ETSI GS CDM 005 V1.5.3 (2021-09)

Common information sharing environment service and Data Model (CDM); Data Model

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) european Common information sharing environment service and Data Model (CDM).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Introduction

The Common Information Sharing Environment (CISE) is an EU initiative towards an Integrated Maritime Surveillance aiming to make European and EU/EEA Member States surveillance systems interoperable and to give all concerned authorities from different sectors access to information they need to conduct missions at sea. The primary objective is to generate a situational awareness of activities at sea, impacting on the denominated seven maritime sectors: Maritime Safety and Security, Border Control, Maritime Pollution and Marine Environment Protection, Fisheries Control, Customs, General Law Enforcement, Defence, as well as the economic interests of the EU, so as to facilitate sound decision making.

During the CISE roadmap process several initiatives and projects contributed towards the definition of the requirements and technical specifications and among them the Cooperation (CoopP) and later the FP7 EUCISE2020 project defined the Data Model specification.

The version of the present document is aligned with the one specified at: http://emsa.europa.eu/cise-documentation/cise-data-model-1.5.3/.

1 Scope

The present document defines the Data Model for the Common information sharing environment service and Data Model (CDM). The Data Model describes the payload (content) of the Service Model (envelope) used for maritime information exchange among participants of a CISE network.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ISO 3166-1:2020: "Codes for the representation of names of countries and their subdivisions -- Part 1: Country code".

[2] EUR-Lex - 32011R0404 EN: "Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC)".

NOTE: Available at https://eur-lex.europa.eu/eli/reg_impl/2011/404/oj.

[3] International Maritime Dangerous Goods (IMDG) Code.

NOTE: Available at https://law.resource.org/pub/us/cfr/ibr/004/imo.imdg.2.2006.pdf.

[4] IETF RFC 6351: "xCard: vCard XML Representation".

[5] IETF RFC 6350: "vCard Format Specification".

[6] ISO 28005-1:2013: "Security management systems for the supply chain -- Electronic port clearance (EPC) -- Part 1: Message structures".

[7] ISO 6346:1995: "Freight containers -- Coding, identification and marking".

[8] ISO 639-2:1998: "Codes for the representation of names of languages -- Part 2: Alpha-3 code".

[9] Recommendation ITU-R M.1371-5: "Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band".

NOTE: Available at https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.1371-5-201402-I!!PDF-E.pdf.

[10] ISO 3166-3: "Codes for the representation of names of countries and their subdivisions -- Part 3: Code for formerly used names of countries".

[11] MARPOL: "International Convention for the Prevention of Pollution from Ships".

NOTE: Available at https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/ConferencesMeetings/FocusOnIMOArchives/Focus%20on%20IMO%20-%20MARPOL%20-%2025%20years%20(October%201998).pdf.

[12] Tonnage Convention.

NOTE: Available at https://ec.europa.eu/eurostat/cache/metadata/Annexes/fish_fleet_esms_an1.pdf.

[13] Load Lines (LL) Convention.

NOTE: Available at https://www.imo.org/fr/OurWork/Safety/Pages/LoadLines.aspx.

[14] SOLAS Convention.

NOTE: Available at https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI GS CDM 002: "Common information sharing environment service and Data Model (CDM); System Requirements definition".

[i.2] ETSI GS CDM 003: "Common Information sharing environment service and Data Model (CDM); CDM Architecture".

[i.3] ETSI GS CDM 004: "Common information sharing environment service and Data Model (CDM); Service Model".

[i.4] ISO 19112:2019: "Geographic information -- Spatial referencing by geographic identifiers".

[i.5] GeoNames geographical database.

NOTE: Available at https://www.geonames.org/.

[i.6] DBpedia Uniform Resource Identifier.

NOTE: Available at https://dbpedia.org/page/Uniform_Resource_Identifier.

[i.7] OASIS CAP Standard.

NOTE: Available at http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.html.

[i.8] Traffic Light Protocol (TLP).

NOTE: Available at https://us-cert.cisa.gov/sites/default/files/tlp/tlp-v1.pdf.

[i.9] Council Decision 2013/488/EU of 23 September 2013 on the security rules for protecting EU classified information.

NOTE: Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013D0488.

[i.10] SafeSeaNet Incident Report Guidelines (v2.1).

NOTE: Available at http://emsa.europa.eu/ssn-main/documents/download/4222/1137/23.html.

[i.11] IETF RFC 2046: "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", Freed, N. and N. Borenstein, DOI 10.17487/RFC2046, November 1996.

NOTE: Available at https://www.rfc-editor.org/info/rfc2046.

[i.12] International Ship and Port Facility (ISPS) Code.

NOTE: Available at https://www.imo.org/en/OurWork/Security/Pages/SOLAS-XI-2%20ISPS%20Code.aspx.

[i.13] ISO 5127-1:1983: "Documentation and information -- Vocabulary -- Part 1: Basic concepts".

[i.14] ISO 2382-4:1987: "Information processing systems -- Vocabulary -- Part 4: Organization of data".

[i.15] Sixth Council Directive 77/388/EEC of 17 May 1977 on the harmonization of the laws of the Member States relating to turnover taxes - Common system of value added tax: uniform basis of assessment.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

adaptor: component external to CISE network connecting a Participant to CISE network via standardized interface

NOTE 1: The Adaptor is the bridge between the Legacy System and the Gateway translating LS data to the CISE Data Model. The Adaptor uses available Gateway Services depending on the strategy chosen for message exchange patterns and Data Model.

NOTE 2: The Adaptor could be either software or software/hardware component.

NOTE 3: In case of a new system connected to CISE, the Adaptor functionality may be part of the new system.

consumer: participant requesting Services over CISE network, only consuming but not providing information

CoopP: project financed by the European Commission in 2013 defining the CISE use cases and the first version of the CISE data and service model

NOTE: See https://ec.europa.eu/maritimeaffairs/policy/integrated_maritime_surveillance_en for more information.

cross-border: exchange of information between EU or EFTA countries

cross-sector: exchange of information between two or more sectors

EUCISE2020: FP7 pre-operation validation project on CISE

NOTE: The project defined and developed the existing CISE Network and software (2014-2019).

Legacy System (LS): software designed to perform specific tasks and that exposes certain functionalities through interfaces in the domain of the maritime surveillance

NOTE: In the present document, Public Authorities maintain Legacy Systems. Legacy Systems are the originator and final destinations of messages exchange in CISE.

message: one of the structured sentences exchanged between Participants to discover, request and provide Services

node: software components that provide CISE infrastructure and access point to CISE network

participant: Legacy System connected to the CISE network for exchanging data supporting one or more of the following seven Sectors in performing their Activities:

- Maritime Safety, Security and Prevention of Pollution by Ships
- Fisheries Control
- Marine Pollution Preparedness and Response, Marine Environment
- Customs
- Border Control
- General Law Enforcement

- Defence

provider: participant that provides Services over CISE network

public authority: any organization or legal entity that has an interest in maritime surveillance information

NOTE 1: An authority can be local, regional, national or European.

NOTE 2: This organization may have responsibilities linked to one of the seven sectors of maritime surveillance.

sector: user community involved in maritime surveillance

NOTE: The seven sectors are the following:

- Maritime Safety, Security and Prevention of Pollution by Ships.
- Fisheries Control.
- Marine Pollution Preparedness and Response, Marine Environment.
- Customs.
- Border Control.
- General Law Enforcement.

service: self-describing, high-level abstraction of coarse-grained business capability

NOTE 1: In CISE, services hide the complexity of the LS's infrastructure and functionalities and the heterogeneity of platforms behind standards-based interfaces.

NOTE 2: The type of a service indicates the main data entity exchanged using this service, e.g. VesselService.

NOTE 3: Service providers can offer several services of the same type handling different subsets of data. For instance, providers could define one service (type VesselService) to exchange information from a vessel database and a second one (type VesselService) to exchange vessel information with their location obtained from a sensor.

NOTE 4: Providers will decide which attributes and related entities of the main entity will be exchanged using the service. For instance, a service of type VesselService will enable the exchange of Vessel data entities and could also handle information of the Cargo, Incident, Location data entities (and the corresponding relationships), depending on the service provider and the capabilities of the legacy systems.

user: person appointed by the Public Authorities, interacting directly with CISE or with a Legacy System connected to CISE

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Ascension
ACINT	Acoustic Intelligence
AD	Andora
ADR	Address
AE	Arab Emirates
AF	Afghanistan
AG	Antigua
AIR	Aerial
AIS	Automatic Identification System
AMSL	Above Mean Sea Level

AU	Australia
AVL	Automatic Vehicle Location
AWD	All-Wheel Drive
BDAY	Birthday
C2	Command and Control system
CA	Canada
CAP	Common Alerting Protocol
CBRN	Chemical, Biological, Radiological and Nuclear
CDM	Common information sharing environment service and Data Model
CHEM	Chemical
CISE	Common Information Sharing Environment
CMB	Combat
COG	Course Over Ground
COMINT	Communications Intelligence
CSO	Company Security Officer
CSS	Cargo Stowage and Securing
DCMI	Dublin Core Metadata Initiative
DD	Day
DG	Dangerous
DGP	Dangerous and Polluting
DGR	Dangerous
DPG	Dangerous and Polluting Goods
DPV	Desert Patrol Vehicle
DRZLE	Drizzle
EEA	European Economic Area
EEC	European Economic Community
ELINT	Electronic signals intelligence
EO/IR	Electro-Optical/Infra-Red
EOIR	Electro-Optical Infra-Red
EST	Estimation
EU	European Union
EUCISE2020	European Union Common Information Sharing Environment
FAO	Food and Agriculture Organization
FAV	Fast Attack Vehicle
FBURL	Free Busy Uniform Resource Location
FF	Fire Fighting
FISH	Fish
FN	Formatted Name
FP7	7th Framework Programme
FSTT	Fire Services Technical Intervention
GB	Great Britain
GEN	Generic
GEO	Geographical
HAZMAT	Hazardous Materials
HSC	High Speed Craft
HUM	Humid
IBC	Intermediate Bulk Containers
ICY	Icy
ID	Identifier
IGC	International Gas Carrier
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IMOFAL	International Maritime Organization Facilitation
IMPP	Instant Messaging and Presence Protocol
IMSBC	International Maritime Solid Bulk Cargoes
INF	Irradiated Nuclear Fuel
INT	Intelligence
INW	Inland Waterway
ISM	International Safety Management
ISO	International Organization for Standardization
ISPS	International Ship and Port Facility Security Code
ISS	International Ship Security

ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
IT	Information Technology
ITF	International Transport Workers' Federation
ITU	International Telecommunication Union
ITU-R	International Telecommunication Union Radiocommunication
IVEF	Inter VTS Exchange Format
KML	Keyhole Markup Language
LANG	Language
LL	Load Lines
LOA	Length Overall
LRIT	Long Range Idenitifcation and Tracking
LS	Legacy System
MAC	Multi-Agency Cooperation
MARPOL	International Convention for the Prevention of Pollution from Ships
METOC	Meteo Oceanographic
MHB	Materials Hazardous only in Bulk
MIL	Military
MM	Month
MMSI	Maritime Mobile Service Identity
MPEG	Moving Picture Experts Group
MSC	Maritime Safety Committee
NAT	Natural
NCA	National Competent Authority
NET	Network
NLS	Noxious Liquid Substances
NOOSL	Norway Oslo
NSW	National Single Window
OASIS	Organization for the Advancement of Structured Information Standards
OCL	Object Constraint Language
OCT	October
OIL	Oil
OPR	Operational
ORG	Organization
OTH	Other
POL	Police
PRT	Portugal
PSS	Passenger Ship Safety
PSYOPS	Psychological Operations
PT	Portugal
QMED	Quilified Member of Engine Department
REC	Reconstruction
REV	Revision
ROV	Remotely Operated Vehicle
RSC	Rescue
SART	Seeking to Attract Attention
SAV	Save
SCS	Support Community Safety
SOC	Social
SOG	Speed Over Ground
SOLAS	Safety Of Life At Sea
SSN	SafeSeaNet
SSO	Ship Security Officer
STPS	Special Trade Passenger Ships
TDS	Thunderstorm
TEL	Telephone
TEU	Treaty on European Union
TLC	Telecommunications
TLP	Traffic Light Protocol
TSO	Tactical Situation Object
TZ	Timezone
UAV	Unmanned Aerial Vehicle
UID	Unique Identifier

UK	United Kingdom
UML	Unified Modeling Language
UN	Unified Nations
UNDG	United Nations Dangerous Goods
UNECE	United Nations Economic Commission for Europe
UNK	Unknown
URI	Uniform Resource Identifier
URL	Uniform Resource Location
US	United States
USV	Unmanned Surface Vehicle
UTC	Universal Time Coordinated
UUID	Universally Unique Identifier
UUV	Unmanned Underwater Vehicles
UVI	Unique Vessel Identifier
VAT	Value Added Tax
VDR	Voyager Data Recorder
VEG	Vegetable
VHF	Very High Frequency
VISA	Visa International Service Association
VMS	Vessel Monitoring System
VTS	Vessel Traffic Services
VULN	Vulnerable
WFS	Web Feature Service
WGH	Weighing
WIG	Wing-in-Ground
WIN	Windy
WKT	Well Known Text
WMS	Web Map Service
XML	eXtensible Markup Language
XSD	XML Schema Definition

4 Overview

The present document presents the Data Model defined for the common information sharing environment on the basis of what was defined during Cooperation (CoopP) and EUCISE2020 EU funded projects.

On October 2009 the European Commission adopted a Communication "Towards the integration of maritime surveillance in the EU: A common information sharing environment for the EU maritime domain (CISE)", promoting to integrate maritime surveillance activities of all public maritime sectors across Europe.

The aim of the integrated maritime surveillance is to generate a situational awareness of activities at sea, impacting on the denominated seven maritime sectors Maritime Safety and Security, Border Control, Maritime Pollution and Marine Environment Protection, Fisheries Control, Customs, General Law Enforcement, Defence, as well as the economic interests of the EU, so as to facilitate sound decision making.

The added value of integrating maritime surveillance is to enhance the present sectoral maritime awareness pictures of the sectoral user communities, with additional relevant cross-sectoral and cross-border surveillance data on a responsibility to share basis. Such enhanced pictures increase Member States authorities' efficiency and improve cost effectiveness.

Such a decentralized information exchange system is directed to interlink all relevant User Communities, taking into account existing sectoral information exchange networks and planned system, and allowing for the improvement and development of both the existing sectoral systems, and the overarching CISE network architecture.

The network vision concept is that each Member State and Community can adopt one of the following paradigms:

- **One-way approach:** all public authorities in a Member State are connected to the CISE network through a single access point.
- **Multi-way approach:** the public authorities of a Member State are connected to the CISE network through different access points.

The CISE environment is designed to allow the interoperability of national or European legacy systems belonging to public authorities in the Member States through two components:

- **CISE Adapter:** which allows a Legacy System (LS) to connect to a CISE Node. It converts the LS data into the common CISE data model.
- **CISE Node (Node):** which implements common CISE specifications and implements CISE messaging protocol for exchange with the CISE adapter or other CISE Nodes.

The CISE services are organized into two classes:

- **Infrastructure (Core Services):** which represent the basic services implemented by the CISE Node in order to ensure the connection of each partner, or group of them, to the CISE network.
- **Interface (Common Services):** which are dedicated to the transfer of entities within the CISE network following the CISE rules.

In accordance with the aforementioned, the following configuration of the CISE network architecture shall be implemented:

- The CISE national component (Node) is able to connect to the CISE network one or more public authorities of the same Member State. In this configuration, the CISE Node hosts the Core and Common services.

The CISE network is currently able to link European countries and legacy systems of the national administrations connected to the CISE network through adapters.

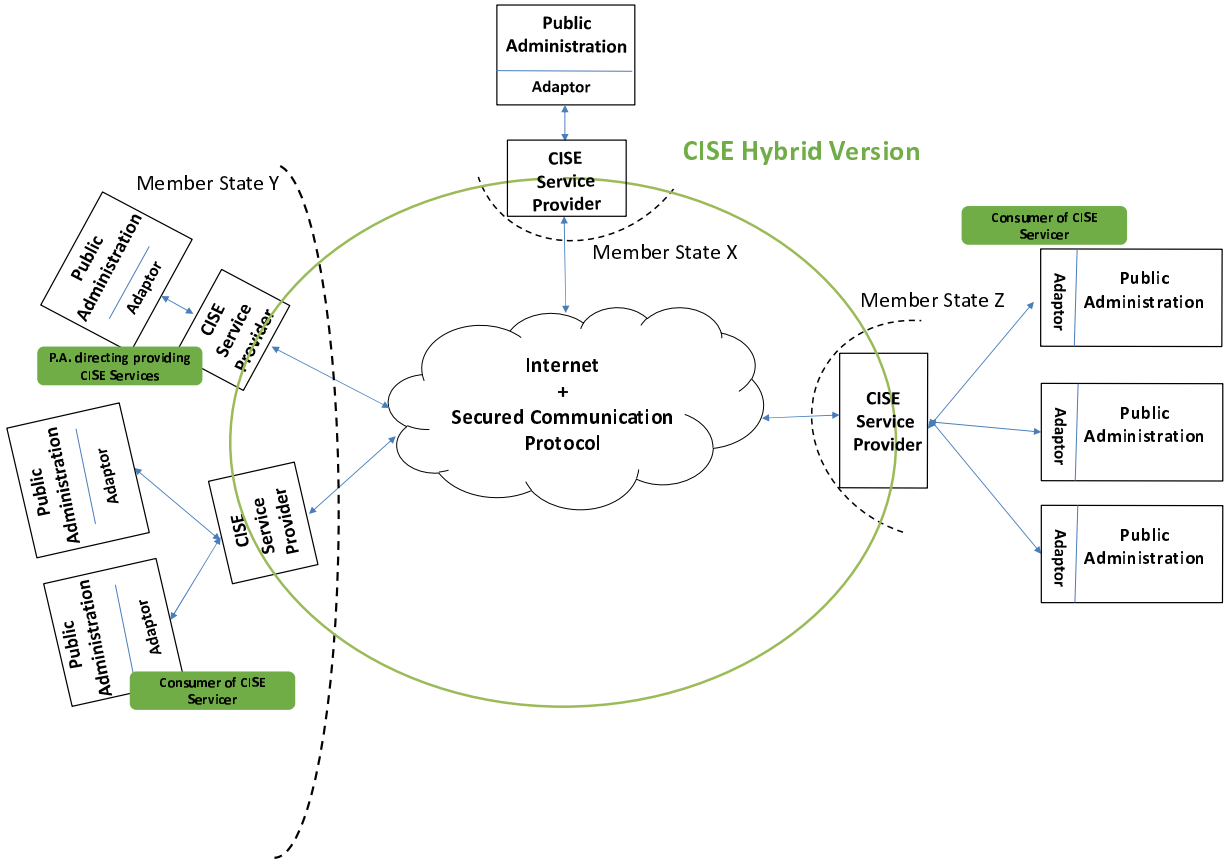

Figure 1: High Level Operational Concept

The exchange of information between participants is carried out on the basis of CISE Service Model [i.3] message exchange patterns while the CISE Data Model, object of the present document, defines the supported information model and their relationships.

5 Data Model description

CISE is expected to interlink a wide variety of existing information systems, which handle and store data using many different standardized or proprietary formats (see clause 5.3.4 in ETSI GS CDM 002 [i.1]). The data model does not have an implicit relational paradigm, mainly because it is not stored anywhere, other than in the target systems which are behind CISE scope. This relational paradigm and representation is achieved through relational entities which are encapsulated by the core entities. Figure 2 depicts the data model from a high-level perspective, focusing in the main domain entities, such as Event, Risk or Agent.

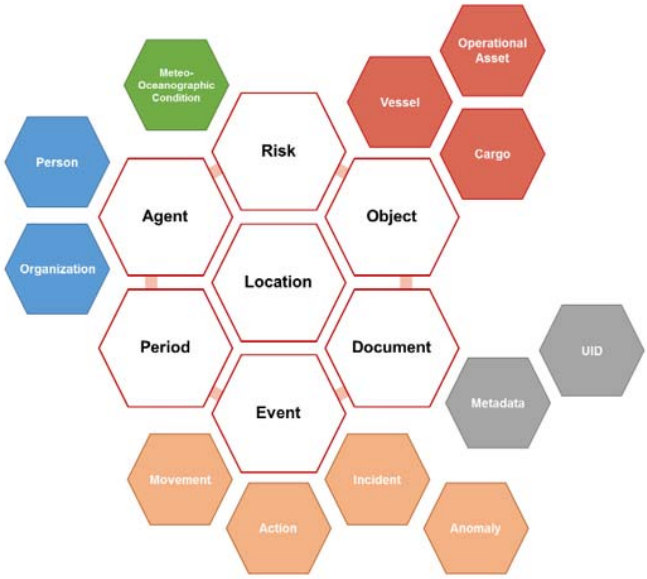

Figure 2: CISE Data Model

Typically, the relational entities aggregate the target entity and some relationship characterization info. Figure 3 provides an illustration of the envisioned relational model.

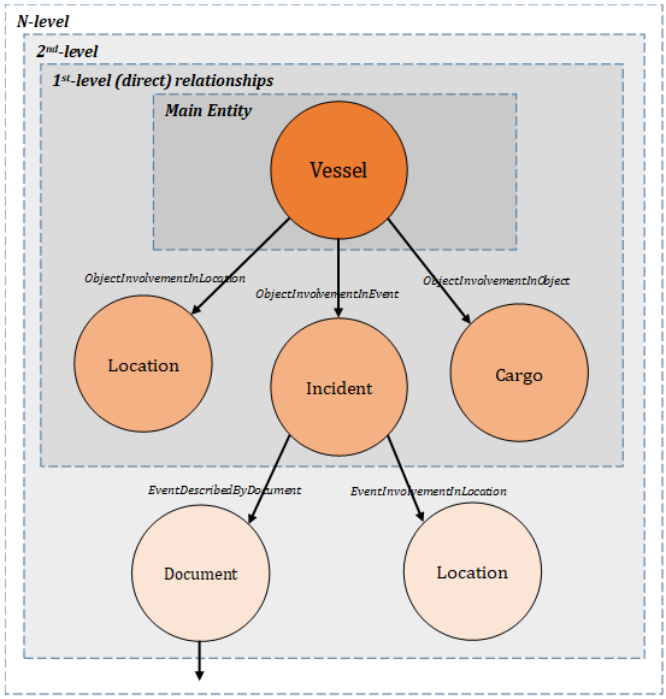

Figure 3: Relational Model

6 Service Types and supported CISE Data Model entities

During the process of registration for producer and consumer services (see clause 5.3.2.4.2 of ETSI GS CDM 003 [i.2]) an indication is made regarding which informational service type is supported, for example "VesselService". This same indication is then passed along in the message structure (in field called ServiceType in ETSI GS CDM 004 [i.3]).

The Service Type has a direct relation with the Data Model entities passed in the payload of the message.

Table 1 presents the list of Service Types and the corresponding supported entity types allowed.

The responsibility of the Adaptor is to ensure the correct setting of these fields and the Node will enforce these validations.

Table 1: CISE Service Types and Supported Entities

Service Type	Supported CISE Data Model entity
ActionService	Action
AgentService	Agent, Person, Organization, OrganizationalUnit, PortOrganization, FormalOrganization, OrganizationalCollaboration
AircraftService	Aircraft
AnomalyService	Anomaly
CargoDocumentService	CargoDocument
CargoService	Cargo, Catch, ContainementUnit
CertificateDocumentService	CertificateDocument
CrisisIncidentService	CrisisIncident
DocumentService	Document, VesselDocument, CargoDocument, EventDocument, LocationDocument, OrganizationDocument, RiskDocument, PersonDocument, CertificateDocument, Stream
EventDocumentService	EventDocument
IncidentService	Incident, MaritimeSafetyIncident, PollutionIncident, IrregularMigrationIncident, LawInfringementIncident, CrisisIncident
IrregularMigrationIncidentService	IrregularMigrationIncident
LandVehicleService	LandVehicle
LawInfringementIncidentService	LawInfringementIncident
LocationService	Location, PortLocation, PortFacilityLocation, NamedLocation
LocationDocumentService	LocationDocument
MaritimeSafetyIncidentService	MaritimeSafetyIncident, PollutionIncident
MeteoOceanographicConditionService	MeteoOceanographicCondition
MovementService	Movement
OperationalAssetService	OperationalAsset
OrganizationService	Organization, PortOrganization, OrganizationalUnit, OrganizationalCollaboration, FormalOrganization
OrganizationDocumentService	OrganizationDocument
PersonService	Person
PersonDocumentService	PersonDocument
RiskDocumentService	RiskDocument
RiskService	Risk
VesselDocumentService	VesselDocument
VesselService	Vessel

7 The CISE Data Model Definition

7.1 The CISE Data Model

7.1.1 Introduction

The following clauses describe each Core Entity of the CISE Data Model by presenting the respective UML class diagrams and by describing the vocabulary (classes, association roles, enumerations, etc.). Through the following clauses, whenever class attributes or association roles are inherited from a parent class, their tabular representation is coloured in grey. Certain class attributes and enumeration values of the CISE Data Model shall follow the specifications of the normative references [1] to [9].

7.1.2 Entity Core Entity

7.1.2.1 Entity UML Models

Figure 4 depicts the diagram of the classes that belong to the Entity Core Entity:

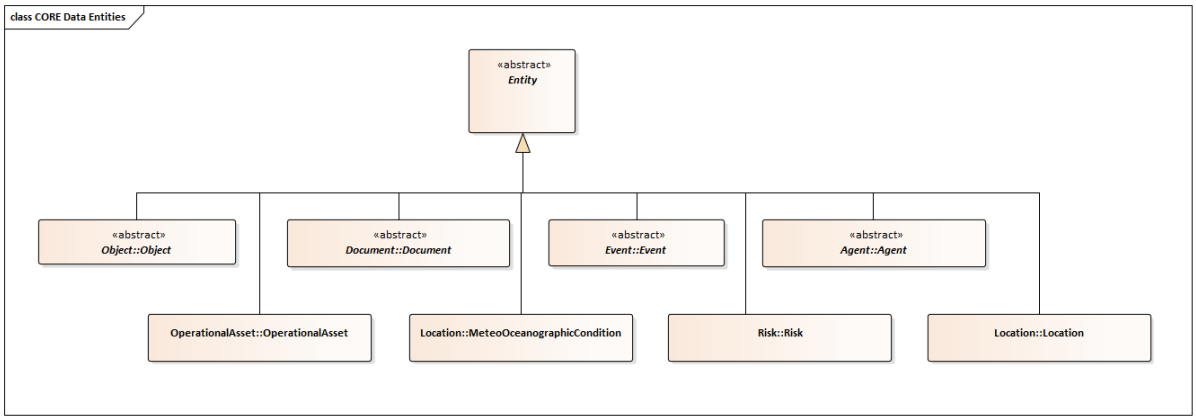

Figure 4: CISE Entity model

7.1.2.2 Entity Vocabulary

7.1.2.2.1 Entity Class

Abstract class representing an entity of the CISE data model.

7.1.3 Action Core Entity

7.1.3.1 Action UML Models

Figure 5 depicts the diagram of the classes that belong to the Action Core Entity.

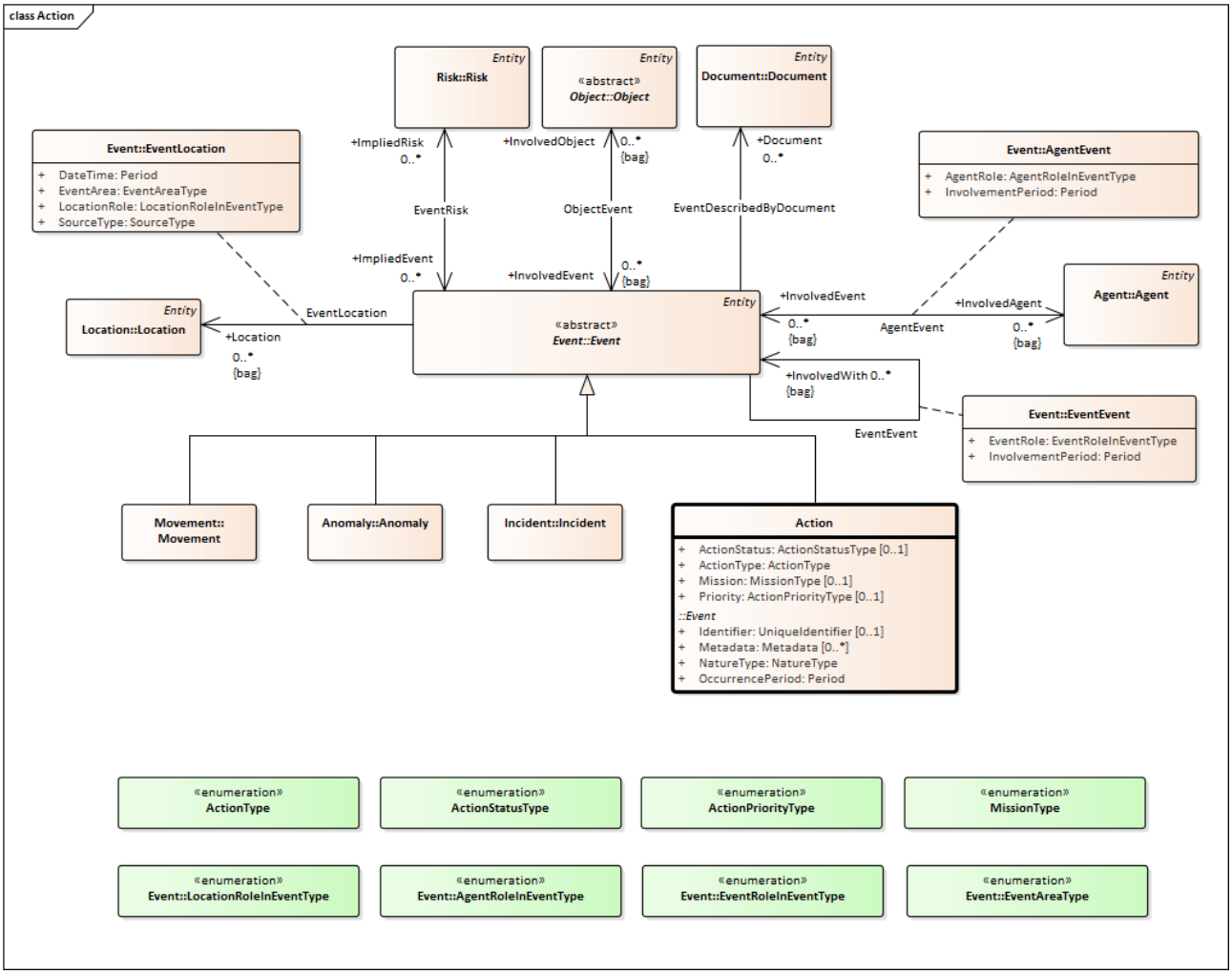

Figure 5: CISE Action model

7.1.3.2 Action Vocabulary

7.1.3.2.1 Action Class (subclass of Event)

7.1.3.2.1.1 General Description

It is a subclass of Event. The Action entity may be linked to Incident, Anomaly and can also be expressed taking into account other entities as location, object, etc.

7.1.3.2.1.2 Attributes

Table 2: Action class attributes

UML Name	Data type	Description	Example
ActionStatus	ActionStatusType	Defines the current status of the action. An action can be Cancelled, Completed, InProgress, etc.	InProgress
ActionType	ActionType	Many different action types can be described.	Rescue
Mission	MissionType	The mission associated with the action.	MIL
Priority	ActionPriorityType	The Action priority.	High
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See clause 7.1.10.	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.3.2.1.3 Association Roles

Table 3: Action class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.3.2.2 ActionPriorityType Enumeration

This enumeration presents the different priorities which can be assigned to an Action.

Table 4: ActionPriorityType enumeration

Value	Label	Description
High	high	Used to identify a high priority Action
Medium	medium	Used to identify a medium priority Action
Low	low	Used to identify a low priority Action
Other	other	Action status not included above
NonSpecified	non-specified	Action status non-specified

7.1.3.2.3 ActionStatusType Enumeration

In order to define the statuses associated to an action, the work already done for the definition of the Tactical Situation Object (TSO) during the "EU FP6 OASIS" project is re-used. TSO defined among many artifacts, a list of action statuses. This enumeration presents the possible statuses of an Action.

Table 5: ActionStatusType enumeration

Value	Label	Description
Aborted	aborted	Action aborted
Cancelled	cancelled	Action cancelled
Completed	completed	Action completed
InProgress	in progress	Action InProgress (2 additional digits - such as IPR50 - may provide the percentage of completeness of the action)
NotStarted	not started	Action is not started
Paused	paused	Action is paused
Other	other	Action status not included above
NonSpecified	non-specified	Action status non-specified

7.1.3.2.4 ActionType Enumeration

This enumeration presents the possible types of Actions.

Table 6: ActionType enumeration

Value	Label	Description
Inspection	inspection	An inspection action as defined in the EUROSUR system
Confirmation	confirmation	A confirmation action
Rescue	rescue	A rescue action as defined in the EUROSUR system
Deterrence	deterrence	An action intended to dissuade an adversary from undertaking an action not yet started
Assistance	assistance	An assistance action
Acknowledgment	acknowledgment	An action resulting in an acknowledgement
Exercise	exercise	An action defined as an exercise
Search	search	A search action
Detection	detection	A detection action
Tracking	tracking	A tracking action
Interception	interception	An interception action
Other	other	Action type not included above
NonSpecified	non-specified	Action type non-specified

7.1.3.2.5 MissionType Enumeration

This enumeration presents the possible types of Missions.

