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Second edition
2015-12-15

Electronic fee collection — Information exchange between service provision and toll charging

*Perception du télépéage — Échange d'informations entre la
prestation de service et la perception du péage*



Reference number
ISO 12855:2015(E)

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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 (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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

This second edition cancels and replaces the first edition (ISO 12855:2012), which has been technically revised. The following changes have been made:

- adding new Application Data Units (ADUs) due to comments received from National Bodies;
- aligning the ASN.1 data definitions with the current versions of EN 14906, and ISO 17575 (all parts);
- moving the ASN.1 module from [Annex A](#) to an external text file, in a format that can be processed by ASN.1 compilers;
- clarifying the semantics of parameters in ADUs;
- aligning the structure of all major clauses in a consistent manner to improve readability.

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Introduction

The widespread use of tolling requires provisions for users of vehicles that circulate through many different toll domains. Users should be offered a single contract for driving a vehicle through various toll domains. Where those vehicles require a form of on-board equipment (OBE) this should be interoperable with the toll systems in the various toll domains. In Europe, for example, this need has been officially recognized and legislation on interoperability has already been adopted (see Directive 2004/52/EC and Decision 2009/750/EC). There is both a commercial and economic justification in respect to the OBE and the toll systems for standards enabling interoperability.

The system architecture defined in ISO 17573 is the basis for all standards that relate to tolling systems in the toll domain. With respect to ISO 17573, this International Standard

- adopts its definitions of terms and concepts and basic system functionalities and structure,
- uses its terminology, and
- specifies the interfaces therein identified.

ISO 17573 uses ISO/IEC 10746-3 for the description of the architecture.

Figure 1 shows the scope of the group of electronic fee collection (EFC) related standards based upon the architecture standard.

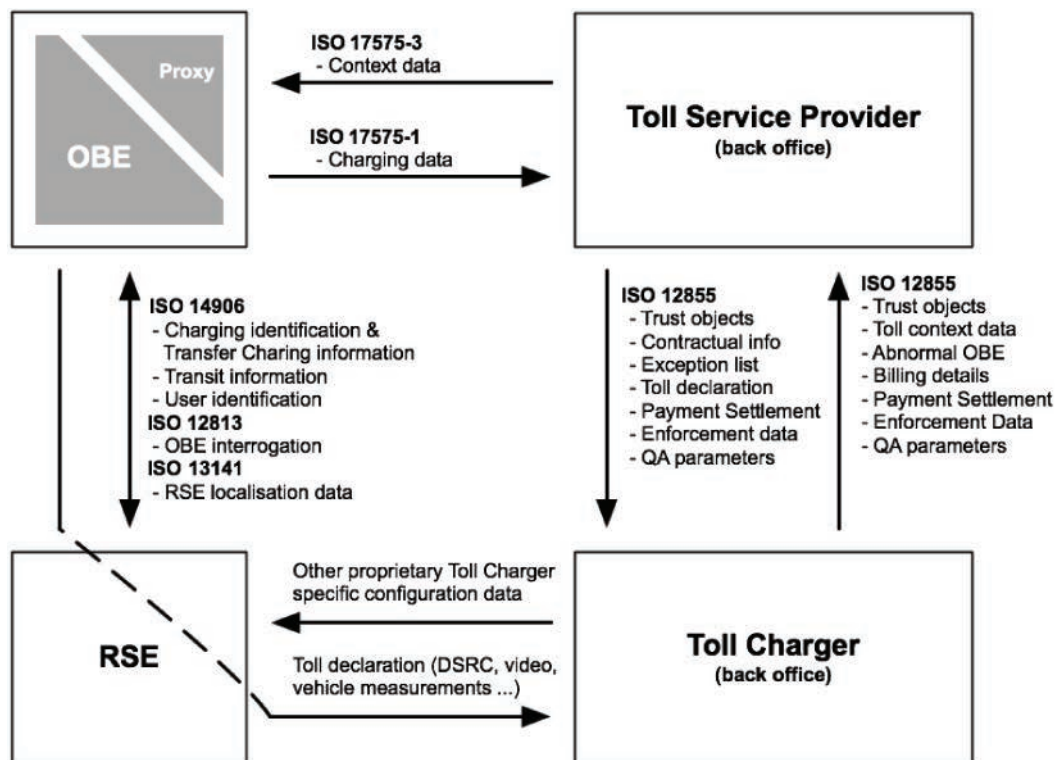


Figure 1 — Scope of EFC related standards

A given transport service for a given vehicle is fully identified by one or several toll declarations made available to the Toll Charger (TC). Toll declarations have to be made available according to the rules of the toll regime of the toll domain.

The amount due for a given transport service used by a vehicle liable to toll is finalized by the TC with the use of toll declarations (as described above) and calculation is made according to the rules of the toll regime (formula, tariff tables, specific situations rules, traffic conditions, etc.). That means that the

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TC has the authority to decide on the amount due, even if it decides to assign the Toll Service Provider (TSP) the task to calculate the amount due.

The information above, associated with a given transport service, is named billing details; for a given transport service, the billing details are referring to one or several toll declarations.

Depending on the toll regime, billing details are elaborated with information collected by the TC and/or the relevant TSP; they are finalized by the TC.

The TC elaborates and makes the payment claims (or toll payment claims) available to each TSP, according to the bilateral agreements it has with each TSP, referring to billing details. These payment claims include an amount due taking into account any specific commercial conditions applicable to a vehicle, a fleet of vehicles or a given TSP.

This International Standard defines a set of interactions in support of technical interoperability between back-office systems of TCs and TSPs. The EFC-service and the EFC System model on which this International Standard is based is defined in ISO 17573.

This International Standard does not provide a full solution for interoperability, and it does not define other parts of the EFC system, other services, other technologies and non-technical elements of interoperability.

The development of a common European Electronic Toll Service (EETS) as a part of the European EFC Directive (2004/52/EC) also calls for the definition of an interoperable EFC service. This International Standard provides for effective support for the work on the definition of EETS. Details on the usage of this International Standard for the EETS are provided in [Annex F](#).

This International Standard identifies and specifies the set of Application Protocol Data Units exchanged between two actors in the roles of Toll Service Provider and Toll Charger as defined in ISO 17573. To specify these interfaces, this International Standard uses the enterprise description of the toll environment, and the interactions defined between the named classes of roles, as defined in ISO 17573. This allows for a complete specification of the data that is transferred between those identified entities. In addition, a number of computational interfaces are identified and interactions in terms of sequences of Application Protocol Data Units are defined.