
EMSA CleanSeaNet Data Centre [CSN-DC]

Appendix 6 - External Interface Control Document V1.4.4 [EICD]

CSNDC-ID-ACS-EMSA-0104

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1 INTRODUCTION

This is the Interface Control Document describing CSN-DC external interfaces.

The document contains for the various external interface the detailed definition of the interface protocol and of the exchanged information. In some cases the document is still to be completed. In particular:

- **TBD:** indicates areas of the specification that cannot be completed at this stage because some information is missing or some elements still need to be defined/agreed
- **TBW:** indicates areas of the specifications where potentially the detail could have been defined on the basis of some assumptions, but is preferred to postpone it until some further consolidation is reached (e.g. the layout of the report templates, etc.)

1.1 DOCUMENT ORGANIZATION

The document defines the software interfaces between CSN-DC and all the external entity involved in any of the business processes.

The following sections are included in the document.

Section	Description
Introduction	This section.
CSN-DC external interfaces	A full description of the system external interfaces in terms of protocols and format to be used.
Annexes A-K	A detailed description of the Interface Control Document artifacts referred to in the Section 2 (XML schemas, PDF templates, SOAP message definitions,...)

1.2 REFERENCE DOCUMENTS

Document Title	Identifier	Internal Reference
Invitation to Tender concerning the development of "EMSA CleanSeaNet Data Centre"	EMSA/OP/06/2009	[ITT]
Tender Specifications	Enclosure I	[E-I]
ICT Architecture, System and application Technical Landscape	Enclosure V	[E-II]
Ordering Service for Earth Observation Products, version 0.9.4, date: 2008-09-05	OGC 06-141r2	[HMA-ORD]
OGC Catalogue Services Specification 2.0 Extension Package for ebRIM Application Profile, version 0.2.2, date: 2008-10-23	OGC 06-131r5	[HMA-CAT]
OGC OpenGIS Sensor Planning Service Application Profile for EO Sensors, version 0.9.5, 19/11/2007	OGC 07-018	[HMA-SPS]
OGC User Management Interfaces for Earth Observation Services, version 0.0.4, 30/06/2009	OGC 07-118r1	[HMA-IDM]
ACS Quality Guidelines for HMI Design, issue 3.2 17/07/2009	SW-PA-ACS-QA-0103	[HMI-GL]
EMSA CleanSeaNet Data Centre Functional Specification	CSNDC-OF-ACS-EMSA-0004 v2.0	[CSN-FUN]
EMSA CleanSeaNet Data Centre Technical Design	CSNDC-DD-ACS-EMSA-0102 v2.0	[CSN-TEC]

Document Title	Identifier	Internal Reference
OGC Web Processing Service Specification, version 1.0.0	OGC 05-007r7	[OGC-WPS]
Climate and Forecast convention standard names (http://cfconventions.org/Data/cf-standard-names/28/build/cf-standard-name-table.html)		[CF-CONV]
TerraSAR-X Ground Segment Level 1b Product Format Specification CAF – Cluster Applied Remote Sensing; issue 1.3, 10/12/2007.	TX-GS-DD-3307	[TX-SPEC]

1.3 ABBREVIATIONS AND ACRONYMS

Abbreviation	Definition
AIS	Automatic Identification System
APT	Acquisition Planning Tool
BPD	Business Process Diagram
BPMN	Business Process Model Notation
CDM	Conceptual Data Model
COTS	Commercial Off The Shelf
CS	Coastal States
CSD	Clean Sea Net Service Desk
CSN-DC	Clean Sea Net Data Centre
DAIL	Data Access Interaction Layer
DREAM	Decision Support and Real Time EO Data Management
EO	Earth Observation
EOLI-SA	Earthnet On-Line Interactive – Stand Alone
ESA	European Space Agency
FEP	Front End Processor
GCM	GMES Contributing Mission
GMES	Global Monitoring for the Environment and Security
GML	Geographic Markup Language
GSCDA	GMES Space Component Data Access
GUI	Graphical User Interface
HMA	Heterogeneous Mission Accessibility
ICD	Interface Control Document
IF	Interface
IPF	Instrument Processing Facility
LRIT	Long Range Identification and Tracking
MSP	Model Service Provider
NRT	Near Real Time
OGC	Open Geospatial Consortium
OPeNDAP	Open-source Project for a Network Data Access Protocol
PKI	Public Key Infrastructure
SAR	Synthetic Aperture Radar
SO	Satellite Operators
SP	Service Providers
SPA	Swath Planner Application
THREDDS	Thematic Realtime Environmental Distributed Data Services
UML	Unified Modelling Language
WFS	Web Feature Server
WMS	Web Map Server
XML	eXtensible Mark-up Language

Table 1-1 Abbreviations and Acronyms
Advanced Computer Systems A.C.S. S.p.A. 2016
with:

1.4 ANNEXED DOCUMENTS

Following documents report detailed information about the interfaces exposed in this document and should be regarded as applicable companion documents for this EICD:

Document Title	Internal Reference
[EICD] eo product mapping for SP, issue 1.4	[EOP_SP]
[EICD] csndc_os mapping for SP, issue 1.4	[OS_SP]
[EICD] csndc_qn mapping for SP, issue 1.4	[QN_SP]
[EICD] csndc_qr mapping for SP, issue 1.4	[QR_SP]
[EICD] csndc_ds mapping for SP, issue 1.4.4	[DS_SP]
[EICD] csndc_act mapping for SP, issue 1.4	[ACT_SP]
[EICD] specification of integration with MSP, issue 1.4	[INT_WPS]
[EICD] planning file mapping for SP, issue 1.4.4	[PL_SP]

2 CSN-DC EXTERNAL INTERFACES

Following table summarize the External Interfaces of CSN-DC defined in [CSN-FUN]

ID	Ext I/F	Internal Module	Data Flow	Data	Comment	Estimated Volume and Repository
EIF-01	Vessel Traffic Information	WUP Core	I	AIS	Data retrieved during the WUP interactive sessions.	Unit: 100 KB ¹ Frequency: 100 ² Total: 10,000 KB Not stored
EIF-02	Vessel Traffic Information	IIF	I	AIS	Data for systematic analyses.	Unit: 1000 KB ³ Frequency: 15 Total: 15,000 KB WUP DB
EIF-03	Vessel Traffic Information	DAM	O	SAR Images	Data can be accessed by external systems for visualization	Unit: 50 KB Frequency: unknown ⁴ Total: unknown
EIF-04	SP	IIF	I	SAR-Native1 image		Unit: 1000 MB Frequency: 15 Total: 15000 MB ISM
				Oil spill warnings and associated clip images: SAR analysed oil spill detections		Unit: 200 KB Frequency: 75 ⁵ Total: 15 MB ISM

¹ For interactive analysis it is estimated that the file will only contain few ships and the file size is of the order of 100 KB

² It is estimated considering 15 daily reports involving 2 states per report and 3 operators performing query to Vessel Traffic information data per coastal state.

³ For systematic analyses the query will probably retrieve a larger number of ships.

⁴ EMSA to provide estimates about the frequency of data access.

⁵ It has been assumed an average of 5 oil spill per image

				Oil spill notifications: SAR analysed oil spill detections		Unit: 200 KB Frequency:75 Total: 15 MB ISM WUP DB
				SAR wind and wave/swell layer: SAR derived wind and wave/swell		Unit: 20 + 20 KB Frequency:15 Total: 0.6 MB ISM WUP DB
				SAR Vessel Detection layer: SAR derived vessel detection file 1 per SAR image		Unit: 10 KB Frequency:15 Total: 0.15 MB ISM WUP DB
				SAR image quality notification: Suitability of product (YES or NOT) and position accuracy/displacement vector, 1 per SAR image.		Unit: 10 KB Frequency:15 Total: 0.15 MB ISM
				Quality Report: on SAR image, oil spill detection and vessel detection analysis, GML/XML file, 1 per image/product.		Unit: 1 MB Frequency:15 Total: 15 MB ISM
				Activity Detection		Unit: 10 KB Frequency:TBD Total: TBD MB ISM
EIF-05a	SP	DAM	O	MyOcean data: <ul style="list-style-type: none"> sea surface temperature surface current speed & direction chlorophyll a concentration ice edge surface winds 	MyOcean data distributed to the SP, via OGC Web Services.	Unit: 10*100 MB ⁶ Frequency: 1 Total: 1000 MB ISM

⁶ It is estimated that about 10 different parameters are obtained daily from MyOcean. The estimated size of each parameter has been set to 100 MB, but in fact it depends on many unknowns, which are: data frequency and timeliness, time resolution, spatial resolution, archival policy (which depends on the usage of the system)

EIF-05b	SP	DAM	O	Vessel Traffic Information data	Vessel positions in the geographic area covered by any SAR-Native1 image for the 6 hour interval prior to image sensing time are made available as features served by a OGC WFS	Unit: 1000 KB ⁷ Frequency: 15 Total: 15,000 KB WUP DB
EIF-06	SP	IIF	I	MD5 of the sub-data packages sent by the SP (see EIF-04) and list of all sent sub-data packages.	These data are used for checking the timeliness of the dissemination of data from the SP.	Unit: 1KB Frequency: 150 Total: 0,15 MB ISM
EIF-07	MyOcean	IIF	I	MyOcean data: <ul style="list-style-type: none"> • sea surface temperature • surface current speed & direction • chlorophyll a concentration • ice edge • surface winds 	Daily data transferred to the CSN-DC. Detailed list of parameters is TBC .	Unit: 10*100 MB Frequency: 1 Total: 1000 MB ISM
EIF-08	EO Data Provider (this includes EUMETSAT, ECWMF, ESA, SpotImage, etc.)	IIF	I	EO data, e.g. optical data.	It is assumed that the operator interactively places the order for the data, using the available HMA tools, e.g. EOLI-SA and makes sure that the received data are placed on the correct SFTP basket. Alternatively this can be performed by subscription, whereby a certain number of data is routinely accessed to an SFTP basket.	TDB ISM
EIF-09	ENC	WUP core	I	Electronic Nautical Charts		Unit: 10 KB Frequency: 200 ⁸ Total: 2 MB Not stored
EIF-11a	External Model Service Providers (MSP)	PMA	I/O	<ul style="list-style-type: none"> • SN-DC sends oil spill description • External process executes a model and returns oil spill evolution 	CSFTP is used on both directions for sending the request of triggering and receiving the results. Optionally, a WPS interface can be used instead (where available at MSP)	Unit: 1 MB Frequency: 100 ⁹ Total: 100 MB

⁷ For systematic analyses the query will probably retrieve a larger number of ships.

⁸ The frequency depends on how many times a WUP users “refresh” the information request to the WMS

⁹ This estimate considers 15 SAR images per day, with an average of 6-7 oil spills per image

EIF-11b	MSP	PMA	I	Area(s) of Model Coverage	Shape file to be inserted by web-based User Interface	Unit: 1 MB Frequency: 1 Total: 1 MB POR DB
EIF-12a	CS	POR	I	Regions of interest, frequency and number of scenes	These files are ingested into the POR by the SD operator	Unit: 1 MB Frequency: 1 Total: 1 MB POR DB
EIF-12b	SO (Feasibility planning tools)	POR	O	Query Files		Unit: 1 MB Frequency: 0.1 Total: 0.1 MB
EIF-12c	SO (Feasibility planning tools)	POR	I/O	Planning files (with the list of planned scenes and relevant metadata)	The POR can ingest the files exported from the planning tools and export the planning files into a format compatible with the planning tools.	Unit: 1 MB Frequency: 0.1 Total: 0.1 MB POR DB
EIF-12d	SO (ESA only)	POR	I	Acquisition Status files	This interface is only for ESA as for the others a manual update on the POR web GUI is foreseen.	Unit: 1 MB Frequency: 0.1 Total: 0.1 MB POR DB
EIF-13	SO	POR	O	Satellite data licenses	The satellite data licenses are distributed via email to the satellite operators.	Unit: 5 MB Frequency: 0.1 Total: 0.5 MB
EIF-14	SP	POR	O	Service Orders	The service orders are distributed via email to the service providers.	Unit: 5 MB Frequency: 0.1 Total: 0.5 MB
EIF-15	Users	PDE	O	Warnings and Alerts		Unit: 5 MB Frequency: 450+450 ¹⁰ Total: 4500 MB
						Negligible
						Negligible
EIF-16	Users	PDE	O	Systematic disseminated products (data and products)	Systematic distribution for interested users	Unknown
EIF-17	External catalogues	DAM	I	Access to external catalogues for federated search.		Unit: 10 K Frequency: 100 Total: 1 MB ISM

Table 2-1 CSN-DC External Interfaces

Following sections will describe in details the above interfaces in terms of protocols, formats and operations. For the sake of clarity, interfaces are grouped by external actor (column 'Ext I/F' of the above table).

¹⁰ 450 Alerts + 450 warning. Estimated on the basis of 15 images per day, 3 coastal states interested by oil spill, 10 users registered for distribution

2.1 VESSEL TRAFFIC INFORMATION

2.1.1 EIF-01: Vessel Traffic Information (AIS) data to WUP core

The protocol to be used is the OGC WFS 1.1.0 (HTTP binding). In particular, following service requests shall be supported:

- *GetCapabilities*
- *GetFeatures*
- *DescribeFeature*

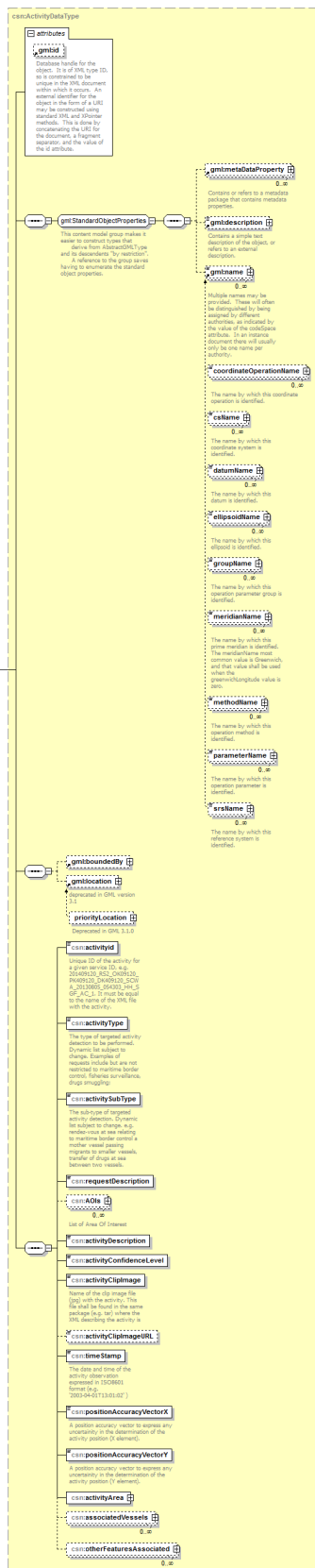
3 THE FEATURE PROVIDED BY THE WFS SERVING VESSEL SCHEMA PRODUCED IN ANNEX A. SOME EXAMPLE OF REQUESTS ARE REPORTED IN ANNEX S2 – CHANGE DETECTION XML SCHEMA

Schema csndc_cde.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **<http://www.emsa.europa.eu/csndc>**

Elements	Complex types
ChangeDetection	ActivityDataType
	AOIsType
	AssociatedVesselsType
	ImageType
	OtherFeaturesAssociatedType
	VesselIdentificationType

diagram



ChangeDetection

namespace

<http://www.emsa.europa.eu/csndc>

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplImage csn:activityCiplImageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	appinfo documentation Change detected on a EO scene					
source	<xs:element name="ChangeDetection" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Change detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplmage csn:activityCiplmageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
used by	element ChangeDetection					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="activityid" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

```

</xs:element>
<xs:element name="activitySubType" type="xs:string">
  <xs:annotation>
    <xs:documentation>The sub-type of targeted activity detection. Dynamic list
    subject to change. e.g. rendez-vous at sea relating to maritime border control a mother
    vessel passing migrants to smaller vessels, transfer of drugs at sea between two
    vessels.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="requestDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="AOIs" type="gml:FeaturePropertyType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>List of Area Of Interest</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityConfidenceLevel"
type="csn:ActivityConfidenceLevelType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall
    be found in the same package (e.g. tar) where the XML describing the activity
    is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the activity observation expressed in
    ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityArea" type="gml:GeometryPropertyType">

```

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="associatedVessels" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
<xs:element name="otherFeaturesAssociated" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType AOIsType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. (0..∞) gml:description: Contains a simple text description of the object, or refers to an external description. (0..∞) gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. (0..∞) coordinateOperationName: The name by which this coordinate operation is identified. (0..∞) csName: The name by which this coordinate system is identified. (0..∞) datumName: The name by which this datum is identified. (0..∞) ellipsoidName: The name by which this ellipsoid is identified. (0..∞) groupName: The name by which this operation parameter group is identified. (0..∞) meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. (0..∞) methodName: The name by which this operation method is identified. (0..∞) parameterName: The name by which this operation parameter is identified. (0..∞) srsName: The name by which this reference system is identified. (0..∞) gml:boundedBy: (0..1) gml:location: (0..1) priority:Location: (0..1) <i>Deprecated in GML 3.1.0</i> csNameAOI: This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested. (0..∞) <p>AOIsType List of Area Of Interest</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base mixedgml:AbstractFeatureType false					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:AOI					
used by	elementCDAOIs					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation List of Area Of Interest					
source	<pre><xs:complexType name="AOIsType" mixed="false"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="AOI" type="gml:GeometryPropertyType"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:associatedVesselID csn:includeInReport csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:dopplerOffsetX csn:dopplerOffsetY csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:RCS csn:maxPixelValue csn:vesselIdentifications csn:shipThumbnail csn:shipThumbnailURL					
used by	element CDAAssociatedVessels					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Associated vessels					
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="associatedVesselID" type="xs:string"> <xs:element name="includeInReport" type="xs:boolean" default="false" minOccurs="0"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element name="pos" type="gml:PointPropertyType"> <xs:annotation> <xs:documentation></xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVectorX" type="xs:double" minOccurs="0"> </pre>					

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetX" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>East-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetY" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>North-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation expressed in ISO8601
format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="heading" type="xs:integer" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Route direction (expressed as as [0,360] degree value
where 0=360=Geographical North)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedClassification" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Velocity (expressed in m/s)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedError" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Error in the estimation of vessel speed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthClass" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Vessel length class taken from a fixed list of values
(TBD)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="length" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Length (expressed in meters)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthError" type="xs:double" minOccurs="0">
  <xs:annotation>

```

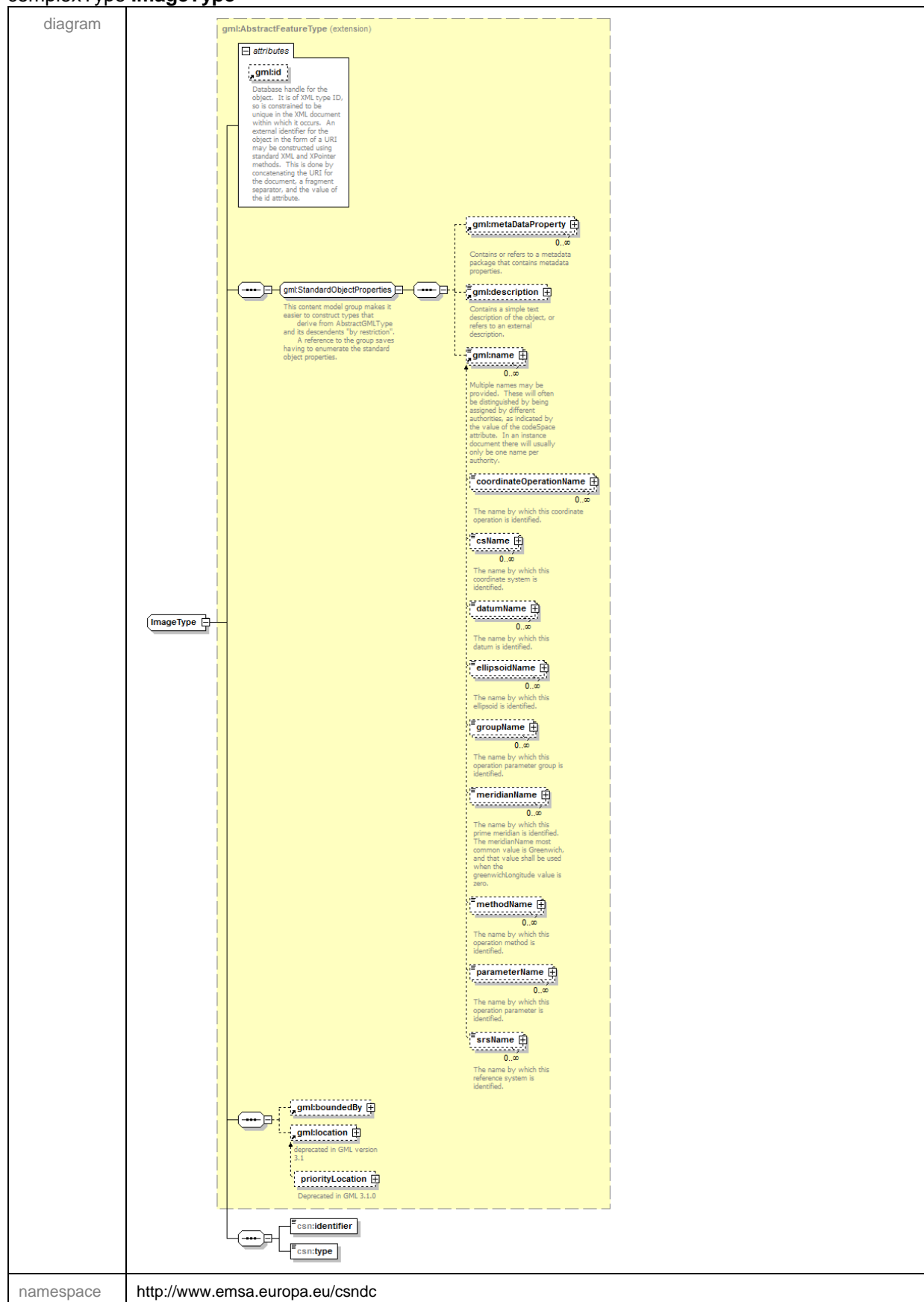

	<pre> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Quality factor (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="gml:FeaturePropertyType" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="RCS" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentifications" type="gml:FeaturePropertyType" </pre>
--	--

```

minOccurs="0"                                maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnail" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnailURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
<!-- This is a copy of csn:ShipType taken from csndc_ds.xsd -->
</xs:complexType>

```

complexType ImageType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:identifier csn:type					
used by	element CDSHiplmageIdentifierActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="ImageType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="identifier" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="type" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

complexType OtherFeaturesAssociatedType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractFeatureType and its descendants "by restriction". A reference to the group allows having to enumerate the standard object properties. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. gml:description: Contains a single text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. coordinateOperationName: The name by which this coordinate operation is identified. cs:Name: The name by which this coordinate system is identified. cs:datumName: The name by which this datum is identified. cs:ellipsoidName: The name by which this ellipsoid is identified. cs:groupname: The name by which this operation parameter group is identified. cs:meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the GreenwichLongitude value is zero. cs:methodname: The name by which this operation method is identified. cs:parameterName: The name by which this operation parameter is identified. cs:uName: The name by which this reference system is identified. gml:boundedBy: Discontinued in GML version 3.1.1 gml:location: Discontinued in GML 3.2.0 gml:priorityLocation: Discontinued in GML 3.2.0 cs:otherFeatureId: Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross-reference previously reported features. No cross consistency of feature IDs will be validated. cs:otherFeatureDescription: Description of the feature. cs:otherFeatureStatus: Reference to previously reported feature. cs:otherFeatureReference: Description of the change on the associated feature. cs:compos: A position accuracy vector to express any uncertainty in the determination of the activity position (if demand). cs:positionAccuracyVectorX: A position accuracy vector to express any uncertainty in the determination of the activity position (if demand). cs:positionAccuracyVectorY: Size of the feature (in m or m2). cs:featureSize: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is. cs:otherFeatureClipImage: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is. cs:otherFeatureClipImageURL: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is. <p>OtherFeaturesAssociatedType</p> <p>Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p>
namespace	http://www.emsa.europa.eu/csndc

type	extension of gml:AbstractFeatureType					
properties	base mixed	gml:AbstractFeatureType false				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:featureSize csn:otherFeatureCiplmage csn:otherFeatureCiplmageURL					
used by	element	CDOtherFeaturesAssociated				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.					
source	<pre><xs:complexType name="OtherFeaturesAssociatedType" mixed="false"> <xs:annotation> <xs:documentation>Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross referece previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```

<xs:element name="changeStatus" type="csn:ChangeStatusType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="referenceToOtherFeatureId" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference to previously reported
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="changeDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the change on the asociated
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="pos" type="gml:PointPropertyType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="featureSize" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Size of the feature (in m or m2).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType VesselIdentificationType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <p>gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description Contains a simple text description of the object, or refers to an external description.</p> <p>gml:name Multiple names may be provided. These will often be distinguished by being assigned by different authorities as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>gml:coordinateOperationName The name by which this coordinate operation is identified.</p> <p>gml:csName The name by which this coordinate system is identified.</p> <p>gml:datumName The name by which this datum is identified.</p> <p>gml:ellipsoidName The name by which this ellipsoid is identified.</p> <p>gml:groupname The name by which this operation parameter group is identified.</p> <p>gml:meridianName The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero.</p> <p>gml:methodName The name by which this operation method is identified.</p> <p>gml:parameterName The name by which this operation parameter is identified.</p> <p>gml:rsName The name by which this reference system is identified.</p> <p>gml:boundedBy gml:location Deprecated in GML version 3.1 Deprecated in GML 3.1.0</p> <p>cs:IMONumber cs:MMSI cs:shipName cs:callSign cs:vesselIdentificationConfidence Confidence of vessel identification cs:orderOfPriority Order of priority for identified vessel. 1 = highest priority</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority
used by	element CDVesselIdentificationActivity
attributes	<p>Name Type Use optional Default Fixed annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p>
source	<pre> <xs:complexType name="VesselIdentificationType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="IMONumber" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="MMSI" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="shipName" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="callSign" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

	<pre> <xs:documentation>Order of priority for identified vessel. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	--

XML Schema documentation generated by **XMLSpy** Schema Editor <http://www.altova.com/xmlspy>

ANNEX T – GEOSPATIAL SERVICES REQUESTS DETAILS AND EXAMPLES.

NOTE: since this request is accessing a very large database, requests over large areas and time window might take long time and even fail because of timeout. Should this occur, it is recommended to use the method illustrated in the next paragraph for accessing AIS data.

3.1.1 EIF-02: Vessel Traffic Information (AIS) data to IIF

The protocol to be used is the OGC WFS 1.1.0 (HTTP binding). In particular, following service requests shall be supported:

- *GetCapabilities*
- *GetFeatures*

The Feature provided by the WFS serving vessel traffic information data based on AIS shall support the GML schema produced in Annex A

Alternatively, AIS data can be retrieved from the EMSA SFTP in pull mode. The data are placed on the FTP in GML format and follow this structure and naming convention:

- For each service a folder with name *frame-<SERVICE_ID>* is created (e.g. frame-5667)
- the file name for each data chunk is *frame-<SERVICE_ID>-<UTC_TIMESTAMP>* (e.g. frame-5667-20140612T102402.gml), where:
 - o UTC timestamp is the timestamp of creation of the file

3.1.2 EIF-03: SAR images from DAM

The images provided to external systems from DAM, shall be made available through an OGC WMS 1.3.0 (HTTP binding). Each image will be presented as a WMS layer named with the EO image uid. The WMS shall support following service requests:

- *GetCapabilities*
- *GetMap*

GetMap operation shall support, at least, JPG and PNG output formats.

3.2 SERVICE PROVIDERS

3.2.1 EIF-04: EO products, OS and Detected Ships Analysis information to

IIF

The protocol to be used is the SFTP in push mode.

- The SP shall provide one or more packages at the time. Supported package file format is .tgz.

Extension tar.gz is not supported.

Please Note that, for backward compatibility reasons the system currently also support .tar and .zip files but, since EICD 1.4.4, they are **deprecated** and shall not be used. It is **not** guaranteed that future versions of the software will support compressed file formats other than .tgz.

Each package could be part of a set of packages related to the processing of a given EO product: not all the information are produced and transmitted at the same time.

Currently, following types of packages are expected:

- Activity detection
- Oil Spill Warnings
- EO Image
- Oil Spill Notifications
- SAR Derived
- Detected vessels
- Quality Report
- Quality Notification

Please Note: in case of Clean Sea report the CSN DC expects to receive an Oil Spill Notification package with no Oil Spill feature GML files and the Package info XML file explicitly stating 0 total OS (see attribute /csn:dataPackage/csn:oilSpills/@total in appendix B).

A transmission is made of a minimum of 1 and a maximum of 8 packages of different types. Following table reports the expected content of each package.

NOTE: there is an overlap in the specification of the *SAR derived* and *Detected vessel* types. Basically:

- SAR derived allows to deliver information about both detected vessels and SAR derived physical information (i.e. wind and wave data)
- Detected vessel allows to deliver ONLY information about detected vessels

This aproch provides the flexibility of delivering these 2 types of information together or independently on each other.

For the naming convention of the packages please refer to 17.2.1.

Package Type	Package Content	Naming convention	File format	Description	Multiplicity	Mandatory (M)/ Optional (O)
Oil Spill Warning	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "OS_WARNING"	1	M
	Oil Spill feature GML file	See 17.2.4	XML as per schema in Annex C	A file describing a detected OS. As early warnings only a limited set of OS parameters will be valorised. The exact list of elements to be used is detailed in [OS_SP]. The OSW package can hold 1 to N warnings however EMSA requests all Service Providers to create 1 OSW per OSW package. This entails that the "total" attribute to be always 1.	N	M

				<p>NOTE: in order to avoid some physical limits of the Oracle ingestion functions, it is necessary that the number of vertexes for each oil spill polygon is < 450 points.</p> <p>As per Annex C the polygon describing the oil spill (meaning the first point has to be repeated at the end of the list) and drawing segments following the order of the points in the list shall not result in intersecting segments</p>		
	Clip image file	See 17.2.9	Geotiff with a pixel depth not greater than 8bit. See also Annex N.	A clip image file to be associated to a given OS.	N	M
EO Product	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "EO_PRODUCT"	1	M
	EO Native Image file (s)	17.2.8	L1b native formats	<p>Level 1b EO product. It includes both SAR and Optical platforms. The file extension must match the original format extension (e.g. '.N1' for ENVISAT ASAR).</p> <p>In case of RADARSAT 1 and RADARSAT 2 this file is the compressed file containing a directory with a name corresponding to the one of the compressed file itself. This directory contains all files of the product including a metadata xml file named "product.xml" (please note that this is compliant with</p>	N	M

				RADARSAT product specifications). For Sentinel-1, image can be delivered in several EO Native image files (namely in SAFE format)		
	EO Product metadata GML file	17.2.3	XML as per EOP schema	The EOP application profile compliant metadata description of the EO product. Applicable restrictions and conventions are described in the annexed document [EOP_SP]	1	M
	EO browse image file	17.2.9	JPG	Browse image file	1	O
Quality Notification	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "QUALITY_NOTIFICATION"	1	M
	Image quality notification	See 17.2.6	XML as per schema in Annex E	Suitability of product (YES or NOT) and position accuracy/displacement vector, 1 per SAR image. Expected XML content is described in [QN_SP]	1	M
	Not Analyzable area mask	See 17.2.9	Geotiff file	Image file representing Not Analyzable pixels of the image (any other pixel shall be set to transparent color code or valorised to pure black).	1	O
Oil Spill Notifications	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "OS_NOTIFICATION"	1	M
	Oil Spill feature GML file	See 17.2.4	XML as per schema in Annex C	A file describing a detected OS. It contains full set of OS parameters. /csn:OilSpill/csn:origin element has fixed value of 'DETECTED'. The	N	O ¹¹

¹¹ Please note that Oil Spill feature GML file is not provided only in case of a Clean Sea report

				<p>exact list of elements to be used is detailed in [OS_SP].</p> <p>The OSN package can hold 1 to N notifications however EMSA requests all Service Providers to create 1 OSN package which may contain N OSN GML files</p> <p>In the case of a 'CleanSea' where no oil spills are detected, no oil spill feature GML should be provided. The OSN Package should only contain the Package Info XML file. NOTE: in order to avoid some physical limits of the Oracle ingestion functions, it is necessary that the number of vertexes for each oil spill polygon is < 450 points.</p> <p>As per Annex C the polygon describing the oil spill (meaning the first point has to be repeated at the end of the list) and drawing segments following the order of the points in the list shall not result in intersecting segments</p>		
	Clip image file	See 17.2.9	Geotiff with a pixel depth not greater than 8bit. See also Annex N.	A clip image file to be associated to a given OS. Please see Annex N for details about the expected zoom level and content of the clip image.	N	M
SAR Derived	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "SAR_DERIVED"	1	M
	SAR extracted wind file	See 17.2.9	NetCDF (CF convention v1.4). Also	Gridded file with SAR extracted wind field	1	O

			see 27 for additional constraints.			
	SAR wave/swell extracted file	See 17.2.9	NetCDF (CF convention v1.4). Also see 27 for additional constraints.	Gridded file with SAR extracted wave field	1	O
SAR Detected Vessel	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "VESSEL_DETECTION"	1	M
	Detected Ship feature GML file	See 17.2.5	XML as per schema in Annex D	A file describing a detected ships. Expected XML content is described in [DS_SP].	N	M
Quality Report	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "QUALITY_REPORT"	1	M
	Quality report file	See 17.2.7	XML as per schema in Annex E	A file describing the quality features of the image in terms of coverage compliance and usable area. Expected XML content is described in [QR_SP]	1	M
Activity Detection	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "ACTIVITY_DETECTION"	1	M
	Activity Detection	See 17.2.10	XML as per schema in Annex S	A file describing the content of the activities found in the current image. Applicable restrictions and conventions are described in the annexed document [ACT_SP].	N	M
	Clip image files	See 17.2.9	Image file(s), e.g. tiff, png, etc. It is expected to be small (e.g. a few KBs) and in any case	A clip image file with elements pointed to by the activity detection XML file (see above). It may includes vessels, rubber boats or any other feature that is related to the activity being described. The	N	O

			not greater than 1 MB.	file is pointed by a specific tag in the activity XML file both for vessels and for activity features.		
Change Detection	Package info XML file	See 17.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "ACTIVITY DETECTION"	1	M
	Change Detection	See 16.2.15	XML as per schema in Annex S	A file describing the content of the changes found in the current image. Applicable restrictions and conventions are described in the annexed document [ACT_SP].	N	M
	Clip image files	See 17.2.9	Image file(s), e.g. tiff, png, etc. It is expected to be small (e.g. a few KBs) and in any case not greater than 1 MB.	A clip image file with elements pointed to by the change detection XML file (see above). It may includes vessels, rubber boats or any other feature that is related to the activity being described. The file is pointed by a specific tag in the detection XML file both for vessels and for detected changes features.	N	O

Table 3-1 Data package content for EIF-04

3.2.2 EIF-05a: MyOcean data from DAM

The protocol to be used is OGC CSW 2.0.2

Supported service requests for CSW protocol are:

- *GetCapabilities*
- *GetRecords*
- *DescribeRecord*
- *GetRepositoryItem*

More specifically, the *GetRecords* operation shall be used to browse and identify a MyOcean dataset of interest and the *GetRepositoryItem* operation shall be used for retrieving the URL to original NetCDF file.

4 THE RECORD PROVIDED BY THE CSW SERVICE, SUPPORT THE SCHEMA IN ANNEX F. SOME EXAMPLES

OF REQUESTS ARE REPORTED IN ANNEX S2 – CHANGE DETECTION XML SCHEMA

Schema csndc_cde.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **<http://www.emsa.europa.eu/csndc>**

Elements	Complex types
ChangeDetection	ActivityDataType
	AOIsType
	AssociatedVesselsType
	ImageType
	OtherFeaturesAssociatedType
	VesselIdentificationType

diagram



namespace

<http://www.emsa.europa.eu/csndc>

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplImage csn:activityCiplImageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	appinfo documentation Change detected on a EO scene					
source	<xs:element name="ChangeDetection" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Change detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

diagram



namespace

<http://www.emsa.europa.eu/csndc>

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplmage csn:activityCiplmageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
used by	element ChangeDetection					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="activityid" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

