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Chamber of Commerce and Industry of Slovenia

eSLOG 2.0

General instructions

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English version

eSLOG 2.0 General instructions for electronic order, electronic order response and electronic despatch advice

Slovenian National eBusiness Centre

READINESS OF SLOVENIAN E-INVOICING ROSE 2

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Introduction

In 2001, at the initiative of companies, the Chamber of Commerce and Industry of Slovenia started implementing the eSLOG project "Electronic business of the Slovene economy". The project involved experts from over 90 companies with the aim of preparing and enforcing e-business standards for companies, which include a purchase order, despatch advice and invoice in .XML format. As part of the eSLOG project, the eSLOG 1.3 standards were published, which after the year 2003 began to be used for business-to-business transactions. The first to start using eInvoices were companies that issue many invoices: communication operators, energy companies and companies within retail chains. After 2005, eSLOG 1.5 eInvoices began to be widely used in Slovenia in other companies as well. Based on the experience from the practice of using eInvoices in Slovenia, we supplemented the eInvoice standard and added parameters for tax certification of invoices to the eSLOG 1.6.1 standard, which was developed in 2015.

The ROSE "Readiness Of Slovenian e-Invoicing" project was established to implement the European standard for eInvoice in Slovenia in the public sector and the economy. One of the main objectives of the measure was to upgrade the eSLOG eInvoice standard to version 2.0, which is in line with the European semantic standard EN 16931-1. In the preparation of the eSLOG 2.0 eInvoice standard, the UN / EDIFACT INVOIC syntax was used as the basis, which was also the basis for the preparation of previous versions of the eSLOG standard.

With the ROSE 2 "Readiness Of Slovenian e-Invoicing 2" project, the remaining eSLOG documents were also upgraded to version 2.0: order, order response and despatch advice.

1 Scope

The purpose of the document is to define general instructions for the introduction of order messages, order response and despatch advice, and to enable efficient implementation and greater use of electronic commerce in the ordering process.

These general instructions describe the broader aspect of eProcurement and the context of the eSLOG 2.0 standards. Details of individual documents types are described in separate documents, which also serve as technical documentation for their implementation.

2 Normative references

The eSLOG 2.0 standards are based on generally accepted standards that are also used in the international environment. These were selected based on experience in the field of e-commerce and considering good practices emerging in the domestic market, in Europe and beyond.

The eSLOG 2.0 standards for the electronic order, electronic order response and electronic despatch advice are based on the EANCOM 2002 Syntax 4 standard, which is backed by the global e-commerce organization GS1. The standards are defined in separate documents, while this document explains the bigger picture and provides explanations for understanding the standards that are common to all three documents.

- eSLOG 2.0 Electronic Order
- eSLOG 2.0 Electronic Order Response
- eSLOG 2.0 Electronic Despatch Advice

3 Terms and definitions

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

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

3.2
Electronic order
A document specifying details for goods or services ordered that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing.

3.3
Electronic order response
A document responding to an electronic order, that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing.

3.4
Electronic despatch advice
A document specifying details for goods despatched or ready for despatch, that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing

3.5
Electronic invoice
An invoice that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing.

3.6
Semantic data model
A structured set of logically interrelated information elements.

3.7
Information element
A semantic concept that can be defined independently from any presentation in a syntax.

3.8
Structured information element
An information element that can be processed automatically.

3.9
Syntax
Machine-readable language or dialect used to represent the information elements contained in an electronic document (e.g. an electronic invoice).

3.10
Business term – BT
A label assigned to a given information element that is used as a primary reference.

3.11
Business terms group – BG
Groups that combine two or more business terms in content.

3.12
Segments
Data carriers in business terms.

3.13
Message structure
Segments presented in a sequence.

3.14
Branching diagram
The hierarchical display of segments.

4 Benefits of electronic ordering

Given the successful implementations in the automation of electronic invoicing, there is a growing interest in the economy and public administration in automating the entire ordering process – from order to invoice. Especially in recent years, purchasing processes in the economy have changed greatly. In the management of production chains, the principles of lean production are gaining ground. This means that inventories are reduced, that suppliers practically deliver their products to production lines, and therefore the time between order and delivery is shortened. Even large retail companies can no longer make orders in paper form due to the large number of suppliers and the reduction of intermediate warehouses. Therefore, automated ordering with electronic documents is becoming a reality and increasingly unavoidable, as all these processes can no longer be performed via paper ordering. The basic benefits of e-commerce over paper commerce are as follows:

- Lower transaction and administrative costs
- Faster business with shorter response times
- Greater traceability over the order-delivery process

- Less errors and faster resolution of complaints
- Shorter payment cycles
- Possibility of automation

Other benefits of electronic ordering include:

- For budget users, the use of electronic procurement is an important step towards the automation of public procurement.
- Companies can offer their trading partners the possibility of uniform exchange of standardized electronic documents and thus enable the realization of all orders in electronic form.
- For companies, electronic ordering is an opportunity to access the global market, where the use of electronic orders is often a condition for Slovenian companies to do business with foreign, especially larger manufacturing and trading companies.
- Large companies can automate business with their suppliers and customers by using electronic documents.
- Electronic ordering can be used as a basis for optimizing internal ordering and invoicing procedures.

5 Business processes supported by eSLOG documents

Any organization in the public or private sector depends on materials and services supplied by other companies or organizations. Purchasing is therefore one of the basic functions of every company. Most often, the goal of procurement is defined as the supply of the right materials or services, in the right quantity, at the right time, in the right place, from the right source, at the right price.

The procurement process on the part of the organization as a customer usually consists of the following phases or stages:

1. Preparatory phase
    a) Identification of procurement needs from a technical and commercial point of view
    b) Offer requests
    c) Offer analysis and supplier selection
    d) Negotiation and conclusion of a contract
2. Implementation phase
    a) Ordering
    b) Fulfilling the order
    c) Acceptance of goods and resolution of any complaints
    d) Payment based on supplier's invoice

The first phase of the purchasing process is usually carried out only when the supplier is first selected, when the company decides on new purchasing materials, products, services, etc. The steps of the second phase, however, are usually performed repeatedly at regular purchases. As the agreement with the supplier has already been concluded and the details have been harmonized at this stage, here the possibility of automation and optimization arises.

In an automated process, ordering can take place automatically, as the information system can detect a reduction in stock, automatically prepare an order and send it to the supplier. The supplier's information system receives the message and can, depending on the terms of delivery and payment defined in the contract, automatically send the order response and delivery details when the goods are ready. The customer receives the despatch advice with which they can prepare for the collection of goods on a specific day, at a specific time at a specific collection point.

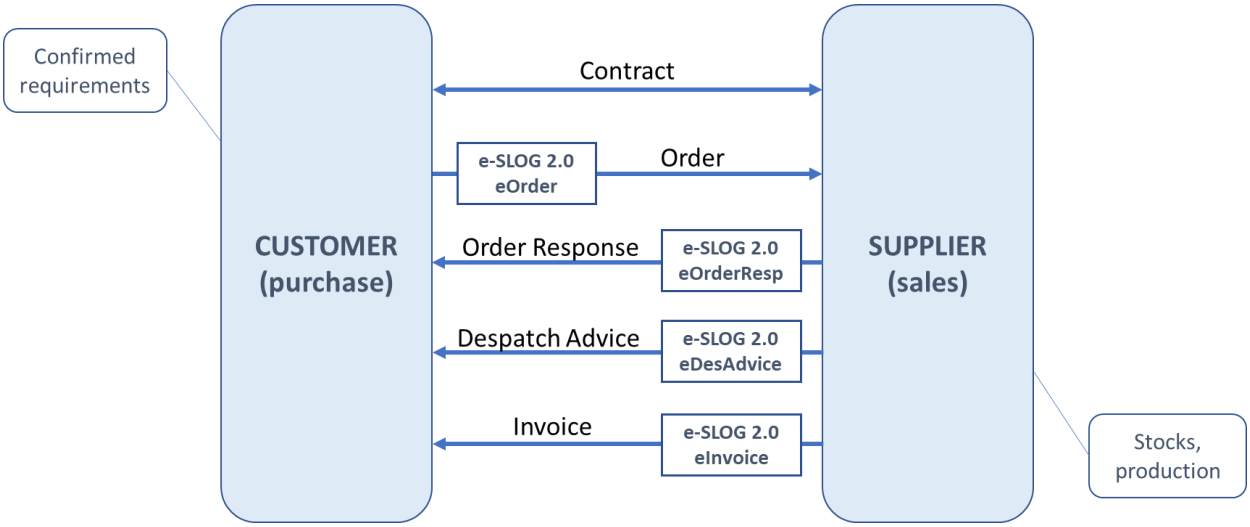

Figure 1: Demonstration of the use of the eSLOG 2.0 documents in the process of ordering segment data

