SLOVENSKI STANDARD
SIST EN 16931-1:2017

01-oktober-2017

Elektronsko izdajanje računov - 1. del: Semantični podatkovni model ključnih elementov za elektronski račun

Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice

Elektronische Rechnungsstellung - Teil 1: Semantisches Datenmodell der Kernelemente einer elektronischen Rechnung

Facturation électronique - Partie 1: Modèle sémantique de données des éléments essentiels d'une facture électronique

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EUROPEAN STANDARD

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English Version

Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice

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This European Standard was approved by CEN on 17 April 2017.

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European foreword

This document (EN 16931-1:2017) has been prepared by Technical Committee CEN/TC "Electronic Invoicing", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2014/55/EU [1].

For relationship with EU Directive 2014/55/EU [1], see informative Annex B, which is an integral part of this document.

This document is part of a set of documents, consisting of:

— EN 16931-1:2017 Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice

— CEN/TS 16931-2:2017 Electronic invoicing - Part 2: List of syntaxes that comply with EN 16931-1

— CEN/TS 16931-3-1:2017 Electronic invoicing - Part 3-1: Methodology for syntax bindings of the core elements of an electronic invoice

— CEN/TS 16931-3-2:2017 Electronic invoicing - Part 3-2: Syntax binding for ISO/IEC 19845 (UBL 2.1) invoice and credit note

— CEN/TS 16931-3-3:2017 Electronic invoicing - Part 3-3: Syntax binding for UN/CEFACT XML Cross Industry Invoice D16B

— CEN/TS 16931-3-4:2017 Electronic invoicing - Part 3-4: Syntax binding for UN/EDIFACT INVOIC D16B

— CEN/TR 16931-4:2017 Electronic invoicing - Part 4: Guidelines on interoperability of electronic invoices at the transmission level

— CEN/TR 16931-5:2017 Electronic invoicing - Part 5: Guidelines on the use of sector or country extensions in conjunction with EN 16931-1, methodology to be applied in the real environment

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— CEN/TR 16931-6[1] Electronic invoicing - Part 6: Result of the test of EN 16931-1 with respect to its practical application for an end user - Testing methodology

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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[1] In preparation.

Introduction

The European Commission estimates that "The mass adoption of e-invoicing within the EU would lead to significant economic benefits and it is estimated that moving from paper to e-invoices will generate savings of around EUR 240 billion over a six-year period"[2] . Based on this recognition "The Commission wants to see e-invoicing become the predominant method of invoicing by 2020 in Europe."

To achieve this goal, Directive 2014/55/EU [1] on electronic invoicing in public procurement aims at facilitating the use of electronic invoices by economic operators when supplying goods, works and services to the public administration. The Directive sets out the legal framework for the establishment and use of a European Standard (EN) for the semantic data model of the core elements of an electronic invoice.

The semantic data model of the core elements of an electronic invoice – the core invoice model – as described in this document is based on the proposition that a quite limited, but sufficient set of information elements can be defined that supports generally applicable invoice-related functionalities. These functionalities are described in Clause 5. The core invoice model, as described in Clause 6, contains information elements that are commonly used and accepted including those that are legally required.

It is expected that in most situations, business partners would use the core invoice model exclusively and the invoices they send or receive would not contain any additional structured information elements. However, in some sectors or situations where there are specific information requirements, the required information may be conveyed in the form of unstructured text. Unstructured text has the drawback in that it cannot be processed automatically and therefore requires human intervention. Alternatively, the specific information requirements can be implemented using information elements that extend the core invoice model. Any such extension needs to respect the semantic definitions in the core invoice model. Only business partners that are part of such a sector or supply chain would be expected to be able to process the extensions. In these circumstances, it should be possible to define a number of required additional information elements whilst still utilizing the core invoice model concept.

