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Ships and marine technology — Electronic port clearance (EPC) —

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

Systèmes de management de la sûreté pour la chaîne d'approvisionnement — Operations portuaires assistées par systèmes électroniques —

Partie 1: Structure des messages — Mise en oeuvre d'un système maritime à guichet unique

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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 whom 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/PAS 28005-1 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*.

ISO 28005 consists of the following parts, under the general title *Ships and marine technology — Electronic port clearance (EPC)*:

— *Part 1: Message structures — Implementation of a maritime single window system* [Publicly Available Specification]

— *Part 2: Core data elements*[1]

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

Introduction

This Publicly Available Specification contains technical specifications that facilitate an efficient exchange of electronic information between ships and shore for coastal transit or port calls. This Publicly Available Specification is intended to cover the exchange of safety and security information required under the IMO FAL Convention and other international specification as defined in ISO 28005-2. This Publicly Available Specification is based on XML and UN/CEFACT standards such as those specified in the FAL Compendium. Implementors of this PAS should normally 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, and financial entities, may also find value in configuring their data reception capability to receive information formatted in accordance with this Publicly Available Specification. However, this is not a requirement of this Publicly Available Specification.

It should be noted that there are a number of other data exchanges related to port calls taking place that are outside the requirements of this Publicly Available Specification such as:

— Administrative and trade related data exchanges.

— Customs clearance for import and export of goods.

— Logistics arrangements for loading and discharge of cargo, including bay plans, mooring instructions, tug orders and other needs.

— 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.

— Commercial exchanges related to port logs/statements of fact, calculations of demurrage and port fees, etc.

Other ISO Committees, e.g. ISO/TC154, provide message and data transmission standards for such data exchanges.

This Publicly Available Specification, possibly together with other international standards, can be used to implement a single window for port clearance. This single window can provide for: 1) the simplified electronic means for clearance of ships in maritime transport, 2) standardization in logisitics activities, interface, and information in overall maritime transport, 3) improved maritime logistics activities, interface, and information in overall maritime transport, 4) improved maritime logistics efficiency and strengthened maritime logistics competitiveness of IMO member states. The single window standard for maritime transport is built upon general single window concepts and characteristics and has been expanded to integrate the requirements of maritime transport.

ISO 28005 consists of two parts. Part 1 (PAS) specifies the overall configuration of electronic port clearance (EPC) and defines the message structures for use in EPC. Part 2 contains detailed definitions of core data elements used in the message structures.

Ships and marine technology — Electronic port clearance (EPC) —

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

1   Scope

This Publicly Available Specification provides 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 Publicly Available Specification, EPC includes 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 organisations to approve or reject the clearance for the ship to enter or leave a port.

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

This Publicly Available Specification allows different configurations of the single window (SW), from a minimum solution to support basic clearance requirements to a more complex system to facilitate more extensive cooperation between ship and shore organisations.

Informative Annex A provides implementation advice for a SW. Informative Annex B suggests a methodology for the development of a SW.

2   Normative references

The following referenced documents are indispensable for the application 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 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   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 by electronic messaging through a single window

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

NOTE   See ISO 28005-2:2011.

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

NOTE   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 what port call a certain transaction refers to.

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 and from land

NOTE   Clearance to port will normally imply 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 will normally require additional clearance, although not as extensive as for the general port clearance. For the purpose of this Publicly Available Specification 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   For cargo, additional clearance may be required to allow the unloading of the cargo or import of the cargo from the tax free areas.

3.8
receipt
message sent from the single window as an inital response to a request

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

3.9
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

3.10
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   When the term ship is used as one of the parties to a communication with a single window.

3.11
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   If information is electronic, then individual data elements should only be submitted once.

NOTE 2   In this Publicly Available Specification, the term single window is restricted to a single window that is used for clearance of ships according to requirements in the FAL Convention. This is sometimes called a maritime single window.

NOTE 3   Defined in UNR33.

3.12
Uniform Resource Identifier
URI

string of characters used to identify a name or a resource enabling interaction with representations of the resource over a network (typically the World Wide Web) using specific protocols

NOTE 1   Schemes specifying a concrete syntax and associated protocols define each URI.

NOTE 2   A valid URI is specified according to ISOC RFC 3305. Schemes such as "mailto", "http" and "https" are used in this Publicly Available Specification.