However, in order for this process to run automatically, the customer and the supplier must, in addition to prices and other business parameters, also coordinate data, such as item codes, location codes, units of measure, etc. In addition, they must also agree on the structure of the messages and the method of exchange of electronic documents.

As part of the business procurement process, the eSLOG standards define the structures of electronic document messages for the implementation of the following steps:

- **The eSLOG 2.0 Electronic Order** is an electronic document that the customer sends to the supplier and usually contains the specification of the required materials or services, required quantities, delivery times, delivery locations and other parameters required for delivery.
- **The eSLOG 2.0 Electronic Order Response** is an electronic document that the supplier sends to the customer to confirm the order or to notify of any changes in the delivery.
- **The eSLOG 2.0 Electronic Despatch Advice** is an electronic document with which the supplier sends data on the actual delivery to the customer upon delivery.
- **The eSLOG 2.0 Electronic Invoice** is an invoice for a service provided or goods delivered, issued in electronic form.

These electronic documents contain references to interrelated documents. This enables the creation of both the next document in the chain, and the automated linking of documents in the customer's and supplier's information system.

5.1 The "one order, one order response, several despatch advices" principle

For the purpose of promoting good business practices, the eSLOG 2.0 standards stipulate that each order is responded to with one order response, and several deliveries can be made for the realization of the order.

5.2 Indication of items

The order response should always state and refer to all items listed in the order. This is independent of both the type of order and the response to the order that we communicate with the order response. Regardless of whether the order is accepted, rejected or amended in whole or in part. This ensures that the customer has comprehensive information on the response to the order and can be sure that there were no errors in the transmission of the message.

However, only the items related to the delivery in question are always entered on the despatch advice, independently of the other items on the order.

6 Semantic data model

6.1 Introduction

All eSLOG 2.0 standards have business terms and groups of business terms, which represent the semantic data model of electronic documents and their connections, as well as the business rules necessary to ensure the integrity and consistency of data in an individual document.

It is the responsibility of the issuer of the document to ensure that the document complies with the rules laid down by the relevant legislation, including the requirements related to the protection of personal data and the rules stated as part of the business relationship between seller and buyer.

The overview of the business terms contained in the semantic model is explained in detail in the documentation for each document.

The basic purpose of the eSLOG 2.0 standards is that business partners do not have to consult and agree on the content or technical form for the business dates stated in the documents.

6.2 Legend

Each business term and the groups of business terms that make up the semantic data model are described in the standard documentation, separately for each document type. Business systems should be able to display all business terms covered by the eSLOG 2.0 standards. This does not mean that it is self-evident that the business system also supports all the processes listed in the standard. The business partners mutually agree on the use of the processes listed in the eSLOG 2.0 standard.

The information elements of the eSLOG standards are named after the European standard for eInvoice EN 16391. They are marked with the following abbreviations:

- *Business Term* (BT) – information element
- *Business Terms Group* (BG) – a group of information elements
- *Business Rule* (BR)

NOTE: Business term groups (BG) only connect individual business terms in terms of content. Business term groups do NOT contain data.

NOTE: Business terms do not necessarily follow each other in the order in which they appear on the document.

The following information is provided for each business term:

- Level: Indicates at which level in the model the business term appears:

- +: The first level of the model;
- ++: The second level of the model. The business term (or group of business terms) is part of a group of business terms defined at the first level of the model;
- +++: The third level of the model. The business term (or group of business terms) is part of a group of business terms defined at the second level of the model;
- ++++: The fourth level of the model. The business term (or group of business terms) is part of a group of business terms defined at the third level of the model.

- Cardinality: It is used to indicate whether a business term (or group of business terms) is mandatory or conditional and whether it is repeatable. There are the following cardinalities:

  1..1 Mandatory information, which must always be present and may only occur once.