Table 7: MissionType enumeration

Value	Label	Description
C2		Command and Control
CBRN		Activities related to chemical, bacteriological, radioactive and nuclear substances
FF		Fire Fighting missions
FSTT		Fire Services Technical Intervention
GEN		Generic activities
INT		Intelligence
MAC		Multi-agency Cooperation
MIL		Military activities
NET		Network and telecommunication activities
OPR		Use Operational Resources
POL		Police activities
REC		Reconstruction/rehabilitation activities
RSC		Rescue activities
SAV		Save and Rescue Endangered Life
SCS		Support Community Safety
SOC		Social and media/communication activities
Other	other	Mission type not included above
NonSpecified	non-specified	Mission type non-specified

7.1.4 Agent Core Entity

7.1.4.1 Agent UML Models

Figure 6 depicts the diagram of the classes that belong to the Agent Core Entity.

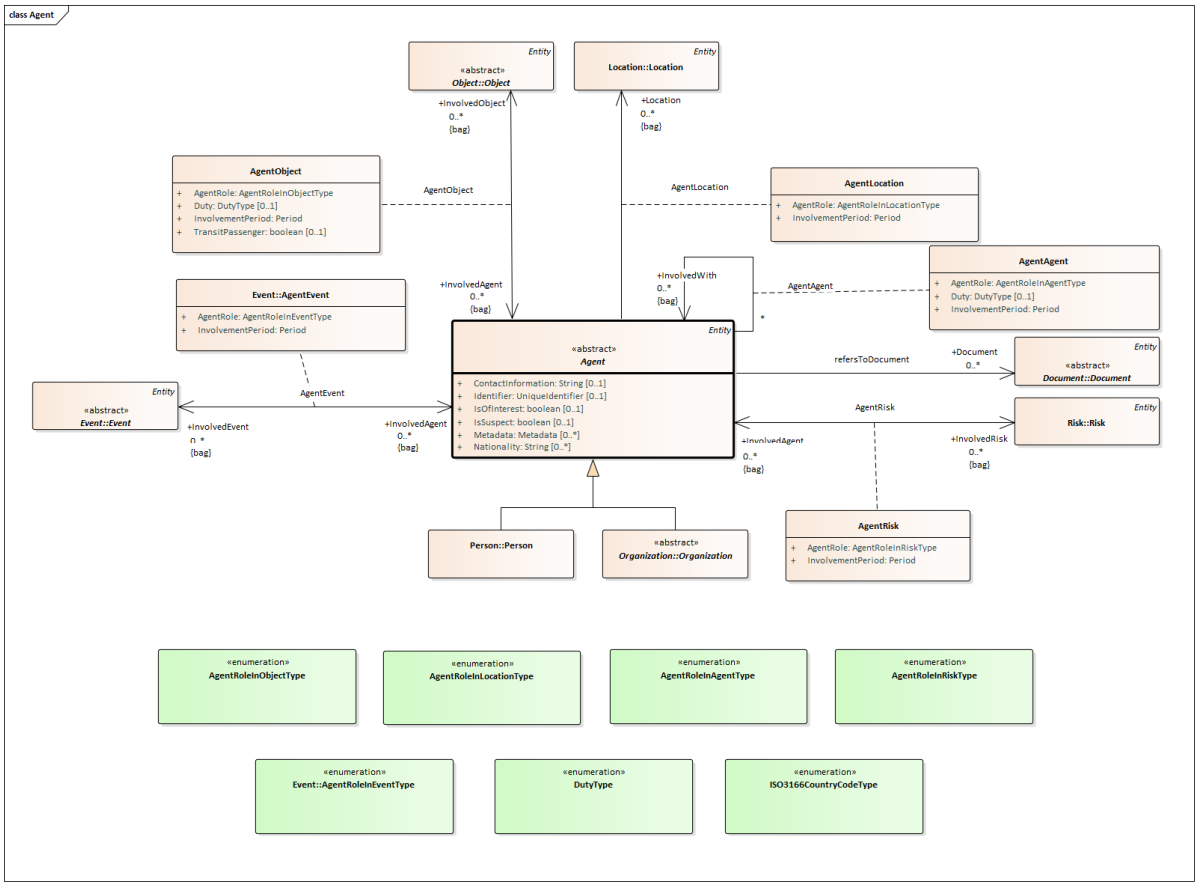

Figure 6: CISE Agent model

7.1.4.2 Agent Vocabulary

7.1.4.2.1 Agent Class (subclass of Entity)

7.1.4.2.1.1 General Description

The Agent is one of the core entities of the overall data model of the information sharing environment. By definition, an Agent is an operative entity that plays a role in any Event, owns, handles or operates Objects such as Cargo or Assets, creates and exploits documents, etc. It is an entity which holds information about individual persons or organizations which are involved as actors or targets in the various events and activities. Agent can have relationship with other agents, objects and locations. Agent can also be related to risks in different roles. Agent is an abstract entity which has two sub-entities Person and Organization.

7.1.4.2.1.2 Attributes

Table 8 presents the Agent class attributes. Agent contact information shall use the xCard [4] and vCard standards [5].

Table 8: Agent class attributes

UML Name	Data type	Description	Example
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI)	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n>
Identifier	UniqueIdentifier	Identifier of the agent Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false	false
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false	There is some suspect related to the agent: true
Metadata	Metadata	See Core Vocabulary Specification for "Metadata"	
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest	Portugal: PRT

7.1.4.2.1.3 Association Roles

Table 9: Agent class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The lenght of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.4.2.2 AgentAgent Class

7.1.4.2.2.1 General Description

This class allows the association between two Agents (or one of their sub-classes: person, organization). It is not mandatory to associate an Agent with another Agent but one Agent can be associated to multiple other Agents. The association further describes the role of the Agent in relation to the other Agent. Crew members have also a special relationship with the Organization inside the vessel company which is described by attribute Duty. This attribute carries information about the responsibilities and position of the person in the vessel. The duration of the relationship between the Agents is described by an association with the class Period.

7.1.4.2.2.2 Attributes

Table 10: AgentAgent class attributes

UML Name	Data type	Description	Example
AgentRole	AgentRoleInAgentType	Enumerated - Describes the relationship between Agents. Person who leads an organization: AgentRole.	Leads
Duty	DutyType	Attribute carries information about the positions and responsibilities of individual crew members.	Captain
InvolvementPeriod	Period	Defines the duration of the relationship between the Agents.	

7.1.4.2.3 AgentLocation Association Class

7.1.4.2.3.1 General Description

This class allows the association between Agent (or one of its sub-classes: person, organization) and Location. It is not mandatory to associate an Agent with a Location but one Agent can be associated to multiple different Locations. The association further describes the role of the Agent in relation to the Location. The duration of the relationship between the Agent and the Location is described by an association with class Period.

7.1.4.2.3.2 Attributes

Table 11: AgentLocation class attributes

UML Name	Data type	Description	Example
AgentRole	AgentRoleInLocationType	Enumerated. Describes the relationship between Agent and Location e.g. place where a person was born.	Embarkation Port
InvolvementPeriod	Period	Defines the duration of the relationship between the Agent and the Location.	

7.1.4.2.4 AgentObject Class

7.1.4.2.4.1 General Description

This class allows the association between Agent (or one of its sub-classes: person, organization) and Object (or one of its sub-classes: Vehicle (Vessel, Aircraft, Landvehicle, CargoPackage). It is not mandatory to associate an Agent with an Object but one Agent can be associated to multiple different Objects. The association further describes the role of the Agent in relation to the Object. The special relationship between Passengers and Craft is described by Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not) and by two associations with class Location. Crew members have also a special relationship to Craft which is described by attribute Duty. This attribute carries information about the responsibilities and position of the person in the vessel. The duration of the relationship between the Agent and the Object is described by an association with class Period.

7.1.4.2.4.2 Attributes

Table 12: AgentObject class attributes

UML Name	Data type	Description	Example
AgentRole	AgentRoleInObjectType	Enumerated - Describes the relationship between the Agent and the Object	CrewMember
Duty	DutyType	Attribute carries information about the positions and responsibilities of individual crew members	Captain
InvolvementPeriod	Period	The period of involvement	
TransitPassenger	boolean	Attribute is carrying information about the voyage details of an individual passenger. Is he/she a transit passenger or not. Value of the attribute can be either true or false	In case of a transit passenger: • true

7.1.4.2.5 AgentRisk Association Class

7.1.4.2.5.1 General Description

This class allows the association between Agent (or one of its sub-classes) and Risk. It is not mandatory to associate an Agent with a Risk but one Agent can be associated to multiple different Risks. The association further describes the role of the Agent in relation to the Risk.

7.1.4.2.5.2 Attributes

Table 13: AgentRisk class attributes

UML Name	Data type	Description	Example
AgentRole	AgentRoleInRiskType	Enumerated - Describes the relationship between Agent and Risk	Cause
InvolvementPeriod	Period	The period of Involvement	

7.1.4.2.6 AgentRoleInAgentType Enumeration

This enumeration presents the relationship between two Agents.

Table 14: AgentRoleInAgentType enumeration

Value	Label	Description
Leads	leads	Agent who leads the other Agent(s)
WorksFor	works for	Agent who works for the other Agent(s)
ManagesSecurityCSO	manages security CSO	Person who manages the security of an organization
Encompasses	encompasses	Agent who encompasses the other Agent(s)
Owns	owns	Person who owns the organization
Other	other	Any other role/relationship not mentioned above
NonSpecified	non-specified	Role not specified

7.1.4.2.7 AgentRoleInLocationType Enumeration

This enumeration presents the relationship between Agent and Location.

Table 15: AgentRoleInLocationType enumeration

Value	Label	Description
Owns	owns	Owns the location
IsLocatedIn	is located in	Is the (permanent) location of the agent
CountryOfBirth	country of birth	Is the country where the agent was birth
PlaceOfBirth	place of birth	Is the place where the agent was birth
CountryOfDeath	country of death	Is the country where the agent died
PlaceOfDeath	place of death	Is the place where the agent died
EmbarkationPort	embarkation port	Port in which the agent embarked
DisembarkationPort	disembarkation port	Port in which the agent disembarked
CountryOfResidence	country of residence	The country in which the agent normally resides
Other	other	Any other relationship not mentioned above
NonSpecified	non-specified	Relationship not specified

7.1.4.2.8 AgentRoleInObjectType Enumeration

This enumeration presents the relationship between Agent and Object.

Table 16: AgentRoleInObjectType enumeration

Value	Label	Description
Owner	owner	Owns the object
ShipAgent	ship agent	Is the agent of the object
Passenger	passenger	Is a passenger of the object
CrewMember	crew member	Is a member of the crew of the object
CaptainMaster	captain master	Is the master of the object
ShipOperatingCompany	ship operating company	Is the master of the object
CompanySecurityOfficer	company security officer	Is the security officer of the company
Employee	employee	Is an employee of the object
VesselBuilder	vessel builder	The Vessel Builder
VesselCharterer	vessel charterer	The Vessel Charterer
VesselRegisteredOwner	vessel registered owner	The Vessel Registered Owner
VesselCompany	vessel company	The Vessel Company
ShippingAgent	shipping agent	Shipping agent of the goods
Declarant	declarant	Declarant of the goods
CarrierAgent	carrier agent	Carrier agent of the goods
ShippingLine	shipping line	Shipping line for the goods
CustomsBroker	customs broker	Customs broker of the goods
DGPContactPoint	DPG contact point	DGP (dangerous and polluting goods) contact point
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.4.2.9 AgentRoleInRiskType Enumeration

This enumeration presents the role of Agent in relation to Risk.

Table 17: AgentRoleInRiskType enumeration

Value	Label	Description
Cause	cause	Agent is the cause of the risk
Involved	involved	Agent is somehow involved in the risk
Reports	reports	Agent is reporting of the risk
Other	other	Any other relation not mentioned above
NonSpecified	non-specified	Relation not specified

7.1.4.2.10 DutyType Enumeration

This enumeration presents the role of Agent in relation to Risk. The attributes Duty (AgentObject) and Duty (AgentAgent) use this enumeration as data type.

Table 18: DutyType enumeration

Value	Label	Description
AbleSeaman	able seaman	Able Seaman
Agent	agent	Agent
AsstFoodBevMngr	asst food bev mngr	Assistant Food and Beverage Manager
BarManager	bar manager	Bar Manager
BarService	bar service	Bar Service
Bosun	bosun	Bosun
Cadet	cadet	Cadet
Captain	captain	Captain
CargoTechnician	cargo technician	Cargo Technician
CasinoStaff	casino staff	Casino Staff
ChiefCook	chief cook	Chief Cook
ChiefElectrician	chief electrician	Chief Electrician
ChiefHousekeeper	chief housekeeper	Chief Housekeeper
ChiefEngineer	chief engineer	Chief Engineer
ChiefMaster	chief master	Chief Master
ChiefMate	chief mate	Chief Mate

Value	Label	Description
ChiefOfficer	chief officer	Chief Officer
ChiefPurser	chief purser	Chief Purser
ChiefSteward	chief steward	Chief Steward
ClassSurveyor	class surveyor	Class Surveyor
CSO	CSO	Company Security Officer
Cook	cook	Cook
CraneOperator	crane operator	Crane Operator
CrewMember	crew member	Crew Member
CruiseDirector	cruise director	Cruise Director
CruiseStaff	cruise staff	Cruise Staff
DeckApprentice	deck apprentice	Deck Apprentice
DeckFitter	deck fitter	Deck Filter
DeckOfficer	deck officer	Deck Officer
Deckhand	deckhand	Deckhand, Deck Crew
Doctor	doctor	Doctor
Donkeyman	donkeyman	Donkeyman
ElectricalEngineer	electrical engineer	Electrical Engineer
ElectricalOfficer	electrical officer	Electrical Officer
Electrician	electrician	Electrician
EngineerCadet	engineer cadet	Engineer Cadet, Engine Apprentice
EngineeringCrew	engineering crew	Engineering Crew, Engine Crew
EngineFitter	engine fitter	Engine Fitter
Entertainment	entertainment	Entertainment
FacilitiesCrew	facilities crew	Facilities Crew
FacilitiesManager	facilities manager	Facilities Manager
FirstAsstEngineer	first asst engineer	First Assistant Engineer
FirstEngineer	first engineer	First Engineer
FirstMate	first mate	First Mate
FirstOfficer	first officer	First Officer
Fitter	fitter	Fitter
FourthOfficer	fourth officer	Fourth Officer
FoodBevMngr	food bev mngr	Food and Beverage Manager, Catering Officer
FoodService	food service	Food Service, Catering Crew
FourthAsstEngineer	fourth asst engineer	Fourth Assistant Engineer, Fourth Engineer
Greaser	greaser	Greaser
Hospitality	hospitality	Hospitality
HotelDirector	hotel director	Hotel Director
HotelStaff	hotel staff	Hotel Staff
HousekeepingStaff	housekeeping staff	Housekeeping Staff
InformationTechnology	information technology	Information Technology
JuniorEngineer	junior engineer	Junior Engineer
LaundryMaster	laundry master	Laundry Master
Lifeboatman	lifeboatman	Lifeboatman
Maitred	maitred	Maitred
MarineCrew	marine crew	Marine Crew
MarketingRevenueMngr	marketing revenue mngr	Marketing Revenue Manager
Master	master	Master
MasterFirstClassPlilot	master first class plilot	Master First Class Pilot
MateFirstClassPilot	mate first class pilot	Mate First Class Pilot
Mechanic	mechanic	Mechanic
MedicalStaff	medical staff	Medical Staff
Messman	messman	Messman
Motorman	motorman	Motorman
Oiler	oiler	Oiler
Operator	operator	Operator
OrdinairySeaman	ordinairy seaman	Ordinairy Seaman
Owner	owner	Owner
Painter	painter	Painter
Porter	porter	Porter
Provision	provision	Provision
ProvisionMaster	provision master	Provision Master
Pumpman	pumpman	Pumpman, Pump Man
QMED	QMED	Quilified Member of Engine Department
RadioOfficer	radio officer	Radio Officer

Value	Label	Description
Reeferman	reeferman	Reeferman
RepairMan	repair man	Repair Man
RiddingCrew	ridding crew	Ridding Crew
SafetyAndSecurity	safety and security	Safety And Security
SecondAsstEngineer	second asst engineer	Second Assistant Engineer, Second Engineer
SecondMate	second mate	Second Mate
SecondOfficer	second officer	Second Officer
SSO	SSO	Ship Security Officer
StaffCaptain	staff captain	Staff Captain
Steward	steward	Steward
Superintendent	superintendent	Superintendent
Tankerman	tankerman	Tankerman
ThirdAsstEngineer	third asst engineer	Third Assistant Engineer, Third Engineer
ThirdMate	third mate	Third Mate
ThirdOfficer	third officer	Third Officer
ThirdParty	third party	Third Party
TruckMechanic	truck mechanic	Truck Mechanic
Tunnelman	tunnelman	Tunnelman
UtilityPerson	utility person	Utility Person
VettingInspector	vetting inspector	Vetting inspector
Welder	welder	Welder
Wiper	wiper	Wiper
YardPersonell	yard personell	Yard Personnel
Other	other	Any other duty not mentioned above
NonSpecified	non-specified	Duty not specified
StaffCaptain	staff captain	Staff Captain
Steward	steward	Steward
Superintendent	superintendent	Superintendent
Tankerman	tankerman	Tankerman
ThirdAsstEngineer	third asst engineer	Third Assistant Engineer, Third Engineer
ThirdMate	third mate	Third Mate
ThirdOfficer	third officer	Third Officer
ThirdParty	third party	Third Party
TruckMechanic	truck mechanic	Truck Mechanic
Tunnelman	tunnelman	Tunnelman
UtilityPerson	utility person	Utility Person
VettingInspector	vetting inspector	Vetting inspector
Welder	welder	Welder
Wiper	wiper	Wiper
YardPersonell	yard personell	Yard Personnel
Other	other	Any other duty not mentioned above
NonSpecified	non-specified	Duty not specified

7.1.4.2.11 ISO3166CountryCodeType Enumeration

The Codes of Nationality shall be as described in ISO 3166-1 [1]. The current enumeration contains 260 values. The rest of the values can be found in the CISE Data model schema (see gs_cdm005v010503p0.zip which accompanies the present document).

Table 19: ISO3166CountryCodeType enumeration

Value	Label	Description
AC		Ascension Island
AD		Andorra
AE		United Arab Emirates
AF		Afghanistan
AG		Antigua and Barbuda
…		…

7.1.5 Anomaly Core Entity

7.1.5.1 Anomaly UML Models

Figure 7 depicts the diagram of the classes that belong to the Anomaly Core Entity.

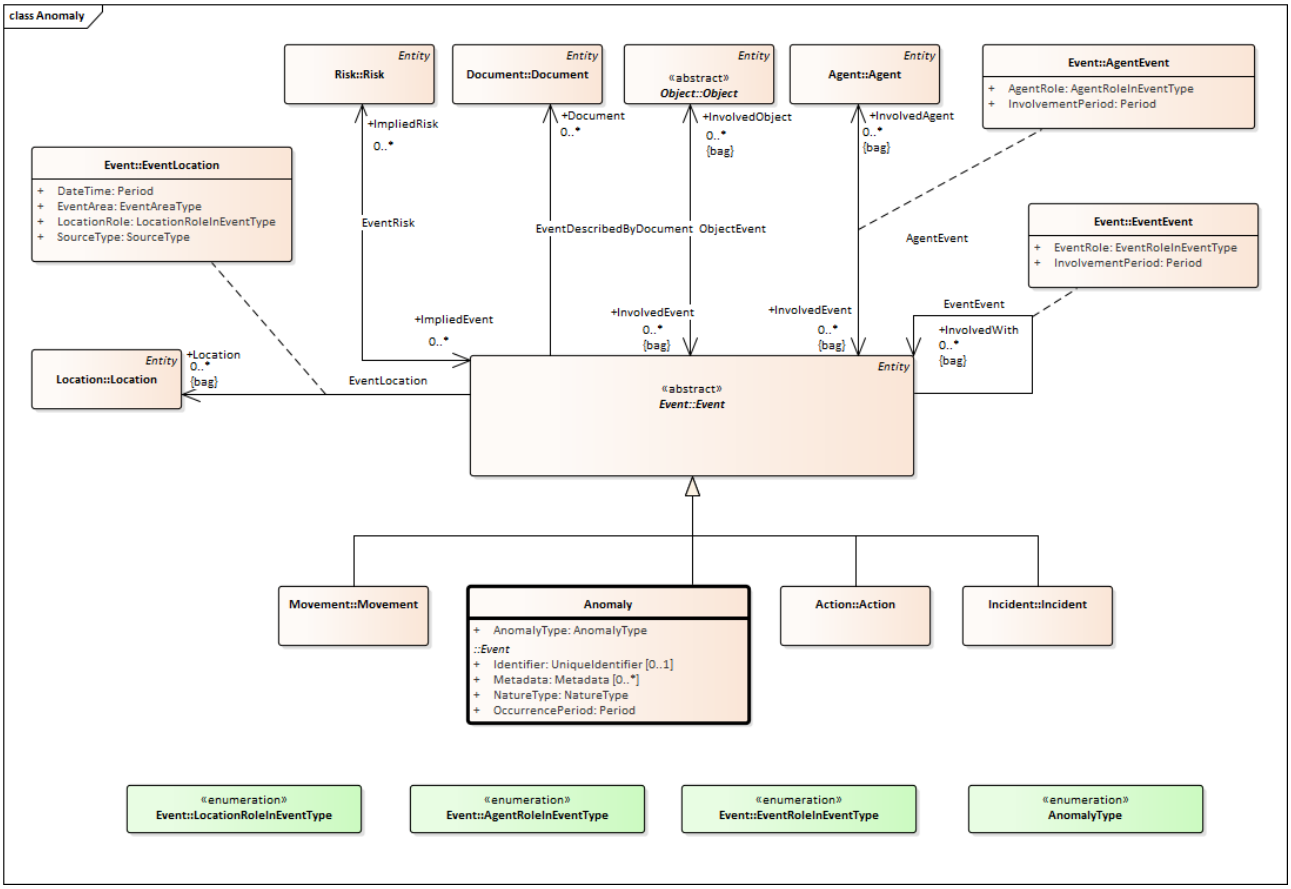

Figure 7: CISE Anomaly model

7.1.5.2 Anomaly Vocabulary

7.1.5.2.1 Anomaly Class (subclass of Event)

7.1.5.2.1.1 General Description

The class Anomaly is a sub-class of the class Event. An anomaly is used to characterize an unusual event which deserves to be noted or reported. Anomaly has the same associations and relationships than its parent-class Event. Thus, it can have relationship with Document, Risk, Event, Object, Period, Location and Agent.

7.1.5.2.1.2 Attributes

Table 20: Anomaly class attributes

UML Name	Data type	Description	Example
AnomalyType	AnomalyType	The type of the reported anomaly.	Cargo leaking
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.5.2.1.3 Association Roles

Table 21: Anomaly class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.5.2.2 AnomalyType Enumeration

This enumeration presents the different types of anomalies.

Table 22: AnomalyType enumeration

Value	Label	Description
UnexpectedMovement	unexpected movement	Unexpected movement
CargoLeaking	cargo leaking	Cargo leaking
ShiftingOfCargo	shifting of cargo	Shifting of cargo
VesselOutOfTrafficLanes	vessel out of traffic lanes	Vessel out of traffic lanes
VesselWithErraticMovements	vessel with erratic movements	Vessel with erratic movements
StainOfOilSighted	stain of oil sighted	Stain of oil sighted
DetecionOfChangesInAISParameters	detection of changes in AIS parameters	Detection of changes in AIS parameters
PerformingAISSpoofing	performing AIS spoofing	Performing AIS spoofing
WithoutAISTransmission	without AIS transmission	Without AIS transmission
DoNotAnswerOnVHFCh16	do not answer on VHF ch16	Do not answer on VHF Ch 16
Other	other	Any other anomaly type not mentioned above
NonSpecified	non-specified	Anomaly type not specified

7.1.6 Cargo Core Entity

7.1.6.1 Cargo UML Models

Figure 8 depicts the diagram of the classes that belong to the Cargo Core Entity.

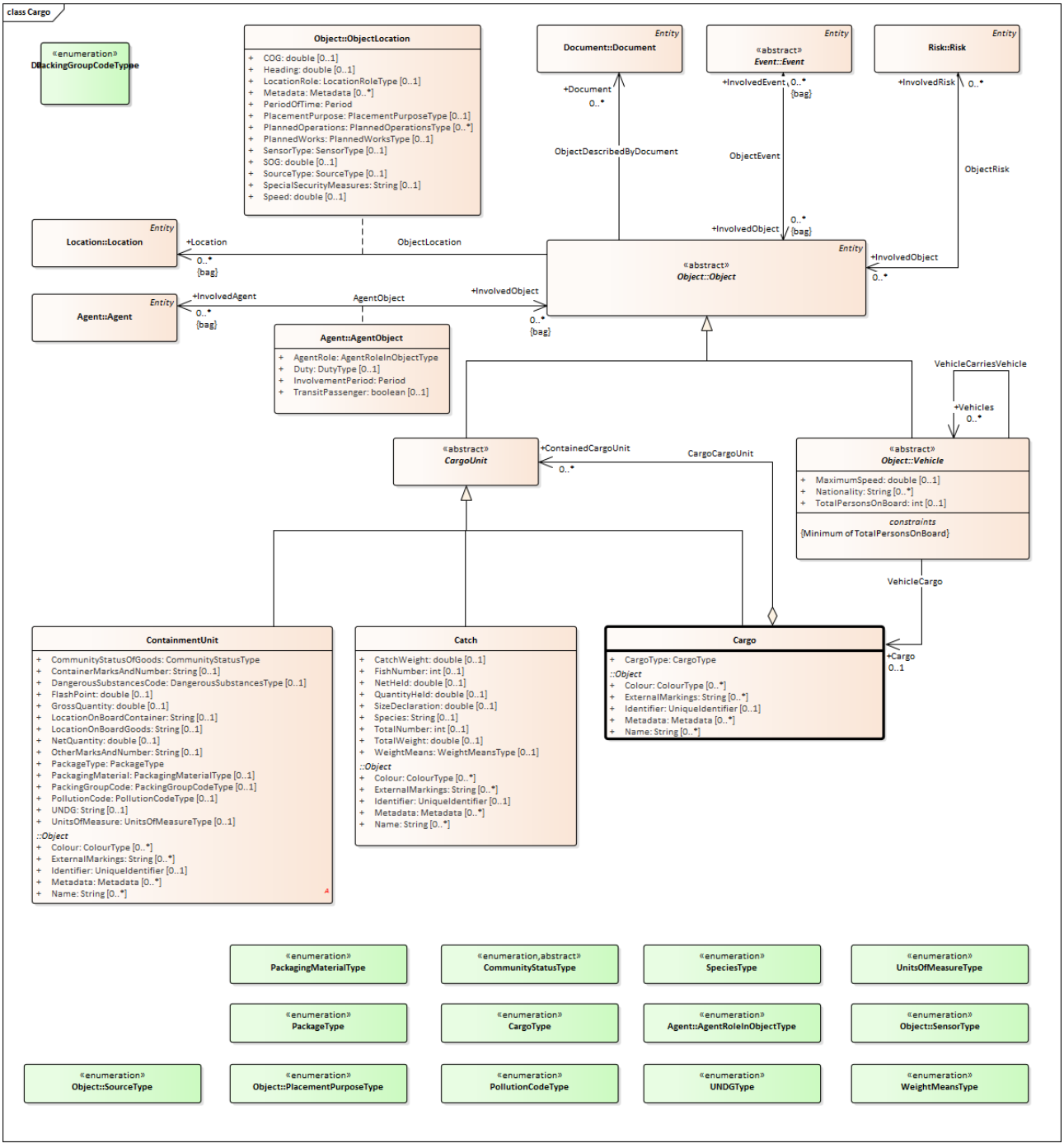

Figure 8: CISE Cargo model

7.1.6.2 Cargo Vocabulary

7.1.6.2.1 Cargo Class (subclass of CargoUnit)

7.1.6.2.1.1 General description

A Cargo refers to a set of goods transported by a ship between two ports.

7.1.6.2.1.2 Attributes

Table 23: Cargo class attributes

UML Name	Data type	Description	Example
CargoType	CargoType	This enumeration is used to described the type of cargo associated with the entity.	Palletized
Colour	ColourType	Colour information about the object.	Red
ExternalMarkings	String	External markings of the object.	ABER
Identifier	UniqueIdentifier	Identifier of the object. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Metadata related to the object.	
Name	String	Name of the object.	ABERIII

7.1.6.2.1.3 Association Roles

Table 24: Cargo class association roles

UML Name	Data type	Description	Multiplicity
ContainedCargoUnit	CargoUnit	Each cargo might have many cargo items, depending on the number of different goods.	0..*
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)

7.1.6.2.1.4 Constraints

Table 25: Cargo class constraints

Name	Description
At least one CargoUnit	There shall be at least one CargoUnit or, alternatively, one type of Catch to have a Cargo.

7.1.6.2.2 CargoUnit Class

7.1.6.2.2.1 General description

CargoUnit is an entity which holds information about units of goods when transported by ships. The subclasses of CargoUnit can represent either the whole cargo in a vehicle or a part of it.

7.1.6.2.2.2 Attributes

Table 26: CargoUnit class attributes

UML Name	Data type	Description	Example
Colour	ColourType	Colour information about the object.	Red
ExternalMarkings	String	External markings of the object.	ABER
Identifier	UniqueIdentifier	Identifier of the object. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Metadata related to the object.	
Name	String	Name of the object.	ABERIII

7.1.6.2.2.3 Association Roles

Table 27: CargoUnit class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)

7.1.6.2.3 Catch Class (subclass of CargoUnit)

7.1.6.2.3.1 General description

A Catch refers to a set of distinct species catch in the see/ocean by a fishing vessel. Catch has the same associations and relationships than its parent-class Object. Thus, it can have relationship with Document, Risk, Event, Location and Agent.

7.1.6.2.3.2 Attributes

Table 28: Catch class attributes

UML Name	Data type	Description	Example
CatchWeight	double	Depending on context this item to be either: 1) total weight of fish (in kilograms) in catch period; 2) total weight of fish (in kilograms) on board (aggregate); or 3) total weight of fish (in kilograms) landed; 4) total weight of fish discarded or used as a live bait.	
FishNumber	int	Number of fish (when catch have to be registered in numbers of fish i.e. salmon, tuna).	
NetHeld	double	Estimate of number of live fish held in nets i.e. not in hold.	
QuantityHeld	double	Estimate of quantity of live fish held in nets i.e. not in hold.	
SizeDeclaration	double	See SizeDeclaration in [2].	
Species	String	This enumeration is used to specify the type of species that were caught using a three-letter code, according to [2].	
TotalNumber	int	See TotalNumber in [2].	
TotalWeight	double	See TotalWeight in [2].	
UniqueIdentifier	UniqueIdentifier	Unique identifier for the catch.	
WeightMeans	WeightMeansType	Means of weight measuring.	EST (estimation)
Colour	ColourType	Colour information about the object.	Red
ExternalMarkings	String	External markings of the object.	ABER
Identifier	UniqueIdentifier	Identifier of the object. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Metadata related to the object.	
Name	String	Name of the object.	ABERIII

7.1.6.2.3.3 Association Roles

Table 29: Catch class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)

7.1.6.2.4 ContainmentUnit Class (subclass of CargoUnit)

7.1.6.2.4.1 General description

Containment unit is an entity which holds information about units of goods when transported by ships contained in containers or bulk.

7.1.6.2.4.2 Attributes

Table 30: ContainmentUnit class attributes

UML Name	Data type	Description	Example
CommunityStatusOfGoods	CommunityStatusType	This enumeration reflects the different customs status of cargo units on board a ship	C (community goods)
ContainerMarksAndNumber	String	Marks and number of the containers. This shall be the identification code as defined in ISO 6346 [7]	CSQU3054383
DangerousSubstancesCode	DangerousSubstancesType	This enumeration defines the general categories of Hazardous cargo, according to the International Maritime Dangerous Goods (IMDG) code [3]	Class22ToxicGasest
FlashPoint	double	Flash point in degrees centigrade. The temperature in degrees Celsius at which a liquid will give off enough flammable vapour to be ignited. according IMDG Code [3] DG Class 3	
GrossQuantity	double	Gross quantity of the cargo unit (includes package)	

UML Name	Data type	Description	Example
LocationOnBoardContainer	String	Location of container on board. Represented with one upper case letter (type of location code), a colon (:) and the location code (numerical or other depending of the type of cargo). CargoLocationType shall be as specified in ISO 28005-1 [6]	C:010212
LocationOnBoardGoods	String	Location of goods on board	
NetQuantity	double	Net quantity of the cargo unit (excludes package)	
OtherMarksAndNumber	String	Marks and number of the cargo item if not covered by ISO 6346 [7]	
PackageType	PackageType	This enumeration is used to described the type of package used to carry the cargo unit	RigidBoxTypePrismatic
PackagingMaterial	PackagingMaterialType	This enumeration is used to described the type of material of the package used to carry the cargo unit	Metal
PackingGroupCode	PackingGroupCodeType	This enumeration defines the danger code, according to the level of danger	GroupIGreatDanger (for Group I - Great danger)
PollutionCode	PollutionCodeType	This enumeration defines the pollution code, according to MARPOL [11].	CategoryX (Noxious Liquid Substances)
UNDG	String	Attribute describing the content of the ContainmentUnit with a four-letter code conformant to the Enumeration for the United Nations Dangerous Goods [3]	0004 (AMMONIUM PICRATE)
UniqueIdentifier	UniqueIdentifier	The unique identifier of the CargoUnit	
UnitsOfMeasure	UnitsOfMeasureType	This enumeration defines the units of measurement for both GrossQuantity and NetQuantity	Kilogram
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.6.2.4.3 Association Roles

Table 31: ContainmentUnit association roles

UML Name	Data type	Description	Multiplicity
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)

7.1.6.2.5 CargoType Enumeration

This enumeration presents the possible types of cargo.

