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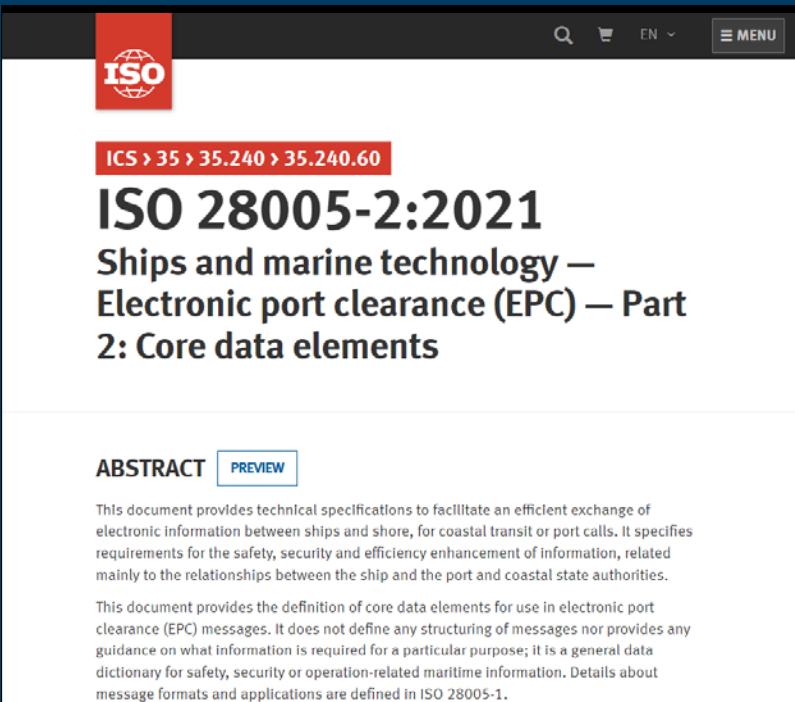
ISO 28005 highlights

ISTS/AEGIS workshop on MSW, Oslo October 3rd 2022

Marianne Hagaseth, Senior Scientist, SINTEF Ocean
Ørnulf Jan Rødseth, Senior Scientist, SINTEF Ocean

ISO 28005 on Electronic Port Clearance

- Technical standard for ship-shore reporting of MSW information
- Maintained by ISO/TC 8/SC 11 on Intermodal and Short Sea Shipping
- 28005-1: Transport Protocol and Message Structure: new version 2022/2023
- 28005-2: Data elements and model: New version 2021 to cover IMO Data Reference Model
- 28005-3: New data elements and extended model: New version 2022/2023



ISO

ICS > 35 > 35.240 > 35.240.60

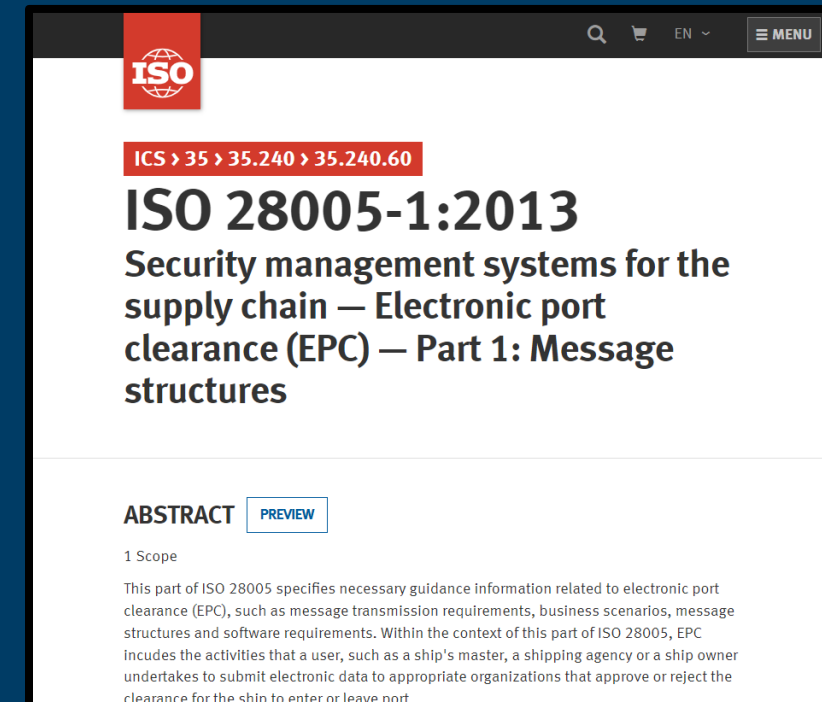
ISO 28005-2:2021

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.