```

</xs:element>
<xs:element name="activitySubType" type="xs:string">
  <xs:annotation>
    <xs:documentation>The sub-type of targeted activity detection. Dynamic list
    subject to change. e.g. rendez-vous at sea relating to maritime border control a mother
    vessel passing migrants to smaller vessels, transfer of drugs at sea between two
    vessels.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="requestDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="AOIs" type="gml:FeaturePropertyType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>List of Area Of Interest</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityConfidenceLevel"
type="csn:ActivityConfidenceLevelType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall
    be found in the same package (e.g. tar) where the XML describing the activity
    is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the activity observation expressed in
    ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityArea" type="gml:GeometryPropertyType">

```

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="associatedVessels" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
<xs:element name="otherFeaturesAssociated" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```


complexType AOIsType

<p>diagram</p>	<p>The diagram illustrates the structure of gml:AbstractFeatureType (extension). It includes the following elements:</p> <ul style="list-style-type: none"> Attributes: <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. (0..∞) gml:description: Contains a simple text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. (0..∞) coordinateOperationName: The name by which this coordinate operation is identified. (0..∞) csName: The name by which this coordinate system is identified. (0..∞) datumName: The name by which this datum is identified. (0..∞) ellipsoidName: The name by which this ellipsoid is identified. (0..∞) groupName: The name by which this operation parameter group is identified. (0..∞) meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. (0..∞) methodName: The name by which this operation method is identified. (0..∞) parameterName: The name by which this operation parameter is identified. (0..∞) srsName: The name by which this reference system is identified. (0..∞) gml:boundedBy: (0..1) deprecated in GML version 3.1 gml:location: (0..1) deprecated in GML 3.1.0 priority:Location: (0..1) deprecated in GML 3.1.0 cs:AOI: This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested. <p>AOIsType: List of Area Of Interest</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>
<p>type</p>	<p>extension of gml:AbstractFeatureType</p>

properties	base mixedgml:AbstractFeatureTypefalse					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:AOI					
used by	elementCDAOIs					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation List of Area Of Interest					
source	<pre><xs:complexType name="AOIsType" mixed="false"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="AOI" type="gml:GeometryPropertyType"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:associatedVesselID csn:includeInReport csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:dopplerOffsetX csn:dopplerOffsetY csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:RCS csn:maxPixelValue csn:vesselIdentifications csn:shipThumbnail csn:shipThumbnailURL					
used by	element CDAAssociatedVessels					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Associated vessels					
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="associatedVesselID" type="xs:string"> <xs:element name="includeInReport" type="xs:boolean" default="false" minOccurs="0"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element name="pos" type="gml:PointPropertyType"> <xs:annotation> <xs:documentation></xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVectorX" type="xs:double" minOccurs="0"> </pre>					

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetX" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>East-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetY" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>North-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation expressed in ISO8601
format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="heading" type="xs:integer" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Route direction (expressed as as [0,360] degree value
where 0=360=Geographical North)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedClassification" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Velocity (expressed in m/s)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedError" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Error in the estimation of vessel speed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthClass" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Vessel length class taken from a fixed list of values
(TBD)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="length" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Length (expressed in meters)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthError" type="xs:double" minOccurs="0">
  <xs:annotation>

```

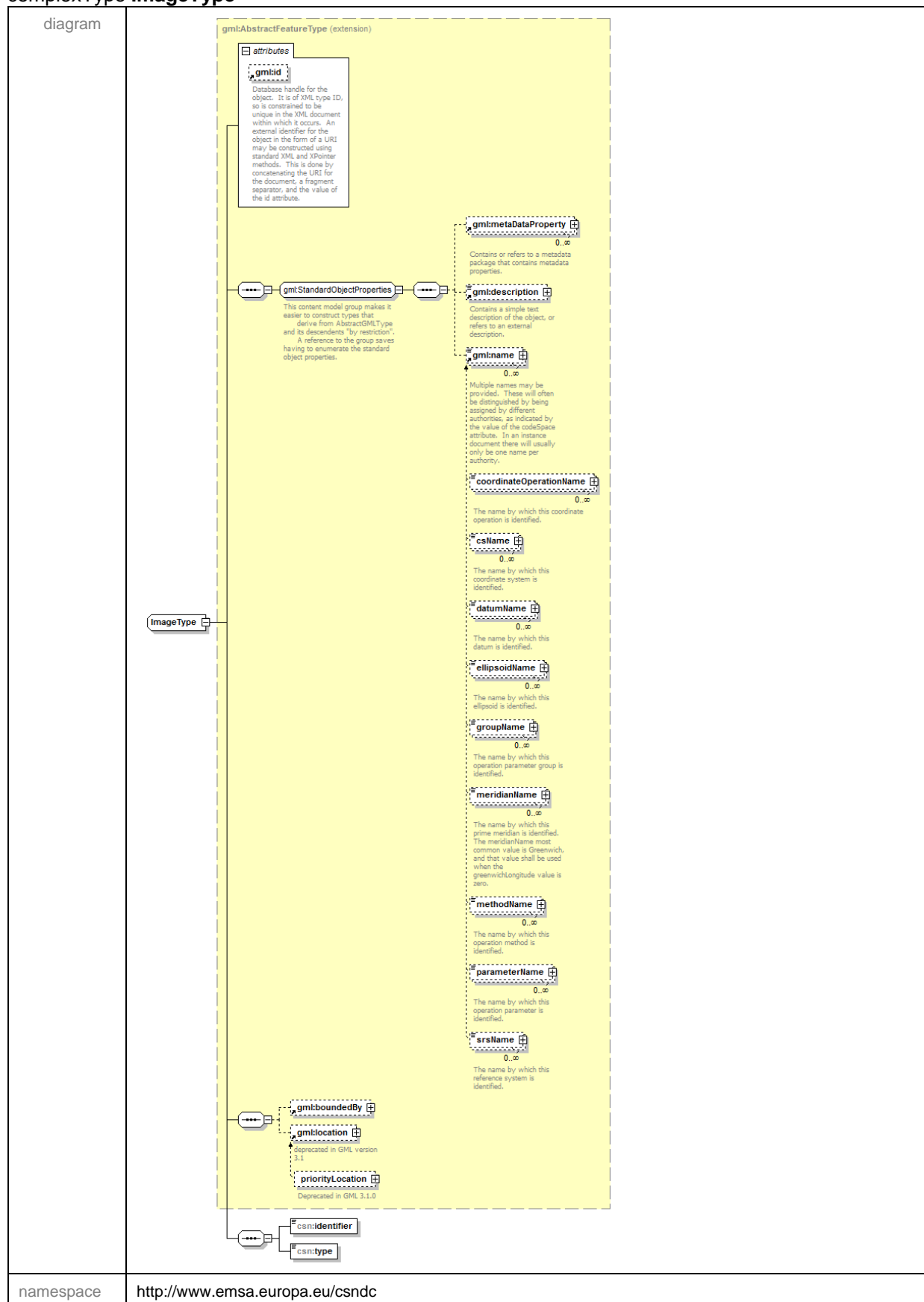
	<pre> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:documentation>Quality factor (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="gml:FeaturePropertyType" minOccurs="0" maxOccurs="unbounded"> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="RCS" type="xs:double" minOccurs="0"> <xs:documentation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double" minOccurs="0"> <xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselIdentifications" type="gml:FeaturePropertyType" </pre>
--	--

```

minOccurs="0"                                maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnail" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnailURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
<!-- This is a copy of csn:ShipType taken from csndc_ds.xsd -->
</xs:complexType>

```

complexType ImageType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:identifier csn:type					
used by	element CDSHiplmagelIdentifierActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="ImageType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="identifier" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="type" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

complexType OtherFeaturesAssociatedType

<p>diagram</p>	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. <p>gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractFeatureType and its descendants "by restriction". A reference to the group allows having to enumerate the standard object properties.</p> <p>gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description: Contains a single text description of the object, or refers to an external description.</p> <p>gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>coordinateOperationName: The name by which this coordinate operation is identified.</p> <p>cs:otherFeatureId: Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross-reference previously reported features. No cross consistency of feature IDs will be validated.</p> <p>cs:otherFeatureDescription: Description of the feature.</p> <p>cs:changeStatus: Reference to previously reported feature.</p> <p>cs:referenceToOtherFeatureId: Reference to previously reported feature.</p> <p>cs:changeDescription: Description of the change on the associated feature.</p> <p>cs:pos: A position accuracy vector to express any uncertainty in the determination of the activity position (if demanded).</p> <p>cs:positionAccuracyVectorX: A position accuracy vector to express any uncertainty in the determination of the activity position (if demanded).</p> <p>cs:positionAccuracyVectorY: A position accuracy vector to express any uncertainty in the determination of the activity position (if demanded).</p> <p>cs:featureSize: Size of the feature (in m or m2).</p> <p>cs:otherFeatureClipImage: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is.</p> <p>cs:otherFeatureClipImageURL: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is.</p> <p>OtherFeaturesAssociatedType: Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>

type	extension of gml:AbstractFeatureType					
properties	base mixed	gml:AbstractFeatureType false				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:featureSize csn:otherFeatureCiplmage csn:otherFeatureCiplmageURL					
used by	element	CDOtherFeaturesAssociated				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.					
source	<pre><xs:complexType name="OtherFeaturesAssociatedType" mixed="false"> <xs:annotation> <xs:documentation>Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross referece previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```

<xs:element name="changeStatus" type="csn:ChangeStatusType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="referenceToOtherFeatureId" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference to previously reported
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="changeDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the change on the asociated
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="pos" type="gml:PointPropertyType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="featureSize" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Size of the feature (in m or m2).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType VesselIdentificationType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <p>gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description Contains a simple text description of the object, or refers to an external description.</p> <p>gml:name Multiple names may be provided. These will often be distinguished by being assigned by different authorities as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>coordinateOperationName The name by which this coordinate operation is identified.</p> <p>cs:Name The name by which this coordinate system is identified.</p> <p>datumName The name by which this datum is identified.</p> <p>ellipsoidName The name by which this ellipsoid is identified.</p> <p>groupName The name by which this operation parameter group is identified.</p> <p>meridianName The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero.</p> <p>methodName The name by which this operation method is identified.</p> <p>parameterName The name by which this operation parameter is identified.</p> <p>srsName The name by which this reference system is identified.</p> <p>gml:boundedBy gml:location Deprecated in GML version 3.1 priorityLocation Deprecated in GML 3.1.0</p> <p>cs:IMONumber cs:MMSI cs:shipName cs:callSign cs:vesselIdentificationConfidence Confidence of vessel identification cs:orderOfPriority Order of priority for identified vessel. 1 = highest priority</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority
used by	element CDVesselIdentificationActivity
attributes	<p>Name Type Use optional Default Fixed annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p>
source	<pre> <xs:complexType name="VesselIdentificationType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="IMONumber" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="MMSI" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="shipName" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="callSign" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

	<pre> <xs:documentation>Order of priority for identified vessel. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	--

XML Schema documentation generated by **XMLSpy** Schema Editor <http://www.altova.com/xmlspy>

ANNEX T – GEOSPATIAL SERVICES REQUESTS DETAILS AND EXAMPLES.

4.1.1.1 EIF-05b: Vessel Traffic Information data from DAM

The protocol to be used is OGC WFS 1.1.0

Supported service requests are:

- *GetCapabilities*
- *GetFeatures*
- *DescribeFeature*

More specifically, Vessel Traffic Information data are organized in Features listed by the *GetCapabilities* operation. The *DescribeFeature* operation provides xsd schemas describing Vessel Traffic Information Features. The *GetFeatures* operation shall be used to get a set of Features (i.e. vessel positions and data) on a specific geographical area and in a given time range.

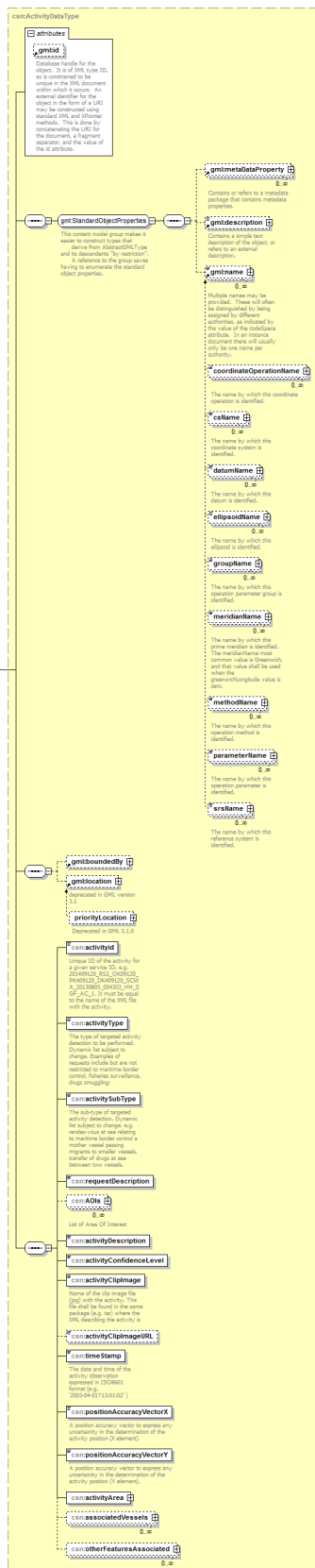
5 FEATURES PROVIDED BY THE WFS SERVING AIS DATA EXAMPLES OF REQUESTS ARE REPORTED IN ANNEX S2 – CHANGE DETECTION XML SCHEMA

Schema csndc_cde.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **<http://www.emsa.europa.eu/csndc>**

Elements	Complex types
ChangeDetection	ActivityDataType
	AOIsType
	AssociatedVesselsType
	ImageType
	OtherFeaturesAssociatedType
	VesselIdentificationType

diagram



ChangeDetection

namespace

<http://www.emsa.europa.eu/csndc>

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplImage csn:activityCiplImageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	appinfo documentation Change detected on a EO scene					
source	<xs:element name="ChangeDetection" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Change detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

complexType ActivityDataType

<p>diagram</p>	
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplmage csn:activityCiplmageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
used by	element	ChangeDetection				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="activityid" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

```

</xs:element>
<xs:element name="activitySubType" type="xs:string">
  <xs:annotation>
    <xs:documentation>The sub-type of targeted activity detection. Dynamic list
    subject to change. e.g. rendez-vous at sea relating to maritime border control a mother
    vessel passing migrants to smaller vessels, transfer of drugs at sea between two
    vessels.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="requestDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="AOIs" type="gml:FeaturePropertyType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>List of Area Of Interest</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityConfidenceLevel"
type="csn:ActivityConfidenceLevelType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall
    be found in the same package (e.g. tar) where the XML describing the activity
    is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the activity observation expressed in
    ISO8601 format (e.g. '2003-04-01T13:01:02' )</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityArea" type="gml:GeometryPropertyType">

```

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="associatedVessels" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
<xs:element name="otherFeaturesAssociated" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType AOIsType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gml:metadataProperty: Contains or refers to a metadata package that contains metadata properties. (0..∞) gml:description: Contains a simple text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. (0..∞) coordinateOperationName: The name by which this coordinate operation is identified. (0..∞) csName: The name by which this coordinate system is identified. (0..∞) datumName: The name by which this datum is identified. (0..∞) ellipsoidName: The name by which this ellipsoid is identified. (0..∞) groupName: The name by which this operation parameter group is identified. (0..∞) meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. (0..∞) methodName: The name by which this operation method is identified. (0..∞) parameterName: The name by which this operation parameter is identified. (0..∞) srsName: The name by which this reference system is identified. (0..∞) gml:boundedBy: (0..1) deprecated in GML version 3.1 gml:location: (0..1) deprecated in GML 3.1.0 priority:Location: (0..1) deprecated in GML 3.1.0 cs:AOI: This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested. <p>AOIsType: List of Area Of Interest</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base mixedgml:AbstractFeatureType false					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:AOI					
used by	elementCDAOIs					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation List of Area Of Interest					
source	<pre><xs:complexType name="AOIsType" mixed="false"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="AOI" type="gml:GeometryPropertyType"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:associatedVesselID csn:includeInReport csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:dopplerOffsetX csn:dopplerOffsetY csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:RCS csn:maxPixelValue csn:vesselIdentifications csn:shipThumbnail csn:shipThumbnailURL					
used by	element CDAssociatedVessels					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Associated vessels					
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="associatedVesselID" type="xs:string"> <xs:element name="includeInReport" type="xs:boolean" default="false" minOccurs="0"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element name="pos" type="gml:PointPropertyType"> <xs:annotation> <xs:documentation></xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVectorX" type="xs:double" minOccurs="0"> </pre>					

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetX" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>East-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetY" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>North-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation expressed in ISO8601
format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="heading" type="xs:integer" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Route direction (expressed as as [0,360] deegree value
where 0=360=Geographical North)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedClassification" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Velocity (expressed in m/s)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedError" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Error in the estimation of vessel speed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthClass" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Vessel length class taken from a fixed list of values
(TBD)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="length" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Length (expressed in meters)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthError" type="xs:double" minOccurs="0">
  <xs:annotation>

```

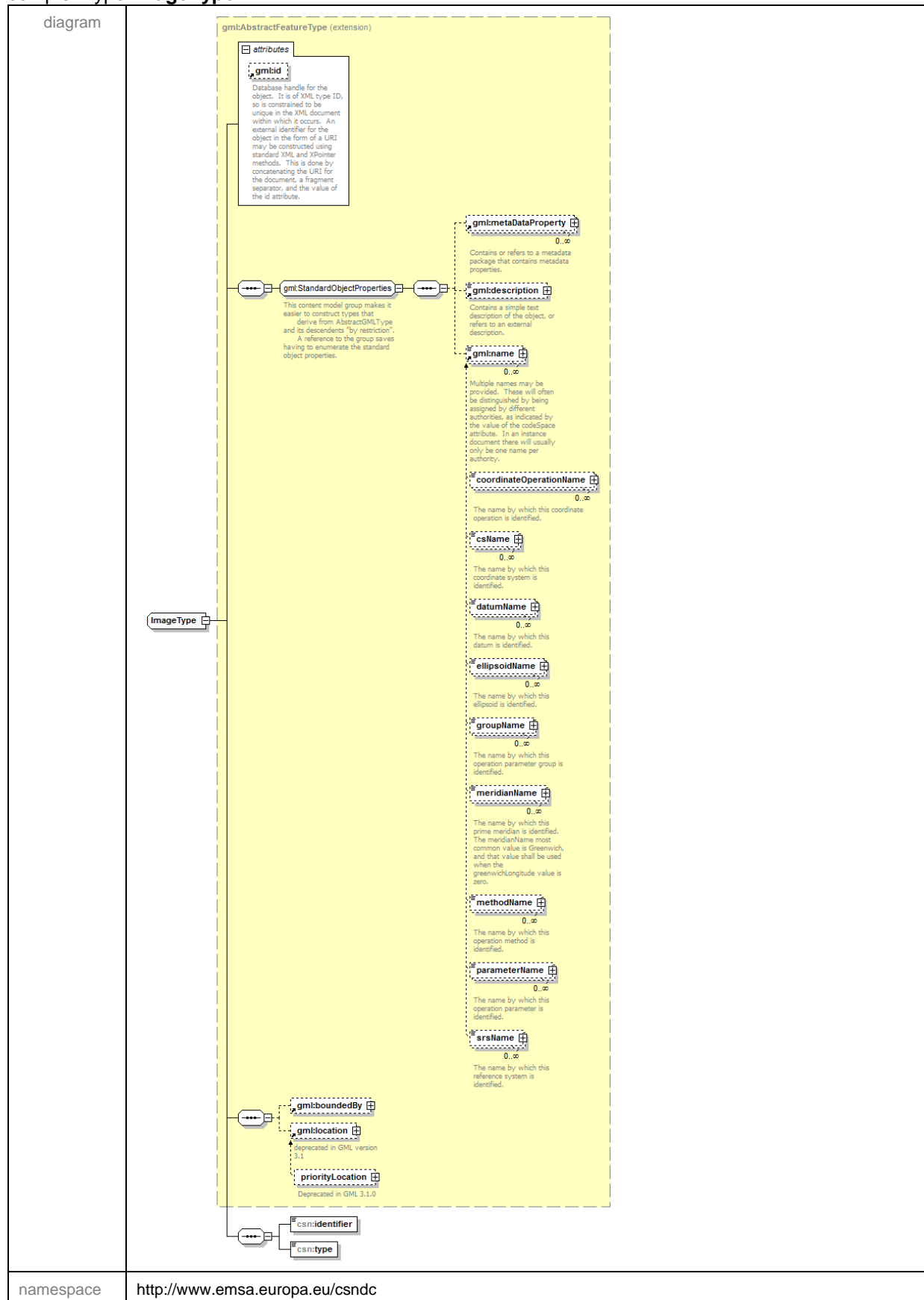
	<pre> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:documentation>Quality factor (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="gml:FeaturePropertyType" minOccurs="0" maxOccurs="unbounded"> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="RCS" type="xs:double" minOccurs="0"> <xs:documentation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double" minOccurs="0"> <xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselIdentifications" type="gml:FeaturePropertyType" </pre>
--	--

```

minOccurs="0"                                maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnail" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnailURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
<!-- This is a copy of csn:ShipType taken from csndc_ds.xsd -->
</xs:complexType>

```

complexType ImageType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:identifier csn:type					
used by	element CDSHiplmagelIdentifierActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="ImageType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="identifier" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="type" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

complexType OtherFeaturesAssociatedType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractFeatureType and its descendants "by restriction". A reference to the group serves having to enumerate the standard object properties. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. gml:description: Contains a single text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. coordinateOperationName: The name by which this coordinate operation is identified. centreName: The name by which this coordinate system is identified. datumName: The name by which this datum is identified. ellipsoidName: The name by which this ellipsoid is identified. groupname: The name by which this operation parameter group is identified. meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the GreenwichLongitude value is zero. methodname: The name by which this operation method is identified. parameterName: The name by which this operation parameter is identified. srsName: The name by which this reference system is identified. gml:boundedBy: deprecated in GML version 2.1 gml:location: deprecated in GML 2.1.0 gml:otherFeatureId: Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross-reference previously reported features. No cross consistency of feature IDs will be validated. gml:otherFeatureDescription: Description of the feature. gml:changeStatus: Reference to previously reported feature. gml:changeDescription: Description of the change on the associated feature. gml:compos: A position accuracy vector to express any uncertainty in the determination of the activity position (if demand). gml:positionAccuracyVectorX: A position accuracy vector to express any uncertainty in the determination of the activity position (if demand). gml:positionAccuracyVectorY: A position accuracy vector to express any uncertainty in the determination of the activity position (if demand). gml:featureSize: Size of the feature (in m or m2). gml:otherFeatureClipImage: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is. gml:otherFeatureClipImageURL: Name of the clip image file (img) with the other feature. The file shall be found in the same package (e.g. jar) where the XML describing the activity is. <p>OtherFeaturesAssociatedType</p> <p>Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p>
namespace	http://www.emsa.europa.eu/csndc

type	extension of gml:AbstractFeatureType					
properties	base mixed	gml:AbstractFeatureType false				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:featureSize csn:otherFeatureCiplmage csn:otherFeatureCiplmageURL					
used by	element	CDOtherFeaturesAssociated				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.					
source	<pre><xs:complexType name="OtherFeaturesAssociatedType" mixed="false"> <xs:annotation> <xs:documentation>Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross referece previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```

<xs:element name="changeStatus" type="csn:ChangeStatusType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="referenceToOtherFeatureId" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference to previously reported
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="changeDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the change on the asociated
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="pos" type="gml:PointPropertyType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="featureSize" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Size of the feature (in m or m2).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType VesselIdentificationType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties. gml:description Contains a simple text description of the object, or refers to an external description. gml:name Multiple names may be provided. These will often be distinguished by being assigned by different authorities as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. gml:coordinateOperationName The name by which this coordinate operation is identified. gml:csName The name by which this coordinate system is identified. gml:datumName The name by which this datum is identified. gml:ellipsoidName The name by which this ellipsoid is identified. gml:groupName The name by which this operation parameter group is identified. gml:meridianName The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. gml:methodName The name by which this operation method is identified. gml:parameterName The name by which this operation parameter is identified. gml:rsName The name by which this reference system is identified. gml:boundedBy <ul style="list-style-type: none"> gml:location deprecated in GML version 3.1 gml:priorityLocation deprecated in GML 3.1.0 cs:IMONumber cs:MMSI cs:shipName cs:callSign cs:vesselIdentificationConfidence Confidence of vessel identification cs:orderOfPriority Order of priority for identified vessel. 1 = highest priority <p>VesselIdentificationType</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority
used by	element CDVesselIdentificationActivity
attributes	<p>Name Type Use optional Default Fixed annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p>
source	<pre> <xs:complexType name="VesselIdentificationType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="IMONumber" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="MMSI" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="shipName" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="callSign" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

	<pre> <xs:documentation>Order of priority for identified vessel. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	--

XML Schema documentation generated by **XMLSpy** Schema Editor <http://www.altova.com/xmlspy>

ANNEX T – GEOSPATIAL SERVICES REQUESTS DETAILS AND EXAMPLES.

Additionally files are also packaged in GML files, with a simplified structure, that are typically distributed via FTP to the Service Providers, see section 27.5 for an example of such file.

5.1.1 EIF-06: MD5 and package list to IIF

The protocol to be used is SOAP over HTTP.

The SP shall support a SOAP message with request/response as per Annex G. This appendix also contains example calls and some non-nominal and error cases.

The SOAP service does not validate the filenames according to the package naming convention. Therefore a returned acknowledgement does not ensure correctness of the filenames.

Package List

The full list of delivered packages is contained in the last SOAP message which is sent by the SP within the element <PackageList>. This attribute is optional as it is filled only for the last package of the transmission. The CSN DC checks this list with what has been delivered to the CSN DC and returns a response to the Service Providers.

5.1.2 EIF-14: Service orders from POR

Service orders are distributed via e-mail as PDF attachments.
The PDF file template shall be as in Annex H.

5.2 SATELLITE OPERATORS

5.2.1 EIF-12a: Region of interest to POR

Region of interest are the coverage requirements areas, the tasking areas, and the alerting areas. They are imported into the system by EMSA CSNDC operators using the POR interface. They must be in ESRI shapefile format and contain the following information:

- Coverage requirements:
 - TITLE: reference of the coastal state for the coverage requirements
 - JANUARY: number of expected scene for the this month
 - FEBRUARY: number of expected scene for the this month
 - MARCH: number of expected scene for the this month
 - APRIL: number of expected scene for the this month
 - MAY: number of expected scene for the this month
 - JUNE: number of expected scene for the this month
 - JULY: number of expected scene for the this month
 - AUGUST: number of expected scene for the this month
 - SEPTEMBER: number of expected scene for the this month
 - OCTOBER: number of expected scene for the this month
 - NOVEMBER: number of expected scene for the this month
 - DECEMBER: number of expected scene for the this month

- COMMENTS: optional comment
- Tasking areas:
 - PLANNING_R: reference to the planning area
 - Area: area (in Km2)
 - SP1: Main service provider
 - SP2: Secondary service provider
 - SP3: Tertiary service provider
 - SP4: Quaternary service provider
- Alerting areas:
 - Country: name of the coastal state to which this refers
 - REMARKS: optional comments
 - ABBREV: abbreviation string of the country (e.g. PT for PORTUGAL)
 - SUBAREA: subarea name (normally it is baseline for all countries, indicated as e.g. PT_BASELINE, with some exception for countries where there is more than 1 area)

5.2.2 EIF-12b/c/d: Planning files to POR

The protocol to be used is HTTP (upload/download through the WUP POR application)
Planning files shall support CVS and XML formats as:

Query Files

- EOLI Query XML
- SWATH PLANNER region01 file
- APT region01 file

Planning files (with the list of planned scenes and relevant metadata)

- EOLI .usr or ShoppingCart
- SWATH PLANNER .frm or .tbl files
- APT ACP format (xml)
- CSNDC Planning Format (XML) (see below)

Acquisition Status files

- EOLI Order Status file (.ord file)

A **CSNDC planning file format** has been defined, which will be used for loading planning data into the CSNDC Planning Tool (POR). This planning file is defined trying to exploit as much as possible the eop.xsd file format and the sar extension of the eop.xsd file for SAR images.

The detailed format is reported in Annex Q, while the business rules for filling in the file and some examples are provided in [PL_SP]¹².

The POR planning file format will become the unique format for exchanging planning information between EMSA and its providers.

Files exported from the POR: these are the same as for the planning files. In particular the POR will export each individual service in the format in which it was originally imported.

¹² Please note that schema in Annex Q uses and refers to elements that are standard EO specializations of OM Observation and Measurement specification as per OGC standards. For the sake of clarity only used elements of the standards are specified in the [PL_SP] document. It has to be noted that all the OM documentation and specifications (in particular <http://schemas.opengis.net/om/2.0>) do apply anyway. This means that the mandatory OM elements, even if not used (like <om:result>), have to be included but with no value (i.e. <om:result/>).

5.2.3 EIF-13: Satellite data licenses from POR

Satellite data licenses are distributed via e-mail as PDF attachments.
The PDF file template shall be as in Annex I.

5.3 MYOCEAN

5.3.1 EIF-07: Meteo-oceanographic data to IIF

The protocol to be used is SFTP in push mode.

Data shall be made available daily (TBC) as NetCDF files (conventions v1.4) containing following gridded information:

- sea surface temperature
- surface current speed & direction
- chlorophyll a concentration
- ice edge
- surface winds

The gridded data shall have following time and spatial resolution: **TBD**

5.4 EO DATA PROVIDERS

5.4.1 EIF-08: EO data to IIF

The protocol to be used is SFTP in push mode.

The package file format shall be:

- .tgz

No subpackages or compressed files shall be present inside the main package (i.e. no nesting of .tgz or .zip/.tar contained inside the .tgz of the EO package).

Please Note that, for backward compatibility reasons the system currently also supports compressed files within the .tgz package for some kind of data but, since EICD 1.4.4, they are **deprecated** and shall not be used. It is **not** guaranteed that future versions of the software will support compressed file within the .tgz EO data package.

5.5 ENC

5.5.1 EIF-09: Nautical chart to WUP core

The protocol to be used is OGC WMS HTTP binding version 1.3.0.

The following ENC layers shall be presented as WMS layers:

TBD (EMSA)

The WMS shall support following service requests:

- *GetCapabilities*

- *GetMap*
- *GetFeatureInfo*

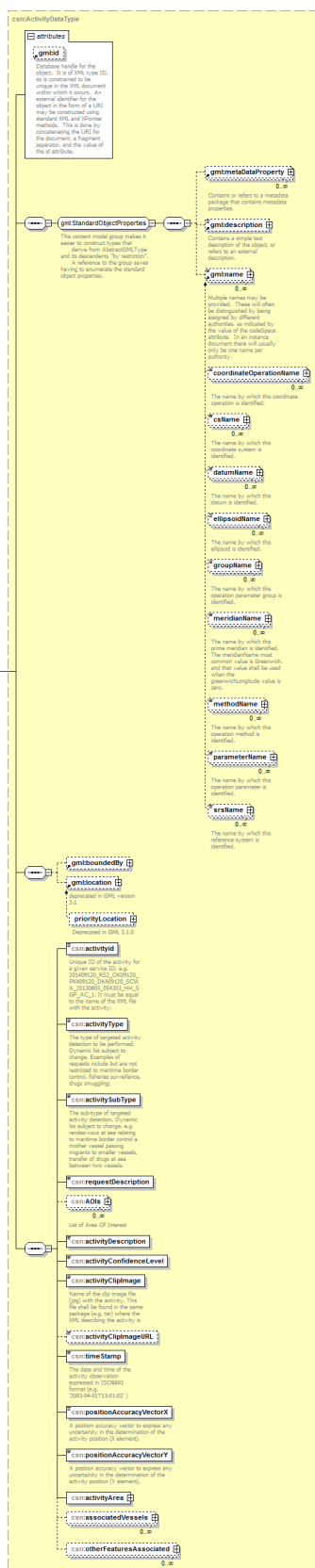
6 **GETMAP OPERATION SHALL SUPPORT, AT LEAST, JPG AND PNG OUTPUT FORMATS. SOME EXAMPLES OF REQUESTS ARE REPORTED IN ANNEX S2 – CHANGE DETECTION XML SCHEMA**

Schema csndc_cde.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements	Complex types
ChangeDetection	ActivityDataType
	AOIsType
	AssociatedVesselsType
	ImageType
	OtherFeaturesAssociatedType
	VesselIdentificationType

diagram



ChangeDetection

namespace

<http://www.emsa.europa.eu/csndc>

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplImage csn:activityCiplImageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	appinfo documentation Change detected on a EO scene					
source	<xs:element name="ChangeDetection" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Change detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplmage csn:activityCiplmageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
used by	element ChangeDetection					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="activityid" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

```

</xs:element>
<xs:element name="activitySubType" type="xs:string">
  <xs:annotation>
    <xs:documentation>The sub-type of targeted activity detection. Dynamic list
    subject to change. e.g. rendez-vous at sea relating to maritime border control a mother
    vessel passing migrants to smaller vessels, transfer of drugs at sea between two
    vessels.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="requestDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="AOIs" type="gml:FeaturePropertyType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>List of Area Of Interest</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityConfidenceLevel"
type="csn:ActivityConfidenceLevelType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall
    be found in the same package (e.g. tar) where the XML describing the activity
    is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the activity observation expressed in
    ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityArea" type="gml:GeometryPropertyType">

```

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="associatedVessels" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
<xs:element name="otherFeaturesAssociated" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType AOIsType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. (0..∞) gml:description: Contains a simple text description of the object, or refers to an external description. (0..∞) gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. (0..∞) coordinateOperationName: The name by which this coordinate operation is identified. (0..∞) csName: The name by which this coordinate system is identified. (0..∞) datumName: The name by which this datum is identified. (0..∞) ellipsoidName: The name by which this ellipsoid is identified. (0..∞) groupName: The name by which this operation parameter group is identified. (0..∞) meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. (0..∞) methodName: The name by which this operation method is identified. (0..∞) parameterName: The name by which this operation parameter is identified. (0..∞) srsName: The name by which this reference system is identified. (0..∞) gml:boundedBy: (0..∞) gml:location: (0..∞) priority:Location: (0..∞) cs:AOI: This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested. (0..∞) <p>AOIsType List of Area Of Interest</p> <p>gml:location: deprecated in GML version 3.1</p> <p>priority:Location: Deprecated in GML 3.1.1.0</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base mixedgml:AbstractFeatureType false					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:AOI					
used by	elementCDAOIs					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation List of Area Of Interest					
source	<pre><xs:complexType name="AOIsType" mixed="false"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="AOI" type="gml:GeometryPropertyType"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:associatedVesselID csn:includeInReport csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:dopplerOffsetX csn:dopplerOffsetY csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:RCS csn:maxPixelValue csn:vesselIdentifications csn:shipThumbnail csn:shipThumbnailURL					
used by	element CDAAssociatedVessels					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Associated vessels					
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="associatedVesselID" type="xs:string"> <xs:element name="includeInReport" type="xs:boolean" default="false" minOccurs="0"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element name="pos" type="gml:PointPropertyType"> <xs:annotation> <xs:documentation></xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVectorX" type="xs:double" minOccurs="0"> </pre>					

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetX" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>East-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetY" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>North-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation expressed in ISO8601
format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="heading" type="xs:integer" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Route direction (expressed as as [0,360] degree value
where 0=360=Geographical North)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedClassification" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Velocity (expressed in m/s)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedError" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Error in the estimation of vessel speed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthClass" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Vessel length class taken from a fixed list of values
(TBD)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="length" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Length (expressed in meters)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthError" type="xs:double" minOccurs="0">
  <xs:annotation>

```

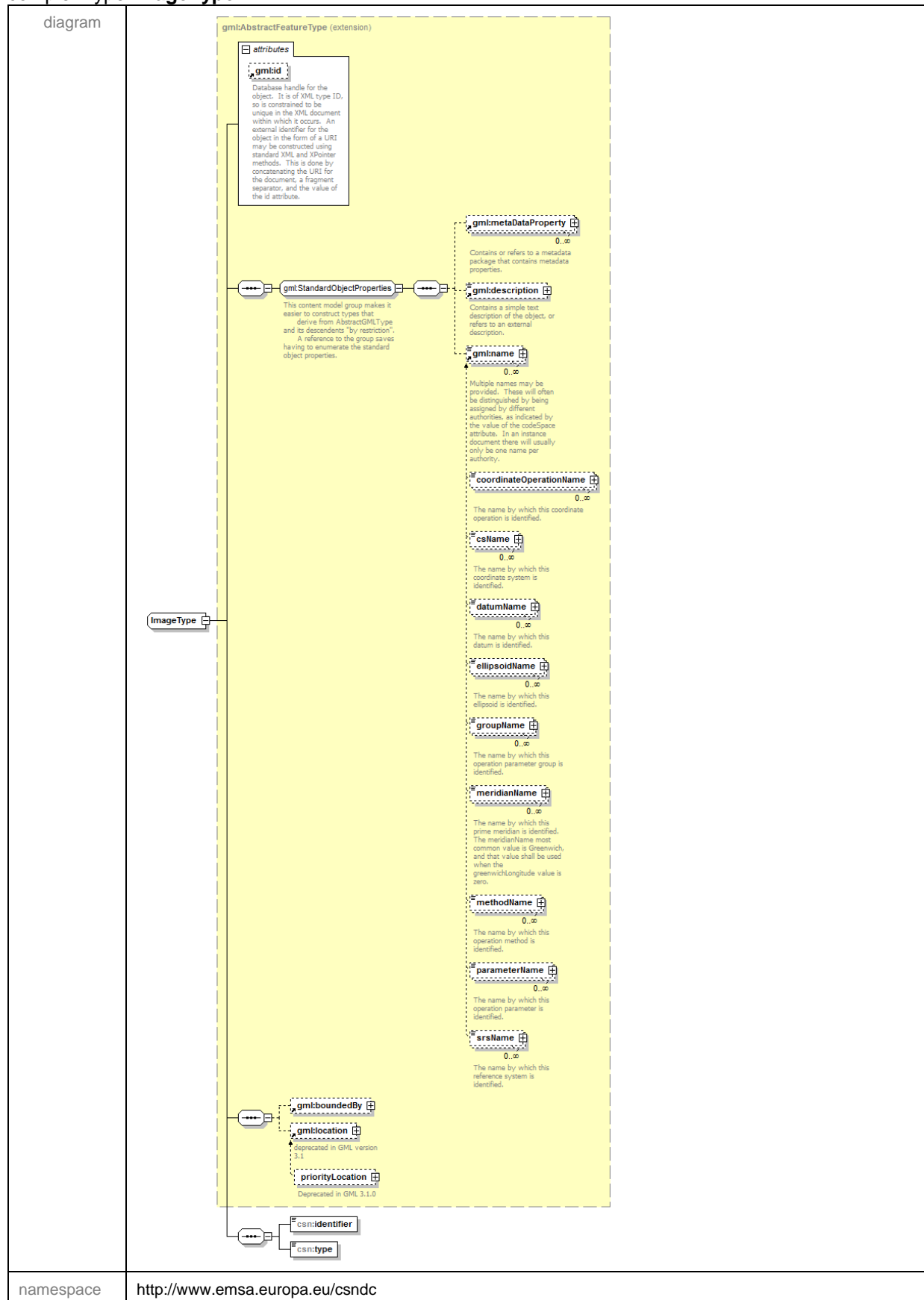
	<pre> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Quality factor (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="gml:FeaturePropertyType" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="RCS" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentifications" type="gml:FeaturePropertyType" </pre>
--	--

```

minOccurs="0"                                maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnail" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnailURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
<!-- This is a copy of csn:ShipType taken from csndc_ds.xsd -->
</xs:complexType>