Table 32: CargoType enumeration

Value	Label	Description
NoCargoUnitLiquidBulkGoods	no cargo unit liquid bulk goods	Includes: i) liquids ii) liquified gases iii) molten or slurried solids, suitable for continuous mechanical handling for transport by pipeline or loose in a hold, tank or other compartment integral to a means of transport
NoCargoUnitSolidBulkGoods	no cargo unit solid bulk goods	Includes: i) fine powders ii) granular particles iii) large, lumpy, dry solids, suitable for continuous mechanical handling, for transport by fixed installations (other than pipeline) or loose in a hold or other compartment integral to a means of transport
LargeFreightContainers	large freight containers	Goods loaded in/on a freight container 20 ft. (6 m) or more in external length; includes lift van, swap/swop body, flat, moveable tank or similar articles of transport equipment
OtherFreightContainers	other freight containers	Goods loaded in/on a freight container less than 20 ft. (6 m) in external length; includes: i) rigid Intermediate Bulk Containers (IBCs) ii) aircraft Unit Load Devices (ULDs); excludes i) air mode pallets ii) sea or land mode box-, tank-, post, rack-pallets not exceeding 1,25 m² deck area
Palletized	palletized	Goods loaded on a deck; includes: i) disposable one-way pallets ii) sea or land mode box-, tank-, post-, rack-pallets not exceeding 1,25 m² deck area iii) slip-sheets iv) air mode pallets v) bricks, ingots, etc. suitably assembled for fork-lift truck handling
PreSlung	pre slung	Goods (one or more items) supplied with a sling (or slings) or various materials (natural/artificial fibre, steel wire, etc.) and of various designs (loop, ring, cloverleaf, etc.); includes: i) "packaged" timber ii) Flexible Intermediate Bulk Containers (FIBCs)
MobileSelfPropelledUnits	mobile self-propelled units	Includes: i) road motor vehicles (lorries, buses, cars) and accompanying trailers, semi-trailers, caravans engaged in goods/passenger transport ii) motorised road, agricultural, industrial, etc. vehicles moving in trade iii) live animals "on the hoof"
OtherMobileUnits	other mobile units	Non-self-propelled vehicles and equipment on wheels; includes: i) unaccompanied trailers, semi-trailers railwagons, ship-borne barges engaged in goods transport ii) caravans and other road, agricultural, industrial, etc., vehicles iii) ship-borne port-to-port trailers
Reserved	reserved	
OtherCargoTypes	other cargo types	All cargo not elsewhere enumerated (i.e. the residual types of cargo carried in transport: "break-bulk" or "general" cargo, e.g. boxes, drums, bags, etc. and loose, unpacked items such as pipes, rods, etc.)
Other	other	
NonSpecified	non-specified	

7.1.6.2.6 CommunityStatusType Enumeration

This enumeration reflects the different customs status of cargo units on board a ship.

Table 33: CommunityStatusType enumeration

Value	Label	Description
CommunityGoods	community goods	(equivalent to 'T2L') for goods whose community status can be demonstrated
ComunityGoodsFromNonFiscalTerritories	comunity goods from non-fiscal territories	(equivalent to 'T2LF') for goods whose community status can be demonstrated, consigned to or originating in a part of the Community customs territory where the provisions of Directive 77/388/EEC [i.15] do not apply.
CommunityGoodsBeingExported	community goods being exported	For goods under the export procedure
OtherGoods	other goods	For all other goods
NonSpecified	non-specified	

7.1.6.2.7 DangerousSubstancesType Enumeration

This enumeration presents the general categories of Hazardous cargo, according to the International Maritime Dangerous Goods (IMDG) code [3]. For additional information about Intermediate Bulk Container (IBC), International Gas Carrier (IGC) and Irradiated Nuclear Fuel (INF) -) contact the International Maritime Organization (IMO). The following attributes use this enumeration as data type:

- DangerousSubstancesCode (ContainmentUnit)

The enumeration values are presented in table 34.

Table 34: DangerousSubstancesType enumeration

Value	Label	Description
Class1Explosives	class 1 explosives	Should be stored away from the crew's quarters and the ship's boats and immediately under the hold's hatches.
Class21FlammableGases	class 2.1 flammable gases	Should be stored away from crew's quarters and any source of heat.
Class22ToxicGases	class 2.2 toxic gases	Should be stored away from any source of heat, the crew's quarters and foodstuffs.
Class23NonFlammableCompressedGases	class 2.3 non-flammable compressed gases	Store on or under the deck in a cool, well-ventilated place. Containers filled with this kind of gas will expand if heated and there is a high risk of an explosion.
Class31Petrol	class 3.1 petrol	Combustion at less than 18 ºC. Should always be stored above the deck.
Class32FuelOil	class 3.2 fuel oil	Combustion at between 18 ºC and 23 ºC. Should be stored above or below the deck.
Class33FuelOil	class 3.3 fuel oil	Combustion at between 23 ºC and 61 ºC. Should be stored below the deck.
Class41FlammableSolid	class 4.1 flammable solid	Should be stored on top or below the deck. Should be kept away from living quarters.
Class42SpontaneouslyCombustible	class 4.2 spontaneously combustible	Should be stored in well ventilated areas and air should be able to circulate between the stored materials.
Class43DangerousWhenWet	class 4.3 dangerous when wet	Solids which are inflammable when wet or when in contact with water. Should be stored in well ventilated, dry areas and always away from any contact with water.
Class51OxidizingAgent	class 5.1 oxidizing agent	The substances in this category can create an inflammable environment when brought into contact with oxygen. For this reason, they should not be stored next to combustible materials.
Class52OrganixPeroxide	class 5.2 organix peroxide	The substances in this class can be inflammable or explosive. They should be stored above deck, covered and in a dry, cool areas.
Class61ToxicSubstances	class 6.1 toxic substances	Toxic substances are those which can enter the human body through the mouth and cause death. For this reason, they should be stored away from foodstuffs, drinks, living quarters and materials which increase humidity, such as tobacco.
Class62InfectiousBiologicalSubstances	class 6.2 infectious biological substances	These substances contain microbes which can cause illness. They should be stored away from foodstuffs, drinks and living quarters. In case of danger the nearest health authority should be notified.
Class7RadioactiveMaterials	class 7 radioactive materials	Radioactive Materials - These materials should be transported in specially sealed containers. The seals should always be completely undamaged. They should preferably be stored above deck and away from living quarters, foodstuffs, unprocessed films, pharmaceuticals and chemical substances. They are divided into three groups according to their level of radioactivity.
Class8Corrosives	class 8 corrosives	The substances in this class are solids or liquids possessing, in their original state, the common property of being able, more or less severely to damage living tissue. The escape of such a substance from its packaging may also cause damage to other cargo or the ship.
Class9MiscellaneousDangerousSubstances	class 9 miscellaneous dangerous substances	Substances and articles not covered by other classes which experience has shown, or may show, to be of such a dangerous character that the provisions of SOLAS should apply. These include substances that are transported or offered for transport at temperatures equal to or exceeding 1 000 °C and in a liquid state, and solids that are transported at temperatures equal or exceeding 2 400 °C.
MHBMaterialsHazardousOnlyInBulk	MHB materials hazardous only in bulk	MHB (materials hazardous only in bulk) cargoes are materials which possess chemical hazards when transported in bulk that do not meet the criteria for inclusion in the IMDG classes [3]. They are Combustible solids, Self-heating solids, Solids that evolve into flammable gas when wet, Solids that evolve toxic gas when wet, Toxic solids, Corrosive solids. See also IMSBC code.
Other	other	Any other dangerous substance type not mentioned above.
NonSpecified	non-specified	Type not specified.

7.1.6.2.8 PackageType Enumeration

This enumeration presents the possible types of package used in CargoUnit. The following attributes use this enumeration as data type:

- PackageType (ContainmentUnit)

The enumeration values are presented in table 35.

Table 35: PackageType enumeration

Value	Label	Description
Bulk	bulk	bulk
LoosedUnpackedExcludingBulk	loosed unpacked excluding bulk	loosed unpacked excluding bulk
RigidBoxTypePrismatic	rigid box type prismatic	rigid box type prismatic
RigidDrumTypeCylindrical	rigid drum type cylindrical	rigid drum type cylindrical
RigidBulbTypeSpherical	rigid bulb type spherical	rigid bulb type spherical
RigidOther	rigid other	rigid other
FlexibleBagType	flexible bag type	flexible bag type
ForFutureUse	for future use	for future use
Reserved	reserved	reserved
OtherSpecialPackages	other special packages	other special packages
Other	other	Any other package type not mentioned above
NonSpecified	non-specified	Package type not specified

7.1.6.2.9 PackagingMaterialType Enumeration

This enumeration presents the possible types of packaging material used in CargoUnits. The following attributes use this enumeration as data type:

- PackagingMaterial (ContainmentUnit)

The enumeration values are presented in table 36.

Table 36: PackagingMaterialType enumeration

Value	Label	Description
None	none	None
Plastics	plastics	Plastics
PaperAndFibreboard	paper and fibreboard	Paper and fibreboard
Wood	wood	Wood
ForFutureUse	for future use	For future use
Metal	metal	Metal
GlassPorcelainCeramicStoneware	glass porcelain ceramic stoneware	Glass porcelain ceramic stoneware
Textile	textile	Textile
Reserved	reserved	Reserved
UnknownOrNotOtherwiseEnumerated	unknown or not otherwise enumerated	Unknown or not otherwise enumerated
Other	other	Any other package material not mentioned above
NonSpecified	non-specified	Material type not specified

7.1.6.2.10 PackingGroupCodeType Enumeration

This enumeration defines the danger code, according to the level of danger from the International Maritime Dangerous Goods (IMDG) [3]. The following attributes use this enumeration as data type:

- PackingGroupCode (ContainmentUnit)

The enumeration values are presented in table 37.

Table 37: PackingGroupCodeType enumeration

Value	Label	Description
GroupIGreatDanger	Group I: great danger	Great danger
GroupIIMediumDanger	Group II: medium danger	Medium danger
GroupIIIMinorDanger	Group III: minor danger	Minor danger
None	None	No danger
Other	other	Any other code not mentioned above
NonSpecified	non-specified	Code not specified

7.1.6.2.11 PollutionCodeType Enumeration

This enumeration defines the pollution code, according to the MARPOL (International Convention for the Prevention of Pollution from Ships). The following attributes use this enumeration as data type:

- PollutionCode (ContainmentUnit)

The enumeration values are presented in table 38.

Table 38: PollutionCodeType enumeration

Value	Label	Description
CategoryX	category X	Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a major hazard to either marine resources or human health and, therefore, justify the prohibition of the discharge into the marine environment
CategoryY	category Y	Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea and therefore justify a limitation on the quality and quantity of the discharge into the marine environment
CategoryZ	category Z	Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a minor hazard to either marine resources or human health and therefore justify less stringent restrictions on the quality and quantity of the discharge into the marine environment
OtherSubstances	other substances	substances which have been evaluated and found to fall outside Category X, Y or Z because they are considered to present no harm to marine resources, human health, amenities or other legitimate uses of the sea when discharged into the sea from tank cleaning of deballasting operations. The discharge of bilge or ballast water or other residues or mixtures containing these substances are not subject to any requirements of MARPOL Annex II [11]
NonSpecified	non-specified	

7.1.6.2.12 UnitsOfMeasureType Enumeration

This enumeration presents the considered units of measure for CargoUnits, according to the United Nations codes for units of measure used in international trade. The following attributes use this enumeration as data type:

- UnitsOfMeasure (ContainmentUnit)

The enumeration values are presented in table 39.

Table 39: UnitsOfMeasureType enumeration

Value	Label	Description
Kilogram	kilogram	kilogram
MetricTonne	Metric tonne	Metric tonne
Other	other	Any other unit not mentioned above
NonSpecified	non-specified	Unit not specified

7.1.6.2.13 WeightMeansType Enumeration

This enumeration presents the different means of weight for fisheries. The following attributes use this enumeration as data type:

- WeightMeans (Catch)

The enumeration values are presented in table 40.

Table 40: WeightMeansType enumeration

Value	Label	Description
EST	Estimation	Estimation
WGH	weighing on board	weighing on board

7.1.7 Document Core Entity

7.1.7.1 Document UML Models

Figure 9 depicts the diagram of the classes that belong to the Document Core Entity.

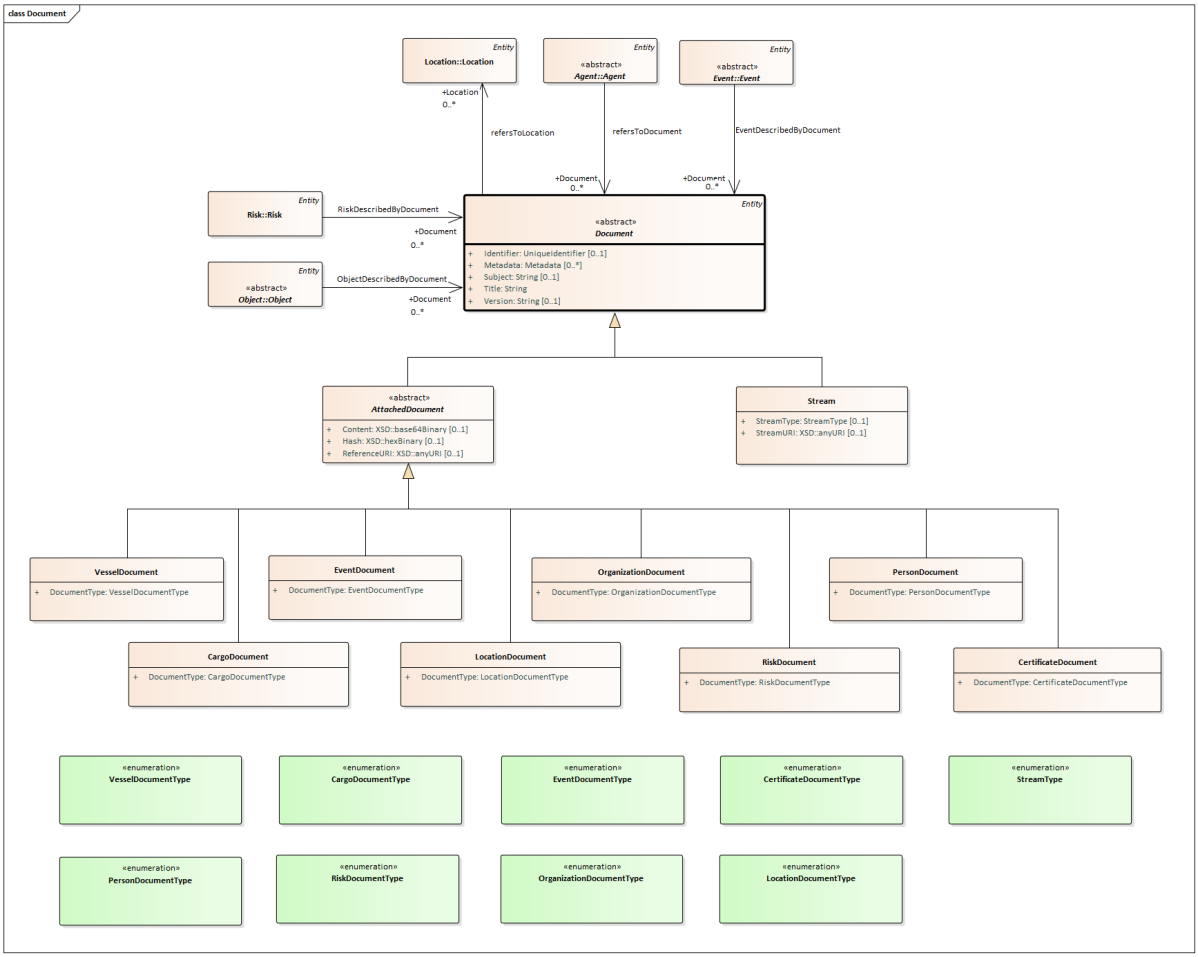

Figure 9: CISE Document model

7.1.7.2 Document Vocabulary

7.1.7.2.1 AttachedDocument Class (subclass of Document)

7.1.7.2.1.1 Attributes

Table 41: Document class attributes

UML Name	Data type	Description	Example
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.1.2 Association Roles

Table 42: Document class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.2 CargoDocument Class (subclass of AttachedDocument)

7.1.7.2.2.1 General descirption

This sub-class allows the identification and exchange of Cargo related documents and material in electronic format.

7.1.7.2.2.2 Attributes

Table 43: Document class attributes

UML Name	Data type	Description	Example
DocumentType	CargoDocumentType	Electronic material related to vessels cargo or individual cargo items.	CargoManifest
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.2.3 Association Roles

Table 44: Document class attributes

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.3 CertificateDocument Class (subclass of AttachedDocument)

7.1.7.2.3.1 General description

This sub-class allows the identification and exchange of Certificate related documents and material in electronic format.

7.1.7.2.3.2 Attributes

Table 45: CertificateDocument class attributes

UML Name	Data type	Description	Example
DocumentType	CertificateDocumentType	Documents related to Certificate.	TonnageCertificate
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.3.3 Association Roles

Table 46: CertificateDocument class attributes

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.4 Document Class (subclass of Entity)

7.1.7.2.4.1 General description

The Document is one of the fundamental entities of the overall data model of the information sharing environment. A Document allows tracing and exchanging information in a persistent manner in almost any possible electronic format; this information is expected to provide details on and express specific associations between other Entity Classes such as Agents, Objects, Events, Risks, Locations, etc.

7.1.7.2.4.2 Attributes

Table 47: Document class attributes

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	Vessel Traffic Services
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	Helsinki VTS Master's Guide
Version	String	Indicates the version number of the document/resource.	Version 2.1

7.1.7.2.4.3 Association Roles

Table 48: Document class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.5 EventDocument Class (subclass of AttachedDocument)

7.1.7.2.5.1 General description

This sub-class allows the identification and exchange of Event related documents and material in electronic format.

7.1.7.2.5.2 Attributes

Table 49: EventDocument class attributes

UML Name	Data type	Description	Example
DocumentType	EventDocumentType	Electronic material related to individual events (or more specifically one of its sub-classes: movement, anomaly, incident or action).	IncidentReport
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	Vessel Traffic Services
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	Helsinki VTS Master's Guide
Version	String	Indicates the version number of the document/resource.	Version 2.1

7.1.7.2.5.3 Association Roles

Table 50: EventDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.6 LocationDocument Class (subclass of AttachedDocument)

7.1.7.2.6.1 Attributes

This sub-class allows the identification and exchange of Location related documents and material in electronic format.

Table 51: LocationDocument class attributes

UML Name	Data type	Description	Example
DocumentType	LocationDocumentType	Electronic material related to specified Location.	MeteorologicalMaps
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	Vessel Traffic Services
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	Helsinki VTS Master's Guide
Version	String	Indicates the version number of the document/resource.	Version 2.1

7.1.7.2.6.2 Association Roles

Table 52: LocationDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.7 OrganizationDocument Class (subclass of AttachedDocument)

7.1.7.2.7.1 Attributes

This sub-class allows the identification and exchange of Organization related documents and material in electronic format.

Table 53: OrganizationDocument class attributes

UML Name	Data type	Description	Example
DocumentType	OrganizationDocumentType	Electronic material related to individual identified Organization or one of its sub-classes.	HarbourSecurity Document
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.7.2 Association Roles

Table 54: OrganizationDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.8 PersonDocument Class (subclass of AttachedDocument)

7.1.7.2.8.1 General description

This sub-class allows the identification and exchange of Person related documents and material in electronic format.

7.1.7.2.8.2 Attributes

Table 55: PersonDocument class attributes

UML Name	Data type	Description	Example
DocumentType	PersonDocumentType	Electronic material related to individual Persons.	TravelDocument
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.8.3 Association Roles

Table 56: PersonDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.9 RiskDocument Class (subclass of AttachedDocument)

7.1.7.2.9.1 General description

This sub-class allows the identification and exchange of Risk related documents and material in electronic format.

7.1.7.2.9.2 Attributes

Table 57: RiskDocument class attributes

UML Name	Data type	Description	Example
DocumentType	RiskDocumentType	Electronic material related to individual risks.	HAZMATNotification
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.9.3 Association Roles

Table 58: RiskDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.10 Stream Class (subclass of Document)

7.1.7.2.10.1 Attributes

Table 59: Stream class attributes

UML Name	Data type	Description	Example
StreamType	StreamType	Type of the stream. Each stream type is linked to a specific standard.	Video
StreamURI	XSD::anyURI	Endpoint of the stream, from which the information can be downloaded.	
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	e.g. the document in the previous example would be one of the many documents belonging to subject VTS or Vessel Traffic Services: <Subject>Vessel Traffic Services</Subject>
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	e.g. documents which official english name is "Helsinki VTS Master's Guide": <Title>Helsinki VTS Master's Guide</Title>
Version	String	Indicates the version number of the document/resource.	e.g. version 2.1 of the document <Name>Version 2.1</Name>

7.1.7.2.10.2 Association Roles

Table 60: Stream class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.11 VesselDocument Class (subclass of AttachedDocument)

7.1.7.2.11.1 General description

This sub-class allows the identification and exchange of Vessel related documents and material in electronic format.

7.1.7.2.11.2 Attributes

Table 61: VesselDocument class attributes

UML Name	Data type	Description	Example
DocumentType	VesselDocumentType	Electronic material related to individual vessels.	PassengersList
Content	XSD::base64Binary	Content of the document.	
Hash	XSD::hexBinary	Integrity check.	
ReferenceURI	XSD::anyURI	Uniform Resource Identifier (URI) is a string of characters used to identify a name of a web resource.	

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the document. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	Class Metadata will be used to carry more specific information about documents.	
Subject	String	The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.	
Title	String	A name given to the resource, e.g. the official name of the publication in English language.	
Version	String	Indicates the version number of the document/resource.	

7.1.7.2.11.3 Association Roles

Table 62: VesselDocument class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	It is not mandatory for a document to refer to any location but it is allowed to refer to multiple different locations if required.	0..*

7.1.7.2.12 CargoDocumentType Enumeration

This enumeration presents the possible types of documents related to cargo. The following attributes use this enumeration as data type:

- DocumentType (CargoDocument)

The enumeration values are presented in table 63.

Table 63: CargoDocumentType enumeration

Value	Label	Description
CargoManifest	cargo manifest	Basic information about the cargo. Would include also links to further information: bill of lading, cargo bill, liner way bill
VATException	VAT exception	
EntrySummaryDeclaration	entry summary declaration	
IMOFALForm2CargoDeclaration	IMOFAL form2 cargo declaration	
IMOFALForm3ShipsStoresDeclaration	IMOFAL form3 ships stores declaration	
IMOFALForm4CrewsEffectsDeclaration	IMOFAL form4 crews effects declaration	
NotificationOfDangerousGoods	notification of dangerous goods	
IMOFALForm7DangerousGoods	IMOFAL form7 dangerous goods	
SingleAdministrativeDocument	single administrative document	
CatchCertificate	catch certificate	
FishingLogbook	fishing logbook	
Other	other	
NonSpecified	non-specified	

7.1.7.2.13 CertificateDocumentType Enumeration

The Certificate Document enumeration is presented in table 64.

Table 64: CertificateDocumentType enumeration

Value	Label	Description
TonnageCertificate	tonnage certificate	tonnage certificate
LoadLineCertificate	load line certificate	load line certificate
MinimumSafeManningDocument	minimum safe manning document	minimum safe manning document
OilPollutionPreventionCertificate	oil pollution prevention certificate	oil pollution prevention certificate
SewagePollutionPreventionCertificate	sewage pollution prevention certificate	sewage pollution prevention certificate
VDRComplianceCertificate	VDR compliance certificate	VDR compliance certificate
ISMComplianceDocument	ISM compliance document	ISM compliance document
SafetyManagementCertificate	safety management certificate	safety management certificate
ISSCertificate	ISS certificate	ISS certificate
PSSCertificate	PSS certificate	PSS certificate
STPSSaCertificate	STPS sa certificate	STPS sa certificate
STPSSpCertificate	STPS sp certificate	STPS sp certificate
CSSConstructionCertificate	CSS construction certificate	CSS construction certificate
CSSEquipmentCertificate	CSS equipment certificate	CSS equipment certificate
CSSRadioCertificate	CSS radio certificate	CSS radio certificate
CSSCertificate	CSS certificate	CSS certificate
GrainAuthorizationDocument	grain authorization document	grain authorization document
CivilLiabilityCertificate	civil liability certificate	civil liability certificate
EnhancedSurveyDocument	enhanced survey document	enhanced survey document
NLSCertificate	NLS certificate	NLS certificate
BulkChemicalsCarriageCertificate	bulk chemicals carriage certificate	bulk chemicals carriage certificate
IntBulkChemicalsCarriageCertificate	int bulk chemicals carriage certificate	int bulk chemicals carriage certificate
BulkLiquidGasCertificate	bulk liquid gas certificate	bulk liquid gas certificate
IntBulkLiquidGasCertificate	int bulk liquid gas certificate	int bulk liquid gas certificate
HSCSafetyCertificate	HSC safety certificate	HSC safety certificate
HSCOperationPermit	HSC operation permit	HSC operation permit
IMDGCertificate	IMDG certificate	IMDG certificate
INFCertificate	INF certificate	INF certificate
RegistryCertificate	registry certificate	registry certificate
HullClassCertificate	hull class certificate	hull class certificate
EngineClassCertificate	engine class certificate	engine class certificate

Value	Label	Description
PandICertificate	pand I certificate	pand I certificate
ILO133Certificate	ILO133 certificate	ILO133 certificate
ILO92Certificate	ILO92 certificate	ILO92 certificate
ITFBlueCard	ITF blue card	ITF blue card
DeclarationOfHealth	declaration of health	declaration of health
GasFreeCertificate	gas free certificate	gas free certificate
DeRatCertificate	de rat certificate	de rat certificate
Certificate	certificate	certificate
Other	other	other
NonSpecified	non-specified	non-specified

7.1.7.2.14 EventDocumentType Enumeration

This enumeration presents the possible types of documents related to different events (movements, actions, anomalies, incidents). The following attributes use this enumeration as data type:

- DocumentType (EventDocument)

The enumeration values are presented in table 65.

Table 65: EventDocumentType enumeration

Value	Label	Description
RegionalMonitors	regional monitors	Observation reports from different EU regions related to issues reported via EUROSUR (e.g. irregular migration, related cross-border crime, crisis, other).
IncidentReport	incident report	Documents containing the detailed report of incidents reported via SSN (e.g. waste, situations, pollution, containers or packages drifting at sea, failed vessel notifications, VTS rules infringements, banned ships, insurance failures, anomaly reports by pilots or ports).
EnvironmentalIncidentDocument	environmental incident document	Documents and reports that describe environmental icidents (e.g. oil pollution).
EvacuationOrders	evacuation orders	Detailed orders related to evacuation situations.
AccidentReport	accident report	Detailed reports of accidents in sea.
HazardsMappingAndTrackingHumanitarianAssistance	hazards mapping and tracking humanitarian assistance	
OrganizedCrimeDocuments	organized crime documents	
TerroristThreadDocuments	terrorist thread documents	
ShipHijackingSuspicionReport	ship hijacking suspicion report	
CrewHostagingSuspicionReport	crew hostaging suspicion report	
WeaponsOnboardSuspicionReport	weapons onboard suspicion report	
InitialPiracyAttackReport	initial piracy attack report	Initial report about piracy attack as defined in IMO MSC Circular 1333.
FollowUpPiracyAttackReport	follow-up piracy attack report	Follow-up report about piracy attack as defined in IMO MSC Circular 1333.
Other	other	Any other document related to events not mentioned above.
NonSpecified	non-specified	Type of document not specified.

7.1.7.2.15 LocationDocumentType Enumeration

This enumeration presents the possible types of documents related to a location. The current enumeration contains 51 values. The rest of the values can be found in the CISE Data model schema (see gs_cdm005v010503p0.zip which accompanies the present document). The following attributes use this enumeration as data type:

- DocumentType (LocationDocument)

The enumeration values are presented in table 66.

Table 66: LocationDocumentType enumeration

Value	Label	Description
PortLaw	port law	port law.
PortRegulations	port regulations	port regulations.
PortServices	port services	port services.
PortFacilities	port facilities	port facilities.
PortDues	port dues	port dues.
…	…	…

7.1.7.2.16 OrganizationDocumentType Enumeration

This enumeration presents the possible types of documents that can be related to organizations. The following attributes use this enumeration as data type:

- DocumentType (OrganizationDocument)

The enumeration values are presented in table 67.

Table 67: OrganizationDocumentType enumeration

Value	Label	Description
HarbourSecurityDocument	harbour security document	Documents that related to a specific harbour and deal with security issues.
ISPSCode	ISPS code	Documents that are related to an organization and deal with IMO ISPS Code.
Map	map	Any type of map related to the organization.
Other	other	Any other type of document not specified above.
NonSpecified	non-specified	Type of the document not specified.

7.1.7.2.17 PersonDocumentType Enumeration

This enumeration presents the possible types of documents that can be related to individual persons. The following attributes use this enumeration as data type:

- DocumentType (PersonDocument)

The enumeration values are presented in table 68.

Table 68: PersonDocumentType enumeration

Value	Label	Description
TravelDocument	travel document	Document that enables the entry and exit from one country to another (e.g. Passport)
NationalID	national ID	National identification document
DriversLicense	drivers license	Document proving the right to drive a car
SeafarersIDDocument	seafarers ID document	Special identification document for seafarers (e.g. SeamansBook)
CrewCertificates	crew certificates	Certificate of ability to hold a certain post in vessel
ResidencePermit	residence permit	Document proving that a person has right to stay in the country (e.g. MigrationCard, CruiseShipIDCard (passangers))
WorkPermit	work permit	Document proving that a person has right to work in the country (e.g. WorkCard, BlueCard)
WorkCertificate	work certificate	Document proving the past employment of a person (e.g. EmploymentRecordBook)
HealthCertificate	health certificate	Document stating the health status of the person
BirthCertificate	birth certificate	The official birth certificate of a person
DeathCertificate	death certificate	The official death certificate of a person
CriminalRecord	criminal record	Persons criminal record
Photograph	photograph	Photograph of a person
Other	other	Any other document not mentioned above
NonSpecified	non-specified	Type of the document not specified

7.1.7.2.18 RiskDocumentType Enumeration

This enumeration presents the possible types of documents related to risks. The following attributes use this enumeration as data type:

- DocumentType (RiskDocument)

The enumeration values are presented in table 69.

Table 69: RiskDocumentType enumeration

Value	Label	Description
BriefingNotes	briefing notes	
RouteDescription	route description	
Facilitationanalysis	facilitationanalysis	
MigrantProfile	migrant profile	
KeyDevelopments	key developments	
RiskRatings	risk ratings	
HAZMATNotification	HAZMAT notification	
RiskAssessment	risk assessment	
OrganisedCrimeDocuments	organized crime documents	
TerroristThreatDocuments	terrorist threat documents	
ShipHijackingSuspicionReport	ship hijacking suspicion report	
CrewHostagingSuspicionReport	crew hostaging suspicion report	
WeaponsOnBoardSuspicionReport	weapons on board suspicion report	
Other	other	
NonSpecified	non-specified	

7.1.7.2.19 StreamType Enumeration

Types of streams. Each type is associated to a specific standard. The following attributes use this enumeration as data type:

- StreamType (Stream)

The enumeration values are presented in table 70.

Table 70: StreamType enumeration

Value	Label	Description
Video	video	Video stream in format MPEG4 H264
ImageMap	image map	Image map in format WMS
VectorialMap	vectorial map	Vectorial map in format WFS
Radar	radar	VTS exchange format IVEF
AIS	AIS	Stream format in Recommendation ITU-R M.1371-5 [9]

7.1.7.2.20 VesselDocumentType Enumeration

This enumeration presents the possible types of electronic material that can be related to individual vessels. The current enumeration contains 151 values. The rest of the values can be found in the CISE Data model schema (see gs_cdm005v010503p0.zip which accompanies the present document). The following attributes use this enumeration as data type:

- DocumentType (VesselDocument)

The enumeration values are presented in table 71.

Table 71: VesselDocumentType enumeration

Value	Label	Description
InternationalTonnageCertificate	international tonnage certificate	An International Tonnage Certificate (1969) shall be issued to every ship, the gross and net tonnage of which have been determined in accordance with the Convention (Tonnage Convention, article 7) [12]
InternationalLoadLineCertificate	international load line certificate	An International Load Line Certificate shall be issued under the provisions of the International Convention on Load Lines, 1966, to every ship which has been surveyed and marked in accordance with the Convention or the Convention as modified by the 1988 LL Protocol, as appropriate (LL Convention, article 16; 1988 LL Protocol, article 16) [13]
InternationalLoadLineExemptionCertificate	international load line exemption certificate	An International Load Line Exemption Certificate shall be issued to any ship to which an exemption has been granted under and in accordance with article 6 of the Load Line Convention or the Convention as modified by the 1988 LL Protocol, as appropriate (LL Convention, article 6 ; 1988 LL Protocol, article 16) [13]
CoatingTechnicalFile	coating technical file	A Coating Technical File, containing specifications of the coating system applied to dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers of 150 m in length and upwards, record of the shipyard's and shipowner's coating work, detailed criteria for coating sections, job specifications, inspection, maintenance and repair, shall be kept on board and maintained throughout the life of the ship (SOLAS 1974, regulation II-1/3-2; Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers (resolution MSC.215(82))) [14]
ConstructionDrawings	construction drawings	A set of as-built construction drawings and other plans showing any subsequent structural alterations shall be kept on board a ship constructed on or after 1 January 2007 (SOLAS 1974, regulation II-1/3-7; MSC/Circ.1135 on As-built construction drawings to be maintained on board the ship and ashore) [14]
…	…	…

7.1.8 Event Core Entity

7.1.8.1 Event UML Models

Figure 10 depicts the diagram of the classes that belong to the Event Core Entity.