ISO

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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.



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ISO 28005-1 -- Transport



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Main Transport Protocol

- HTTP* – **Not** a REST API, but using common interface methods
 - Separate API for access authorization
- Alternatively Email – possibly with encryption
- Both support asynchronous communication

- All identities based on a public/private key system
- No specifications for Public Key Infrastructure (PKI)
- MIME multipart message format
 - Header
 - Body
 - Attachments
 - Digital signature

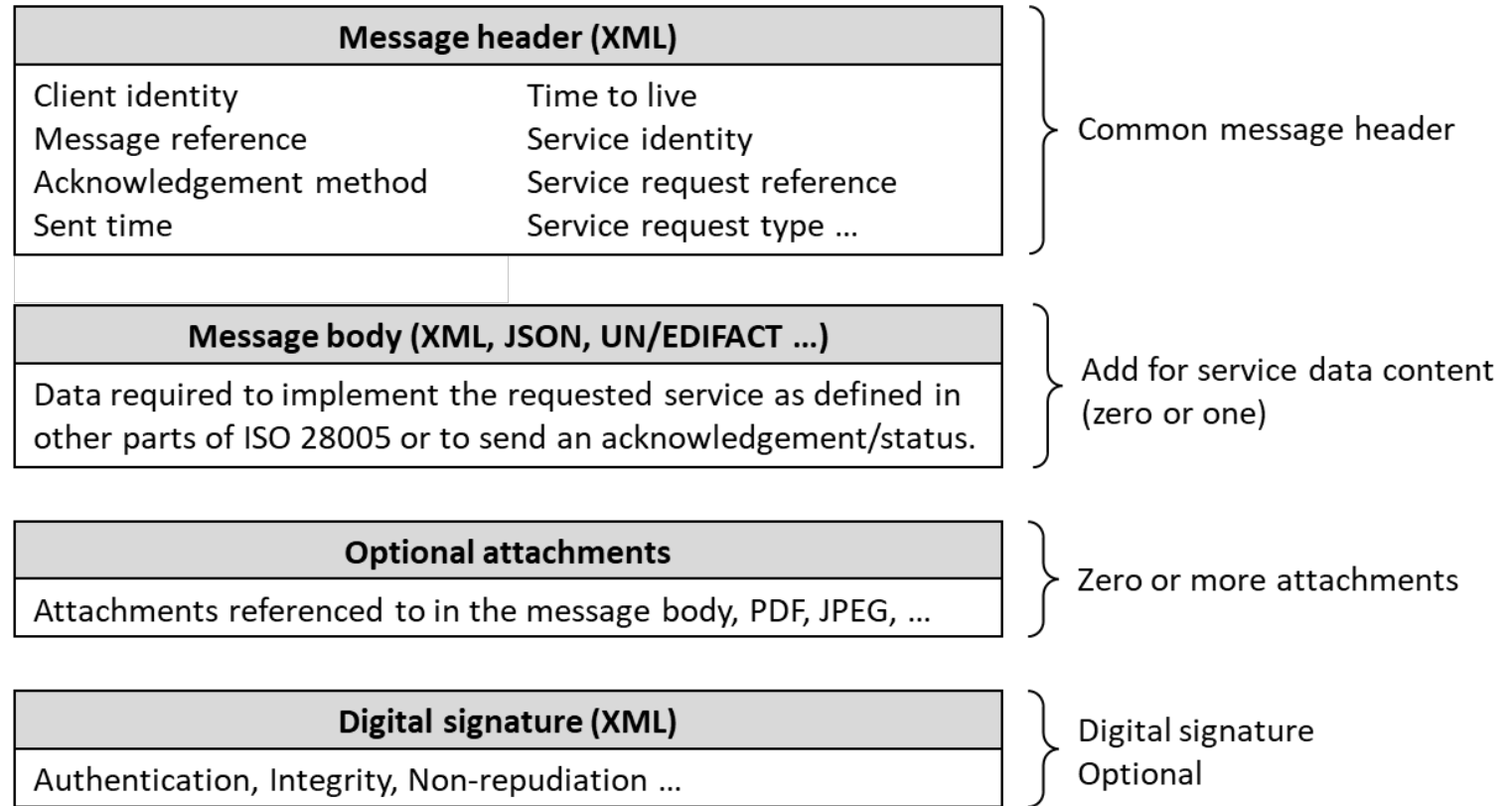
*HTTP means HTTP over TLS, i.e. HTTPS



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Data Format – Draft Suggestion

- **Header**
 - XML
- **Body**
 - Any format: XML standardized
 - JSON based on XML may be standardized
 - JSON, EDIFACT etc. as preferred and as accepted by MSW
- **Attachments**
 - Pictures of stowaways
 - Dangerous goods data sheets, etc.
- **Digital signature**
 - XML standard format over above components





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Main Transmission Principles

Sender ↔ Receiver

- Sender is the one initiating a service,
- Receiver is performing the service

Symmetric HTTP

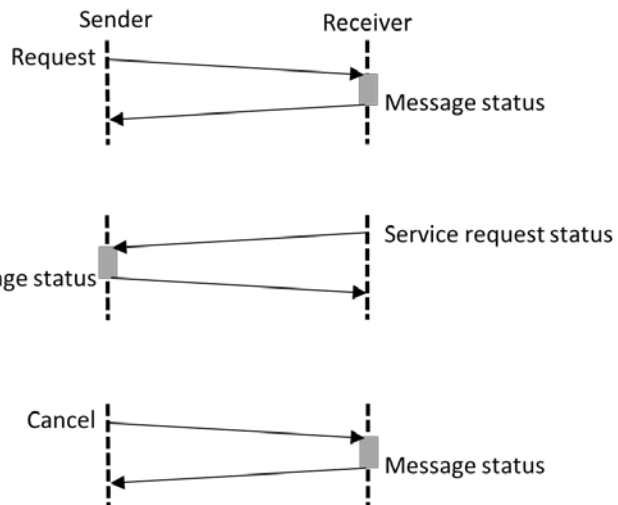
- An API for both sender and receiver, sender URI sent to Receiver
- Receiver uses Sender URI for replies

Polled HTTP

- Sender polls Receiver, no URI at Sender

Email API

- Email address for Receiver and Sender
- May require encryption of data in message



Message Principles for Sender and Receiver

- **Header** contains context definition for message
- **Body** can contain arbitrary list of data elements from all parts of standard
- **Attachments** referenced in body
- Message Implementation Guide (MIG) describes the different use cases

MessageType
MessageReference
MessageBodyFormat
Version
SenderRole
SenderId
SenderDuty
Authenticator
ReplyInformation
SentTime
TimeToLive
ReceiverId
ServiceId
ServiceReference
ReceiverMessageReference
ArrivalDeparture
JournalNumber
ReportingSystem
RelayReportingSystem
RequestStatus



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ISO 28005-2 – Data Model



ISO 28005-2: Data Types

Data model for ship-shore reporting of MSW 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

The screenshot shows the ISO 28005-2:2021 product page. At the top, there is a navigation bar with the ISO logo, a search icon, a shopping cart icon, and a language dropdown set to 'EN'. Below the navigation bar, the 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'. Below the title, there are two tabs: 'ABSTRACT' (selected) and 'PREVIEW'. The abstract text is as follows:

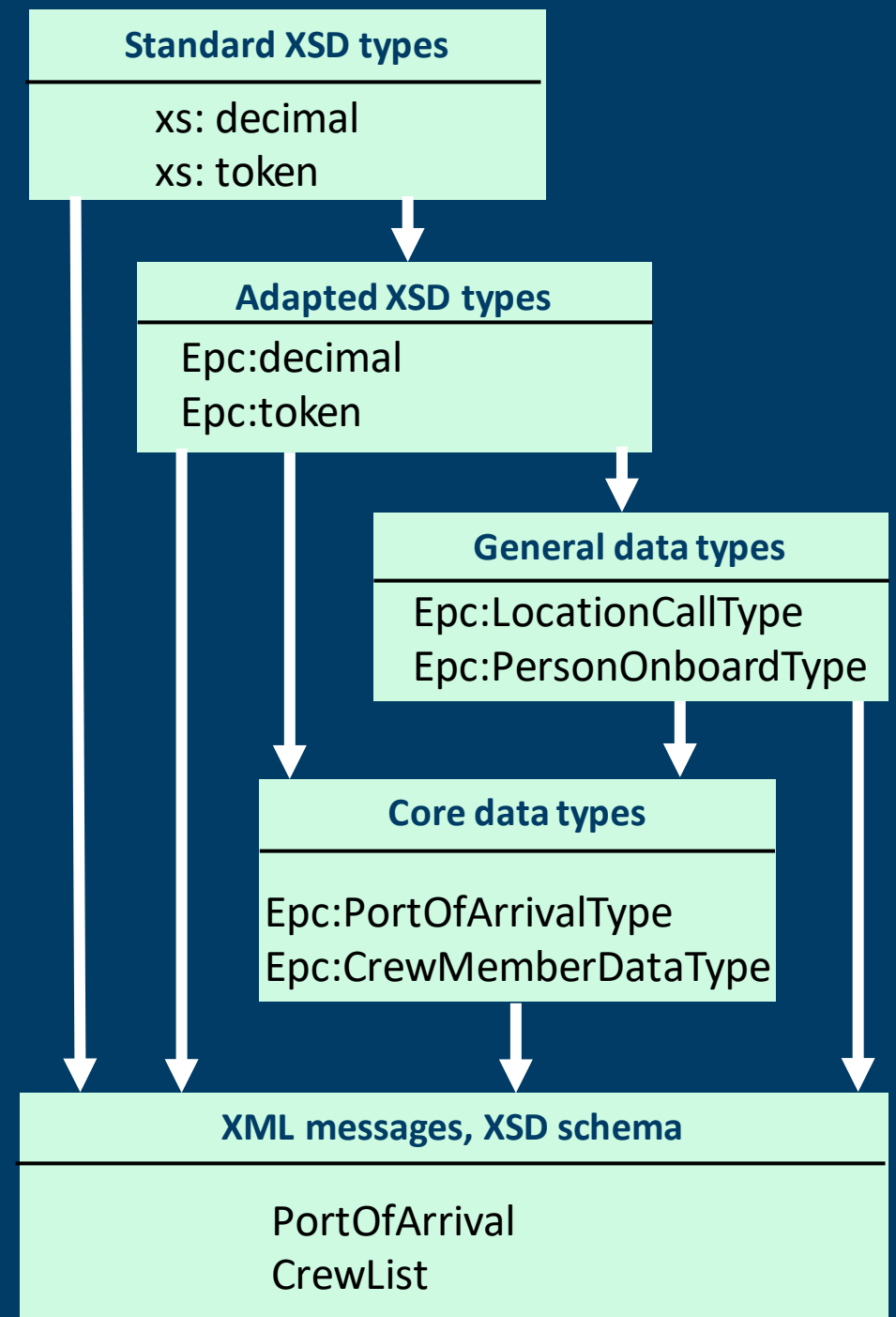
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ISO 28005-2: Core Data Elements

- Data elements are described as XML types





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ISO 28005-3 – Data Model

ISO 28005 – 3: Operational Data

1. FAL 43, April 2019: IMO Reference Model and Data list: FAL Forms 1-7, ISPS, Waste → 28005-2
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



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Thank you for your attention!

This work has been supported by the Research Council of Norway through grant 326679 (IISTS) and the European Union's Horizon 2020 research innovation program under Grant Agreement N°859992 (AEGIS).

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
...

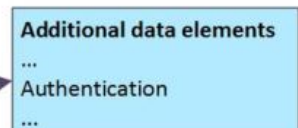
Cargo Declaration
...
Name of master
...

Other FAL Standard
Declaration
...

Waste Declaration
...
Gross tonnage
...

Other Electronic Messages
...

Contracting Governments
Additional requirements
...



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

...



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