SLOVENSKI STANDARD
SIST ENV ISO 14904:2003

01-oktober-2003

Cestna transportna in prometna telematika - Elektronsko pobiranje pristojbin – Specifikacija vmesnika za poravnave med operaterji (ISO/TS 14904:2002)

Road transport and traffic telematics - Electronic fee collection (EFC) - Interface specification for clearing between operators (ISO/TS 14904:2002)

Straßenverkehrstelematik - Elektronische Gebührenerfassung (EFC) - Schnittstellenspezifikation für die Verrechnung zwischen den Betreibern (ISO/TS 14904:2002)

Télématique de la circulation et du transport routier - Perception du télépéage - Spécification des interfaces pour la compensation des recettes entre opérateurs (ISO/TS 14904:2002)

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03.220.20	Cestni transport	Road transport
35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade

SIST ENV ISO 14904:2003 **en**

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EUROPEAN PRESTANDARD

PRÉNORME EUROPÉENNE

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English version

Road transport and traffic telematics - Electronic fee collection (EFC) - Interface specification for clearing between operators (ISO/TS 14904:2002)

Télématique de la circulation et du transport routier - Perception du télépéage - Spécification des interfaces pour la compensation des recettes entre opérateurs (ISO/TS 14904:2002)

Telematik für den Straßenverkehr und Transport - Elektronische Gebührenerhebung - Schnittstellenspezifikation für das Clearing zwischen Betreibern (ISO/TS 14904:2002)

This European Prestandard (ENV) was approved by CEN on 26 May 2002 as a prospective standard for provisional application.

The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The text of ENV ISO 14904:2002 has been prepared by Technical Committee CEN/TC 278 "Road Transport and Traffic Telematics", the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 204 "Transport Information and Control Systems".

This European Prestandard supersedes ENV ISO 14094:1997.

In this European Prestandard, the annexes A to F are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

Integration of payment systems concerns the co-ordination and handling of all payment services for traffic and transport applications. This co-ordination involves:

a)   the use of a common payment concept for services within or related to road traffic and transport;

b)   the enabling of exchange of payment transactions and operational information between different operators involved in public and private transport services; and

c)   the method of payment itself, i.e. the access to electronic payment means, for the settlement of these acquired services.

In order to enable the integration of payment systems on a higher (e.g. pan-European) level and make clearing between operators possible, the interfaces involved need to be standardised.

Therefore this European Prestandard / ISO Technical Standard is designed as an interface specification enabling data to be exchanged between different operators and systems adopting a variety of application specifications.

It should be noted that although the data structures defined in the current version of the European Prestandard / ISO Technical Standard reflect a focus on information transfers for clearing purposes, the interface specification defined herein supports equally well other types of information transfers required within and between payment systems.

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1 Scope

This European Prestandard specifies the interfaces for clearing between operators and gives a framework of the common message structure and data elements to be used on the interfaces. Its objective is to make the transfer of payment and Electronic Fee Collection (EFC) related data possible both between different payment systems and between different operators such as collection agents, clearing operators, or providers of public and private transport services.

This European Prestandard supports:

a)   different payment modes (e.g. pre-payment, post-payment);

b)   a wide variety of transport and transport related services (tolling, parking, ferry/bridge/tunnel, public transport, payment for route guidance etc.);

c)   operator services (co-ordination between collectors of money and charge points etc.);

d)   security and privacy.

It is not within the scope of this European Prestandard to define administrative procedures and organisational structures. The specification of a higher (e.g. pan-European) level inter-operable payment system is outside the scope of this European Prestandard.

Not described within this European Prestandard are indirect (external) participants such as authorities, enacting general or special legislation concerning the payment system and other national regulations.

The models presented in this standard are generic. Simple systems (closed systems) can be designed by selecting subsets of the interface framework described herein.

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

ISO 7812, *Identification cards - Identification of issuer*.

ISO 7816-5, *Identification cards - Integrated circuit cards with contacts - Registration system for applications in IC cards*.

ISO 8583, *Financial transaction card originated message - Interchange message specifications*.

ISO/IEC 8825-1, *Information technology -- ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*.

ISO 9594, *Information technology - The Directory*.

ISO 11770-1, *Information technology – Security techniques – Key management – Part 1: Framework*.

ENV ISO 14816-2, *Automatic vehicle and equipment identification - Part 2: Numbering and Data structures*.

ENV ISO 14906, *Road Transport and Traffic Telematics - Electronic Fee Collection - Application Interface Definition for Dedicated Short Range Communication*.

ENV 1545-1, *Identification card systems - Surface transport applications - Part 1: General data elements*.

3 Terms and definitions

For the purpose of this European Prestandard, the following terms and definitions apply.