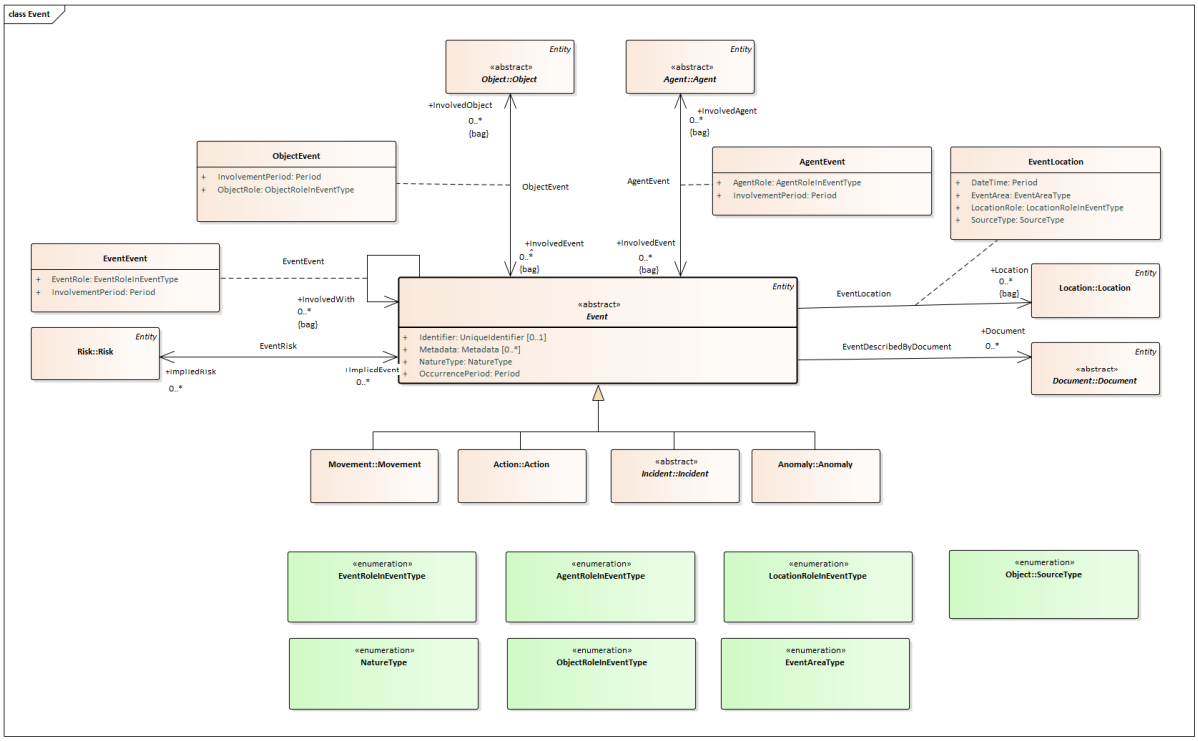

Figure 10: CISE Event model

7.1.8.2 Event Vocabulary

7.1.8.2.1 Event Class (subclass of Entity)

7.1.8.2.1.1 General description

The Event is one of the core entities of the overall data model of the information sharing environment. It is an entity which holds information about movements, anomalies, incidents or actions which occur in the maritime domain. Event can have relationships with other events, objects, agents, documents, periods and locations. Event can also be related to risks in different roles. Event is an abstract entity which has four sub-entities:

- Movement;
- Anomaly;
- Incident; and
- Action.

7.1.8.2.1.2 Attributes

Table 72: Event class attributes

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.8.2.1.3 Association Roles

Table 73: Event class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.8.2.2 AgentEvent Association Class

7.1.8.2.2.1 General description

This class allows the association between Agent (or one of its sub-classes: person, organization) and Event (or one of its sub-classes: movement, incident, anomaly, action). It is not mandatory to associate an Agent with an Event but one Agent can be associated to multiple different Events. The association further describes the role of the Agent in the Event.

7.1.8.2.2.2 Attributes

Table 74: AgentEvent class attributes

UML Name	Data type	Description	Example
AgentRole	AgentRoleInEventType	Enumerated. Describes the role of Agent in the Event	Coordinator
InvolvementPeriod	Period	The Period of Involvement	

7.1.8.2.3 EventEvent Association Class

7.1.8.2.3.1 General description

Events (movements, incidents, anomalies, actions) can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles.

7.1.8.2.3.2 Attributes

Table 75: EventEvent class attributes

UML Name	Data type	Description	Example
EventRole	EventRoleInEventType	Enumerated. Describes the relationship between two Events	Causes
InvolvementPeriod	Period	The Period of Involvement	

7.1.8.2.4 EventLocation Association Class

7.1.8.2.4.1 General description

This class allows the association between Location and Event (or one of its sub-classes: Movement, Anomaly, Incident and Action). It is not mandatory to associate a Location with an Event but one Location can be associated to multiple different Events. The association further describes the role of the Location in relation to the Event.

7.1.8.2.4.2 Attributes

Table 76: EventLocation class attributes

UML Name	Data type	Description	Example
DateTime	Period	The date and time at which the Location starts to be associated to the Event.	For 9am UTC on May 30th, 2002: 2002-05-30T09:00:00Z
EventArea	EventAreaType		Combat-related area: CMB
LocationRole	LocationRoleInEventType	Enumerated. Describes the relationship between the Event and the Location.	If the Location is the start place of the event: StartPlace
SourceType	SourceType		Observation

7.1.8.2.5 ObjectEvent Association Class

7.1.8.2.5.1 General description

This class allows the association between Object (or one of its sub-classes: vehicle, cargo) and Event (or one of its sub-classes: Movement, Anomaly, Incident, Action). It is not mandatory to associate an Object with an Event but one Object can be associated to multiple different Events. The association further describes the role of the Object in relation to the Event.

7.1.8.2.5.2 Attributes

Table 77: ObjectEvent class attributes

UML Name	Data type	Description	Example
InvolvementPeriod	Period	The Period of Involvement	
ObjectRole	ObjectRoleInEventType	Enumerated. Describes the relationship between the Event and the Object	Cause

7.1.8.2.6 AgentRoleInEventType Enumeration

This enumeration presents the possible roles that an Agent can have in relation to Event. The following attributes use this enumeration as data type:

- AgentRole (AgentEvent)

The enumeration values are presented in table 78.

Table 78: AgentRoleInEventType enumeration

Value	Label	Description
Coordinator	coordinator	Coordinates the Event
Participant	participant	Participates the Event
Observer	observer	Observes the Event
Cause	cause	Causes/has caused the Event
Reporter	reporter	Reports about the Event
Victim	victim	Victim of the Event
Informed	informed	Is informed about the Event
Perpetrator	perpetrator	Is the perpetrator/actor of the Event
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.8.2.7 EventAreaType Enumeration

This enumeration presents the possible types a Location can have when in relation to an Event. The following attributes use this enumeration as data type:

- EventArea (EventLocation)

The enumeration values are presented in table 79.

Table 79: EventAreaType enumeration

Value	Label	Description
AIR		Aerial area
CMB		Combat-related area
DGR		Polluted/dangerous area
FLAME		Area in combustion
GEN		General purpose area
PLUME		Trails of hazardous emissions from an incident influenced by the wind and other weather conditions that are laden with particulates and gaseous pollutants
SMOKE		Cloud of fine particles resulting from a combustion suspended in a gas of hot vapour which potentially can impact on people
VULN		Area where people will be at risk
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.8.2.8 EventRoleInEventType Enumeration

This enumeration presents the role an Event can have in respect to another Event. The following attributes use this enumeration as data type:

- EventRole (EventEvent)

The enumeration values are presented in table 80.

Table 80: EventRoleInEventType enumeration

Value	Label	Description
Causes	causes	Event which is the cause of other Event(s)
Responds	responds	Event which responds to other Event(s)
Prevents	prevents	Event which prevents other Event(s)
Encompasses	encompasses	Event which encompasses the other Event(s)
Requires	requires	Event which requires other Event(s)
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.8.2.9 LocationRoleInEventType Enumeration

This enumeration presents the possible roles that a Location can have in relation to an Event. The following attributes use this enumeration as data type:

- LocationRole (EventLocation)

The enumeration values are presented in table 81.

Table 81: LocationRoleInEventType enumeration

Value	Label	Description
StartPlace	start place	The Location is the start place of the Event
EndPlace	end place	The Location is the end place of the Event
LastPlace	last place	The Location is the last place known of the Event
NextPlace	next place	The Location is the next place of the Event
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.8.2.10 NatureType Enumeration

This enumeration presents the different natures of an Event. The following attributes use this enumeration as data type:

- NatureType (Event)

The enumeration values are presented in table 82.

Table 82: NatureType enumeration

Value	Label	Description
Observed	observed	The Event is observed
Declared	declared	The Event is declared
Estimated	estimated	This Event is estimated
Simulated	simulated	The Event is simulated
Other	other	Any other type not mentioned above
NonSpecified	non-specified	Type not specified

7.1.8.2.11 ObjectRoleInEventType Enumeration

This enumeration presents the possible roles that an Object can have in relation to an Event. The following attributes use this enumeration as data type:

- ObjectRole (ObjectEvent)

The enumeration values are presented in table 83.

Table 83: ObjectRoleInEventType enumeration

Value	Label	Description
Coordinator	coordinator	Coordinates the Event
Participant	participant	Participates the Event
Observer	observer	Observes the Event
Cause	cause	Causes/has caused the Event
Reporter	reporter	Reports about the Event
Victim	victim	Victim of the Event
Mean	mean	A mean used during the Event
Other	other	Any other role not mentioned above
NonSpecified	non-specified	Role not specified

7.1.9 Incident Core Entity

7.1.9.1 Incident UML Models

Figure 11 depicts the diagram of the classes that belong to the Incident Core Entity.

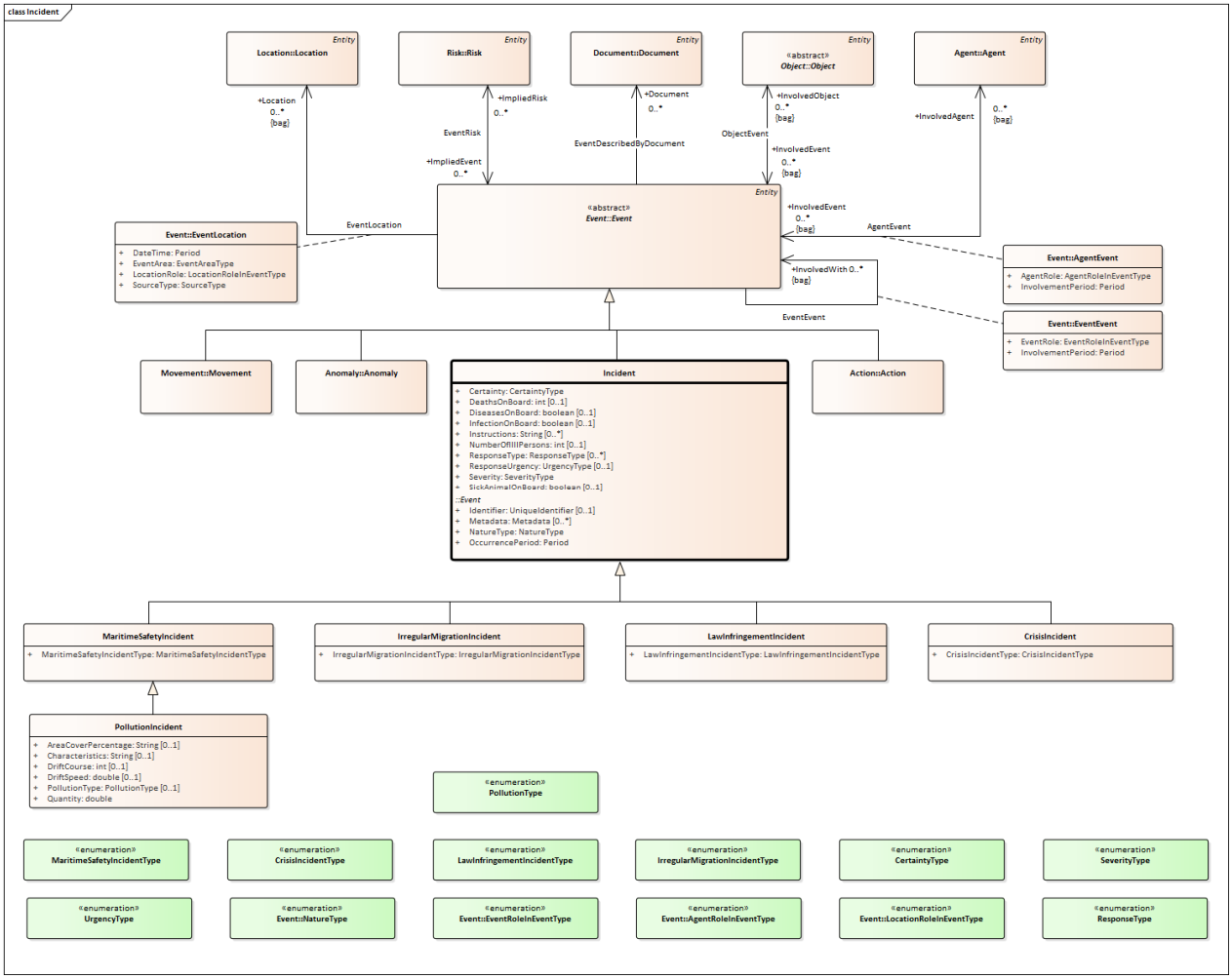

Figure 11: CISE Incident model

7.1.9.2 Incident Vocabulary

7.1.9.2.1 CrisisIncident Class (subclass of Incident)

7.1.9.2.1.1 General Description

The CrisisIncident class is a sub-class of Incident and is used to determine types of incidents related to crisis situations.

7.1.9.2.1.2 Attributes

Table 84: CrisisIncident class attributes

UML Name	Data type	Description	Example
CrisisIncidentType	CrisisIncidentType	The type of crisis incident.	NaturalDisasterTsunami
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Unlikely
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message.	Free text describing instructions.
NumberOfIlllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Evacuate
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Moderate
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.1.3 Association Roles

Table 85: CrisisIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.2 CrisisIncident Class (subclass of Event)

7.1.9.2.2.1 General description

The class Incident is a sub-class of the abstract class Event. An incident refers to a particular happening, sometimes criminal but always noteworthy. Incident can have the same associations and relationships than the parent-class Event. Thus, it can have relationship with other agents, objects, documents and locations or it can be related to risks. An incident can also be associated with other(s) incident(s) (an incident can cause others for example). Incident has four sub-classes: MaritimeSafetyIncident, IrregularMigrationIncident, LawInfringementIncident and CrisisIncident.

7.1.9.2.2.2 Attributes

Table 86: CrisisIncident class attributes

UML Name	Data type	Description	Example
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Unlikely
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message.	Free text describing instructions.
NumberOfIIllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Evacuate
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Severe
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.2.3 Association Roles

Table 87: CrisisIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.3 IrregularMigrationIncident Class (subclass of Incident)

7.1.9.2.3.1 General description

The IrregularMigrationIncident class is a sub-class of Incident and is used to determine types of incidents related to irregular migration.

7.1.9.2.3.2 Attributes

Table 88: IrregularMigrationIncident class attributes

UML Name	Data type	Description	Example
IrregularMigrationIncidentType	IrregularMigrationIncidentType	The type of irregular migration incident.	IrregularBorder Entry
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Unlikely
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message.	Free text describing instructions.
NumberOfIIllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Evacuate

UML Name	Data type	Description	Example
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Severe
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.3.3 Association Roles

Table 89: IrregularMigrationIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.4 LawInfringementIncident Class (subclass of Incident)

7.1.9.2.4.1 General description

The LawInfringementIncident class is a sub-class of Incident and is used to determine types of incidents related to law infringement.

7.1.9.2.4.2 Attributes

Table 90: LawInfringementIncident class attributes

UML Name	Data type	Description	Example
LawInfringementIncidentType	LawInfringementIncidentType	The type of law infringement incident.	DrugSmuggling Cannabis
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Possible
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message.	Free text describing instructions.
NumberOfIIllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Execute
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Severe
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.4.3 Association Roles

Table 91: LawInfringementIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.5 MaritimeSafetyIncident Class (subclass of Incident)

7.1.9.2.5.1 General description

The MaritimeSafetyIncident class is a sub-class of Incident and is used to determine types of incidents related to maritime safety as defined by the SafeSeaNet project.

7.1.9.2.5.2 Attributes

Table 92: MaritimeSafetyIncident class attributes

UML Name	Data type	Description	Example
MaritimeSafetyIncidentType	MaritimeSafetyIncidentType	The type of maritime safety incident.	LostFoundContainers
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Possible
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False

UML Name	Data type	Description	Example
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message	Free text describing instructions.
NumberOfIIllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Execute
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Severe
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.5.3 Association Roles

Table 93: MaritimeSafetyIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.6 PollutionIncident Class (subclass of MaritimeSafetyIncident)

7.1.9.2.6.1 General description

The PollutionIncident is a type of Maritime Safety Incident and is used to exchange specific information about pollution. The position and extend of the pollution can be described by the entity Location.

7.1.9.2.6.2 Attributes

Table 94: PollutionIncident class attibutes

UML Name	Data type	Description	Example
AreaCoverPercentage	String	Observer's assessment of the percentage of the boxed dimensioned area (length x width), covered with pollution. In percentage. (The polluted area can be described by the entity Location.)	20
Characteristics	String	Gives type of pollution (e.g. type of oil with viscosity and pour point, packaged or bulk chemical, sewage). For chemicals, the proper name or United Nations number, if known, should be given. Appearance, e.g. liquid, floating solid, liquid oil, semi-liquid sludge, tarry lumps, weathered oil, discolouration of sea, visible vapour should also be given as well as any markings on drums, containers.	Venezuela crude. Viscosity 3.780 Cs at 37,8 °C. Rather viscous
DriftCourse	int	Indicates drift course in degrees.	138
DriftSpeed	double	Indicates drift speed of pollution knots. In cases of air pollution (gas cloud), drift speed should be indicated in m/sec.	0,1
PollutionType	PollutionType	The pollution type observed.	OIL

UML Name	Data type	Description	Example
Quantity	double	Maximum quantity of oil pollution in cubic metres.	51,4
MaritimeSafetyIncidentType	MaritimeSafetyIncidentType	The type of maritime safety incident.	Pollution
Certainty	CertaintyType	The code denoting the certainty of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Possible
DeathsOnBoard	int	The number of deaths on board as defined by the draft NSW datasets.	0
DiseasesOnBoard	boolean	Indicates the presence of diseases on board as defined by the draft NSW datasets.	False
InfectionOnBoard	boolean	Indicates the presence of infection on board as defined by the draft NSW datasets.	False
Instructions	String	The text describing the recommended action to be taken by recipients of the alert message.	Free text describing instructions.
NumberOfIlllPersons	int	The number of ill persons on board as defined by the draft NSW datasets.	0
ResponseType	ResponseType	The code denoting the type of action recommended for the target audience.	Execute
ResponseUrgency	UrgencyType	The code denoting the urgency of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Immediate
Severity	SeverityType	The code denoting the severity of the incident as described by the OASIS Common Alerting Protocol (OASIS-CAP) [i.7].	Severe
SickAnimalOnBoard	boolean	Indicates the presence of sick animals on board as defined by the draft NSW datasets.	True
Identifier	UniqueIdentifier	Identifier of the event. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata".	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated.	Observed
OccurrencePeriod	Period	An Event occurs during a period of time.	

7.1.9.2.6.3 Association Roles

Table 95: PollutionIncident class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.9.2.7 CertaintyType Enumeration

This enumeration presents the certainty of an incident as defined by the OASIS common alerting protocol. The following attributes use this enumeration as data type:

- Certainty (Incident)

The enumeration values are presented in table 96.

Table 96: CertaintyType enumeration

Value	Label	Description
Observed	observed	Determined to have occurred or to be ongoing
Likely	likely	Likely (p > ~50 %)
Possible	possible	Possible but not likely (p <= ~50 %)
Unlikely	unlikely	Not expected to occur (p ~ 0)
Unknown	unknown	Certainty unknown
Other	other	Any other certainty not mentioned above
NonSpecified	non-specified	Certainty not specified

7.1.9.2.8 CrisisIncidentType Enumeration

This enumeration presents the incident types related to crisis situations. The following attributes use this enumeration as data type:

- CrisisIncidentType (CrisisIncident)

The enumeration values are presented in table 97.

Table 97: CrisisIncidentType enumeration

Value	Label	Description
NaturalDisasterTsunami	natural disaster tsunami	
NaturalDisasterEarthquake	natural disaster earthquake	
NaturalDisasterHeatWave	natural disaster heat wave	
NaturalDisasterWildFire	natural disaster wild fire	
NaturalDisasterFlood	natural disaster flood	
NaturalDisasterVolcanicEruption	natural disaster volcanic eruption	
NaturalDisasterStorm	natural disaster storm	
NaturalDisasterSnowStorm	natural disaster snow storm	
NaturalDisasterTropicalStorm	natural disaster tropical storm	
NaturalDisasterLightningStrike	natural disaster lightning strike	
NaturalDisasterLandslide	natural disaster landslide	
NaturalDisasterAvalanche	natural disaster avalanche	
NaturalDisasterOutbreakOfInfectiousDiseaseAndOtherBioHazard	natural disaster outbreak of infectious disease and other bio hazard	
NaturalDisasterOther	natural disaster other	
ManMadeDisasterManMadeFire	man made disaster man made fire	
ManMadeDisasterManMadeExplosion	man made disaster man made explosion	
ManMadeDisasterMaritimeAccident	man made disaster maritime accident	
ManMadeDisasterAircraftAccident	man made disaster aircraft accident	
ManMadeDisasterRadiation	man made disaster radiation	
ManMadeDisasterOilPollution	man made disaster oil pollution	
ManMadeDisasterWastePollution	man made disaster waste pollution	
ManMadeDisasterAnyOtherManMadeDisaster	man made disaster any other man made disaster	
ViolenceAssassination	violence assassination	
ManMadeDisasterTerroristAttack	man made disaster terrorist attack	
ViolenceBombing	violence bombing	
ViolenceDisorderProtestMutiny	violence disorder protest mutiny	
ViolenceAirMissileAttack	violence air missile attack	
ViolenceBioChemicalAttack	violence bio chemical attack	
ViolenceHeavyWeaponsFire	violence heavy weapons fire	
ViolenceShooting	violence shooting	
ViolenceStabbing	violence stabbing	
ViolencePhysicalAttack	violence physical attack	
ViolenceExecution	violence execution	
ViolenceVandalism	violence vandalism	
ViolenceRobbery	violence robbery	
ViolenceKidnappingHostageTaking	violence kidnapping hostage taking	
MinesExplosives	mines explosives	
ArmedConflict	armed conflict	
HumanitarianCrisis	humanitarian crisis	
Other	other	Any other response not mentioned above
NonSpecified	non-specified	Response not specified

7.1.9.2.9 IrregularMigrationIncidentType Enumeration

This enumeration presents the irregular migration incident types. The following attributes use this enumeration as data type:

- IrregularMigrationIncidentType (IrregularMigrationIncident)

The enumeration values are presented in table 98.

Table 98: IrregularMigrationIncidentType enumeration

Value	Label	Description
IrregularBorderEntry	irregular border entry	Irregular border entry
EventRefusedBorderEntry	event refused border entry	Refused border entry
IrregularEntryAttempt	irregular entry attempt	Irregular entry attempt
IrregularBorderExit	irregular border exit	Irregular border exit
RefusedBorderEntry	refused border entry	Refused border entry
IrregularExitAttempt	irregular exit attempt	Irregular exit attempt
IrregularStay	irregular stay	Irregular stay
FacilitatorInterception	facilitator interception	Facilitator interception
FacilitatorDisclosure	facilitator disclosure	Facilitator disclosure
InterceptionInThirdCountryTerritory	interception in third country territory	Event::Interception in third country territory
Other	other	Any other incident not mentioned above
NonSpecified	non-specified	Incident not specified

7.1.9.2.10 LawInfringementIncidentType Enumeration

This enumeration presents the law infringement incident types. The following attributes use this enumeration as data type:

- LawInfringementIncidentType (LawInfringementIncident)

The enumeration values are presented in table 99.

Table 99: LawInfringementIncidentType enumeration

Value	Label	Description
HumanTraffickingExploitationOfProstitutionOfOthers	human trafficking exploitation of prostitution of others	
HumanTraffickingOtherFormsOfSexualExploitation	human trafficking other forms of sexual exploitation	
HumanTraffickingForcedLabourOrServices	human trafficking forced labour or services	
HumanTraffickingSlaveryOrPracticesSimilarToSlavery	human trafficking slavery or practices similar to slavery	
HumanTraffickingServitude	human trafficking servitude	
HumanTraffickingExploitationOfActivitiesAssociatedWithBeggingOrOfUnlawfulActivities	human trafficking exploitation of activities associated with begging or of unlawful activities	
HumanTraffickingRemovalOfOrgans	human trafficking removal of organs	
HumanTraffickingOther	human trafficking other	
DrugSmugglingMarihuana	drug smuggling marihuana	
DrugSmugglingCocaine	drug smuggling cocaine	
DrugSmugglingHashish	drug smuggling hashish	
DrugSmugglingCannabis	drug smuggling cannabis	
DrugSmugglingHeroin	drug smuggling heroin	
DrugSmugglingAmphetamine	drug smuggling amphetamine	
DrugSmugglingMetamphetamine	drug smuggling metamphetamine	
DrugSmugglingEcstasy	drug smuggling ecstasy	
DrugSmugglingOpium	drug smuggling opium	
DrugSmugglingHallucinogens	drug smuggling hallucinogens	
DrugSmugglingOtherDrugs	drug smuggling other drugs	
GoodsSmugglingGoodsCarriedWithNoRequiredPermits	goods smuggling goods carried with no required permits	
GoodsSmugglingExciseGoods	goods smuggling excise goods	
GoodsSmugglingCounterfeitedProducts	goods smuggling counterfeited products	
GoodsSmugglingNaturalResourcesMinerals	goods smuggling natural resources minerals	
GoodsSmugglingThreatenedSpecies	goods smuggling threatened species	
GoodsSmugglingCulturalHeritageGoods	goods smuggling cultural heritage goods	
SmugglingInWasteAndOtherHazardousMaterialWaste	smuggling in waste and other hazardous material waste	

Value	Label	Description
SmugglingInWasteAndOtherHazardousMaterialChemical	smuggling in waste and other hazardous material chemical	
SmugglingInWasteAndOtherHazardousMaterialBiohazard	smuggling in waste and other hazardous material biohazard	
SmugglingInWasteAndOtherHazardousMaterialRadioActive	smuggling in waste and other hazardous material radio active	
SmugglingInWasteAndOtherHazardousMaterialNuclear	smuggling in waste and other hazardous material nuclear	
SmugglingInWasteAndOtherHazardousMaterialOtherDangerousSubstances	smuggling in waste and other hazardous material other dangerous substances	
SmugglingInWeaponAndRelatedAccessoriesArmsWeapons	smuggling in weapon and related accessories arms weapons	
SmugglingInWeaponAndRelatedAccessoriesWeaponsOfMassDestruction	smuggling in weapon and related accessories weapons of mass destruction	
SmugglingInWeaponAndRelatedAccessoriesAmmunition	smuggling in weapon and related accessories ammunition	
SmugglingInWeaponAndRelatedAccessoriesExplosives	smuggling in weapon and related accessories explosives	
SmugglingInOtherMaterial	smuggling in other material	
OtherRelatedCrossBorderCriminalActivityStolenVehicle	other related cross border criminal activity stolen vehicle	
OtherRelatedCrossBorderCriminalActivityDocumentFalsificationFraud	other related cross border criminal activity document falsification fraud	
OtherRelatedCrossBorderCriminalActivityOther	other related cross border criminal activity other	
LawInfringementByVessels	law infringement by vessels	
IllegalFlightOfAnAircraft	illegal flight of an aircraft	
LawInfringementByVehicles	law infringement by vehicles	
OtherAdministrativeOffense	other administrative offense	
Other	other	Any other response not mentioned above
NonSpecified	non-specified	Response not specified

7.1.9.2.11 MaritimeSafetyIncidentType Enumeration

This enumeration presents the maritime safety incident types. The following attributes use this enumeration as data type:

- MaritimeSafetyIncidentType (MaritimeSafetyIncident)

The enumeration values are presented in table 100.

Table 100: MaritimeSafetyIncidentType enumeration

Value	Label	Description
Pollution	pollution	Pollution
Waste	waste	Waste
LostFoundContainers	lost found containers	Lost or Found Containers
VTSRulesInfringement	VTS rules infringement	VTS Rules Infringement
BannedShip	banned ship	Banned Ship
InsuranceFailure	insurance failure	Insurance Failure
ResultInspection	result inspection	Result Inspection
PilotOrPortReport	pilot or port report	Pilot Or Port Report
Fire	fire	Fire
Collision	collision	Collision
Medico	medico	Medico
Grounding	grounding	Grounding
Flooding	flooding	Flooding
List	list	List
Capsizing	capsizing	Capsizing
EngineFailure	engine failure	Engine Failure
StructuralFailure	structural failure	Structural failure
SteeringGearFailure	steering gear failure	Steering gear failure
ElectricalGeneratingSystemFailure	electrical generating system failure	Electrical generating system failure
NavigationEquipmentFailure	navigation equipment failure	Navigation equipment failure
CommunicationEquipmentFailure	communication equipment failure	Communication equipment failure
IncidentNatureAbandonShip	incident nature abandon ship	Abandon ship
IncidentNatureSinking	incident nature sinking	Sinking
DetainedShip	detained ship	DetainedShip
Other	other	Any other incident not mentioned above
NonSpecified	non-specified	Incident not specified

7.1.9.2.12 PollutionType Enumeration

The following attributes use this enumeration as data type:

- PollutionType (PollutionIncident)

The enumeration values are presented in table 101.

Table 101: PollutionType enumeration

Value	Label	Description
OIL	Oil	Oil
CHEM	Chemical	Chemical
FISH	Fish Oil or Waste	Fish Oil or Waste
VEG	Vegetable Oil or Waste	Vegetable Oil or Waste
OTH	Other	Other
UNK	Unknown	Unknown

7.1.9.2.13 ResponseType Enumeration

This enumeration presents the incident's response types as defined by the OASIS common alerting protocol [i.7]. The following attributes use this enumeration as data type:

- ResponseType (Incident)

The enumeration values are presented in table 102.

Table 102: ResponseType enumeration

Value	Label	Description
Shelter	shelter	Take shelter in place or per <instruction>
Evacuate	evacuate	Relocate as instructed in the <instruction>
Prepare	prepare	Make preparations per the <instruction>
Execute	execute	Execute a pre-planned activity identified in <instruction>
Avoid	avoid	Avoid the subject event as per the <instruction>
Monitor	monitor	Attend to information sources as described in <instruction>
Assess	assess	Evaluate the information in this message. (This value SHOULD NOT be used in public warning applications.)
AllClear	all clear	The subject event no longer poses a threat or concern and any follow-on action is described in <instruction>
None	none	No action recommended
Other	other	Any other response not mentioned above
NonSpecified	non-specified	Response not specified

7.1.9.2.14 SeverityType Enumeration

This enumeration presents the severity of an incident as defined by the OASIS common alerting protocol. The following attributes use this enumeration as data type:

- Severity (Incident)

The enumeration values are presented in table 103.

Table 103: SeverityType enumeration

Value	Label	Description
Extreme	extreme	Extraordinary threat to life or property
Severe	severe	Significant threat to life or property
Moderate	moderate	Possible threat to life or property
Minor	minor	Minimal threat to life or property
Unknown	unknown	Severity unknown
Other	other	Any other severity not mentioned above
NonSpecified	non-specified	Severity not specified

7.1.9.2.15 UrgencyType Enumeration

This enumeration presents the urgency of an incident response as defined by the OASIS common alerting protocol [i.7]. The following attributes use this enumeration as data type:

- ResponseUrgency (Incident)

The enumeration values are presented in table 104.

Table 104: UrgencyType enumeration

Value	Label	Description
Immediate	immediate	Responsive action should be taken immediately
Expected	expected	Responsive action should be taken soon (within next hour)
Future	future	Responsive action should be taken in the near future
Past	past	Responsive action is no longer required
Unknown	unknown	Urgency not known
Other	other	Any other urgency not mentioned above
NonSpecified	non-specified	Urgency not specified

7.1.10 Location Core Entity

7.1.10.1 Location UML Models

Figure 12 depicts the diagram of the classes that belong to the Location Core Entity.

