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

Part 3:
Data elements for ship and port operation

Navires et technologie maritime — Opérations portuaires assistées par systèmes électroniques —

Partie 3: Éléments de données pour l'exploitation des navires et des ports

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Foreword

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 11, *Intermodal and Short Sea Shipping*.

A list of all parts in the ISO 28005 series are found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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

Part 3:
Data elements for ship and port operation

1 Scope

This document provides technical specifications to facilitate an efficient exchange of electronic information between ships and shore, for coastal transit and port calls, with a specific focus on the operational data exchange. It specifies requirements to enhance the safety, security and efficiency of information exchanges.

This document describes core data elements for use in electronic port clearance (EPC) messages. It does not define any structuring of messages, but rather gives general details on safety-, security- and operation-related maritime information in the context of EPC messages.

Details about message formats and applications are found in ISO 28005-1.

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 6346, *Freight containers — Coding, identification and marking*

ISO 6709, *Standard representation of geographic point location by coordinates*

ISO 9711-1, *Freight containers — Information related to containers on board vessels — Part 1: Bay plan system*

UNECE R21, (UNECE Recommendation No. 21), Codes for Passengers, Types of Cargo, Packages and Packaging Materials (with Complementary Codes for Package Names)

UNECE R16, UNECE Recommendation No. 16, United Nations Code for Trade and Transport Locations (ECE/TRADE/459)

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4   Reference to data types defined in ISO 28005-2:2021

4.1   General

Several XSD [extensible markup language (XML) schema definition] data types defined in ISO 28005-2:2021 have been reproduced in this document. Some of the definitions reproduced from in ISO 28005-2:2021 have been changed in this document. A summary of the changes is listed in Table 1.

4.2   Data types modified from ISO 28005-2:2021

Table 1 lists data types, data elements, and code lists from ISO 28005-2:2021 that have been modified in this document.

Table 1 — Changes to data types from ISO 28005-2:2021

Definitions from ISO 28005-2:2021	Definitions in this document
Epc:InmarsatCallNumberType	epc:SatelliteServiceType
Epc:ShipNameType	epc:ShipIdType
BeamType	epc:ShipParticularsType
DeadWeightType	epc:ShipParticularsType
DoubleBottomContentType	epc:ShipParticularsType
GrossTonnageType	epc:ShipParticularsType
IceClassType	epc:ShipParticularsType
LengthOverallType	epc:ShipParticularsType
NetTonnageType	epc:ShipParticularsType
SummerDraughtType	epc:ShipParticularsType
ShipTypeContentType	epc:ShipParticularsType
ISSCStatus in data type ISSCertificateStatusType	epc:CertificationType.ValidCertificateIndicator and epc:ISSCertificateStatusType.ISSCStatus
Data elements EmbarkationDate and DebarkationDate in PersonOnboardType	Embarkation.DateTime [TimeType = Actual, Planned etc] and Debarkation.DateTime [TimeType = Actual, Planned etc]
Data element IsssuerLocation in CertificateType	CertificateIssueLocationCode and CertificateIssueCountryCode in CertificateType
epc:ContactInfoType	updated version of epc:ContactInfoType
epc:CommunicationNumberType	updated version of epc:CommunicationNumberType
epc:DateTimeType	updated version of epc:DateTimeType
Ship identity and contacts data types	updated versions are used
Cargo data types	updated versions are used
Crew and passenger data	updated versions are used
Class and ship certificates	updated versions are used
Ship particulars types	updated versions are used
Vessel operation data types	updated versions are used
Location Types	updated versions are used
Waste and environmental data types	updated versions are used
Health data types	updated versions are used
epc:ShipClassType	updated versions of epc:ShipClassType and epc: ClassSocietyContentType
Waste and environmental data types	updated versions are used
Ship Particulars Types	updated versions are used
Annex A	Table 2

Table 1 *(continued)*

Definitions from ISO 28005-2:2021	Definitions in this document
Annex B	Annex A
Annex D	code values as defined in the IMO Compendium[30]
Annex E	code values as defined in the IMO Compendium, Annex A Section 9[30]
Annex F	use code values as defined in the IMO Compendium[30] instead.
Annex G	code values as defined in the IMO Compendium[30]
Annex L	code values as defined in the IMO Compendium[30]
Annex P	code values as defined in the IMO Compendium[30]
Annex R	code values as defined in the IMO Compendium[30]
Annex A	Table 2
Annex B	Annex A
Annex D	code values as defined in the IMO Compendium[30]
Annex E	code values as defined in the IMO Compendium Annex A Section 9[30]

5   Relation to the IMO Compendium

The data types defined in this document are a starting point for the implementation of the data elements and the reference model defined in the IMO Compendium on Facilitation and Electronic Business.[30] The mapping between the data elements in this document and the data elements in the IMO Compendium shall be carried out as specified in Annex A. The IMO Compendium[30] is approved by the facilitation committee in IMO (IMO FAL).