3.1
Apportionment
allocation of money to transport service operators according to the consumption of the services provided, e.g. a bus operator being paid an amount based on the number of a particular type of customer carried

3.2
Chained Services
combination of services that result in a discount and/or access rights in one or more of the consumed services. The discount or access rights are usually given to the *User* as a result of having consumed a previous service

3.3
Clearing
operation of re-allocating value generated in the payment system(s) between the various operators in a payment system or between payment systems. This operation reflects commercial agreements existing between those parties. An example of such an operation is the exchange of information between *Service Providers* and an *Issuer* which enables the transfer of money from the *Issuer*, collecting the money from the *User*, to the *Service Provider*

3.4
Clearing Operator
entity that collects and possibly aggregates transactions from one or more *Service Providers* for delivery to the *Issuer(s)*. The *Clearing Operator* can also handle the *Apportionment* between the *Service Providers*. In the financial world this operator is equivalent to an Acquirer

3.5
Collection Agent
entity responsible for selling, reloading or delivering the *Payment Means* to the *User* and collecting the payment from the *User*. The *Collection Agent* can also collect user related application specific data from the *User*

3.6
Contract
expression of an agreement between two or more parties in a payment system or between payment systems. An example of a contract is the specific relationship between a *User* and an *Operator* in a payment system. The contract in this case defines the conditions under which the user may use the services and the amount to be charged

3.7
(Intersector) Electronic Purse
application in an Integrated Circuit Card which stores and manipulates electronic value in a secure way and which replaces cash for payments by the *User*

3.8
Electronic Fee Collection
collection of a fee for a transport service where the fee is collected via the exchange of data, e.g. via an air-link communication, enabling the user to pay for the service with electronic values, e.g. an electronic purse or values stored in a central account

3.9
Enforcement Operator
entity responsible for prosecution on the basis of violation information provided by the Service Providers.

3.10
Integrated Payment Systems
common framework of payment methods and information exchange between operators or payment systems that makes transfer of money from one payment system or operator to another possible (*Clearing/Apportionment*)

3.11
Issuer
entity responsible for the payment system and responsible for issuing the *Payment Means* to the *User*

3.12
Operator
generic term for the entities Issuer, Clearing Operator, Collection Agent, Service Provider, Enforcement Operator or Trusted Third Party

3.13
Payment Means
expression of a *Contract* between the *User* and the *Issuer* (or via a *Collection Agent*) that allows the *User* to access the services available in the *Payment System*, e.g. an account in a credit card system or an *Electronic Purse*

3.14
Payment Method
combination of a Payment Means, a Payment Mode and a Payment Scope

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3.15
Payment Mode
parameter defining the time dimension in payment by the *User*, *e*.g. Pre-payment or Post-payment

3.16
Payment Scope
application extent of the *Payment Method*, e.g. national transport or inter-sector

3.17
Payment System
financial system that includes the complete process of *Issuing,* use of *Payment Means*, *Clearing* and *Settlement* of transactions

3.18
Service Provider
person, company, authority or abstract entity offering a service to the *User* for which the user has to pay a fee (the fee can in some cases be zero, e.g. emergency vehicles)

3.19
Settlement
transfer of funds from one *Operator* to another according to the *Clearing* rules

3.20
Trusted Third Party
entity who might be responsible for operation monitoring, system and security assessment (including security key management) as well as granting licences

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3.21
User
entity that uses services provided by the *Service Provider* according to the terms of the *Contract* expressed by the *Payment Means*. The *User* receives and reloads the electronic *Payment Means* through the *Collection Agent*

4 Basic interfaces for clearing between operators

This European Prestandard identifies the following basic interfaces required for clearing between operators within a payment system and between payment systems (see annex A Conceptual Model for further explanations):

Table 1 – Overview of operator interfaces

Operators interfaced	Interfaces covered by the standard	Interfaces NOT covered by the standard
Any Operator to any Operator (see definition of Operator in 3)	X	-
User - Service Provider	-	X
Collection Agent – User	-	X

NOTE   The interface specification defined in this European Prestandard is designed to be flexible enough to accommodate any additional operator-to-operator information transfer paths which can be required by the integration and operation of payment systems.

5 Interface framework

5.1 Introduction

Clause 5 defines a common message structure to enable the exchange of data on any of the interfaces between operators.

The common message structure is summarised in 5.2 and described in more detail in annex C.

NOTE   Message class, message type, sender ID, receiver ID and message ID are only normative requirements when they are not provided by other communication layers.

5.2 Summary of message structure

The message structure shall be transferred either explicitly defined in this standard or implicitly using services defined by other communication protocols.

EXAMPLE   TCP/IP, XML/EDIFACT can be used to transfer messages.

