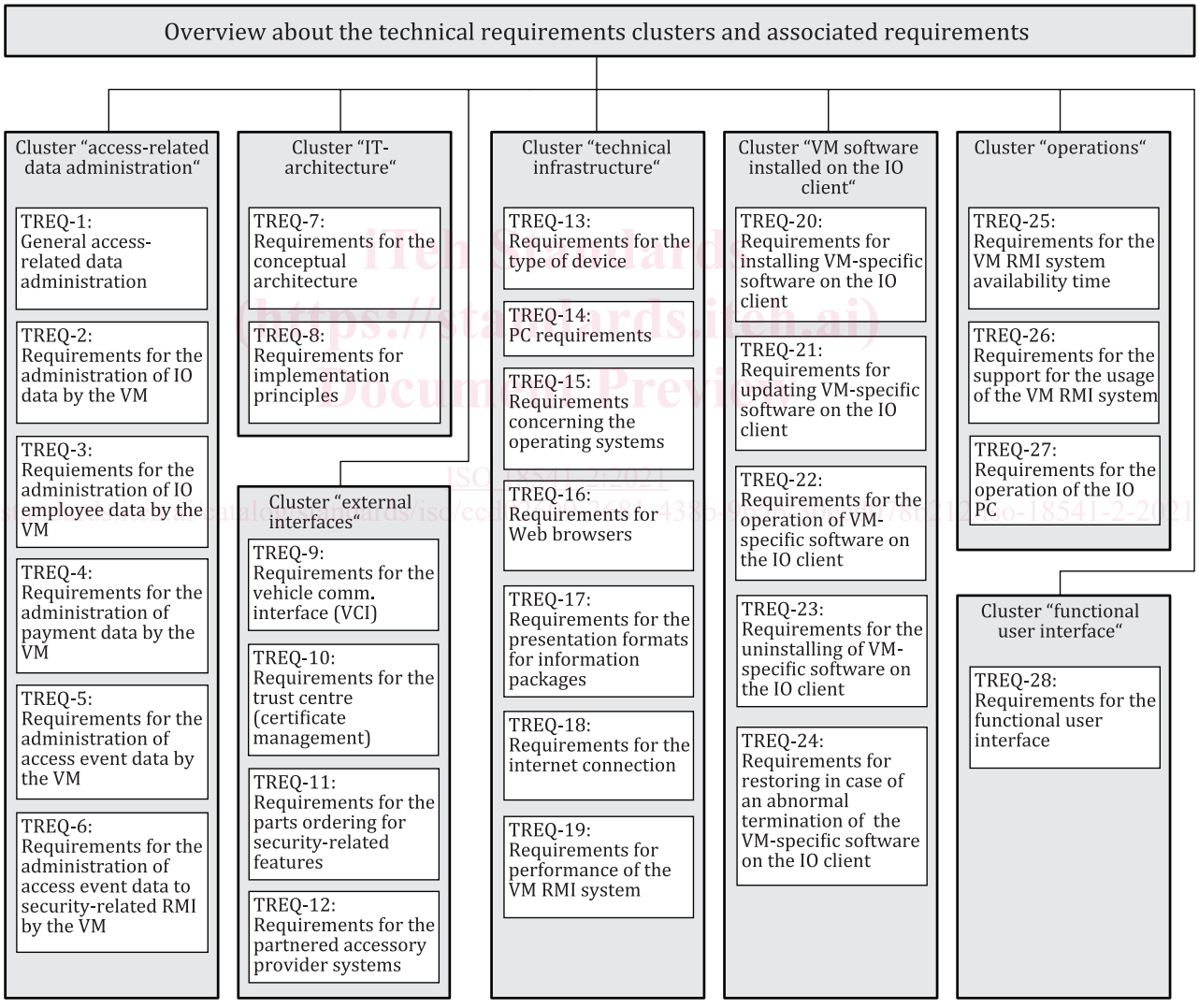

Figure 1 — Overview about the technical requirements clusters

Table 1 provides an overview of the main categories of standardized access to automotive RMI requirements. A requirement category shall have at least one requirement.