```

complexType ImageType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:identifier csn:type					
used by	element CDSHiplmagelIdentifierActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="ImageType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="identifier" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="type" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

complexType OtherFeaturesAssociatedType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. <p>gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractFeatureType and its descendants "by restriction". A reference to the group allows having to enumerate the standard object properties.</p> <p>gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description: Contains a single text description of the object, or refers to an external description.</p> <p>gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>coordinateOperationName: The name by which this coordinate operation is identified.</p> <p>centreName: The name by which this coordinate system is identified.</p> <p>datumName: The name by which this datum is identified.</p> <p>ellipsoidName: The name by which this ellipsoid is identified.</p> <p>groupname: The name by which this operation parameter group is identified.</p> <p>meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the GreenwichLongitude value is zero.</p> <p>methodname: The name by which this operation method is identified.</p> <p>parameterName: The name by which this operation parameter is identified.</p> <p>srsName: The name by which this reference system is identified.</p> <p>gml:boundedBy: deprecated in GML version 2.1</p> <p>gml:location: deprecated in GML 2.1.0</p> <p>priorityLocation: deprecated in GML 2.1.0</p> <p>OtherFeaturesAssociatedType: Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p> <p>otherFeatureId: Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross-reference previously reported features. No cross consistency of feature IDs will be validated.</p> <p>otherFeatureDescription: Description of the feature.</p> <p>otherFeatureStatus: Description of the feature.</p> <p>otherFeatureReference: Reference to previously reported feature.</p> <p>otherFeatureChangeDescription: Description of the change on the associated feature.</p> <p>otherFeaturePositionAccuracyVectorX: A position accuracy vector to express any uncertainty in the determination of the activity position (X demand).</p> <p>otherFeaturePositionAccuracyVectorY: A position accuracy vector to express any uncertainty in the determination of the activity position (Y demand).</p> <p>otherFeatureSize: Size of the feature (in m or m2).</p> <p>otherFeatureClipImage: Name of the clip image file (jpg) with the other feature. The file shall be found in the same package (e.g. tar) where the XML describing the activity is.</p> <p>otherFeatureClipImageURL: Name of the clip image file (jpg) with the other feature. The file shall be found in the same package (e.g. tar) where the XML describing the activity is.</p>
namespace	http://www.emsa.europa.eu/csndc

type	extension of gml:AbstractFeatureType					
properties	base mixed	gml:AbstractFeatureType false				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:featureSize csn:otherFeatureCiplmage csn:otherFeatureCiplmageURL					
used by	element	CDOtherFeaturesAssociated				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.					
source	<pre><xs:complexType name="OtherFeaturesAssociatedType" mixed="false"> <xs:annotation> <xs:documentation>Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross referece previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```

<xs:element name="changeStatus" type="csn:ChangeStatusType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="referenceToOtherFeatureId" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference to previously reported
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="changeDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the change on the asociated
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="pos" type="gml:PointPropertyType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="featureSize" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Size of the feature (in m or m2).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType VesselIdentificationType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id (Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.) gml:StandardObjectProperties (This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.) gml:metaDataProperty (Contains or refers to a metadata package that contains metadata properties.) gml:description (Contains a simple text description of the object, or refers to an external description.) gml:name (Multiple names may be provided. These will often be distinguished by being assigned by different authorities as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.) gml:coordinateOperationName (The name by which this coordinate operation is identified.) gml:csName (The name by which this coordinate system is identified.) gml:datumName (The name by which this datum is identified.) gml:ellipsoidName (The name by which this ellipsoid is identified.) gml:groupName (The name by which this operation parameter group is identified.) gml:meridianName (The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero.) gml:methodName (The name by which this operation method is identified.) gml:parameterName (The name by which this operation parameter is identified.) gml:rsName (The name by which this reference system is identified.) gml:boundedBy (A group of properties including gml:location and gml:priorityLocation. Deprecated in GML version 3.1.0. Deprecated in GML 3.1.0.) gml:location (Deprecated in GML version 3.1.0. Deprecated in GML 3.1.0.) gml:priorityLocation (Deprecated in GML 3.1.0. Deprecated in GML 3.1.0.) gml:IMONumber gml:MMSI gml:shipName gml:callSign gml:vesselIdentificationConfidence (Confidence of vessel identification) gml:orderOfPriority (Order of priority for identified vessel. 1 = highest priority) <p>VesselIdentificationType</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority
used by	element CDVesselIdentificationActivity
attributes	<p>Name Type Use optional Default Fixed annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p>
source	<pre> <xs:complexType name="VesselIdentificationType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="IMONumber" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="MMSI" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="shipName" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="callSign" type="xs:string" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

	<pre> <xs:documentation>Order of priority for identified vessel. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	--

XML Schema documentation generated by **XMLSpy** Schema Editor <http://www.altova.com/xmlspy>

ANNEX T – GEOSPATIAL SERVICES REQUESTS DETAILS AND EXAMPLES.

6.1 MODEL SERVICE PROVIDERS

6.1.1 EIF-11a: Oil Spill evolution to PMA

The interface between CSNDC and the Model Service Providers (MSP) supports two alternative scenarios:

- FTP transferring of process request/model outputs
- Service call according to OGC Web Processing Service (WPS) specification

6.1.1.1 File Transfer Protocol scenario

The protocol to be used is SFTP.

Request (CSNDC to MSP)

PMA puts in an SFTP basket a package containing the observed Oil Spill for which it is requested to run the model and the process parameters

Supported package file formats are:

- .zip
- .tar
- .tgz

The package will be uploaded by the *opemsa* user of the CSN DC to the "MSP/out/_temporary_" directory of the MSP account on the EMSA/CSN sFTP server, and subsequently moved up to the "MSP/out" directory. It will be responsibility of the MSP to poll this "MSP/out" directory for retrieving the information. The MSP will have only read rights visibility of the "MSP/out" directory.

Response (MSP to CSNDC)

External processes read the input package, run the model and produce the requested hindcast/forecast. For one spill, CSNDC is expected to receive in general two sets of information: one for forecast and one for hindcast. They shall however be merged into the same package, whereby the difference between forecast and hindcast is simply inherent in the timestamp of the individual simulation steps (backward in time for hindcast and ahead in time for forecast).

Each response shall consist of a package with

- a summary of the processing also including the trajectory of the centre of mass (in a single XML file as per Annex O)
- many GML files (one per time step) of the predicted Oil Spill (each of them shall adhere to schema in Annex C).
- a NetCDF file with gridded concentration of particles (format of the file is specified in Annex P)

Supported package file formats are:

- .zip
- .tar
- .tgz

The package shall be pushed/uploaded by the MSP to EMSA/CSN sFTP server for ingestion to the CSNDC. Each MSP shall have a dedicated username/password protected account on the EMSA/CSN sFTP server.

The package will be uploaded to the "MSP/in/_temporary_" directory of the MSP account on the EMSA/CSN sFTP server, and subsequently moved up to the "MSP/in" directory.
The MSP shall first transfer the pushed/uploaded data to the temporary directory and then move it one directory up to the directory which will be regularly polled by the CSNDC for retrieving the data to be ingested in the CSNDC.

Following table reports the expected content of above mentioned packages.

Package type	Package Content	Naming convention	File format	Description	Multiplicity	Mandatory/Optional
Process request (input package)	Package info XML file	See 20.2.2	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "PROCESS_REQUEST"	1	M
	Oil Spill feature GML file	See 20.2.4	XML as per schema in Annex C	A file describing a detected OS.	1	M
	Process request XML file	See 20.2.1.2	XML as per schema in Annex J	A file describing the model name and input parameters to be used in the processing.	1	M
Process response (output package)	Package info XML file	See 20.2.1.	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "PROCESS_RESPONSE"	1	M
	Oil Spill feature GML file	See 20.2.1.4	XML as per schema in Annex C.	A file describing a predicted OS for each time step in the evolution. The exact list of elements to be used is detailed in [OS_MSP].	N	M (not to be provided only in the case that processing ended in error)
	Model output description XML file	See 20.2.1.2.	XML as per schema in Annex O	A single file describing the model output summary and, if processing ended successfully, the trajectory of the centre of mass of the oil spill.	1	M (to be provided also when processing ended)

						in error)
	NetCDF file containing the gridded concentration of particles	See 20.2.9	NetCDF file format as specified in Annex P	A single file containing gridded concentration of particles for each time step in the run. Within one run the grid shall not change.	1	M (not to be provided only in the case that processing ended in error)

Table 6-1 Input/Output package content for EIF-11

6.1.1.2 Web Processing Service scenario

The OGC Web Processing Service (WPS) interface standardizes the way processes and their inputs/outputs are described, how a client can request the execution of a process, and how the output from a process is handled.

WPS uses standard HTTP and XML as a mechanism for describing processes and the data to be exchanged.

The MSP shall expose a WPS service which the CSNDC will call for executing a model run on a given observed Oil Spill.

CSNDC uses the WPS specification to pass to the MSP:

- the oil spill polygon which needs to be modelled,
- the relevant parameters for the model run, e.g. time, hindcast and/or forecast, oil characteristics, scene ID, oil spill ID, name of run, etc.

The protocol to be used is OGC WPS 1.0.0

MSP are requested to support following service requests:

- GetCapabilities*
- DescribeProcess*
- Execute*

More specifically, the WPS asynchronous execution scenario shall be supported as described in Section 10.3.1 of [OGC-WPS].

In such a scenario, the MSP WPS shall keep the Status element of the stored Execute response document up to date while the request is being processed. The CSNDC can poll the updated Execute operation response via the URL identified for this purpose in the Execute response document.

As a consequence, the DescribeProcess service call response is expected to have the "statusSupported" parameter set to "true".

The exact specification of the WPS Execute request and response documents for supporting the oil spill model run via WPS in CSNDC is reported in annexed document [INT_WPS].

It is to be noted that the output of the processing consists in the same compressed package described in Table 6-1. The package shall be made available by the WPS in the same CSNDC sFTP basket referred

to in section 6.1.1.1 and a pointer to that location shall be made available in the WPS Execute Response document as detailed in [WPS_MPS].

Main advantage of the WPS scenario is that it allows for a better control on the processing as it includes the ability to ask for status update and completion percentages.

6.1.2 EIF-11b: Area of Model Coverage

Each model service provider (MSP) shall provide a (set of) Area(s) Model Coverage (AMC) for each model made available to CSNDC processing. All identified oil spills intersecting this area(s) will be notified to the MSP.

The AMC shall be provided in the format of a set of shape files to be uploaded thorough a dedicated Web Interface by the MSP operator.

The shape file set shall be made of the following files:

File	Extension	Content	Note
Main shape file	.shp	Feature geometry. I.e. the geometry of the AMC(s)	More than one geometry can be put into the file. Each geometry shall be a closed and not self-intersecting Polygon. The coordinate shall be expressed according to WGS84. Maximum number of points for each polygon is 100. Maximum number of polygons is 10.
Shape index file	.shx	Shape index format	
Attribute file	.dbf	Attributes for the given geometries.	The following attributes are mandatory and shall be provided for each geometry: <ul style="list-style-type: none"> - 'name' (string): name of the area (unique identifier of the area according to naming convention expressed below) - 'model' (string) : name of the model to which the AMC refers. It is a responsibility of the MSP to provide here a name that uniquely identifies the model to be run. This same name will be used by CSNDC to specify the model to run (see 2.8.1).

The geometries shall be expressed as polygons with lat lon values in WGS84 so a projection (.prj) file is optional. If present, the .prj file shall refer to WGS84.

AMC name convention:

The name of the AMC shall be compliant to following naming convention:
<MSP_ACRONYM>_<model>_<N>

Where <MSP_ACRONYM> is an acronym conventionally assigned to each MSP;
<model> is the unique name of the model to which the AMC refers to;
<N> is a progressive integer number (base 1).

Model name convention:

A model is uniquely identified by its name (among the models of the same MSP). It is than responsibility of the MSP to give a unique name to each model provided. This same name will be used by CSNDC to specify the model to run. Name can be any string containing characters in the set [0-9][a-z][A-Z]. No space nor underscore characters are allowed.

6.2 USERS

6.2.1 EIF-15: Warning and alerts from PDE

Warning and alerts generated from PDE shall be delivered as:

- PDF attachments in e-mail messages (please find an example in Annex - R)SMS text messages (not used)
- MMS messages with text and image content (not used)
- Voice messages by phone

Templates of possible messages for each of the above cases are reported in Annex K.

6.2.2 EIF-16: Systematic products from PDE

The protocol to be used is the SFTP in push mode.

The PDE has to provide one or more packages at the time. Supported package file formats is .tgz.

Please Note that, for backward compatibility reasons the system currently also support .tar and .zip files but, since EICD 1.4.4, they are **deprecated** and shall not be used. It is **not** guaranteed that future versions of the software will support compressed file formats other than .tgz.

Each package represent a systematic product delivery for a specific EO data.

Following table reports the content of a package.

Product delivered	Package Content	File format	Description	Multiplicity	Mandatory/Optional
EO product	Package info XML file	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "EO_PRODUCT"	1	M
	EO Native Image file	L1b native formats	Level 1b EO product. In case of RADARSAT 1 and RADARSAT 2 this file is the compressed file containing a directory with a name corresponding to the one of the compressed file itself. This directory contains all files of the product including a metadata xml file	1	M

			named "product.xml" (please note that this is compliant with RADARSAT product specifications).		
	EO Product metadata GML file	XML as per EOP schema	The EOP application profile compliant metadata description of the EO product	1	M
	EO browse image file	JPG	Browse image file	1	O
	Image quality notification	XML as per schema in Annex E	Suitability of product (YES or NOT) and position accuracy/displacement vector, 1 per SAR image.	1	M
	Not Analysable area mask	Geotiff file	Image file representing Not Analyzable pixels of the image (any other pixel shall be set to transparent color code or valorised to pure black).	1	O
Detected Oil Spill	Package info XML file	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "OS_NOTIFICATION"	1	M
	Oil Spill feature GML file	XML as per schema in Annex C	A file describing a detected OS.	N	M
	Clip image file	JPG or Tiff	A clip image file to be associated to a given OS.	N	O
Oil Spill evolution	Package info XML file	XML as per schema in Annex B	A file describing the content of the package and stating the type of package as "OS_NOTIFICATION"	1	M
	Oil Spill feature GML file	XML as per schema in Annex C	A file describing a predicted OS for each time step in the evolution.	N	M

Table 6-2 Systematic product delivery package content for EIF16

6.3 EXTERNAL CATALOGUES

6.3.1 EIF-17: EO data search from DAM

The protocols to be used for searches on external catalogues are:

- OGC CSW version 2.0.2 implementing eBRIM extension package for EO Product
- OGC WCS version 1.1.0

Supported service requests for CSW protocol shall be:

- *GetCapabilities*
- *GetRecords*
- *DescribeRecord*
- *GetRepositoryItem*

More specifically, the *GetRecords* operation has to be used to browse and identify an EO product of interest. It shall return the eBRIM representation of the catalogue item while the *GetRepositoryItem* operation has to return the GML file EOP compliant (eop namespace) of the full EO product metadata.

Supported service requests for WCS protocol shall be:

- *GetCapabilities*
- *GetCoverage*
- *DescribeCoverage*

The identifier of a given EO product as it is reported in CSW *GetRecords* response shall be used to retrieve the product through WCS *GetCoverage* request.

6.4 EVENT NOTIFICATION SERVICE

CSNDC provides an event notification service function. This service generates an event notification message when data of the following type are ingested into CSNDC:

- EO scene
- Oil spills
- Detected vessels

The message is sent to a Sensor Event Service (SES), not managed by the CSNDC, but reachable by the CSNDC. The task of the SES should be to proxy the messages received from CSNDC to the subscribers of the SES. CSNDC will simply send the event notification messages, to the SES URL configured in the CSNDC configuration files.

The messages are sent via a SOAP protocol and the specification follows the SES standard, which in turn is based on the specification O&M 1.0.1.

7 XSD SCHEMAS COMMON NOTES

This section contains indications that are common to any of the xsd schemas contained in the annexes of this document.

7.1 XML DOCUMENT ENCODING

Any schema presented here is assumed to be encoded as UTF-8. Any XML document to be used in the CSN DC interfaces is assumed to be encoded as UTF-8.

Any XML document used in this EICD shall be syntactically correct and shall follow the XML domain best-practices and common rules. In particular:

- XML documents shall validate against the appropriate XML schema definition (CSN-DC specific schemas are published by EMSA on http://csndc.emsa.europa.eu/schemas/csndc/1_4_4/).
- XML namespaces have to be declared using the reserved XML pseudo-attribute `xmlns`, the value of which must be a valid namespace name with a prefix.
Please note: the namespace prefix shall always be explicitly used (default namespace or namespace undeclaration shall not be used).

7.2 VERSION OF GML

The xsd schemas presented in this document (see annexes A, B, C, D, E, F, J) are directly or indirectly leveraging GML language version 3.1.1.

7.3 COORDINATE REFERENCE SYSTEM IN GML ELEMENTS

GML elements that are indirectly or directly using `gml:_Geometry` object allow for the specification of a coordinate reference system through the attribute 'srsName'. As stated in GML specs "In general this reference points to a CRS instance of `gml:CoordinateReferenceSystemType` [...]. For well known references it is not required that the CRS description exists at the location the URI points to. If no `srsName` attribute is given, the CRS must be specified as part of the larger context this geometry element is part of, e.g. a geometric element like point, curve, etc. It is expected that this attribute will be specified at the direct position level only in rare cases."

In the scope of CSN DC, it is recommended to use 'EPSG:4326'. In this coordinate system the order of coordinates is latitude – longitude. Coordinates triples, e.g. including altitude, although compliant with the GML specification are not supported.

Moreover scientific notations for the coordinates (e.g. 5.4597258e-05) should not be used.

7.4 DATE AND TIME

If not differently and explicitly written, all date and time elements have to be expressed as UTC in a ISO 8601 compliant format such as: **2010-06-03T20:35:25Z** or **2010-06-03T20:35:25.000Z** etc

As usual with date and time representations, omitting the 'T' separator is also allowed (e.g. **2010-06-03 20:35:25Z**).

Unfortunately the ISO 8601 profile has some ambiguities that CSN-DC needs to fix:

- The profile does not specify how many digits may be used to represent the decimal fraction of a second. **For the purpose of CSN-DC the maximum number of digits for the decimal part of a second is set to 3.**
- The profile does not prevent to indicate the UTC zone with '+00:00' instead of 'Z' (e.g. 2003-04-01T13:01:02+00:00).

7.5 POLYGONS DESCRIBING AREAS

The polygon describing a boundary area (i.e. for an oil spill, a footprint, etc) shall be expressed as gml:Polygon.

Any valid gml geoemtry element could be used but preferred structure is:
gml:Polygon/gml:exterior/gml:LinearRing/gml:posList

All polygons shall be closed (meaning the first point has to be repeated at the end of the list) and drawing segments following the order of the points in the list shall not result in intersecting segments. The maximum number of vertexes for each polygon shall be < 450 points.

8 ANNEX A –VESSEL TRAFFIC INFORMATION FEATURE GML SCHEMA

Schema STIRES_WFS.xsd

attribute form default:

element form default:

targetNamespace:

qualified

http://www.emsa.europa.eu/ais

Elements

[beam](#)

[bearing](#)

[courseOverGround](#)

[dataSource](#)

[draught](#)

[expectedTimeOfArrival](#)

[feature](#)

[heading](#)

[length](#)

[MMSI](#)

[navigationalStatus](#)

[objectStatus](#)

[rateOfTurn](#)

[speedOverGround](#)

[time](#)

[track](#)

[trackProperty](#)

Complex types

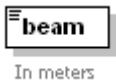
[FeatureType](#)

[ObjectStatusType](#)

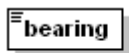
[TrackPropertyType](#)

[TrackType](#)

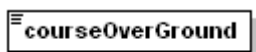
element **beam**

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In meters
source	<pre><xsd:element name="beam" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In meters</xsd:documentation> </xsd:annotation> </xsd:element></pre>

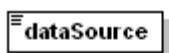
element bearing

diagram	 In decimal deegrees of angle
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In decimal deegrees of angle
source	<pre><xsd:element name="bearing" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In decimal deegrees of angle</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element courseOverGround


diagram	 In decimal deegrees of angle
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In decimal deegrees of angle
source	<pre><xsd:element name="courseOverGround" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In decimal deegrees of angle</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element dataSource


diagram	 Organizational source of data for the object of which this element is a member, used at several levels and may represent a data service provider, a data management sys., an AIS transmission sys., etc.
namespace	http://www.emsa.europa.eu/ais
type	xsd:string
properties	content simple
annotation	documentation Organizational source of data for the object of which this element is a member, used at several levels and may represent a data service provider, a data management sys., an AIS transmission sys., etc.
source	<pre><xsd:element name="dataSource" type="xsd:string"> <xsd:annotation> <xsd:documentation>Organizational source of data for the object of which this</pre>

	<p>element is a member, used at several levels and may represent a data service provider, a data management sys., an AIS transmission sys., etc.</p> <p></xsd:documentation></p> <p></xsd:annotation></p> <p></xsd:element></p>
--	---

element draught

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In meters
source	<pre><xsd:element name="draught" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In meters</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element expectedTimeOfArrival

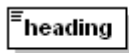
diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:dateTime
properties	content simple
annotation	documentation Allways in UTC timeframe (YYYY-MM-DDThh:mm:ss)
source	<pre><xsd:element name="expectedTimeOfArrival" type="xsd:dateTime"> <xsd:annotation> <xsd:documentation>Allways in UTC timeframe (YYYY-MM- DDThh:mm:ss)</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element feature


diagram	<p>ais:FeatureType</p> <p>attributes</p> <ul style="list-style-type: none"> gmtid: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gmtStandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractGMTType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gmtMetadataProperty: Contains or refers to a metadata package that contains metadata properties. gmtDescription: Contains a simple text description of the object, or refers to an external description. gmtName: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. gmtBoundedBy: deprecated in GML version 3.1 gmtLocation: deprecated in GML version 3.1 priorityLocation: deprecated in GML 3.1.0 ais:MMSI: mandatory ais:callsign: mandatory ais:name: mandatory ais:IMONumber: optional ais:length: optional ais:beam: optional ais:vesselType: optional ais:antennaLocation: optional ais:draught: optional ais:hazardousCargo: optional ais:destination: optional ais:expectedTimeOfArrival: optional ais:extraInfo: optional ais:trackProperty: optional ais:time: Time (optional) represents here the time of creation of this feature as a "snapshot" of history, which implies the latest possible time of an AISObjectStatus within the feature. Should be identical to - and omitted here - given the enclosing feature collection's time ais:dataSource: dataSource (optional) represents here the generating organizational source for this feature, e.g. coastal traffic authorities collecting AIS messages from a fleet. Should be identical to - and omitted here - given the enclosing feature collection's dataSource <p>feature</p>
namespace	http://www.emsa.europa.eu/ais
type	ais:FeatureType

properties	content substGrp	complex gml:_Feature
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location ais:MMSI ais:callsign ais:name ais:IMONumber ais:length ais:beam ais:vesselType ais:antennaLocation ais:draught ais:hazardousCargo ais:destination ais:expectedTimeOfArrival ais:extralInfo ais:trackProperty ais:time ais:dataSource	
attributes	Name id	Type Use optional Default Fixed annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<xsd:element name="feature" type="ais:FeatureType" substitutionGroup="gml:_Feature"/>	


element heading

diagram	 In decimal deegrees of angle
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In decimal deegrees of angle
source	<xsd:element name="heading" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In decimal deegrees of angle</xsd:documentation> </xsd:annotation> </xsd:element>


element length

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In meters
source	<pre><xsd:element name="length" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In meters</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element MMSI

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:string
properties	content simple
annotation	documentation Vessel Identification according to the IMO AIS standards
source	<pre><xsd:element name="MMSI" type="xsd:string"> <xsd:annotation> <xsd:documentation>Vessel Identification according to the IMO AIS standards</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element navigationalStatus

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:string
properties	content simple
annotation	documentation Free text
source	<pre><xsd:element name="navigationalStatus" type="xsd:string"> <xsd:annotation> <xsd:documentation>Free text</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element **objectStatus**

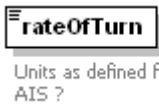
<p>diagram</p>	<div> <p>ais:objectStatusType</p> <p>attributes</p> <ul style="list-style-type: none"> xlink:type xlink:href xlink:role xlink:arcrole xlink:title xlink:show <p>The 'show' attribute is used to communicate the desired presentation of the ending resource on traversal from the starting resource; it's value should be treated as follows:</p> <ul style="list-style-type: none"> new - load ending resource in a new window, frame, pane, or other presentation context replace - load the resource in the same window, frame, pane, or other presentation context embed - load ending resource in place of the presentation of the starting resource other - behavior is unconstrained; examine other markup in the link for hints none - behavior is unconstrained xlink:actuate <p>The 'actuate' attribute is used to communicate the desired timing of traversal from the starting resource to the ending resource; it's value should be treated as follows:</p> <ul style="list-style-type: none"> onLoad - traverse to the ending resource immediately on loading the starting resource onRequest - traverse from the starting resource to the ending resource only on a post-loading event triggered for this purpose other - behavior is unconstrained; examine other markup in link for hints none - behavior is unconstrained gml:envelopeSchema <p>Reference to an XML Schema fragment that specifies the content model of the property's value. This is in conformance with the XML Schema Section 4.14 Referencing Schemas from Elsewhere.</p> <p>objectStatus</p> <p>Inherits the pointMemberType of gml. This 'time slice' type encapsulates the various dynamic properties of AIS objects at a given point in time and space</p> <ul style="list-style-type: none"> gml:Point ais:time <p>Time represents here the AIS message time stamp (mandatory)</p> ais:sogOverGround <p>SOG as defined for AIS messages (optional)</p> ais:cogOverGround <p>COG as defined for AIS messages (optional)</p> ais:heading <p>Heading as defined for AIS messages (optional)</p> ais:bearing <p>Bearing, not currently defined for AIS messages (optional)</p> ais:rateOfTurn <p>Rate Of Turn as defined for AIS messages (optional)</p> ais:navigationalStatus <p>Status free text as defined for AIS messages (optional)</p> ais:safetyMessage <p>optional</p> ais:dataSource <p>dataSource (optional) represents here the infrastructure supplying the AIS message</p> </div>
<p>namespace</p>	<p>http://www.emsa.europa.eu/ais</p>

type	ais:ObjectStatusType					
properties	content substGrp	complex gml:pointProperty				
children	gml:Point ais:time ais:speedOverGround ais:courseOverGround ais:heading ais:bearing ais:rateOfTurn ais:navigationalStatus ais:safetyMessage ais:dataSource					
attributes	Name	Type	Use	Default	Fixed	annotation
	xlink:type	xsd:string			simple	
	href		optional			
	role		optional			
	arcrole		optional			
	title		optional			
	show		optional			documentation
<p>The 'show' attribute is used to communicate the desired presentation of the ending resource on traversal from the starting resource; it's value should be treated as follows:</p> <ul style="list-style-type: none">new - load ending resource in a new window, frame, pane, or other presentation contextreplace - load the resource in the same window, frame, pane, or other presentation contextembed - load ending resource in place of the presentation of the starting resourceother - behavior is unconstrained; examine other markup in the link for hintsnone - behavior is unconstrained						


	actuate	optional	documentation
			<p>The 'actuate' attribute is used to communicate the desired timing of traversal from the starting resource to the ending resource; it's value should be treated as follows:</p> <p>onLoad - traverse to the ending resource immediately on loading the starting resource</p> <p>onRequest - traverse from the starting resource to the ending resource only on a post-loading event triggered for this purpose</p> <p>other - behavior is unconstrained; examine other markup in link for hints</p> <p>none - behavior is unconstrained</p>
	remoteSchema	optional	documentation
			<p>Reference to an XML Schema fragment that specifies the content model of the property's value. This is in conformance with the XML Schema Section 4.14 Referencing Schemas from Elsewhere.</p>
annotation	documentation		
	Inherits the pointMemberType of gml. This 'time slice' type encapsulates the various dynamic properties of AIS objects at a given point in time and space		

source	<pre><xsd:element name="objectStatus" type="ais:ObjectStatusType" substitutionGroup="gml:pointProperty"> <xsd:annotation> <xsd:documentation>Inherits the pointMemberType of gml. This 'time slice' type encapsulates the various dynamic properties of AIS objects at a given point in time and space</xsd:documentation> </xsd:annotation> </xsd:element></pre>
--------	---


element **rateOfTurn**

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation Units as defined for IMO AIS ?
source	<pre><xsd:element name="rateOfTurn" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>Units as defined for IMO AIS ?</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element **speedOverGround**

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In knots
source	<pre><xsd:element name="speedOverGround" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In knots</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element **time**

diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:dateTime

properties	content simple
annotation	documentation Allways in UTC timeframe (YYYY-MM-DDThh:mm:ss)
source	<pre><xsd:element name="time" type="xsd:dateTime"> <xsd:annotation> <xsd:documentation>Allways in UTC timeframe (YYYY-MM- DDThh:mm:ss)</xsd:documentation> </xsd:annotation> </xsd:element></pre>

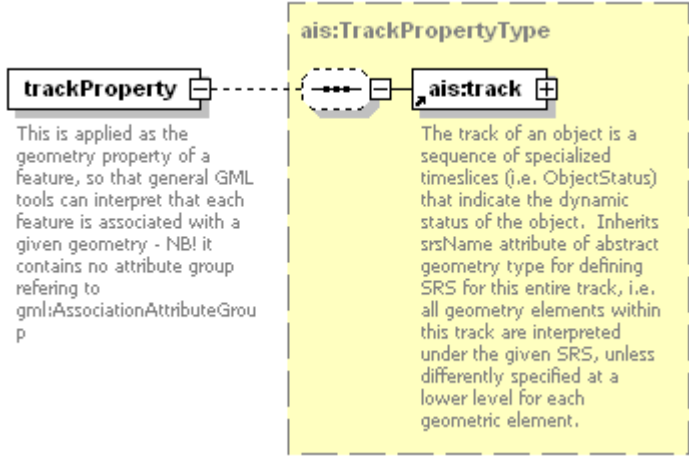
element track

<p>diagram</p>	<div> <p>ais:TrackType</p> <p>attributes</p> <p>gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gml This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superseded by "gml:id" inherited from AbstractGMLType. The attribute "gml" should not be used anymore and may be deleted in future versions of GML without further notice.</p> <p>srs:lane In general this reference points to a CRS instance of gml:CoordinateReferenceSystemType. (see coordinateReferenceSystems.xsd). For well known references it is not required that the CRS description exists at the location the URI points to. If no srs:lane attribute is given, the CRS must be specified as part of the larger context this geometry element is part of, e.g. a geometric element like point, curve, etc. It is expected that this attribute will be specified at the direct position level only in rare cases.</p> <p>srs:dimension The "srs:dimension" is the length of coordinate sequence (the number of entries in the list). This dimension is specified by the coordinate reference system. When the srs:lane attribute is omitted, this attribute shall be omitted.</p> <p>axis:labels Ordered list of labels for all the axes of this CRS. The gml:axisLabel value should be used for these axis labels, after spaces and forbidden characters are removed. When the srs:lane attribute is included, this attribute is optional. When the srs:lane attribute is omitted, this attribute shall also be omitted.</p> <p>uom:labels Ordered list of use of measure (uom) labels for all the axes of this CRS. The value of the string in the gml:uomLabel should be used for this uom labels, after spaces and forbidden characters are removed. When the axis:labels attribute is included, this attribute shall also be included. When the axis:labels attribute is omitted, this attribute shall also be omitted.</p> <p>gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description Contains a simple text description of the object, or refers to an external description.</p> <p>gml:name Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>ais:objectStatus Inherits the pos:MemberType of gml. This "time slice" type encapsulates the various dynamic properties of AIS objects at a given point in time and space.</p> </div>
<p>namespace</p>	<p>http://www.emsa.europa.eu/ais</p>

type	ais:TrackType					
properties	content substGrp	complex gml:_GeometricAggregate				
children	gml:metaDataProperty gml:description gml:name ais:objectStatus					
attributes	Name	Type	Use	Default	Fixed	annotation
	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
	gid	xsd:string	optional			documentation This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superseded by "gml:id" inherited from AbstractGMLType. The attribute "gid" should not be used anymore and may be deleted in future versions of GML without further notice.
	srsName	xsd:anyURI	optional			documentation In general this reference points to a CRS instance of gml:CoordinateReferenceSystemType (see coordinateReferenceSystems.xsd). For well known references it is not required that the CRS description exists at the location the URI points to. If no srsName attribute is given, the CRS must be specified as part of the larger context this geometry element is part of, e.g. a geometric element like point, curve, etc. It is expected that this attribute will be specified at the direct position level only in rare cases.
	srsDimension	xsd:positiveInteger	optional			documentation The "srsDimension" is the length of coordinate sequence (the number of entries in the list). This dimension is specified by the coordinate reference system. When the srsName attribute is omitted, this attribute shall be omitted.

