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ISO Standardisation of Ship-shore Information Exchange

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ISO 28005 on Electronic Port Clearance

- Data model for ship-shore reporting of authority information
- Maintained by ISO/TC 8/SC 11 on Intermodal and Short Sea Shipping
- First version 2011, New version 2021
- Updated to cover data elements in the IMO Reference Data model
- More updates to come

The screenshot shows the ISO website interface for ISO 28005-1:2013. At the top, there is a navigation bar with a search icon, a shopping cart icon, the language 'EN', and a 'MENU' button. Below the navigation bar is the ISO logo. A breadcrumb trail reads 'ICS > 35 > 35.240 > 35.240.60'. The main title is 'ISO 28005-1:2013' followed by the subtitle 'Security management systems for the supply chain — Electronic port clearance (EPC) — Part 1: Message structures'. Below the title, there are two buttons: 'ABSTRACT' and 'PREVIEW'. The 'PREVIEW' button is highlighted. The text under '1 Scope' states: '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 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 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.'

The screenshot shows the ISO website interface for ISO 28005-2:2021. At the top, there is a navigation bar with a search icon, a shopping cart icon, the language 'EN', and a 'MENU' button. Below the navigation bar is the ISO logo. A breadcrumb trail reads 'ICS > 35 > 35.240 > 35.240.60'. The main title is 'ISO 28005-2:2021' followed by the subtitle 'Ships and marine technology — Electronic port clearance (EPC) — Part 2: Core data elements'. Below the title, there are two buttons: 'ABSTRACT' and 'PREVIEW'. The 'PREVIEW' button is highlighted. The text under 'ABSTRACT' states: 'This document provides technical specifications to facilitate an efficient exchange of electronic information between ships and shore, for coastal transit or port calls. It specifies requirements for the safety, security and efficiency enhancement of information, related mainly to the relationships between the ship and the port and coastal state authorities. This document provides the definition of core data elements for use in electronic port clearance (EPC) messages. It does not define any structuring of messages nor provides any guidance on what information is required for a particular purpose; it is a general data dictionary for safety, security or operation-related maritime information. Details about message formats and applications are defined in ISO 28005-1.'



ISO 28005-2: Core Data Elements

Data model for ship-shore reporting of authority information:

- **FAL Convention**, reporting during arrival or departure: General Declaration FAL1, Cargo Declaration FAL2, Ship's Stores Declaration FAL3, Crew's Effects Declaration FAL4, Crew List FAL5, Passenger List FAL6, Dangerous Goods Manifest FAL7
- **Maritime Declaration of Health** from WHO, 58th World Health Assembly, WHA58.3.
- **ISPS code** (Security-related information as required under SOLAS regulation XI-2/9.2.2)
- Notification of **Waste Delivery** to Port Reception Facilities (MEPC 644)
- **Bulk loading and unloading** code IMO Resolution A.862.
- **Mandatory ship reporting system** (MRS) requirements as defined in IMO Resolution A.851.
- Advanced electronic cargo information for customs risk assessment purposes
- ETA reporting to pilot station as defined in IMO Resolution A.960.
- Requirements under the Universal Postal Convention for mail

A screenshot of the ISO 28005-2:2021 product page. The page features a dark header with the ISO logo, a search icon, a shopping cart icon, and a language dropdown set to 'EN'. Below the header, a breadcrumb trail reads 'ICS > 35 > 35.240 > 35.240.60'. The main title is 'ISO 28005-2:2021 Ships and marine technology — Electronic port clearance (EPC) — Part 2: Core data elements'. There are two buttons: 'ABSTRACT' and 'PREVIEW'. The 'PREVIEW' button is highlighted. Below the buttons, there are two paragraphs of text. The first paragraph states: 'This document provides technical specifications to facilitate an efficient exchange of electronic information between ships and shore, for coastal transit or port calls. It specifies requirements for the safety, security and efficiency enhancement of information, related mainly to the relationships between the ship and the port and coastal state authorities.' The second paragraph states: 'This document provides the definition of core data elements for use in electronic port clearance (EPC) messages. It does not define any structuring of messages nor provides any guidance on what information is required for a particular purpose; it is a general data dictionary for safety, security or operation-related maritime information. Details about message formats and applications are defined in ISO 28005-1.'



