

English Version

Electronic invoicing - Part 2: List of syntaxes that comply with EN 16931-1

Facturation électronique - Partie 2: Liste de syntaxes conformes avec EN 16931-1

Elektronische Rechnungsstellung - Teil 2: Liste der Syntaxen, die die EN 16931-1 erfüllen

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European foreword

This document (CEN/TS 16931-2:2017) 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 [2].

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 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
- CEN/TR 16931-6¹ 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 organizations of the following countries are bound to announce 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.

¹ In preparation.

Introduction

The European Commission states 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” [3]. 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 [2] 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 support for the 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 16931-1:2017).

The core invoice model as described in EN 16931-1:2017 is based on the proposition that a limited, but sufficient set of information elements can be defined that supports generally applicable invoice-related functionalities.

In line with Directive 2014/55/EU [2], and after publication of the reference to EN 16931-1:2017 in the Official 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 16931-1:2017;
- 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.

This CEN Technical Specification provides the conclusions following the assessment of the following four syntaxes:

- UN/CEFACT Cross Industry Invoice XML message as specified in XML Schemas 16B (SCRDM - CII);
- UN/EDIFACT INVOIC message as present in the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) [8] directory version D.14B [10];
- UBL invoice and credit note messages as defined in ISO/IEC 19845:2015;
- Financial Invoice FinancialInvoiceV01 message [9] based on ISO 20022.

The assessment was based on the criteria provided by the Standardization Request [1] issued in accordance with the provisions of Article 3 of Directive 2014/55/EU [2].

EN 16931-1:2017 and its ancillary standardization deliverables will enable semantic interoperability of electronic invoices, and help remove market barriers and obstacles to trade deriving from the existence of different national rules and standards – and thus contributing to the goals set by the European Commission.

1 Scope

This Technical Specification provides in Clause 7 the list of syntaxes that complies with and allows to express syntactically the core invoice model as specified in EN 16931-1:2017, according to the selection criteria provided by the Standardization Request [1].

The selection of the syntaxes also derived from the Standardization Request [1]. It states that, to limit costs on public authorities, the list should ideally not exceed five syntaxes. Four syntaxes were taken into account and assessed according to criteria provided by the Standardization Request [1].

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

ISO/IEC 19845:2015², *Information technology — Universal business language version 2.1 (UBL v2.1)*

UN/CEFACT *Cross Industry Invoice in XML Schemas 16B (SCRDM - CII)*³

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16931-1:2017 apply.

4 Approach

EN 16931-1:2017 defines a semantic model of the core elements of an electronic invoice. The purpose of the core semantic invoice model is to facilitate computer applications to generate electronic invoices and then for other applications to receive and process those invoices automatically. These electronic invoices are electronically transmitted and received, without the need for prior bilateral agreement on the content or elements of the invoice. However, in order to exchange electronic invoices, the model elements need to be represented in a “syntax”. A syntax specification allows the computer systems to identify the content (element values) as part of a data stream.

CEN/TC 434 identified a short list of syntaxes based on the syntaxes mentioned in the Standardization Request [1]: UN/CEFACT XML, UN/EDIFACT [8], OASIS UBL, and Financial Invoice (based on ISO 20022) [9].

Table 1 shows the technology stack of the four syntaxes and respective versions by illustrating the base syntax, the names and versions of e-Invoicing messaging standards as well as the code-list versions.

² Available also as OASIS UBL v2.1 at <http://docs.oasis-open.org/ubl/os-UBL-2.1/UBL-2.1.pdf>

³ Available at http://www.unece.org/cefact/xml_schemas/index

Table 1 — Technology stack for syntaxes and versions

Base syntax	XML 1.0	ISO 9735 (all parts) [8] (UN/EDIFACT) S4	XML 1.0	XML 1.0
e-Invoicing messaging standard	Cross Industry Invoice	INVOIC	Invoice and Credit Note	Financial Invoice
e-Invoicing messaging standard version	based on directory XML Schemas 16B (SCRDM - CII)	based on directory D14B	2.1	v01
Code list versions				
Codelists based on UN/CEFACT	D16B [4] or up	Applicable to all syntaxes		
Codelists based on ISO	2015 or up	Applicable to all syntaxes		
Other (new) codelists	2016 or up	Applicable to all syntaxes		
UN/CEFACT recommendation 20 Revision 12	Applicable to all syntaxes			
UN/CEFACT recommendation 21 Revision 9	Applicable to all syntaxes			

5 Assessment criteria

The Standardization Request [1] provides a set of criteria (detailed in Table 2) that establishes the basis for the assessment of the syntaxes. Each of the syntaxes has been assessed according to these criteria.