In line with Directive 2014/55/EU [1] and after the publication of the reference to this document in the Official Journal of the European Union, all contracting authorities and contracting entities in the EU will be obliged to be able to receive and process an e-invoice as long as it contains all of the (applicable) core elements of an invoice defined in this European Standard (and provided that it is represented in any of the syntaxes identified in the related Technical Specification CEN/TS 16931-2 "List of syntaxes that comply with EN 16931-1" in accordance with the request referred to in paragraph 1 of article 3 of the Directive 2014/55/EU. The inclusion of any additional information which is not contained in the core model will be at the sender's discretion and contained in unstructured text or in an extension, by agreement with the contracting entity. The inclusion of any extension in an e-invoice will be optional, and it will not form an integral part of the European Standard. See Clause 4 below for further detail on extensions.

By ensuring semantic interoperability of electronic invoices, the European Standard and its ancillary European standardization deliverables will serve to remove market barriers and obstacles to trade deriving from the existence of various national rules and standards – and thus contribute to the goals set by the European Commission.

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[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0712:FIN:en:PDF.

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1 Scope

This European Standard establishes a semantic data model of the core elements of an electronic invoice. The semantic model includes only the essential information elements that an electronic invoice needs to ensure legal (including fiscal) compliance and to enable interoperability for cross-border, cross sector and for domestic trade. The semantic model may be used by organizations in the private and the public sector for public procurement invoicing. It may also be used for invoicing between private sector enterprises. It has not been specifically designed for invoicing consumers.

This European Standard complies at least with the following criteria:

— it is technologically neutral;

— it is compatible with relevant international standards on electronic invoicing;

— the application of this standard should comply with the requirements for the protection of personal data of Directive 95/46/EC, having due regard to the principles of privacy and data protection by-design, data minimization, purpose limitation, necessity and proportionality;

— it is consistent with the relevant provisions of Directive 2006/112/EC [2];

— it allows for the establishment of practical, user-friendly, flexible and cost-efficient electronic invoicing systems;

— it takes into account the special needs of small and medium-sized enterprises as well as of sub-central contracting authorities and contracting entities;

— it is suitable for use in commercial transactions between enterprises.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes (ISO 3166-1)*

ISO 4217, *Codes for the representation of currencies*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 15000-5, *Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS)*

ISO/IEC 6523 (all parts), *Information technology — Structure for the identification of organizations and organization parts*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE   Business terms that are part of the semantic model are defined in the model itself.

3.1
electronic invoice
invoice that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing

[SOURCE: Directive 2014/55/EU [1]]

3.2
semantic data model
structured set of logically interrelated information elements

3.3
information element
semantic concept that can be defined independent of any particular representation in a syntax

3.4
structured information element
information element that can be processed automatically

3.5
syntax
machine-readable language or dialect used to represent the information elements contained in an electronic document (e.g. an electronic invoice)

3.6
business term
label assigned to a given information element which is used as a primary reference

3.7
core invoice model
semantic data model of the core elements of an electronic invoice

3.8
core elements of an electronic invoice
set of essential information elements that an electronic invoice may contain in order to enable cross-border interoperability, including the necessary information to ensure legal compliance

3.9
identifier
character string used to establish the identity of, and distinguish uniquely, one instance of an object within an identification scheme from all other objects within the same scheme

Note 1 to entry: An identifier may be a word, number, letter, symbol, or any combination of those, depending on the identification scheme used.

3.10
identification scheme
collection of identifiers applicable for a given type of object governed under a common set of rules

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3.11
compliant
some or all features of the core invoice model are used and all rules of the core invoice model are respected

Note 1 to entry: Based on TOGAF definition of a compliant specification [18].

3.12
conformant
all rules of the core invoice model are respected and some additional features not defined in the core invoice model are also used

Note 1 to entry: Based on TOGAF definition of a conformant specification [18].

4   The concept of a core invoice

4.1 The core invoice model as a response to the challenge of interoperability

The establishment of interoperability of business information systems with respect to the exchange of electronic documents such as invoices is viewed by many as a major challenge for the following reasons:

a)   the overall business environment is very diverse and consequently so is the information that needs to be exchanged between business partners;

b)   documents such as invoices consist of many information elements; attempting to define and standardize all occurring information elements would generate a very large and complex information model that no single organization could implement entirely;

c)   even if a complete implementation of such a large model were possible, its implementation across the business environment would be very challenging and costly;

d)   as experience shows, business partners in various industry sectors will agree on subsets of the model that are supported by their business information systems. Such variety would work against the principles of using common standards, jeopardize interoperability and result in expensive implementation projects.