This document includes data types for all data elements in the IMO compendium as decided by IMO FAL 47,[31] including data sets for:

— Maritime Declaration of Health[38]

— Just in time concept

— Stowaways

— Ship and company certificates

— Acknowledgment receipt

— Maritime service

— Ship registry and company details

— Inspections

— Port state control (PSC) inspection history data

— Ship reporting systems

— Ballast water arrival reporting

— Waste delivery report

— Advanced passenger information

— Verified gross mass

6 EPC request body

Table 2 lists the data elements in the EPC request body.

Table 2 — EPC request body

Core element	Type	Cardi-nality	Description
Agent	epc:Agent Type	0..1	The ship's agent
AirDraught	epc:AirDraughtType	0..1	Air draught
AnchorageArrival	epc:AnchorageArrivalType	0..*	Specification of arrival to an anchorage. The arrival time can be actual, estimated, planned or requested.
AnchorageDeparture	epc:AnchorageDepartureType	0..*	Specification of departure from an anchorage. The departure time can be actual, estimated, planned or requested.
ArrivalDeparture	epc:ArrivalDepartureType	0..1	Arrival or departure flag
ArrivalDraught	epc:ArrivalDraughtType	0..1	Arrival draught
ATP	epc:ATPType	0..1	Actual time of passage
Authenticator	epc:AuthenticatorType	0..1	Information about the authenticator of the information
BallastStatus	epc:BallastStatusType	0..1	Status of ship's ballast water when in port
BallastWaterArrivalRe-porting	Epc:BallastWaterManagementType	0..1	Ballast water arrival reporting
BerthArrival	epc:BerthArrivalType	0..*	Specification of arrival to a berth. The arrival time can be actual, estimated, planned or requested.
BerthDeparture	epc:BerthDepartureType	0..*	Specification of departure from a berth. The departure time can be actual, estimated, planned or requested.
BerthPositionArrival	epc:BerthPositionArrivalType	0..*	Specification of arrival to a berth position. The arrival time can be actual, estimated, planned or requested.
BerthPositionDeparture	epc:BerthPositionDepartureType	0..*	Specification of departure from a berth position. The departure time can be actual, estimated, planned or requested.
BulkLoadUnloadData	epc:BulkLoadUnloadDataType	0..1	Data required for safe loading and unloading
CallPurpose	epc:CallPurposeType	0..*	Purpose of call
CargoData	epc:CargoDataType	0..1	Detailed description of cargo
CargoOverview	epc:CargoOverviewType	0..1	Brief description of onboard cargo
CertificateList	epc:CertificateListType	0..1	List of ship's certificates
Company	epc:CompanyType	0..1	The ship's operating company
CSO	epc:CompanySecurityOfficerType	0..1	Information about the company security officer shown in the ship security plan.
CrewList	epc:CrewListType	0..1	Information about all crew on board, including information about the Master.
Key			
* = the maximum number of instances of this data type is unbounded			
0..* = there is/are 0, 1 or many instance(s) of this data type			
0..1 = there is/are 0 or 1 instance(s) of this data type			

Table 2 (continued)