4   Conceptual system design

4.1   General single window functionality

This Publicly Available Specification does not directly define the functionality of a single window (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.
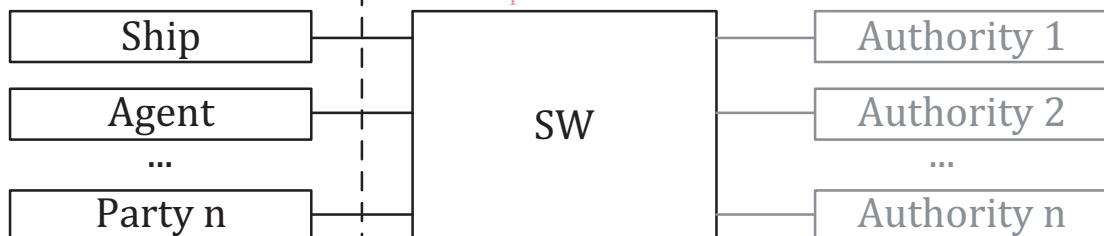

Figure 1 — General topology of SW system

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 Publicly Available Specification.

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 Publicly Available Specificiation will support both types of SW as illustrated below.
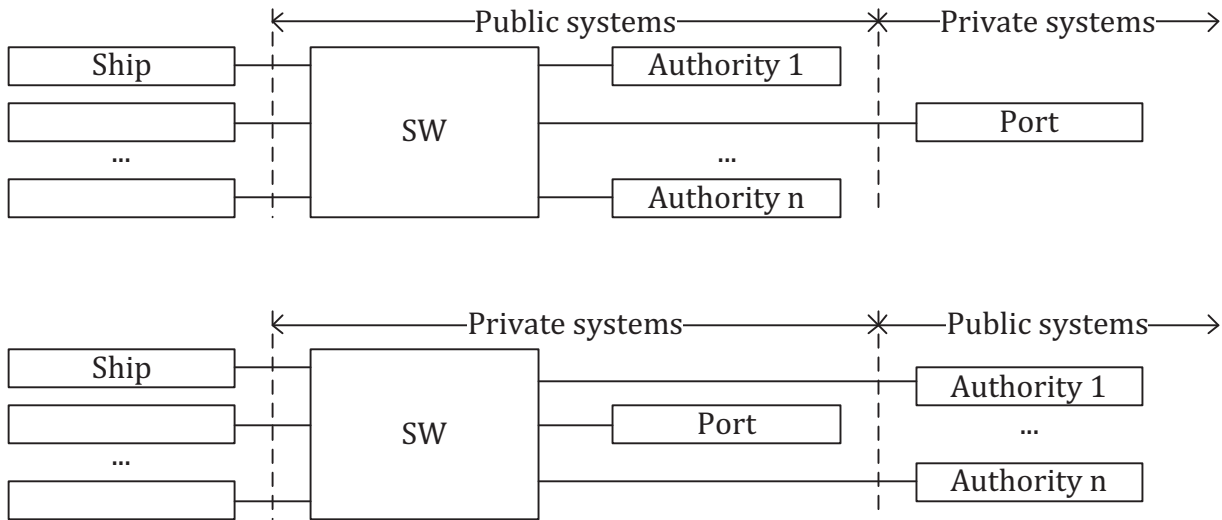
Figure 2 — Alternative SW solutions

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 may not be part of the message exchange at all. This Publicly Available Specification does not mandate any particular organisation of the SW.

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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 below.
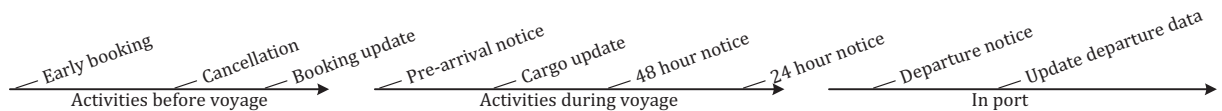
Figure 3 — Example of a more complex ship voyage timeline

4.4 Information sent by ship or agent

Some ships may not have Internet access or may have delegated reporting responsibilities to an agent for other reasons. This Publicly Available Specification will support information transmissions both from ship and agent. Even if ships have access to the Internet, this may 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 Input data once

This Publicly Available Specification 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 what this Publicly Available Specification defines.