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ISO 28005 – Link to IMO Reference Data Model

1. FAL 43, April 2019: IMO Reference Model and Data list: FAL Forms 1-7, ISPS, Waste
- ISO 28005-2 updated with new data elements and mapping from IMO
2. FAL 44, April 2020: Revised IMO Reference Model and Data list
 - Maritime Declaration of Health
 - Just in Time Concept (timestamps and locations)
3. FAL 45, June 2021: Revised IMO Reference Model and Data list
 - Stowaways
 - Certificates
 - Acknowledgement receipt
 - Maritime Service
4. FAL 46, May 2022:
 - Data set for SHIP REPORTING SYSTEM (RESOLUTION A.851(20))
 - Data set for BALLAST WATER ARRIVAL REPORTING
 - Data set for SHIP REGISTRY AND COMPANY DETAILS
 - Data set on AUDITS AND SURVEYS based on IACS Recommendation 75
 - Data set ON PORT STATE CONTROL INSPECTION HISTORY DATA

General Declaration;
Cargo Declaration;
Ship's Stores Declaration;
Crew's Effects Declaration;
Crew List;
Passenger List;
Dangerous Goods Manifest;
Security-related information as required under SOLAS regulation XI-2/9.2.2; and
Advance Notification for Waste Delivery to Port Reception Facilities.

Maritime Declaration of Health
Just in Time Concept

Stowaways
Certificates
Acknowledgement receipt
Maritime Service

Ship Reporting System
Ballast water arrival reporting
Ship registry and Company details
Audit and Surveys
Port State control inspection history data

ISO 28005-2: Mapping from IMO Ref Model to 28005 Data Types

FAL Convention and Annex & Other IMO Data Reporting

General Declaration – Arrival
...
Name of ship
...
Name of master
...

General Declaration – Departure
...
Name of ship
...
Name of master
...

Cargo Declaration
...
Name of master
...

Other FAL Standard Declaration
...

Waste Declaration
...
Gross tonnage
...

Other Electronic Messages
...

Contracting Governments
Additional requirements
...

IMO Compendium

IMO Reference Data Model
...
Ship name
...
Master name
...
Ship gross tonnage
...
...

Additional data elements
...
Authentication
...

International Standards

ISO 28005
...
ShipIDType.ShipName
...
CrewDutyType.Code=Master
CrewMemberDataType.
PersonOnBoardType.
NameType.GivenName
...MiddleName
...FamilyName
...
GrossTonnageType
...

UNECE UN/CEFACT Core Component Library
...
TransportMeansName. Text
...
Master. Name. Text
...
TransportMeansName. Gross Weight. Measure
...

WCO Data Model
...
WCO ID T0005 Identification of means of transport crossing the border
...
WCO ID 429 Person on Board, type
WCO ID 421 Person on Board, family name
WCO ID 422 Person on Board, given name
...
WCO ID Border Transport Means Gross Tonnage
...

ISO

ICS > 35 > 35.240 > 35.240.60

ISO 28005-2:2021

Ships and marine technology – Electronic port clearance (EPC) – Part 2: Core data elements

[ABSTRACT](#) [PREVIEW](#)

This document provides technical specifications to facilitate an efficient exchange of electronic information between ships and shore, for coastal transit or port calls. It specifies requirements for the safety, security and efficiency enhancement of information, related mainly to the relationships between the ship and the port and coastal state authorities.

This document provides the definition of core data elements for use in electronic port clearance (EPC) messages. It does not define any structuring of messages nor provides any guidance on what information is required for a particular purpose; it is a general data dictionary for safety, security or operation-related maritime information. Details about message formats and applications are defined in ISO 28005-1.