Table 2 — The Standardization Request Set of Criteria (Requirements)

ID	Requirements
1	Comply with the core invoice semantic data model specified in EN 16931-1:2017
2	Be international, open and free to use
3	Have a governance and sustainability model
4	Be part of a coherent set of standards and technical specifications to support the broader e-procurement process or the broader e-invoicing supply chain
5	Be widely used in the EU or worldwide
6	Be used in production environments (and not just test) by both the public and the private sector
7	Reflect well-accepted technology and aim to incorporate the latest technological developments considered to be state of the art
8	Have guidelines, code lists, validating tools freely available to ease implementation by ICT vendors and suppliers
9	Have a set of official, freely available syntax-dependent artefacts for validation (the XML Schema or Schematron) to support tool independent validation
10	Have an official updating and versioning strategy that takes due account of backward compatibility, as well as appropriate guidelines for customisation that explain how to extend and restrict the syntax

Guidance has been taken from agreed Commission objectives that have been documented in Communications such as COM (2013) 453 Final.

6 Assessment Results

6.1 UN/CEFACT XML Assessment

The assessed version is XML Schemas 16B (SCRDM - CII).

UN/CEFACT XML business message standards are developed within UN/CEFACT⁴. This guarantees an international focus, openness in the process and free usage, as this is the mission of UN/CEFACT and the policy of UNECE as a global forum⁵. For all their published specifications and standards, the Intellectual Property Rights (IPRs) are owned by the UN that guarantees they are open free use by everyone.

UN/CEFACT, a subsidiary intergovernmental body of the UNECE Committee on Trade, is mandated to develop a programme of work of global relevance to achieve improved worldwide coordination and cooperation in the areas of trade facilitation and electronic business, covering both commercial and government business processes that can foster growth in international trade and related services. It encourages close collaboration between governments and private business to secure the interoperability for the exchange of information between the public and private sector.

UN/CEFACT XML and all underlying standards (i.e. Core Component Methodology, Library, Message Assembly, XML Naming and Design Rules) are maintained on a regular basis by UN/CEFACT, within the United Nations framework of the Economic and Social Council, the United Nations Economic Commission for Europe (UNECE). The maintenance process is documented, applied and governed. All relevant procedural documents are available. Open participation for all interested stakeholders is ensured through the national delegations, nominated by each UN Member. In addition, UN recognized organisations are able to participate in the development and maintenance process.

The UN/CEFACT Cross Industry Invoice (CII) published as part of UN/CEFACT XML embeds a semantic data model. This semantic data model has been adapted to European needs and formed the basis for the CWA 16356 (all parts) (UN/CEFACT CII Implementation Guide), commonly known as MUG [5][6]. The semantic model of CWA 16356 (all parts) [6] was one of the sources for building the core invoice model contained in EN 16931-1:2017.

The European Commission has considered UN/CEFACT XML an important technical solution in the strive for digitalisation. In 2009, the European Commission Expert Group on e-invoicing recommended the adoption of the UN/CEFACT Cross Industry Invoice by both the private and public sector in the Final Report of the European Commission Expert Group on e-invoicing [4].

Based on the evaluation, it is concluded that UN/CEFACT XML Schema 16B (SCRDM - CII) is on the list of syntaxes, which comply with EN 16931-1:2017.

6.2 UN/EDIFACT Assessment

UN/EDIFACT comprises a set of internationally agreed standards, directories, and guidelines for the electronic interchange of structured data based on ISO 9735 (all parts) [8].

The assessed version is D14B [10].

UN/EDIFACT, as much as UN/CEFACT XML, is developed and maintained by UN/CEFACT and the information related to governance, support, etc. provided in 6.2 applies to UN/EDIFACT equally.

⁴ <http://www.unece.org/cefact/>

⁵ www.cen.eu, www.unece.org/cefact.html

UN/CEFACT, a subsidiary intergovernmental body of the UNECE Committee on Trade, is mandated to develop a programme of work of global relevance to achieve improved worldwide coordination and cooperation in the areas of trade facilitation and electronic business, covering both commercial and government business processes that can foster growth in international trade and related services. It encourages close collaboration between governments and private business to secure the interoperability for the exchange of information between the public and private sector.

The first UN/EDIFACT directory was published in 1988, and has since then been widely implemented by many private businesses around the world in various business sectors. It is however not commonly used by public sector entities. It therefore represents an important solution in B2B transactions and it is in a few cases also accepted by governmental agencies.

In UN/CEFACT, standard messages using the UN/EDIFACT syntax (ISO 9735) developed by various working groups across the globe to facilitate administration, commerce and transport. In the UNECE Trade Facilitation process, formal guidance is provided by publishing Recommendations. These Recommendations cover a wide variety of topics but some are specific to electronic message.