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 Publicly Available Specification.
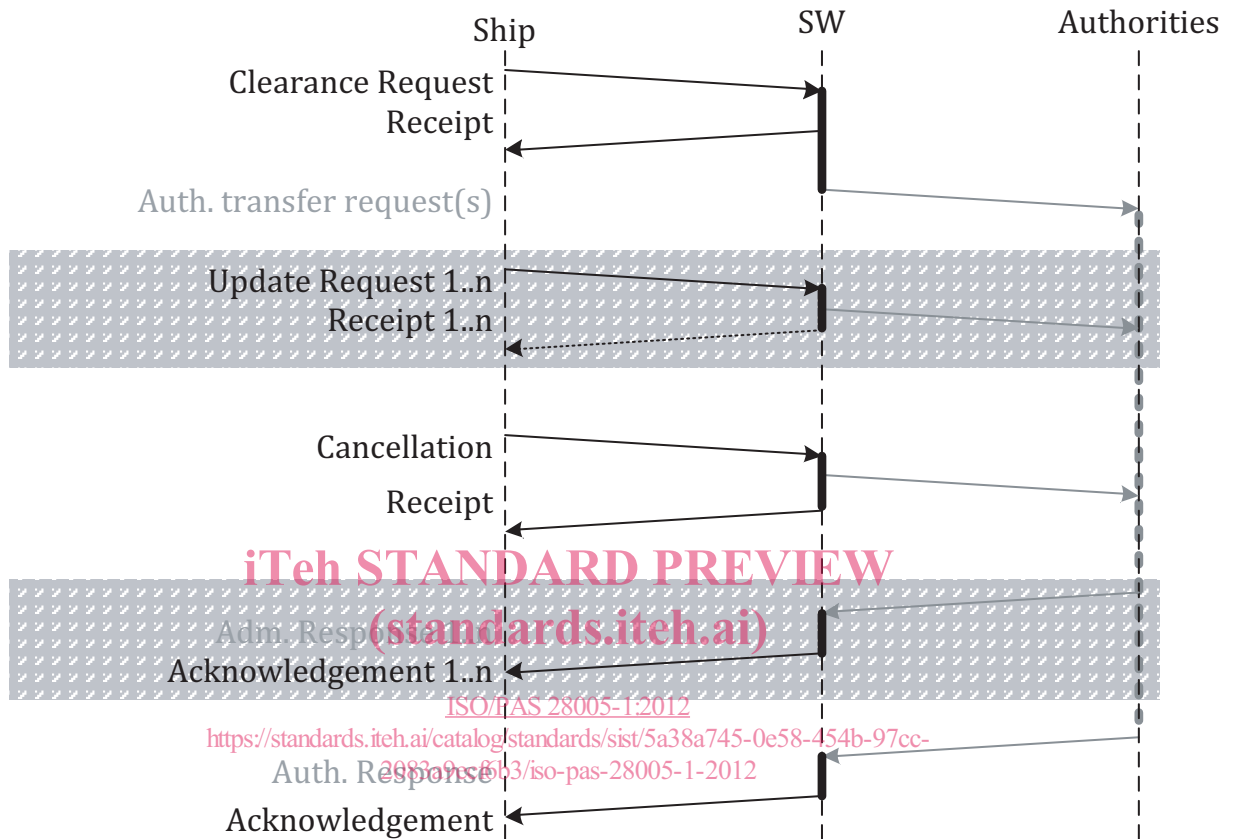

Figure 4 — General transaction pattern

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 will ensure 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 that require 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 must keep track of the status of the required approvals.

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

5.1.3 Receipt

All messages from the ship to the SW that can be processed by the SW will receive a receipt message from the SW. The receipt message will signify one of two cases:

1. 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 will list those authorities to which the request message had been forwarded. Upon receipt of the forwarded message, the authorities will begin processing the information and for the purpose of issuing a request approval or denial through an acknowledgement message. Port clearance approval or denial will be sent to the ship when processing is complete. The receipt message will also specify which, if any, authorities do not have enough information to process their approval or denial decision.

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

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

5.1.4 Cancellation

A cancellation message can be sent to the SW to cancel a previously submitted request. A cancellation message that received a receipt will cease 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 may still be consequences related to, e.g. port fees.

5.1.5 Acknowledgement

An acknowledgement message is sent to the ship when one or more authorities have processed a request and made a decision. An example transaction pattern is shown in Figure 5.