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ISO 28005-2: Core Data Elements

- Data elements are described as XML types
- Flat structure of XML data types

«XSDcomplexType» ModelGroup5::EPCRequestBodyType
«XSDelement»
+ OtherServiceRequest: OtherServiceRequestType [0..*]
+ TerminalDeparture: TerminalDepartureType [0..*]
+ TerminalArrival: TerminalArrivalType [0..*]
+ RequestStatus: RequestStatusType [0..1]
+ OtherPersonList: OtherPersonListType [0..1]
+ FacilityDeparture: FacilityDepartureType [1..*]
+ FacilityArrival: FacilityArrivalType [1..*]
+ BerthPositionDeparture: BerthPositionDepartureType [0..*]
+ Agent: AgentType [0..1]
+ Company: CompanyType [0..1]
+ InmarsatCallNumber: InmarsatCallNumberType [0..1]
+ ShipID: ShipIDType [0..1]
+ CargoData: CargoDataType [0..1]
+ CargoOverview: CargoOverviewType [0..1]
+ DutiableCrewEffects: DutiableCrewEffectsType [0..1]
+ GeneralDescriptionOfDG: GeneralDescriptionOfDGType [0..1]
+ ShipStore: ShipStoreType [0..1]
+ CrewList: CrewListType [0..1]
+ PassengerList: PassengerListType [0..1]
+ PersonsOnboard: PersonsOnboardNumberType [0..1]
+ ShipClass: ShipClassType [0..1]
+ INFClassContent: INFClassContentType [0..1]
+ CurrentShipSecurityLevel: CurrentShipSecurityLevelType [0..1]
+ CurrentPortSecurityLevel: CurrentPortSecurityLevelType [0..1]
+ PortCallList: PortCallListType [0..1]
+ ShipToShipActivityList: ShipToShipActivityListType [0..1]
+ HasSecurityPlan: HasSecurityPlanType [0..1]
+ Beam: BeamType [0..1]
+ DeadWeight: DeadWeightType [0..1]
+ DoubleBottomContent: DoubleBottomContentType [0..1]
+ GrossTonnage: GrossTonnageType [0..1]
+ IceClass: IceClassType [0..1]
+ LengthOverall: LengthOverallType [0..1]
+ NetTonnage: NetTonnageType [0..1]
+ SummerDraught: SummerDraughtType [0..1]
+ ShipType: ShipTypeContentType [0..1]
+ AirDraught: AirDraughtType [0..1]
+ ArrivalDraught: ArrivalDraughtType [0..1]
+ ATP: ATPType [0..1]
+ BulkLoadUnloadData: BulkLoadUnloadDataType [0..1]
+ CallPurpose: CallPurposeType [0..*]
+ DepartureDraught: DepartureDraughtType [0..1]
+ FTP: FTPType [0..1]



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ISO 28005-1: Message Structure

- Message exchange sequences, Scenarios, message structures and software requirements.
- Maritime Single Window Message Exchange