Core element	Type	Cardi-nality	Description
CrewReference	epc:CrewMemberDataType	0..1	Reference to the crew onboard that has authorized a message from the ship.
CurrentPortSecurityLevel	epc:CurrentPortSecurityLevelType	0..1	Current security level in port.
CurrentShipSecurityLevel	epc:CurrentShipSecurityLevelType	0..1	Current security level on ship.
DangerousGoodsCargoIndicator	epc:DangerousGoodsCargoIndicatorType	0..1	A yes/no indicator whether the ship is carrying any dangerous goods.
DepartureDraught	epc:DepartureDraughtType	0..1	Departure draught
DutiableCrewEffects	epc:DutiableCrewEffectType	0..1	List of crew effects that are dutiable
ETP	epc:ETPType	0..1	Estimated time of passage
FacilityArrival	epc: FacilityArrivalType	0..*	Specification of arrival to a facility. The arrival time can be actual, estimated, planned or requested.
FacilityDeparture	epc: FacilityDepartureType	0..*	Specification of departure from a facility. The departure time can be actual, estimated, planned or requested.
GeneralDescriptionOfDG	epc:GeneralDescriptionOfDGType	0..1	General description of dangerous cargo
GeneralRemark	epc:RemarksType	0..1	Statement of any other information relevant to ship arrival, stay or departure
HasSecurityPlan	epc:HasSecurityPlanType	0..1	Approved security plan
HealthData	epc:HealthDataType	0..1	Health information for the ship
INFClassContent	epc:INFClassContentType	0..1	Irradiated nuclear fuel class
ISSCertificateStatus	epc:ISSCertificateStatusType	0..1	International Ship Security (ISS) Certificate status
LastPortOfCall	epc:LastPortOfCallType	0..1	Last port of call
MaritimeService	Epc:MaritimeServiceType	0..1	Reference to a maritime service related to ServiceName and ServiceCode as given in the EPCMessageHeaderType.
NavigationalStatus	epc:NavigationalStatusContentsType	0..1	Navigational status
NextPortOfCall	epc:NextPortOfCallType	0..1	Next port of call
NextReportTime	epc:NextReportTimeType	0..1	Time of next report
OBOLoadUnloadData	epc:OBOLoadUnloadDataType	0..1	Data required for safe loading and unloading of oil-bulk-ore (OBO)
OtherPersonList	epc:OtherPersonListType	0..1	List of persons onboard that are neither crew nor passengers
PassengerList	epc:PassengerListType	0..1	Information about passengers
PeriodOfStay	epc:PeriodOfStayType	0..1	Period of stay
PersonsOnboard	epc:PersonsOnboardNumberType	0..1	Number of persons onboard
PilotBoardingPlaceArrival	epc:PilotBoardingPlaceArrivalType	0..1	Time and location for an arrival to a pilot boarding place
PilotBoardingPlaceDeparture	epc:PilotBoardingPlaceDepartureType	0..1	Time and location for a departure from a pilot boarding place
PortCallList	PortCallListType	0..1	Last ten port calls

Key

* = the maximum number of instances of this data type is unbounded

0..* = there is/are 0, 1 or many instance(s) of this data type

0..1 = there is/are 0 or 1 instance(s) of this data type

Table 2 *(continued)*

Core element	Type	Cardinality	Description
PortOfArrival	epc:PortOfArrivalType	0..1	Arrival port and time
PortOfDeparture	epc:PortOfDepartureType	0..1	Departure port and time. This includes port name and possibly ETD and ATD: PortOfDeparture/Time[Estimated] and PortOfDeparture/Time[Actual]
PSCInspectionHistory	epc:InspectionType	0..*	List of port inspection information
Radiocommunications	epc:RadiocommunicationsType	0..1	Radiocommunication active
RemarkSRS	epc:SRSRemarksType	0..*	Additional information regarding a ship reporting system
ReportingEvent	epc:VoyageEventType	0..1	This is the location from which a report is given and the time given in coordinated universal time (UTC) when the report is given. The type is changed from Location-CallType to VoyageEventType.
RequestStatus	epc:RequestStatusType	0..1	Status of a request (used by server)
ROBBunkers	epc:ROBBunkersType	0..*	Bunkers remaining onboard
SecurityOtherMattersToReport	SecurityOtherMattersToReportType	0..1	Other security matters to report
ShipBanned	epc:ShipBannedType	0..1	Information related to the banning of a ship as a result of a port state control inspection.
ShipCertificateList	epc:CertificateListType	0..1	List of ship certificates. Name changed from CertificateListType to ShipCertificateListType to distinguish from ship company certificates.
ShipClass	epc:ShipClassType	0..1	Class notation for ship
ShipCompanyInspection	epc:InspectionType	0..1	Report on inspection of the ship's company
ShipCompanyCertificateList	Epc:CertificateListType	0..1	List of certificates for the ship's company
ShipDefects	epc:ShipDefectsType	0..*	Any defects of important ship equipment
ShipID	Epc:ShipIDType	0..1	The set of different identifiers of the ship
ShipInspection	epc:InspectionType	0..*	Reports on inspection of the ship
ShipParticulars	Epc:ShipParticularsType	0..1	Ship particulars
ShipStatus	epc:ShipStatusType	0..1	Vessel status information
ShipStore	epc:ShipStoreType	0..1	Description of ship's dutiable stores
ShipToShipActivityList	epc:ShipToShipActivityListType	0..1	Ship-to-ship activities
ShipType	epc:ShipTypeContentType	0..1	Ship type code
TerminalArrival	epc: TerminalArrivalType	0..*	Specification of arrival to a terminal. The arrival time can be actual, estimated, planned or requested.
TerminalDeparture	epc: TerminalDepartureType	0..*	Specification of departure from a terminal. The departure time can be actual, estimated, planned or requested.
VoyageDescription	epc:VoyageDescriptionType	0..1	Brief description of voyage.