Figure 1 shows graphically an example of the message structure for the Electronic fee Collection (EFC) related Protocol Data Unit (PDU). The objects shown in the diagram (the information forming the Message Body) can either be unsecured or secured globally or individually.
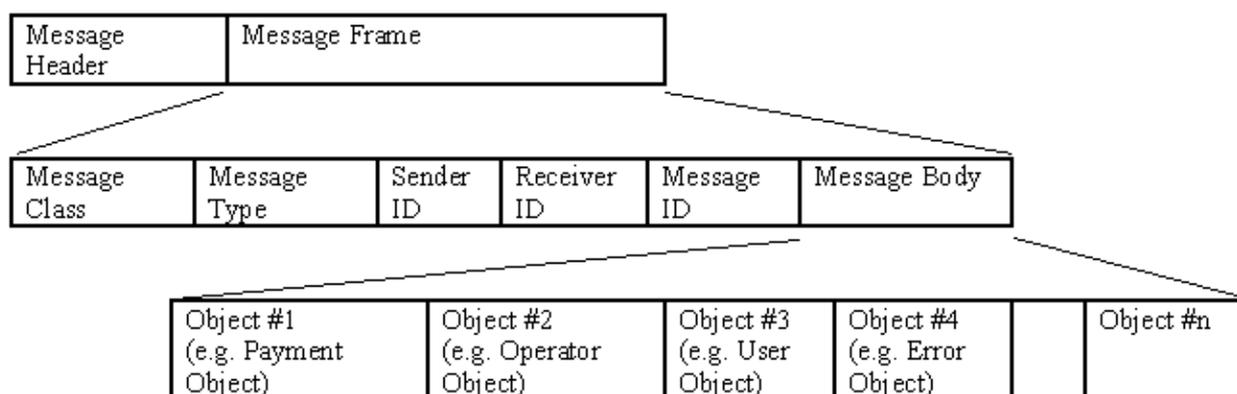
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Figure 1 - Example of the message structure

5.3 Message header

At the beginning of each message is a message header. The message header contains a version identifier.

The version identifier is an integer that identifies the version of the protocol. As this integer is always the first element in the sequence, the receiving party is always able to identify the version of the protocol being used to send the data. This European Prestandard defines version 2 of the protocol.

NOTE   ENV ISO 14904:1997 defines version 1 of the protocol.

5.4 Message frame

The message frame may be included in the message structure defined in 5.2. Annex C shows how the message frame can be formatted.

5.5 Security data

The main objective of Data Protection in EFC systems is to protect the interests of those relying on the EFC systems, from any harm or damage caused by lack of availability, confidentiality, integrity, non-repudiation and privacy of personal data.

Part of the information exchanged over the interfaces is covered by this European Prestandard, constituting an important asset for the respective parties involved. Whilst meeting the security needs of a closed system remains the domain of the parties concerned, an interface specification constitutes a common ground for the implementation of real-world interfaces for clearing between operators within the scope of a higher (e.g. pan-European) level integrated payment system. The interface specification should make sufficient provision to incorporate current and future security related items.

The security data at the message level and the secured data objects provide support for security related items. The various security issues can be stated as follows:

Confidentiality   Sensitive data and information are available only to authorised parties (confidentiality of contents);

                              In addition to pure financial transaction information which may naturally be subject to tampering, other, more transport related types of information are to be carried through the same interface (i.e. volumes, type of operations, details

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	of activities, network etc.). This information can prove very sensitive in an increasingly competitive environment;
Integrity	Sensitive data, information and message sequencing are guarded in such a way that any alteration or destruction by unauthorised parties is detected (integrity of contents, integrity of message sequence);
Authentication	The origin and destination of information and the entities involved in the exchange of information are authenticated (message origin authentication, message destination authentication, peer entity authentication);
Non-repudiation	Protection against the denial, by one of the parties involved in the communication through the interface, of having participated in all or part of the communications. Support for the following forms of non-repudiation services may be required: - Non-repudiation with proof of origin; - Non-repudiation with proof of delivery; - Non-repudiation with proof of submission;
Availability	Data, information are available to authorised parties;
Auditing/Accountability	Protection against anomalies in the flow of transactions by the use of time variant parameters. This may also include recording of system activity for security related monitoring purposes.

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5.6 Security and Privacy

As EFC systems need to address both data security and privacy issues, defined in the following as a combined domain called Data Protection, their architecture needs also to provide the adequate support. In EFC system architectures, and for the purposes of this standard, privacy is taken as being related to the rights of individual users of the system in respect with the way their personal data is stored and handled within the EFC system and possibly across EFC systems, e.g. clearing between operators.

5.7 Data Protection Framework

The model shown in Figure 2 provides a general framework for interpreting the primary relationships between the main issues and elements involved in the planning design and operation of data protection schemes:

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