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Security management systems for the supply chain — Electronic port clearance (EPC) —

Part 1: Message structures

Systèmes de management de la sécurité pour la chaîne d'approvisionnement — Opérations portuaires assistées par systèmes électroniques —

Partie 1: Structures des messages

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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 8, *Ships and marine technology*.

This first edition of ISO 28005-1 cancels and replaces the first edition of ISO/PAS 28005-1:2012.

ISO 28005 consists of the following parts, under the general title *Security management systems for the supply chain — Electronic port clearance (EPC)*:

— *Part 1: Message structures — Implementation of a maritime single window system*

— *Part 2: Core data elements*

Introduction

This part of ISO 28005 contains technical specifications that facilitate an efficient exchange of electronic information between ships and shore for coastal transit or port calls. This part of ISO 28005 is intended to cover the exchange of safety and security information required under the IMO Convention on Facilitation of International Maritime Traffic (FAL) and other international specifications as defined in ISO 28005-2. This part of ISO 28005 is based on XML and is intended as a complementary International Standard to the UN/EDIFACT (electronic data interchange for administration, commerce and transport) standards specified in the FAL compendium. Normally, implementers of this part of ISO 28005 are expected to also provide electronic interfaces supporting the use of UN/EDIFACT standards. Parties with economic interests related to the ship, cargo, passengers or crew, such as land transporters, receiving parties, insurers, financial entities can also find value in configuring their data reception capability to receive information formatted in accordance with this part of ISO 28005; however, this is not a requirement of this part of ISO 28005.

There are a number of other data exchanges related to port calls taking place that are outside of the scope of this part of ISO 28005 such as:

a) administrative- and trade-related data exchanges;

b) customs clearance for import and export of goods;

c) logistics arrangements for loading and discharge of cargo, including bay plans, mooring instructions, tug orders and other needs;

d) commercial exchanges related to freight costs, ownership and insurance of cargo. Ship operational exchanges related to the ordering of consumables, water, bunkers and spare parts, or the exchange of crews;

e) commercial exchanges related to port logs/statements of fact, calculations of demurrage and port fees.

The following International Standards and Technical Specifications (developed under Technical Committee ISO/TC 154) support information interchange between and within individual organizations with economic interests:

— ISO 8601 (date and time);

— ISO 6422 with ISO 8440;

— ISO 7372 (trade data elements directory);

— ISO 9735 (all parts) on electronic data interchange for administration, commerce and transport (EDIFACT);

— ISO/TS 20625;

— ISO/TS 15000-5 (ebCCTS core components);

— ISO 14533 (all parts) (long term signature profiles);

— ISO 17369 [statistical data and metadata exchange (SDMX)].

This part of ISO 28005, possibly together with other standards, can be used to implement a single window (SW) for port clearance. This SW can provide for: a) the simplified electronic means for clearance of ships in maritime transport; b) standardization in logistics activities, interface and information in overall maritime transport; c) improved maritime logistics efficiency and strengthened maritime logistics competitiveness of IMO member states. The SW standard for maritime transport is built upon general SW concepts and characteristics and has been expanded to integrate the requirements of maritime transport.

This part of ISO 28005 specifies the overall configuration of electronic port clearance (EPC) and defines the message structures for use in EPC. ISO 28005-2 contains definitions of core data elements used in the message structures.

Security management systems for the supply chain — Electronic port clearance (EPC) —

Part 1: Message structures

1 Scope

This part of ISO 28005 specifies necessary guidance information related to electronic port clearance (EPC), such as message transmission requirements, business scenarios, message structures and software requirements. Within the context of this part of ISO 28005, EPC incudes the activities that a user, such as a ship's master, a shipping agency or a ship owner undertakes to submit electronic data to appropriate organizations that approve or reject the clearance for the ship to enter or leave port.

Annex A provides implementation advice for a single window (SW). Annex B suggests a methodology for the development of a SW.

This part of ISO 28005 defines XML message structures for the transmission of information between a ship or its representatives and certain organizations responsible for the processing of the ship's port clearance request. The information intended to be transferred is that which is defined by the FAL Convention and other related international instruments as identified by ISO 28005-2. These message structures are primary intended for machine-to-machine data transfers.

This part of ISO 28005 allows different configurations of the SW, from a minimum solution to support basic clearance requirements to a more complex system to facilitate more extensive cooperation between ship and shore organizations.

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.