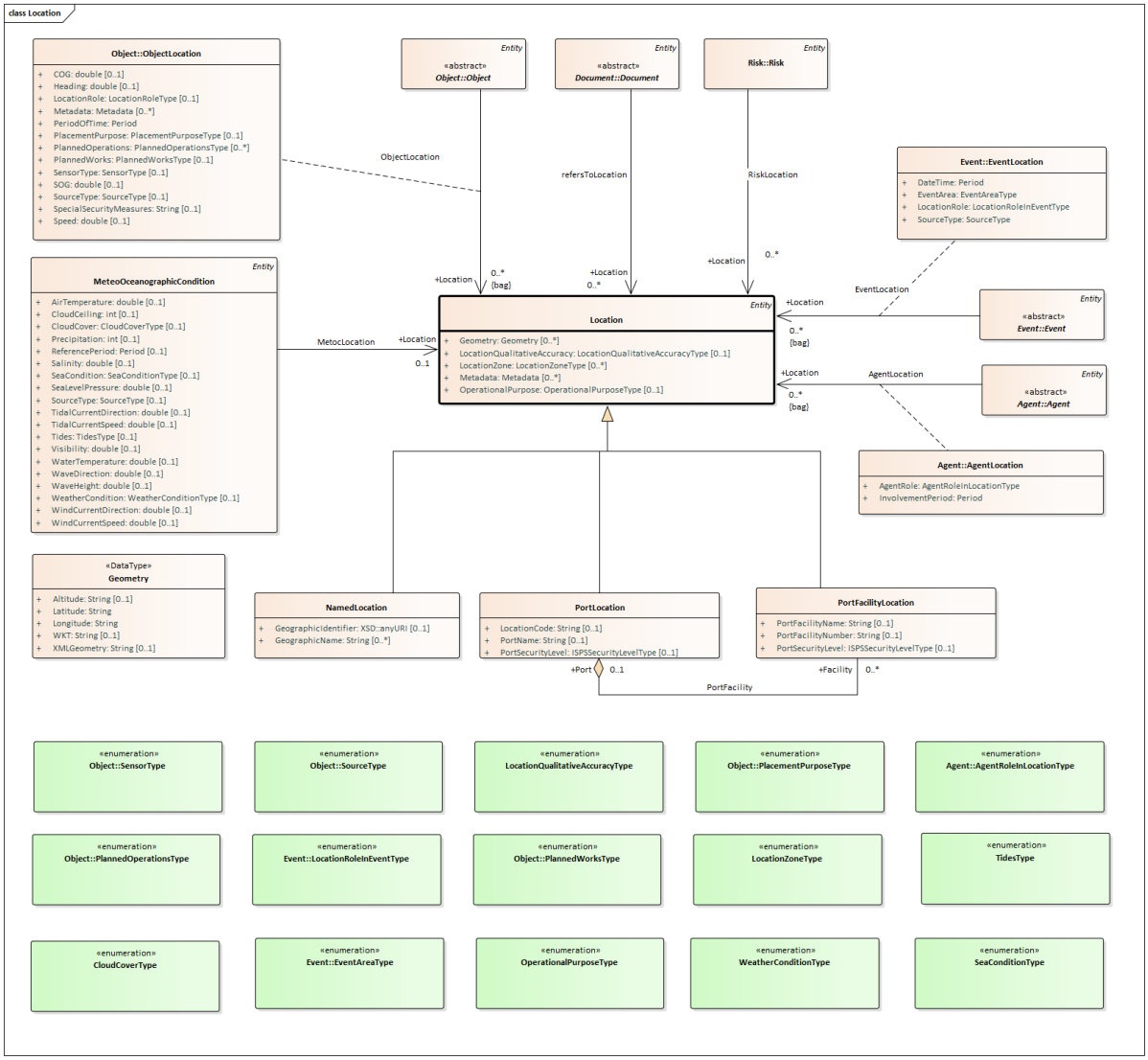

Figure 12: CISE Location model

7.1.10.2 Location Vocabulary

7.1.10.2.1 Location Class (subclass of Incident)

7.1.10.2.1.1 General description

Locations can be described in three principal ways: by using a place name, geometry or an address. The specific context will determine which method of describing a location is most appropriate. ISO 19112 [i.4] defines a location as "an identifiable geographic place". With this in mind, "Eiffel Tower", "Madrid" and "California" are all locations and this is a common way of representing locations in public sector data, i.e. simply by using a recognized name. Such identifiers are common although they can be highly ambiguous as many places share the same or similar names.

In addition to a simple (string) label or name for a Location, the identifier property allows defining a Location by a Uniform Resource Identifier (URI), such as a GeoNames [i.5] or Dbpedia URI [i.6].

No cardinality constraints are placed on any property of the Location class so as to maximize flexibility.

7.1.10.2.1.2 Attributes

Table 105: Location class attributes

UML Name	Data type	Description	Example
Geometry	Geometry	A Geometry Object which represents a Georeference	
LocationQualitativeAccuracy	LocationQualitativeAccuracyType	Describes the qualitative accuracy of location: high/medium/low	High
LocationZone	LocationZoneType	Provides the types of location. Enumerated	HighSeas
Metadata	Metadata	Provides a placeholder for Metadata	
OperationalPurpose	OperationalPurposeType	Provides the types of operational purpose. Enumerated	Search area

7.1.10.2.2 MeteoOceanographicCondition Class (subclass of Entity)

7.1.10.2.2.1 General description

This class allows the description of the meteorological oceanographic condition of a given Location.

7.1.10.2.2.2 Attributes

Table 106: MeteoOceanographicCondition class attributes

UML Name	Data type	Description	Example
AirTemperature	Double	Air temperature is a measure of how hot or cold the air is. It is the most commonly measured weather parameter.	
CloudCeiling	Int	Ceiling is a measurement of the cloud base height relative to the ground (in meters).	2 000(m)
CloudCover	CloudCoverType	Cloud cover (also known as cloudiness, cloudage or cloud amount) refers to the fraction of the sky obscured by clouds when observed from a particular location.	Okta4 (sky half cloudy)
Precipitation	Int		
ReferencePeriod	Period	Period of reference.	
Salinity	Double	Salinity is the saltiness or dissolved salt content of the sea (in g per Kg of water).	5 (g/Kg)
SeaCondition	SeaConditionType	In oceanography, a sea state is the general condition of the free surface on a large body of water - with respect to wind waves and swell - at a certain location and moment.	Moderate
SeaLevelPressure	Double	Atmospheric pressure at sea level (in Hpa).	100,15 (Hpa)
SourceType	SourceType	Indicate if the oceanographic condition was observed or estimated. Enumerated.	Observed
TidalCurrentDirection	Double	Indicates current direction in degrees andknots. The direction always indicates the direction in which the current is flowing.	180
TidalCurrentSpeed	Double	Indicates current speed in tenths of knots.	0,3
Tides	TidesType	Tides are the rise and fall of sea levels caused by the combined effects of gravitational forces exerted by the Moon, Sun, and rotation of the Earth.	Low (low tides)
Visibility	Double	Visibility should be indicated in nautical miles.	10
WaterTemperature	Double	Water temperature.	
WaveDirection	Double	Idicates wave direction in degrees.	180
WaveHeight	Double	Indicates the wave height in metres.	2
WeatherCondition	WeatherConditionType	Type of weather condition. Enumerated.	HUM
WindCurrentDirection	Double	Indicates wind direction in degrees. The direction always indicates from where the wind is blowing.	270
WindCurrentSpeed	Double	Indicates wind speed in m/sec.	10

7.1.10.2.2.3 Association Roles

Table 107: MeteoOceanographicCondition class association roles

UML Name	Data type	Description	Multiplicity
Location	Location	Location in which the METOC were measured.	0..1

7.1.10.2.3 NamedLocation Class (subclass of Location)

7.1.10.2.3.1 General description

This subclass is related to a location with a given name.

7.1.10.2.3.2 Attributes

Table 108: NamedLocation class attributes

UML Name	Data type	Description	Example
GeographicIdentifier	XSD::anyURI	A URI that identifies the location. GeoNames.org provides stable, widely recognized identifiers for more than	http://sws.geonames.org/593116/

UML Name	Data type	Description	Example
		10 million geographical names that can be used as links to further information. For example, http://sws.geonames.org/593116/ identifies the Lithuanian capital Vilnius. Unfortunately, these URIs cannot easily be automatically deduced since the URI scheme uses simple numeric codes. Finding a GeoNames identifier for a Location is almost always a manual process. Where such identifiers are known or can be found, however, it is recommended that they be used. The use of a URIs has added advantages: 1. it can be used by automated systems to look up additional data (linked data); 2. a triple store may store only one copy of the URI, whereas if a string is used, a copy of that string is always stored for each and every person in the database. Thus, in large data sets, the saving on memory capacity and the improvement in transmission efficiency can be substantial.	
GeographicName	String	String A geographic name is a proper noun applied to a spatial object. The following are all valid geographic names for the Greek capital: • Ana (the Greek endonym written in the Greek script) • Athina (the standard Romanisation of the endonym) • Athens (the English language exonym) The country codes defined in ISO 3166-1 [1] may be used as geographic names and these are generally preferred over either the long form or short form of a country's name (as they are less error prone). The Publications Office of the European Union recommends the use of ISO 3166-1 [1] codes for countries in all cases except two: • use 'UK' in preference to the ISO 3166-1 [1] code GB for the United Kingdom; • use 'EL' in preference to the ISO 3166-1 [1] code GR for Greece. Where a country has changed its name or no longer exists (such as Czechoslovakia, Yugoslavia etc.) use the ISO 3166-3 [10] code.	Athens
Geometry	Geometry	A Geometry Object which represents a Georeference.	
LocationQualitativeAccuracy	LocationQualitativeAccuracyType	Describes the qualitative accuracy of location: high/medium/low.	High
LocationZone	LocationZoneType	Provides the types of location. Enumerated.	HighSeas
Metadata	Metadata	Provides a placeholder for Metadata.	
OperationalPurpose	OperationalPurposeType	Provides the types of operational purpose. Enumerated.	Search area

7.1.10.2.4 PortFacilityLocation Class (subclass of Location)

7.1.10.2.4.1 General description

This subclass is related to a location of one of the facilities contained in a port.

7.1.10.2.4.2 Attributes

Table 109: PortFacilityLocation class attributes

UML Name	Data type	Description	Example
PortFacilityName	String		
PortFacilityNumber	String	Port facility identified by its IMO port facility number. Port facility number is used identify each port facility within each port. Where the whole port is being classified as a single port facility, this number is 0000. The port facility number is not duplicated inside one port but the same number can be reused in different ports. When used in connection with the port code forms an unique identification for each port facility	Port facility assigned with number 0000: 0000
PortSecurityLevel	ISPSSecurityLevelType		
Geometry	Geometry	A Geometry Object which represents a Georeference	
LocationQualitativeAccuracy	LocationQualitativeAccuracyType	Describes the qualitative accuracy of location: high/medium/low	High
LocationZone	LocationZoneType	Provides the types of location. Enumerated	HighSeas
Metadata	Metadata	Provides a placeholder for Metadata	
OperationalPurpose	OperationalPurposeType	Provides the types of operational purpose. Enumerated	Search area

7.1.10.2.5 PortLocation Class (subclass of Location)

7.1.10.2.5.1 General description

This subclass is related to a aocation describing the position/area of a port.

7.1.10.2.5.2 Attributes

Table 110: PortLocation class attributes

UML Name	Data type	Description	Example
LocationCode	String	A location is defined as any named geographical place, recognized by a competent national body, either with permanent facilities used for goods movement associated with trade, and used for these purposes, or proposed by the government concerned or by a competent national or international organization for inclusion in the UN/LOCODE. A port is any location with permanent facilities at which vessels can load or discharge cargo moving in maritime traffic. An anchoring area is any location official recommended for anchoring. There are areas dedicated for different type of vessels or general. Such areas are announced in notifications or in sea charts. A code is data transformation or data representation in different forms according to pre-establish rules. (Definition adapted from ISO 5127-1:1983 [i.13].) A code element is result of applying a code to an element in a set of elements to be coded. In UN/LOCODE, one code element represents the name of a port, or a location, i.e. anchoring area, and in addition possible subsidiary location, i.e. an ISPS-area or -terminal. (Definition adapted from ISO 2382-4:1987 [i.14]) A five-character code element is provided for each location included UN/LOCODE and consists of: a) two letters identifying the country, according to the ISO 3166-1 [1] two-letter Code for the representation of names of countries, and UN/ECE/FAL recommendation No. 3, and b) three characters identifying the location within the country. E.g. A vessel call for Norway, Oslo in the five-character code elements is: "NOOSL" the official Locode list of SSN is obtained from the UNECE (http://www.unece.org/).	NOOSL
PortName	String		
PortSecurityLevel	ISPSSecurityLevelType	Enumerated. Port's security level according to ISPS standard.	Port has been assigned the ISPS Security level 2: SecurityLevel2
Geometry	Geometry	A Geometry Object which represents a Georeference.	
LocationQualitativeAccuracy	LocationQualitativeAccuracyType	Describes the qualitative accuracy of location: high/medium/low.	High
LocationZone	LocationZoneType	Provides the types of location. Enumerated.	HighSeas
Metadata	Metadata	Provides a placeholder for Metadata.	
OperationalPurpose	OperationalPurposeType	Provides the types of operational purpose. Enumerated.	Search area

7.1.10.2.6 Geometry Datatype

7.1.10.2.6.1 General description

This class allows the definition of Georeferenced areas.

7.1.10.2.6.2 Attributes

Table 111: Geometry attributes

UML Name	Data type	Description	Example
Altitude	String	Geographic Altitude in meters AMSL.	250
Latitude	String	Geographic Latitude, expressed using the WGS84 reference.	37.567645
Longitude	String	Geographic Longitude, expressed using the WGS84 reference.	23.446256
WKT	String	Well-Known Text (WKT) is a text markup language for representing vector geometry objects on a map.	POINT (23.446256 37.567645)
XMLGeometry	String	Geometry defined by an XML file such as KML.	<?xml version="1.0" encoding="UTF-8"?> <kml xmlns="http://www.opengis.net/kml/2.2"> <Placemark> <name>Simple placemark</name> <description>Attached to the ground. Intelligently places itself at the height of the underlying terrain. </description> <Point> <coordinates>-122.0822035425683,37.42228990140251,0</coordinates> </Point> </Placemark> </kml>

7.1.10.2.7 CloudCoverType Enumeration

Cloud cover is estimated in terms of how many eighths of the sky are covered in cloud, ranging from 0 oktas (completely clear sky) through to 8 oktas (completely overcast). The following attributes use this enumeration as data type:

- CloudCover (MeteoOceanographicCondition)

The enumeration values are presented in table 112.

Table 112: CloudCoverType eumeration

Value	Label	Description
ClearSky	clear sky	Sky completely clear
Okta1	1 okta	
Okta2	2 oktas	
Octa3	3 oktas	
Okta4	4 oktas	Sky half cloudy
Okta5	5 oktas	
Okta6	6 oktas	
Okta7	7 oktas	
Okta8	8 oktas	Sky completely cloudy
SkyObscured	sky obscured	Sky obstructed from view

7.1.10.2.8 LocationQualitativeAccuracyType Enumeration

The following attributes use this enumeration as data type:

- LocationQualitativeAccuracy (Location)

The enumeration values are presented in table 113.

Table 113: LocationQualitativeAccuracyType eumeration

Value	Label	Description
High	high	High qualitative accuracy
Medium	medium	Medium qualitative accuracy
Low	low	Low qualitative accuracy
Other	other	Qualitative accuracy not listed here
NonSpecified	non-specified	The qualitative accuracy is not declared

7.1.10.2.9 LocationZoneType Enumeration

The following attributes use this enumeration as data type:

- LocationZone (Location)

The enumeration values are presented in table 114.

Table 114: LocationZoneType eumeration

Value	Label	Description
HighSeas	high seas	High seas
TerritorialWaters	territorial waters	Territorial waters
CoastLine	coast line	Coast line
ContiguousZone	contiguous zone	Contiguous zone
Port	port	Port
ControlPoint	control point	Control point
GreenBorder	green border	Green border
Inland	inland	Inland
ExclusiveEconomicArea	exclusive economic area	Exclusive Economic Area
ThirdCountry	third country	Third country
INW	INW	Inland waterway. A body of water, such as a river, canal or lake. It may be navigable if it is deep and wide enough for a vessel to pass and there are no obstructions
NAT	NAT	Natural/rural environment
Other	other	Location type not listed here
NonSpecified	non-specified	The location type is not declared

7.1.10.2.10 MetocType Enumeration

Table 115: MetocType eumeration

Value	Label	Description
Observed	observed	By observation
Declared	declared	By declaration
Estimated	estimated	By estimation
Simulated	simulated	By simulation
Other	other	METOC type not listed here
NonSpecified	non-specified	The METOC type is not declared

7.1.10.2.11 OperationalPurposeType Enumeration

The following attributes use this enumeration as data type:

- OperationalPurpose (Location)

The enumeration values are presented in table 116.

Table 116: OperationalPurposeType eumeration

Value	Label	Description
Search area	search area	Search area
Surveillance area	surveillance area	Surveillance area
Other	other	Operational purpose not listed here
NonSpecified	non-specified	The operational purpose is not declared

7.1.10.2.12 SeaConditionType Enumeration

The following attributes use this enumeration as data type:

- SeaCondition (MeteoOceanographicCondition)

The enumeration values are presented in table 117.

Table 117: SeaConditionType eumeration

Value	Label	Description
Calm (glassy)	calm (glassy)	0 metres (0 ft)
Calm (rippled)	calm (rippled)	Waves from 0 to 0,1 metres (0,00 to 0,33 ft)
Smooth (wavelets)	smooth (wavelets)	Waves from 0,1 to 0,5 metres (3,9 in to 1 ft 7,7 in)
Slight	slight	Waves from 0,5 to 1,25 metres (1 ft 8 in to 4 ft 1 in)
Moderate	moderate	Waves from 1,25 to 2,5 metres (4 ft 1 in to 8 ft 2 in)
Rough	rough	Waves from 2,5 to 4 metres (8 ft 2 in to 13 ft 1 in)
Very rough	very rough	Waves from 4 to 6 metres (13 to 20 ft)
High	high	Waves from 6 to 9 metres (20 to 30 ft)
Very high	very high	Waves from 9 to 14 metres (30 to 46 ft)
Phenomenal	phenomenal	Waves over 14 metres (46 ft)

7.1.10.2.13 TidesType Enumeration

The following attributes use this enumeration as data type:

- Tides (MeteoOceanographicCondition)

The enumeration values are presented in table 118.

Table 118: TidesType eumeration

Value	Label	Description
Low	low tides	low tides
High	high tides	high tides

7.1.10.2.14 WeatherConditionType Enumeration

The following attributes use this enumeration as data type:

- WeatherCondition (MeteoOceanographicCondition)

The enumeration values are presented in table 119.

Table 119: WeatherConditionType eumeration

Value	Label	Description
HUM	hum weather	Humid conditions
ICY	icy weather	Icy conditions
TDS	tds weather	Thunderstorm conditions
WIN	win weather	Windy conditions
DRZLE	drzle weather	Drizzle. Fairly uniform precipitation composed exclusively of fine drops very close together. Drizzle appears to float while following air currents although, unlike fog droplets, it falls to the ground. It usually falls from low stratus clouds and is frequently accompanied by low visibility and fog
FOG	fog weather	Fog/mist. A visible aggregate of minute water particles (droplets) which are based on the Earth's surface, extends vertically, and reduces horizontal visibility to less than 5/8 mile (1 000 m). Unlike drizzle, FOG does not fall to the ground
Other	other	Weather Condition type not listed here
NonSpecified	non-specified	Weather Condition type is not declared

7.1.11 Metadata Core Entity

7.1.11.1 Metadata UML Models

Figure 13 depicts the diagram of the classes that belong to the Metadata Core Entity.

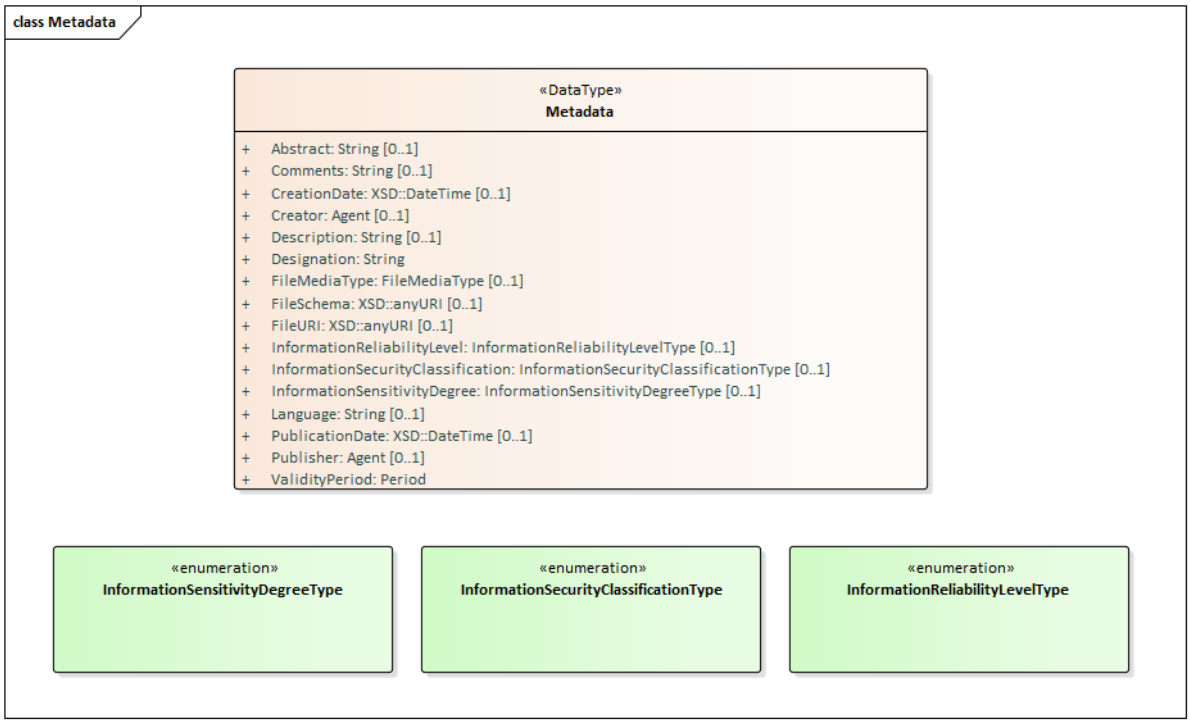

Figure 13: CISE Metadata model

7.1.11.2 Metadata Vocabulary

7.1.11.2.1 Metadata Datatype

7.1.11.2.1.1 General description

This class provides information about the properties of the data communicated through the system, excluding the content of the data.

7.1.11.2.1.2 Attributes

Table 120: Metadata class attributes

UML Name	Data type	Description	Example
Abstract	String	A short account of the resource	Free text abstract describing the data
Comments	String	Additional comments on the resource	Comments as free text
CreationDate	XSD::DateTime	The date and time the information was created	
Creator	Agent	An entity primarily responsible for making the resource	Finnish Border Guard
Description	String	A detailed account of the resource	Free text describing the data
Designation	String	Refers to the class/entity which is described by the metadata.	
FileMediaType	FileMediaType	Content types and subtypes as defined in [i.11] (Main types include: application, audio, example, image, message, model, multipart, text, video)	image/jpeg
FileSchema	XSD::anyURI		
FileURI	XSD::anyURI		
InformationReliabilityLevel	InformationReliabilityLevelType	Enumerated	HighConfidence
InformationSecurityClassification	InformationSecurityClassificationType	Enumerated	EURestricted
InformationSensitivityDegree	InformationSensitivityDegreeType	This enumeration presents the possible values for information sensitivity degree. The Traffic Light Protocol (TLP) of US-CERT is applied [i.8]	AMBER
Language	String	Alpha-3 codes which represent the names of language of the resource. For the languages which are defined with two codes, the 'terminological' code as specified in ISO 639-2 [8] shall be used instead of the 'bibliographic' one	POL for Polish
PublicationDate	XSD::DateTime	The date and time the information was published	
Publisher	Agent	An entity responsible for making the resource available	Finnish Border Guard
ValidityPeriod	Period	Validity for a specific Period of time	

7.1.11.2.2 FileMediaType Enumeration

Content types and subtypes as defined in IETF RFC 2046 [i.11] (Main types include: application, audio, example, image, message, model, multipart, text, video). The following attributes use this enumeration as data type:

- FileMediaType (Metadata)

The enumeration values are presented in table 121.

Table 121: FileMediaType enumeration

Value	Label	Description
x-world/x-3dmf	x-world/x-3dmf	
video/avi	video/avi	
image/jpeg	image/jpeg	

7.1.11.2.3 InformationReliabilityLevelType Enumeration

This enumeration provides a quantitative evaluation of the reliability level of the information that is provided. The following attributes use this enumeration as data type:

- InformationReliabilityLevel (Metadata)

The enumeration values are presented in table 122.

Table 122: InformationReliabilityLevelType enumeration

Value	Label	Description
VeryHighConfidence	very high confidence, verified data	Information and material whose owner is extremely confident of
HighConfidence	high confidence	Information and material whose owner is very confident of
Confident	confident	Information and material whose owner is confident of
LowConfidence	low confidence, unsure source of verification	Information and material whose owner is not confident of
VeryLowConfidence	very low confidence, no verification, co-operative target	Information and material whose owner is very unconfident of
NonSpecified	non-specified	Information and material whose reliability is not specified

7.1.11.2.4 InformationSecurityClassificationType Enumeration

This enumeration presents the possible values for information security classification. The enumeration is based in the security rules for protecting EU classified information [i.9]. The following attributes use this enumeration as data type:

- InformationSecurityClassification (Metadata)

The enumeration values are presented in table 123.

Table 123: InformationSecurityClassificationType enumeration

Value	Label	Description
EUTopSecret	EU top secret	Information and material the unauthorized disclosure of which could cause exceptionally grave prejudice to the essential interests of the European Union or of one or more of the Member States
EUSecret	EU secret	Information and material the unauthorized disclosure of which could seriously harm the essential interests of the European Union or of one or more of the Member States
EUConfidential	EU confidential	Information and material the unauthorized disclosure of which could harm the essential interests of the European Union or of one or more of the Member States
EURestricted	EU restricted	Information and material the unauthorized disclosure of which could be disadvantageous to the interests of the European Union or of one or more of the Member States
NonClassified	non-classified	It can be used for information and material whose classification level is still pending
NonSpecified	non-specified	It can be used for information and material whose classification level is not specified

7.1.11.2.5 InformationSensitivityDegreeType Enumeration

This enumeration presents the possible values for information sensitivity degree. The Traffic Light Protocol (TLP) of US-CERT is applied [i.8]. The following attributes use this enumeration as data type:

- InformationSensitivityDegree (Metadata)

The enumeration values are presented in table 124.

Table 124: InformationSensitivityDegreeType enumeration

Value	Label	Description
Red	red	TLP: RED when information cannot be effectively acted upon by additional parties, and could lead to impacts on a party's privacy, reputation, or operations if misused.
Amber	amber	TLP: AMBER when information requires support to be effectively acted upon, but carries risks to privacy, reputation, or operations if shared outside of the organizations involved.
Green	green	TLP: GREEN when information is useful for the awareness of all participating organizations as well as with peers within the broader community or sector.
White	white	TLP: WHITE when information carries minimal or no foreseeable risk of misuse, in accordance with applicable rules and procedures for public release.
NonSpecified	non-specified	It can be used for information and material whose classification level is not specified.

7.1.12 Movement Core Entity

7.1.12.1 Movement UML Models

Figure 14 depicts the diagram of the classes that belong to the Movement Core Entity.

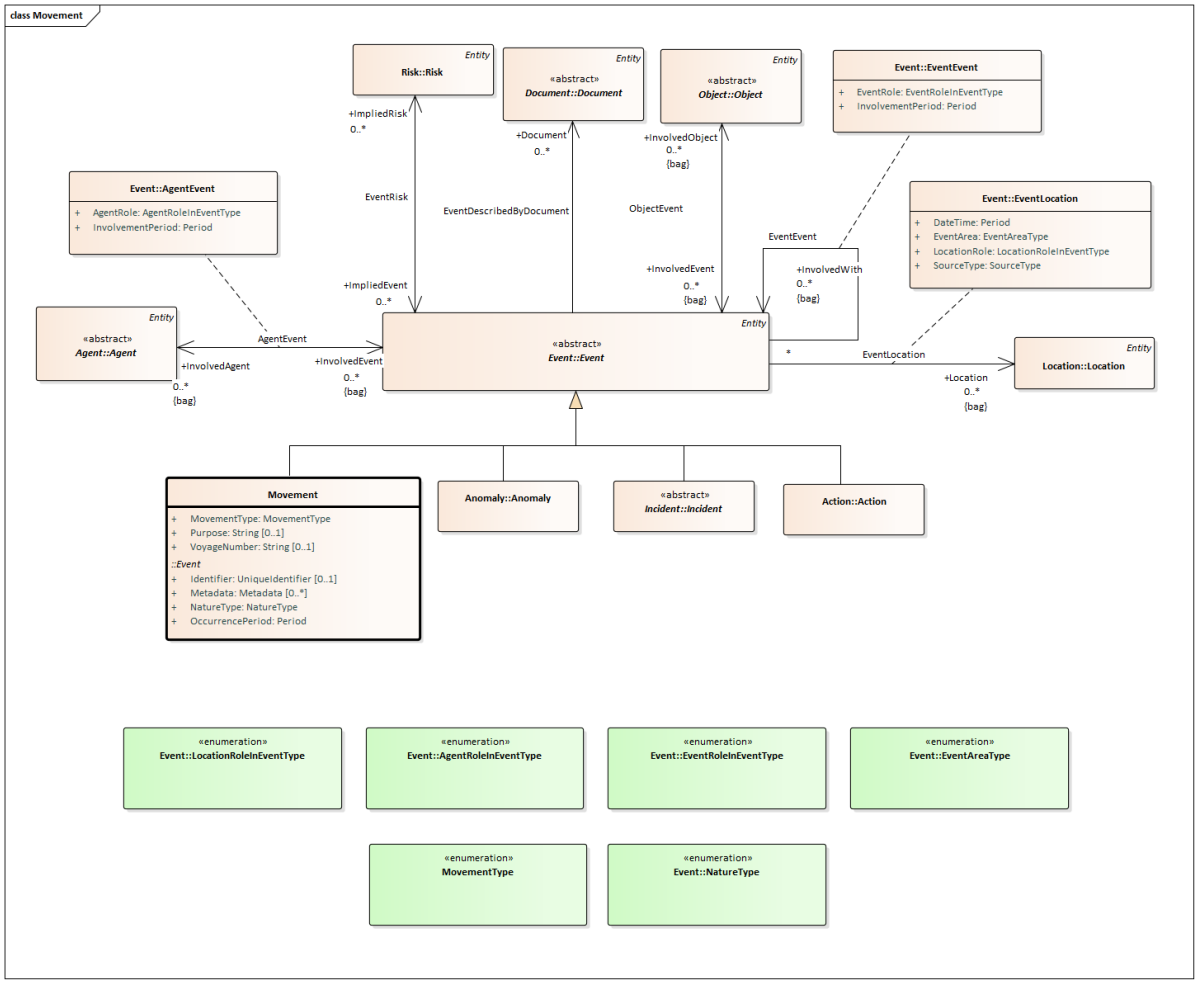

Figure 14: CISE Movement model

7.1.12.2 Movement Vocabulary

7.1.12.2.1 Movement Class (subclass of Event)

7.1.12.2.1.1 General description

This class is a subclass of event. The Movement entity is linked to a voyage. Movement can be actual (e.g. current position, heading and speed), historical data or planned in the future and can also be expressed taking into account other entities as location, object, etc.

7.1.12.2.1.2 Attributes

Table 125: Movement class attributes

UML Name	Data type	Description	Example
MovementType	MovementType	Many different movements types can be described	RoutePlan
Purpose	String	The purpose of the movement	Leisure
VoyageNumber	String	This is an operator-assigned reference code for a voyage and serves the purpose of the operator	111124
Identifier	UniqueIdentifier	Identifier of the event Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	See Core Vocabularies Specification for "Metadata"	
NatureType	NatureType	Enumerated. Is used to define nature of the event. An event can be observed, declared, estimated or simulated	Observed
OccurrencePeriod	Period	An Event occurs during a period of time	

7.1.12.2.1.3 Association Roles

Table 126: Movement class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Events (movements, incidents, anomalies, actions) can be associated to zero to multiple documents.	0..*
ImpliedRisk	Risk	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedWith	Event	The association has additional attributes. Please check association class EventEvent.	0..* (allow duplicates)
Location	Location	Locations can be involved in zero to multiple events (movements, incidents, anomalies, actions) in many different roles. The association has additional attributes. Please check association class EventLocation.	0..* (allow duplicates)

7.1.12.2.2 MovementType Enumeration

This enumeration presents the possible types of processes used to perform the objects' correlation. The following attributes use this enumeration as data type:

- MovementType (Movement)

The enumeration values are presented in table 127.

Table 127: MovementType enumeration

Value	Label	Description
RoutePlan	route plan	Expected locations/direction and movements that a vessel will follow during a voyage. It is known before departure
Voyage	voyage	Journey involving travel by sea
Voyage leg	voyage leg	Stage of a Voyage
Search pattern	search pattern	Search pattern for a certain area
Patrol route plan	patrol route plan	Patrol route plan for a certain area
Other	other	Movement type not included above
NonSpecified	non-specified	Movement type non-specified

7.1.13 Object Core Entity

7.1.13.1 Object UML Models

Figure 15 depicts the diagram of the classes that belong to the Object Core Entity.