Key

* = the maximum number of instances of this data type is unbounded

0..* = there is/are 0, 1 or many instance(s) of this data type

0..1 = there is/are 0 or 1 instance(s) of this data type

Table 2 *(continued)*

Core element	Type	Cardi-nality	Description
VoyageEventList	epc:VoyageEventListType	0..1	Time and position when entering /exiting from ship reporting or getting to a Pilot-Boarding point..
VoyageNumber	epc:VoyageNumberType	0..1	Voyage identification code
WasteDisposalRequire-ments	epc:WasteDisposalRequir ementsType	0..1	Ship's requirements for waste disposal
WasteInformation	epc:WasteInformationType	0..1	Waste information
WayPointList	epc:WayPointListType	0..1	Way-point list
WeatherInformation	epc:WeatherInformationType	0..1	Weather information as observed
Key			
* = the maximum number of instances of this data type is unbounded			
0..* = there is/are 0, 1 or many instance(s) of this data type			
0..1 = there is/are 0 or 1 instance(s) of this data type			

7 General data types

7.1 General

This clause contains information on general data types.

7.2 Epc:ContactInfoType – Contact information

7.2.1 Definition

This data type contains contact information for either a person or a company.

7.2.2 Type

```
<xs:complexType name="ContactInfoType">
 <xs:sequence>
   <xs:element name="Company" type="xs:string" minOccurs="0"/>
   <xs:element name="CompanyId" type="xs:string" minOccurs="0"/>
   <xs:element name="ContactType" type="epc:ContactTypeContentType" minOccurs="0"/>
   <xs:element name="ContactNumbers" type="epc:CommunicationNumberType" minOccurs="0"/>
   <xs:element name="Person" type="epc:NameType" minOccurs="0"/>
   <xs:element name="Address" type="epc:PostalAddressType" minOccurs="0"/>
 </xs:sequence>
</xs:complexType>
```

7.2.3 Representation

Common information for both persons and companies are addresses and contact numbers. Companies and persons differ, in that companies have one name in a string, while persons can have a given name, family name, and middle name. CompanyId is the recognized identification number of the company. ContactType is a code specifying the type of contact for dangerous goods. The code values are according to UN/EDIFACT codes 3139 Contact function code.[48]

7.3 epc:CommunicationNumberType – Communication number information

7.3.1 Definition

This data type specifies a contact point via telephone or other means.

7.3.2 Type

```
<xs:complexType name="CommunicationNumberType">
  <xs:sequence>
    <xs:element name="BusinessTelephone" type="epc:string" minOccurs="0"/>
     <xs:element name="ContactURL" type="epc:anyURI" minOccurs="0" maxOccurs="1"/>
    <xs:element name="EMail" type="epc:anyURI" minOccurs="0"/>
    <xs:element name="HomeTelephone" type="epc:string" minOccurs="0"/>
    <xs:element name="MobileTelephone" type="epc:string" minOccurs="0"/>
    <xs:element name="Telefax" type="epc:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

7.3.3 Representation

This element contains a list of contact points for a person or organization. Telephone numbers shall be specified with an international prefix code. The email tag shall be a valid URI with the "mailto:" prefix.

7.4 epc: ContactTypeContentType - Type of contact for dangerous goods

7.4.1 Definition

This data type is used to specify the type of company that is the contact for dangerous goods.

7.4.2 Type

```
<xs:simpleType name="ContactTypeContentType">
 <xs:restriction base="xs:token"/>
</xs:simpleType>
```

7.4.3 Representation

This data type contains the enumated values from UN/EDIFACT codes 3139 Contact function code.

7.5 epc:DateTimeType – DateTime with type

7.5.1 Definition

This data type defines a date and time with additional time zone information. It also contains the type of this time, whether it is an actual time, estimated time, planned time, or requested time.

7.5.2 Type

```
<xs:complexType name="DateTimeType">
 <xs:sequence>
   <xs:element name="DateTime" type="epc:dateTime" />
<xs:element name="TimeType" type="epc:TimeTypeContentType" minOccurs="0"/>
 </xs:sequence>
</xs:complexType>

<xs:simpleType name="TimeTypeContentType">
 <xs:restriction base="xs:token">
   <xs:enumeration value="Actual"/>
   <xs:enumeration value="Estimated"/>
   <xs:enumeration value="Planned"/>
   <xs:enumeration value="Requested"/>
 </xs:restriction>
</xs:simpleType>
```

7.5.3 Representation

The time is represented by the core type epc:dateTime. The time type is represented by the enumeration TimeTypeContentType containing either actual, estimated, planned or requested. In addition, an event type