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Electronic fee collection — Support for traffic management

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National foreword

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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).

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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 204, *Intelligent transport systems*.

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

Electronic fee collection (EFC) systems have been introduced in many countries where collected revenue is mostly used for funding the construction or maintenance of roads. EFC is also used for traffic management to reduce congestion in urban areas, such as London and Stockholm, since tolling is closely related to travel demand elasticity.

Examples of EFC used for traffic management in other countries include:

— a new movement for traffic management, called smart route selection, in which EFC will be used for selecting a route in the Tokyo metropolitan area to divert traffic out of central Tokyo (see Annex D);

— Electronic Road Pricing in Singapore (see Annex E);

— Managed lanes [including services known as high occupancy vehicle (HOV) lanes and high occupancy tolls (HOT)] on interstate freeways in the USA (see Annex F).

Traffic management is becoming more important in urban areas for reduction of congestion and also for emissions control, and EFC schemes such as the smart route selection and managed lanes are some of the key EFC applications used to support traffic management.

Figure 1 shows the scope of this document in the data flow model.

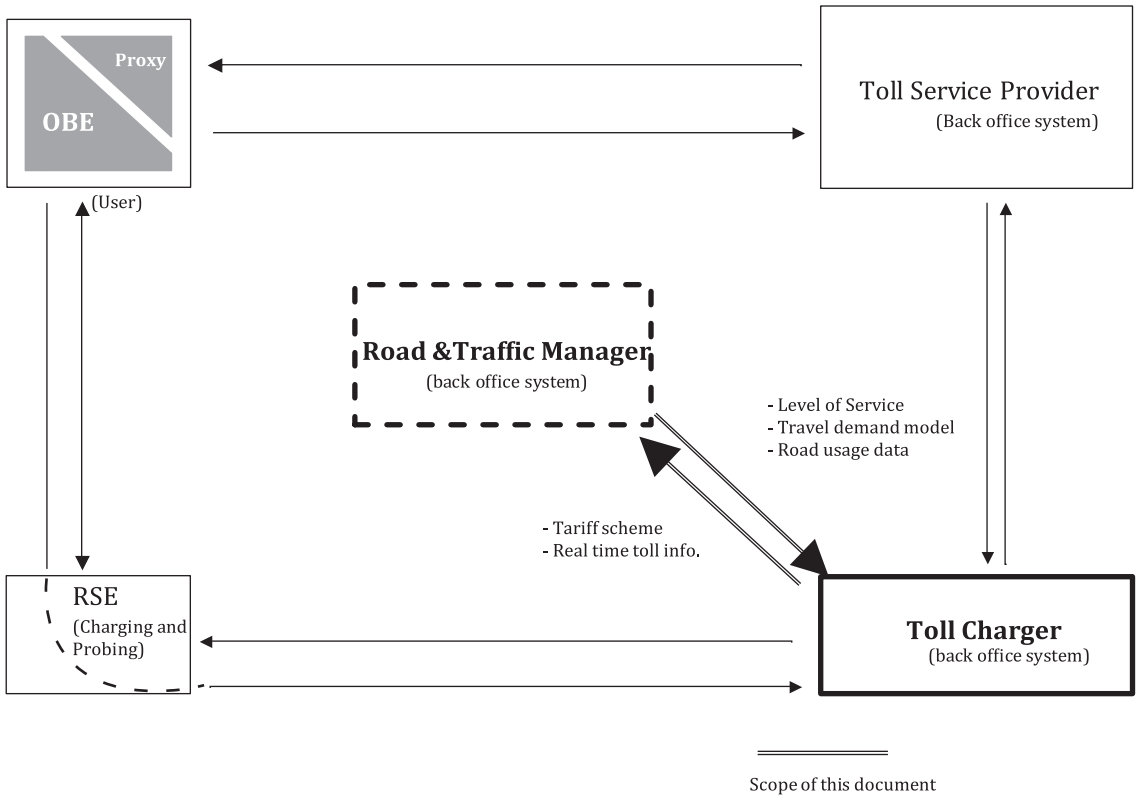

Figure 1 — Scope of this document in data flow model

Electronic fee collection — Support for traffic management

1 Scope

This document identifies the architecture of a toll system environment in which a toll charger (TC) can act to support traffic management with the use of a tariff scheme.

The scope of this document defines:

— the architecture related to the scope;

— a standard framework and data flow model;

— an exchange of information between a TC and a road and traffic manager (RTM), e.g.:

  — level of service (LOS);

  — tariff scheme;

  — data which is needed to support traffic management (vehicle probe and traffic flow data).

This document is a toolbox standard of application protocol data units (APDUs), which can be used for the assigned purpose. The detailed definitions of mandatory and optional elements in real implementation are outside the scope of this document. This document does not define communication stacks or timings.

Data types and associated coding related to the data elements described in Clause 6 are defined in Annex A, using the abstract syntax notation one (ASN.1) according to ISO/IEC 8824-1. This document allows the implementer to define suitable protocol procedures such as basic interaction, protocol mechanism, and choice of transfer protocol.

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 12855:2015, *Electronic fee collection — Information exchange between service provision and toll charging*

ISO 14827-1, *Transport information and control systems — Data interfaces between centres for transport information and control systems — Part 1: Message definition requirements*

ISO 14827-2, *Transport information and control systems — Data interfaces between centres for transport information and control systems — Part 2: DATEX-ASN*

ISO 14827-3, *Transport information and control systems — Data interfaces between centres for transport information and control systems — Part 3: Data interfaces between centres for intelligent transport sytems (ITS) using XML (Profile A)*

ISO 14906, *Electronic fee collection — Application interface definition for dedicated short-range communication*

ISO 17575-3, *Electronic fee collection — Application interface definition for autonomous systems — Part 3: Context data*

ISO 22837:2009, *Vehicle probe data for wide area communications*