This document is based on a different approach. In contrast to collecting and meeting the requirements of all businesses, a semantic model is defined that includes only the essential information elements that an electronic invoice needs to ensure legal (including fiscal) compliance and to enable interoperability for cross-border, cross-sector and domestic trade. The semantic model may be used by public and private sector organizations for public procurement invoicing. It may also be used for invoicing between private sector enterprises.

The result of this approach is a semantic model of core information elements for an electronic invoice, i.e. a core invoice model. The following guiding principles form the basis of the core invoice model:

1)   it should be easier to prepare and send, as well as to receive and process electronic invoices when compared to paper invoices;

2)   the use of standardized information elements should make electronic invoice processing more efficient than processing paper invoices;

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3) compliance with the core invoice model should mean that business partners should be able to interpret and understand the content of an electronic invoice at the semantic level without prior consultation or bilateral agreements;

4) invoices should be composed of structured information elements to enable efficient and automatic processing;

5) invoice processing software should be able to present all information elements in the core invoice model, and automatically process all structured data;

6) the use of structured data should result in optimized business processes;

7) the core invoice model makes no assumption about the method by which an invoice is created, delivered and processed. It may be exchanged directly between business partners or exchanged using an intermediary service provider;

8) the core invoice model makes no assumption about the syntax or transmission technology used. Senders and receivers of e-invoices shall ensure the authenticity and integrity of the invoice according to relevant regulations. Mapping to several syntaxes is provided in CEN/TS 16931-3 from subpart 2 onward.

4.2 Contents of the core invoice model

The core invoice model is based on the proposition that a quite limited, but nevertheless consists of a sufficient set of information elements which can be defined and support generally applicable invoice-related functionalities. These functionalities include invoice issuance and delivery, invoice validation, accounting, VAT reporting, payment and auditing. The core invoice model contains information elements that are commonly used and accepted, including those that are legally required.

If all organisations in Europe were to implement the core invoice model in their business information systems using the specified information elements, then sending, receiving and processing invoices electronically, without human intervention, would be possible. There would be no need for onerous pre-negotiated bilateral agreements between organizations on the actual semantic content of the invoice and its exchange. The only assumption is the existence of a normal business contract or trading agreement. The core invoice model supports a set of invoice functions, as specified in Clause 5 below.

The set of information elements that are contained in the core invoice model is commonly considered to consist of two parts: a legal part and a common part.

The legal part of the core invoice model supports the observance of both tax and commercial legal and regulatory requirements pertaining to electronic invoicing commonly in force throughout the EU.

The common part contains commonly used and accepted information elements that are not sector or country specific.

A specific information element may be correctly allocated to one or both parts. Therefore categorizing elements with respect to these parts in the semantic model is not considered to be meaningful.

To fulfil the requirements above, judgment has had to be made on the selection of the information elements to be included in the core invoice model. First, for the legal part requirements, the selection has been made regarding the information elements required on a mandatory basis by EU VAT Directives and individual state law, whether local VAT regulations, or any other local legal provision (regulatory, contractual company law, laws on business

documents, etc.). In some cases, those information elements that are exclusively confined to a single or very small number of countries and therefore fall outside the doctrine of 'commonly in force throughout the EU' have not been included in the core invoice model. Secondly, the elements selected to satisfy the requirements of the common part form a justifiable selection of requirements required in commercial practice.

An important criterion when to include an information element in the core invoice model that is above and beyond one that is legally required is whether it can be assumed that the buyer's information system can process (or otherwise handle) such an element. If the business information systems of most buyers are incapable of processing such an information element, that element should not be part of the core invoice model. If such an element is nevertheless required in a specific context, it should be contained within an extension to the core invoice model, either specific to a sector or country. The methodology to create extensions is described in CEN/TR 1693-5. When experience shows that an extension is frequently used, then such an extension could be added as information elements to the core invoice model in a later version rather than continuing to be handled in an extension.