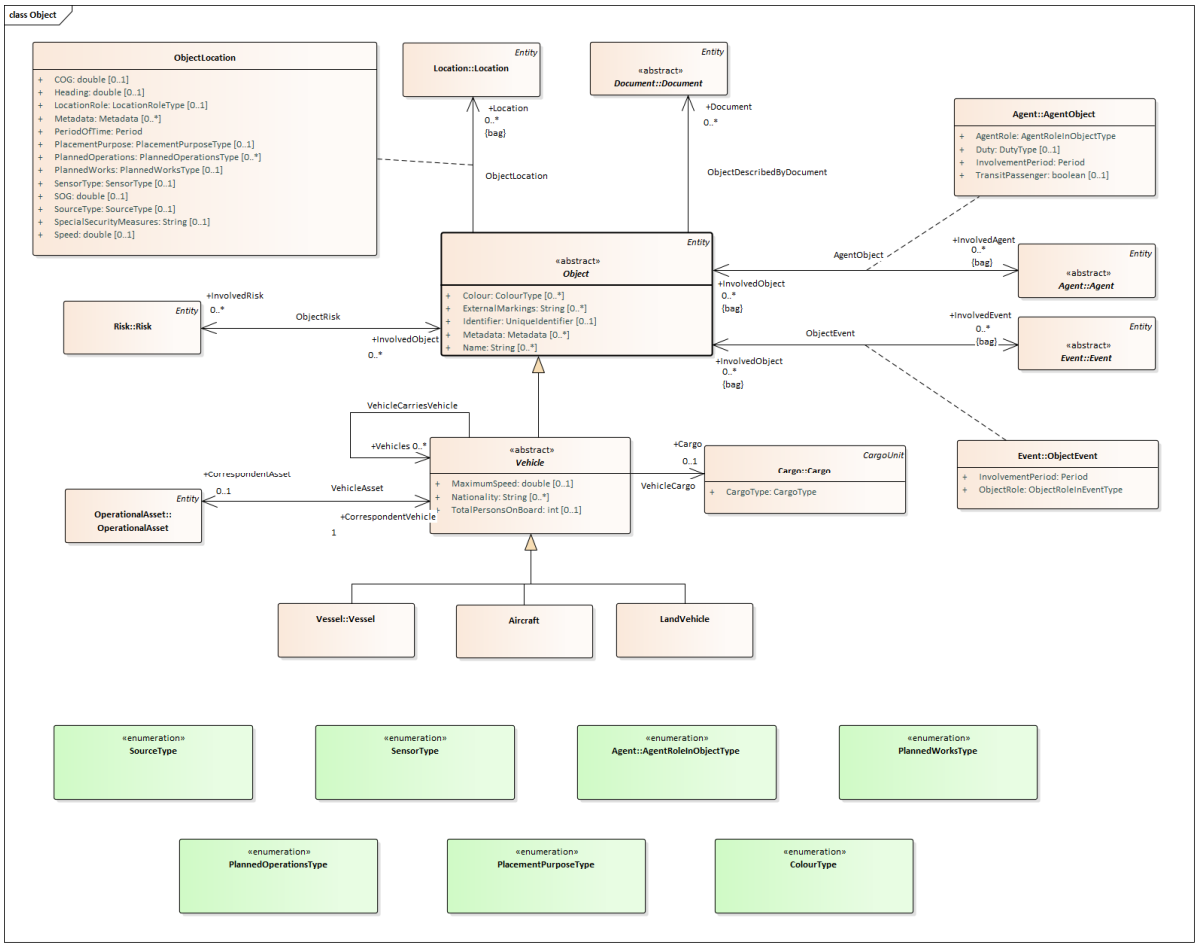

Figure 15: CISE Object model

7.1.13.2 Object Vocabulary

7.1.13.2.1 Object Class (subclass of Entity)

7.1.13.2.1.1 General description

The Object entity is one of the core entities of the overall data model. It is an abstract entity (it cannot be used as such) that holds information about physical entities from the maritime domain like vehicles (vessels, aircrafts and land vehicles) and cargo. Object has relationships with Event, Agent, Document, Risk and Location. Object can also be associated with another Object.

7.1.13.2.1.2 Attributes

Table 128: Object class attributes

UML Name	Data type	Description	Example
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.13.2.1.3 Association Roles

Table 129: Object class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)

7.1.13.2.2 Vehicle Class (subclass of Object)

7.1.13.2.2.1 General description

The Vehicle is a sub-class of Object and is used to determine types of physical moving objects related to maritime. The class Vehicle inherits the attributes and relationships of Object. Vehicle has three sub-classes: Vessel, Aircraft and LandVehicle.

7.1.13.2.2.2 Attributes

Table 130: Vehicle class attributes

UML Name	Data type	Description	Example
MaximumSpeed	double	The vehicle's maximum speed measured in knots	20
Nationality	String	Two-letter country codes to represent countries, dependent territories, and special areas of geographical interest. Represent the flag for a Vessel	Country code for Portugal: PT
TotalPersonsOnBoard	int	The total number of persons on board	10
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.13.2.2.3 Association Roles

Table 131: Vehicle class association roles

UML Name	Data type	Description	Multiplicity
Cargo	Cargo	Vehicles can carry cargo.	0..1
CorrespondentAsset	OperationalAsset	Permits the definition of a Vehicle as an operational asset. One vehicle can be defined as a single operational asset or not.	0..1
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)
Vehicles	Vehicle	Vehicles can carry other vehicles.	0..*

7.1.13.2.2.4 Constraints

Table 132: Vehicle class constraints

Name	Description	OCL Constraint
Minimum of TotalPersonsOnBoard		The number of TotalPersonsOnBoard can not be smaller than the sum of master/crewmembers and passengers

7.1.13.2.3 Aircraft Class (subclass of Vehicle)

7.1.13.2.3.1 General description

The Aircraft class is used to model aerial vehicles.

7.1.13.2.3.2 Attributes

Table 133: Aircraft class attributes

UML Name	Data type	Description	Example
MaximumSpeed	double	The vehicle's maximum speed measured in knots	20
Nationality	String	Two-letter country codes to represent countries, dependent territories, and special areas of geographical interest. Represent the flag for a Vessel	Country code for Portugal: PT
TotalPersonsOnBoard	int	The total number of persons on board	10
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.13.2.3.3 Association Roles

Table 134: Aircraft class association roles

UML Name	Data type	Description	Multiplicity
Cargo	Cargo	Vehicles can carry cargo.	0..1
CorrespondentAsset	OperationalAsset	Permits the definition of a Vehicle as an operational asset. One vehicle can be defined as a single operational asset or not.	0..1
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)
Vehicles	Vehicle	Vehicles can carry other vehicles.	0..*

7.1.13.2.3.4 Constraints

Table 135: Aircraft class constraints

Name	Description	OCL Constraint
Minimum of TotalPersonsOnBoard		The number of TotalPersonsOnBoard can not be smaller than the sum of master/crewmembers and passengers

7.1.13.2.4 LandVehicle Class (subclass of Vehicle)

7.1.13.2.4.1 General description

The LandVehicle class is used to model land-based vehicles.

7.1.13.2.4.2 Attributes

Table 136: LandVehicle class attributes

UML Name	Data type	Description	Example
MaximumSpeed	double	The vehicle's maximum speed measured in knots	20
Nationality	String	Two-letter country codes to represent countries, dependent territories, and special areas of geographical interest. Represent the flag for a Vessel	Country code for Portugal: PT
TotalPersonsOnBoard	int	The total number of persons on board	10
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.13.2.4.3 Association Roles

Table 137: LandVehicle class association roles

UML Name	Data type	Description	Multiplicity
Cargo	Cargo	Vehicles can carry cargo.	0..1
CorrespondentAsset	OperationalAsset	Permits the definition of a Vehicle as an operational asset. One vehicle can be defined as a single operational asset or not.	0..1
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)
Vehicles	Vehicle	Vehicles can carry other vehicles.	0..*

7.1.13.2.4.4 Constraints

Table 138: LandVehicle class constraints

Name	Description	OCL Constraint
Minimum of TotalPersonsOnBoard		The number of TotalPersonsOnBoard can not be smaller than the sum of master/crewmembers and passengers

7.1.13.2.5 ObjectLocation Association Class

7.1.13.2.5.1 General description

This class allows the association between Object (or one of its sub-classes: Vehicle, CargoPackage) and Location. It is not mandatory to associate an Object with a Location but one or many Object can be associated to a Location through this class. The association further describes the role of the Object in relation to the Location and other useful data.

7.1.13.2.5.2 Attributes

Table 139: ObjectLocation class attributes

UML Name	Data type	Description	Example
COG	double	Course over ground in degrees	120
Heading	double	Heading of the object	120
LocationRole	LocationRoleType	Enumerated. Describes the relationship between the Object and the Location	PortOfEmbarkation
Metadata	Metadata	Metadata linked to the localisation of the object	
PeriodOfTime	Period	Defines the duration of the relationship between the Object and the Location	
PlacementPurpose	PlacementPurposeType	Defines the reason why the object is at a location	InTransit
PlannedOperations	PlannedOperationsType	Defines the planned operations for which the object is at the location	Loading
PlannedWorks	PlannedWorksType	Defines the planned works the object will undergo when at the location	Inspection
SensorType	SensorType	Defines the sensor origin of the position	Sighting
SOG	double	Speed on ground in knots	12
SourceType	SourceType	Defines how the location of the object has been determined	Observation
SpecialSecurityMeasures	String	Defines security measures to be apply when the object is a the location	
Speed	double	Speed of the object in knots	12

7.1.13.2.6 ColourType Enumeration

The following attributes use this enumeration as data type:

- Colour (Object)

The enumeration values are presented in table 140.

Table 140: ColourType enumeration

Value	Label
Cyan	cyan
Grey	grey
Yellow	yellow
White	white
Black	black
Pink	pink
Green	green
Blue	blue
Brown	brown
Orange	orange
Violet	violet
Red	red

7.1.13.2.7 LocationRoleType Enumeration

The following attributes use this enumeration as data type:

- LocationRole (ObjectLocation)

The enumeration values are presented in table 141.

Table 141: LocationRoleType enumeration

Value	Label	Description
PortOfEmbarkation	Port of embarkation	Port of embarkation (for vessel)
PortOfDisembarkation	Port of disembarkation	Port of disembarkation (for vessel)
PortOfRegistry	Port of registry	Port of registry (for vessel)
LengthenedPlace	Lengthened place	Lengthened place (for vessel)
PortOfLoading	Port of loading	Port of loading (for cargo)
PortOfDischarge	Port of discharge	Port of discharge (for cargo)
NonSpecified	non-specified	Non specified

7.1.13.2.8 PlacementPurposeType Enumeration

This enumeration describes the reason of placement of an object to a location. An object can be at a location because it is in transit. A vessel (i.e. an object) can also be assigned to a location. The following attributes use this enumeration as data type:

- PlacementPurpose (ObjectLocation)

The enumeration values are presented in table 142.

Table 142: PlacementPurposeType enumeration

Value	Label	Description
InTransit	in transit	The Object is at a Location during a transit
Assigned	assigned	The Object is assigned to the Location
Other	other	Any other type not mentioned above
NonSpecified	non-specified	Type not specified

7.1.13.2.9 PlannedOperationsType Enumeration

This enumeration presents the possible planned operations for which an Object is at a Location. The following attributes use this enumeration as data type:

- PlannedOperations (ObjectLocation)

The enumeration values are presented in table 143.

Table 143: PlannedOperationsType enumeration

Value	Label	Description
Loading	loading	The Object is at the Location to load cargo
Unloading	unloading	The Object is at the Location to unload cargo
Other	other	Any other operation not mentioned above
NonSpecified	non-specified	Operation not specified

7.1.13.2.10 PlannedWorksType Enumeration

This enumeration presents the possible planned works which can explain that an Object is at a Location. The following attributes use this enumeration as data type:

- PlannedWorks (ObjectLocation)

The enumeration values are presented in table 144.

Table 144: PlannedWorksType enumeration

Value	Label	Description
Inspection	inspection	The Object is at a Location for Inspection
MaintenanceAndRepair	maintenance and repair	The Object is at a Location for Maintenance and repair
Other	other	Any other works not mentioned above
NonSpecified	non-specified	Works not specified

7.1.13.2.11 SensorType Enumeration

This enumeration presents the Sensor at the origin of an association between an Object and a Location. The following attributes use this enumeration as data type:

- SensorType (ObjectLocation)

The enumeration values are presented in table 145.

Table 145: SensorType enumeration

Value	Label	Description
Sighting	sighting	The Object is observed at the Location
UnderwaterSensor	underwater sensor	Underwater sensor
MaritimeRadar	maritime radar	Maritime radar
SyntheticApertureRadar	synthetic aperture radar	Synthetic aperture radar
EOIROptronicSystem	EOIR optronic system	EO/IR Optronic system
MaritimeMovingTargetIdentification	maritime moving target identification	Maritime moving target identification
SignalInterceptionSystemsCOMINT	signal interception systems COMINT	Signal interception systems COMINT
SignalInterceptionSystemsELINT	signal interception systems ELINT	Signal interception systems ELINT
EnvironmentalSensingSystems	environmental sensing systems	Environmental sensing systems
AutomaticIdentificationSystem	automatic identification system	Automatic Identification System (AIS)
VesselMonitoringSystem	vessel monitoring system	Vessel Monitoring System (VMS)
LongRangeIdentificationTracking	long range identification tracking	Long Range Identification and Tracking (LRIT)
AutomaticVehicleLocation	automatic vehicle location	Automatic Vehicle Location (AVL)
AcousticSystems	acoustic systems	Acoustic Systems ACINT
NonTraditionalSources	non-traditional sources	Non-traditional sources
Other	other	Any other sensor not mentioned above
NonSpecified	non-specified	Sensor not specified

7.1.13.2.12 SourceType Enumeration

This enumeration defines how the placement of an object to a location has been determined. The location of an object can be observed, declared, estimated or simulated. The following attributes use this enumeration as data type:

- SourceType (EventLocation)
- SourceType (MeteoOceanographicCondition)
- SourceType (ObjectLocation)

The enumeration values are presented in table 146.

Table 146: SourceType enumeration

Value	Label	Description
Observation	observation	The location of the object is observed
Declaration	declaration	The location of the object is declared
Estimation	estimation	The location of the object is estimated
Simulation	simulation	The location of the object is simulated
Correlation	correlation	The location of the object has been correlated
Other	other	Any other type not mentioned above
NonSpecified	non-specified	Type not specified

7.1.14 OperationalAsset Core Entity

7.1.14.1 OperationalAsset UML Models

Figure 16 depicts the diagram of the classes that belong to the OperationalAsset Core Entity.

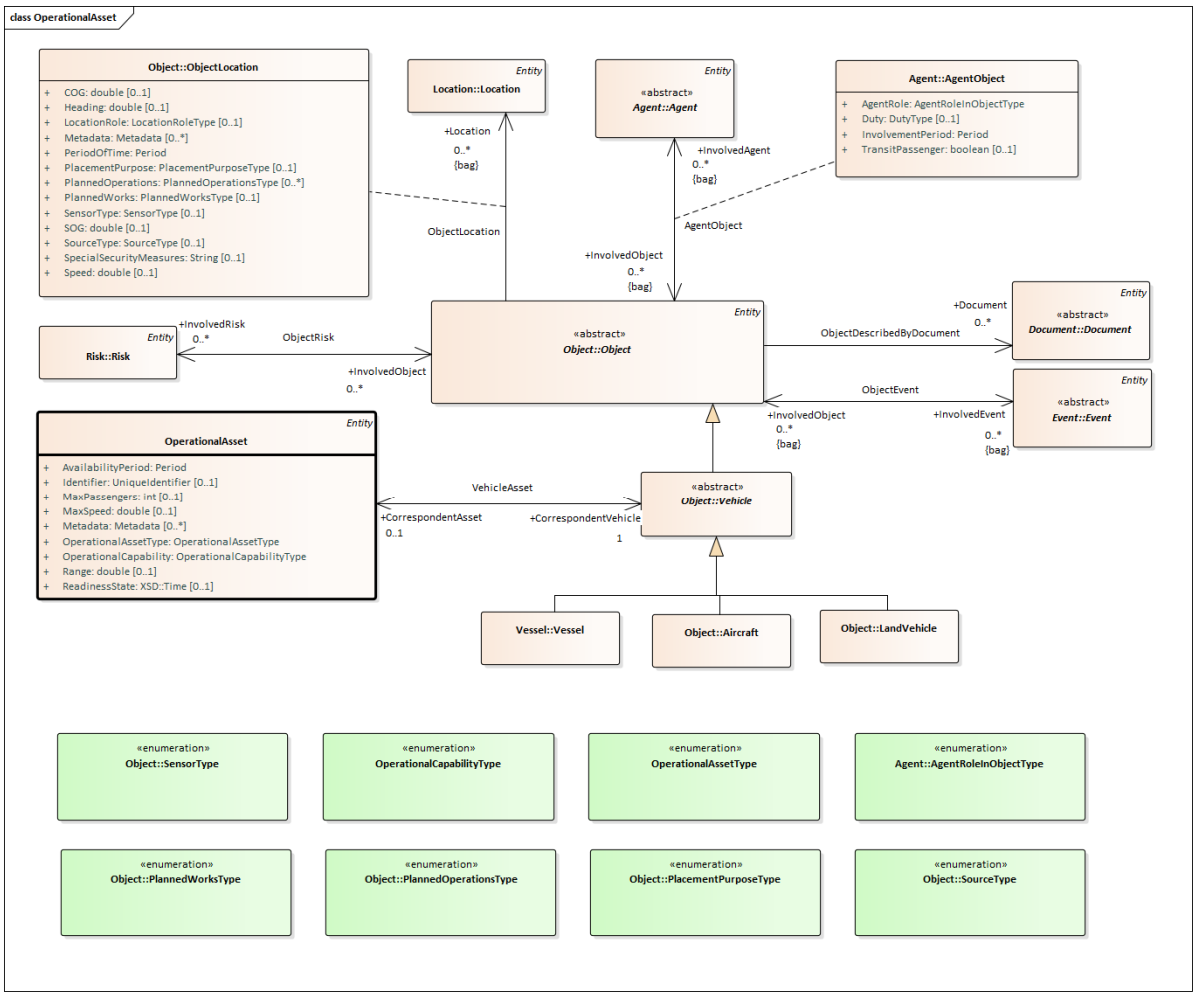

Figure 16: CISE Operational Asset model

7.1.14.2 OperationalAsset Vocabulary

7.1.14.2.1 OperationalAsset Class (subclass of Entity)

7.1.14.2.1.1 General description

An Operational Asset is an Object (in particular means of observation or transportation, but also including associated sensors, means of communication and means of intervention such as deterrence or neutralization of threats, fire fighting, pollution containment, etc.) enabling operational Actions (most often at sea or on sea shores) of the Agents mandated by public Organizations in charge of Maritime Safety and Security.

7.1.14.2.1.2 Attributes

Table 147: OperationalAsset class attributes

UML Name	Data type	Description	Example
AvailabilityPeriod	Period	Defines the time period of Agent involvement in the Event. Can be either defined by start and end dates/times or duration. See also: Core Vocabularities Specification for "Period" (7.1.15.1).	
Identifier	UniqueIdentifier	Identifier of the operational asset. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
MaxPassengers	int	MaxPassengers of an OperationalAsset.	200
MaxSpeed	double	Max. Speed of the Operational Asset measured in knots.	12
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	
OperationalAssetType	OperationalAssetType	Asset type.	Cruiser
OperationalCapability	OperationalCapabilityType	Defines the Asset Capability to perform as intended in an operation.	SearchAndRescue
Range	double	Range of the Operational Asset in miles.	3.2
ReadinessState	XSD::Time	The lexical space of xsd:time is identical to the time part of xsd:dateTime (hh:mm:ss[Z|(+|-)hh:mm]), and its value space is the set of points in time recurring daily. The period (one day) is fixed, and no calendars other than Gregorian are supported.	Valid values include 21:32:52, 21:32:52+02:00, 19:32:52Z, 19:32:52+00:00, and 21:32:52.12679. Invalid values include 21:32 (all the parts shall be specified), 25:25:10 (the hour part is out of range), -10:00:00 (the hour part is out of range), and 1:20:10 (all the digits shall be supplied).

7.1.14.2.1.3 Association Roles

Table 148: OperationalAsset class association roles

UML Name	Data type	Description	Multiplicity
CorrespondentVehicle	Vehicle	Permits the definition of a Vehicle as an operational asset. One vehicle can be defined as a single operational asset or not.	1

7.1.14.2.2 OperationalAssetType Enumeration

This enumeration presents the possible types of operational assets. The following attributes use this enumeration as data type:

- OperationalAssetType (OperationalAsset)

The enumeration values are presented in table 149.

Table 149: OperationalAssetType enumeration

Value	Label	Description
Aircraft	aircraft	An aircraft is a machine that is able to fly by gaining support from the air, or, in general, the atmosphere of a planet. It counters the force of gravity by using either static lift or by using the dynamic lift of an airfoil, or in a few cases the downward thrust from jet engines
Helicopter	helicopter	A helicopter is a type of rotorcraft in which lift and thrust are supplied by rotors
PatrolBoat	patrol boat	Operated by navies, coast guards and police. Function - defense of coastal waters, rivers and estuaries, borders security and law enforcement. May have an anti-surface role
UAV	UAV	An Unmanned Aerial Vehicle (UAV), also known as a drone, is an aircraft without a human pilot on board
Submarine	submarine	A submarine is a watercraft capable of independent operation underwater
Frigate	frigate	Smaller than destroyers, one or two missions. Protect naval groups and merchant ships. Anti-submarine warfare. Fleet air defense. Anti-surface warships
SpeedBoat	speed boat	A motorboat, speedboat, or powerboat is a boat which is powered by an engine
Drone	drone	Drone is the popular term for an unmanned aircraft. It is still a UAV however a drone is flown by software with pre-programmed behavior save for additional commands by the operators
Tank	tank	A tank is a tracked, armoured fighting vehicle designed for front-line combat which combines operational mobility and tactical offensive and defensive capabilities
Truck	truck	A truck (US, CA and AU) or lorry (UK and Ireland) is a motor vehicle designed to transport cargo. Also military use
FourWheelDrive	4x4	Four-wheel drive, All-wheel drive, AWD, 4WD, or 4×4 is a four-wheeled vehicle with a drivetrain that allows all four wheels to receive torque from the engine
Carrier	carrier	Vehicle for transport
Ambulance	ambulance	Ambulance
Motorcycle	motorcycle	Motorcycle
ArtilleryVehicle	artillery vehicle	Vehicle artillery equipped with an own propel system to move towards its target
DesertPatrolVehicle	desert patrol vehicle	The Desert Patrol Vehicle (DPV), formerly called the Fast Attack Vehicle (FAV), is a high-speed, lightly armored sandrail-like vehicle first used in combat during the Gulf War in 1991
Tractor	tractor	A tractor is an engineering vehicle specifically designed to deliver a high tractive effort (or torque) at slow speeds
Wrecker	wrecker	A vehicle used to tow away broken-down cars
Trailer	trailer	A trailer is generally an unpowered vehicle pulled by a powered vehicle
Humvee	humvee	The High Mobility Multipurpose Wheeled Vehicle (HMMWV), commonly known as the Humvee, is a four-wheel drive military automobile produced by AM General
Firetrack	firetrack	Vehicle used for Firefighting
Van	van	A van is a kind of vehicle used for transporting goods or people
UUV	UUV	Unmanned Underwater Vehicles (UUV), sometimes known as underwater drones, are any vehicles that are able to operate underwater without a human occupant. These vehicles may be divided into two categories, Remotely operated underwater vehicles (ROVs) and Autonomous Underwater Vehicles (AUVs)
ROV	ROV	ROV controlled by a remote human operator
USV	USV	USV operate independently of direct human input
SeaPlatform	sea platform	Platform that stand on the sea for different purposes
Aeroplane	aeroplane	Aeroplane
Destroyer	destroyer	Fast warships providing multi-mission offensive and defensive capability, independently or in fleet support
Cruiser	cruiser	Multi-mission warships capable of engaging multiple simultaneous targets and employed in force support or independent action
AircraftCarrier	aircraft carrier	An aircraft carrier is a warship with a full-length flight deck and facilities for carrying, arming, deploying and recovering aircraft, acting as a seagoing airbase
Corvette	corvette	Small frigates. Protect naval and merchant ships. Anti-submarine warfare. Fleet defence (anti-aircraft mission)
AuxiliaryShips	auxiliary ships	Re-supply Ship. Replenishment at Sea
LandingShips	landing ships	Smaller than assault ships

Value	Label	Description
AssaultShips	assault ships	Air Cushioned Vehicles
MineWarfareShips	mine warfare ships	Mine Warfare Ships
StrategicFixedAssets	strategic fixed assets	Strategic/fixed assets
Ballons	ballons	Ballons
Other	other	Other

7.1.14.2.3 OperationalCapabilityType Enumeration

This enumeration presents the possible types of operational capabilities. The following attributes use this enumeration as data type:

- OperationalCapability (OperationalAsset)

The enumeration values are presented in table 150.

Table 150: OperationalCapabilityType enumeration

Value	Label	Description
SearchAndRescue	search and rescue	Search for and provision of aid to people who are in distress or imminent danger
OilPollution	oil pollution	Pollution due to release of a liquid petroleum hydrocarbon into the environment, especially marine areas, due to human activity
TelecommunicationsTLC	telecommunications TLC	Can be accommodated within any of the listed OperationalCapability. It is the transmission of signals over long distances
Patrolling	patrolling	The act of moving about an area especially by an authorized and trained person or group, for purposes of observation, inspection, or security
PiracyAttack	piracy attack	Act of robbery or criminal violence at sea. The term can include acts committed on land, in the air, or in other major bodies of water or on a shore. It does not normally include crimes committed against persons traveling on the same vessel as the perpetrator (e.g. one passenger stealing from others on the same vessel). The term has been used throughout history to refer to raids across land borders by non-state agents
IllegalMigration	illegal migration	Refers to the migration of people across national borders in a way that violates the immigration laws of the destined country. In concrete detection of Cayucos, mother ships and border monitoring
CounterDrugSmuggling	counter drug smuggling	Refers to a global illicit trade involving the cultivation, manufacture, distribution and sale of substances which are subject to drug prohibition laws
CounterIllegalFishing	counter illegal fishing	Illegal fishing is the fishing which takes place where vessels operate in violation of the fishery laws. It normally applies to the fisheries which are under the jurisdiction of the coastal state regulated by the regional organizations
Firefighting	firefighting	Attempting to control and extinguish fires
Coordination	coordination	Operating principle. Command and control that involves multiple, diverse, networked teams that can involve national and coalition partners and non-military agencies, challenging the commander to deal with options along various dimensions
Simulation	simulation	Operating principle. Imitation of the operation of a real-world process or system over time. The act of simulating something first requires that a model be developed; this model represents the key characteristics or behaviors/functions of the selected physical or abstract system or process. The model represents the system itself, whereas the simulation represents the operation of the system over time
Mobility	mobility	Operating principle. It allows disposing of the necessary means in order to allow strategic deployment and high mobility of assets and personnel required for the operations
Training	training	Operating principle. In general, training is the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific useful competencies

Value	Label	Description
Maintenance	maintenance	Operating principle. Operating principle. In general, all actions which have the objective of retaining or restoring an item in or to a state in which it can perform its required function. The actions include the combination of all technical and corresponding administrative, managerial, and supervision actions
Sustainability	sustainability	Operating principle. This capability is oriented to guarantee the sustainability of the assets deployed during a long period of time
IntelligenceSurveillanceReconnaissance	intelligence surveillance reconnaissance	Fall within the ISTAR concept, which is fundamentally obtaining information and intelligence to support the planning and conduct of operations. It is a practice that links several battlefield functions together to assist a combat force in employing its sensors and managing the information they gather
C2WcommandAndControlWarfare	C2 W command and control warfare	Electronic Warfare encompasses all that is command and control capability, also PSYOPS (includes deception- simulation)
Other	other	Other not included above -Source
NonSpecified	non-specified	Non-specified

7.1.15 Organization Core Entity

7.1.15.1 Organization UML Models

Figure 17 depicts the diagram of the classes that belong to the Organization Core Entity.

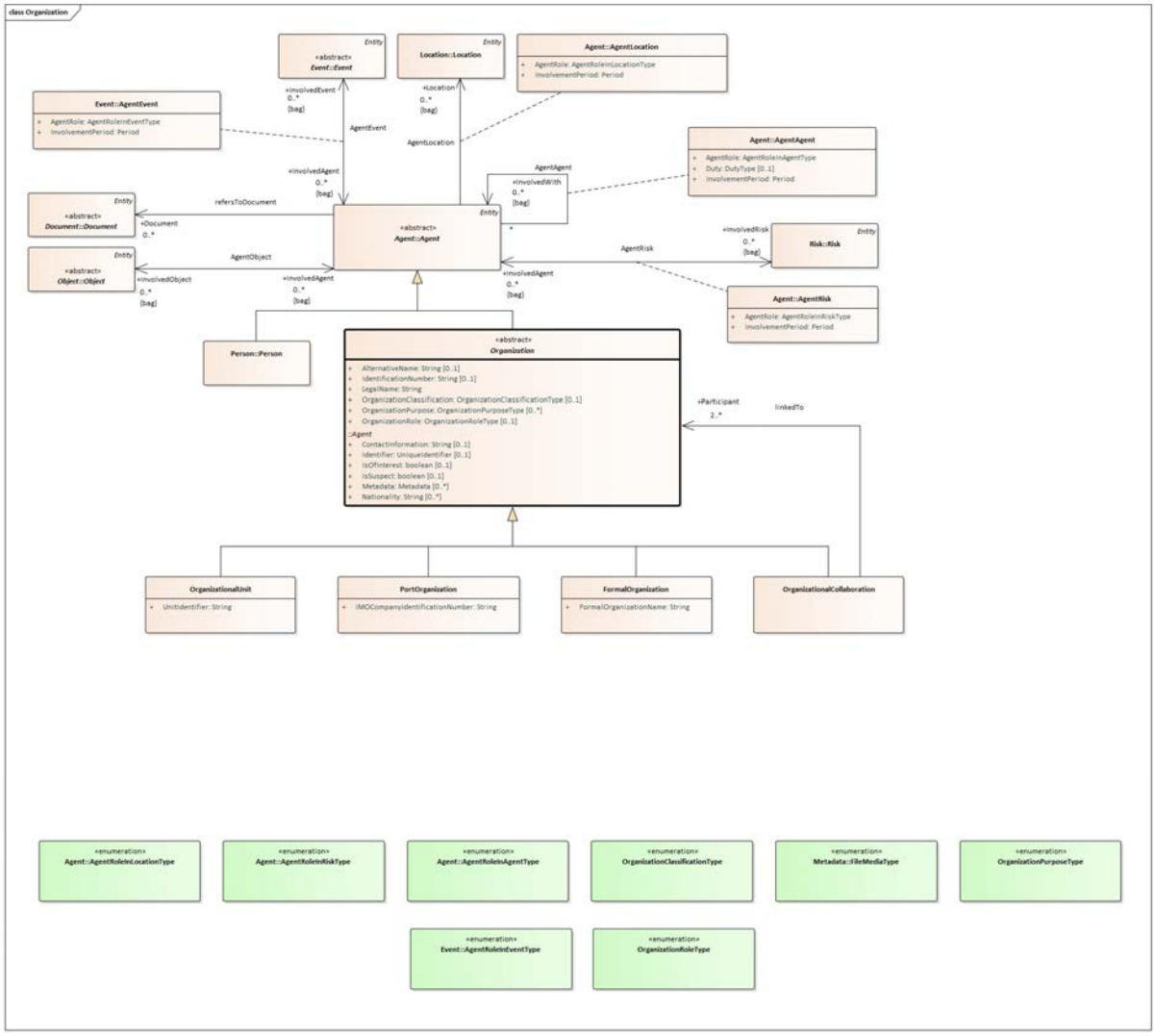

Figure 17: CISE Organization model

7.1.15.2 Organization Vocabulary

7.1.15.2.1 Organization Class (subclass of Agent)

7.1.15.2.1.1 General description

The class Organization is a sub-class of an abstract class Agent. Organization represents a structured and legally recognized association of humans and material resources for some common purpose or reason for existence which goes beyond the set of people belonging to it. An organization may itself be involved as actor or target in the various events and activities. Organization can have the same associations and relationships than the parent-class Agent. Thus, it can have relationship with other agents, objects and locations or it can be related to risks in different roles. Organization has four sub-classes: OrganizationalUnit, PortOrganization, FormalOrganization and OrganizationalCollaboration.

7.1.15.2.1.2 Attributes

Table 151: Organization class attributes

UML Name	Data type	Description	Example
AlternativeName	String	Any other name used. This attribute can be used for example for the official name of the organization in the native language.	Rajavartiolaitos
IdentificationNumber	String	Business ID number of the organisation in international format.	The business number of the Finnish Border Guard: FI02460035
LegalName	String	The official name of the organization. It is recommended to use the official English translation.	Finnish Border Guard
OrganizationClassification	OrganizationClassificationType	Enumerated. Formal classification of organization.	Governmental
OrganizationPurpose	OrganizationPurposeType	Enumerated. Defines the purpose of the organization. The purpose is modeled using the CISE user community plus some additional options where those are not applicable. There can be more than one purpose connected to one organization.	BorderControl
OrganizationRole	OrganizationRoleType	Enumerated. Organization role as described by the different roles defined in SafeSeaNet system.	CoastalStation
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document [5] and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI)	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in [4]

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.15.2.1.3 Association Roles

Table 152: Organization class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.15.2.2 FormalOrganization Class (subclass of Organization)

7.1.15.2.2.1 General description

A particular sub-class of organization FormalOrganization can be used to indicate organizations that are recognized in the world at large, in particular in legal jurisdictions, with associated rights and responsibilities. Examples include a corporation, charity, government or church.