	<p>axisLabels gml:NCNameList optional</p> <p>documentation Ordered list of labels for all the axes of this CRS. The gml:axisAbbrev value should be used for these axis labels, after spaces and forbidden characters are removed. When the srsName attribute is included, this attribute is optional.</p> <p>When the srsName attribute is omitted, this attribute shall also be omitted.</p> <p>uomLabels gml:NCNameList optional</p> <p>documentation Ordered list of unit of measure (uom) labels for all the axes of this CRS. The value of the string in the gml:catalogSymbol should be used for this uom labels, after spaces and forbidden characters are removed. When the axisLabels attribute is included, this attribute shall also be included. When the axisLabels attribute is omitted, this attribute shall also be omitted.</p>
annotation	<p>documentation The track of an object is a sequence of specialized timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. Inherits srsName attribute of abstract geometry type for defining SRS for this entire track, i.e. all geometry elements within this track are interpreted under the given SRS, unless differently specified at a lower level for each geometric element.</p>
source	<pre><xsd:element name="track" type="ais:TrackType" substitutionGroup="gml:_GeometricAggregate"> <xsd:annotation> <xsd:documentation>The track of an object is a sequence of specialized timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. Inherits srsName attribute of abstract geometry type for defining SRS for this entire track, i.e. all geometry elements within this track are interpreted under the given SRS, unless differently specified at a lower level for each geometric element.</xsd:documentation> </xsd:annotation> </xsd:element></pre>

element trackProperty

diagram	 <p>trackProperty</p> <p>This is applied as the geometry property of a feature, so that general GML tools can interpret that each feature is associated with a given geometry - NB! it contains no attribute group referring to gml:AssociationAttributeGroup</p> <p>ais:TrackPropertyType</p> <p>The track of an object is a sequence of specialized timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. Inherits srsName attribute of abstract geometry type for defining SRS for this entire track, i.e. all geometry elements within this track are interpreted under the given SRS, unless differently specified at a lower level for each geometric element.</p> <p>ais:track</p>
namespace	http://www.emsa.europa.eu/ais
type	ais:TrackPropertyType
properties	content complex
children	ais:track
annotation	<p>documentation</p> <p>This is applied as the geometry property of a feature, so that general GML tools can interpret that each feature is associated with a given geometry - NB! it contains no attribute group referring to gml:AssociationAttributeGroup</p>
source	<pre><xsd:element name="trackProperty" type="ais:TrackPropertyType"> <xsd:annotation> <xsd:documentation>This is applied as the geometry property of a feature, so that general GML tools can interpret that each feature is associated with a given geometry - NB! it contains no attribute group referring to gml:AssociationAttributeGroup</xsd:documentation> </xsd:annotation> </xsd:element></pre>

complexType FeatureType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. gml:description: Contains a simple text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. gml:boundedBy: A geometry that bounds the feature. gml:location: deprecated in GML version 3.1 gml:priorityLocation: deprecated in GML 3.1.0 <p>Content Model:</p> <ul style="list-style-type: none"> ais:MMSI: mandatory ais:callSign: mandatory ais:name: mandatory ais:IMONumber: optional ais:length: optional ais:beam: optional ais:vesselType: optional ais:antennaLocation: optional ais:draught: optional ais:dangerousCargo: optional ais:destination: optional ais:expectedTimeOfArrival: optional ais:extraInfo: optional ais:trackProperty: optional ais:time: optional. Time (optional) represents here the time of creation of this feature as a "snapshot" of history, which implies the latest possible time of an AISObjectStatus within the feature. Should be identical to - and omitted here - given the enclosing feature collection's time ais:dataSource: optional. dataSource (optional) represents here the generating organizational source for this feature, e.g. coastal traffic authorities collecting AIS messages from a fleet. Should be identical to - and omitted here - given the enclosing feature collection's dataSource
namespace	http://www.emsa.europa.eu/ais
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location ais:MMSI ais:callsign ais:name ais:IMONumber ais:length ais:beam ais:vesselType ais:antennaLocation ais:draught ais:hazardousCargo ais:destination ais:expectedTimeOfArrival ais:extralInfo ais:trackProperty ais:time ais:dataSource					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xsd:complexType name="FeatureType"> <xsd:complexContent> <xsd:extension base="gml:AbstractFeatureType"> <xsd:sequence> <!-- mandatory static AIS properties --> <xsd:element ref="ais:MMSI"> <xsd:annotation> <xsd:documentation>mandatory</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="callsign" type="xsd:string"> <xsd:annotation> <xsd:documentation>mandatory</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="name" type="xsd:string"> <xsd:annotation> <xsd:documentation>mandatory</xsd:documentation> </xsd:annotation> </xsd:element> <!-- optional static AIS properties --> <xsd:element name="IMONumber" type="xsd:string" minOccurs="0"> <xsd:annotation> <xsd:documentation>optional</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element ref="ais:length" minOccurs="0"> <xsd:annotation> </pre>					

```

<xsd:documentation>optional</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element ref="ais:beam" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="vesselType" type="xsd:string" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="antennaLocation" type="xsd:string" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- optional voyage related AIS properties-->
<xsd:element ref="ais:draught" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="hazardousCargo" type="xsd:string" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="destination" type="xsd:string" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element ref="ais:expectedTimeOfArrival" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="extraInfo" type="xsd:string" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- optional dynamic AIS properties - i.e. the track info -->
<xsd:element ref="ais:trackProperty" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>optional</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- optional origin of feature properties -->
<xsd:element ref="ais:time" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>Time (optional) represents here the time of creation of this
    feature as a "snapshot" of history, which implies the latest possible time of an
    AISObjectStatus within the feature. Should be identical to - and omitted here -
    given the enclosing feature collection's time</xsd:documentation>
  </xsd:annotation>

```

	<pre> </xsd:element> <xsd:element ref="ais:dataSource" minOccurs="0"> <xsd:annotation> <xsd:documentation>dataSource (optional) represents here the generating organizational source for this feature, e.g. coastal traffic authorities collecting AIS messages from a fleet. Should be identical to - and omitted here - given the enclosing feature collection's dataSource</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>
--	---

complexType ObjectStatusType

<p>diagram</p>	<p>ObjectStatusType</p> <p>gmlPointPropertyType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> xlink:type xlink:href xlink:role xlink:actuate xlink:title xlink:show <p>The 'show' attribute is used to communicate the desired presentation of the ending resource on traversal from the starting resource; it's value should be treated as follows:</p> <ul style="list-style-type: none"> new - load ending resource in a new window, frame, pane, or other presentation context replace - load the resource in the same window, frame, pane, or other presentation context embed - load ending resource in place of the presentation of the starting resource other - behavior is unconstrained; examine other markup in the link for hints none - behavior is unconstrained <p>The 'actuate' attribute is used to communicate the desired timing of traversal from the starting resource to the ending resource; it's value should be treated as follows:</p> <ul style="list-style-type: none"> onload - traverse to the ending resource immediately on loading the starting resource onRequest - traverse from the starting resource to the ending resource only on a post-loading event triggered for this purpose other - behavior is unconstrained; examine other markup in link for hints none - behavior is unconstrained <p>gml:remoteSchema</p> <p>Reference to an XML Schema Fragment that specifies the content model of the property's value. This is in conformance with the XML Schema Section 4.14 Referencing Schemas from Elsewhere.</p> <p>gml:Point</p> <p>ais:time</p> <p>Time represents here the AIS message time stamp (mandatory)</p> <p>ais:speedOverGround</p> <p>SOG as defined for AIS messages (optional)</p> <p>ais:courseOverGround</p> <p>COG as defined for AIS messages (optional)</p> <p>ais:heading</p> <p>Heading as defined for AIS messages (optional)</p> <p>ais:bearing</p> <p>Bearing, not currently defined for AIS messages (optional)</p> <p>ais:rateOfTurn</p> <p>Rate Of Turn as defined for AIS messages (optional)</p> <p>ais:navigationalStatus</p> <p>Status free text as defined for AIS messages (optional)</p> <p>ais:safetyMessage</p> <p>optional</p> <p>ais:dataSource</p> <p>dataSource (optional) represents here the infrastructure supplying the AIS message</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/ais</p>

type	extension of gml:PointPropertyType					
properties	base	gml:PointPropertyType				
children	gml:Point ais:time ais:speedOverGround ais:courseOverGround ais:heading ais:bearing ais:rateOfTurn ais:navigationalStatus ais:safetyMessage ais:dataSource					
attributes	Name	Type	Use	Default	Fixed	annotation
	xlink:type	xsd:string			simple	
	href		optional			
	role		optional			
	arcrole		optional			
	title		optional			
	show		optional			documentation
						<p>The 'show' attribute is used to communicate the desired presentation of the ending resource on traversal from the starting resource; it's value should be treated as follows:</p> <ul style="list-style-type: none">new - load ending resource in a new window, frame, pane, or other presentation contextreplace - load the resource in the same window, frame, pane, or other presentation contextembed - load ending resource in place of the presentation of the starting resourceother - behavior is unconstrained; examine other markup in the link for hintsnone - behavior is unconstrained

	actuate	optional	documentation
			<p>The 'actuate' attribute is used to communicate the desired timing of traversal from the starting resource to the ending resource; it's value should be treated as follows:</p> <p>onLoad - traverse to the ending resource immediately on loading the starting resource</p> <p>onRequest - traverse from the starting resource to the ending resource only on a post-loading event triggered for this purpose</p> <p>other - behavior is unconstrained; examine other markup in link for hints</p> <p>none - behavior is unconstrained</p>
	remoteSchema	optional	documentation
			<p>Reference to an XML Schema fragment that specifies the content model of the property's value. This is in conformance with the XML Schema Section 4.14 Referencing Schemas from Elsewhere.</p>
source	<xsd:complexType name="ObjectStatusType"> <xsd:complexContent>		


```

<xsd:extension base="gml:PointPropertyType">
  <xsd:sequence>
    <xsd:element ref="ais:time">
      <xsd:annotation>
        <xsd:documentation>Time represents here the AIS message time stamp
(mandatory)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:speedOverGround" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>SOG as defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:courseOverGround" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>COG as defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:heading" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>Heading as defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:bearing" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>Bearing, not currently defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:rateOfTurn" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>Rate Of Turn as defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:navigationalStatus" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>Status free text as defined for AIS messages
(optional)</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="safetyMessage" type="xsd:string" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>optional</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element ref="ais:dataSource" minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>dataSource (optional) represents here the infrastructure
supplying the AIS message</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
</xsd:extension>
</xsd:complexContent>

```

</xsd:complexType>

complexType TrackPropertyType

diagram	 <p>The track of an object is a sequence of specialized timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. Inherits srsName attribute of abstract geometry type for defining SRS for this entire track, i.e. all geometry elements within this track are interpreted under the given SRS, unless differently specified at a lower level for each geometric element.</p>
namespace	http://www.emsa.europa.eu/ais
children	ais:track
source	<pre><xsd:complexType name="TrackPropertyType"> <xsd:sequence minOccurs="0"> <xsd:element ref="ais:track"/> </xsd:sequence> </xsd:complexType></pre>

complexType TrackType

<p>diagram</p>	<p>gml:AbstractGeometricAggregateType (extension)</p> <p>attributes</p> <p>gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gml This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superseded by "gml:id" inherited from AbstractGMLType. The attribute "gml" should not be used anymore and may be deleted in future versions of GML without further notice.</p> <p>srs:uri In general this reference points to a CRS instance of gml:CoordinateReferenceSystemType (see coordinateReferenceSystems.xsd). For well known references it is not required that the CRS description exists at the location the URI points to. If no srs:uri attribute is given, the CRS must be specified as part of the larger context this geometry element is part of, e.g. a geometric element like point, curve, etc. It is expected that this attribute will be specified at the direct position level only in rare cases.</p> <p>srs:dimension The "srs:dimension" is the length of coordinate sequence (the number of entries in the list). This dimension is specified by the coordinate reference system. When the srs:uri attribute is omitted, this attribute shall be omitted.</p> <p>axis:labels Ordered list of labels for all the axes of this CRS. The gml:axisAbbrev value should be used for these axis labels, after spaces and forbidden characters are removed. When the srs:uri attribute is included, this attribute is optional. When the srs:uri attribute is omitted, this attribute shall also be omitted.</p> <p>uom:labels Ordered list of unit of measure (uom) labels for all the axes of this CRS. The value of the string in the gml:catalogSymbol should be used for this uom labels, after spaces and forbidden characters are removed. When the axis:labels attribute is included, this attribute shall also be included. When the axis:labels attribute is omitted, this attribute shall also be omitted.</p> <p>gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>gml:metaDataProperty 0..∞ Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description Contains a simple text description of the object, or refers to an external description.</p> <p>gml:uniqueName 0..∞ Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>gml:objectStatus 0..∞ Inherits the pointMemberType of gml. This 'time slice' type encapsulates the various dynamic properties of AIS objects at a given point in time and space.</p> <p>TrackType</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/ais</p>

type	extension of gml:AbstractGeometricAggregateType					
properties	base gml:AbstractGeometricAggregateType					
children	gml:metaDataProperty gml:description gml:name ais:objectStatus					
attributes	Name	Type	Use	Default	Fixed	annotation
	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
	gid	xsd:string	optional			documentation This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superseded by "gml:id" inherited from AbstractGMLType. The attribute "gid" should not be used anymore and may be deleted in future versions of GML without further notice.
	srsName	xsd:anyURI	optional			documentation In general this reference points to a CRS instance of gml:CoordinateReferenceSystemType (see coordinateReferenceSystems.xsd). For well known references it is not required that the CRS description exists at the location the URI points to. If no srsName attribute is given, the CRS must be specified as part of the larger context this geometry element is part of, e.g. a geometric element like point, curve, etc. It is expected that this attribute will be specified at the direct position level only in rare cases.
	srsDimension	xsd:positiveInteger	optional			documentation The "srsDimension" is the length of coordinate sequence (the number of entries in the list). This dimension is specified by the coordinate reference system. When the srsName attribute is omitted, this attribute shall be omitted.

	<p>axisLabels gml:NCNameList optional</p> <p>documentation Ordered list of labels for all the axes of this CRS. The gml:axisAbbrev value should be used for these axis labels, after spaces and forbidden characters are removed. When the srsName attribute is included, this attribute is optional.</p> <p>When the srsName attribute is omitted, this attribute shall also be omitted.</p> <p>uomLabels gml:NCNameList optional</p> <p>documentation Ordered list of unit of measure (uom) labels for all the axes of this CRS. The value of the string in the gml:catalogSymbol should be used for this uom labels, after spaces and forbidden characters are removed. When the axisLabels attribute is included, this attribute shall also be included. When the axisLabels attribute is omitted, this attribute shall also be omitted.</p>
source	<pre> <xsd:complexType name="TrackType"> <xsd:complexContent> <xsd:extension base="gml:AbstractGeometricAggregateType"> <xsd:sequence> <xsd:element ref="ais:objectStatus" minOccurs="0" maxOccurs="unbounded"/> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>

9 ANNEX B – PACKAGE INFO XML SCHEMA

Schema csndc_pkg.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements

[activityDetection](#)
[activityDetectionReference](#)
[centerTrajectory](#)
[changeDetection](#)
[changeDetectionReference](#)
[dataPackage](#)
[detectedShipReference](#)
[detectedShips](#)
[eopReference](#)
[eoProduct](#)
[fileName](#)
[identifier](#)
[oilSpillReference](#)
[oilSpills](#)
[packageInfo](#)
[processRequest](#)
[qualityNotification](#)
[qualityReport](#)
[sarDerivedData](#)
[sarDerivedDataReference](#)

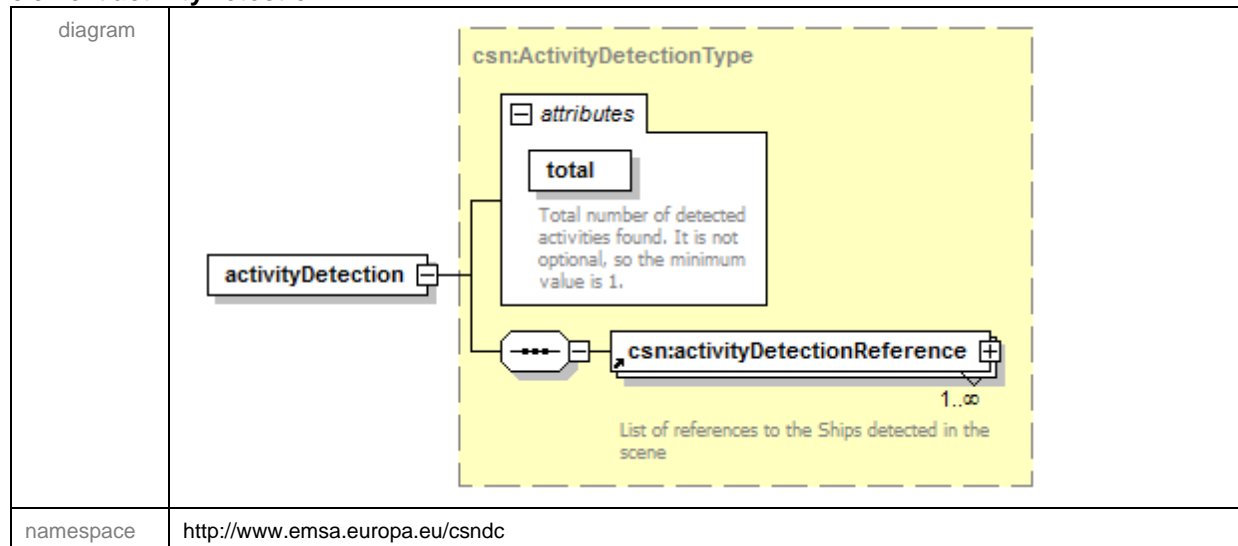
Complex types

[ActivityDetectionReferenceType](#)
[ActivityDetectionType](#)
[CenterTrajectoryType](#)
[ChangeDetectionReferenceType](#)
[ChangeDetectionType](#)
[DataPackageType](#)
[DetectedShipReferenceType](#)
[DetectedShipsType](#)
[EOPReferenceType](#)
[EOProductType](#)
[OilSpillReferenceType](#)
[OilSpillsType](#)
[PackageInfoType](#)
[ProcessRequestType](#)
[QualityType](#)
[SARDerivedDataReferenceType](#)
[SARDerivedDataType](#)

Simple types

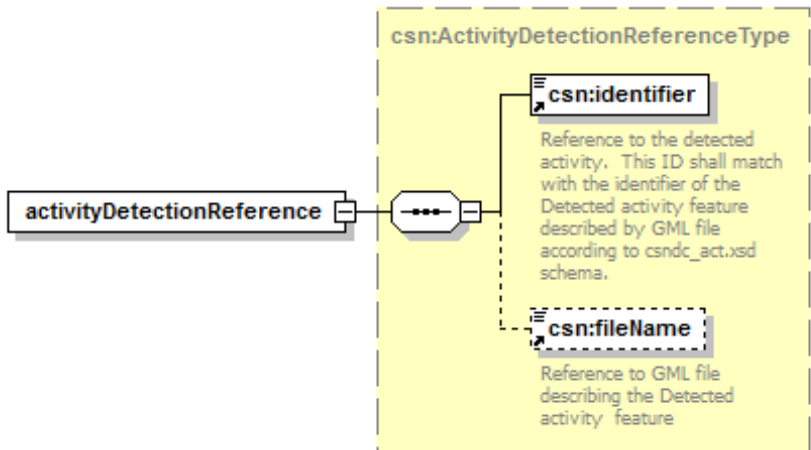
[SARDerivedFeatureType](#)

element activityDetection



type	csn:ActivityDetectionType					
properties	content	complex				
children	csn:activityDetectionReference					
used by	complexType	DataPackageType				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of detected activities found. It is not optional, so the minimum value is 1.
source	<xs:element name="activityDetection" type="csn:ActivityDetectionType"/>					

element **activityDetectionReference**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:ActivityDetectionReferenceType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType ActivityDetectionType
source	<xs:element type="csn:ActivityDetectionReferenceType"/> name="activityDetectionReference"

element centerTrajectory

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:CenterTrajectoryType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType OilSpillsType
source	<code><xs:element name="centerTrajectory" type="csn:CenterTrajectoryType"/></code>

element changeDetection

diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:ChangeDetectionType					
properties	content	complex				
children	csn:changeDetectionReference					
used by	complexType	DataPackageType				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of detected activities found. It is not optional, so the minimum value is 1.

source	<code><xs:element name="changeDetection" type="csn:ChangeDetectionType"/></code>
--------	--

element **changeDetectionReference**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:ChangeDetectionReferenceType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType ChangeDetectionType
source	<code><xs:element name="changeDetectionReference" type="csn:ChangeDetectionReferenceType"/></code>

element dataPackage

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DataPackageType

properties	content complex
children	csn:packageInfo csn:eoProduct csn:oilSpills csn:detectedShips csn:sarDerivedData csn:qualityNotification csn:qualityReport csn:processRequest csn:activityDetection csn:changeDetection
annotation	documentation Namespace for CSN-DC data package from Service Providers.
source	<pre><xs:element name="dataPackage" type="csn:DataPackageType"> <xs:annotation> <xs:documentation>Namespace for CSN-DC data package from Service Providers.</xs:documentation> </xs:annotation> </xs:element></pre>

element **detectedShipReference**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DetectedShipReferenceType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType DetectedShipsType
source	<pre><xs:element name="detectedShipReference" type="csn:DetectedShipReferenceType"/></pre>

element **detectedShips**

diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:DetectedShipsType					
properties	content complex					
children	csn:detectedShipReference					
used by	complexType	DataPackageType				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of detected ships found. If (and only if) the vessel detection analysis has been carried out and the result is that no vessel have been detected, this shall be set to 0.
source	<xs:element name="detectedShips" type="csn:DetectedShipsType"/>					

element **eopReference**

diagram						
namespace	http://www.emsa.europa.eu/csndc					


type	csn:EOPReferenceType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType EOPProductType
source	<code><xs:element name="eopReference" type="csn:EOPReferenceType"/></code>

element **eoProduct**


diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:EOPProductType					
properties	content complex					
children	csn:eopReference					
used by	complexType DataPackageType					
attributes	Name	Type	Use	Default	Fixed	annotation
	totalEOPPackages					documentation Total number of EOP packages corresponding to this service ID. Default is 1.
	currentEOPPackage					documentation In case of multi-package delivery for a given service ID, this is the serial number of the current package.

	totalSlicesInThisPackage dataTakeOpportunityID xs:integer
source	<xs:element name="eoProduct" type="csn:EOProductType"/>

element fileName

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	content simple
used by	complexTypes ActivityDetectionReferenceType CenterTrajectoryType ChangeDetectionReferenceType DetectedShipReferenceType EOPReferenceType OilSpillReferenceType ProcessRequestType QualityType SARDerivedDataReferenceType
annotation	documentation Reference to filename in the Package
source	<xs:element name="fileName"> <xs:annotation> <xs:documentation> Reference to filename in the Package </xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"/> </xs:simpleType> </xs:element>

element identifier

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	content simple
used by	complexTypes ActivityDetectionReferenceType CenterTrajectoryType ChangeDetectionReferenceType DetectedShipReferenceType EOPReferenceType OilSpillReferenceType ProcessRequestType QualityType
annotation	documentation Identifier for metadata item
source	<xs:element name="identifier"> <xs:annotation> <xs:documentation> Identifier for metadata item </xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"/> </xs:simpleType> </xs:element>

element oilSpillReference

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:OilSpillReferenceType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType OilSpillsType
source	<code><xs:element name="oilSpillReference" type="csn:OilSpillReferenceType"/></code>

element oilSpills

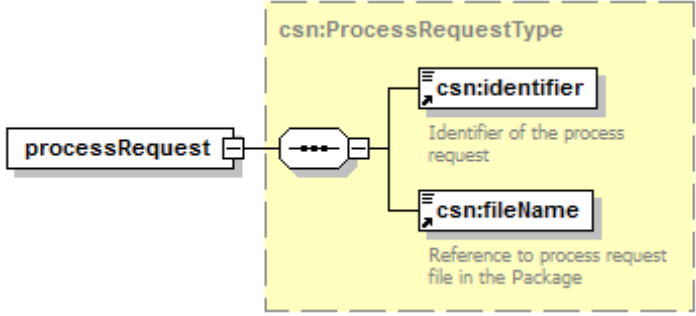
diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:OilSpillsType					
properties	content	complex				
children	csn:centerTrajectory csn:sceneFootprint csn:oilSpillReference					
used by	complexType	DataPackageType				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of

	oil spills found/processed
source	<xs:element name="oilSpills" type="csn:OilSpillsType"/>

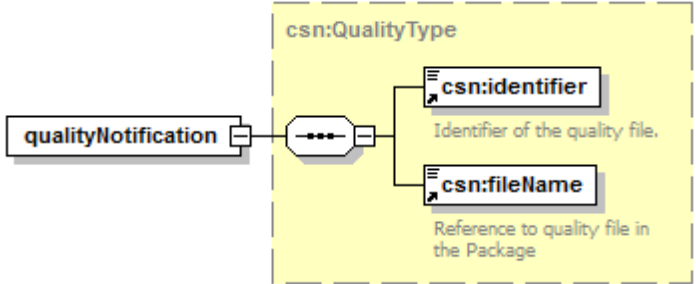
element packageInfo

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:PackageInfoType
properties	content complex
children	csn:serviceID csn:packageId csn:packageType csn:operationType csn:ftpTransmissionTime csn:dataPackageDescription
used by	complexType DataPackageType
source	<xs:element name="packageInfo" type="csn:PackageInfoType"/>

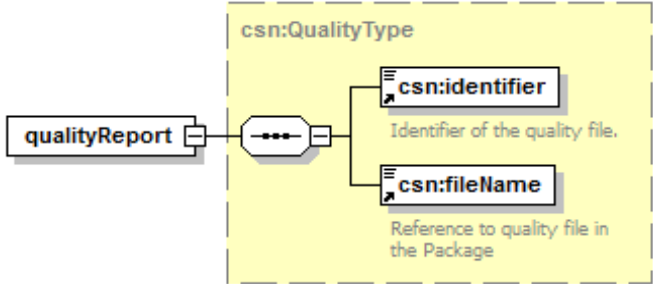
element processRequest

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:ProcessRequestType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType DataPackageType
source	<code><xs:element name="processRequest" type="csn:ProcessRequestType"/></code>

element qualityNotification

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:QualityType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType DataPackageType
source	<code><xs:element name="qualityNotification" type="csn:QualityType"/></code>

element qualityReport

diagram	
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namespace	http://www.emsa.europa.eu/csndc
type	csn:QualityType
properties	content complex
children	csn:identifier csn:fileName
used by	complexType DataPackageType
source	<code><xs:element name="qualityReport" type="csn:QualityType"/></code>

element sarDerivedData

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SARDerivedDataType
properties	content complex
children	csn:sarDerivedDataReference
used by	complexType DataPackageType
source	<code><xs:element name="sarDerivedData" type="csn:SARDerivedDataType"/></code>

element sarDerivedDataReference

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SARDerivedDataReferenceType
properties	content complex
children	csn:sarDerivedFeature csn:fileName
used by	complexType SARDerivedDataType
source	<code><xs:element name="sarDerivedDataReference" type="csn:SARDerivedDataReferenceType"/></code>

complexType ActivityDetectionReferenceType

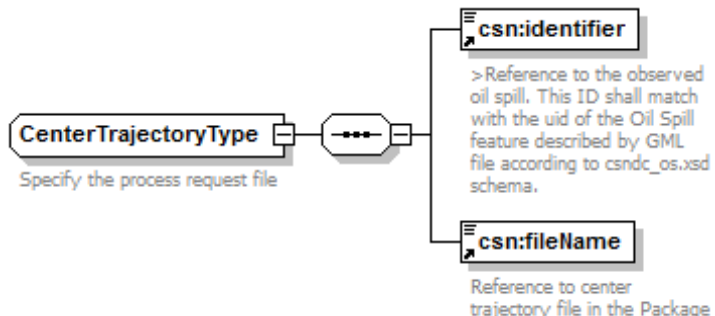
diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element activityDetectionReference
annotation	documentation GML files describing observed in the original satellite image
source	<pre> <xs:complexType name="ActivityDetectionReferenceType"> <xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Reference to the detected activity. This ID shall match with the identifier of the Detected activity feature described by GML file according to csndc_act.xsd schema.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to GML file describing the Detected activity feature</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType ActivityDetectionType

diagram	
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namespace	http://www.emsa.europa.eu/csndc					
children	csn:activityDetectionReference					
used by	element	activityDetection				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of detected activities found. It is not optional, so the minimum value is 1.
annotation	documentation GML files describing observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDetectionType"> <xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:activityDetectionReference" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the Ships detected in the scene</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:attribute name="total" type="xs:integer" use="required"> <xs:annotation> <xs:documentation>Total number of detected activities found. It is not optional, so the minimum value is 1.</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType> </pre>					

complexType CenterTrajectoryType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element centerTrajectory
annotation	documentation Specify the process request file
source	<pre><xs:complexType name="CenterTrajectoryType"> <xs:annotation> <xs:documentation>Specify the process request file</xs:documentation></pre>

	<pre> </xs:annotation> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>>Reference to the observed oil spill. This ID shall match with the uid of the Oil Spill feature described by GML file according to csndc_os.xsd schema.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName"> <xs:annotation> <xs:documentation>Reference to center trajectory file in the Package</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
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complexType **ChangeDetectionReferenceType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element changeDetectionReference
annotation	documentation GML files describing observed in the original satellite image
source	<pre> <xs:complexType name="ChangeDetectionReferenceType"> <xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Reference to the detected activity. This ID shall match with the identifier of the Detected activity feature described by GML file according to csndc_act.xsd schema.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to GML file describing the Detected activity feature</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

```
</xs:element>
</xs:sequence>
</xs:complexType>
```

complexType **ChangeDetectionType**

diagram						
namespace	http://www.emsa.europa.eu/csndc					
children	csn:changeDetectionReference					
used by	element	changeDetection				
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of detected activities found. It is not optional, so the minimum value is 1.
annotation	documentation GML files describing observed in the original satellite image					
source	<pre><xs:complexType name="ChangeDetectionType"> <xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:changeDetectionReference" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the Ships detected in the scene</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:attribute name="total" type="xs:integer" use="required"> <xs:annotation> <xs:documentation>Total number of detected activities found. It is not optional, so the minimum value is 1.</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType></pre>					

complexType DataPackageType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:packageInfo csn:eoProduct csn:oilSpills csn:detectedShips csn:sarDerivedData csn:qualityNotification csn:qualityReport csn:processRequest csn:activityDetection csn:changeDetection

used by	element	<u>dataPackage</u>
source	<pre> <xs:complexType name="DataPackageType"> <xs:sequence> <xs:element ref="csn:packageInfo"> <xs:annotation> <xs:documentation>Package info</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:eoProduct"> <xs:annotation> <xs:documentation>References of the EO product contained in the package if any.Only one EO product is expected in a package.</xs:documentation> </xs:annotation> </xs:element> <xs:choice> <xs:element ref="csn:oilSpills" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the package content in terms of OS found/processed (if any).</xs:documentation> </xs:annotation> </xs:element> <xs:sequence> <xs:element ref="csn:detectedShips" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the package content in terms of Detected Ships found (if any). If the vessel detection analysis has not been performed at all, than this element shall be omitted.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:sarDerivedData" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the package content in terms of SAR derived data.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:element ref="csn:qualityNotification" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the image quality notification info contained in the package if any. Only one quality notification file is supposed to be present in a single package.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:qualityReport" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the quality report contained in the package if any. Only one quality report file is supposed to be present in a single package.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:processRequest" minOccurs="0"> <xs:annotation> <xs:documentation>Description of the process request contained in the package if any. Only one process request file is supposed to be present in a single package.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:activityDetection" minOccurs="0"/> </pre>	

	<pre> <xs:element </xs:choice> </xs:sequence> </xs:complexType> </pre>	<pre> ref="csn:changeDetection" minOccurs="0"/> </pre>
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complexType DetectedShipReferenceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element detectedShipReference
annotation	documentation GML files describing observed in the original satellite image
source	<pre> <xs:complexType </xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element </xs:annotation> <xs:documentation>Reference to the detected ship. This ID shall match with the identifier of the Detected Ship feature described by GML file according to csndc_ds.xsd schema.</xs:documentation> </xs:annotation> </xs:element> <xs:element </xs:annotation> <xs:documentation>Reference to GML file describing the Detected Ship feature</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType DetectedShipsType

diagram						
namespace	http://www.emsa.europa.eu/csndc					
children	csn:detectedShipReference					
used by	element detectedShips					
attributes	Name	Type	Use	Default	Fixed	annotation
	total	xs:integer	required			documentation Total number of detected ships found. If (and only if) the vessel detection analysis has been carried out and the result is that no vessel have been detected, this shall be set to 0.
annotation	documentation GML files describing observed in the original satellite image					
source	<pre> <xs:complexType name="DetectedShipsType"> <xs:annotation> <xs:documentation>GML files describing observed in the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:detectedShipReference" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the Ships detected in the scene</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:attribute name="total" type="xs:integer" use="required"> <xs:annotation> <xs:documentation>Total number of detected ships found. If (and only if) the vessel detection analysis has been carried out and the result is that no vessel have been detected, this shall be set to 0.</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType> </pre>					

complexType EOPReferenceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element eopReference
source	<pre> <xs:complexType name="EOPReferenceType"> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Reference to the ID of the individual slice.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName"> <xs:annotation> <xs:documentation>Reference to the EOP native file/folder name for each individual slice.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType EOPProductType

diagram	
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namespace	http://www.emsa.europa.eu/csndc					
children	csn:eopReference					
used by	element eoProduct					
attributes	Name	Type	Use	Default	Fixed	annotation
	totalEOPPackages					documentation Total number of EOP packages corresponding to this service ID. Default is 1.
	currentEOPPackage					documentation In case of multi-package delivery for a given service ID, this is the serial number of the current package.
	totalSlicesInThisPackage					
	dataTakeOpportunityID	xs:integer				
annotation	documentation Specify the data package attributes					
source	<pre> <xs:complexType name="EOProductType"> <xs:annotation> <xs:documentation>Specify the data package attributes</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:eopReference" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the EOP slices included in this package</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:attribute name="totalEOPPackages"> <xs:annotation> <xs:documentation>Total number of EOP packages corresponding to this service ID. Default is 1.</xs:documentation> </xs:annotation> </xs:attribute> <xs:attribute name="currentEOPPackage"> <xs:annotation> <xs:documentation>In case of multi-package delivery for a given service ID, this is the serial number of the current package.</xs:documentation> </xs:annotation> </xs:attribute> <xs:attribute name="totalSlicesInThisPackage"/> <xs:attribute name="dataTakeOpportunityID" type="xs:integer"/> </xs:complexType> </pre>					

complexType OilSpillReferenceType

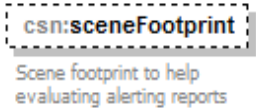
diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element oilSpillReference
source	<pre> <xs:complexType name="OilSpillReferenceType"> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Reference to the observed oil spill. This ID shall match with the uid of the Oil Spill feature described by GML file according to csndc_os.xsd schema.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to the GML file describing the OS feature</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType OilSpillsType

diagram	
namespace	http://www.emsa.europa.eu/csndc

children	csn:centerTrajectory csn:sceneFootprint csn:oilSpillReference					
used by	element oilSpills					
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of oil spills found/processed
annotation	documentation Describes main results of the Oil Spill Analysis performed on the scene					
source	<pre> <xs:complexType name="OilSpillsType"> <xs:annotation> <xs:documentation>Describes main results of the Oil Spill Analysis performed on the scene</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:centerTrajectory" minOccurs="0"/> <xs:element name="sceneFootprint" type="gml:GeometryArrayPropertyType" minOccurs="0"> <xs:annotation> <xs:documentation>Scene footprint to help evaluating alerting reports</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:oilSpillReference" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the Oil Spills detected in the scene</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> <xs:attribute name="total" type="xs:integer" use="required"> <xs:annotation> <xs:documentation>Total number of oil spills found/processed</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType> </pre>					

element **OilSpillsType/sceneFootprint**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	gml:GeometryArrayPropertyType
properties	isRef 0 minOcc 0 maxOcc 1
annotation	documentation Scene footprint to help evaluating alerting reports
source	<pre> <xs:element name="sceneFootprint" type="gml:GeometryArrayPropertyType" minOccurs="0"> <xs:annotation> <xs:documentation>Scene footprint to help evaluating alerting reports</xs:documentation> </xs:annotation> </pre>

</xs:element>

complexType PackageInfoType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:serviceID csn:packageId csn:packageType csn:operationType csn:ftpTransmissionTime csn:dataPackageDescription
used by	element packageInfo
annotation	documentation Specify the data package attributes
source	<pre> <xs:complexType name="PackageInfoType"> <xs:annotation> <xs:documentation>Specify the data package attributes</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="serviceID" type="xs:integer"/> <xs:element name="packageId" type="xs:string"> <xs:annotation> <xs:documentation>Specify a reference identifier for the data package</xs:documentation> </xs:annotation> </xs:element> <xs:element name="packageType" type="xs:string"> <xs:annotation> <xs:documentation>Specify type of data package (one of OS_WARNING, </pre>

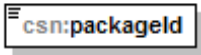
	<p>EO_PRODUCT, OS_NOTIFICATION, SAR_DERIVED, QUALITY_NOTIFICATION or QUALITY_REPORT, PROCESS_REQUEST, PROCESS_RESPONSE, ACTIVITY_DETECTION, CHANGE_DETECTION) </xs:documentation></p> <p></xs:annotation></p> <p><xs:simpleType></p> <p><xs:restriction base="xs:string"></p> <p><xs:enumeration value="OS_WARNING"/></p> <p><xs:enumeration value="EO_PRODUCT"/></p> <p><xs:enumeration value="OS_NOTIFICATION"/></p> <p><xs:enumeration value="SAR_DERIVED"/></p> <p><xs:enumeration value="QUALITY_NOTIFICATION"/></p> <p><xs:enumeration value="QUALITY_REPORT"/></p> <p><xs:enumeration value="PROCESS_REQUEST"/></p> <p><xs:enumeration value="PROCESS_RESPONSE"/></p> <p><xs:enumeration value="ACTIVITY_DETECTION"/></p> <p><xs:enumeration value="VESSEL_DETECTION"/></p> <p><xs:enumeration value="CHANGE_DETECTION"/></p> <p></xs:restriction></p> <p></xs:simpleType></p> <p></xs:element></p> <p><xs:element name="operationType"></p> <p><xs:annotation></p> <p><xs:documentation>Specify if the data package is part of a reference test data set or not (one of TEST or NOMINAL) </xs:documentation></p> <p></xs:annotation></p> <p><xs:simpleType></p> <p><xs:restriction base="xs:string"></p> <p><xs:enumeration value="TEST"/></p> <p><xs:enumeration value="NOMINAL"/></p> <p></xs:restriction></p> <p></xs:simpleType></p> <p></xs:element></p> <p><xs:element name="ftpTransmissionTime" type="xs:dateTime" minOccurs="0"></p> <p><xs:annotation></p> <p><xs:documentation>End of transmission time from provider 1 to provider 2. Only applicable to EOP package types. </xs:documentation></p> <p></xs:annotation></p> <p></xs:element></p> <p><xs:element name="dataPackageDescription" type="xs:string" minOccurs="0"></p> <p><xs:annotation></p> <p><xs:documentation>An optional description for the data package </xs:documentation></p> <p></xs:annotation></p> <p></xs:element></p> <p></xs:sequence></p> <p></xs:complexType></p>
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element PackageInfoType/serviceID


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple

source	<code><xs:element name="servicID" type="xs:integer"/></code>
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element **PackageInfoType/packageId**

