International Standard

ISO 17978-1

First edition
2026-05

Road vehicles — Service-oriented vehicle diagnostics (SOVD) —

Part 1: General information, definitions, rules and basic principles

Véhicules routiers — Diagnostic Véhicule Orienté Services (SOVD) —

Partie 1: Informations générales, définitions, règles et principes de base

Reference number
ISO 17978-1:2026(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 17978 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 introduction of high performance computers (HPCs) in vehicles is associated with changes in the classical electronic and electrical vehicle architectures. Besides classical distributed embedded electronic control unit (ECU) architectures, domain- or zone-based architectures are also available. These architectures also extend beyond the physical vehicle.

This extends the focus from checking hardware to also checking the functionality of applications. It requires the recording of data such as memory usage, processor load, and the number of active services, as well as the collection of log and trace files.

These topics result in challenges regarding the management of the vehicle life cycle. Some aspects to be considered are:

— faster release and update cycles;

— increased requirements such as data protection and cybersecurity;

— state-of-the-art diagnostic API using current information technologies.

The ISO 17978 series define an API which standardizes the methods for:

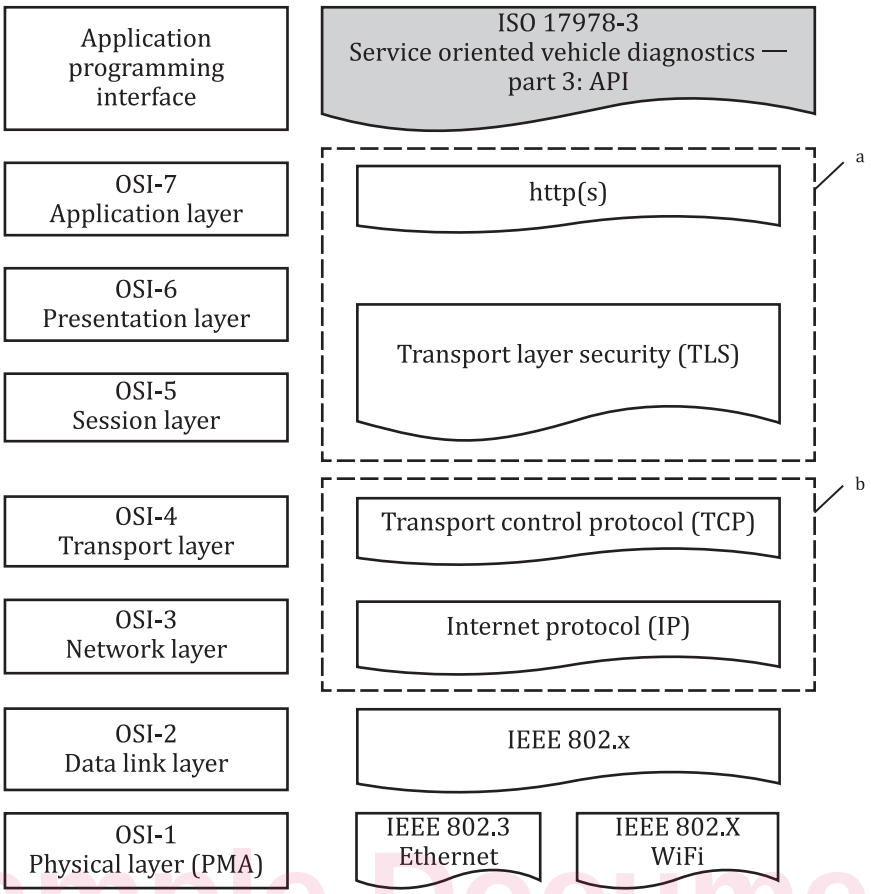
— discovering the SOVD capabilities;

— performing diagnostics;

— (re-)configuring and re-programming;

— allowing the introduction of new functionalities.

Figure 1 shows the OSI layers of the ISO 17978 series.



a Communication protocol.

b Network technology depending on E/E vehicle network architecture.

Figure 1 — OSI layers of SOVD

Road vehicles — Service-oriented vehicle diagnostics (SOVD) —

Part 1: General information, definitions, rules and basic principles

1 Scope

This document:

— gives an overview of the ISO 17978 series;

— specifies rules and basic principles for the service-oriented vehicle diagnostics (SOVD), conforming to the extended vehicle (ExVe) methodology, as specified in the ISO 20077 series;

— defines general terms.

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 20077-2:2018, *Road Vehicles — Extended vehicle (ExVe) methodology — Part 2: Methodology for designing the extended vehicle*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
basic principle
design principle that is considered when designing an *extended vehicle* (3.8)

[SOURCE: ISO 20077-2:2018, 3.1]

3.2
capability
ability of a system, component or function to execute a defined task or provide a specific service

Note 1 to entry: Capabilities refer to concrete actions or functions that can be performed, such as executing a diagnostic routine, retrieving sensor data, modifying configuration parameters or accessing logs.