4.3 How to use and extend the core invoice model

As stated in the previous subclause, the core invoice model is intended to be used for all generally applicable invoicing processes. In most situations, business partners would use the core invoice model exclusively and the invoices they send or receive would contain only structured information elements defined in the model. Where a dedicated field exists for a business term or piece of data, this field shall be used for the information content instead of using a textual field.

There are however circumstances where the trading partners may wish to: Either 1. restrict the information elements to be used in an e-invoice or 2. to provide additional information elements. The first requirement is satisfied using a Core Invoice Usage Specification (CIUS). The second requirement is satisfied using an extension specified in an Extension Specification.

In many trading situations, it may be appropriate to restrict the use of conditional information elements present in the core invoice model in some way to support automated processing. The use of a CIUS to specify these requirements is described in Clause 7 below. The CIUS is a specification that provides a seller with detailed guidance, explanations and examples, relating to the actual implementation and use of the information elements in the core invoice model in a specific trading situation.

Typically, a CIUS will be created by a contracting entity (buyer) in relation to its own supply chain or by a group of contracting entities wishing to achieve consistency in the way that the information elements in the core invoice model are to be used by sellers trading with an identified sector or community of buyers. The requirements set out in such a CIUS will be communicated to sellers or placed on a website, and may be included in the contractual documentation between the parties. Alternatively, a CIUS may be created by a group of sellers and agreed in turn by their buyer or buyers in the context of a specific industry or supply chain.

A CIUS is a set of usage guidelines or restrictions made to the core invoice model that will still produce an invoice instance that is fully compliant with the core invoice model set out in this document. That means that a receiver of an invoice document instance that has been created in compliance with a CIUS is still able to receive and process it in accordance with the rules defined for the core invoice model.

In some sectors or situations where there are specific additional information requirements, the required information may be conveyed in the form of unstructured text. Unstructured text has the drawback in that it cannot be processed automatically and therefore requires human intervention.

Alternatively, the specific information requirements can be implemented using an extension containing information elements that extend the core invoice model (See CEN/TR 16931-5 for the methodology applicable to the use of extensions). Any such extension shall not infringe or contradict the semantic definitions in the core invoice model. Only business partners that are part of such a sector or supply chain would be expected to be able to process the extensions. In these circumstances, it is possible to carefully define the required additional information elements, whilst still utilizing the core invoice model concept.

Some extensions are not specific to a single supply chain or industry sector, but may be specific to functions or business processes required by more than one sector. E.g. the vendor managed inventory (VMI) process has been implemented by, for example, the automotive, steel and printing industries. The VMI business process may require additional information elements, not present in the core invoice model. Clearly, similar functions and processes should consistently use the same information elements across Europe.

The development of sector specific or cross-sector extensions should be based on justified business requirements. These can only be gathered by industry experts, (private and public) sector organizations and their customers, who understand those requirements. The semantic model of these additional information elements will need to be defined and registered as an extension with the appropriate organization.

4.4 Compliance

4.4.1 General

Compliance to the core invoice model, can be measured at three levels:

— at the level of specifications;

— the actual implementation of a given sender or receiver; and

— the individual invoice instance documents.

Each of these levels is discussed in 4.4.2 to 4.4.4.

4.4.2 Compliance of the core invoice usage specifications

The core invoice usage specifications that are used in conjunction with the core invoice model shall themselves comply to the methodology and rules described in this guideline and expressed in the following criteria:

— the specification shall clearly state what business functions and/or legal requirements it is intended to support;

— the specification shall clearly state its issuer and responsible 'governor';

— the specification shall clearly state in what way the requirements of the CIUS differ from the core invoice model, either by documenting the difference only or by specifically pointing out what the differences are;

— the resulting invoice document instance shall be fully compliant to the core invoice model.

— the specification and, when relevant, its version shall be uniquely identifiable both for referencing and for identification in processing;

— the specification shall state its underlying specifications (the core invoice model as well as other specifications that it may build upon);