  EXAMPLE: Order BT-3: A unique order number must be present on each order.

  1..n Mandatory information, which must always be present and may occur more than once.

  EXAMPLE: Order BG-11: Each order must have at least one item, it can also have several.

  0..1 Any information that can occur no more than once.

  EXAMPLE: Order BT-53: Items on the order may have a written description of the item. As the item can also be defined only by a code, the item description is not mandatory. Therefore, it is consistent with the semantic model even if this information is not on the order.

  0..n Any information that can occur multiple times.

  EXAMPLE: The BG-12 order forms the item identification. There can be several identifications (for example, both the customer code and the supplier code can be written), but there can also be none (when the item is defined by a GTIN).

  If the cardinality n (arbitrary repetition) is marked for a business term or group of business terms, it does not necessarily mean that the repetition is arbitrary. The .XSD scheme specifies the actual maximum number of iterations. Restrictions in the .XSD scheme are also necessary to ensure that the order remains in line with other international standards (EDIFACT), on which eSLOG 2.0 is based.

  EXAMPLE: Dates on the order (BT-5, BT-6 and BT-7) have a cardinality of 1..n, which stipulates that at least one date must be entered on the order (date of issue (BT-5) is always mandatory), and the total number of all dates is unlimited. However, the .XSD scheme shows that only 35 dates are allowed.

  As can be seen from the example above, repetitions are limited to a specific number, but the value is such that in practice it should meet all needs.

  Data with a cardinality of 0..1 or 0..n does not necessarily mean that it is optional. Such cardinality is contained in the business terms which are not obligatory in all processes and cases.

  EXAMPLE: If you enter the GTIN number of the item (BT-44), the record of the supplier's item code (BT-50, BT-51, BT-52) is not required. However, if the GTIN number of the item is not entered, the entry of the supplier's item code (BT-50, BT-51, BT-52) may be mandatory.

- Business term: Name of the information element.

- Note on use: Clarification of information on how the information element is used or can be used.

6.3 Decimal numbers

According to the ISO/TS 20625:2002 standard, a comma (,) and a dot (.) can be used for decimal separators. Decimal numbers (amounts, prices, quantities, etc.) also do not have a limited number of decimal places. As a result, the interpretation of decimal numbers could be ineffective. Due to the recorded risks, only the notation of decimal numbers with a dot as the decimal separator (.) is enabled in the eSLOG 2.0 scheme. No additional punctuation is recorded.

6.4 Syntactic adaptations of the ISO/TS 20625:2002 standard

To simplify and allow the unique definition of XPath expressions, the .XSD scheme has been adapted so that the C_C076 element, which is a sub-element of the S_COM element, can occur only once and not more than three times.

7 Message structure

The eSLOG 2.0 documentation defines the document structure and the connection of individual document segments with the semantic model. The message is composed of segments, and the obligation to enter an individual segment or element is determined by the codes M (Mandatory), R (Required), C (Conditional) and D (Dependent).

NOTE. Four (4) items are shown in the manual for ease of understanding. Each order must contain at least one item. In the documentation, the first item is listed as mandatory, and the remaining ones, which are easier to understand, are listed as conditional.

M (mandatory) The M code indicates all segments and elements whose mandatory entry is defined in the EDIFACT standard.

R (required) The R code indicates all segments and elements whose entry was subsequently marked as mandatory.

C (conditional) The C code indicates all segments and elements whose entry is conditional.

D (dependent) The D code indicates all segments and elements whose input depends on the input of other segments or elements.

The orderer must ensure that all legal conditions are met when the order is issued and that it follows the instructions from the semantic model.

The segments are presented in sequence. The following information can be deduced from the composition:

1) Segment label.
2) Segment record obligation.
3) Relation with the parent segment.
4) Number of repetitions.
5) Sequence number of the segment in the documentation.
6) Segment name.

