SLOVENSKI STANDARD
SIST-TS CEN/TS 16931-3-2:2018

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Elektronsko izdajanje računov - 3-2. del: Sintaksa povezav za račun in dobropis v skladu z ISO/IEC 19845 (LBM 2.1)

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

Elektronische Rechnungsstellung - Teil 3-2: Umsetzung in die Syntax ISO/IEC 19845 (UBL 2.1) Rechnung und Gutschriftsanzeige

Facturation électronique - Partie 3-2 : Correspondance syntaxique pour les factures et les avoirs utilisant l'ISO/IEC 19845 (UBL 2.1)

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

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This Technical Specification (CEN/TS) was approved by CEN on 30 July 2017 for provisional application.

The period of validity of this CEN/TS 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 CEN/TS can be converted into a European Standard.

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

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European foreword

This document (CEN/TS 16931-3-2:2017) has been prepared by Technical Committee CEN/TC 434 “Electronic invoicing”, the secretariat of which is held by NEN.

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.

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, including a methodology to be applied in the real environment

— CEN/TR 16931-6:2017, Electronic invoicing - Part 6: Result of the test of the European standard with respect to its practical application for an end user - Testing methodology

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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"[1]. Based on this recognition "The Commission wants to see e-invoicing become the predominant method of invoicing by 2020 in Europe."

As a means 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 (B2G), as well as the support for trading between economic operators themselves (B2B). In particular, it sets out the legal framework for the establishment and adoption of a European standard (EN) for the semantic data model of the core elements of an electronic invoice (EN 16931-1).

In line with Directive 2014/55/EU [1], and after publication of the reference to EN 16931-1 in the Oficial Journal of the European Union, all contracting public authorities and contracting entities in the EU will be obliged to receive and process an e-invoice as long as:

— it is in conformance with the semantic content as described in EN 16931:1;

— it is represented in any of the syntaxes identified in CEN/TS 16931-2, in accordance with the request referred to in paragraph 1 of article 3 of the Directive 2014/55/EU;

— it is in conformance with the appropriate mapping defined in the applicable subpart of CEN/TS 16931-3.

The semantic data model of the core elements of an electronic invoice – the core invoice model – as described in EN 16931-1 is based on the proposition that a limited, but sufficient set of information elements can be defined that supports generally applicable invoice-related functionalities.

This CEN Technical Specification CEN/TS 16931-3-2 defines the binding of the core elements of the invoice to ISO/IEC 19845 (UBL 2.1). Other subparts of this CEN Technical Specifications define the binding method (CEN/TS 16931-3-1) and map the core invoice model to other syntaxes such as UN/CEFACT XML (CEN/TS 16931-3-3) and ISO/IEC 9735 (UN/EDIFACT) (CEN/TS 16931-3-4).

By ensuring 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 different national rules and standards – and thus contribute to the goals set by the European Commission.

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

1 Scope

This CEN Technical Specification (TS) specifies the mapping between the semantic model of an electronic invoice, included in EN 16931-1 and the UBL 2.1 syntax (ISO/IEC 19845). For each element in the semantic model (including sub-elements or supplementary components such as Identification scheme identifiers) it is defined which element in the syntax is to be used to contain its information contents. Any mismatches between semantics, format, cardinality or structure are indicated.

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 16931-1, *Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice*

ISO/IEC 19845, *Information technology — Universal business language version 2.1 (UBL v2.1)*

3 Terms and definitions

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

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

3.5
business term
label assigned to a given information element which is used as a primary reference

3.6
core invoice model
semantic data model of the Core elements of an electronic invoice

3.7
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

3.8
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.

3.9
identification scheme
collection of identifiers applicable for a given type of object governed under a common set of rules

4 Syntax binding to UBL 2.1

4.1 Introduction

The Universal Business Language (UBL) is developed by the OASIS open standards consortium. OASIS is a non-profit, international consortium that drives the development, convergence and adoption of open standards for the global information society.