Table 1 — Main requirements clusters

# - Main title of cluster	Brief description	Technical requirements [TREQ] reference
1 – Access-related data administration	Describes the main data types to be administered by the VM RMI system and the requirements for the appropriate management procedures in order to comply with the standardized access to RMI. RMI requirements related to cluster access-related data administration are: — requirements for the administration of IO data by the VM; — requirements for the administration IO employee data by the VM; — requirements for the administration of payment data by the VM; — requirements for the administration of access event data by the VM; — requirements for the administration of access event data to security-related RMI by the VM.	[TREQ-1] General access-related data administration [TREQ-2] Administration of IO data by the VM [TREQ-3] Administration of IO employee data by the VM [TREQ-4] Administration of payment data by the VM [TREQ-5] Administration of access event data by the VM [TREQ-6] Administration of access event data to security-related RMI by the VM
2 – IT architecture	Describes requirements for the main IT components and interfaces at the different IT architectural levels. RMI requirements related to cluster IT architecture are: — requirements for the conceptual architecture; — requirements for the implementation principles.	[TREQ-7] Conceptual architecture [TREQ-8] Implementation principles
3 – External interfaces	Describes the requirements for communication interfaces other than the user interface. RMI requirements related to cluster external interfaces are: — requirements for the vehicle communication interface (VCI); — requirements for the trust centre (certificate management); — requirements for the parts ordering for security-related features; — requirements for the partnered accessory provider systems.	[TREQ-9] Vehicle communication interface (VCI) [TREQ-10] Trust centre (certificate management) [TREQ-11] Parts ordering for security-related features [TREQ-12] Partnered accessory provider systems

Table 1 *(continued)*

# - Main title of cluster	Brief description	Technical requirements [TREQ] reference
4 – Technical infrastructure	Compatibility conditions, minimum requirements for components and Internet connection parameters to give an acceptable performance. This cluster intends to define minimal development guiding rules that shall be followed by the VM in order to ensure compatibility between VM RMI systems. Compatibility issues that may occur shall be managed by the Forum SERMI. This requirements cluster specifies the technical infrastructure recommendations which are: — requirements related to type of device; — requirements related to PC requirements; — requirements related to operating systems, runtime languages, libraries; — requirements related to Web browsers; — requirements related to presentation formats for information packages; — requirements related to Internet connection; — requirements related to performance of the VM RMI system.	[TREQ-13] Type of device [TREQ-14] PC requirements [TREQ-15] Operating systems [TREQ-16] Web browsers [TREQ-17] Presentation formats for information packages [TREQ-18] Internet connection [TREQ-19] Performance of the VM RMI system
5 – Coexistence of VM software on IO client	This requirements cluster specifies the coexistence of VM software on the IO client: — requirements for installing VM-specific software on the IO client; — requirements for updating VM-specific software on the IO client; — requirements for the operation of VM-specific software on the IO client; — requirements for the uninstalling of VM-specific software on the IO client; — requirements for restoring in case of an abnormal termination of the VM-specific software on the IO client. The VM software shall be developed according to acknowledged quality criteria for the coexistence of VM applications installed on the client side.	[TREQ-20] Requirements for installing VM-specific software on the IO client [TREQ-21] Requirements for updating of installed VM data and applications on the IO client [TREQ-22] Requirements for the operation of VM-specific software on the IO client [TREQ-23] Requirements for the uninstalling of VM-specific software on the IO client [TREQ-24] Requirements for restoring in case of an abnormal termination of the VM-specific software on the IO client
6 – Operations	This requirements cluster specifies the RMI requirements related to the cluster operations which are: — requirements related to the VM RMI system availability time; — requirements related to the support for the usage of the VM RMI system; — requirements related to the operation of the IO PC.	[TREQ-25] VM RMI system availability time [TREQ-26] Support for the usage of the VM RMI system [TREQ-27] Operation of the IO PC
7 – Functional user interface	This requirement cluster includes the reference to the ISO 18541-3 functional user interface of the VM RMI system.	[TREQ-28] Requirements cluster 7 – Functional user interface

6 Requirements cluster 1 — Access-related data administration

6.1 [TREQ-1] General access-related data administration

Table 2 defines the requirements for the general access-related data administration.

Table 2 — [TREQ-1] General access-related data administration

REQ #	**TREQ-1**
Main title	General access-related data administration
Requirement definition	The VM allows access to the RMI system depending on the storage of some data: — for user registration; — agreement to terms and conditions; — any other data required by local legislation; — for user login and access data recovery; — for invoicing; — for physical delivery of material if needed; — for logging of any access to security-related RMI; — for logging of any access to ECU replacing/update (in case of liability issues); — to be able to disable a user, see ISO 18541-1 use case UC 1.5 "request to delete the registration of an IO employee".
Brief description	The VM shall administer data on users, on payment, on access events to security-related RMI and on access events to general RMI content. It is important to be aware of any data or privacy protection legislation when administering this data.
Classification	Mandatory

6.2 [TREQ-2], [TREQ-3] Administration of IO and IO employee data by the VM

6.2.1 [TREQ-2] Administration of IO data by the VM

Table 3 defines the requirements for the administration of IO data by the VM.