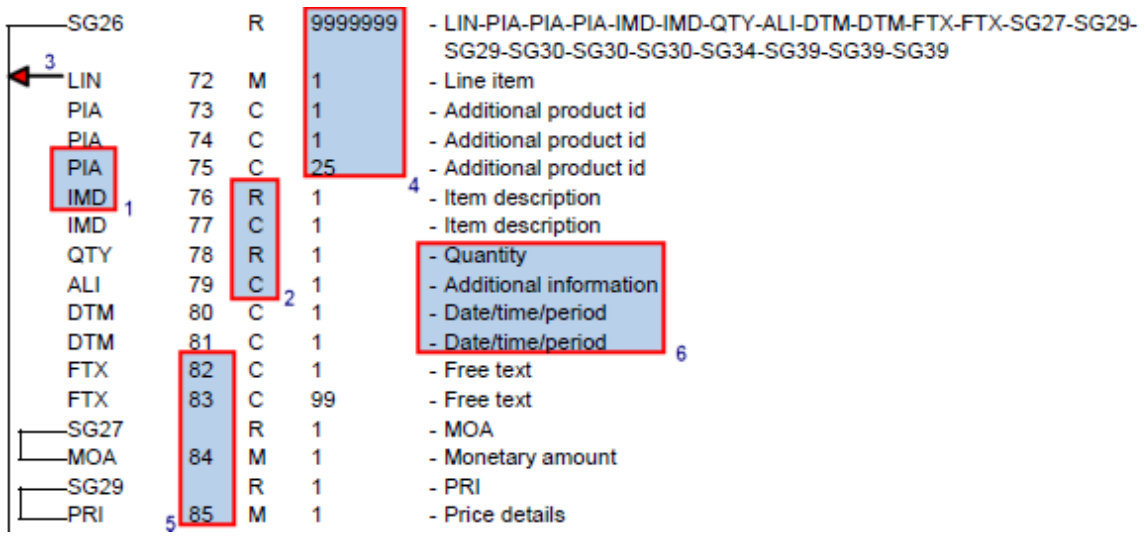

Figure 2: Example of displaying the message structure

8 Branching diagram

The branching diagram represents a hierarchical representation of segments. The following information can be deduced from the composition:

1) Segment label.
2) Level in the hierarchy.
3) Segment record obligation.
4) Number of repetitions.
5) Sequence number of the segment in the documentation.

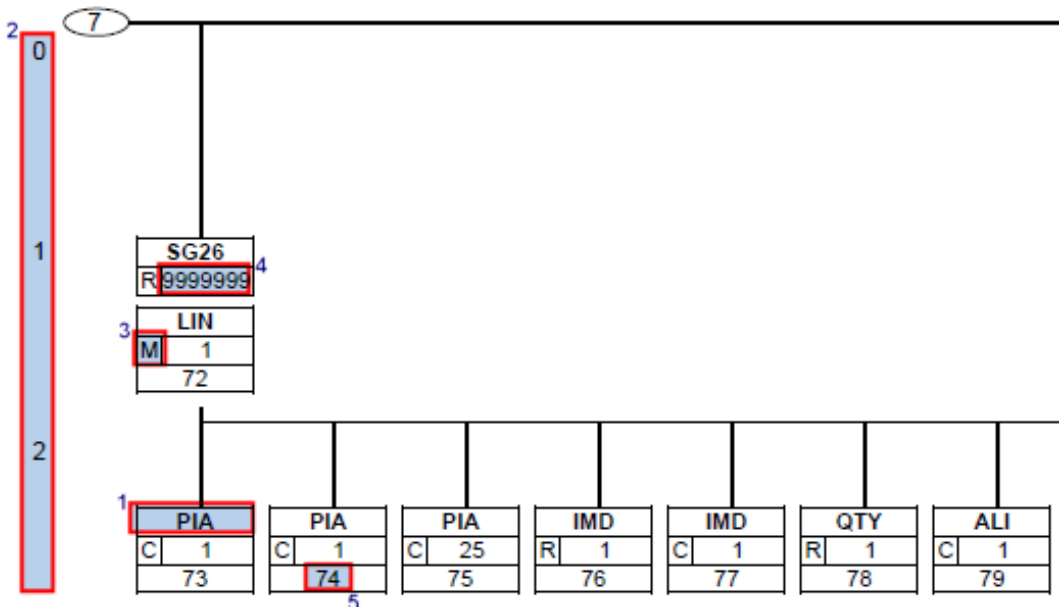

Figure 3: Example of branching diagram display

9 Segment data

Detailed data on individual segments with detailed records of related business terms. The following information can be deduced from the detailed segment data:

1) Segment label.
2) Level in the hierarchy.
3) Number of repetitions
    a) of each segment,
    b) segments higher in the hierarchy.
4) Element label.
5) Element name.
6) Record format.
7) Obligation to record:
    a) of each segment,
    b) segments higher in the hierarchy,
    c) individual element.
8) The expected values and instructions for use of each element.
9) Demonstration example of use.
10) Sequence number of the segment in the documentation.