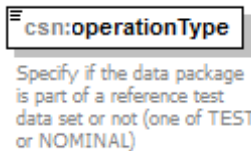
diagram	 <p>Specify a reference identifier for the data package</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Specify a reference identifier for the data package
source	<pre> <xs:element name="packageId" type="xs:string"> <xs:annotation> <xs:documentation>Specify a reference identifier for the data package</xs:documentation> </xs:annotation> </xs:element> </pre>

element **PackageInfoType/packageType**

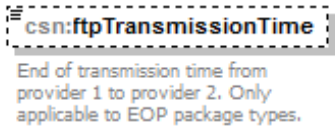
diagram	 <p>Specify type of data package (one of OS_WARNING, EO_PRODUCT, OS_NOTIFICATION, SAR_DERIVED, QUALITY_NOTIFICATION or QUALITY_REPORT, PROCESS_REQUEST, PROCESS_RESPONSE, ACTIVITY_DETECTION, CHANGE_DETECTION)</p>
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	isRef 0 content simple
facets	enumeration OS_WARNING enumeration EO_PRODUCT enumeration OS_NOTIFICATION enumeration SAR_DERIVED enumeration QUALITY_NOTIFICATION enumeration QUALITY_REPORT enumeration PROCESS_REQUEST enumeration PROCESS_RESPONSE enumeration ACTIVITY_DETECTION enumeration VESSEL_DETECTION enumeration CHANGE_DETECTION
annotation	documentation Specify type of data package (one of OS_WARNING, EO_PRODUCT, OS_NOTIFICATION, SAR_DERIVED, QUALITY_NOTIFICATION or QUALITY_REPORT, PROCESS_REQUEST, PROCESS_RESPONSE, ACTIVITY_DETECTION, CHANGE_DETECTION)
source	<pre> <xs:element name="packageType"> <xs:annotation> <xs:documentation>Specify type of data package (one of OS_WARNING, EO_PRODUCT, OS_NOTIFICATION, SAR_DERIVED, QUALITY_NOTIFICATION or </pre>

	<p>QUALITY_REPORT, ACTIVITY_DETECTION, </xs:annotation> <xs:simpleType> <xs:restriction <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration <xs:enumeration </xs:restriction> </xs:simpleType> </xs:element></p>	<p>PROCESS_REQUEST, CHANGE_DETECTION)</xs:documentation></p>	<p>PROCESS_RESPONSE, base="xs:string"> value="OS_WARNING"/> value="EO_PRODUCT"/> value="OS_NOTIFICATION"/> value="SAR_DERIVED"/> value="QUALITY_NOTIFICATION"/> value="QUALITY_REPORT"/> value="PROCESS_REQUEST"/> value="PROCESS_RESPONSE"/> value="ACTIVITY_DETECTION"/> value="VESSEL_DETECTION"/> value="CHANGE_DETECTION"/></p>
--	---	--	--

element PackageInfoType/operationType


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	isRef 0 content simple
facets	enumeration TEST enumeration NOMINAL
annotation	documentation Specify if the data package is part of a reference test data set or not (one of TEST or NOMINAL)
source	<pre><xs:element name="operationType"> <xs:annotation> <xs:documentation>Specify if the data package is part of a reference test data set or not (one of TEST or NOMINAL)</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="TEST"/> <xs:enumeration value="NOMINAL"/> </xs:restriction> </xs:simpleType> </xs:element></pre>

element PackageInfoType/ftpTransmissionTime

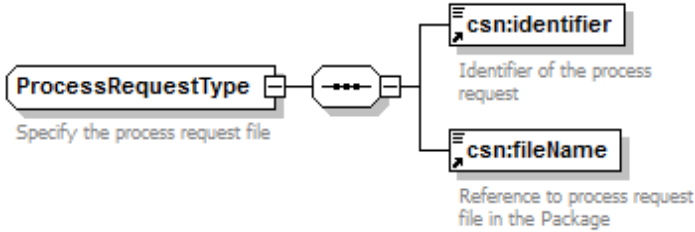
diagram	
---------	---

namespace	http://www.emsa.europa.eu/csndc
type	xs:dateTime
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation End of transmission time from provider 1 to provider 2. Only applicable to EOP package types.
source	<pre> <xs:element name="ftpTransmissionTime" type="xs:dateTime" minOccurs="0"> <xs:annotation> <xs:documentation>End of transmission time from provider 1 to provider 2. Only applicable to EOP package types. </xs:documentation> </xs:annotation> </xs:element> </pre>

element **PackageInfoType/dataPackageDescription**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation An optional description for the data package
source	<pre> <xs:element name="dataPackageDescription" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>An optional description for the data package</xs:documentation> </xs:annotation> </xs:element> </pre>

complexType **ProcessRequestType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	element processRequest
annotation	documentation Specify the process request file
source	<pre> <xs:complexType name="ProcessRequestType"> <xs:annotation> <xs:documentation>Specify the process request file</xs:documentation> </pre>

	<pre> </xs:annotation> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Identifier of the process request</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName"> <xs:annotation> <xs:documentation>Reference to process request file in the Package</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	---

complexType **QualityType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
used by	elements qualityNotification qualityReport
annotation	documentation Specify the data package quality info file
source	<pre> <xs:complexType name="QualityType"> <xs:annotation> <xs:documentation>Specify the data package quality info file</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:identifier"> <xs:annotation> <xs:documentation>Identifier of the quality file. </xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName"> <xs:annotation> <xs:documentation>Reference to quality file in the Package</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>


complexType SARDerivedDataReferenceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:sarDerivedFeature csn:fileName
used by	element sarDerivedDataReference
annotation	documentation NetCDF file describing a meteo feature (wind, wave) derived from the original satellite image
source	<pre> <xs:complexType name="SARDerivedDataReferenceType"> <xs:annotation> <xs:documentation>NetCDF file describing a meteo feature (wind, wave) derived from the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="sarDerivedFeature" type="csn:SARDerivedFeatureType"> <xs:annotation> <xs:documentation>Type of derived data</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName"> <xs:annotation> <xs:documentation>Filename of the NetCDF file describing the SAR derived data</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

element SARDerivedDataReferenceType/sarDerivedFeature

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SARDerivedFeatureType
properties	isRef 0 content simple
facets	enumeration WIND enumeration WAVE
annotation	documentation Type of derived data
source	<pre> <xs:element name="sarDerivedFeature" type="csn:SARDerivedFeatureType"> <xs:annotation> <xs:documentation>Type of derived data</xs:documentation> </xs:annotation> </xs:element> </pre>

complexType SARDerivedDataType

diagram	 <p>NetCDF files describing meteo features (wind, wave) derived from the original satellite image</p> <p>List of references to the meteo conditions derived from the SAR image</p> <p>1..∞</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:sarDerivedDataReference
used by	element sarDerivedData
annotation	documentation NetCDF files describing meteo features (wind, wave) derived from the original satellite image
source	<pre> <xs:complexType name="SARDerivedDataType"> <xs:annotation> <xs:documentation>NetCDF files describing meteo features (wind, wave) derived from the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element ref="csn:sarDerivedDataReference" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>List of references to the meteo conditions derived from the SAR image</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

simpleType SARDerivedFeatureType

namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
used by	element SARDerivedDataReferenceType/sarDerivedFeature
facets	enumeration WIND enumeration WAVE
annotation	documentation NetCDF file describing a meteo feature (wind, wave) derived from the original satellite image
source	<pre> <xs:simpleType name="SARDerivedFeatureType"> <xs:annotation> <xs:documentation>NetCDF file describing a meteo feature (wind, wave) derived from the original satellite image</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="WIND"/> <xs:enumeration value="WAVE"/> </xs:restriction> </xs:simpleType> </pre>

XML Schema documentation generated by [XMLSpy](http://www.altova.com/xmlspy) Schema Editor <http://www.altova.com/xmlspy>

10 ANNEX C – OIL SPILL FEATURE GML SCHEMA

Schema csndc_os.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements

[OilSpill](#)

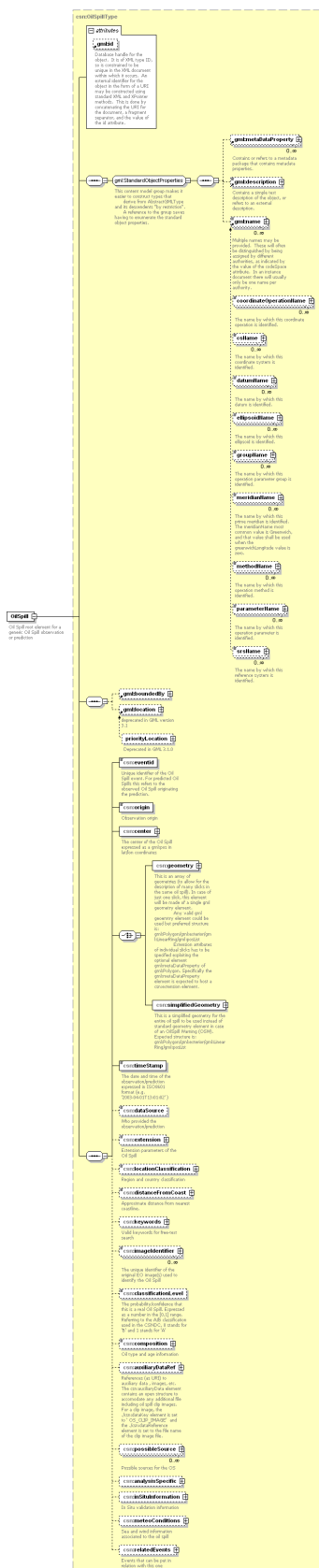
Complex types

[AreaType](#)
[AuxiliaryDataReferenceArrayType](#)
[AuxiliaryDataReferenceType](#)
[ImageType](#)
[InSituInformationType](#)
[LengthType](#)
[LocationClassificationType](#)
[MeteoConditionsType](#)
[OilSpillCompositionType](#)
[OilSpillExtensionType](#)
[OilSpillType](#)
[OrientationType](#)
[PossibleSourcesType](#)
[RelatedEventsType](#)
[SeaConditionType](#)
[SlickTechParametersType](#)
[SlickTechParameterType](#)
[SourceDetectionType](#)
[SourceIdentificationType](#)
[SourceIdentityType](#)
[SourcePositionType](#)
[WindConditionType](#)

Simple types

[InSituValidationType](#)
[OriginType](#)
[SensorType](#)
[SlickParameterImportanceType](#)
[SourceDetectionSensorType](#)
[SourceTypeType](#)

diagram



namespace

<http://www.emsa.europa.eu/csndc>

type	csn:OilSpillType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:eventid csn:origin csn:center csn:geometry csn:timeStamp csn:dataSource csn:extension csn:locationClassification csn:distanceFromCoast csn:keywords csn:imageIdentifier csn:classificationLevel csn:composition csn:auxiliaryDataRef csn:possibleSources csn:analysisSpecific csn:inSituInformation csn:meteoConditions csn:relatedEvents					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Oil Spill root element for a generic Oil Spill observation or prediction					
source	<xs:element name="OilSpill" type="csn:OilSpillType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Oil Spill root element for a generic Oil Spill observation or prediction</xs:documentation> </xs:annotation> </xs:element>					

element **OilSpill/geometry**

namespace	http://www.emsa.europa.eu/csndc
type	gml:GeometryArrayPropertyType
annotation	documentation The polygon describing boundaries of the Oil Spill expressed as one or more gml:Polygon. This is an array of geometries (to allow for the description of many slicks in the same oil spill). In case of just one slick, this element will be made of a single gml geometry element. Any valid gml geometry element could be used but preferred structure is: gml:Polygon/gml:exterior/gml:LinearRing/gml:posList All polygons shall be closed (meaning the first point has to be repeated at the end of the list) and drawing segments following the order of the points in the list shall not result in intersecting segments. The maximum number of vertexes for each polygon shall be < 450 points. Extension attributes of individual slicks has to be specified exploiting the optional element

	<p>gml:metaDataProperty of gml:Polygon. Specifically the gml:metaDataProperty element is expected to host a csn:extension element like in the following example:</p> <pre> <csn:geometry> <gml:Polygon gml:id="slick1"> <gml:metaDataProperty> <gml:GenericMetaData> <csn:extension> <csn:area uom="m2">324</csn:area> <csn:length uom="m">61.4</csn:length> <csn:width uom="m">5.2</csn:width> </csn:extension> </gml:GenericMetaData> </gml:metaDataProperty> <gml:exterior> <gml:LinearRing> <gml:posList>41.6032 18.8639 41.6038 18.8637 41.6046 18.8644 41.6053 18.8643 41.606 18.8641 41.6058 18.8632 41.6064 18.8622 41.6032 18.8639</gml:posList> </gml:LinearRing> </gml:exterior> </gml:Polygon> <gml:Polygon gml:id="slick2"> ... </pre>
--	---

element OilSpill/simplifiedGeometry

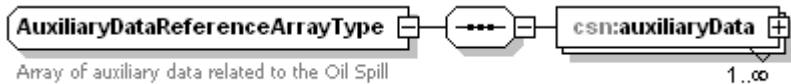
namespace	http://www.emsa.europa.eu/csndc
type	gml:GeometryArrayPropertyType
annotation	<p>documentation</p> <p>This is a simplified geometry for the entire oil spill to be used instead of standard geometry element in case of an OilSpill Warning (OSW).</p> <p>Expected structure is: gml:Polygon/gml:exterior/gml:LinearRing/gml:posList</p> <p>All polygons shall be closed (meaning the first point has to be repeated at the end of the list) and drawing segments following the order of the points in the list shall not result in intersecting segments. The simplified geometry is a simpler version of the detailed geometry of the oil spill (that is reported in the OSN package).</p> <p>Service Providers are expected to be faster in producing such a simplified geometry for inclusion in the OSW gml file w.r.t. producing the full geometry of the spill specified in the OSN gml file.</p> <pre> <csn:simplifiedGeometry> <gml:Polygon gml:id="spill"> <gml:exterior> <gml:LinearRing> <gml:posList>41.6032 18.8639 41.6038 18.8637 41.6046 18.8644 41.6053 18.8643 41.606 18.8641 41.6058 18.8632 41.6064 18.8622 41.6032 18.8639</gml:posList> </gml:LinearRing> </gml:exterior> </gml:Polygon> </csn:simplifiedGeometry> </pre>

complexType AreaType

diagram	<p>Value of Oil Spill spatial area quantity. Uses the AreaType with the restriction that the unit of measure referenced by uom must be square meters</p>
namespace	http://www.emsa.europa.eu/csndc

type	restriction of gml:AreaType					
properties	base	gml:AreaType				
attributes	Name uom	Type xs:anyURI	Use required	Default	Fixed	annotation
annotation	documentation Value of Oil Spill spatial area quantity. Uses the AreaType with the restriction that the unit of measure referenced by uom must be square meters					
source	<pre><xs:complexType name="AreaType"> <xs:annotation> <xs:documentation>Value of Oil Spill spatial area quantity. Uses the AreaType with the restriction that the unit of measure referenced by uom must be square meters</xs:documentation> </xs:annotation> <xs:simpleContent> <xs:restriction base="gml:AreaType"/> </xs:simpleContent> </xs:complexType></pre>					

complexType **AuxiliaryDataReferenceArrayType**

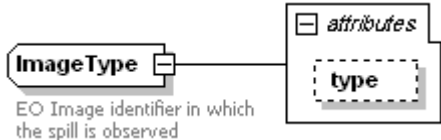
diagram	 <p>Array of auxiliary data related to the Oil Spill (for example images)</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:auxiliaryData
annotation	documentation Array of auxiliary data related to the Oil Spill (for example images)
source	<pre><xs:complexType name="AuxiliaryDataReferenceArrayType"> <xs:annotation> <xs:documentation>Array of auxiliary data related to the Oil Spill (for example images) </xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="auxiliaryData" type="csn:AuxiliaryDataReferenceType" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType></pre>

complexType AuxiliaryDataReferenceType

diagram	<p>AuxiliaryDataReferenceType Auxiliary data related to the Oil Spill. E.g. the link to an image or other file</p> <p>gml:AbstractMetaDataType (extension)</p> <p>attributes</p> <p>gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>csn:dataKey Key/identifier of a specific auxiliary data</p> <p>csn:dataReference URI references to auxiliary data</p> <p>csn:dataDescription Description of auxiliary data</p>					
namespace	http://www.emsa.europa.eu/csndc					
type	extension of gml:AbstractMetaDataType					
properties	base mixed	gml:AbstractMetaDataType true				
children	csn:dataKey csn:dataReference csn:dataDescription					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a

	fragment separator, and the value of the id attribute.
annotation	<p>documentation</p> <p>Auxiliary data related to the Oil Spill. E.g. the link to an image or other file</p> <p>The <code><csn:auxiliaryData></code> element contains an open structure to accomodate any additional file including oil spill clip images. For a clip image, the <code>/csn:dataKey</code> element is set to ' OS_CLIP_IMAGE' and the <code>/csn:dataReference</code> element is set to the file name of the clip image file.</p>
source	<pre> <xs:complexType name="AuxiliaryDataReferenceType" mixed="true"> <xs:annotation> <xs:documentation>Auxiliary data related to the Oil Spill. E.g. the link to an image or other file</xs:documentation> </xs:annotation> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="dataKey" type="xs:string"> <xs:annotation> <xs:documentation>Key/identifier of a specific auxiliary data</xs:documentation> </xs:annotation> </xs:element> <xs:element name="dataReference" type="xs:anyURI"> <xs:annotation> <xs:documentation>URI references to auxiliary data</xs:documentation> </xs:annotation> </xs:element> <xs:element name="dataDescription" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Descripton of auxiliary data</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

complexType ImageType

diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	extension of xs:string					
properties	base	xs:string				
attributes	Name type	Type	Use	Default	Fixed	annotation
		csn:SensorType				
annotation	<p>documentation</p> <p>EO Image identifier in which the spill is observed</p>					
source	<pre> <xs:complexType name="ImageType"> <xs:annotation> <xs:documentation>EO Image identifier in which the spill is observed</xs:documentation> </xs:annotation> </pre>					

	<pre> </xs:annotation> <xs:simpleContent> <xs:extension base="xs:string"> <xs:attribute name="type" type="csn:SensorType"/> </xs:extension> </xs:simpleContent> </xs:complexType> </pre>
--	--

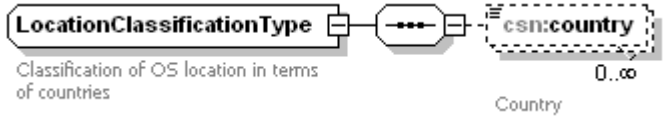
complexType InSituInformationType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:inSituValidation csn:inSituValidationBody csn:notes
source	<pre> <xs:complexType name="InSituInformationType"> <xs:sequence> <xs:element name="inSituValidation" type="csn:InSituValidationType"> <xs:annotation> <xs:documentation>In Situ validation specifying if Oil Spill presence has been verified</xs:documentation> </xs:annotation> </xs:element> <xs:element name="inSituValidationBody" type="xs:string"> <xs:annotation> <xs:documentation>In Situ validation body: who actually verified the OS presence</xs:documentation> </xs:annotation> </xs:element> <xs:element name="notes" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Free text for notes and observations</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType LengthType

diagram	<div><div><div><div><div><div></div><div>LengthType</div></div><div></div></div><div></div><div><div><div></div><div>attributes</div></div><div><div>uom</div></div></div></div></div><p>Linear length of spill's perimeter. Uses the LengthType with the restriction that the unit of measure referenced by uom must be meters</p></div>												
namespace	http://www.emsa.europa.eu/csndc												
type	restriction of gml:LengthType												
properties	base gml:LengthType												
attributes	<table><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>annotation</th></tr><tr><td>uom</td><td>xs:anyURI</td><td>required</td><td></td><td></td><td></td></tr></table>	Name	Type	Use	Default	Fixed	annotation	uom	xs:anyURI	required			
Name	Type	Use	Default	Fixed	annotation								
uom	xs:anyURI	required											
annotation	<p>documentation</p> <p>Linear length of spill's perimeter. Uses the LengthType with the restriction that the unit of measure referenced by uom must be meters</p>												
source	<pre><xs:complexType name="LengthType"> <xs:annotation> <xs:documentation>Linear length of spill's perimeter. Uses the LengthType with the restriction that the unit of measure referenced by uom must be meters</xs:documentation> </xs:annotation> <xs:simpleContent> <xs:restriction base="gml:LengthType"/> </xs:simpleContent> </xs:complexType></pre>												

complexType LocationClassificationType

diagram	 <p>Classification of OS location in terms of countries</p> <p>Country</p> <p>0..∞</p>
namespace	http://www.emsa.europa.eu/csndc
properties	mixed true
children	csn:country
annotation	<p>documentation</p> <p>Classification of OS location in terms of countries</p>
source	<pre><xs:complexType name="LocationClassificationType" mixed="true"> <xs:annotation> <xs:documentation>Classification of OS location in terms of countries</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="country" type="xs:string" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>Country</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType></pre>

complexType **MeteoConditionsType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:meteoWind csn:SARWind csn:sea
source	<pre> <xs:complexType name="MeteoConditionsType"> <xs:sequence> <xs:element name="meteoWind" type="csn:WindConditionType" minOccurs="0"/> <xs:element name="SARWind" type="csn:WindConditionType" minOccurs="0"/> <xs:element name="sea" type="csn:SeaConditionType" minOccurs="0"/> </xs:sequence> </xs:complexType> </pre>

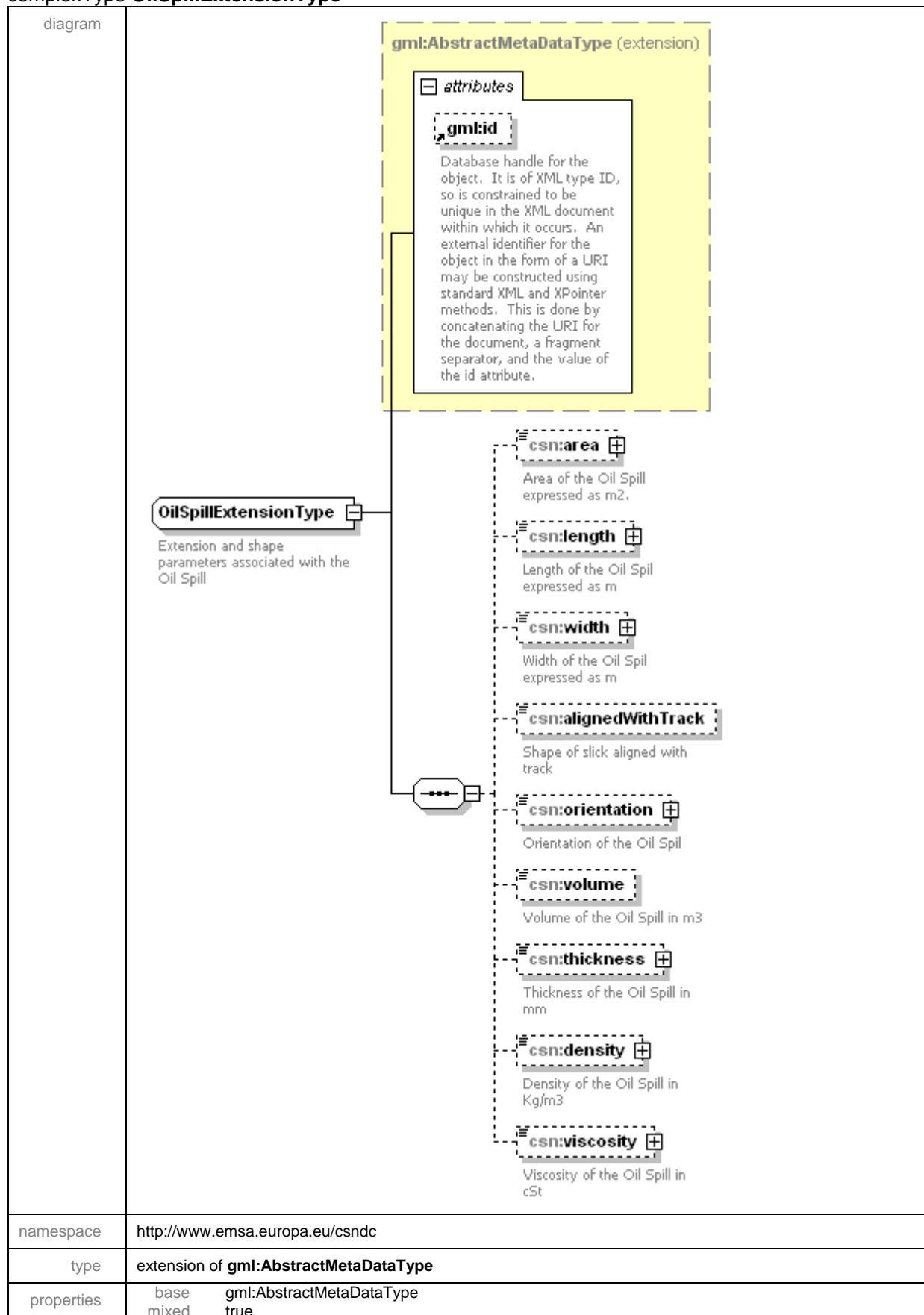
complexType **OilSpillCompositionType**

diagram													
namespace	http://www.emsa.europa.eu/csndc												
type	extension of gml:AbstractMetaDataType												
properties	<table><tr><td>base</td><td>gml:AbstractMetaDataType</td></tr><tr><td>mixed</td><td>true</td></tr></table>	base	gml:AbstractMetaDataType	mixed	true								
base	gml:AbstractMetaDataType												
mixed	true												
children	csn:oilType csn:oilSubType csn:age												
attributes	<table><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>annotation</th></tr><tr><td>gml:id</td><td>ID</td><td>unique</td><td></td><td></td><td></td></tr></table>	Name	Type	Use	Default	Fixed	annotation	gml:id	ID	unique			
Name	Type	Use	Default	Fixed	annotation								
gml:id	ID	unique											

	id	optional	documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation	Composition and age parameters associated with the Oil Spill	
source	<pre><xs:complexType name="OilSpillCompositionType" mixed="true"> <xs:annotation> <xs:documentation>Composition and age parameters associated with the Oil Spill</xs:documentation> </xs:annotation> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="oilType" minOccurs="0"> <xs:annotation> <xs:documentation>Composition of the Oil</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="Light"/> <xs:enumeration value="Medium"/> <xs:enumeration value="Heavy"/> <xs:enumeration value="OTHER"/> </xs:restriction> </xs:simpleType> </xs:element> <xs:element name="oilSubType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Sub type of Oil</xs:documentation> </xs:annotation> </xs:element> <xs:element name="age" minOccurs="0"> <xs:annotation> <xs:documentation>Age of Oil in days</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"></pre>		

```
<xs:enumeration value="&lt;1"/>
<xs:enumeration value="1-3"/>
<xs:enumeration value="&gt;3"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
```