The European Model EDI Agreement, contained in Annex 1 of the Commission Recommendation 94/820/EC [7], relating to the legal aspects of electronic data interchange states in Article 9.4 that UN/EDIFACT should be used and agreed by economic operators and organizations conducting their trading activities by EDI. The publication of the Recommendation started the implementation and use of UN/EDIFACT in the private sector.

Based on the evaluation, it is concluded that UN/EDIFACT [8] D14B [9] is not on the list of syntaxes, which comply with EN 16931-1:2017.

6.3 OASIS UBL Assessment

The Universal Business Language (UBL) ISO/IEC 19845 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.

The assessed version is UBL 2.1.

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) platform and public procurement initiatives in Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, and UK.

Over the past 5 to 10 years, UBL has become a syntax utilized and mandated by many governmental agencies in Europe and it is also applied in initiatives like European Commission Open ePrior⁶ and

⁶ <https://joinup.ec.europa.eu/software/openeprior/home>

ePrior is using UBL conformant document instances, even though the UBL documents are not 100% identical (subsets of the document model). As for the future position of e-Prior towards UBL, UBL customization will not be used anymore when e-Prior will go for UBL 2.1.

openPEPPOL⁷. UBL has been identified for referencing in public procurement by the Commission Implementing Decision 2014/771/EU [11] after positive evaluation by the Multi-Stakeholder Platform on ICT Standardization⁸.

Based on the evaluation, it is concluded that UBL 2.1 is on the list of syntaxes, which comply with EN 16931-1:2017.

6.4 Financial Invoice (based on ISO 20022) Assessment

The Financial Invoice belongs to a set of Trade Services messages⁹ developed based on the ISO 20022. A Registration Authority under the governance of ISO/TC 68 takes care of the development and maintenance process. The Financial Invoice version 01 supports the provision of financial and related services where there is a requirement to exchange invoice information.

The assessed version is ISO 20022 based Financial Invoice version 01.

This version supports the provision of financial and related services where there is a requirement to exchange invoice information. While the prime function of the Financial Invoice message is a request from the seller to the buyer for payment, the Financial Invoice message can also serve to evidence an invoice in support of a financial service such as invoice factoring, letters of credit, and bank payment obligations, to enable Web based services such as electronic bill payment and presentment, and as the basis to transfer invoice information via third parties such as e-invoicing service providers.

The Financial Invoice (based on ISO 20022) is complying with many criteria and is part of a message set covering the financial supply chain. It is however rarely implemented outside the financial sector and not covering the broader e-procurement process. Mapping of some elements of the core semantic data model to the Financial Invoice is currently impossible.

No maintenance activities of the Financial Invoice will be performed by the governing entity in the future.

Based on the evaluation, it is concluded that the ISO 20022 based Financial Invoice version 01 [9] is not on the list of syntaxes, which comply with EN 16931-1:2017.

7 List of syntaxes which comply with EN 16931-1:2017

Based on the assessment, the list of the limited number of syntaxes, which comply with EN 16931-1:2017 shall include:

- UN/CEFACT Cross Industry Invoice XML message as specified in XML Schemas 16B (SCRDM - CII)
- UBL invoice and credit note messages as defined in ISO/IEC 19845:2015

It is expected that the list above would lead to simplification and facilitate the practical application of electronic invoicing in procurement.

The simplification of electronic invoicing needs to be an overriding concern, leading to economic efficient solutions and lower costs to society and a functional electronic invoicing system for public procurement requires the practical application by thousands of contracting authorities. The question whether authorities have the capacity to deal with the implementation of the Directive's provisions, in

⁷ <http://www.peppol.eu>

⁸ <http://ec.europa.eu/DocsRoom/documents/5722/attachments/1/translations/en/renditions/native>

⁹ http://www.iso20022.org/trade_services_messages.page

particular of small local authorities, was a key concern in the selection of the syntaxes included in the list.

The list provided by this document is in accordance with the request referred to in paragraph 1 of Article 3 of the Directive 2014/55/EU.

It is worth noting that the Directive 2014/55/EU:

- does not prescribe which syntax should be used for electronic invoicing in procurement. It only states which syntaxes Contracting Authorities have to accept. It is perfectly possible and quite likely that other syntaxes, not included on the list above, will continue to be used, also for cross-border exchanges, especially where widespread national or local practice already exists;
- leaves no room for Contracting Authorities to choose which ones to accept between the syntaxes that are included in the list that will be published in the Official Journal of the European Union, further to Article 3 of the Directive. Article 7 clearly states that electronic invoices corresponding to the standard and to any syntax in the published list shall be received and processed by Contracting Authorities and Contracting Entities in the EU. Any derogation from this rule would violate the Directive.

Bibliography

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