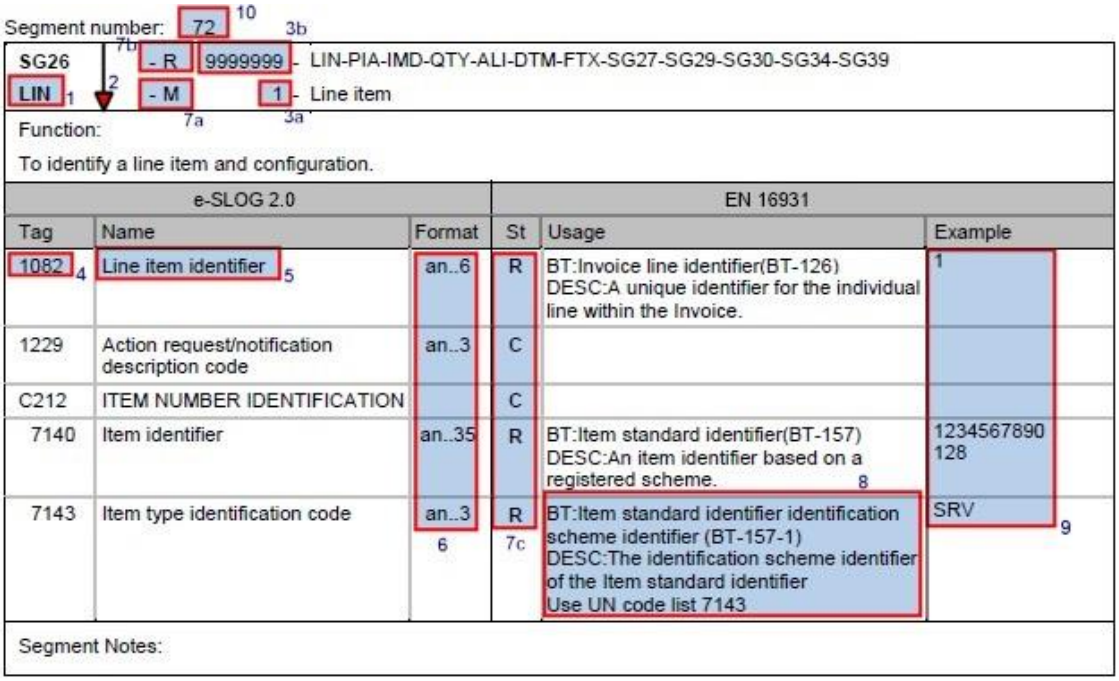

Figure 4: Example of displaying detailed segment data

10 Notes to the standard

The entire procurement process is based on mutual agreements, so in this respect the eSLOG 2.0 ordering documents are slightly different from the eSLOG 2.0invoice. The requirements in the field of invoices are stricter and it is assumed that the recipient will always be able to process the received eInvoice which complies with the standard. When exchanging electronic documents for ordering, flexibility is greater

and it is more important that the partners coordinate both business processes and technical details of electronic documents, such as product codes, partners, valid price lists, etc.

10.1 Semantic data types

Less strict regulation in the field of ordering is also the reason that, unlike eInvoices, semantic data types are not precisely defined for eOrders, eOrderConfirmations and eDeliveryNotes.

The subsections below describe some of the differences from the invoicing standard and the reasons for less stringent decisions.

10.2 Amounts and prices

For eInvoices, it is stipulated that the prices of items can be written down to 6 decimal places, and the amounts can only be written down to two decimal places. That makes sense for the invoice. In the case of orders, order responses and despatch advices, the formats for recording amounts and prices are less strictly defined, as they do not yet form the basis for the actual exchange of funds and often serve other purposes. Therefore, the amounts and prices on these documents are not semantically determined, but only a technical limitation of the data types. For the reasons mentioned above, the eSLOG 2.0 standards do not separate data types for amount and price.