ISO 28005-2, *Security management systems for the supply chain — Electronic port clearance (EPC) — Part 2: Core data elements*

3 Terms and definitions

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

3.1
acknowledgement
message sent from authorities giving the final acknowledgement of a request with the result of the request as an approval or denial

3.2
authority
entity or entities acting on behalf of the port state under national legislation

3.3
cancellation
message sent from the ship to the single window to cancel a previous request,

Note 1 to entry: If the request is for port call clearance, the cancellation applies to all requests associated with that port call.

3.4
electronic port clearance
EPC
port clearance carried out through electronic message sending through a single window between port authorities and users

3.5
empty tag
tag containing data elements that cannot be given a value by the sender and that is empty

Note 1 to entry: See ISO 28005-2.

3.6
journal number
reference code assigned by the single window to one specific call from one specific ship to the port

Note 1 to entry: The journal number is normally assigned as a result of a first request message, but can also be assigned by other methods. A scheduled service could get a pre-assigned series of journal numbers to cover a certain period. The journal number is used in the exchanges between ship and single window to identify to which port call a certain transaction refers.

3.7
port
location on a coast or shore containing one or more port facilities where ships can berth and transfer people or cargo to or from land

Note 1 to entry: Clearance to port usually implies clearance for one specific port facility as defined in SOLAS Chapter XI-2 [International Ship and Port Facility Security Code (ISPS)]. Shifting the ship from one port facility to another requires additional clearance, although not as extensive as for the general port clerance. For the purposes of this part of ISO 28005, the term port is used with the meaning of a port and an associated specific port facility in the port.

3.8
port clearance
process undertaken by an entity or entities for the purpose of determining if a ship may enter the port, berth at a facility, conduct certain operations and/or depart the port

Note 1 to entry: For cargo, additional clearance may be required to allow the unloading of the cargo or import of the cargo from the tax-free areas.

3.9
receipt
message sent from the single window as an inital response to a request

Note 1 to entry: The receipt shows that the message was received and read and that necessary processing has been initiated. In cases where all the processing is done within the single window, the receipt may be the only response to the request.

3.10
request
message sent from the ship to the single window, containing a request for some form of clearance or other service from one or more authorities connected to the single window

3.11
ship
ship itself, an agent in the port of call, the owner or management company, or any other entity that can legally represent the ship in the transaction

Note 1 to entry: The term "ship" is used as one of the parties to a communication with a single window.

3.12
single window
SW
facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements

Note 1 to entry: If information is electronic, individual data elements should only be submitted once.

Note 2 to entry: In this part of ISO 28005, the term "single window" is restricted to a single window that is used for the clearance of ships according to requirements in the FAL Convention. This is sometimes called a maritime single window.

Note 3 to entry: It is defined in UN/CEFACT Recommendation No. 33.

3.13
uniform resource identifier
URI
string of characters used to identify a name or a resource

Note 1 to entry: Such identification enables interaction with representations of the resource over a network (typically, the World Wide Web) using specific protocols. Schemes specifying a concrete syntax and associated protocols define each URI.

Note 2 to entry: A valid URI is specified according to ISOC RFC 3305; schemes, such as "mailto", "http" and "https", are used in this part of ISO 28005.

4 Conceptual system design

4.1 General SW functionality

This part of ISO 28005 does not directly define the functionality of an SW. However, it is assumed that a SW exists and that it implements functionality to provide an electronic interface between the ship or the ship representatives and authorities ashore.

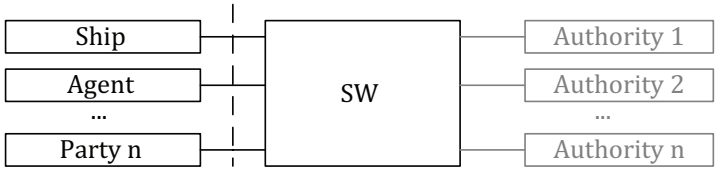

Figure 1 — General topology of SW system

The expected system configuration is shown in Figure 1. The SW acts as a single message centre for data sent to or received from the ship or its representatives. The relevant authorities use the SW to perform their clearance functions. The dashed line is the interface covered by this part of ISO 28005.

4.2 Business-to-administration or business-to-business system

The definition of SW implies that the SW is uniquely a mechanism that implements a business-to-administration (B2A) relationship. However, in the context of the interface between ship and port state authorities, the port will in some cases operate as an authority and in other cases as a private entity. Thus, this part of ISO 28005 will support both types of SW as illustrated by Figure 2.