7.1.15.2.2.2 Attributes

Table 153: FormalOrganization class attributes

UML Name	Data type	Description	Example
FormalOrganizationName	String	Name of the organization.	Red cross
AlternativeName	String	Any other name used. This attribute can be used for example for the official name of the organization in the native language.	Rajavartiolaitos
IdentificationNumber	String	Business ID number of the organisation in international format.	The business number of the Finnish Border Guard: FI02460035

UML Name	Data type	Description	Example
LegalName	String	The official name of the organization. It is recommended to use the official English translation.	Finnish Border Guard
OrganizationClassification	OrganizationClassificationType	Enumerated. Formal classification of organization.	Governmental
OrganizationPurpose	OrganizationPurposeType	Enumerated. Defines the purpose of the organization. The purpose is modelled using the CISE user community plus some additional options where those are not applicable. There can be more than one purpose connected to one organization.	BorderControl
OrganizationRole	OrganizationRoleType	Enumerated. Organization role as described by the different roles defined in SafeSeaNet system.	CoastalStation
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document [5] and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI)	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in [4]

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.15.2.2.3 Association Roles

Table 154: FormalOrganization class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The 120ength of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.15.2.3 OrganizationalCollaboration Class (subclass of Organization)

7.1.15.2.3.1 General description

The sub-class OrganizationalCollaboration is defined to describe a collaboration between two or more Organizations such as a project. OrganizationalCollaboration meets the criteria for being an Organization in that it has an identity and defined purpose independent of its particular members but is neither a formally recognized legal entity nor a sub-unit within some larger organization. It might typically have a shorter lifetime than the Organizations within it, but not necessarily.

7.1.15.2.3.2 Attributes

Table 155: OrganizationalCollaboration class attributes

UML Name	Data type	Description	Example
AlternativeName	String	Any other name used. This attribute can be used for example for the official name of the organization in the native language.	Rajavartiolaitos
IdentificationNumber	String	Business ID number of the organisation in international format.	The business number of the Finnish Border Guard: FI02460035

UML Name	Data type	Description	Example
LegalName	String	The official name of the organization. It is recommended to use the official English translation.	Finnish Border Guard
OrganizationClassification	OrganizationClassificationType	Enumerated. Formal classification of organization.	Governmental
OrganizationPurpose	OrganizationPurposeType	Enumerated. Defines the purpose of the organization. The purpose is modeled using the CISE user community plus some additional options where those are not applicable. There can be more than one purpose connected to one organization.	BorderControl
OrganizationRole	OrganizationRoleType	Enumerated. Organization role as described by the different roles defined in SafeSeaNet system.	CoastalStation
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document [5] and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI).	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in: [4]

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.15.2.3.3 Association Roles

Table 156: OrganizationalCollaboration class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)
Participant	Organization	Indicating the individual organizations participating the collaboration.	2..*

7.1.15.2.4 OrganizationalUnit Class (subclass of Organization)

7.1.15.2.4.1 General description

In some cases, it is useful to refer to departments or organizational units such as the IT department which only have meaning within the context of the containing organization and would not be regarded as a legal entity in its own right. This situation is supported by a subclass of Organization called OrganizationalUnit.

7.1.15.2.4.2 Attributes

Table 157: OrganizationalUnit class attributes

UML Name	Data type	Description	Example
UnitIdentifier	String	Defines the name of the organizational unit.	Administrative unit responsible of flight operations inside the Finnish Border Guard: Air Patrol Squadron
AlternativeName	String	Any other name used. This attribute can be used for example for the official name of the organization in the native language.	Rajavartiolaitos
IdentificationNumber	String	Business ID number of the organisation in international format.	The business number of the Finnish Border Guard: FI02460035
LegalName	String	The official name of the organization. It is recommended to use the official English translation.	Finnish Border Guard
OrganizationClassification	OrganizationClassificationType	Enumerated. Formal classification of organization.	Governmental
OrganizationPurpose	OrganizationPurposeType	Enumerated. Defines the purpose of the organization. The purpose is modelled using the CISE user community plus some additional options where those are not applicable. There can be more than one purpose connected to one organization.	BorderControl
OrganizationRole	OrganizationRoleType	Enumerated. Organization role as described by the different roles defined in SafeSeaNet system.	CoastalStation
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document [5] and listed bellow:	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in: [4]

UML Name	Data type	Description	Example
		• General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI).	
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.15.2.4.3 Association Roles

Table 158: OrganizationalUnit class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The 126ength of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.15.2.5 PortOrganization Class (subclass of Organization)

7.1.15.2.5.1 General description

A particular sub-class of organization has been defined to be used when modelling IMO recognized ports. PortOrganization carries some additional attributes that carry information relevant only to ports. Subclass of Organization.

7.1.15.2.5.2 Attributes

Table 159: PortOrganization class attributes

UML Name	Data type	Description	Example
IMOCompanyIdentificationNumber	String	IMO unique company and registered owner identification number. Unique number given to company or registered owner of a vessel. The IMO Unique Company and Registered Owner Identification Number Scheme was introduced through the adoption by the Maritime Safety Committee (MSC), at its seventy-eighth session (12 to 21 May 2004), of resolution MSC.160(78). Its purpose is to assign a permanent number for identification purposes to each company and/or registered owner managing ships of 100 gross tonnage and above engaged on international voyages. Additionally, Administrations are invited to participate in the scheme to the extent they desire by assigning an IMO unique company and registered owner identification number to each company and/or registered owner managing ships of 100 gross tonnage and above not engaged on international voyages. The procedures for the implementation of resolution MSC.160(78) were initially circulated by means of Circular letter No.2554, dated 24 June 2004.	IMOCompany1234567
AlternativeName	String	Any other name used. This attribute can be used for example for the official name of the organization in the native language.	Rajavartiolaitos
IdentificationNumber	String	Business ID number of the organisation in international format.	The business number of the Finnish Border Guard: FI02460035
LegalName	String	The official name of the organization. It is recommended to use the official English translation.	Finnish Border Guard
OrganizationClassification	OrganizationClassificationType	Enumerated. Formal classification of organization.	Governmental
OrganizationPurpose	OrganizationPurposeType	Enumerated. Defines the purpose of the organization. The purpose is modelled using the CISE user community plus some additional options where those are not applicable. There can be more than one purpose connected to one organization.	BorderControl
OrganizationRole	OrganizationRoleType	Enumerated. Organization role as described by the different roles defined in SafeSeaNet system.	CoastalStation

UML Name	Data type	Description	Example
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document [5] and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI).	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> > <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in: [4]
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.15.2.5.3 Association Roles

Table 160: PortOrganization class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The 129ength of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.15.2.6 OrganizationClassificationType Enumeration

This enumeration presents the formal classification (status) of organization. The following attributes use this enumeration as data type:

- OrganizationClassification (Organization)

The enumeration values are presented in table 161.

Table 161: OrganizationClassificationType enumeration

Value	Label	Description
Governmental	governmental	Governmental organization.
European	european	European agency.
MemberState	member state	Representing the government of a member state.
NonGovernmental	non-governmental	International organization, independent of governments.
Criminal	criminal	Company involved in organized crime.
Private	private	Private sector company.
InterGovernmental	inter governmental	International organization between governments.
Other	other	Any other not mentioned before.
NonSpecified	non-specified	Not declared.

7.1.15.2.7 OrganizationPurposeType Enumeration

This enumeration presents the general purpose of the organization. The following attributes use this enumeration as data type:

- OrganizationPurpose (Organization)

The enumeration values are presented in table 162.

Table 162: OrganizationPurposeType enumeration

Value	Label	Description
GeneralLawEnforcement	general law enforcement	Authorities responsible for: • Monitoring of compliance with applicable legislation in sea areas, where there is policing competence; support to enforcement and/or response operations
Customs	customs	Authorities responsible for: • Monitoring of compliance with customs regulations on the import, export and movement of goods; support of enforcement operations • Early warning/identification of criminal trafficking of goods (narcotics, weapons, etc.); support of response operations
MarineEnvironment	marine environment	Authorities responsible for: • Monitoring of compliance with regulations on the protection of the marine environment; support of enforcement operations • Early warning/identification of incidents/accidents that may have an environmental impact; support of pollution response operations
MaritimeSafetyAndSecurity	maritime safety and security	Authorities responsible for: • Monitoring of compliance with regulations on the safety and prevention of pollution caused by ships (construction, equipment, crew/passengers, cargo); support of enforcement operations • Monitoring of compliance with regulations on the safety of navigation (vessel traffic safety); support of enforcement operations • Monitoring of compliance with regulations on the security of ships; support of enforcement operations • Supporting safe and efficient flow of vessel traffic; vessel traffic management • Early warning/identification of ships/persons in distress; support of response operations (search and rescue, salvage, place of refuge) • Early warning/identification of maritime security threats, within the scope of SOLAS Chapter XI-2; support of response operations • Early warning/identification of threats/acts of piracy or armed robbery; support of response operations
Defence	defence	Authorities responsible for: • Monitoring in support of general Defence tasks, such as: exercising national sovereignty at sea; combating terrorism and other hostile activities outside the EU; other Common Security and Defence Policy tasks, as defined in Articles 42 and 43 TEU
FisheriesControl	fisheries control	Authorities responsible for: • Monitoring of compliance with regulations on fisheries; support of enforcement operations • Early warning/identification of illegal fisheries or fish landings; support of response operations
BorderControl	border control	Authorities responsible for: • Monitoring of compliance with regulations on immigration and border crossing; support of enforcement operations • Early warning/identification of cases of illegal migration or trafficking in human beings; support of response operations
Profitable	profitable	Not authority. Private or public organization/company which is expected to make profit
NonProfitable	non-profitable	Nor authority. Private or public organization which is not expected to make profit
Other	other	Any other not mentioned before
NonSpecified	non-specified	Not declared

7.1.15.2.8 OrganizationRoleType Enumeration

The following attributes use this enumeration as data type:

- OrganizationRole (Organization)

The enumeration values are presented in table 163.

Table 163: OrganizationRoleType enumeration

Value	Label	Description
PortAuthority	port authority	Port Authority [i.10] means the competent authority or body designated by Member States for each port to receive and pass on information reported pursuant to the directive
CoastalStation	coastal station	Coastal Station [i.10] means any of the following, designated by Member States pursuant to the directive: • A Vessel Traffic Service (VTS) • A shore-based installation responsible for a mandatory reporting system approved (adopted) by the IMO • A body responsible for coordinating search and rescue operations or operations to tackle pollution at sea
PortStateControl	port state control	Port state control [i.10]. The competent authority for inspecting the foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these rules
NationalCompetentAuthority	national competent authority	National competent authority [i.10]. Physical entity designated by Member States in charge of handling and exchanging the SafeSeaNet messages related to the maritime safety and the traffic monitoring directive. The single point of contact within the Member State is designated as NCA in the framework of SafeSeaNet
InspectionAuthority	inspection authority	Incident:: Inspection authority [i.10]. Competent authority for incident inspections
Other	other	Any other not mentioned before
NonSpecified	non-specified	Not declared

7.1.16 Period Core Entity

7.1.16.1 Period UML Models

Figure 18 depicts the diagram of the classes that belong to the Period Core Entity.

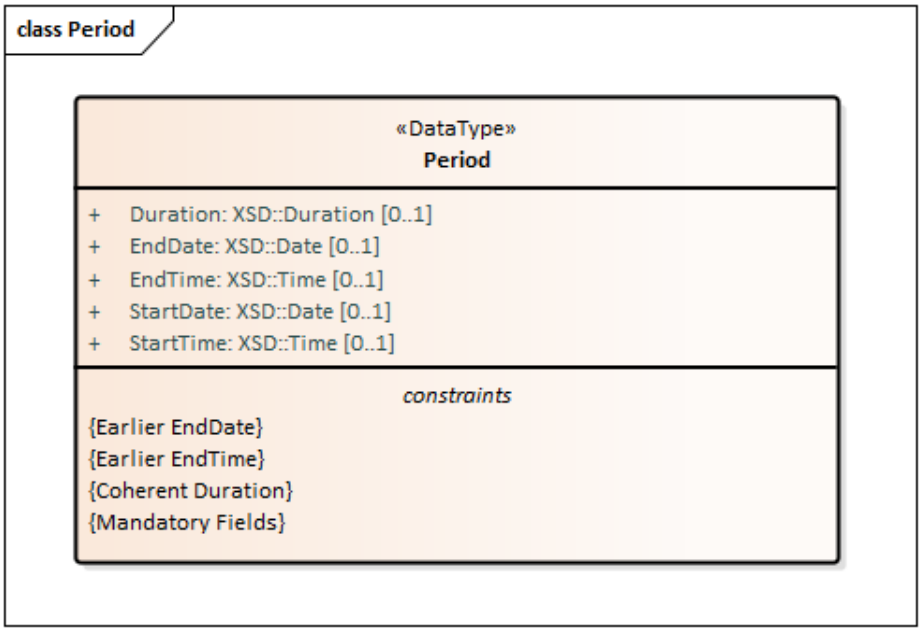

Figure 18: CISE Period model

7.1.16.2 Period Vocabulary

7.1.16.2.1 Period Datatype

7.1.16.2.1.1 General description

The class Period is used to define a time interval which can be expressed by:

- only a duration (i.e. one month);
- a duration and a start (resp. end) date [ex.: a period of ten days starting (resp. ending) on December 10th, 2002], in this case the period is assumed to start (resp. end) on December 10th at 0:00 (resp. 23:59);
- a duration and a start (resp. end) time [ex.: a period of ten days starting (resp. ending) at 10am];
- a duration and start (resp. end) date and time (ex.: a period of ten days starting (resp. ending) on December 10th, 2002, 10am);
- a start Date and an end Date (ex.: December 3rd, 2002 & January 24th 2010);
- a start Time and an end Time (ex.: 9am and 10pm);
- a start date and start time following by an end date and end time (ex.: December 3rd, 2002 at 10pm and January 24th, 2010 at 9am).

7.1.16.2.1.2 Attributes

Table 164: Period class attributes

UML Name	Data type	Description	Example
Duration	XSD::Duration	The Duration attribute is used to define a time interval. It is from the standard XML schema Duration type (XSD:Duration). The time interval is specified in the following form "PnYnMnDTnHnMnS" where: • P indicates the period (required) • nY indicates the number of years • nM indicates the number of months • nD indicates the number of days • T indicates the start of a time section (required if you are going to specify hours, minutes, or seconds) • nH indicates the number of hours • nM indicates the number of minutes • nS indicates the number of seconds To specify a negative duration, enter a minus sign before the P.	"P5Y" for a period of five years. "PT15H" for a period of 15 hours. "-P10D" for a period of -10 days (useful when combined to an End Date.
EndDate	XSD::Date	The EndDate attribute is used to specify the end date of something located in time. It is from the standard XML Schema Date type (XSD:Date).	2002-09-24
EndTime	XSD::Time	The EndTime attribute is used to specify the end time of something located in time. It is from the standard XML Schema Time type (XSD:Time).	09:00:00
StartDate	XSD::Date	The StartDate attribute is used to specify a starting date. It is from the standard XML Schema Date type (XSD:Date). The start date is specified in the following form "YYYY-MM-DD" where: • YYYY indicates the year • MM indicates the month • DD indicates the day See note.	2002-09-24
StartTime	XSD::Time	The StartTime attribute is used to specify a starting time. It is from the standard XML Schema Time type (XSD:Time). The time is specified in the following form "hh:mm:ss" where: • hh indicates the hour • mm indicates the minute • ss indicates the second See note.	09:00:00
NOTE: All components are required.			

7.1.16.2.1.3 Constraints

Table 165: Period class constraints

Name	Description	OCL Constraint
Coherent Duration	StartDate + StartTime plus Duration equals EndDate + Endtime	context Period::Duration(): Float post: result = self.EndDate + self.EndTime - (self.StartDate + self.StartTime)
Earlier EndDate	EndDate cannot be earlier than StartDate	context Period inv: self.EndDate.DateTimeAsFloat > self.StartDate.DateTimeAsFloat
Earlier EndTime	EndTime cannot be earlier than StartTime	context Period inv: self.EndTime > self.StartTime
Mandatory Fields	StartDate or EndDate or Duration shall be filled	context: Period inv: (self.StartDate.isNull=true and self.EndDate.isNull=true and self.Duration.isNull=true) = false

7.1.17 Person Core Entity

7.1.17.1 Person UML Models

Figure 19 depicts the diagram of the classes that belong to the Person Core Entity.

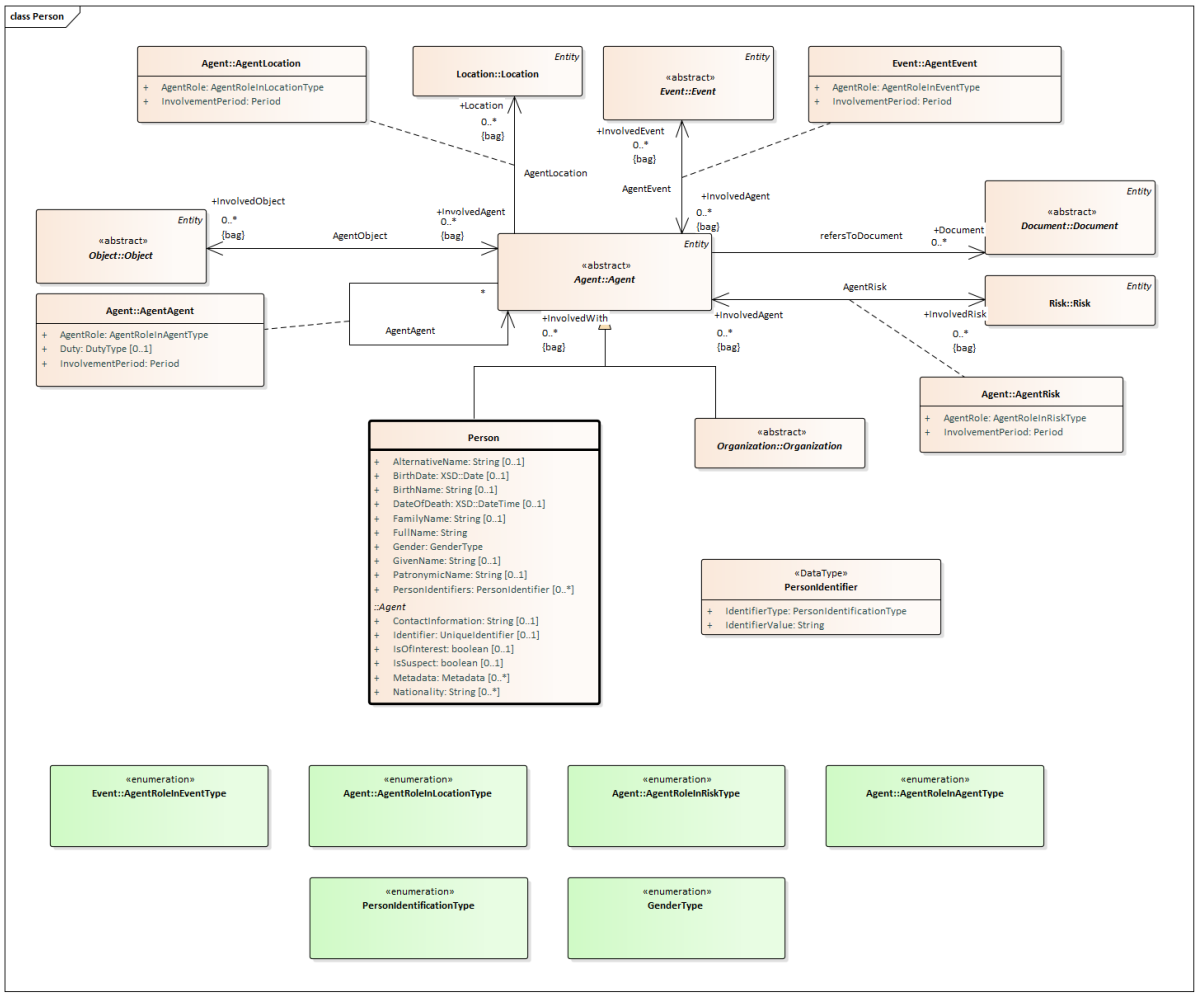

Figure 19: CISE Person model

7.1.17.2 Person Vocabulary

7.1.17.2.1 Person Class Person Class (subclass of Agent)

7.1.17.2.1.1 General Description

The Person Class is a sub class of the more general 'Agent' class that encompasses organizations, legal entities, groups, etc. - any entity that is able to carry out actions. The data type properties of the Person class do not have any cardinality restrictions and as such all are optional. However, guidance is provided for the usage of each property in the following clauses.

7.1.17.2.1.2 Attributes

Table 166: Person class attributes

UML Name	Data type	Description	Example
AlternativeName	String	Any name by which an individual is known other than their full name. Many individuals use a short form of their name, a 'middle' name as a 'first' name or a professional name. For example, the British politician and former UN High Representative for Bosnia and Herzegovina, Jeremy John Durham Ashdown, Baron Ashdown of Norton-sub-Hamdon, is usually referred to simply as 'Paddy Ashdown' or 'Lord Ashdown'.	Lord Ashdown
BirthDate	XSD::Date	A date that specifies the birth date of a person. Format yyyy-mm-dd.	1930-06-22
BirthName	String	All data associated with an individual are subject to change. Names can change for a variety of reasons, either formally or informally, and new information may come to light that means that a correction or clarification can be made to an existing record. Birth names tend to be persistent however and for this reason they are recorded by some public sector information systems. There is no granularity for birth name - the full name should be recorded in a single field.	Johan
DateOfDeath	XSD::DateTime	A date that specifies the death date of a person. Format yyyy-mm-ddThh:mm:ss.	1930-06-22T19:15:30
FamilyName	String	A family name is usually shared by members of a family. This attribute also carries prefixes or suffixes which are part of the Family Name, e.g. "de Boer", "van de Putte", "von und zuOrlow". Multiple family names, such as are commonly found in Hispanic countries, are recorded in the single Family Name field so that, for example, Miguel de Cervantes Saavedra's Family Name would be recorded as "de Cervantes Saavedra".	De Cervantes Saavedra

UML Name	Data type	Description	Example
FullName	String	Complete name of a person. The Full Name is the most reliable label for an individual and as such its use is strongly encouraged, irrespective of whether that name is broken down using the more granular elements. A name usually sticks with a person for a long time period. In some European countries a name may only be changed according to certain laws and life events, e.g. marriage. The name denominates a natural person even if he/she changes their address. Documents like birth certificate or diploma usually don't carry an address but always the name. Thus the name is one of the core attributes. However it is not sufficient to identify a person since there are combinations of very common names like Smith in the UK, Meier in Germany, or Li in China.	George Smith
Gender	GenderType	The gender of an individual.	Female
GivenName	String	A given name, or multiple given names, are the denominator(s) that identify an individual within a family. These are given to a person by his or her parents at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered in one field so that, for example, the Given Name for Johan Sebastian Bach is 'Johan Sebastian.'	Johan Sebastian
PatronymicName	String	Patronymic names are important in some countries. Iceland does not have a concept of 'family name' in the way that many other European countries do, for example. Erik Magnusson and Erika Magnusdottir are siblings, both offspring of Magnus, irrespective of his patronymic name. In Bulgaria and Russia, patronymic names are in every day usage, for example, the Sergeyevich in 'Mikhail Sergeyevich Gorbachev'. Patronymic names refer to a father's given name, not the family name inherited from the mother and father as is the case in countries such as Spain and Portugal. Again referring to the example of Miguel de Cervantes Saavedra's, the patronymic name element would be unused.	Sergeyevich
PersonIdentifiers	PersonIdentifier		

UML Name	Data type	Description	Example
ContactInformation	String	vCard [5] is a data format for representing and exchanging information about individuals and other entities. It is a text-based format (as opposed to a binary format). xCard [4] is an XML representation for vCard. All available attributes are described in the vCard document and listed bellow: • General Properties (BEGIN, END, SOURCE, KIND, XML) • Identification Properties (FN, N, NICKNAME, PHOTO, BDAY, ANNIVERSARY, GENDER) • Delivery Addressing Properties (ADR) • Communications Properties (TEL, EMAIL, IMPP, LANG) • Geographical Properties (TZ, GEO) • Organizational Properties (TITLE, ROLE, LOGO, ORG, MEMBER, RELATED) • Explanatory Properties (CATEGORIES, NOTE, PRODID, REV, SOUND, UID, CLIENTPIDMAP, URL, VERSION) • Security Properties (KEY) • Calendar Properties (FBURL, CALADRURI, CALURI).	Name of a person called Mr John Brown, M.Sc.: <fn><text>Mr John Brown, M.Sc.</text></fn> <n> <surname>Brown</surname> <given>John</given> <additional/> <prefix>Mr<prefix/> <suffix>M.Sc.<suffix/> </n> more examples found in [5]
Identifier	UniqueIdentifier	Identifier of the agent. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
IsOfInterest	boolean	Attribute is flagging an interest to follow more closely any activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	0
IsSuspect	boolean	Attribute is flagging a possible suspicion of illegal activities related to the Agent. Value of the attribute can be either true or false (true = 1 and false = 0).	There is some suspect related to the agent: True
Metadata	Metadata	See Core Vocabulary Specification for "Metadata".	DCMI
Nationality	String	Three-letter country codes to represent countries, dependent territories, and special areas of geographical interest.	Portugal: PRT

7.1.17.2.1.3 Association Roles

Table 167: Person class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	Agents (persons, organizations) can be associated to zero to multiple documents.	0..*
InvolvedEvent	Event	Agents (persons, organizations) can be involved in zero to multiple events (movements, incidents, anomalies, actions) as actors or targets in many different roles. The association has additional attributes. Please check association class AgentEvent.	0..* (allow duplicates)
InvolvedObject	Object	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedRisk	Risk	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedWith	Agent	Agents (persons, organizations) can be associated to zero to multiple agents (persons, organizations) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInAgent). The association has additional attributes. Please check association class AgentAgent.	0..* (allow duplicates)
Location	Location	Agents (persons, organizations) can be associated to zero to multiple location in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInLocation). The association has additional attributes. Please check association class AgentLocation.	0..* (allow duplicates)

7.1.17.2.2 PersonIdentifier Datatype

7.1.17.2.2.1 General description

The PersonIdentifier class allows the identification of the Person by means of a document of given type and related id number, according to the different countries policy.

7.1.17.2.2.2 Attributes

Table 168: PersonIdentifier class attributes

UML Name	Data type	Description	Example
IdentifierType	PersonIdentificationType	Type of document identifying the Person	IdentityCard
IdentifierValue	String	Identification number of document	199000592

7.1.17.2.3 GenderType Enumeration

The gender of an individual. The following attributes use this enumeration as data type:

- Gender (Person)

The enumeration values are presented in table 169.

Table 169: GenderType enumeration

Value	Label	Description
Female	female	Female
Male	male	Male
Other	other	Other gender, not male neither female
Unknown	unknown	Unknown
NotApplicable	not applicable	Not Applicable

7.1.17.2.4 PersonIdentificationType Enumeration

The following attributes use this enumeration as data type:

- IdentifierType (PersonIdentifier)

The enumeration values are presented in table 170.

Table 170: PersonIdentificationType enumeration

Value	Label	Description
IdentityCard	identity card	Identity Card
SocialSecurityCard	social security card	Social Security Card
Passport	passport	Passport
FiscalDocument	fiscal document	Fiscal Document
VISA	VISA	Visa International Service Association Card
CrewMasterBook	crew master book	Crew Master Book
Other	other	Other value not included in the list
NonSpecified	non-specified	Not Specified

7.1.18 Risk Core Entity

7.1.18.1 Risk UML Models

Figure 20 depicts the diagram of the classes that belong to the Risk Core Entity:

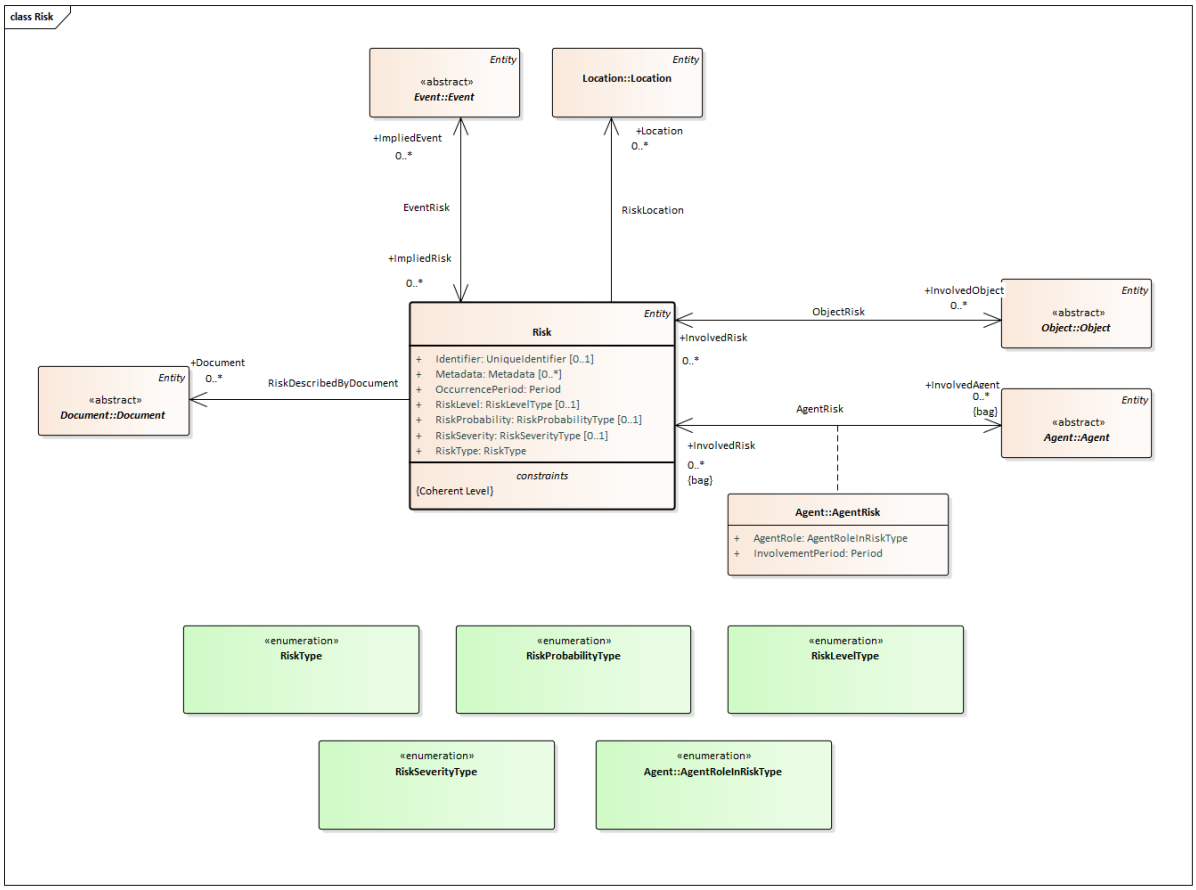

Figure 20: CISE Risk model

7.1.18.2 Risk Vocabulary

7.1.18.2.1 Risk Class (subclass of Entity)

7.1.18.2.1.1 General description

The class Risk is used to represent a more or less probable situation involving exposure to danger concerning the maritime domain. The notion of risk is usually very subjective and, in a first step, it was decided to keep the definition of the class simple in order to ease its adoption.

7.1.18.2.1.2 Attributes

Table 171: Risk class attributes

UML Name	Data type	Description	Example
Identifier	UniqueIdentifier	Identifier of the risk. Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared.	
Metadata	Metadata	The Metadata of a Risk.	
OccurrencePeriod	Period	Defines the period of time concerned by the Risk.	
RiskLevel	RiskLevelType	The risk level is used to define the importance of a risk on the maritime domain.	High
RiskProbability	RiskProbabilityType	The probability of occurrence of the risk.	Probable
RiskSeverity	RiskSeverityType	The importance of the consequences of the risk.	Critical
RiskType	RiskType	Identifies the type of the risk.	Accident

7.1.18.2.1.3 Association Roles

Table 172: Risk class association roles

UML Name	Data type	Description	Multiplicity
Document	Document	A Risk can be described by one or many documents.	0..*
ImpliedEvent	Event	This bidirectional association can be used to link risks to event or to define events as consequences of one or many risks. For example: • mitigation actions can be associated with a risk; • one or many risks can be the consequences of an incident; • a movement of a dangerous ship can lead to a risk (pollution for example).	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple risks in different roles. The association has additional attributes. Please check association class AgentRisk.	0..* (allow duplicates)
InvolvedObject	Object	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	A Risk can concern one or many Locations.	0..*

7.1.18.2.1.4 Constraints

Table 173: Risk class constraints

Name	Description	OCL Constraint
Coherent Level	The Level attribute shall be defined in accordance with the Probability and Severity attributes when present.	

