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BSI Standards Publication

Packaging — Codification of contents for inventories for shipments of household goods and personal effects

Part 2: XML messaging structure for electronic transmission of inventory data

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National foreword

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Part 2: XML messaging structure for electronic transmission of inventory data

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Partie 2: Structure de messagerie XML pour la transmission électronique de données d'inventaire

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 122, *Packaging*.

A list of all parts in the ISO 17451 series can be found on the ISO website.

This document is based upon ANSI/HHGFAA NCC 2008-001-2010 and has been revised during the ISO standards development process. *ANSI/HHGFAA NCC* 2008-001-2010 will be withdrawn upon publication.

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Introduction

This document provides a standard format, which enables household goods movers and forwarders, to exchange shipment related information with each other and with other industry stakeholders in language, software and hardware agnostic format – XML.

When used with ISO 17451-1, which provides the international moving industry with a common codified language, this document will enable users to communicate this information regardless of their language of choice and, as a result, promote transparency and visibility for these shipments. A secondary motivation for the development of this document is to encourage standardization and, in turn, efficiency within the industry.

The layout of the proposed electronic shipment XML is governed by an XML schema document, Inventory XSD.

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Packaging — Codification of contents for inventories for shipments of household goods and personal effects —

Part 2: XML messaging structure for electronic transmission of inventory data

1 Scope

This document specifies a common XML structure for the transmission of inventory information for shipments of household goods and personal effects between moving companies and their external partners. The Inventory XSD defined in Clause 5 specifies the XML structure to be used.

Each XML document corresponds to one shipment carried by land, sea or air.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 17451-1:2016, *Packaging — Codification of contents for inventories for shipments of household goods and personal effects — Part 1: Numeric codification of inventories*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
extensible markup language
XML
markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable

3.2
inventory
complete list of items in a particular *shipment* (3.4)

3.3
occurrence
term used to express the number of possible instances of a data element and allows an element to be specified as mandatory, optional, or can appear up to a set number of times

Note 1 to entry: More information on *occurrence is* specified in 4.2.

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3.4
shipment
HHG items transported and/or stored under the terms of a single bill of lading, waybill, or contract of carriage irrespective of the quantity or number of containers, packages, or pieces

3.5
shipper
person/transferee who is the owner of the *shipment* (3.4) or authorized agent of the owner

3.6
xml schema definition
XSD
world wide web consortium (W3C) recommendation that specifies how to formally describe the elements in an *extensible markup language (XML)* (3.1) document

4 Application

4.1 General information

The XML messaging structure for electronic transmission of inventory data is intended to be adopted by software applications together with the numeric codes established in ISO 17451-1 for the benefit of the international moving industry. The software application will utilize the numeric codes to classify the inventory and use the XML to transmit the data to an external system. Storing and transmitting the numeric codes in the application will also allow the translation of data into different languages.

Once implemented, users will be able to create standardized electronic inventories that can be exchanged between different software systems, applications, companies and external stakeholders involved in the international transport chain for a shipment of household goods and personal effects. Users shall utilize the XML schema prescribed in this document to collect information related to the shipment of household goods and personal effects and transmit it in a standardized format.

ISO 17451-1 provides the codification of items and their condition, the transportation modes and associated data relating to a shipment of household goods and personal effects. The relevant codes can be found in the following annexes and information regarding their use can be found in ISO 17451-1:2016, Clause 4:

a) Annex A: Household goods (HHG) items and HHG generic items;

b) Annex B: Packaging types;

c) Annex C: Methods of preparation of HHG;

d) Annex D: Transport modes;

e) Annex E: Locations of packing and/or delivery of the HHG items;

f) Annex F: Exceptions or damage to HHG items;

g) Annex G: Locations of exceptions or damage to HHG items.

The code lists have been set up in the following languages:

— English;

— German;

— Spanish;

— French.

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The order in which the numeric codes have been organized in ISO 17451-1 does not dictate the structure for how they can be organized in a user's software program or application. For instance, it makes more sense to indicate the location of loading (e.g. living room) before specifying the household goods item (e.g. table – coffee) when using a software application.

The numeric codes for the HHG items (ISO 17451-1:2016, Annex A), HHG packaging types (ISO 17451-1:2016, Annex B), and HHG location (ISO 17451-1:2016, Annex E) have been structured hierarchically in three levels to provide maximum flexibility for users. Each specific description is accompanied by its own unique code so users can integrate the most basic level descriptions (e.g. Indoor Furniture), as well as the most specific level description like "Bed – Bunk" for their customer's benefit. It would be practical, for instance, to show a list of all the HHG items typically found in a dining room (e.g. Chair – Dining, Table – Dining, Buffet, Cabinet – China) once the user had first identified the location of loading as the Dining Room.

