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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



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 12855 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*, in collaboration with Technical Committee CEN/TC 278, *Road transport and traffic telematics*.

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Introduction

The widespread use of tolling also requires provisions for users of vehicles that are circulating 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). 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. From this system architecture standard, other standards have consistently reused

- common definitions of terms and concepts and basic system functionalities and structure,
- common terminology, and
- identified interfaces that are or need to be defined.

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

The following figure shows the scope of the group of electronic fee collection (EFC) related standards based upon the architecture standard.

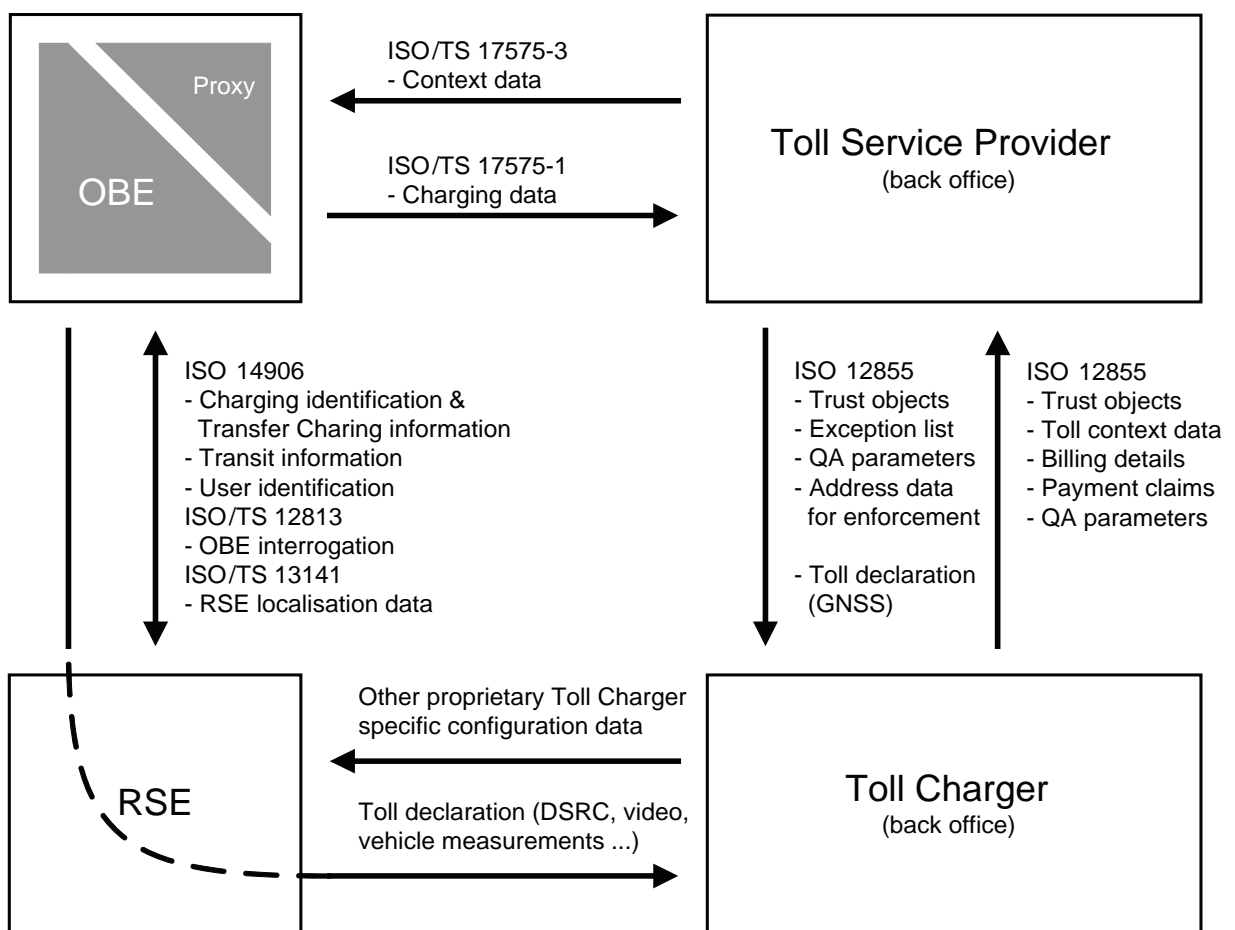


Figure 1 — Scope of EFC related standards

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A given transport service for a given vehicle is fully identified by one or several toll declarations, made available to the Toll Charger. 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 concluded by the Toll Charger (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.).

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 Toll Charger and/or the relevant Toll Service Provider (TSP); they are concluded by the toll charger.

The Toll Charger elaborates and makes the payment claims (or toll payment claims) available to each Toll Service Provider, according to the bilateral agreements it has with each Toll Service Provider, 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 Toll Service Provider.

This International Standard identifies and specifies the set of messages 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 to that, a number of computational interfaces are identified, where interactions in terms of sequences of messages are defined.