7.1.18.2.2 RiskLevelType Enumeration

The risk level is defined regarding the impact of the risk's occurrence. It is a combination of the two previous data: risk probability and risk severity. A risk which occurs frequently and has a critical severity will have a high risk level. Respectively, a low probability risk with negligible severity will have a low risk level. This enumeration presents the possible risk levels. The following attributes use this enumeration as data type:

- RiskLevel (Risk)

The enumeration values are presented in table 174.

Table 174: RiskLevelType enumeration

Value	Label	Description
High	high	A high level risk occurs frequently and has important consequences
Medium	medium	Medium level risks have medium impact on maritime activities
Low	low	A low level risk has a low impact on maritime activities (improbable or rare risk, risk with negligible severity)
Other	other	Risk level not included above
NonSpecified	non-specified	Risk level non-specified

7.1.18.2.3 RiskProbabilityType Enumeration

The following attributes use this enumeration as data type:

- RiskProbability (Risk)

The enumeration values are presented in table 175.

Table 175: RiskProbabilityType enumeration

Value	Label	Description
Frequent	frequent	The risk occurs frequently
Probable	probable	The risk is probable
Occasional	occasional	The risk could occur on some occasions
Rare	rare	The occurrence of the risk is rare
Improbable	improbable	The risk is improbable
Other	other	Risk Probability not included above
NonSpecified	non-specified	Risk Probability non-specified

7.1.18.2.4 RiskSeverityType Enumeration

This enumeration presents the different severities which can be assigned to a risk. The following attributes use this enumeration as data type:

- RiskSeverity (Risk)

The enumeration values are presented in table 176.

Table 176: RiskSeverityType enumeration

Value	Label	Description
Catastrophic	catastrophic	A major catastrophic event is the consequence of the risk (death of people, major pollution, etc.)
Critical	critical	The occurrence of the risk leads to major consequences affecting maritime activities (maritime traffic blocked, etc.)
Marginal	marginal	The risk's consequences are marginal. The risk as no impact on maritime activities, people or cargo
Negligible	negligible	The risk's consequences are negligible
Other	other	Risk severity not included above
NonSpecified	non-specified	Risk severity non-specified

7.1.18.2.5 RiskType Enumeration

This enumeration presents the possible types of Risks. The following attributes use this enumeration as data type:

- RiskType (Risk)

The enumeration values are presented in table 177.

Table 177: RiskType enumeration

Value	Label	Description
Accident	accident	Accident
IllegalImmigration	illegal immigration	Illegal Immigration
DrugTrafficking	drug trafficking	Drug Trafficking
Collision	collision	Collision
HumanTrafficking	human trafficking	Human Trafficking
Smuggling	smuggling	Smuggling
IllegalFishing	illegal fishing	Illegal Fishing
WeaponsTrafficking	weapons trafficking	Weapons Trafficking
Fire	fire	Fire
Pollution	pollution	Pollution
Other	other	Risk type not included above
NonSpecified	non-specified	Risk type non-specified

7.1.19 UniqueIdentifier Core Entity

7.1.19.1 UniqueIdentifier UML Models

Figure 21 depicts the diagram of the classes that belong to the UniqueIdentifier Core Entity.

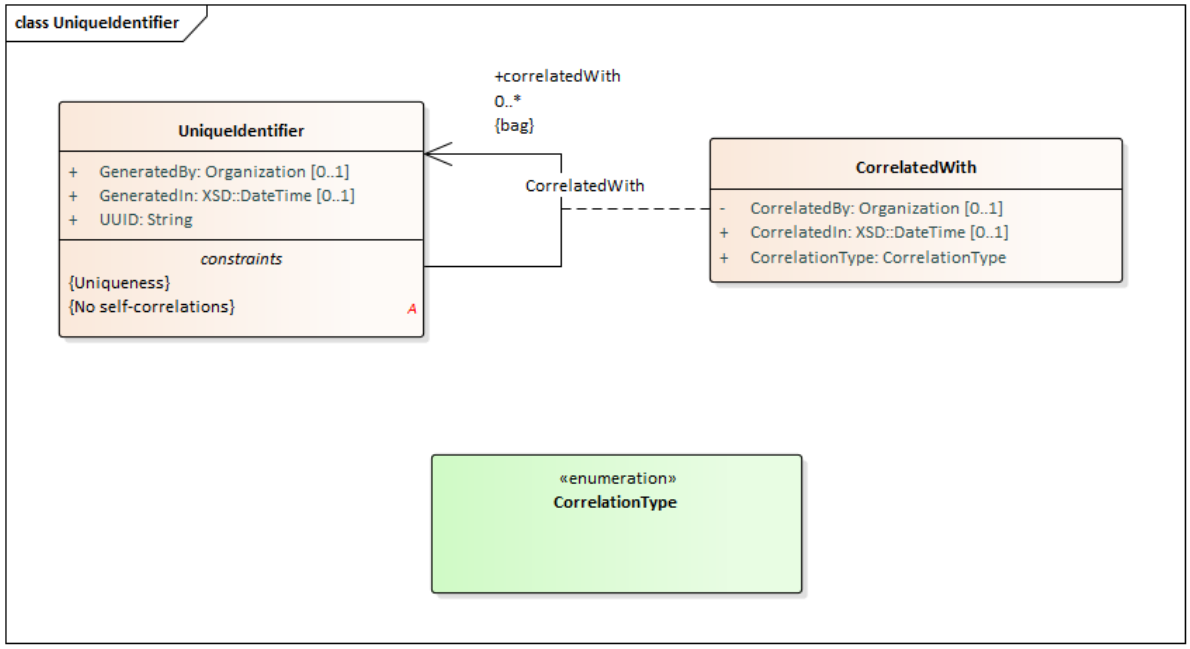

Figure 21: CISE UniqueIdentifier model

7.1.19.2 UniqueIdentifier Vocabulary

7.1.19.2.1 UniqueIdentifier Class

7.1.19.2.1.1 General description

The Unique Identifier is a fundamental entity of the overall data model of the information sharing environment, since it will allow, as its name implies, to uniquely identify each and every single data object exchanged through the network. With this identifier it will also be possible for the legacy systems to keep trace of the relationships between their data objects and those from the information sharing environment. It will be possible to understand who and when is publishing each and every data object in the network.

7.1.19.2.1.2 Attributes

Table 178: UniqueIdentifier class attributes

UML Name	Data type	Description	Example
GeneratedBy	Organization	Organization that generated the Unique Identifier object	
GeneratedIn	XSD::DateTime	Date and time when this UUID was generated	19 OCT 2013 22:36:45
UUID	String	UUID is represented by 32 hexadecimal digits, displayed in five groups separated by hyphens, in the form 8-4-4-4-12 for a total of 36 characters (32 alphanumeric characters and four hyphens	550e8400-e29b-41d4-a716-446655440000

7.1.19.2.1.3 Association Roles

Table 179: UniqueIdentifier class association roles

UML Name	Data type	Description	Multiplicity
correlatedWith	UniqueIdentifier	The association has additional attributes. Please check association class CorrelatedWith.	0..* (allow duplicates)

7.1.19.2.1.4 Constraints

Table 180: UniqueIdentifier class constraints

Name	Description	OCL Constraint
No self-correlations	Object can not be correlated with itself	context: UniqueIdentifier inv: self.correlatesTo <> self context: UniqueIdentifier inv: self.correlatedBy <> self
Uniqueness	There is only one object for each uniqueidentifier	context : UniqueIdentifier inv : UniqueIdentifier->allInstances()->forAll(n1, n2| n1.UUID<>n2.UUID)

7.1.19.2.2 CorrelatedWith Association Class

7.1.19.2.2.1 General description

This class allows the correlation among the different objects in the information sharing environment. This correlation will allow the identification and "merging" of duplicate objects in the network, thus making the information shared more understandable.

7.1.19.2.2.2 Attributes

Table 181: CorrelatedWith class attributes

UML Name	Data type	Description	Example
CorrelatedBy	Organization	Organization that correlated two UUIDs	
CorrelatedIn	XSD::DateTime	Date and time when this correlation was made	19 OCT 2013 22:36:45
CorrelationType	CorrelationType	Process used to perform the correlation	Manual

7.1.19.2.3 CorrelationType Enumeration

This enumeration presents the possible types of processes used to perform the objects correlation. The following attributes use this enumeration as data type:

- CorrelationType (CorrelatedWith)

The enumeration values are presented in table 182.

Table 182: CorrelationType enumeration

Value	Label	Description
Manual	manual	Correlation performed by an operator
Automatic	automatic	Correlation performed automatically by a system
Other	other	Correlation performed by any other process not listed here
NonSpecified	non-specified	The correlation process is not declared

7.1.20 Vessel Core Entity

7.1.20.1 Vessel UML Models

Figure 22 depicts the diagram of the classes that belong to the Vessel Core Entity.

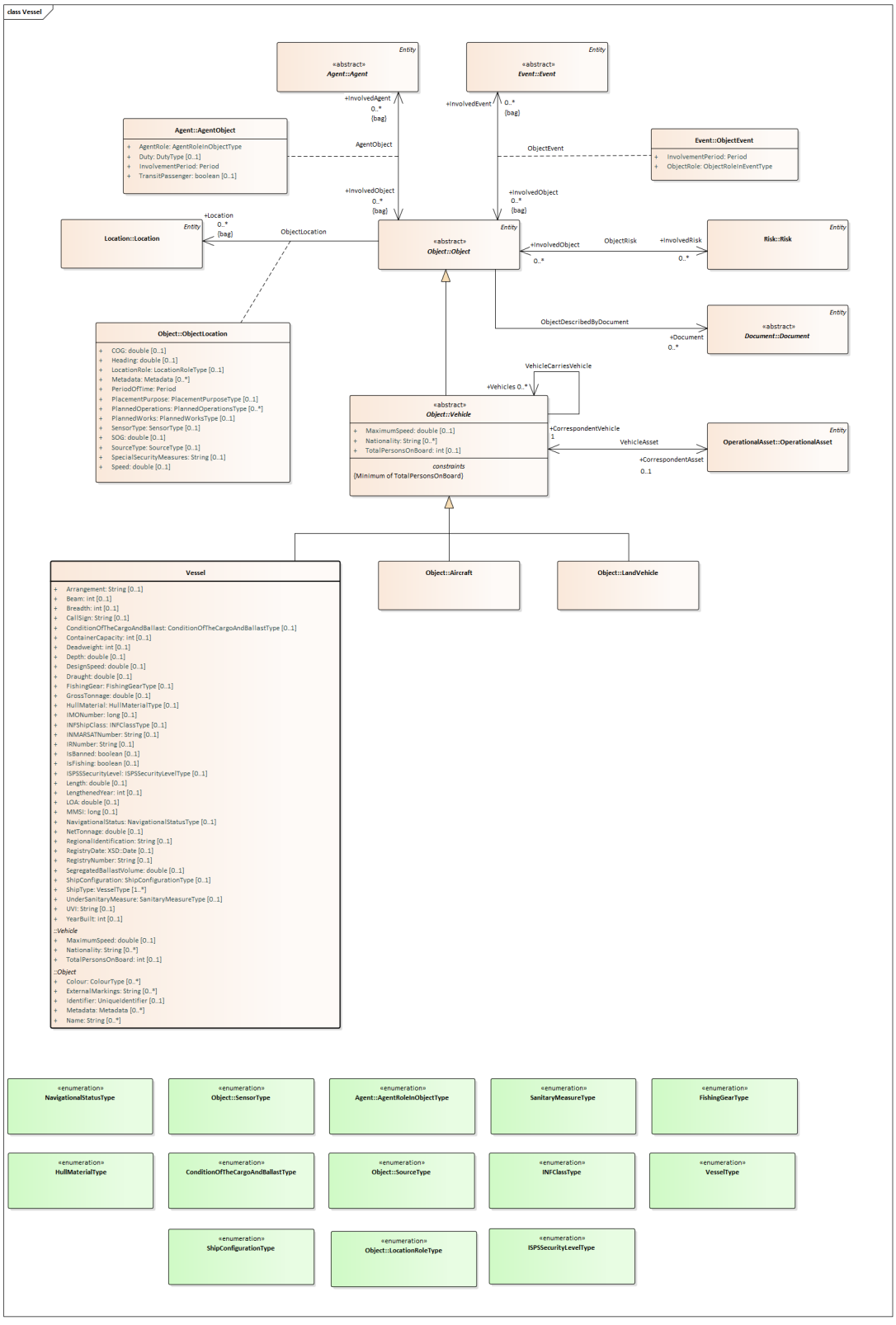

Figure 22: CISE Vessel model

7.1.20.2 Vessel Vocabulary

7.1.20.2.1 Vessel Class (subclass of Vehicle)

7.1.20.2.1.1 General description

The class Vessel is a sub-class of the class Vehicle. A vessel refers to a ship or a boat. Vessel has the same associations and relationships than its parent-classes Vehicle and Object. Thus, it can have relationship with Document, Risk, Event, Location, and Agent. It can also be associated with OperationalAsset.

7.1.20.2.1.2 Attributes

Table 183: Vessel class attributes

UML Name	Data type	Description	Example
Arrangement	String	Arrangement	
Beam	int	Beam measurement in meters	30
Breadth	int	Distance side to side of the vessel in meters	32
CallSign	String	Callsign shall be as defined in Recommendation ITU-R M.1371-5 [9]	MTDM5
ConditionOfTheCargoAndBallast	ConditionOfTheCargoAndBallastType	Indicates the current load of cargo and ballast	Full
ContainerCapacity	int	Container capacity in feet. Available in common standard lengths of 20-ft (6,1 m), 40-ft (12,2 m), 45-ft (13,7 m), 48-ft (14,6 m), and 53-ft (16,2 m)	20 (for a 20-ft)
Deadweight	int	Dead weight in tonnes	53 807
Depth	double	Depth	
DesignSpeed	double	Design speed in knots	12
Draught	double	Draught in meter	1,2 (1,2 m)
FishingGear	FishingGearType	Indicates the type of fishing gear aboard the vessel	LiftNets
GrossTonnage	double	Gross tonnage (no unit)	48 788
HullMaterial	HullMaterialType	Hull material	HighStrengthSteel
IMONumber	long	The IMO number of the vessel	9074729
INFShipClass	INFClassType	International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships	INF1
INMARSATNumber	String	INMARSAT number	00870+mobile number
IRNumber	String	Information request number for the vessel	
IsBanned	boolean	Indicates if a vessel is banned	False
IsFishing	boolean	Indicates if a vessel is currently fishing	False
ISPSSSecurityLevel	ISPSSecurityLevelType	International Ship and Port Security levels as defined by the ISPS code	SecurityLevel1
Length	double	Length in meters.	294
LengthenedYear	int	Lengthened year	2010
LOA	double	Length overall of the vessel in meters	294
MMSI	long	MMSI number shall be as defined in Recommendation ITU-R M.1371-5 [9]	232000000
NavigationalStatus	NavigationalStatusType	Navigational status enumeration defined by the IVEF standard	UnderWayUsingEngine
NetTonnage	double	Net tonnage	47 000
RegionalIdentification	String	Regional identification	

UML Name	Data type	Description	Example
RegistryDate	XSD::Date	Registry date	1952-12-21
RegistryNumber	String	Registry number	212056
SegregatedBallastVolume	double	Separated volume of ballast	200
ShipConfiguration	ShipConfigurationType	Indicates the hull configuration of the vessel	DoubleHullTanker
ShipType	VesselType	Different types of vessels	BulkCarrier
UnderSanitaryMeasure	SanitaryMeasureType	Sanitary measure to be taken in respect to the vessel	Decontamination
UVI	String	Unique vessel identifier defined by the FAO	235210
YearBuilt	int	Year when the vessel was built	1990
MaximumSpeed	double	The vehicle's maximum speed measured in knots	20
Nationality	String	Two-letter country codes to represent countries, dependent territories, and special areas of geographical interest. Represent the flag for a Vessel	Country code for Portugal: PT
TotalPersonsOnBoard	int	The total number of persons on board	10
Colour	ColourType	Colour information about the object	Red
ExternalMarkings	String	External markings of the object	ABER
Identifier	UniqueIdentifier	Identifier of the object Each UniqueIdentifier can be correlated with other UniqueIdentifiers, either manually, by operators, or automatically, by systems, so that duplicate objects in the network can be identified and brought together for a better understanding of the information being shared	
Metadata	Metadata	Metadata related to the object	
Name	String	Name of the object	ABERIII

7.1.20.2.1.3 Association Roles

Table 184: Vessel class association roles

UML Name	Data type	Description	Multiplicity
Cargo	Cargo	Vehicles can carry cargo.	0..1
CorrespondentAsset	OperationalAsset	Permits the definition of a Vehicle as an operational asset. One vehicle can be defined as a single operational asset or not.	0..1
Document	Document	One or many Objects can be described by one or many Documents.	0..*
InvolvedAgent	Agent	Agents (persons, organizations) can be associated to zero to multiple objects (crafts, cargo) in different roles. The length of the association can vary which is described by association involvedDuring with class Period (described later in connection with class AgentInvolvementInObject). Passenger have special relationship to craft via Boolean type attribute TransitPassanger which carries information about the status of the passenger (Transit passenger or not). Crew has also a special relationship to craft which is described by attribute Duty which carries information about the responsibilities and position of the person in the vessel. The association has additional attributes. Please check association class AgentObject.	0..* (allow duplicates)
InvolvedEvent	Event	Objects may be involved in Events. Events can concern Objects. The association has additional attributes. Please check association class ObjectEvent.	0..* (allow duplicates)
InvolvedRisk	Risk	One or many Objects may be related one or many Risks. The relationship is bidirectional.	0..*
Location	Location	One or many Objects (vehicles, cargo packages) can be located to a location in many different roles. This association is described by a class which enables the addition of useful information. The association has additional attributes. Please check association class ObjectLocation.	0..* (allow duplicates)
Vehicles	Vehicle	Vehicles can carry other vehicles.	0..*

7.1.20.2.1.4 Constraints

Table 185: Vessel class constraints

Name	Description	OCL Constraint
Minimum of TotalPersonsOnBoard		The number of TotalPersonsOnBoard can not be smaller than the sum of master/crewmembers and passengers

7.1.20.2.2 ConditionOfTheCargoAndBallastType Enumeration

This enumeration presents the vessel load's condition. The following attributes use this enumeration as data type:

- ConditionOfTheCargoAndBallast (Vessel)

The enumeration values are presented in table 186.

Table 186: ConditionOfTheCargoAndBallastType enumeration

Value	Label	Description
Full	full	Vessel fully loaded
Empty	empty	Vessel empty
Inerted	inerted	Load inerted
Other	other	Any other condition not mentioned above
NonSpecified	non-specified	Condition not specified

7.1.20.2.3 FishingGearType Enumeration

This enumeration presents the list of fishing gears a vessel can be equipped with according to UN FAO rules. The following attributes use this enumeration as data type:

- FishingGear (Vessel)

The enumeration values are presented in table 187.

Table 187: FishingGearType enumeration

Value	Label	Description
SurroundingNets	surrounding nets	Surrounding nets
SeineNets	seine nets	Seine nets
TrawlNets	trawl nets	Trawl nets
Dredges	dredges	Dredges
LiftNets	lift nets	Lift nets
FallingNets	falling nets	Falling nets
GillnetsAndEntanglingNets	gillnets and entangling nets	Gillnets and entangling nets
Traps	traps	Traps
HooksAndLines	hooks and lines	Hooks and lines
GrapplingAndWoundingGears	grappling and wounding gears	Grappling and wounding gears
StupefyingDevices	stupefying devices	Stupefying devices
Other	other	Any other gear not mentioned above
NonSpecified	non-specified	Gear not specified

7.1.20.2.4 HullMaterialType Enumeration

This enumeration presents hull material types. The following attributes use this enumeration as data type:

- HullMaterial (Vessel)

The enumeration values are presented in table 188.

Table 188: HullMaterialType enumeration

Value	Label	Description
HighStrengthSteel	high strength steel	High Strength Steel
Other	other	Any other type not mentioned above
NonSpecified	non-specified	Type not specified

7.1.20.2.5 INFClassType Enumeration

This enumeration presents the list of international codes for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes. The following attributes use this enumeration as data type:

- INFShipClass (Vessel)

The enumeration values are presented in table 189.

Table 189: INFClassType enumeration

Value	Label	Description
INF1	Class INF1	Class INF 1 ship - Ships which are certified to carry INF cargo with an aggregate activity less than 4 000 TBq (TeraBecquerel= measurement of radioactivity)
INF2	Class INF2	Class INF 2 ship - Ships which are certified to carry irradiated nuclear fuel or high-level radioactive wastes with an aggregate activity less than 2 x 106 TBq and ships which are certified to carry plutonium with an aggregate activity less than 2 x 105 TBq
INF3	Class INF3	Class INF 3 ship - Ships which are certified to carry irradiated nuclear fuel or high-level radioactive wastes and ships which are certified to carry plutonium with no restriction of the maximum aggregate activity of the materials
98	other	Any class not mentioned above
99	non-specified	Class not specified

7.1.20.2.6 ISPSSecurityLevelType Enumeration

This enumeration presents the possible values for the security level of the port according to the three levels of the ISPS code (for further details see [i.12]). The following attributes use this enumeration as data type:

- PortSecurityLevel (PortFacilityLocation)
- ISPSSSecurityLevel (Vessel)
- PortSecurityLevel (PortLocation)

The enumeration values are presented in table 190.

Table 190: ISPSSecurityLevelType enumeration

Value	Label	Description
Security Level1	security level1	Normal, the level at which the ship or port facility normally operates. Security level 1 means the level for which minimum appropriate protective security measures shall be maintained at all times.
Security Level2	security level2	Heightened, the level applying for as long as there is a heightened risk of a security incident. Security level 2 means the level for which appropriate additional protective security measures shall be maintained for a period of time as a result of heightened risk of a security incident.
Security Level3	security level3	Exceptional, the level applying for the period of time when there is the probable or imminent risk of a security incident. Security level 3 means the level for which further specific protective security measures shall be maintained for a limited period of time when a security incident is probable or imminent, although it may not be possible to identify the specific target.
Other	other	Any other security level not mentioned above.
NonSpecified	non-specified	Security level not specified.

7.1.20.2.7 NavigationalStatusType Enumeration

This enumeration presents the different types of navigational statuses in accordance with the inter VTS exchange format. The following attributes use this enumeration as data type:

- NavigationalStatus (Vessel)

The enumeration values are presented in table 191.

Table 191: NavigationalStatusType enumeration

Value	Label	Description
UnderWayUsingEngine	under way using engine	Under way using engine
AtAnchor	at anchor	At anchor
NotUnderCommand	not under command	Not under command
RestrictedManoeuvrability	restricted manoeuvrability	Restricted manoeuvrability
ConstrainedByHerDraught	constrained by her draught	Constrained by her draught
Moored	moored	Moored
Aground	aground	Aground
EngagedInFishing	engaged in fishing	Engaged in fishing
UnderWaySailing	under way sailing	Under way sailing
EngagedInFishingOtherThanTrawling	engaged in fishing other than trawling	Engaged in fishing other than trawling
AirCushionVesselInNonDisplamenetModeOrWIGCraftTakingOffLandingOrInFlight	air cushion vessel in non-displamenet mode or WIG craft taking off landing or in flight	Air-cushion vessel in non-displacement mode or WIG craft taking off, landing or in flight
PowerDrivenVesselTowingAstern	power driven vessel towing astern	Power driven vessel towing astern
PowerDrivenVesselTowigAheadOrPushingAlongside	power driven vessel towig ahead or pushing alongside	Power driven vessel towing ahead or pushing alongside
InDistressOrRequiringAssistance	in distress or requiring assistance	In distress or requiring assistance
AISSARTSeekingToAttractAttention	AISSART seeking to attract attention	AIS SART, seeking to attract attention
UndefinedDefault	undefined default	Undefined default
Other	other	Any other severity not mentioned above
NonSpecified	non-specified	Severity not specified

7.1.20.2.8 SanitaryMeasureType Enumeration

This enumeration presents the list of sanitary measure a vessel can be the object of. The following attributes use this enumeration as data type:

- UnderSanitaryMeasure (Vessel)

The enumeration values are presented in table 192.

Table 192: SanitaryMeasureType enumeration

Value	Label	Description
Quarantine	quarantine	Quarantine
Isolation	isolation	Isolation
Disinfection	disinfection	Disinfection
Decontamination	decontamination	Decontamination
Other	other	Any other sanitary measure not mentioned above
NonSpecified	non-specified	Sanitary measure not specified

7.1.20.2.9 ShipConfigurationType Enumeration

This enumeration presents the list of ship configuration types. The following attributes use this enumeration as data type:

- ShipConfiguration (Vessel)

The enumeration values are presented in table 193.

Table 193: ShipConfigurationType enumeration

Value	Label	Description
SingleHullTanker	Single hull tanker	Single hull tanker
SingleHullWithSegregattedBallastTanks	Single hull with segregatted ballast tanks	Single hull with segregated ballast tanks
DoubleHullTanker	Double hull tanker	Double hull tanker
Other	other	Any other ship configuration type not mentioned above
NonSpecified	non-specified	Ship configuration type not specified

7.1.20.2.10 VesselType Enumeration

This enumeration presents the different types of Vessel. This list is limited to general type of vessel. It could be detailed in further modeling activities. The following attributes use this enumeration as data type:

- ShipType (Vessel)

The enumeration values are presented in table 194.

Table 194: VesselType enumeration

Value	Label	Description
PassengerShip	passenger ship	Passenger ship
FishingVessel	fishing vessel	Fishing vessel
NuclearShip	nuclear ship	Nuclear ship
BulkCarrier	bulk carrier	Bulk carrier
OilTanker	oil tanker	Oil tanker
GeneralCargoShip	general cargo ship	General cargo ship
HighSpeedCraft	high speed craft	High-speed craft
MobileOffShoreDrillingUnit	mobile off shore drilling unit	Mobile off-shore drilling unit
SpecialPurposeShip	special purpose ship	Special purpose ship
Other	other	Any other certainty not mentioned above
NonSpecified	non-specified	Certainty not specified

Annex A (informative): XML Examples and Schemas

A.1 Introduction

This annex presents a maritime incident XML example compliant with the Data Model described in the present document. Further examples are located in the "xml_examples" folder of gs_cdm005v010503p0.zip which accompanies the present document. The associated XML schemas can be accessed from the "schemas" folder of the same file.

A.2 Maritime Safety Incident - Incident Information

```
<?xml version="1.0" encoding="UTF-8"?>
<MaritimeSafetyIncident xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:vessel="http://www.cise.eu/datamodel/v1/entity/vessel/"
xmlns:movement="http://www.cise.eu/datamodel/v1/entity/movement/"
xmlns:loc="http://www.cise.eu/datamodel/v1/entity/location/"
xmlns:doc="http://www.cise.eu/datamodel/v1/entity/document/"
xmlns:person="http://www.cise.eu/datamodel/v1/entity/person/"
xmlns:orga="http://www.cise.eu/datamodel/v1/entity/organization/">
  <!-- location of the incident -->
  <LocationRel>
    <Location xsi:type="loc:NamedLocation">
      <Geometry>
        <Latitude>37.9333</Latitude>
        <Longitude>23.5301</Longitude>
      </Geometry>
      <GeographicName>Balearic Sea</GeographicName>
    </Location>
    <LocationRole>StartPlace</LocationRole>
    <SourceType>Observation</SourceType>
  </LocationRel>
  <!-- Information about the vessel involved in the Incident -->
  <InvolvedObjectRel>
    <Object xsi:type="vessel:Vessel">
      <!-- vessel involved -->
      <Name>HANOVER EXPRESS</Name>
      <LocationRel>
        <!-- Location of the vessel at the time of the reporting -->
        <Location xsi:type="loc:NamedLocation">
          <Geometry>
            <Latitude>37.9333</Latitude>
            <Longitude>23.5301</Longitude>
          </Geometry>
          <GeographicName>Balearic Sea</GeographicName>
        </Location>
      </LocationRel>
      <InvolvedEventRel>
        <!-- voyage information of this vessel -->
        <Event xsi:type="movement:Movement">
          <LocationRel>
            <!-- port of departure of the current voyage -->
            <Location xsi:type="loc:PortLocation">
              <LocationCode>EGDAM</LocationCode>
            </Location>
            <DateTime>
              <EndDate>2017-11-18</EndDate>
              <EndTime>07:35:00Z</EndTime>
            </DateTime>
            <LocationRole>StartPlace</LocationRole>
            <SourceType>Declaration</SourceType>
          </LocationRel>
          <LocationRel>
            <!-- port of arrival of the current voyage -->
            <Location xsi:type="loc:PortLocation">
              <LocationCode>ESBCN</LocationCode>
```

```
            </Location>
            <DateTime>
              <EndDate>2017-11-22</EndDate>
              <EndTime>02:30:00Z</EndTime>
              <StartDate>2017-11-21</StartDate>
              <StartTime>19:00:00Z</StartTime>
            </DateTime>
            <LocationRole>EndPlace</LocationRole>
            <SourceType>Declaration</SourceType>
          </LocationRel>
          <DocumentRel>
            <!-- information about Hazmat involved in this voyage -->
            <Document xsi:type="doc:VesselDocument">
      <ReferenceURI>http://myserver.com/GetDGManifest?imo=9343716</ReferenceURI>
              <DocumentType>DangerousGoodsManifest</DocumentType>
            </Document>
          </DocumentRel>
          <MovementType>Voyage</MovementType>
        </Event>
        <ObjectRole>Participant</ObjectRole>
      </InvolvedEventRel>
      <InvolvedAgentRel>
        <!-- Contact for DG Manifest (for Hazmat notification) -->
        <Agent xsi:type="person:Person">
          <ContactInformation>
                        BEGIN:VCARD
                        VERSION:4.0
                        N:Dupont;Jean;;Mr.;
                        FN:Jean Dupont
                        ORG:ESBCN
                        TEL;TYPE=work,voice;VALUE=uri:tel:+34123456789
                        TEL;TYPE=work,fax;VALUE=uri:tel:+34012345678
                        EMAIL:jean.dupont@example.com
                        END:VCARD
                    </ContactInformation>
          <FamilyName>Dupont</FamilyName>
          <GivenName>Jean</GivenName>
        </Agent>
        <AgentRole>DGPContactPoint</AgentRole>
      </InvolvedAgentRel>
      <Nationality>DE</Nationality>
      <TotalPersonsOnBoard>21</TotalPersonsOnBoard>
      <CallSign>DFGX2</CallSign>
      <IMONumber>9343716</IMONumber>
      <IRNumber>000000000</IRNumber>
      <MMSI>218092000</MMSI>
    </Object>
    <ObjectRole>Victim</ObjectRole>
  </InvolvedObjectRel>
  <!-- document attached with more details about the incident -->
  <DocumentRel>
    <Document xsi:type="doc:EventDocument">
      <Metadata>
        <FileMediaType>image/jpeg</FileMediaType>
      </Metadata>
      <Content>
        <!-- Base 64 binary document -->

77u/PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0idXRmLTgiPz4NCjw/eG1sLXN0eWxlc2hlZXQgdHlwZT0ndGV4dC94c2wnIGhyZWY9J
2h0dHA6Ly9zc25tYWx0YS5tbWEuZ292Lm10OjkwOTAvWFNML1dBU1RFUy54c2wnPz4NCjxXQVNURVMgeG1sbnM9InVybjpldS5lbXNhLnNzbi
IgeG1sbnM6eHNpPSJodHRwOi8vd3d3LnczLm9yZy8yMDAxL1hNTFNjaGVtYS1pbnN0YW5jZS8iPg0KICAgIDxWZXNzZWxJZGVudGlmaWNhdGl
vbiBDYWxsU2lnbj0iVENPTSIgSU1PTnVtYmVyPSI4MjA2NzkxIiBTaGlwTmFtZT0iS0FTSU0gSU1BTU9HTFUiIEZsYWc9IlRVUiIgLz4NCiAg
ICA8Tm9uQ29tcGxpYW5jZUluZm9ybWF0aW9uIEluc3BlY3RvciBpbWJvIiAvPg0KICAgIDxJbnNwZWN0aW9uSW5mb3JtYXRpb
24gRGVmaWNpZW5jaWVzPSJsYWNrIG9mIGNsZWFubGluZXNzIiBBY3Rpb25UYWtlbj0ibm9uZSI+DQogICAgICAgIDxJbnNwZWN0aW9uQXV0aG
9yaXR5IENvb3JkaW5hdGVzPSJtbXUiIC8+DQogICAgPC9JbnNwZWN0aW9uSW5mb3JtYXRpb24+DQogICAgPEF1dGhvcmVzTm90aWZpZWQ
gTmV4dFBvcnRPZkNhbGw9IklUQlJJIiBPdGhlckF1dGhvcml0aWVzPSIyMjIyMjIyMjIyMjIyMjIyMjIyMiIgLz4NCjwvV0FTVEVTPg==

      </Content>
      <DocumentType>AccidentReport</DocumentType>
    </Document>
  </DocumentRel>
  <!-- the organization reporting the incident-->
  <InvolvedAgentRel>
    <Agent xsi:type="orga:FormalOrganization">
      <ContactInformation>
                BEGIN:VCARD
```

```
                VERSION:4.0
                FN:Spanish Guardia Civil
                ORG:ESBCN
                TEL;TYPE=work,voice;VALUE=uri:tel:+34123456789
                TEL;TYPE=work,fax;VALUE=uri:tel:+34012345678
                EMAIL:jean.dupont@example.com
                END:VCARD
            </ContactInformation>
        <LegalName>Spanish Guardia Civil</LegalName>
    </Agent>
    <AgentRole>Reporter</AgentRole>
  </InvolvedAgentRel>
</MaritimeSafetyIncident>
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History

Document history		
V1.5.3	September 2021	Publication