complexType OilSpillExtensionType



children	csn:area csn:length csn:width csn:alignedWithTrack csn:orientation csn:volume csn:thickness csn:density csn:viscosity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Extension and shape parameters associated with the Oil Spill					
source	<pre> <xs:complexType name="OilSpillExtensionType" mixed="true"> <xs:annotation> <xs:documentation>Extension and shape parameters associated with the Oil Spill</xs:documentation> </xs:annotation> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="area" type="csn:AreaType" minOccurs="0"> <xs:annotation> <xs:documentation>Area of the Oil Spill expressed as m2.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="length" type="csn:LengthType" minOccurs="0"> <xs:annotation> <xs:documentation>Length of the Oil Spil expressed as m</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="csn:LengthType" minOccurs="0"> <xs:annotation> <xs:documentation>Width of the Oil Spil expressed as m</xs:documentation> </xs:annotation> </xs:element> <xs:element name="alignedWithTrack" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>Shape of slick aligned with track</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orientation" type="csn:OrientationType" minOccurs="0"> </pre>					

```

<xs:annotation>
  <xs:documentation>Orientation of the Oil Spil</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="volume" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Volume of the Oil Spill in m3</xs:documentation>
  </xs:annotation>
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:enumeration value="0-10"/>
      <xs:enumeration value="10-100"/>
      <xs:enumeration value=">100"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="thickness" type="gml:MeasureType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Thickness of the Oil Spill in mm</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="density" type="gml:MeasureType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Density of the Oil Spill in Kg/m3</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="viscosity" type="gml:MeasureType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Viscosity of the Oil Spill in cSt</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType OilSpillType

diagram	<p>OilSpillType Oil Spill feature description</p> <p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties. gml:description Contains a simple text description of the object, or refers to an external description. gml:fileName Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. gml:boundedBy The center of the Oil Spill expressed as a gml:Point in lat/lon coordinates gml:location The polygon describing boundaries of the Oil Spill expressed as one or more gml:Polygon or gml:LineString. gml:priorityLocation The date and time of the observation/prediction expressed in ISO8601 format (e.g. "2003-04-01T13:01:02Z") gml:conceptid Who provided the observation/prediction gml:origin Extension parameters of the Oil Spill gml:center Region and country classification gml:geometry Approximate distance from nearest coastline gml:timeStamp Valid keywords for free-text search gml:dataSource The unique identifier of the original EO image(s) used to identify the Oil Spill gml:extension The probability/confidence that this is a real Oil Spill. Expressed as a number in the [0..1] range. Referring to the A-B classification used in the CSNDC, 0 stands for "W" and 1 stands for "A" gml:locationClassification Oil type and age information gml:distanceFromCoast References (or URI) to auxiliary data, images, etc gml:keywords Possible sources for the oil gml:imageIdentifier In situ validation information gml:classificationLevel Sea and wind information associated to the oil spill gml:composition Events that can be put in relation with this one gml:auxiliaryDataRef gml:possibleSources gml:analysisSpecific gml:situInformation gml:meteoConditions gml:relatedEvents
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:eventid csn:origin csn:center csn:geometry csn:timeStamp csn:dataSource csn:extension csn:locationClassification csn:distanceFromCoast csn:keywords csn:imageIdentifier csn:classificationLevel csn:composition csn:auxiliaryDataRef csn:possibleSources csn:analysisSpecific csn:inSituInformation csn:meteoConditions csn:relatedEvents					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Oil Spill feature description					
source	<pre><xs:complexType name="OilSpillType"> <xs:annotation> <xs:documentation>Oil Spill feature description</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="eventid" type="xs:string"> <xs:annotation> <xs:documentation>Unique identifier of the Oil Spill event. For predicted Oil Spills this refers to the observed Oil Spill originating the prediction. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="origin" type="csn:OriginType"> <xs:annotation> <xs:documentation>Observation origin</xs:documentation> </xs:annotation> </xs:element> <xs:element name="center" type="gml:PointType"> <xs:annotation> <xs:documentation>The center of the Oil Spill expressed as a gml:pos in lat/lon coordinates</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```

<xs:element name="geometry" type="gml:GeometryArrayPropertyType">
  <xs:annotation>
    <xs:documentation>The polygon describing boundaries of the Oil Spill
expressed as one or more gml:Polygon </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation/prediction expressed
in ISO8601 format (e.g. '2003-04-01T13:01:02') </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dataSource" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Who provided the
observation/prediction </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="extension" type="csn:OilSpillExtensionType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Extension parameters of the Oil Spill </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="locationClassification" type="csn:LocationClassificationType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>Region and country classification </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="distanceFromCoast" type="gml:LengthType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Approximate distance from nearest
coastline. </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="keywords" type="ows:KeywordsType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Valid keywords for free-text search </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="imageIdentifier" type="csn:ImageType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>The unique identifier of the original EO image(s) used to
identify the Oil Spill </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="classificationLevel" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>The probability/confidence that this is a real Oil Spill.
Expressed as a number in the [0,1] range. Referring to the A/B classification used in
the CSNDC, 0 stands for 'B' and 1 stands for 'A' </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="composition" type="csn:OilSpillCompositionType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>Oil type and age information </xs:documentation>
  </xs:annotation>

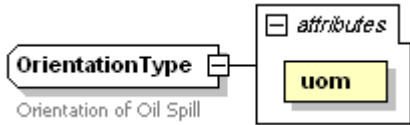
```

```

</xs:annotation>
</xs:element>
<xs:element name="auxiliaryDataRef"
type="csn:AuxiliaryDataReferenceArrayType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>References (as URI) to auxiliary data , images,
etc</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="possibleSources" type="csn:PossibleSourcesType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>Possible sources for the OS</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="analysisSpecific" type="csn:SlickTechParametersType"
minOccurs="0"/>
<xs:element name="inSituInformation" type="csn:InSituInformationType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>In Situ validation information</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="meteoConditions" type="csn:MeteoConditionsType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>Sea and wind information associated to the oil
spill</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="relatedEvents" type="csn:RelatedEventsType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>Events that can be put in relation with this
one</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType OrientationType

diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	restriction of gml:AngleType					
properties	base	gml:AngleType				
attributes	Name	Type	Use	Default	Fixed	annotation
	uom	xs:anyURI	required			
annotation	documentation Orientation of Oil Spill					

source	<pre> <xs:complexType name="OrientationType"> <xs:annotation> <xs:documentation>Orientation of Oil Spill</xs:documentation> </xs:annotation> <xs:simpleContent> <xs:restriction base="gml:AngleType"/> </xs:simpleContent> </xs:complexType> </pre>
--------	---

complexType PossibleSourcesType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:sourceDetection csn:sourceIdentification csn:sourceTrack csn:sourceType
used by	element OilSpillType/possibleSource
annotation	documentation Source of the observed spill
source	<pre> <xs:complexType name="PossibleSourcesType"> <xs:annotation> <xs:documentation>Source of the observed spill</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="sourceDetection" type="csn:SourceDetectionType"/> <xs:element name="sourceIdentification" type="csn:SourceIdentificationType"/> <xs:element name="sourceTrack" type="xs:boolean"/> <xs:element name="sourceType" type="csn:SourceTypeType"/> </xs:sequence> </xs:complexType> </pre>

element **PossibleSourcesType/sourceDetection**

diagram	<pre> classDiagram class csn_sourceDetection { csn_detected csn_detectionSensor 0..∞ csn_sourcePosition + csn_sourceConnectedToSpill csn_distanceToSpill + } </pre> <p>csn:detected TRUE means that the possible source has been detected by some sensor. If TRUE, all the following elements shall be provided. Please note that for SAR-based detection, this means that the possible source is visible as a bright spot on the image.</p> <p>csn:detectionSensor 0..∞ Type of sensor used for the detection of the possible sources</p> <p>csn:sourcePosition + Position in space and time of the possible source</p> <p>csn:sourceConnectedToSpill TRUE if the position of the detected possible source is physically connected to the Oil Spill</p> <p>csn:distanceToSpill + Approximate distance from the OilSpill in KM.If sourceConnectedToSpill is TRUE, this shall be 0</p>
namespace	http://www.emsa.europa.eu/csndc
type	csn:SourceDetectionType
properties	isRef 0 content complex
children	csn:detected csn:detectionSensor csn:sourcePosition csn:sourceConnectedToSpill csn:distanceToSpill
source	<code><xs:element name="sourceDetection" type="csn:SourceDetectionType"/></code>

element PossibleSourcesType/sourceIdentification

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SourceIdentificationType
children	csn:identified csn:identity
source	<code><xs:element name="sourceIdentification" type="csn:SourceIdentificationType"/></code>

element PossibleSourcesType/sourceTrack

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
source	<code><xs:element name="sourceTrack" type="xs:boolean"/></code>

element PossibleSourcesType/sourceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SourceTypeType
facets	<p>enumeration VESSEL</p> <p>enumeration OFFSHORE PLATFORM</p> <p>enumeration WRECK</p> <p>enumeration PIPELINE</p> <p>enumeration NATURAL</p> <p>enumeration OTHER</p> <p>enumeration UNKNOWN</p>
source	<code><xs:element name="sourceType" type="csn:SourceTypeType"/></code>

complexType RelatedEventsType

diagram	
---------	--

namespace	http://www.emsa.europa.eu/csndc
children	csn:alreadyInPreviousImage csn:identifier
annotation	documentation Other events to be put in relation with this one
source	<pre> <xs:complexType name="RelatedEventsType"> <xs:annotation> <xs:documentation>Other events to be put in relation with this one</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="alreadyInPreviousImage" type="xs:boolean" minOccurs="0"/> <xs:element name="identifier" type="xs:string" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </pre>

complexType SeaConditionType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:dataSource csn:dataType csn:waveHeight csn:waveLength csn:waveDirection csn:currentIntensity csn:currentDirection
annotation	documentation Sea condition associated to the area of spill
source	<pre> <xs:complexType name="SeaConditionType"> <xs:annotation> </pre>

	<pre> <xs:documentation>Sea condition associated to the area of spill</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="dataSource" type="xs:string" minOccurs="0"/> <xs:element name="dataType" type="xs:string" minOccurs="0"/> <xs:element name="waveHeight" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Height of the waves expressed in meters</xs:documentation> </xs:annotation> </xs:element> <xs:element name="waveLength" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Length of the waves expressed in meters</xs:documentation> </xs:annotation> </xs:element> <xs:element name="waveDirection" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Direction of the waves expressed as [0,360] deegree value where 0=360=Geographical North, clockwise </xs:documentation> </xs:annotation> </xs:element> <xs:element name="currentIntensity" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Intensity of the current expressed in meters/second</xs:documentation> </xs:annotation> </xs:element> <xs:element name="currentDirection" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Direction of the current expressed as [0,360] deegree value where 0=360=Geographical North, clockwise. Following the nautical habit, this is intended as the direction toward which the current is flowing.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	---

complexType SlickTechParametersType

diagram	<p>Array of ad-hoc analysis metadata. 1..∞</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:slickTechParameter
annotation	documentation Array of ad-hoc analysis metadata.
source	<pre> <xs:complexType name="SlickTechParametersType"> <xs:annotation> <xs:documentation>Array of ad-hoc analysis metadata.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="slickTechParameter" type="csn:SlickTechParameterType" maxOccurs="unbounded"/> </pre>

</xs:sequence>
</xs:complexType>

complexType SlickTechParameterType

diagram	<p>csn:parameter Container for ad-hoc analysis information. The 'parameter' describes the name of the attribute/parameter. For example, Shape_characteristics, Contrast_characteristics, Edge_characteristics...</p> <p>csn:value Container for ad-hoc analysis information. The 'value' describes the value of the attribute (see 'parameter').</p> <p>csn:description Container for ad-hoc analysis information. The 'description' describes in human readable text the meaning and the unit of measure of the attribute (see 'parameter'). This is optional.</p> <p>csn:importance A number from 0 to 1 to specify the relative (percentage) importance of the parameter in determining the classification of the Oil Spill. This is optional.</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:parameter csn:value csn:description csn:importance
source	<pre> <xs:complexType name="SlickTechParameterType"> <xs:sequence> <xs:element name="parameter" type="xs:string"> <xs:annotation> <xs:documentation>Container for ad-hoc analysis information. The 'parameter' describes the name of the attribute/parameter. For example, Shape_characteristics, Contrast_characteristics, Edge_characteristics... </xs:documentation> </xs:annotation> </xs:element> <xs:element name="value" type="xs:string"> <xs:annotation> <xs:documentation>Container for ad-hoc analysis information. The 'value' describes the value of the attribute (see 'parameter').</xs:documentation> </xs:annotation> </xs:element> <xs:element name="description" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Container for ad-hoc analysis information. The 'description' describes in human readable text the meaning and the unit of measure of the attribute (see 'parameter'). This is optional.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

	<pre> </xs:annotation> </xs:element> <xs:element name="importance" type="csn:SlickParameterImportanceType" minOccurs="0"> <xs:annotation> <xs:documentation>A number from 0 to 1 to specify the relative (percentage) importance of the parameter in determining the classification of the Oil Spill. This is optional.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	---

complexType **WindConditionType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:dataSource csn:dataType csn:dataValidity csn:windIntensity csn:windDirection
annotation	documentation Wind condition associated to the area of the spill
source	<pre> <xs:complexType name="WindConditionType"> <xs:annotation> <xs:documentation>Wind condition associated to the area of the spill</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="dataSource" type="xs:string" minOccurs="0"/> <xs:element name="dataType" type="xs:string" minOccurs="0"/> <xs:element name="dataValidity" type="xs:boolean"> <xs:annotation> <xs:documentation>If TRUE, wind intensity and speed values are considered reliable.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="windIntensity" type="xs:double"> <xs:annotation> </pre>

	<pre> <xs:documentation>Wind intensity expressed in meters/second</xs:documentation> </xs:annotation> </xs:element> <xs:element name="windDirection" type="xs:integer"> <xs:annotation> <xs:documentation>Wind direction expressed as [0,360] deegree value where 0=360=Geographical North, clockwise. Following the nautical habit, this is intended as the direction from which the wind is flowing.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	--

simpleType InSituValidationType

namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
facets	enumeration OS_VERIFIED enumeration OS_NOT_VERIFIED
annotation	documentation In Situ validation specifying if Oil Spill presence has been verified in facts
source	<pre> <xs:simpleType name="InSituValidationType"> <xs:annotation> <xs:documentation>In Situ validation specifying if Oil Spill presence has been verified in facts</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="OS_VERIFIED"/> <xs:enumeration value="OS_NOT_VERIFIED"/> </xs:restriction> </xs:simpleType> </pre>

simpleType OriginType

namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
facets	enumeration EXPECTED enumeration DETECTED enumeration PREDICTED
annotation	documentation Observation origin of the Oil Spill. It could be EXPECTED meaning that the presence of the Oil Spill is expected as part of a test dataset or insitu independent observation, or DETECTED meaning that the presence of the Oil Spill has been actually detected by the original EO image classification. It is predicted when it comes from a DTOS prediction service.
source	<pre> <xs:simpleType name="OriginType"> <xs:annotation> <xs:documentation>Observation origin of the Oil Spill. It could be EXPECTED meaning that the presence of the Oil Spill is expected as part of a test dataset or insitu independent observation, or DETECTED meaning that the presence of the Oil Spill has been actually detected by the original EO image classification. It is predicted when it comes from a DTOS prediction service.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="EXPECTED"/> <xs:enumeration value="DETECTED"/> </pre>

	<pre><xs:enumeration value="PREDICTED"/> </xs:restriction> </xs:simpleType></pre>
--	---

simpleType **SensorType**

namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
facets	enumeration SAR enumeration VIS-IR enumeration OTHER
annotation	documentation EO Sensor Type
source	<pre><xs:simpleType name="SensorType"> <xs:annotation> <xs:documentation>EO Sensor Type</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="SAR"/> <xs:enumeration value="VIS-IR"/> <xs:enumeration value="OTHER"/> </xs:restriction> </xs:simpleType></pre>

simpleType **SlickParameterImportanceType**

namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:double
facets	minInclusive 0 maxInclusive 1
annotation	documentation Relative importance of a parameter in determining the oil spill classification. It is the percentage weight of the parameter in classifying the oil spill expressed as a number in the 0 (not used) to 1 (most important) range.
source	<pre><xs:simpleType name="SlickParameterImportanceType"> <xs:annotation> <xs:documentation>Relative importance of a parameter in determining the oil spill classification. It is the percentage weight of the parameter in classifying the oil spill expressed as a number in the 0 (not used) to 1 (most important) range.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"> <xs:minInclusive value="0"/> <xs:maxInclusive value="1"/> </xs:restriction> </xs:simpleType></pre>

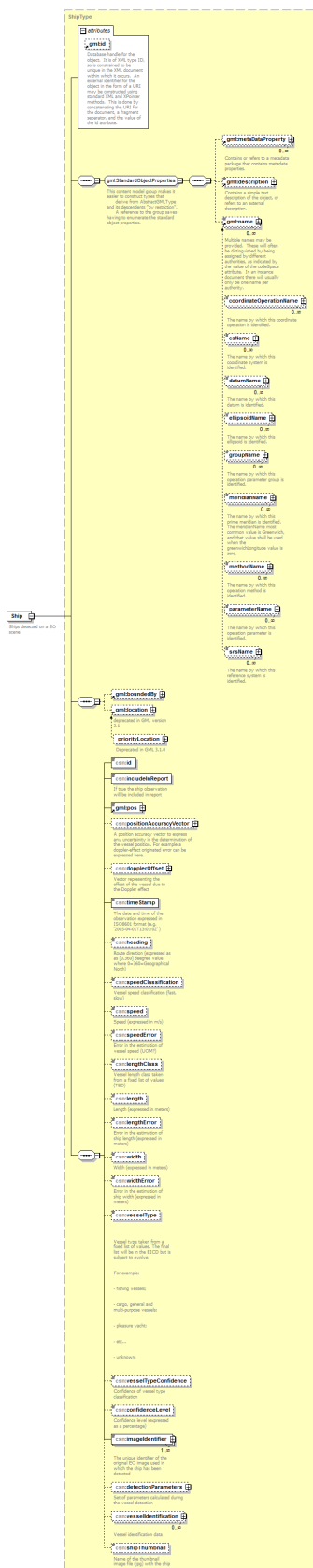
11 ANNEX D – DETECTED SHIP FEATURE GML SCHEMA

Schema csndc_ds.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **<http://www.emsa.europa.eu/csndc>**

Elements	Complex types
<u>Ship</u>	<u>DetectionParametersType</u>
	<u>DopplerOffsetType</u>
	<u>PositionAccuracyVectorType</u>
	<u>ShipType</u>
	<u>VesselIdentificationType</u>

diagram



namespace

<http://www.emsa.europa.eu/csndc>


type	csn:ShipType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:id csn:includeInReport gml:pos csn:positionAccuracyVector csn:dopplerOffset csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:length csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:detectionParameters csn:vesselIdentification csn:shipThumbnail					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Ships detected on a EO scene					
source	<xs:element name="Ship" type="csn:ShipType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Ships detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

complexType DetectionParametersType


diagram	<p>DetectionParametersType Set of parameters calculated for the target during the vessel detection</p> <p>csn:RCS Radar cross section value expressed in meters squared</p> <p>csn:maxPixelValue Max pixel value</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:RCS csn:maxPixelValue
annotation	documentation Set of parameters calculated for the target during the vessel detection
source	<pre><xs:complexType name="DetectionParametersType"></pre>

	<pre> <xs:annotation> <xs:documentation>Set of parameters calculated for the target during the vessel detection</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="RCS" type="xs:double"> <xs:annotation> <xs:documentation>Radar cross section value expressed in meters squared</xs:documentation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double"> <xs:annotation> <xs:documentation>Max pixel value</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	---

element DetectionParametersType/RCS

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Radar cross section value expressed in meters squared
source	<pre> <xs:element name="RCS" type="xs:double"> <xs:annotation> <xs:documentation>Radar cross section value expressed in meters squared</xs:documentation> </xs:annotation> </xs:element> </pre>

element DetectionParametersType/maxPixelValue

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Max pixel value
source	<pre> <xs:element name="maxPixelValue" type="xs:double"> <xs:annotation> <xs:documentation>Max pixel value</xs:documentation> </xs:annotation> </xs:element> </pre>

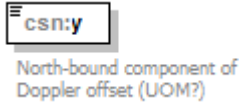
complexType DopplerOffsetType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:x csn:y
source	<pre> <xs:complexType name="DopplerOffsetType"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:sequence> <xs:element name="x" type="xs:integer"> <xs:annotation> <xs:documentation>East-bound component of Doppler offset (UOM?)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="y" type="xs:integer"> <xs:annotation> <xs:documentation>North-bound component of Doppler offset (UOM?)</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

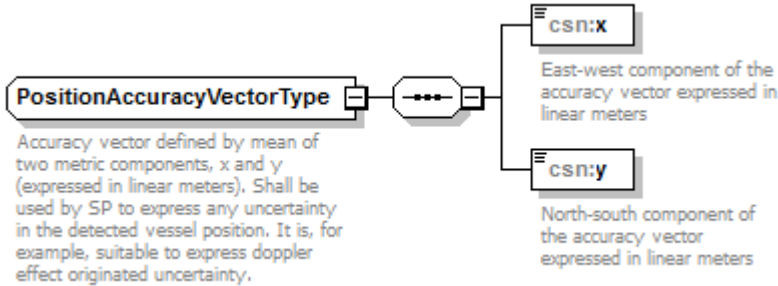
element DopplerOffsetType/x

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple
annotation	documentation East-bound component of Doppler offset (UOM?)
source	<pre> <xs:element name="x" type="xs:integer"> <xs:annotation> <xs:documentation>East-bound component of Doppler offset (UOM?)</xs:documentation> </xs:annotation> </xs:element> </pre>

element **DopplerOffsetType/y**


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple
annotation	documentation North-bound component of Doppler offset (UOM?)
source	<pre><xs:element name="y" type="xs:integer"> <xs:annotation> <xs:documentation>North-bound component of Doppler offset (UOM?)</xs:documentation> </xs:annotation> </xs:element></pre>

complexType **PositionAccuracyVectorType**


diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:x csn:y
annotation	documentation Accuracy vector defined by mean of two metric components, x and y (expressed in linear meters). Shall be used by SP to express any uncertainty in the detected vessel position. It is, for example, suitable to express doppler effect originated uncertainty.
source	<pre><xs:complexType name="PositionAccuracyVectorType"> <xs:annotation> <xs:documentation>Accuracy vector defined by mean of two metric components, x and y (expressed in linear meters). Shall be used by SP to express any uncertainty in the detected vessel position. It is, for example, suitable to express doppler effect originated uncertainty.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="x" type="xs:integer"> <xs:annotation> <xs:documentation>East-west component of the accuracy vector expressed in linear meters</xs:documentation> </xs:annotation> </xs:element> <xs:element name="y" type="xs:integer"> <xs:annotation> <xs:documentation>North-south component of the accuracy vector expressed in linear meters</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType></pre>

	<pre></xs:element> </xs:sequence> </xs:complexType></pre>
--	---

element **PositionAccuracyVectorType/x**

diagram	 <p>East-west component of the accuracy vector expressed in linear meters</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple
annotation	documentation East-west component of the accuracy vector expressed in linear meters
source	<pre><xs:element name="x" type="xs:integer"> <xs:annotation> <xs:documentation>East-west component of the accuracy vector expressed in linear meters</xs:documentation> </xs:annotation> </xs:element></pre>

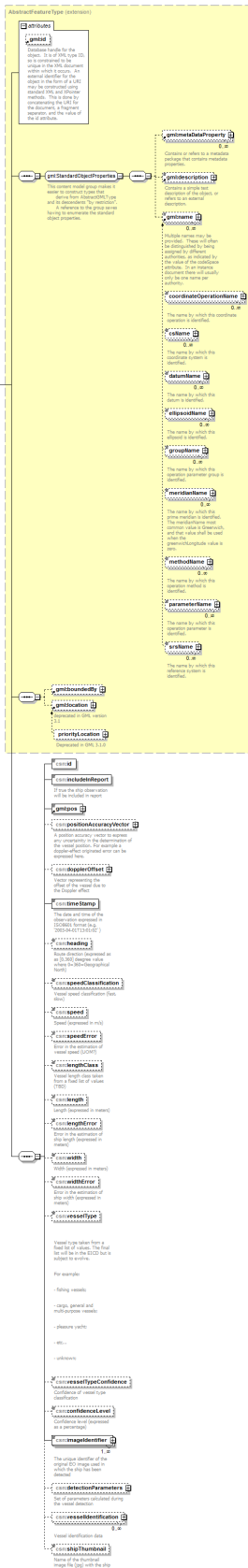
element **PositionAccuracyVectorType/y**

diagram	 <p>North-south component of the accuracy vector expressed in linear meters</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple
annotation	documentation North-south component of the accuracy vector expressed in linear meters
source	<pre><xs:element name="y" type="xs:integer"> <xs:annotation> <xs:documentation>North-south component of the accuracy vector expressed in linear meters</xs:documentation> </xs:annotation> </xs:element></pre>

complexType ShipType

diagram

ShipType



namespace

<http://www.emsa.europa.eu/csndc>

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:id csn:includeInReport gml:pos csn:positionAccuracyVector csn:dopplerOffset csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:length csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:detectionParameters csn:vesselIdentification csn:shipThumbnail					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Ship observed in the original satellite image					
source	<pre> <xs:complexType name="ShipType"> <xs:annotation> <xs:documentation>Ship observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="id" type="xs:string"/> <xs:element name="includeInReport" type="xs:boolean" default="false"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="gml:pos"/> <xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType" minOccurs="0"> <xs:annotation> <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the vessel position. For example a doppler-effect originated error can be expressed here.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

	<pre> <xs:element name="dopplerOffset" type="csn:DopplerOffsetType" minOccurs="0"> <xs:annotation> <xs:documentation>Vector representing the offset of the vessel due to the Doppler effect</xs:documentation> </xs:annotation> </xs:element> <xs:element name="timeStamp" type="xs:dateTime"> <xs:annotation> <xs:documentation>The date and time of the observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation> </xs:annotation> </xs:element> <xs:element name="heading" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Route direction (expressed as as [0,360] deegree value where 0=360=Geographical North)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="speedClassification" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Vessel speed classification (fast, slow)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="speed" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Speed (expressed in m/s)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="speedError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of vessel speed (UOM?)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="lengthClass" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Vessel length class taken from a fixed list of values (TBD)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="length" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="lengthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> </pre>
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	<pre> <xs:annotation> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence level (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="csn:ImageType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="detectionParameters" type="csn:DetectionParametersType" minOccurs="0"> <xs:annotation> <xs:documentation>Set of parameters calculated during the vessel detection</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselIdentification" type="csn:VesselIdentificationType" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>Vessel identification data</xs:documentation> </xs:annotation> </xs:element> <xs:element name="shipThumbnail" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Name of the thumbnail image file (jpg) with the ship</xs:documentation> </xs:annotation> </xs:element> </pre>
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	<pre> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
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element **ShipType/id**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
source	<pre><xs:element name="id" type="xs:string"/></pre>

element **ShipType/includeInReport**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
properties	isRef 0 content simple default false
annotation	documentation If true the ship observation will be included in report. Not used. By default set to false.
source	<pre> <xs:element name="includeInReport" type="xs:boolean" default="false"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> </pre>

element **ShipType/positionAccuracyVector**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:PositionAccuracyVectorType

properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	csn:x csn:y
annotation	documentation A position accuracy vector to express any uncertainty in the determination of the vessel position. For example a doppler-effect originated error can be expressed here.
source	<pre><xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType" minOccurs="0"> <xs:annotation> <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the vessel position. For example a doppler-effect originated error can be expressed here.</xs:documentation> </xs:annotation> </xs:element></pre>

element ShipType/dopplerOffset

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DopplerOffsetType
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	csn:x csn:y
annotation	documentation Vector representing the offset of the vessel due to the Doppler effect
source	<pre><xs:element name="dopplerOffset" type="csn:DopplerOffsetType" minOccurs="0"> <xs:annotation> <xs:documentation>Vector representing the offset of the vessel due to the Doppler effect</xs:documentation> </xs:annotation> </xs:element></pre>

element ShipType/timeStamp

diagram	
namespace	http://www.emsa.europa.eu/csndc

type	xs:dateTime
properties	isRef 0 content simple
annotation	documentation The date and time of the observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')
source	<pre> <xs:element name="timeStamp" type="xs:dateTime"> <xs:annotation> <xs:documentation>The date and time of the observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation> </xs:annotation> </xs:element> </pre>

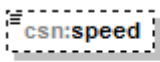
element ShipType/heading

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Route direction (expressed as as [0,360] deegree value where 0=360=Geographical North)
source	<pre> <xs:element name="heading" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Route direction (expressed as as [0,360] deegree value where 0=360=Geographical North)</xs:documentation> </xs:annotation> </xs:element> </pre>

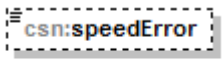
element ShipType/speedClassification

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Vessel speed classification (fast, slow)
source	<pre> <xs:element name="speedClassification" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Vessel speed classification (fast, slow)</xs:documentation> </xs:annotation> </xs:element> </pre>

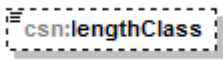
element ShipType/speed

diagram	 <p>Speed (expressed in m/s)</p>								
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Speed (expressed in m/s)								
source	<pre> <xs:element name="speed" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Speed (expressed in m/s)</xs:documentation> </xs:annotation> </xs:element> </pre>								

element ShipType/speedError


diagram	 <p>Error in the estimation of vessel speed (UOM?)</p>								
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Error in the estimation of vessel speed (UOM?)								
source	<pre> <xs:element name="speedError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of vessel speed (UOM?)</xs:documentation> </xs:annotation> </xs:element> </pre>								

element ShipType/lengthClass

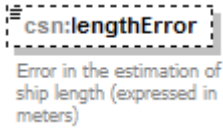
diagram	 <p>Vessel length class taken from a fixed list of values (TBD)</p>								
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Vessel length class taken from a fixed list of values (TBD)								

source	<pre><xs:element name="lengthClass" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Vessel length class taken from a fixed list of values (TBD)</xs:documentation> </xs:annotation> </xs:element></pre>
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element ShipType/length

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Length (expressed in meters)								
source	<pre><xs:element name="length" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element></pre>								

element ShipType/lengthError

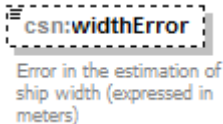
diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Error in the estimation of ship length (expressed in meters)								
source	<pre><xs:element name="lengthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element></pre>								

element ShipType/width


diagram	
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namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Width (expressed in meters)
source	<pre> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> </pre>

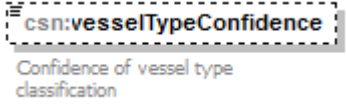
element ShipType/widthError

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Error in the estimation of ship width (expressed in meters)
source	<pre> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> </pre>


element **ShipType/vesselType**

diagram	 <p>Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve.</p> <p>For example:</p> <ul style="list-style-type: none"> - fishing vessels; - cargo, general and multi-purpose vessels; - pleasure yacht; - etc... - unknown; 								
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	<p>documentation</p> <p>of values. The final list will be in the EICD but is subject to evolve. For example:</p> <ul style="list-style-type: none"> - fishing vessels; - cargo, general and multi-purpose vessels; - pleasure yacht; - etc... - unknown; 								
source	<pre><xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi-purpose vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element></pre>								

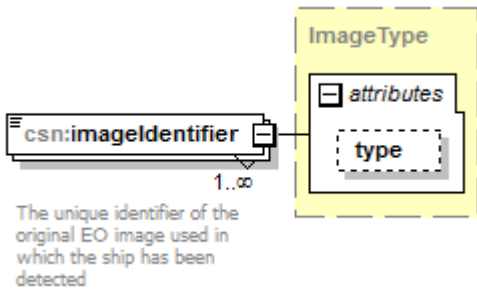
element **ShipType/vesselTypeConfidence**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Confidence of vessel type classification								
source	<pre> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> </pre>								

element **ShipType/confidenceLevel**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:double								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Confidence level (expressed as a percentage)								
source	<pre> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence level (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> </pre>								

element **ShipType/imageIdentifier**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:ImageType

properties	isRef 0 minOcc 1 maxOcc unbounded content complex
attributes	Name Type Use Default Fixed annotation type csn:SensorType
annotation	documentation The unique identifier of the original EO image used in which the ship has been detected
source	<pre><xs:element name="imageIdentifier" type="csn:ImageType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element></pre>

element ShipType/detectionParameters

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DetectionParametersType
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	csn:RCS csn:maxPixelValue
annotation	documentation Set of parameters calculated during the vessel detection
source	<pre><xs:element name="detectionParameters" type="csn:DetectionParametersType" minOccurs="0"> <xs:annotation> <xs:documentation>Set of parameters calculated during the vessel detection</xs:documentation> </xs:annotation> </xs:element></pre>

element ShipType/vesselIdentification

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	csn:VesselIdentificationType								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>unbounded</td></tr> <tr><td>content</td><td>complex</td></tr> </table>	isRef	0	minOcc	0	maxOcc	unbounded	content	complex
isRef	0								
minOcc	0								
maxOcc	unbounded								
content	complex								
children	csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority								
annotation	documentation Vessel identification data								
source	<pre><xs:element name="vesselIdentification" type="csn:VesselIdentificationType" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>Vessel identification data</xs:documentation> </xs:annotation> </xs:element></pre>								

element ShipType/shipThumbnail

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation Name of the thumbnail image file (jpg) with the ship								
source	<pre><xs:element name="shipThumbnail" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Name of the thumbnail image file (jpg) with the ship</xs:documentation> </xs:annotation> </xs:element></pre>								

	<pre></xs:annotation> </xs:element></pre>
--	---

complexType **VesselIdentificationType**

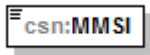
diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority
annotation	documentation Vessel identification parameters
source	<pre><xs:complexType name="VesselIdentificationType"> <xs:annotation> <xs:documentation>Vessel identification parameters</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="IMONumber" type="xs:string" minOccurs="0"/> <xs:element name="MMSI" type="xs:string" minOccurs="0"/> <xs:element name="shipName" type="xs:string" minOccurs="0"/> <xs:element name="callSign" type="xs:string" minOccurs="0"/> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Order of priority for identified vessels. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType></pre>

element **VesselIdentificationType/IMONumber**

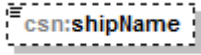
diagram	
---------	--

namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
source	<xs:element name="IMONumber" type="xs:string" minOccurs="0"/>								

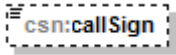
element **VesselIdentificationType/MMSI**

diagram					
namespace	http://www.emsa.europa.eu/csndc				
type	xs:string				
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	content	simple
isRef	0				
content	simple				
source	<xs:element name="MMSI" type="xs:string"/>				


element **VesselIdentificationType/shipName**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
source	<xs:element name="shipName" type="xs:string" minOccurs="0"/>								

element **VesselIdentificationType/callSign**

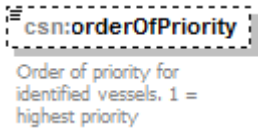
diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
source	<xs:element name="callSign" type="xs:string" minOccurs="0"/>								

element **VesselIdentificationType/vesselIdentificationConfidenceLevel**

diagram	
namespace	http://www.emsa.europa.eu/csndc

type	xs:double
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Confidence of vessel identification
source	<pre> <xs:element name="vesselIdentificationConfidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel identification</xs:documentation> </xs:annotation> </xs:element> </pre>

element **VesselIdentificationType/orderOfPriority**

diagram	 <p>csn:orderOfPriority Order of priority for identified vessels. 1 = highest priority</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Order of priority for identified vessels. 1 = highest priority
source	<pre> <xs:element name="orderOfPriority" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>Order of priority for identified vessels. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </pre>

XML Schema documentation generated by [XMLSpy](http://www.altova.com/xmlspy) Schema Editor <http://www.altova.com/xmlspy>

12 ANNEX E – IMAGE QUALITY XML SCHEMAS

12.1 QUALITY NOTIFICATION XML SCHEMA

Schema csndc_qn.xsd

targetNamespace: <http://www.emsa.europa.eu/csndc>

Elements

[QualityNotification](#)

Complex types

[DisplacementVectorType](#)

[EstimatedPositionDeviationType](#)

[ProductType](#)

[QualityNotificationType](#)

element **QualityNotification**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:QualityNotificationType
properties	content complex
children	csn:id csn:productIdentifier csn:productIsAcceptable csn:estimatedPositionDeviation
annotation	documentation Quality Notification
source	<pre><xs:element name="QualityNotification" type="csn:QualityNotificationType"> <xs:annotation> <xs:documentation>Quality Notification</xs:documentation> </xs:annotation> </xs:element></pre>

complexType DisplacementVectorType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:line csn:column csn:latitude csn:longitude
annotation	documentation The correction parameters (displacement vector) applied to the image 'onTheFly'
source	<pre> <xs:complexType name="DisplacementVectorType"> <xs:annotation> <xs:documentation>The correction parameters (displacement vector) applied to the image 'onTheFly'</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="line" type="xs:integer"> <xs:annotation> <xs:documentation>Delta lines displacement. It is the number of lines which have to be added to the calculated INPUT lines position to get the corrected values. A positive displacementVector.line is necessary to shift an image which is located too far forwards in the along track position back to its correct position. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="column" type="xs:integer"> <xs:annotation> <xs:documentation>Delta columns displacement. It is the number of columns which have to be added to the calculated INPUT columns position to get the corrected values. A positive displacementVector.column is necessary to shift an image which is located too far in the across track position back to its correct position.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="latitude" type="xs:double"> <xs:annotation> <xs:documentation>Latitude displacement expressed in degree (according to EPSG:4326)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="longitude" type="xs:double"> <xs:annotation> <xs:documentation>Longitude displacement expressed in degree (according to EPSG:4326)</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

	<code></xs:sequence></code> <code></xs:complexType></code>
--	---

complexType **EstimatedPositionDeviationType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:onTheFly csn:displacementVector
annotation	documentation Estimated position accuracy of the product
source	<pre> <xs:complexType name="EstimatedPositionDeviationType"> <xs:annotation> <xs:documentation>Estimated position accuracy of the product</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="onTheFly" type="xs:boolean"> <xs:annotation> <xs:documentation>If this correction has been applied by the operator 'on the fly' or not</xs:documentation> </xs:annotation> </xs:element> <xs:element name="displacementVector" type="csn:DisplacementVectorType" minOccurs="0"> <xs:annotation> <xs:documentation>The correction parameters (displacement vector) applied to the image 'onTheFly'</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

complexType **ProductType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	extension of xs:string
properties	base xs:string
annotation	documentation EO Product identifier
source	<pre> <xs:complexType name="ProductType"> <xs:annotation> <xs:documentation>EO Product identifier</xs:documentation> </xs:annotation> </pre>

```
<xs:simpleContent>
  <xs:extension base="xs:string"/>
</xs:simpleContent>
</xs:complexType>
```

complexType **QualityNotificationType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:id csn:productIdentifier csn:productsAcceptable csn:estimatedPositionDeviation
annotation	documentation Quality Notification information for the original satellite image
source	<pre><xs:complexType name="QualityNotificationType"> <xs:annotation> <xs:documentation>Quality Notification information for the original satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="id" type="xs:string"> <xs:annotation> <xs:documentation>The unique identifier of this QN</xs:documentation> </xs:annotation> </xs:element> <xs:element name="productIdentifier" type="csn:ProductType"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image to which the QN refers to</xs:documentation> </xs:annotation> </xs:element> <xs:element name="productsAcceptable" type="xs:boolean"> <xs:annotation> <xs:documentation>Product is acceptable for delivery or not</xs:documentation> </xs:annotation> </xs:element> <xs:element name="estimatedPositionDeviation" type="csn:EstimatedPositionDeviationType"> <xs:annotation> <xs:documentation>Estimated position accuracy of the product</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType></pre>

</xs:sequence>
</xs:complexType>

12.2 QUALITY REPORT XML SCHEMA

Schema csndc_qr.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements
[QualityReport](#)


Complex types
[ProductType](#)
[QualityIndicatorsType](#)
[QualityReportType](#)

element QualityReport

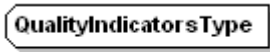
diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:QualityReportType
properties	content complex
children	csn:id csn:productIdentifier csn:coverageCompliance csn:usableArea csn:qualityIndicators
annotation	documentation Quality Report

source	<pre><xs:element name="QualityReport" type="csn:QualityReportType"> <xs:annotation> <xs:documentation>Quality Report</xs:documentation> </xs:annotation> </xs:element></pre>
--------	--

complexType ProductType

diagram	 <p>EO Product identifier</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of xs:string
properties	base xs:string
annotation	documentation EO Product identifier
source	<pre><xs:complexType name="ProductType"> <xs:annotation> <xs:documentation>EO Product identifier</xs:documentation> </xs:annotation> <xs:simpleContent> <xs:extension base="xs:string"/> </xs:simpleContent> </xs:complexType></pre>

complexType QualityIndicatorsType

diagram	 <p>TBD</p>
namespace	http://www.emsa.europa.eu/csndc
annotation	documentation TBD
source	<pre><xs:complexType name="QualityIndicatorsType"> <xs:annotation> <xs:documentation>TBD</xs:documentation> </xs:annotation> </xs:complexType></pre>

complexType QualityReportType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:id csn:productIdentifier csn:coverageCompliance csn:usableArea csn:qualityIndicators
annotation	documentation Quality Report information for the acquired satellite image
source	<pre> <xs:complexType name="QualityReportType"> <xs:annotation> <xs:documentation>Quality Report information for the acquired satellite image</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="id" type="xs:string"> <xs:annotation> <xs:documentation>The unique identifier of this QR</xs:documentation> </xs:annotation> </xs:element> <xs:element name="productIdentifier" type="csn:ProductType"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image to which the QR refers</xs:documentation> </xs:annotation> </xs:element> <xs:element name="coverageCompliance" type="xs:double"> <xs:annotation> <xs:documentation>Percentage of planned footprint area that is correctly delivered.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="usableArea" type="xs:double"> <xs:annotation> <xs:documentation>Percentage of delivered image inside planned footprint that is considered usable for analyses (e.g. excluding pixels which are corrupted, saturated, etc.).</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