Structuring the codes in ISO 17451-1:2016, Annexes A, B, and E in a three-level arrangement also allows the use of generic terms by defaulting to "not further specified". For example, after indicating the location of loading as "Bedroom", the user should be able to identify the HHG items in that location as "Bed", "Bed – Bunk", "Bed – Child", etc. In this example, "Bed" is the more generic version and it is not necessary to input more information. In this case, the next level of information is not mandatory and the description will default to "not further specified".

Whenever the option "other" is chosen, additional information is requested and is mandatory. This additional information cannot be translated because there is no accompanying code and the user shall input the description in a format specified by the software application.

When setting up user-specific software applications, the vendor can use the codes which are relevant for the environment. For a European moving company, it might not be appropriate to include a "Tatami room" on its location list. On the other hand, it is definitely important for a moving company specializing in serving Japanese clients. As a result, the software provider will need to cater to specific country, regional, or customer requirements with respect to the codes specified in ISO 17451-1.

4.2 Occurrence

In this document, there are four types of occurrences, which indicate the possible responses to an element.

Occurrence value	Explanation
0–1	A value may or may not be assigned for this element. Therefore, this element is optional.
1	A value shall be assigned for this element. Therefore, this element is required.
0-unbounded	Multiple values may be assigned for this element although there is no requirement to assign any value.
1-unbounded	Multiple values may be assigned for this element with at least one value assigned.

An element defined with optional occurrence values (0-1 or 0-unbounded) can have sub-elements which may require mandatory values. Thus, a "DeliveryAddress" has been defined as optional but when providing the "address" element, the street, city and country information is required.

4.3 Using codes from ISO 17451-1:2016, Annexes A, B, and E

Leading zeros are to be shown.

The codes in ISO 17451-1:2016, Annexes A, B and E are structured hierarchically. When sending the codes in the relevant XML elements, they have to be concatenated without any spaces, dots, etc. Thus, ISO 17451-1:2016, Annex A provides HHG item codes; when sending Computer Desktop, the code shall be sent as "007003001".

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5 Inventory XSD

Inventory XSD is the root node of the **XSD** to represent the information provided in a digital inventory. The XSD layout is shown in Figure 1.

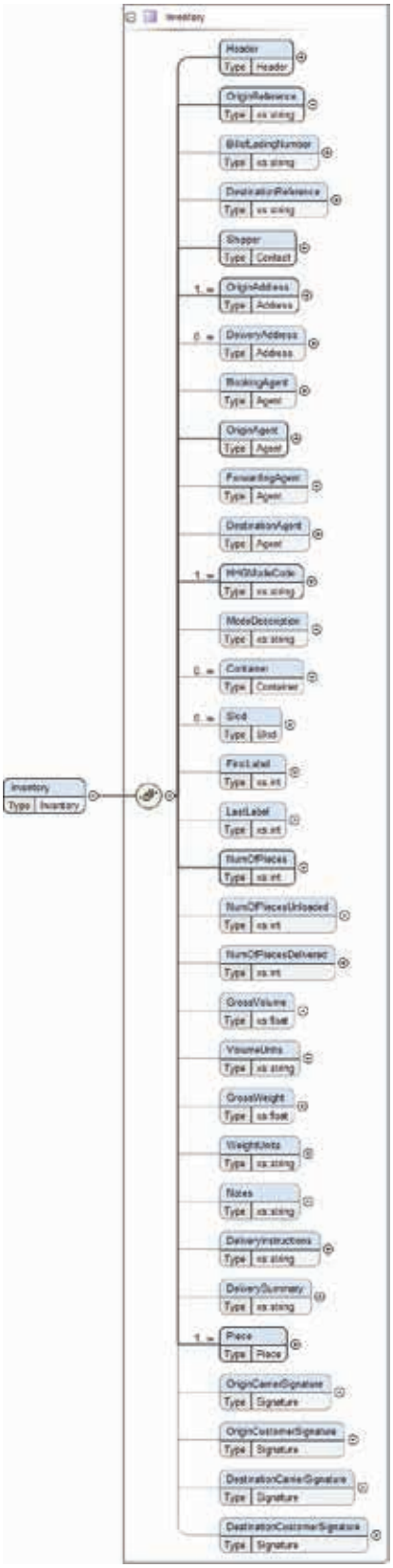

Figure 1 — Inventory element structure

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