ICS > 35 > 35.240 > 35.240.60

ISO 28005-1:2013

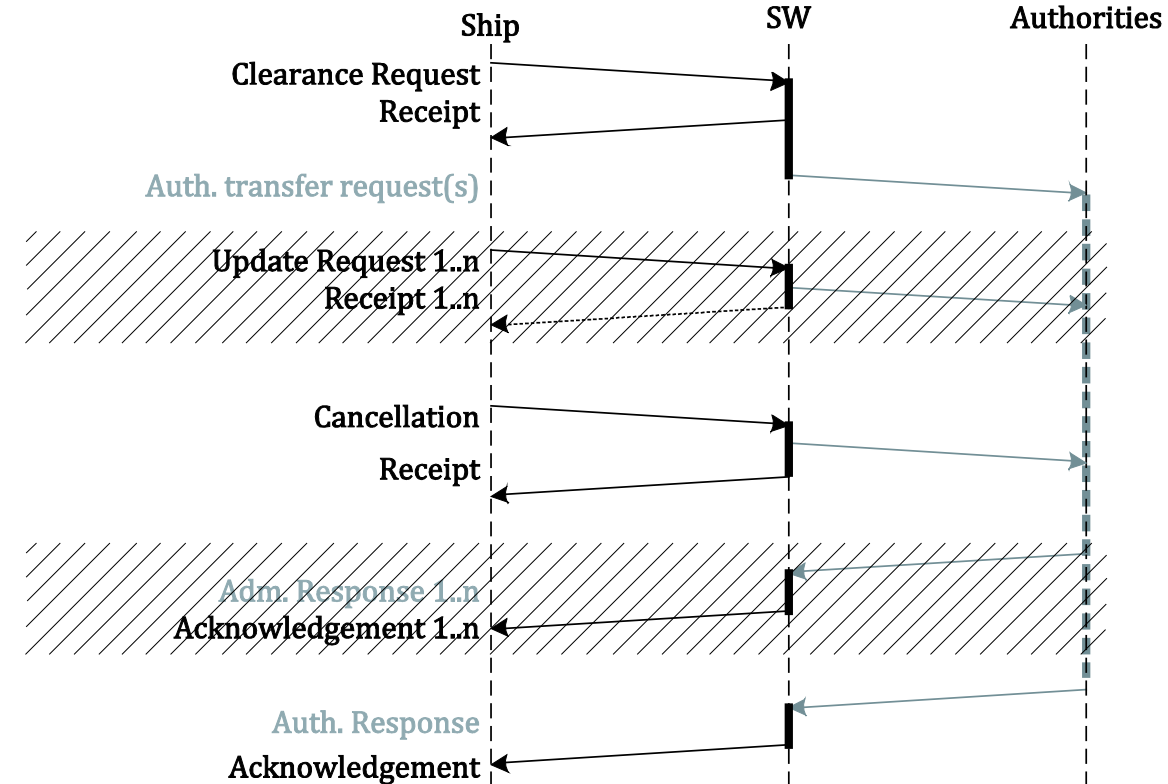
Security management systems for the supply chain – Electronic port clearance (EPC) – Part 1: Message structures

ABSTRACT [PREVIEW](#)

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 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 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.



- Work started on the update
- Port Call Optimization

ISO 28005-1: Message Structure

```
<xs:element name="EPCMessage" >
  <xs:complexType>
    <xs:sequence>
      <xs:element name="EPCMessageHeader" type="epc:EPCMessageHeaderType" />
      <xs:choice>
        <xs:element name="EPCRequestBody" type="epc:EPCRequestBodyType"
          minOccurs="0" />
        <xs:element name="EPCCancelBody" type="epc:EPCCancelBodyType"
          minOccurs="0" />
        <xs:element name="EPCReceiptBody" type="epc:EPCReceiptBodyType"
          minOccurs="0" />
        <xs:element name="EPCAcknowledgeBody" type="epc:EPCAcknowledgeBodyType"
          minOccurs="0" />
        <xs:element name="EPCComment" type="epc:string" minOccurs="0" />
      </xs:choice>
      <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

- Not defining any structuring of messages
- Not any guidance on what information is required for each use

Content of 28005-3

Updates/Additions to -2 data model

- New/updated classes
- New data elements
- New/Updated code lists

Description of roles and actors

- For use in the Message Implementation Guide

Message Implementation Guide for specific applications/domains

- Sequence Diagrams
- Just-In-Time/Port Call Optimization
- Maritime service bookings...



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ISO 28005 Usage

- Mapping to IMO Reference Data model
- EMSA in the MSW prototype and also looking at it for harmonization with eMSWe
- Safe Sea Net Norway: APIs for Mandatory Ship Reporting



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Thank you for your attention!

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