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**Road vehicles — Open Test sequence  
eXchange format (OTX) —**

Part 4:  
**Expanded extensions interface  
definition**

*Véhicules routiers — Format public d'échange de séquence-tests  
(OTX) —*

*Partie 4: Définition de l'interface des extensions étendues*

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CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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## Foreword

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 13209 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](http://www.iso.org/members.html).

## Introduction

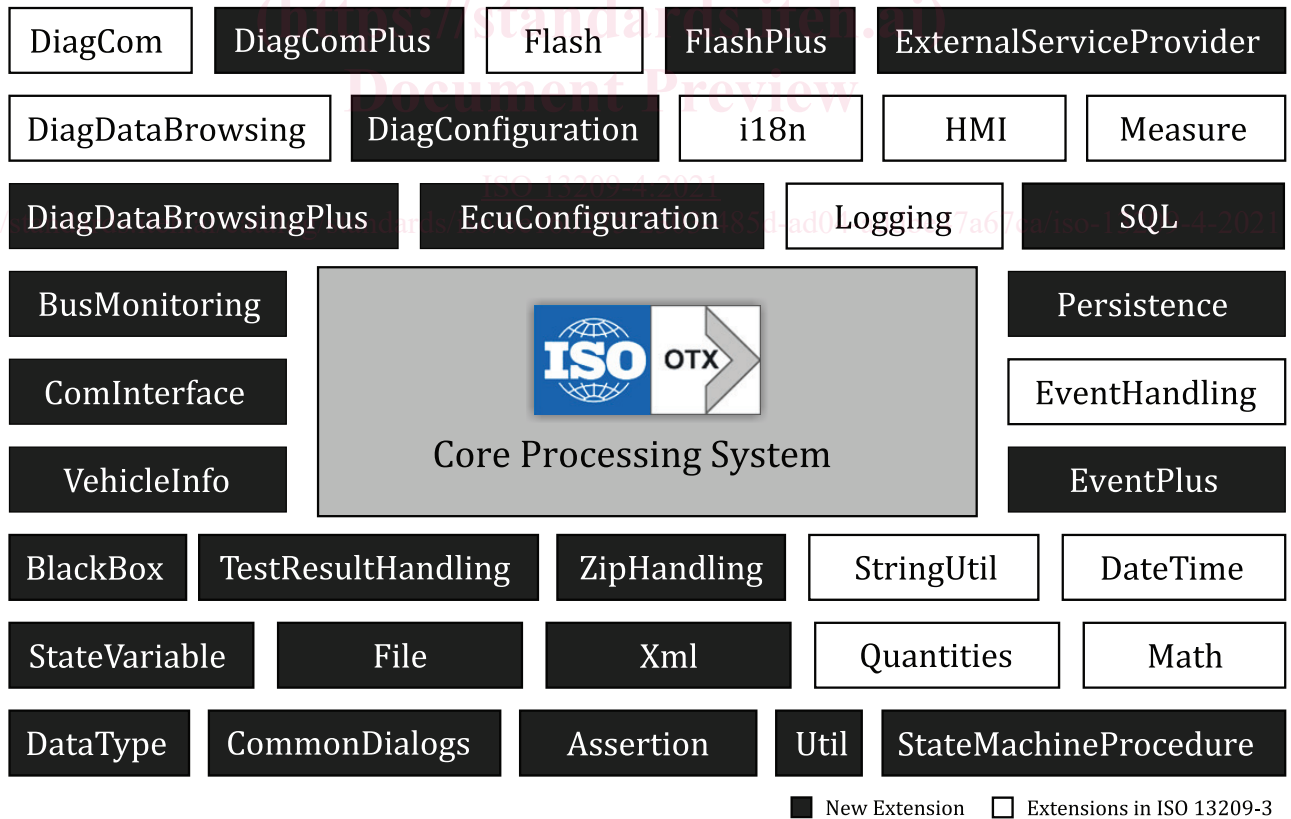
Diagnostic test sequences are utilized whenever automotive components or functions with diagnostic abilities are being diagnosed, tested, reprogrammed or initialised by off-board test equipment. Test sequences define the succession of interactions between the user (i.e. workshop or assembly line staff), the diagnostic application (the test equipment) and the vehicle communication interface as well as any calculations and decisions that have to be carried out. Test sequences provide a means to define interactive, guided diagnostics or similar test logic.

Today, the automotive industry mainly relies on paper documentation and/or proprietary authoring environments to document and to implement such test sequences for a specific test application. An author who is setting up engineering, assembly line or service diagnostic test applications implements the required test sequences manually, supported by non-uniform test sequence documentation, most likely using different authoring applications and formats for each specific test application. This redundant effort can be greatly reduced if processes and tools support the OTX concept.

The ISO 13209 series proposes an open and standardized format for the human- and machine-readable description of diagnostic test sequences. The format supports the requirements of transferring diagnostic test sequence logic uniformly between electronic system suppliers, vehicle manufacturers and service dealerships/repair shops.

This document extends the core of the ISO 13209 series with a set of additional, generally usable OTX extensions which are not part of ISO 13209-3, using the extension mechanism rules described in ISO 13209-2.

[Figure 1](#) gives an overview of the additional extensions related to the existing extensions in ISO 13209-3.



**Figure 1 — OTX extensions overview**

Besides these extensions a new container format, called PTX, is introduced (see [Annex B](#)).

## ISO 13209-4:2021(E)

The main goals are:

- enlargement of the field of application,
- ensuring exchangeability between different tools and suppliers,
- improvement of OTX code quality,
- improvement of standard acceptance.

The following common requirements are covered:

- general read-write access to files,
- XML processing,
- declare data, whose internal properties are unknown,
- deep change monitoring in lists or maps,
- store arbitrary information on the current runtime,
- handling of user-defined data types: structure and enumeration,
- ensure correct implementation of OTX test sequences,
- support of DoIP,
- configuration tasks,
- browsing of ODX database,
- extend OTX to functionality that is encapsulated in external services, part of a system, a device, a database or a simple library,
- functional access to ECUs,
- capturing, evaluating and persisting results of test sequences,
- transport status information from inside a sequence to the environment,
- advanced convenience functionality,
- collection of communication data at runtime,
- select and modify project and vehicle information's for MVCI systems,
- support of variant coding,
- enable late bound flashing of ECUs,
- access to SQL databases,
- evaluating test sequence results in a structured way,
- access to information about vehicle network architecture,
- state machine,
- compressed data exchange.