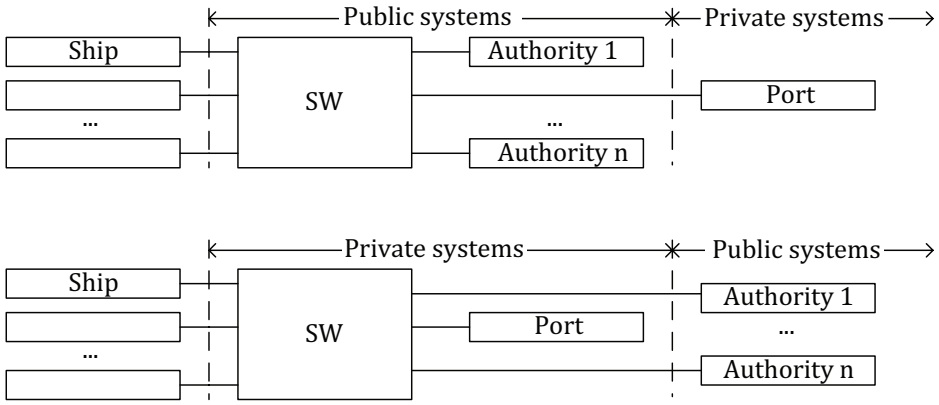

Figure 2 — Alternative SW solutions

Thus, a SW may in principle be implemented by private parties in the port and transfer data to public authorities or vice versa. Also, data transfer could be between the ship and public authorities and the port itself might not be part of the message exchange at all. This part of ISO 28005 does not mandate any particular organization of the SW.

4.3 Alternative message sequences

Port clearance can be a simple process where one clearance request is sent from a ship and one clearance acknowledgement is returned from the SW when the ship has been cleared by the relevant authorities. However, it may also be more complex, involving early bookings, updates, as well as cancellations of the whole port call as illustrated by Figure 3.

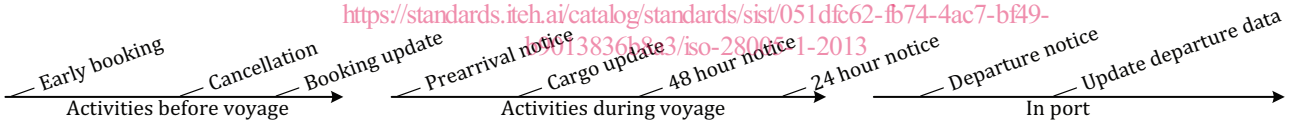

Figure 3 — Example of a more complex ship voyage time line

This part of ISO 28005 supports both simple and more complex clearance processes. Actual message requirements, timing and updates may be restricted by local legislation. Minimum requirements are defined in 5.1.

4.4 Information sent by ship or agent

Some ships might not have Internet access or might have delegated reporting responsibilities to an agent for other reasons. This part of ISO 28005 supports information transmissions both from ship and agent. Even if ships have access to the Internet, this might not be available at all times so the SW needs to support some form of store and forward (e-mail) transmission mechanism in addition to direct web-based access. This does not have any direct consequence for message formats.

4.5 Data to be input once

This part of ISO 28005 defines message structures that require information to be input only once. This also includes provisions for the SW to accept certain data in other formats than those defined in this part of ISO 28005.

5 General transaction requirements

5.1 General transaction pattern

The general transaction pattern is shown in Figure 4. The shaded areas represent message exchanges that are optional in this part of ISO 28005.