UBL is designed to provide a universally understood and recognized syntax for legally binding business documents and to operate within a standard business framework such as ISO 15000 (ebXML) to provide a complete, standards-based infrastructure that can extend the benefits of existing EDI systems to businesses of all sizes. UBL is freely available to everyone without legal encumbrance or licensing fees.

UBL is widely used around the world for procurement (e.g. ordering and electronic invoicing), sourcing (e.g. tendering and catalogues), replenishment (e.g. managed inventory) and transportation and logistics (e.g. waybills, forwarding instructions, and intermodal freight management). UBL provides the standards for the PEPPOL (Pan European eProcurement Online) network and public procurement initiatives in Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, and UK (NHS).

Version 2.1 of UBL has been approved for release as an ISO and IEC International Standard, and given the designation 'ISO/IEC 19845:2015'.

UBL schemas are modular, reusable, and extensible in XML-aware ways. As the first standard implementation of ebXML Core Components Technical Specification 2.01, the UBL Library is based on a conceptual model of information components known as Business Information Entities (BIEs). These components are assembled into specific document models such as invoice and order. These document models are then transformed in accordance with UBL Naming and Design Rules into W3C XSD schema syntax. This approach facilitates the creation of UBL-based document types beyond those specified in this release.

4.2 Data types

As stated, UBL messages are constructed using reusable Business Information Entities. The (data) typing mechanism in UBL also relies heavily on reuse of generic components, both within UBL, but also on the Core Component Technical Specification. Typically this has the following structure:

— The message specification (the invoice XSD) imports schema that specifies all the reusable Business Information Entities (expressed as XML elements);

— The message is constructed by using these BIE's;

— Each BIE (e.g. DocumentCurrencyCode) is based on a type with a similar name (e.g. DocumentCurrencyCodeType);

— Each type is based on one of the UBL "Unqualified Data Types" (e.g. CodeType);

— Each Unqualified Data Type is based on one of the Core Component Types (ccts:CodeType).

In the EN, each element is based on one of the seven specified 'semantic data types': Amount, Unit price amount, Quantity, Percentage, Identifier, Code, Date, Text, and Binary object. Some of these datatypes have attributes. In UBL, the "Unqualified Data Types" also have attributes, comparable with the datatypes in the EN.

When making a mapping from the EN to UBL, datatypes and their attributes (if applicable) have to be taken into consideration. For each element in the EN, it should be clear where to map the contents of the element, but also how to map the attributes. In most cases, an element from the EN with a specific datatype (e.g. a Code) is mapped to an element in UBL that has a comparable datatype (e.g. CodeType). There are however some exceptions. The table below shows what datatype mappings occur in the UBL mapping, and how often they occur

Table 1 — UBL data types

From (EN)	To (UBL)	#
Amount (A)	AmountType (A)	46
Code (C)	CodeType (C)	17
Code (C)	IdentifierType (I)	4
Code (C)	TextType (T)	1
Date (D)	DateType (D)	8
Identifier (I)	IdentifierType (I)	27
Identifier (I)	CodeType (C)	1
Percent (P)	PercentType (P)	4
Percent (P)	NumericType (Nb)	4
Quantity (Q)	QuantityType (Q)	2
Text (T)	TextType (T)	32
Text (T)	NameType (N)	25
Text (T)	IdentifierType (I)	4
Unit Price Amount (U)	AmountType (A)	3
Binary Object (B)	BinaryObjectType (B)	1
Document Reference Identitifier (O)	IdentifierType (I)	10

From (EN)	To (UBL)	#
Attribute (S)	Identifier (I)	14
Attribute (S)	Code (C)	1
Attribute (S)	Text (T)	1

Only two datatypes in the EN have attributes. For these datatypes the mapping is straight-forward: simply put the value in the XML element in UBL. For the datatypes that do have attributes (italic in the table above), a mapping is made to the relevant datatype (attributes) in UBL. The attributes marked in bold are mandatory.