10.3 Dates

In the EANCOM standard, the format of date fields is determined by a code that specifies how the date fields are written. The technical date format is a string of digits. Such a date format has been chosen so that different types of dates and time periods can be entered, which in practice occur in business (for example, a date set only to the month).

EXAMPLE: 102: CCYYMMDD
204: CCYYMMDDHHMMSS
610: CCYYMM

10.4 Code lists

The eSLOG 2.0 standards include code lists based on the EANCOM 2002 S4 Edition 2012 standard, which is most often used in practice in the business environment. The code lists are part of the .XSD scheme. When updating the code lists, a new version of the .XSD scheme will also be published, but changes will be made only exceptionally, for instance, when a case occurs in wider practice that cannot be described with the current code lists.

NOTE. The code lists for electronic orders, electronic order responses and electronic despatch advices are not the same as for eInvoices. The code lists of the standard for eInvoices are determined by the European standard EN 16931 and change more often than in the standards for the previously mentioned documents.

If the partners wish to use different code lists by mutual agreement or supplement them with their own values, they can do so. However, they must be aware that they will not be able to use these code lists with other partners without prior coordination, as there will be difficulties in interpretation.

10.5 Extended documentation

For each type of document, the eSLOG 2.0 standards include a set of basic data (business terms) that most often occur in practice. The technical documentation of the standard also contains data that is not determined by its own business term.

The purpose of extended documentation is to show how to record data that may occur in practice, but due to the rarity of occurrence was not included among the basic business terms. It is therefore a demonstration of certain possible extensions that may occur in practice but are not covered by the standard.

The purpose of the eSLOG 2.0 standards is to unify and by that simplify operations through a common messaging standard, while at the same time promoting good practices. It is also important that the standards do not restrict business. It is not possible to cover all possible scenarios that occur in the procurement processes.

The processing of the extended set data requires prior mutual agreement between the participating partners.

EXAMPLE: On the order, the customer can also specify the desired mode of transport. As it is not common practice for the customer to actually state such information in the order, this information does not have its own business term. For rare cases, however, when this information may be relevant, it is also described in the technical documentation, to demonstrate how to technically perform the provision of such information.

11 Electronic signature

An electronic signature is a tool that can ensure the authenticity and integrity of an order. eSLOG 2.0 does not prescribe the obligatory use of an electronic signature for an electronic order, but given the characteristics of an electronically signed document, the use of an electronic signature is recommended in eSLOG 2.0.

The eSLOG 2.0 .XSD scheme is added the .XSD scheme for electronic signature (xmldsig-core-schema.xsd). The .XSD electronic signature scheme provides basic electronic signing (xmldsig) and advanced electronic signing (XAdES).

The .XSD scheme for electronic signing is identical to the scheme published on the W3C website. Due to the lengthy certificate serial numbers issued by certified certifiers, the recommendation is followed to use a local copy of the scheme for X509IssuerSerial element validation purposes, where the X509SerialNumber element type is changed from Integer to String.

The scheme allows two ways of signing: “Enveloped” and “Detached”. For the purpose of “Detached” signing, the optional attribute Id = data has been added in the eSLOG 2.0 .XSD scheme node M_ORDERS, M_ORDRSP, M_DESADV (depending on the document).

12 Annexes and supporting documents

Additional annexes and supporting documents may be sent together with the electronic document. Additional documents may include, but are not limited to:

- various reports,
- additional broken-down items,
- various tables,
- documents proving the services provided or goods supplied.

The order attachments are not part of the .XML document and are separately transmitted in the document envelope. Envelopes with the eSLOG 2.0 standard are not defined and are the subject of an individual company or intermediary for the exchange of electronic documents.

Attachments can also be located outside the envelopes. In such a case, the web address of the attachment location may be provided. The criteria to consider separating annexes from a sent message may be as follows:

- Attachment size at download.
- Sensitivity of the attached information:
    - personal data,
    - trade secrets.

Sending attachments is outside the scope of the eSLOG 2.0 standards.

Literature

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