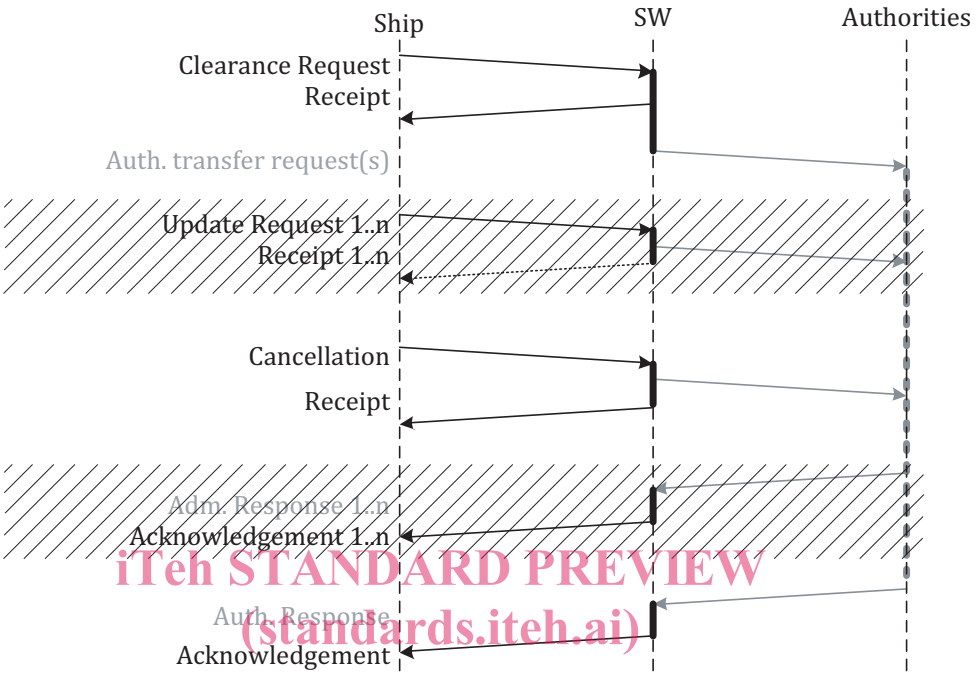

Figure 4 — General transaction pattern

5.1.1 Unique journal number

With the following exception, all message exchanges between the ship (or agent) and the SW relating to one specific port call shall be identified by a unique journal number for the port call. The journal number is a field in the message header structure. The exception to this rule is that the first clearance request from the ship (or agent) to the SW shall have an empty tag for the journal number if the journal number is unknown to the ship or agent at the time of transmission. The receipt message from the SW, if the receipt accepts the request, will contain the journal number to be used in all subsequent message exchanges. This ensures that all messages related to one particular port call can be easily and uniquely identified.

NOTE The SW needs to construct a unique journal number for each ship's port call and embed it in a token string.

5.1.2 Request

A request message is sent to request clearance to enter or leave the port. The request message may also be used for other purposes as described in 5.3 if the SW accepts such messages.

The SW may allow a request message to be updated for the puposes of changing or adding information related to the port call.

The SW is, however, not required to accept updates of request messages. If updates are not allowed, approval or denial of port clearance will be based on the initial request submission and further requests will automatically receive a negative receipt message. In this case, if the orginal request message was; in error, incomplete, or the information had subsequently changed, the original request should be cancelled and a new request submitted.

When information contained in an accepted update is received, the authorities requiring that information shall be informed by the SW and previous approvals issued by that authority, which were based on the original information, shall be automatically cancelled. The corresponding status of all required acknowledgements will be transmitted to the ship in the receipt message.

The ship shall keep track of the status of the required approvals.

The request message shall list the copy-to parties (parties that should be copied on all responses to the request). The SW may limit the number of recipients and this should be conveyed in the receipt message.

5.1.3 Receipt

All messages from the ship to the SW, which can be processed by the SW, will receive a receipt message from the SW. The receipt message signifies one of the following two cases.

a) The information and syntax of the message sent from the ship is free of syntax errors and sufficiently complete to be forwarded to some or all authorities involved. The receipt message lists those authorities to which the request message had been forwarded. Upon receipt of the forwarded message, the authorities begin processing the information for the purpose of issuing a request approval or denial through an acknowledgement message. Port clearance approval or denial is sent to the ship once processing is complete. The receipt message also specifies which, if any, authorities do not have enough information to process their approval or denial decision.

b) The message from the ship contained syntax errors, is incomplete, or contains information that cannot be processed by the SW. The message cannot be forwarded to the authorities and cannot cause any further processing. Incomplete request messages to a SW that do not allow for updates shall be ignored. The message needs to be corrected and resent. Examples of information that cannot be processed include excessively long lists of parties that are copied (copy-to parties), an illegal number of message bodies, illegal message codes or similar.

Messages that cannot be processed by the SW parties shall be silently ignored and shall not receive a receipt.

5.1.4 Cancellation

A cancellation message may be sent to the SW to cancel a previously submitted request. A cancellation message that received a receipt ceases any further processing of the request and all previously received acknowledgement messages, if any, will be voided.

NOTE A successful cancellation only applies to the SW process and there can still be consequences related to, for instance port fees.

5.1.5 Acknowledgement

An acknowledgement message is sent to the ship when one or more authorities process(es) a request and make a decision. An example of a transaction pattern is shown in Figure 5.