```
</xs:annotation>
</xs:element>
<xs:element      name="qualityIndicators"      type="csn:QualityIndicatorsType"
minOccurs="0">
  <xs:annotation>
    <xs:documentation>TBD</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
```

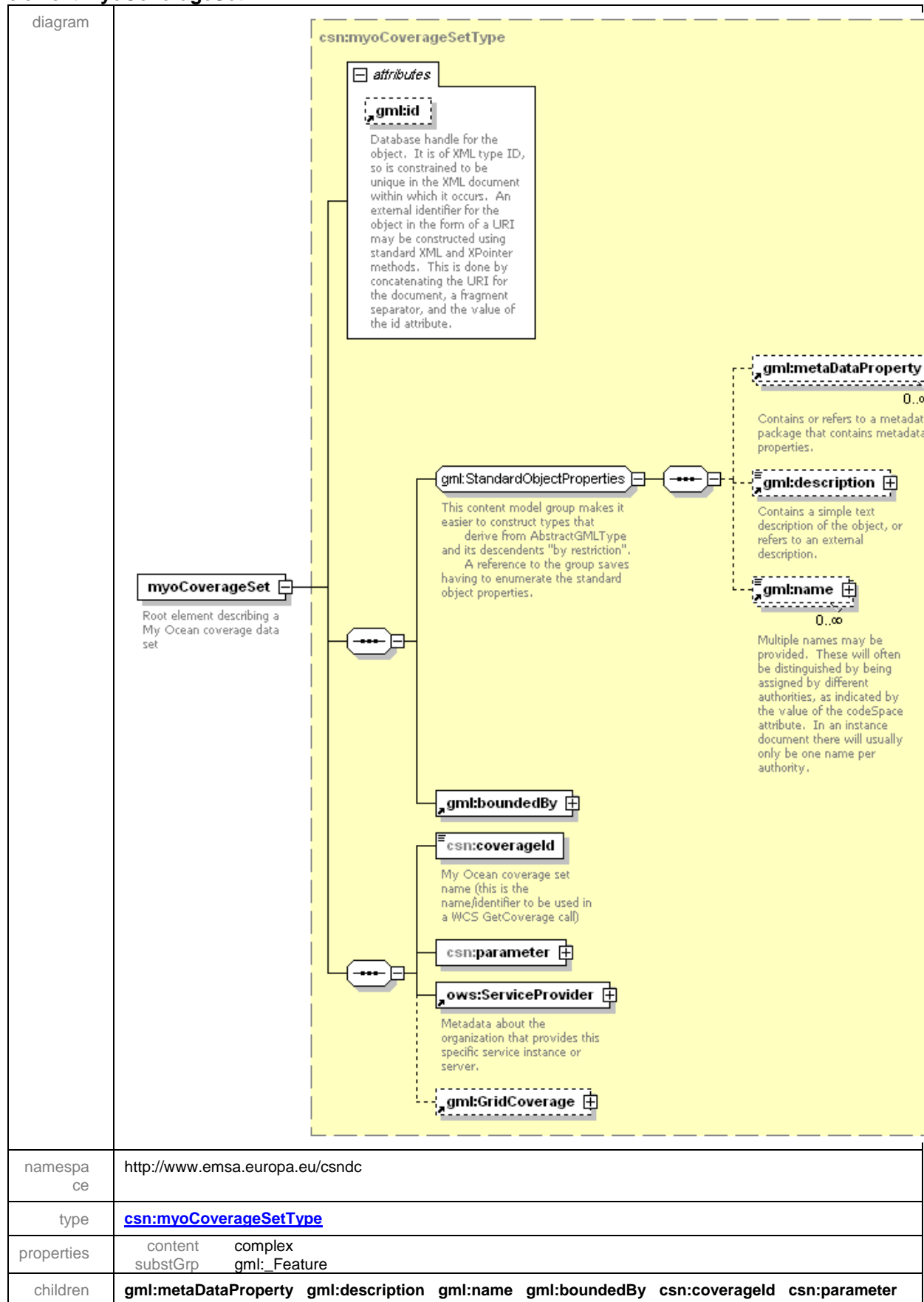
13 ANNEX F – MYOCEAN CATALOGUE ITEM GML SCHEMA

Schema csndc_myo.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements	Complex types
myoCoverageSet	myoCoverageSetType
	myoFeatureType
	parameterType

element myoCoverageSet



ows:ServiceProvider gml:GridCoverage						
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Root element describing a My Ocean coverage data set					
source	<pre> <xs:element name="myoCoverageSet" type="csn:myoCoverageSetType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Root element describing a My Ocean coverage data set</xs:documentation> </xs:annotation> </xs:element> </pre>					

complexType myoCoverageSetType

diagram	<p>myoCoverageSetType My Ocean coverage set description</p> <p>csn:myoFeatureType (extension)</p> <p>attributes</p> <p>gmlid Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>gml:metaDataProperty 0..∞ Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description Contains a simple text description of the object, or refers to an external description.</p> <p>gml:name 0..∞ Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority.</p> <p>gml:boundedBy</p> <p>csn:coverageld My Ocean coverage set name (this is the name/identifier to be used in a WCS GetCoverage call)</p> <p>csn:parameter</p> <p>ows:ServiceProvider Metadata about the organization that provides this specific service instance or server.</p> <p>gml:GridCoverage</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of csn:myoFeatureType
properties	base csn:myoFeatureType
children	gml:metaDataProperty gml:description gml:name gml:boundedBy csn:coverageld csn:parameter ows:ServiceProvider gml:GridCoverage

attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation	My Ocean coverage set description				
source	<pre> <xs:complexType name="myoCoverageSetType"> <xs:annotation> <xs:documentation>My Ocean coverage set description</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="csn:myoFeatureType"> <xs:sequence> <xs:element name="coverageId" type="xs:string"> <xs:annotation> <xs:documentation>My Ocean coverage set name (this is the name/identifier to be used in a WCS GetCoverage call)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="parameter" type="csn:parameterType"/> <xs:element ref="ows:ServiceProvider"/> <xs:element ref="gml:GridCoverage" minOccurs="0"/> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

		URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="myoFeatureType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:restriction ref="gml:StandardObjectProperties"/> <xs:sequence ref="gml:boundedBy"/> <xs:group> <xs:element> </xs:sequence> </xs:restriction> </xs:complexContent> </xs:complexType> </pre>	

complexType parameterType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:parameterName csn:parameterUnits
annotation	documentation My Ocean parameter description
source	<pre> <xs:complexType name="parameterType"> <xs:annotation> <xs:documentation>My Ocean parameter description</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="parameterName"> <xs:annotation> <xs:documentation>My Ocean coverage's parameter name (as defined internally to csndc)</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="concentration_of_chlorophyll_a"/> <xs:enumeration value="sea_surface_temperature"/> <xs:enumeration value="sea_ice_area_fraction"/> <xs:enumeration value="sea_surface_currents"/> </xs:restriction> </xs:simpleType> </xs:element> </xs:sequence> </xs:complexType> </pre>

	<pre> <xs:element name="parameterUnits" type="xs:string"> <xs:annotation> <xs:documentation>My Ocean coverage's parameter unit of measure</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	--

14 ANNEX G – SOAP MESSAGE FOR SP PACKAGES LIST AND CHECKSUM

The service endpoint is: https://csndc.emsa.europa.eu:443/javabridge/acs/csn_hash_server.php
The SOAP WSDL is reported hereafter.

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions name="CSNDC" targetNamespace="http://localhost/Emsa/Emsa.wsdl"
  xmlns:tns="http://localhost/Emsa/Emsa.wsdl" xmlns:SOAP-
  ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
  ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:csn="http://localhost/csn.xsd"
  xmlns:SOAP="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:MIME="http://schemas.xmlsoap.org/wsdl/mime/"
  xmlns:DIME="http://schemas.xmlsoap.org/ws/2002/04/dime/wsdl/"
  xmlns:WSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns="http://schemas.xmlsoap.org/wsdl/">
  <types>
    <schema targetNamespace="http://localhost/csn.xsd" xmlns:SOAP-
      ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
      ENC="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      xmlns:csn="http://localhost/csn.xsd" xmlns="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified" attributeFormDefault="unqualified">
      <import
        namespace="http://schemas.xmlsoap.org/soap/encoding/" />
      <complexType name="VectorOfStrings">
        <sequence>
          <element ref="csn:PackageName" minOccurs="0"
            maxOccurs="unbounded" />
        </sequence>
      </complexType>
      <complexType name="Package">
        <sequence>
          <element ref="csn:Filename" minOccurs="1"
            maxOccurs="1" />
          <element ref="csn:MD5" minOccurs="1"
            maxOccurs="1" />
          <element ref="csn:orderId" minOccurs="1"
            maxOccurs="1" />
          <element ref="csn:DataTakeOpportunityID"
            minOccurs="0" maxOccurs="1" />
          <element ref="csn:PackageList" minOccurs="1"
            maxOccurs="1" />
        </sequence>
      </complexType>
      <complexType name="TransmitRequest">
        <sequence>
          <element ref="csn:PackageData" minOccurs="0"
            maxOccurs="1" />
        </sequence>
      </complexType>
```



```

<element name="PackageName" type="xsd:string"/>
<element name="Filename" type="xsd:string"/>
<element name="MD5" type="xsd:string"/>
<element name="orderID" type="xsd:int"/>
<element name="DataTakeOpportunityID" type="xsd:int"/>
<element name="PackageList" type="csn:VectorOfStrings"/>
<element name="PackageData" type="csn:Package"/>
<element name="Response" type="xsd:string"/>
<element name="OutOfOrderList" type="csn:VectorOfStrings"/>
<element name="UnnotifiedPackages"
type="csn:VectorOfStrings"/>
<element name="InputPackage" type="csn:TransmitRequest"/>
<!-- operation request element -->
<element name="TransmitPackage">
  <complexType>
    <sequence>
      <element ref="csn:InputPackage"
minOccurs="0" maxOccurs="1"/>
    </sequence>
  </complexType>
</element>
<!-- operation response element -->
<element name="TransmitResponse">
  <complexType>
    <sequence>
      <element ref="csn:Response" minOccurs="1"
maxOccurs="1"/>
      <element ref="csn:OutOfOrderList"
minOccurs="1" maxOccurs="1"/>
      <element ref="csn:UnnotifiedPackages"
minOccurs="1" maxOccurs="1"/>
    </sequence>
  </complexType>
</element>
</schema>
</types>
<message name="TransmitPackage">
  <part name="parameters" element="csn:TransmitPackage"/>
</message>
<message name="TransmitResponse">
  <part name="parameters" element="csn:TransmitResponse"/>
</message>
<portType name="EmsaPortType">
  <operation name="TransmitPackage">
    <documentation>Service definition of function
csn__TransmitPackage
    </documentation>
    <input message="tns:TransmitPackage"/>
    <output message="tns:TransmitResponse"/>
  </operation>
</portType>
<binding name="Emsa" type="tns:EmsaPortType">
  <SOAP:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="TransmitPackage">
    <SOAP:operation soapAction="">
      <input>
        <SOAP:body parts="parameters" use="literal"/>
      </input>
    </SOAP:operation>
  </operation>

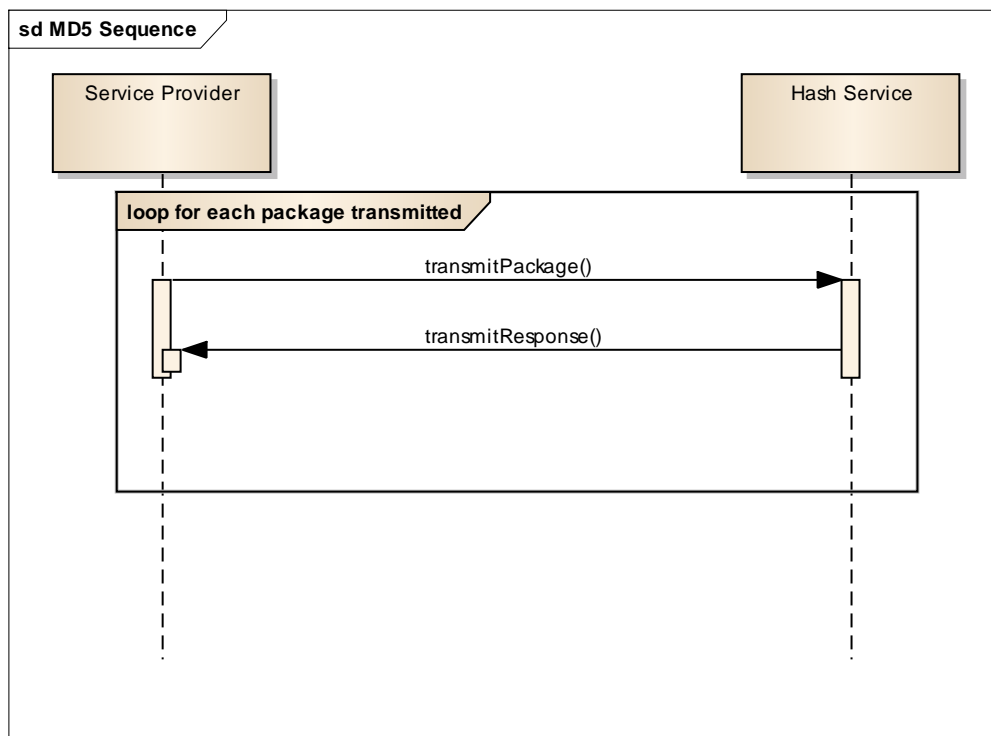
```

```

        <output>
            <SOAP:body parts="parameters" use="literal"/>
        </output>
    </operation>
</binding>
<service name="Emsa">
    <documentation>MD5 Service</documentation>
    <port name="Emsa" binding="tns:Emsa">
        <SOAP:address
location="http://twls11/javabridge/acs/csn_hash_server.php"/>
    </port>
</service>
</definitions>

```

The sequence for message exchange is quite simple, as illustrated in the following sequence diagram.



For each package to be transmitted, the SP sends the TransmitPackage message to the service and receives in response a message. Typically an acknowledgment.

On the last package transmitted, in the message body the SP shall include the list of packages previously sent so that the Hash Service can compare the list against the data already sent for the same service ID and, possibly, send a warning message in case the list provided in the last message does not match with the list of files sent in the individual messages. The details business rules are explained below.

SOAP Request example:

```

POST /WUP HTTP/1.1
Host: www.emsa.europa.eu
Content-Type: application/soap+xml; charset=utf-8
Content-Length: nnn

```

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2001/12/soap-envelope"
soap:encodingStyle="http://www.w3.org/2001/12/soap-encoding">
  <soap:Body xmlns:csn="http://www.emsa.europa.eu/csndc">
    <csn:TransmitPackage>
      <csn:InputPackage>
        <csn:PackageData>
          <csn:Filename>APC0_20092333_200932223....._QR</csn:Filename>
          <csn:MD5>d41d8cd98f00b204e9800998ecf8427e</csn:MD5>
          <csn:OrderID>232112</csn:OrderID>
          <csn:PackagesList>
            <csn:PackageName>APC0_20092333_200932223....._OW </csn:PackageName>
            <csn:PackageName>APC0_20092333_200932223....._EO</csn:PackageName>
            ...
            <csn:PackageName>APC0_20092333_200932223....._QR</csn:PackageName>
          </csn:PackagesList>
        </csn:PackageData>
      </csn:InputPackage>
    </csn:TransmitPackage>
  </soap:Body>
</soap:Envelope>
```

The <PackageList> element is optional and is only filled with the last package of the transmission (typically the Quality Report one). It is the list of all the package file names belonging to the same "transmission" (i.e. the same event processing).

In the following another example using the optional element DataTakeOpportunityID used to specify which DTO of the corresponding orderID is referred to.

```
POST /WUP HTTP/1.1
Host: www.emsa.europa.eu
Content-Type: application/soap+xml; charset=utf-8
Content-Length: nnn
```

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:csn="http://localhost/csn.xsd">
  <soapenv:Header/>
  <soapenv:Body>
    <csn:TransmitPackage>
      <!--Optional:-->
      <csn:InputPackage>
        <!--Optional:-->
        <csn:PackageData>
          <csn:Filename>2015081105_fake_EOP.tgz</csn:Filename>
          <csn:MD5>9ea2fc327db12849f468fffb6cbf0a3f</csn:MD5>
          <csn:orderID>2015081105</csn:orderID>
          <!--Optional:-->
          <csn:DataTakeOpportunityID>5</csn:DataTakeOpportunityID>
          <csn:PackageList>
            <!--Zero or more repetitions:-->
            <csn:PackageName>2015081105_fake_EOP</csn:PackageName>
          </csn:PackageList>
        </csn:PackageData>
      </csn:InputPackage>
    </csn:TransmitPackage>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP Response example:

HTTP/1.1 200 OK

Content-Type: application/soap+xml; charset=utf-8

Content-Length: nnn

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2001/12/soap-envelope"
  soap:encodingStyle="http://www.w3.org/2001/12/soap-encoding">
  <soap:Body xmlns:csn="http://www.emsa.europa.eu/csndc">
    <csn:Response>ACK</csn:Response>
  </soap:Body>
</soap:Envelope>
```

SOAP Response example in case the DTO does not exist (i.e. it has not been declared in the planning):

HTTP/1.1 200 OK

Content-Type: application/soap+xml; charset=utf-8

Content-Length: nnn

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="http://localhost/csn.xsd">
  <SOAP-ENV:Body>
    <ns1:TransmitResponse>
      <ns1:Response>ERROR: Invalid DataTakeOpportunityID (5) for orderID
(2015081105)</ns1:Response>
      <ns1:OutOfOrderList/>
      <ns1:UnnotifiedPackages/>
    </ns1:TransmitResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The business logic for this service is reported hereafter:

- The SOAP service shall be invoked by the SPs before sending a data package for ALL data package types belonging to a service ID, to announce the time when the data package is actually available at the source
- The SOAP service shall indicate the following elements:
 - Mandatory:
 - Filename of the package
 - Service order ID
 - MD5 of the file to be transmitted
 - Optional:
 - A DTO id: this id is provided for identifying a specific DTO within the Service order ID
 - A list of package names: this list is only provided when the **last package** of a given service ID is sent. The usage is twofold:
 - If the list is present it indicates that this is the **last package** of the given service ID to be sent, thus the connection for that service can be closed
 - The list of packages provided in this message is checked against the list of packages already sent by the SP. In the response message, the SOAP service will return any possible discrepancy between the list of packages

sent before this last package and the list provided in this message, in particular:

- If packages were sent but not included in the final list of packages, they will be included in the **OutOfOrderList** element
- If packages were not sent previously, but included in the final list, they will be listed in the **UnnotifiedPackages** element

14.1 NON-NOMINAL USAGE EXAMPLES AND ERROR CASES

Here follow a number of possible non nominal examples of usage of this service.

14.1.1 Package already notified

This is an example of message sent that duplicates a package already notified. In this case, there will be no error, but a simple acknowledge.

NOTE: in case the Filename is equal to a filename already sent, but the MD5 is different, this request will replace the previous request.

14.1.1.1 Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:csn="http://localhost/csn.xsd">
  <soapenv:Header/>
  <soapenv:Body>
    <csn:TransmitPackage>
      <!--Optional:-->
      <csn:InputPackage>
        <!--Optional:-->
        <csn:PackageData>

<csn:Filename>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_EOP.tg
z</csn:Filename>      <csn:MD5>a32e765af1da720b2c1be967a6ebd930</csn:MD5>
      <csn:orderID>5667</csn:orderID>
      <csn:PackageList>
        <!--Zero or more repetitions:-->

      </csn:PackageList>
    </csn:PackageData>
  </csn:InputPackage>
</csn:TransmitPackage>
</soapenv:Body>
</soapenv:Envelope>
```

14.1.1.2 Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="http://localhost/csn.xsd">
  <SOAP-ENV:Body>
    <ns1:TransmitResponse>
      <ns1:Response>ACK</ns1:Response>
    </ns1:TransmitResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
<ns1:OutOfOrderList/>
<ns1:UnnotifiedPackages/>
</ns1:TransmitResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

14.1.2 Wrong filename format

This is an example where the filename does not follow the CSNDC naming convention.

14.1.2.1 Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:csn="http://localhost/csn.xsd">
  <soapenv:Header/>
  <soapenv:Body>
    <csn:TransmitPackage>
      <!--Optional:-->
      <csn:InputPackage>
        <!--Optional:-->
        <csn:PackageData>

<csn:Filename>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_EOS.zi
p</csn:Filename>      <csn:MD5>a32e765af1da720b2c1be967a6ebd930</csn:MD5>
      <csn:orderID>5667</csn:orderID>
      <csn:PackageList>
        <!--Zero or more repetitions:-->

      </csn:PackageList>
    </csn:PackageData>
  </csn:InputPackage>
</csn:TransmitPackage>
</soapenv:Body>
</soapenv:Envelope>
```

14.1.2.2 Response

The response will indicate the error in the filename convention.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="http://localhost/csn.xsd">
  <SOAP-ENV:Body>
    <ns1:TransmitResponse>
      <ns1:Response>ERROR: Filename must adhere to the correct naming
convention</ns1:Response>
    <ns1:OutOfOrderList/>
    <ns1:UnnotifiedPackages/>
```

```
</ns1:TransmitResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

14.1.3 Invalid Order Id

In case the service ID does not exist, the service will return a response message like the following.

14.1.3.1 Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:csn="http://localhost/csn.xsd">
  <soapenv:Header/>
  <soapenv:Body>
    <csn:TransmitPackage>
      <!--Optional:-->
      <csn:InputPackage>
        <!--Optional:-->
        <csn:PackageData>

<csn:Filename>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_EOP.tg
z</csn:Filename>      <csn:MD5>a32e765af1da720b2c1be967a6ebd930</csn:MD5>
        <csn:orderID>56671</csn:orderID>
        <csn:PackageList>
          <!--Zero or more repetitions:-->

          </csn:PackageList>
        </csn:PackageData>
      </csn:InputPackage>
    </csn:TransmitPackage>
  </soapenv:Body>
</soapenv:Envelope>
```

14.1.3.2 Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="http://localhost/csn.xsd">
  <SOAP-ENV:Body>
    <ns1:TransmitResponse>
      <ns1:Response>ERROR: Invalid OrderId (56676)</ns1:Response>
      <ns1:OutOfOrderList/>
      <ns1:UnnotifiedPackages/>
    </ns1:TransmitResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```


14.1.4 Incorrect List of Packages

This case is an example where in the service call associated to the last package of a given service ID, the list of packages is sent that does not match exactly the list of packages received (including the package sent in this message).

Assuming that the following package types had already been announced before for the Service ID 5667:

- 5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_QNO.tgz
- 5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_OSN.tgz
- 5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_QUA.tgz
- 5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_DER.tgz

14.1.4.1 Request

In this request, the list of packages is sent, thus indicating that this is the last package of a sequence for that service ID. The list of package does not exactly match the list of packages already received.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:csn="http://localhost/csn.xsd">
  <soapenv:Header/>
  <soapenv:Body>
    <csn:TransmitPackage>
      <!--Optional:-->
      <csn:InputPackage>
        <!--Optional:-->
        <csn:PackageData>

<csn:Filename>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_EOP.tgz
z</csn:Filename>      <csn:MD5>a32e765af1da720b2c1be967a6ebd671</csn:MD5>
        <csn:orderID>5667</csn:orderID>
        <csn:PackageList>
          <!--Zero or more repetitions:-->

<csn:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_E
OP.tgz</csn:PackageName>
<csn:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_Q
NO.tgz</csn:PackageName>
<csn:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_O
SW_1.tgz</csn:PackageName>
<csn:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_Q
UA.tgz</csn:PackageName>
<csn:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_D
ER.tgz</csn:PackageName>
          </csn:PackageList>
        </csn:PackageData>
      </csn:InputPackage>
    </csn:TransmitPackage>
  </soapenv:Body>
</soapenv:Envelope>
```


14.1.4.2 Response

The response is positive, but it indicates the mismatch between the announced packages and the packages listed in the last message. In particular:

- QNO package should have been notified and was not
- OSW_1 was notified but it is not in the final list indicated in the last message

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"  
xmlns:ns1="http://localhost/csn.xsd">  
  <SOAP-ENV:Body>  
    <ns1:TransmitResponse>  
      <ns1:Response>ACK</ns1:Response>  
      <ns1:OutOfOrderList>  
  
        <ns1:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_Q  
        NO.tgz</ns1:PackageName>  
  
        <ns1:PackageName>5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131_O  
        SW_1.tgz</ns1:PackageName>      </ns1:UnnotifiedPackages>  
      </ns1:TransmitResponse>  
    </SOAP-ENV:Body>  
  </SOAP-ENV:Envelope>
```

15 ANNEX H – TEMPLATE FOR SERVICE OR LICENCE ORDERS

Services or licences are ordered through tasking forms automatically generated and digitally signed when the authorising officer approves the order in the Financial System of the CSNDC.
The tasking form gives the list of services or licences that have to be provided.
Here follow an example of tasking form.



CSN Task Form Number 2570
CSN Task Form Date 2014/08/18 14:51:13
CSN Services
Year / Month 2014 / August
Service Provider Ksat

Sequence Number	Specific Order ID	Project	Satellite	Sensor Mode	Service Type	Notification	Tasking Area	Size	Acquisition Date
1	135549	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247384.39033	2014/08/01 05:18:23
2	135550	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247406.72803	2014/08/01 16:44:51
3	135551	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247229.09165	2014/08/02 16:16:42
4	135552	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247434.81624	2014/08/04 05:31:19
5	135553	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247414.06321	2014/08/04 16:57:24
6	135554	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247242.06982	2014/08/05 05:00:36
7	135555	CleanSeaNet	RADARSAT-2	SCNA	CSW-RUN4		Planning area 1	85190.79214	2014/08/06 15:59:26
8	135556	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247108.1031	2014/08/08 05:12:09
9	135557	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247252.23618	2014/08/08 05:13:16
10	135558	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247410.06378	2014/08/08 16:40:38
11	135559	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247347.82051	2014/08/09 16:11:40
12	135560	CleanSeaNet	RADARSAT-2	SCWA	CSW-RUN4		Planning area 1	247432.0	2014/08/11

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16 ANNEX I – TEMPLATE FOR SATELLITE DATA LICENSES

TBW

17 ANNEX J – PROCESS REQUEST XML SCHEMA

Schema available at http://schemas.opengis.net/wps/1.0.0/wpsExecute_request.xsd.

attribute form default:

element form default:

targetNamespace:

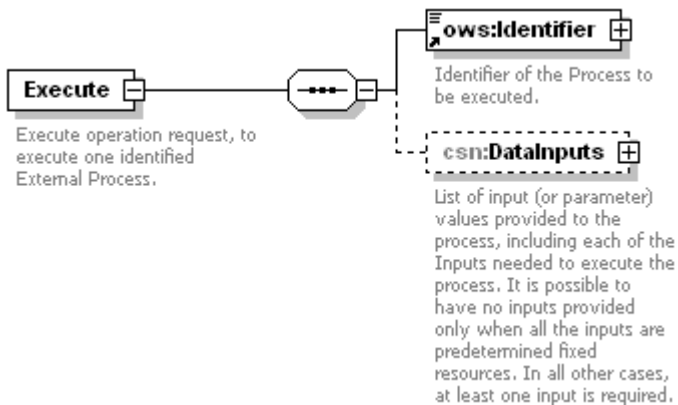
qualified

<http://www.emsa.europa.eu/csndc>

Elements

[Execute](#)

element **Execute**

diagram	
namespace	http://www.emsa.europa.eu/csndc
properties	content complex
children	ows:Identifier csn:DataInputs
annotation	documentation Execute operation request, to execute one identified External Process.
source	<pre> <element name="Execute"> <annotation> <documentation>Execute operation request, to execute one identified External Process. </documentation> </annotation> <complexType> <sequence> <element ref="ows:Identifier"> <annotation> <documentation>Identifier of the Process to be executed.</documentation> </annotation> </element> <element name="DataInputs" type="wps:DataInputsType" minOccurs="0"> <annotation> <documentation>List of input (or parameter) values provided to the process, including each of the Inputs needed to execute the process. It is possible to have no inputs provided only when all the inputs are predetermined fixed resources. In all other cases, at least one input is required. </documentation> </annotation> </element> </sequence> </complexType> </element> </pre>

	<pre> </sequence> </complexType> </element> </pre>
--	--

element **Execute/DataInputs**

diagram	<p>csn:DataInputs List of input (or parameter) values provided to the process, including each of the Inputs needed to execute the process. It is possible to have no inputs provided only when all the inputs are predetermined fixed resources. In all other cases, at least one input is required.</p> <p>wps:DataInputsType Unordered list of one or more inputs to be used by the process, including each of the Inputs needed to execute the process.</p> <p>wps:Input 1..∞</p>								
namespace	http://www.emsa.europa.eu/csndc								
type	wps:DataInputsType								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>complex</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	complex
isRef	0								
minOcc	0								
maxOcc	1								
content	complex								
children	wps:Input								
annotation	<p>documentation</p> <p>List of input (or parameter) values provided to the process, including each of the Inputs needed to execute the process. It is possible to have no inputs provided only when all the inputs are predetermined fixed resources. In all other cases, at least one input is required.</p>								
source	<pre> <element name="DataInputs" type="wps:DataInputsType" minOccurs="0"> <annotation> <documentation>List of input (or parameter) values provided to the process, including each of the Inputs needed to execute the process. It is possible to have no inputs provided only when all the inputs are predetermined fixed resources. In all other cases, at least one input is required. </documentation> </annotation> </element> </pre>								

As can be seen, the XML format refers to the OGC WPS 1.0.0 format specification of the Execute operation. Nevertheless, not all the options of the WPS 1.0.0 are used. Following tables report the specification of the WPS 1.0.0 Execute DataInputs element used in CSNDC along with its usage and the list of specific input parameters.

DataInputs element has following data structure:

Name	Definition	Data Type	Multiplicity and use
Input	Value of input to this process execution	InputType data structure (see below)	One or more (mandatory). One for each input, unordered.

InputType element has following data structure:

Name	Definition	Data Type	Multiplicity and use
Identifier	Name of the parameter	String Possible values are reported below.	One (mandatory)
InputDataFormChoice	Identifies the type of this input. In CSNDC, only Literal Data are supported.	InputDataFormChoice data structure (see below)	One (mandatory)

InputDataFormChoice element has following data structure:

Name	Definition	Data Type	Multiplicity and use
Data	Identifies this input data as begin encapsulated in the Execute request	DataType data structure (see below)	One (mandatory)

Data element has following data structure:

Name	Definition	Data Type	Multiplicity and use
LiteralData	Identifies this input data as a literal data encoded in a character string	Not empty string. Includes attributes as per table below.	One (mandatory)

LiteralData has following attributes:

Name	Definition	Data Type	Multiplicity and use
DataType	Data type of this literal value	String	Zero or one (optional)
Uom	Unit of measure	URI	Zero or one (optional)

For each model there will be a set of standard input parameters, which will be used for the “automatic mode” and for the “On demand Mode”. The model shall support all values in the “Automatic mode”, however some parameters in the “on demand mode” might not be supported by some models.

The list of input parameters and their expected usage is described in **[INT_WPS]**.

18 ANNEX K – TEMPLATES FOR WARNING AND ALERTING MESSAGES (NOT USED)

1. CSN Warnings: Oil spill rapid warnings dispatched per spill with very high likelihood of catching a polluter red-handed.

SMS Content description:

"EMSA CleanSeaNet warning"
<Date and time of satellite overpass>
"Poss. Polluter at: "<Position >
"<http address>"

MMS Content description:

Same content as SMS + clip image

Estimated no. of SMS/MMS messages per year: 1000 SMS/MMS sent to 2 different telephone numbers.

Estimated no. of SMS/MMS messages per satellite acquisition: Max. 5 SMS/MMS sent to 2 different telephone numbers.

2. CSN Alerts: Oil spill alerts dispatched per analysis of satellite image, containing summary of all Oil Spill Notifications (OSN's).

SMS Content description:

"EMSA CleanSeaNet Alert"
<Date and time of satellite overpass>
If 1 to n Class A spills have been detected:
"<N> OSN class A"
If 1 to n class B spills have been detected:
"<N> OSN class B"
If no spills have been detected
"No OSN"
"<http address>"

MMS Content description:

"EMSA CleanSeaNet Alert"
<Date and time of satellite overpass>
If 1 to n Class A spills have been detected:
"OSN class A at: "<Position 1, length 1, width 1, area 1 > ..<position n, length,, width n, area n>"
If 1 to n class B spills have been detected:
"OSN class B at: "<Position 1, length 1, width 1, area 1 > ..<position n, length,, width n, area n>"
If no spills have been detected
"No OSN"
"<http address>"
Situation map

Estimated no. of SMS/MMS messages per year: 2500 SMS/MMS sent to 5 different telephone numbers.

Estimated no. of SMS/MMS messages per satellite acquisition: Max 5 SMS/MMS sent to 5 different telephone numbers.

19 ANNEX L – (BLANK)

20 ANNEX M – NAMING CONVENTIONS

A set of packages related to the processing of a given EO product constitutes a “transmission”. Packages of a transmission are thus directly or indirectly related to a given EO product.

20.1 IDENTIFIERS CONVENTIONS

A number of identifier are defined that uniquely refer to features that shall be handled by the CSN-DC. These will also be used for building the file naming conventions.

20.1.1 Image unique identifier

The unique identifier for the image is build with the following rule:

<image_id> = <service_id>_<image_name>

Where:

<service_id> is the unique identifier of the service assigned by CSN DC at the time of the ordering process

<image_name> is the product name assigned to the scene by the Satellite Operator

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA

Please note:

- The image identifier is used in the naming convention of any package AND in the GML files itself
- The *<image_name>* is defined outside the CSN DC context and is not unique in itself; it could also include underscores (_) and dots (.). This is managed by the CSN DC.
- It is up to the CSN DC to build a valid OGC compliant URN based on the image unique identifier specified here.

20.1.2 OS identifier

The identifier of an Oil Spill shall match the following rule:

<os_id> = <image_id>_ OS_<os_num>

Where:

<os_num> is a progressive number from 1 to N being N the total number of Oil Spills detected in the same image *<image_id>*

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_OS_2

Please note:

- The OS identifier is used in the GML files as identifier of the Oil Spill

- It is up to the CSN DC to build a valid OGC compliant URN based on the oil spill identifier specified here.

20.1.3 Detected Ship identifier

The identifier of a Detected Ship shall match the following rule:

`<ds_id> = <image_id>_DS_<ds_num>`

Where:

`<ds_num>` is a progressive number from 1 to N being N the total number of vessels detected in image
`<image_id>`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_DS_32

Please note:

- The detected ship identifier is used in the GML files as identifier of a Detected Ship
- It is up to the CSN DC to build a valid OGC compliant URN based on the detected ship identifier specified here.

20.1.4 Activity detection identifier

The identifier of an Activity shall match the following rule:

`<act_id> = <image_id>_AC_<act_num>`

Where:

`<act_num>` is a progressive number from 1 to N being N the total number of detected activities in image
`<image_id>`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_AC_32

Please note:

- The activity detection identifier is used in the GML files as identifier of an activity
- It is up to the CSN DC to build a valid OGC compliant URN based on the activity detection identifier specified here.

20.1.5 Change detection identifier

The identifier of a Change Detection shall match the following rule:

`<cde_id> = <image_id>_CD_<cde_num>`

Where:

`<cde_num>` is a progressive number from 1 to N being N the total number of changes in image
`<image_id>`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMsa_CD_32

Please note:

- The change detection identifier is used in the GML files as identifier of an activity
- It is up to the CSN DC to build a valid OGC compliant URN based on the change detection identifier specified here.

20.2 FILE NAMING CONVENTIONS

This section reports the naming convention both for the packages (i.e. `tgz`) which is a unique piece of data transmitted to the system and for the files (e.g. XML, image file, etc.) that are to be included inside the packages.

20.2.1 Package file name

The package file name shall match the following rule:

`<image_id>_<package_type>.<extension>`

Where:

`<package_type>` is a code for package type. Following codes are valid:

- EOP for EO Product RADAR/Optical package type **NOTE:** to ensure compatibility with the release 1.7 of CSNDC, for optical data **ONLY** the extension shall be EOPO and not EOP.
- OSW_`[progressive_num]` for OS Warning package type
- OSN for OS Notification package type
- DER for SAR derived package type, which includes SAR wind and wave information
- VDS for SAR detected vessels package type
- QUA for Quality report package type
- QNO for Quality notification package type
- ACT_`[progressive_num]` for Activity Package type
- CDE_`[progressive_num]` for Change Detection Package type

NOTE: for file names for predicted oil spills, please refer to section 20.2.1.2.

`[progressive_num]` is a progressive number starting from 1 that has to be specified only in the case of OSW packages (since OSW packages can be more than one for a given transmission). Please note that in case of a single OSW package for the transmission, its `package_type` is "OSW_1". Likewise for the activity report package it would be "OSW_1".

`<extension>` is a valid file format extension for the package as defined in section 2 (e.g. `tgz`)

Examples:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMsa_EOP.
`tgz`

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_OSN.tgz

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_OSW_1.tgz

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_ACT_1.tgz

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_CDE_1.tgz

20.2.1.1 EOP optical data package file name

For the **EOP optical data**, the following more stringent rule shall be matched.

<image_id>_<Platform><Product type>_OPT_<package_type>.<extension>

Where:

<Platform> indicates the Optical sensor (string of characters to match with content of Table 16-1)

< Product type> indicates the product type (string of characters to match with content of Table 16-2)

They are extracted from the values in the 2 tables below.

For the CSNDC processing it is fundamental to extract **platform** and **product type**

For the **platform** the following values are expected:

Platform	Description
DE1	Deimos-1
DE2	Deimos-2
ERB	Eros_B
RSI	FORMOSAT
GE1	GeoEye-1
IKN	Ikonos
LA8	Landsat-8
HR	Pleiades-1A Pleiades-1B
QB	Quickbird
NAOMI	SPOT6 SPOT7
WV1	Worldview-1
WV2	Worldview-2
WV3	Worldview-3
WV4	Worldview-4

Table 20-1 – List of platform values for optical data

where the product type must comply with the following values:

Product type	Description
B08	Level1B 8 bit
B16	Level1B 16 bit
RGB	Natural Color 3 band (R,G,B) Pansharpen
4BP	4 Band Pansharpen
4BB	4 Band Bundle
4MS	4 Band MS
8MS	8 Band MS
PAN	Panchromatic
GRN	False Color 3 Band (Green, Red, Near IR) Pansharpen
8BB	8 Band Bundle
MSN	Multispectral Natural Color 3 band (R,G,B) (not Pansharpen)
MS31	Multispectral 3-Band (NIR, R, G)
MS32	Multispectral 3-Band (R, G, Synthetic blue)

Table 20-2 – List of product type values for optical data

example:

`12345_ERBLBB-E2334045_ERBB08_OPT_EOPO.tgz`

Indicates an Eros B Level1 B 8-bit file type. Please Note: The "_OPT" suffix can be either present or absent in the name of the EOPO file, but both options imply that QNO and QNA package filenames are consistent and aligned with the EOPO package filename: if "_OPT" suffix is in the EOPO filename, than it SHALL also be present in the QNO and QNA files. If it is NOT present in the EOPO filename, than it SHALL NOT be present in the QNO and QNA files.

20.2.1.2 Predicted Oil Spill package file name

A predicted oil spill file name shall match the following rule:

`<os_id>_<model_identifier>_<run_id>_<package_type>.<extension>`

- `<os_id>` is the Id of the oil spill package as provided as input to the model run
- `<model_identifier>` is a code for the model, as specified by the Model Provider
- `<run_id>` identifier of the run, as specified in input elements
- `<package_type>` is a code for package type. OSP for Oil Spill Predicted
- `<extension>` the file extension, e.g. .tgz

Example name:

`126838_RS2_SWB_1FSCLS20130617_061824_00000075xSWB_16bxx_28750_DEFA7_OS_1_OSERIT_102_OSP.tgz`

20.2.2 Package info XML file name

Package info XML file name in any single package shall match the following rule:

<image_id>_PCK.xml

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSEA_PCK.xml

20.2.3 EO Product GML file name

There are 2 different naming conventions for RADAR and for OPTICAL data.

RADAR Data

An EO Product GML file name shall match the following rule:

<image_id>_EOP.xml

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSEA_EOP.xml

OPTICAL Data

An EO Product GML file name shall match the following rule:

<image_id>_OPT_EOPO.xml

example:

12345_ERBLBB-E2334045_OPT_EOPO.xml

Indicates an Eros B Level1 B 8 but file type.

20.2.4 Oil Spill feature GML file name

An Oil Spill feature GML file name shall match the following rule:

<os_id>_<nw_type>.xml

Where:

<nw_type> is a 3 chars code for the type of dataset (notification/warning):

OSW for OS Warning type

OSN for OS Notification type

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_OS_2_OSN.xml

20.2.5 Detected Ship feature GML file name

A detected ship GML file name shall match the following rule:

`<ds_id>.xml`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_DS_32.xml

20.2.6 Image Quality notification file name

An Image Quality notification file name shall match the following rule:

`<image_id>_QN.xml`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_QN.xml

Please note: `<image_id>_QN` is also the unique identifier of the QN to be reported into the QN ZML file.

20.2.7 Quality Report file name

An Image Quality report file name shall match the following rule:

`<image_id>_QR.xml`

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_QR.xml

20.2.8 EO Native Image file

No specific naming convention is used. The original Satellite Operator's name can be used. In any case the file extension must match the original format extension (e.g. '.N1' for ENVISAT ASAR).

For COSMO SkyMed it is assumed tghat the native file has extension h5, e.g. CSKS1_DGM_B_HR_00_VV_RD_FF_20141007165514_20141007165607.h5 and is in format HDF5.

20.2.9 Clip Image File name, EO Browse image file name, Not

Analyzable Area Mask file name and SAR derived NetCDF file name and model prediction NetCDF file names

The following rules and conventions must be used:

- clip images (e.g. oil spill clips, detected vessel clips, etc.) must have a naming which is unique inside the data package and is referenced by the XML file describing it. For example, the activity report XML allows to point to the filename with the clip image for vessels, features, etc.
- SAR derived wind file name has a fixed name: SAR_WIND.nc
- SAR derived wave file name has a fixed name: SAR_WAVE.nc
- NetCDF file containing the gridded concentration of particles file name:
<os_id>_<direction>.nc

where:

- <os_id>: same used in the package file name (see 20.2.1.2)
- <direction>:
 - backtrack: for backtrack modelling
 - forecast: for forward modelling

Example:

126838_RS2_SWB_1FSCLS20130617_061824_00000075xSWB_16bxx_28750_DEFA7_OS_1_backtrack.nc

20.2.10 Activity report GML file name

An activity report GML file name shall match the following rule:

<act_id>.xml

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_AC_23.xml

20.2.11 Change Detection report GML file name

A Change Detection report GML file name shall match the following rule:

<CDE_id>.xml

Example:

123_ASA_WSM_1PNACS20100603_203524_000000592090_00043_43183_0001.N1.00114_EMSA_CD_23.xml

20.2.12 Oil spill model process request file naming convention

A predicted oil spill file name shall match the following rule:

<image_id>_RQT.xml

Example name:

131415_RS2_SWB_1FSCLS20140305_060509_00000076xSWA_16bxx_32480_967C3_RQT.xml

20.2.13 Model output file naming convention

A predicted oil spill file name shall match the following rule:

<os_id>_<model_identifier>><run_id>_modeloutput.xml

- *<os_id>* is the Id of the oil spill package as provided as input to the model run
- *<model_identifier>* is a code for the model, as specified by the Model Provider
- *<run_id>* identifier of the run, as specified in input elements

Example name:

126838_RS2_SWB_1FSCLS20130617_061824_00000075xSWB_16bxx_28750_DEFA7_OSN_OSERIT_210_modeloutput.xml

20.2.14 Model Oil Spill feature GML file naming convention

A predicted oil spill file name shall match the following rule:

<os_id>_<dir>_contour_<counter>.xml

- *<os_id>* is the Id of the oil spill package as provided as input to the model run
- *<dir>* is the simulation direction: *f* for forward, *b* for backward
- *<counter>* is a 5 digit zero padded integer counter of the oil spill contour files

Example name:

126838_RS2_SWB_1FSCLS20130617_061824_00000075xSWB_16bxx_28750_DEFA7_OS_1_f_contour_00061.xml

20.2.15 EO data structures

20.2.15.1 SAR data internal structure

The following data structure is assumed for the TerraSAR-X image data: */IMAGE_*.tif. In more general terms the file structure shall be compliant with [TX-SPEC].

20.2.15.2 Optical data internal structure

A specific session is dedicated to the internal structure of optical data, which describes the conventions for whole hierarchy of data inside the package.

Inside the package shall contain the following structure