These mappings are presented below.

Table 2 — UBL attributes

EN	UBL
Amount	AmountType
	currencyID
Unit Price Amount	AmountType
	currencyID
Quantity	QuantityType
Percentage	PercentageType
Code	CodeType
Identifier	IdentifierType
Scheme identifier	*schemeID*
Scheme version identifier	*schemeVersionID*
Binary Object	BinaryObjectType
Mime Code	***mimeCode***
Filename	*filename*

The amount data type in UBL has a mandatory attribute called currencyID. This attribute is used to define the currency of the amount. In the EN, the currency of the amount is defined as a single business term, the BT-5 and defines that only one currency shall be used in the Invoice except for the Total VAT amount in accounting currency (BT-111) in accordance with article 230 of Directive 2006/112/EC on VAT. In consequence, every currencyID attribute in the UBL AmountType elements shall map to the BT-5 Invoice currency code except for the currencyID in /Invoice/cac:TaxTotal/cbc:TaxAmount that can mapped to BT-5 or to BT-6 if exists.

The EN 16931-1 semantic data model uses semantic data types that consist of more than one information entity. For instance with the Identifier data type it is possible to accompany the content with a corresponding Scheme identifier. The EN 16931-1 does not apply unique identifiers to those additional entities. In order to clearly identify those components in the following syntax mapping, those additional entities are numbered by adding a dash and an additional number to the original ID. For example the Scheme identifier that corresponds to the Buyer identifier (BT-46) gets the unique ID BT-46-1. As UN/CEFACT XML fully supports the codelists referenced by the Semantic Data Model (SDM) the corresponding codes to the semantic requirements of the latest published lists can be used without any additional mapping.

4.3 Mapping the Invoice model

Table 3 — Semantic model to UBL invoice syntax elements mapping (normative)

ID	Level	Card.	BT	Desc.	DT	Path	Type	Card.	Match	Rules
BT-1	1	1..1	Invoice number	A unique identification of the Invoice.	I	/Invoice/cbc:ID	I	1..1		
BT-2	1	1..1	Invoice issue date	The date when the Invoice was issued.	D	/Invoice/cbc:IssueDate	D	1..1		
BT-3	1	1..1	Invoice type code	A code specifying the functional type of the Invoice.	C	/Invoice/cbc:InvoiceTypeCode	C	0..1	CAR-2	
BT-5	1	1..1	Invoice currency code	The currency in which all Invoice amounts are given, except for the Total VAT amount in accounting currency.	C	/Invoice/cbc:DocumentCurrencyCode	C	0..1	CAR-2	
BT-6	1	0..1	VAT accounting currency code	The currency used for VAT accounting and reporting purposes as accepted or required in the country of the Seller.	C	/Invoice/cbc:TaxCurrencyCode	C	0..1	SEM-2	

ID	Level	Card.	BT	Desc.	DT	Path	Type	Card.	Match	Rules
BT-7	1	0..1	Value added tax point date	The date when the VAT becomes accountable for the Seller and for the Buyer in so far as that date can be determined and differs from the date of issue of the invoice, according to the VAT directive...	D	/Invoice/cbc:TaxPointDate	D	0..1	SEM-2	
BT-8	1	0..1	Value added tax point date code	The code of the date when the VAT becomes accountable for the Seller and for the Buyer.	C	/Invoice/cac:InvoicePeriod/cbc:Description Code	C	0..1	SEM-2	
BT-9	1	0..1	Payment due date	The date when the payment is due.	D	/Invoice/cbc:DueDate	D	0..1		
BT-10	1	0..1	Buyer reference	An identifier assigned by the Buyer used for internal routing purposes.	T	/Invoice/cbc:BuyerReference	T	0..1		
BT-11	1	0..1	Project reference	The identification of the project the invoice refers to.	O	/Invoice/cac:ProjectReference/cbc:ID	I	0..n	CAR-3	
BT-12	1	0..1	Contract reference	The identification of a contract.	O	/Invoice/cac:ContractDocumentReference/cbc:ID	I	0..n	CAR-3	

ID	Level	Card.	BT	Desc.	DT	Path	Type	Card.	Match	Rules
BT-13	1	0..1	Purchase order reference	An identifier of a referenced purchase order, issued by the Buyer.	O	/Invoice/cac:OrderReference/cbc:ID	I	0..1		
BT-14	1	0..1	Sales order reference	An identifier of a referenced sales order, issued by the Seller.	O	/Invoice/cac:OrderReference/cbc:SalesOrderID	I	0..1		
BT-15	1	0..1	Receiving advice reference	An identifier of a referenced receiving advice.	O	/Invoice/cac:ReceiptDocumentReference/cbc:ID	I	0..n	CAR-3	
BT-16	1	0..1	Despatch advice reference	An identifier of a referenced despatch advice.	O	/Invoice/cac:DespatchDocumentReference/cbc:ID	I	0..n	CAR-3	
BT-17	1	0..1	Tender or lot reference	The identification of the call for tender or lot the invoice relates to.	O	/Invoice/cac:OriginatorDocumentReference/cbc:ID	I	0..n	CAR-3	
BT-18	1	0..1	Invoiced object identifier	The identification of the call for tender or lot the invoice relates to.	I	/Invoice/cac:AdditionalDocumentReference/cbc:ID	I	0..n	CAR-3	with cbc:DocumentTypeCode=130
BT-18-1	2	0..1	Scheme identifier	The identification scheme identifier of the Invoiced object identifier.	S	/Invoice/cac:AdditionalDocumentReference/cbc:ID/@schemeID	I	0..1		Code list UNTDID 1153

ID	Level	Card.	BT	Desc.	DT	Path	Type	Card.	Match	Rules
BT-19	1	0..1	Buyer accounting reference	A textual value that specifies where to book the relevant data into the Buyer's financial accounts.	T	/Invoice/cbc:AccountingCost	T	0..1		
BT-20	1	0..1	Payment terms	A textual description of the payment terms that apply to the amount due for payment (Including description of possible penalties).	T	/Invoice/cac:PaymentTerms/cbc:Note	T	0..n	CAR-3	
BG-1	1	0..n	INVOICE NOTE	A group of business terms providing textual notes that are relevant for the invoice, together with an indication of the note subject.						
BT-21	2	0..1	Invoice note subject code	The subject of the following textual note.	C	/Invoice/cbc:Note	T	0..n	SYN-2, SEM-2	Use #subject code# Code list UNTDID 4451
BT-22	2	1..1	Invoice note	A textual note that gives unstructured information that is relevant to the Invoice as a whole.	T	/Invoice/cbc:Note	T	0..n		
BG-2	1	1..1	PROCESS CONTROL	A group of business terms providing information on the						

ID	Level	Card.	BT	Desc.	DT	Path	Type	Card.	Match	Rules
				business process and rules applicable to the						
BT-23		0..1	Business process type	Identifies the business process context in which the transaction appears, to enable the Buyer to process the Invoice in an appropriate way.	T	/Invoice/cbc:ProfileID	I	0..1		
BT-24	2	1..1	Specification identifier	An identification of the specification containing the total set of rules regarding semantic content, cardinalities and business rules to which the data contained in the instance document conforms.	I	/Invoice/cbc:CustomizationID	I	0..1	CAR-2	
BG-3	1	0..n	PRECEDING INVOICE REFERENCE	A group of business terms providing information on one or more preceding Invoices.		/Invoice/cac:BillingReference/cac:InvoiceDocumentReference		0..n	CAR-3	
BT-25	2	1..1	Preceding Invoice number	The identification of an Invoice that was previously sent by the Seller.	O	/Invoice/cac:BillingReference/cac:InvoiceDocumentReference/cbc:ID	I	1..1		