```
|-- <image_id>_<Platform><Product type>_OPT_EOPO.xml
|-- <image_id>_<Platform><Product type>_OPT_PCK.xml
|-- <sub-folder>
    |-- <sub-folder> (only for some product types, see table below, i.e. those having */*....tif)
    |-- <filename>.TIF
```

where:

- <sub-folder>: can be any folder name
- <filename>: can be any filename, with the constraints reported further below

example:

```
201403004_14MAR31112116-S2AS-201403004-RGB-PSH_WV24BP_OPT_EOPO.tgz
|-- 201403004_14MAR31112116-S2AS-201403004-RGB-PSH_WV24BP_OPT_EOPO.xml
|-- 201403004_14MAR31112116-S2AS-201403004-RGB-PSH_WV24BP_OPT_PCK.xml
|-- WV24BP_1234567
    |-- 12EUSI-1972_PSH
    |-- 14MAR31112116-S2AS-12EUSI-1972.TIF
```

One constraint on the CSNDC processor is that there is a strict mapping between CSN-DC CODE and paths and naming convention for the image data files included in the package, as in the table below. This constraint seems in conflict with the evidence (above) that for a given CSN-DC CODE there are different variants (e.g. GeoTIFF or JPEG). If this happens, the CSNDC CODES shall be differentiated to maintain the unambiguous link between CSN-DC code and pattern to find the image data.

CSNDC Code	File Type	Paths and naming convention
IKN4BB	IKN4BB_InFile1	*/*_red_*.tif
	IKN4BB_InFile2	*/*_grn_*.tif
	IKN4BB_InFile3	*/*_blu_*.tif
IKN4BP	IKN4BP_InFile1	*/*_red_*.tif
	IKN4BP_InFile2	*/*_grn_*.tif
	IKN4BP_InFile3	*/*_blu_*.tif
IKNRGB	IKNRGB_MultiBandInFile	*/*_rgb_*.tif
ERBB08	ERBB08_InFile1	*/*_8bitgeo.tif
ERBB16	ERBB16_InFile1	*/*_16bitgeo.tif
GE14BB	GE14BB_InFile1	*/*/*_red_*.tif
	GE14BB_InFile2	*/*/*_grn_*.tif
	GE14BB_InFile3	*/*/*_blu_*.tif
GE14BP	GE14BP_InFile1	*/*/*_red_*.tif
	GE14BP_InFile2	*/*/*_grn_*.tif
	GE14BP_InFile3	*/*/*_blu_*.tif
GE1RGB	GE1RGB_MultiBandInFile	*/*/*_rgb_*.tif
QB4BP	QB4BP_MergeFiles	*/*/_R*_C*.TIF
WV1PAN	WV1PAN_MergeFiles	*/*/_R*_C*.TIF
WV24BB	WV24BB_MultiBandInFile	*/*_MUL/*.TIF
WV24BP	WV24BP_MultiBandInFile	*/*/*.TIF
WV28BB	WV28BB_MultiBandInFile	*/*_MUL/*.TIF
WV2PAN	WV2PAN_MergeFiles	*/*/_R*_C*.TIF

WV2RGB	WV2RGB_MultiBandInFile	*/*/*.TIF
WV3RGB	WV3RGB_MultiBandInFile	*/*/*.TIF
DE2PAN	DE2PAN_InFile1	*/*/*.tif */*.jp2
DE2RGB	DE2RGB_MultiBandInFile	*/*.tif
DE24BP	DE24BP_MultiBandInFile	*/*/*.tif
DE1MS	DE1MS_MergeFiles	*/*.tif
LA8MSN	LA8MSN_MultiBandInFile	*/*/*.JP2 */*/*.tif
DE1B08	DE1B08_MultiBandInFile	DE*.tif
DE1PAN	DE1PAN_InFile1	*/*/*.tif */*.jp2
RSIPAN	RSIPAN_InFile1	*/*/*.TIF
NAOMIPAN	NAOMIPAN_MergeFiles	*/*/*/*.JP2 */*/*/*.TIF
NAOMI4BP	NAOMI4BP_MergeFiles	*/*/*/*.JP2 */*/*/*.TIF
HRRGB	HRRGB_MergeFiles	*/*/R*C*.JP2 */*/R*C*.TIF
HR4BP	HR4BP_MergeFiles	*/*/R*C*.JP2 */*/R*C*.TIF
HRPAN	HRPAN_MergeFiles	*/*/R*C*.JP2 */*/R*C*.TIF
WV44BB	WV44BB_MultiBandInFile	*/*_MUL/*.TIF
WV44BP	WV44BP_MultiBandInFile	*/*/*.TIF */*/*.JP2
WV48BB	WV48BB_MultiBandInFile	*/*_MUL/*.TIF
WV4PAN	WV4PAN_MergeFiles	*/*/*.TIF
WV4RGB	WV4RGB_MultiBandInFile	*/*/*.TIF */*/*.tif
WV3RGB	WV3RGB_MultiBandInFile	*/*/*.TIF */*/*.tif
WV3PAN	WV3PAN_MergeFiles	*/*/R*C*.TIF
WV34BP	WV34BP_MultiBandInFile	*/*/*.TIF

For example a Worldview-2 4BandPansharpened product is identified by the code WV24BP.
The corresponding rule is: */*/*.TIF

It should therefore contain image files at 2nd directory level, with TIF extension, such as:
WV24BP_P017607/12EUSI-1173_PSH/11MAR18112147-S2AS-12EUSI-1173.TIF

As a 2nd example Worldview-2 Pancromatic product is identified by the code WV2PAN.
The corresponding rule is: */*/R*C*.TIF

It should therefore contain image files at 2nd directory level, with TIF extension and the characters R and C, such as:

WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R1C1-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R1C2-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R1C3-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R2C1-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R2C2-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R2C3-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R3C1-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R3C2-052616445030_01_P001.TIF
WV2PAN_5030_01/052616445030_01_P001_PAN/11AUG23080834-P3DS_R3C3-052616445030_01_P001.TIF

21 ANNEX N – CLIP IMAGES

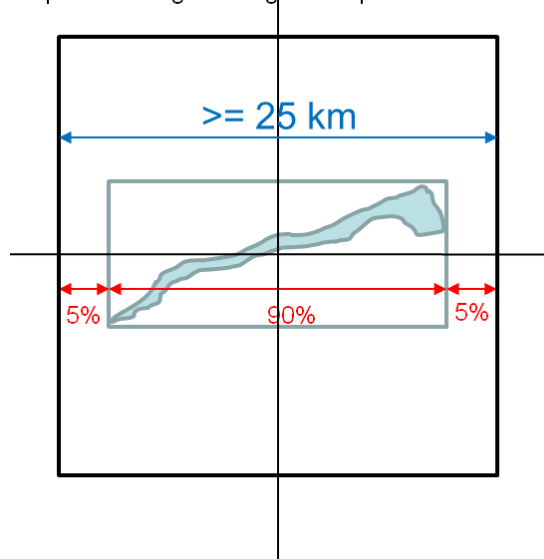
The clip image shall be produced by the service providers as a GEOTIFF image in UTM projection.

Zoom Level of Clip Images

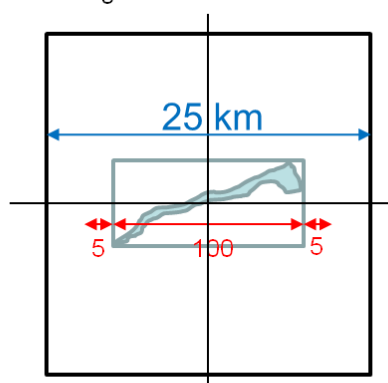
The clip image itself shall be a square covering a minimum area of 25 km by 25 km. The clip image shall be in full resolution. The clip image shall contain the bounding box of the spill (NS – EW) + a margin applied to each side of the longest side. The clip image shall be centred on the centre of the bounding box of the oil spill polygon.

It should be noted that, if the bounding box of the spill exceeds 22.5 km in either NS or EW direction, then the area of the clip image has to be increased accordingly as presented in the figure below.

Spill bounding box larger or equal to 22.5 km



Spill bounding box smaller than 22.5 km



The same paradigm is used by the CleanSeaNet data centre to generate the map. This is required in order for the clip image and the map to display the same area at the same scale.

It is expected that size of the clip images shall be of a few KBs and in any case not greater than 1 MB.

22ANNEX O – MODEL OUTPUT DESCRIPTION SCHEMA

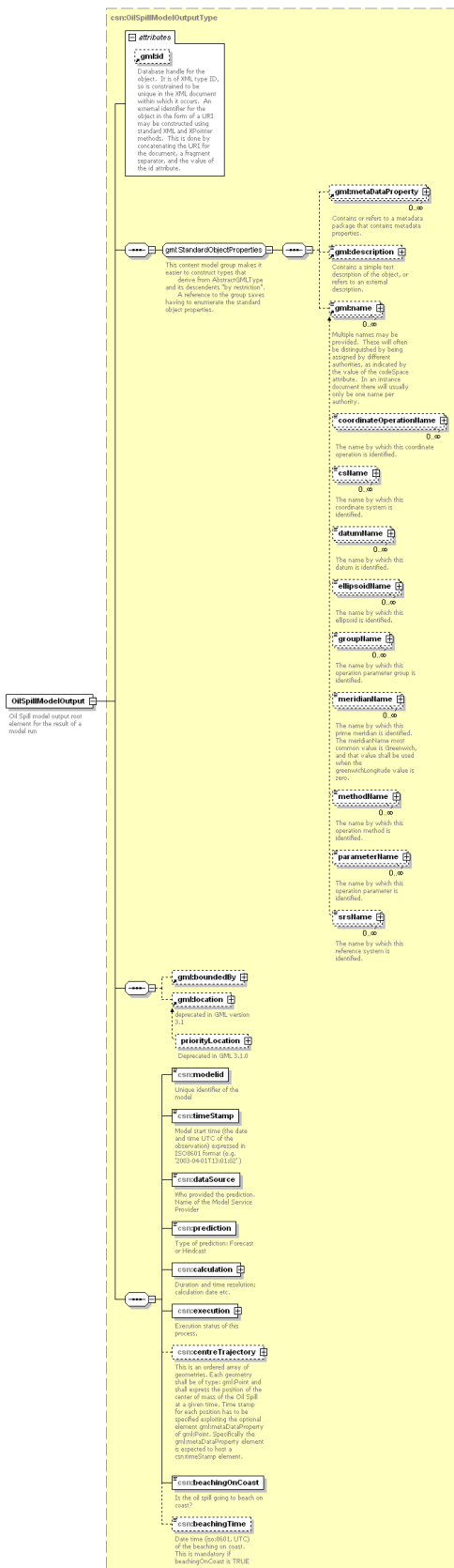
Schema csndc_msp_output.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements	Complex types
<u>OilSpillModelOutput</u>	<u>ExecutionStatusType</u>
	<u>OilSpillModelCalculationType</u>
	<u>OilSpillModelContinuousDischargeType</u>
	<u>OilSpillModelDischargeType</u>
	<u>OilSpillModelOutputType</u>

element OilSpillModelOutput

diagram

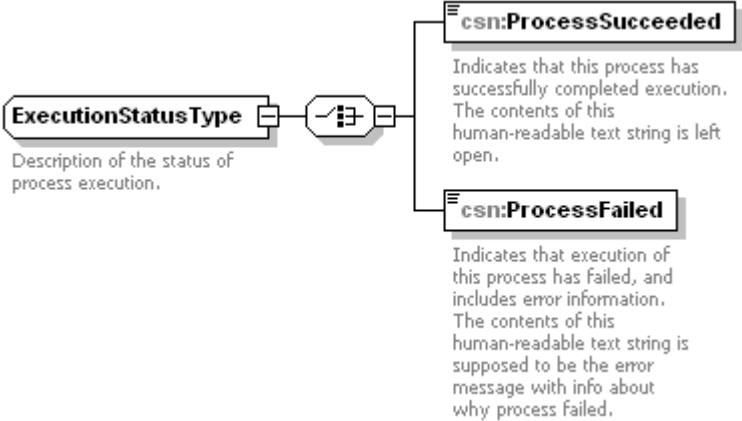


namespace

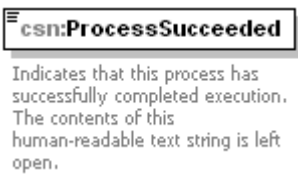
<http://www.emsa.europa.eu/csndc>

type	csn:OilSpillModelOutputType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:modelid csn:timeStamp csn:dataSource csn:prediction csn:calculation csn:execution csn:centreTrajectory csn:beachingOnCoast csn:beachingTime					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Oil Spill model output root element for the result of a model run					
source	<xs:element name="OilSpillModelOutput" type="csn:OilSpillModelOutputType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Oil Spill model output root element for the result of a model run</xs:documentation> </xs:annotation> </xs:element>					

complexType ExecutionStatusType


diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:ProcessSucceeded csn:ProcessFailed
used by	element OilSpillModelOutputType/execution
annotation	documentation Description of the status of process execution.
source	<pre> <xs:complexType name="ExecutionStatusType"> <xs:annotation> <xs:documentation>Description of the status of process execution. </xs:documentation> </xs:annotation> <xs:choice> <xs:element name="ProcessSucceeded" type="xs:string"> <xs:annotation> <xs:documentation>Indicates that this process has successfully completed execution. The contents of this human-readable text string is left open. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="ProcessFailed" type="xs:string"> <xs:annotation> <xs:documentation>Indicates that execution of this process has failed, and includes error information. The contents of this human-readable text string is supposed to be the error message with info about why process failed. </xs:documentation> </xs:annotation> </xs:element> </xs:choice> </xs:complexType> </pre>

element ExecutionStatusType/ProcessSucceeded

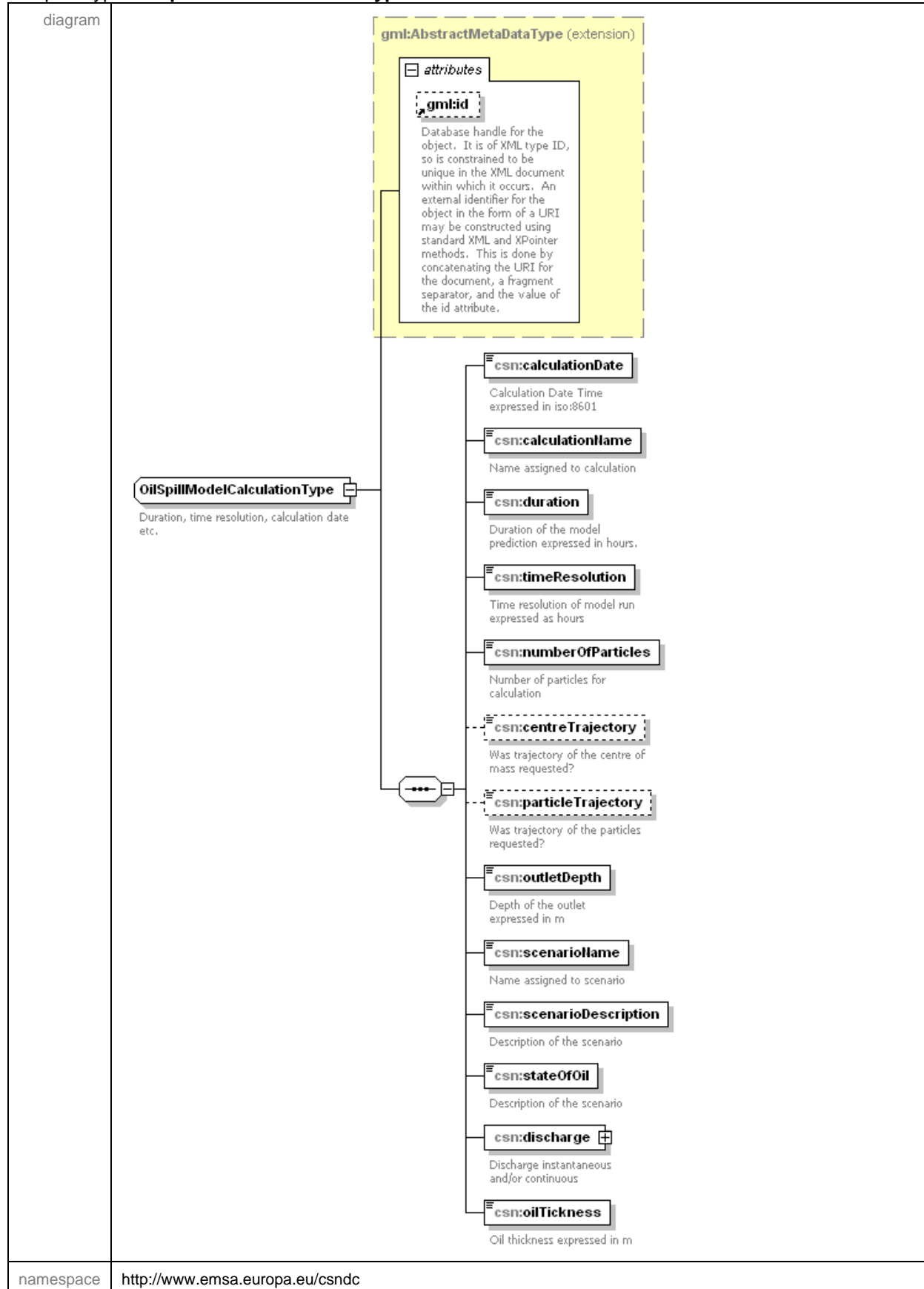
diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple

annotation	documentation Indicates that this process has successfully completed execution. The contents of this human-readable text string is left open.
source	<pre><xs:element name="ProcessSucceeded" type="xs:string"> <xs:annotation> <xs:documentation>Indicates that this process has successfully completed execution. The contents of this human-readable text string is left open. </xs:documentation> </xs:annotation> </xs:element></pre>

element **ExecutionStatusType/ProcessFailed**

diagram	 <p>csn:ProcessFailed</p> <p>Indicates that execution of this process has failed, and includes error information. The contents of this human-readable text string is supposed to be the error message with info about why process failed.</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Indicates that execution of this process has failed, and includes error information. The contents of this human-readable text string is supposed to be the error message with info about why process failed.
source	<pre><xs:element name="ProcessFailed" type="xs:string"> <xs:annotation> <xs:documentation>Indicates that execution of this process has failed, and includes error information. The contents of this human-readable text string is supposed to be the error message with info about why process failed.</xs:documentation> </xs:annotation> </xs:element></pre>

complexType OilSpillModelCalculationType



type	extension of gml:AbstractMetaDataType					
properties	base mixed	gml:AbstractMetaDataType true				
children	csn:calculationDate csn:calculationName csn:duration csn:timeResolution csn:numberOfParticles csn:centreTrajectory csn:particleTrajectory csn:outletDepth csn:scenarioName csn:scenarioDescription csn:stateOfOil csn:discharge csn:oilThickness					
used by	element	OilSpillModelOutputType/calculation				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Input calculation parameters (Duration, time resolution, calculation date etc.)					
source	<pre><xs:complexType name="OilSpillModelCalculationType" mixed="true"> <xs:annotation> <xs:documentation>Duration, time resolution, calculation date etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="calculationDate" type="xs:dateTime"> <xs:annotation> <xs:documentation>Calculation Date Time expressed in iso:8601</xs:documentation> </xs:annotation> </xs:element> <xs:element name="calculationName" type="xs:string"> <xs:annotation> <xs:documentation>Name assigned to calculation </xs:documentation> </xs:annotation> </xs:element> <xs:element name="duration" type="xs:double"> <xs:annotation> <xs:documentation>Duration of the model prediction expressed in hours.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

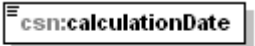
```

</xs:element>
<xs:element name="timeResolution" type="xs:double">
  <xs:annotation>
    <xs:documentation>Time resolution of model run expressed as
hours</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="numberOfParticles" type="xs:string">
  <xs:annotation>
    <xs:documentation>Number of particles for calculation</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="centreTrajectory" type="xs:boolean" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Was trajectory of the centre of mass
requested?</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="particleTrajectory" type="xs:boolean" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Was trajectory of the particles requested?</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="outletDepth" type="xs:double">
  <xs:annotation>
    <xs:documentation>Depth of the outlet expressed in m</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="scenarioName" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name assigned to scenario</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="scenarioDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the scenario</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="stateOfOil">
  <xs:annotation>
    <xs:documentation>Description of the scenario</xs:documentation>
  </xs:annotation>
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:enumeration value="FRESH"/>
      <xs:enumeration value="WEATHERED"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="discharge" type="csn:OilSpillModelDischargeType">
  <xs:annotation>
    <xs:documentation>Discharge instantaneous and/or
continuous</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="oilThickness" type="xs:double">
  <xs:annotation>
    <xs:documentation>Oil thickness expressed in m</xs:documentation>
  </xs:annotation>

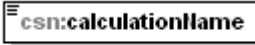
```

	<code></xs:annotation></code> <code></xs:element></code> <code></xs:sequence></code> <code></xs:extension></code> <code></xs:complexContent></code> <code></xs:complexType></code>
--	---


element OilSpillModelCalculationType/calculationDate

diagram	 Calculation Date Time expressed in iso:8601
namespace	http://www.emsa.europa.eu/csndc
type	xs:dateTime
properties	isRef 0 content simple
annotation	documentation Calculation Date Time expressed in iso:8601
source	<pre><xs:element name="calculationDate" type="xs:dateTime"> <xs:annotation> <xs:documentation>Calculation Date Time expressed in iso:8601</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/calculationName


diagram	 Name assigned to calculation
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Name assigned to calculation
source	<pre><xs:element name="calculationName" type="xs:string"> <xs:annotation> <xs:documentation>Name assigned to calculation</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/duration

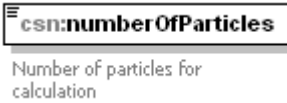
diagram	 Duration of the model prediction expressed in hours.
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple

annotation	documentation Duration of the model prediction expressed in hours.
source	<pre><xs:element name="duration" type="xs:double"> <xs:annotation> <xs:documentation>Duration of the model prediction expressed in hours.</xs:documentation> </xs:annotation> </xs:element></pre>


element OilSpillModelCalculationType/timeResolution

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Time resolution of model run expressed as hours
source	<pre><xs:element name="timeResolution" type="xs:double"> <xs:annotation> <xs:documentation>Time resolution of model run expressed as hours</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/numberOfParticles

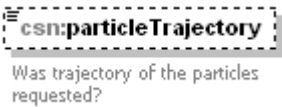
diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Number of particles for calculation
source	<pre><xs:element name="numberOfParticles" type="xs:string"> <xs:annotation> <xs:documentation>Number of particles for calculation</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/centreTrajectory


diagram	
---------	---

namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Was trajectory of the centre of mass requested?
source	<pre> <xs:element name="centreTrajectory" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>Was trajectory of the centre of mass requested?</xs:documentation> </xs:annotation> </xs:element> </pre>

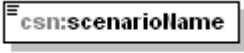
element OilSpillModelCalculationType/particleTrajectory

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Was trajectory of the particles requested?
source	<pre> <xs:element name="particleTrajectory" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>Was trajectory of the particles requested?</xs:documentation> </xs:annotation> </xs:element> </pre>

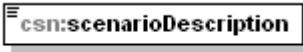
element OilSpillModelCalculationType/outletDepth

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Depth of the outlet expressed in m
source	<pre> <xs:element name="outletDepth" type="xs:double"> <xs:annotation> <xs:documentation>Depth of the outlet expressed in m</xs:documentation> </xs:annotation> </xs:element> </pre>


element OilSpillModelCalculationType/scenarioName

diagram	 <p>Name assigned to scenario</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Name assigned to scenario
source	<pre><xs:element name="scenarioName" type="xs:string"> <xs:annotation> <xs:documentation>Name assigned to scenario</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/scenarioDescription

diagram	 <p>Description of the scenario</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Description of the scenario
source	<pre><xs:element name="scenarioDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description of the scenario</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelCalculationType/stateOfOil

diagram	 <p>Description of the scenario</p>
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	isRef 0 content simple
facets	enumeration FRESH enumeration WEATHERED
annotation	documentation Description of the scenario
source	<pre><xs:element name="stateOfOil"> <xs:annotation> <xs:documentation>Description of the scenario</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="FRESH"/> </xs:restriction> </xs:simpleType> </xs:element></pre>


```
<xs:enumeration value="WEATHERED"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
```

element OilSpillModelCalculationType/discharge

diagram	<p>The diagram illustrates the structure of the <code>csn:OilSpillModelDischargeType</code>. It features a central class <code>csn:discharge</code> with the description "Discharge instantaneous and/or continuous". This class is associated with a larger container, <code>csn:OilSpillModelDischargeType</code>, which is highlighted in yellow. Inside this container, there is an <code>attributes</code> section containing a <code>gml:id</code> attribute. A note for <code>gml:id</code> states: "Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute." Below the <code>attributes</code> section, there are two subclasses: <code>csn:instantaneous</code> (described as "Instantaneous discharge expressed in m3") and <code>csn:continuous</code>.</p>					
namespace	http://www.emsa.europa.eu/csndc					
type	csn:OilSpillModelDischargeType					
properties	isRef	0				
	content	complex				
	mixed	true				
children	csn:instantaneous csn:continuous					
attributes	Name	Type	Use	Default	Fixed	annotation
	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by

		concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Discharge instantaneous and/or continuous	
source	<pre><xs:element name="discharge" type="csn:OilSpillModelDischargeType"> <xs:annotation> <xs:documentation>Discharge instantaneous and/or continuous</xs:documentation> </xs:annotation> </xs:element></pre>	

element OilSpillModelCalculationType/oilThickness


diagram	 <p>Oil thickness expressed in m</p>	
namespace	http://www.emsa.europa.eu/csndc	
type	xs:double	
properties	isRef 0 content simple	
annotation	documentation Oil thickness expressed in m	
source	<pre><xs:element name="oilThickness" type="xs:double"> <xs:annotation> <xs:documentation>Oil thickness expressed in m</xs:documentation> </xs:annotation> </xs:element></pre>	

complexType OilSpillModelContinuousDischargeType


diagram	<p>The diagram shows a class OilSpillModelContinuousDischargeType extending gml:AbstractMetaDataType. The gml:AbstractMetaDataType class has an attribute gml:id with a detailed description: "Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute." The OilSpillModelContinuousDischargeType class has three attributes: csn:totalFrom (Time from which the total continuous discharge is calculated. (ISO:8601 format)), csn:totalDuration (Total duration of discharge expressed in hours), and csn:amount (Amount of discharge expressed in m3/hour).</p>												
namespace	http://www.emsa.europa.eu/csndc												
type	extension of gml:AbstractMetaDataType												
properties	base gml:AbstractMetaDataType mixed true												
children	csn:totalFrom csn:totalDuration csn:amount												
used by	element OilSpillModelDischargeType/continuous												
attributes	<table><thead><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>annotation</th></tr></thead><tbody><tr><td>id</td><td></td><td>optional</td><td></td><td></td><td>documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This</td></tr></tbody></table>	Name	Type	Use	Default	Fixed	annotation	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This
Name	Type	Use	Default	Fixed	annotation								
id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This								

		is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="OilSpillModelContinuousDischargeType" mixed="true"> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="totalFrom" type="xs:dateTime"> <xs:annotation> <xs:documentation>Time from which the total continuous discharge is calculated. (ISO:8601 format)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="totalDuration" type="xs:double"> <xs:annotation> <xs:documentation>Total duration of discharge expressed in hours</xs:documentation> </xs:annotation> </xs:element> <xs:element name="amount" type="xs:double"> <xs:annotation> <xs:documentation>Amount of discharge expressed in m3/hour</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>	


element OilSpillModelContinuousDischargeType/totalFrom

diagram	 <p>csn:totalFrom</p> <p>Time from which the total continuous discharge is calculated. (ISO:8601 format)</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:dateTime
properties	isRef 0 content simple
annotation	documentation Time from which the total continuous discharge is calculated. (ISO:8601 format)
source	<pre> <xs:element name="totalFrom" type="xs:dateTime"> <xs:annotation> <xs:documentation>Time from which the total continuous discharge is calculated. (ISO:8601 format)</xs:documentation> </xs:annotation> </xs:element> </pre>

element **OilSpillModelContinuousDischargeType/totalDuration**

diagram	 <p>Total duration of discharge expressed in hours</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Total duration of discharge expressed in hours
source	<pre><xs:element name="totalDuration" type="xs:double"> <xs:annotation> <xs:documentation>Total duration of discharge expressed in hours</xs:documentation> </xs:annotation> </xs:element></pre>

element **OilSpillModelContinuousDischargeType/amount**


diagram	 <p>Amount of discharge expressed in m3/hour</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Amount of discharge expressed in m3/hour
source	<pre><xs:element name="amount" type="xs:double"> <xs:annotation> <xs:documentation>Amount of discharge expressed in m3/hour</xs:documentation> </xs:annotation> </xs:element></pre>

complexType OilSpillModelDischargeType

diagram	<p>The diagram shows a class OilSpillModelDischargeType extending gml:AbstractMetaDataType (extension). The OilSpillModelDischargeType class has an attribute gml:id and a choice of two elements: csn:instantaneous and csn:continuous. The gml:id attribute is described as a database handle for the object, unique in the XML document, and can be constructed using standard XML and XPointer methods by concatenating the URI for the document, a fragment separator, and the value of the id attribute. The csn:instantaneous element is described as 'Instantaneous discharge expressed in m3' and the csn:continuous element is described as 'Continuous discharge expressed in m3'.</p>						
namespace	http://www.emsa.europa.eu/csndc						
type	extension of gml:AbstractMetaDataType						
properties	base	gml:AbstractMetaDataType					
	mixed	true					
children	csn:instantaneous csn:continuous						
used by	element	OilSpillModelCalculationType/discharge					
attributes	Name	Type	Use	Default	Fixed	annotation	
	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id	

	attribute.
source	<pre> <xs:complexType name="OilSpillModelDischargeType" mixed="true"> <xs:complexContent mixed="true"> <xs:extension base="gml:AbstractMetaDataType"> <xs:sequence> <xs:element name="instantaneous" type="xs:double"> <xs:annotation> <xs:documentation>Instantaneous discharge expressed in m3</xs:documentation> </xs:annotation> </xs:element> <xs:element name="continuous" type="csn:OilSpillModelContinuousDischargeType"/> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>

element OilSpillModelDischargeType/instantaneous

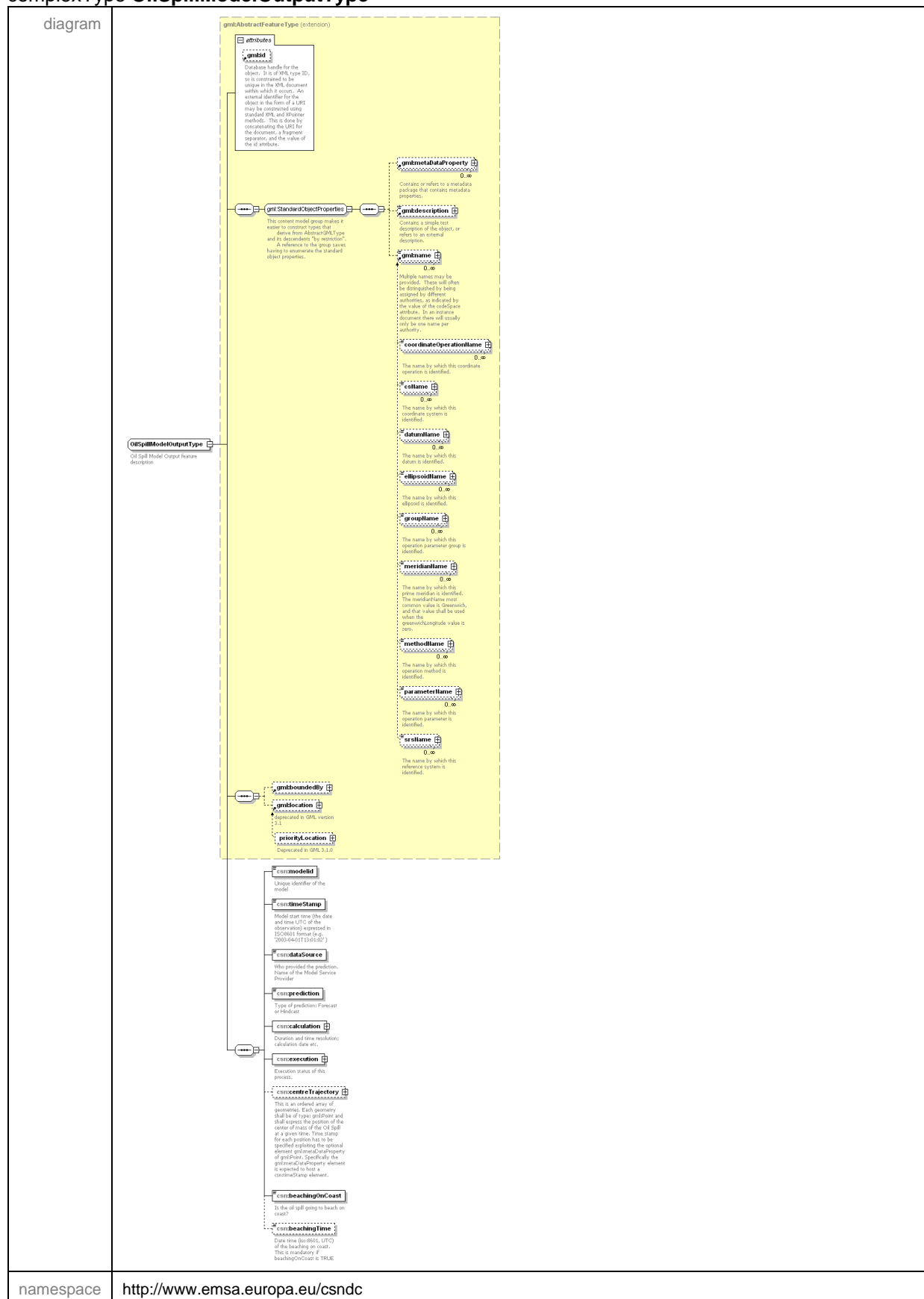
diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 content simple
annotation	documentation Instantaneous discharge expressed in m3
source	<pre> <xs:element name="instantaneous" type="xs:double"> <xs:annotation> <xs:documentation>Instantaneous discharge expressed in m3</xs:documentation> </xs:annotation> </xs:element> </pre>

element **OilSpillModelDischargeType/continuous**

diagram													
namespace	http://www.emsa.europa.eu/csndc												
type	csn:OilSpillModelContinuousDischargeType												
properties	<table><tr><td>isRef</td><td>0</td></tr><tr><td>content</td><td>complex</td></tr><tr><td>mixed</td><td>true</td></tr></table>	isRef	0	content	complex	mixed	true						
isRef	0												
content	complex												
mixed	true												
children	csn:totalFrom csn:totalDuration csn:amount												
attributes	<table><thead><tr><th>Name</th><th>Type</th><th>Use</th><th>Default</th><th>Fixed</th><th>annotation</th></tr></thead><tbody><tr><td>id</td><td></td><td>optional</td><td></td><td></td><td>documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This</td></tr></tbody></table>	Name	Type	Use	Default	Fixed	annotation	id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This
Name	Type	Use	Default	Fixed	annotation								
id		optional			documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This								

		is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<xs:element name="continuous" type="csn:OilSpillModelContinuousDischargeType"/>	


complexType OilSpillModelOutputType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:modelid csn:timeStamp csn:dataSource csn:prediction csn:calculation csn:execution csn:centreTrajectory csn:beachingOnCoast csn:beachingTime					
used by	element OilSpillModelOutput					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Oil Spill Model Output feature description					
source	<pre> <xs:complexType name="OilSpillModelOutputType"> <xs:annotation> <xs:documentation>Oil Spill Model Output feature description</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="modelid" type="xs:string"> <xs:annotation> <xs:documentation>Unique identifier of the model</xs:documentation> </xs:annotation> </xs:element> <xs:element name="timeStamp" type="xs:dateTime"> <xs:annotation> <xs:documentation>Model start time (the date and time UTC of the observation) expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation> </xs:annotation> </xs:element> <xs:element name="dataSource" type="xs:string"> <xs:annotation> <xs:documentation>Who provided the prediction. Name of the Model Service Provider</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

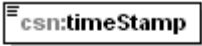
	<pre> </xs:element> <xs:element name="prediction"> <xs:annotation> <xs:documentation>Type of prediction: Forecast or Hindcast</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="FORECAST"/> <xs:enumeration value="HINDCAST"/> </xs:restriction> </xs:simpleType> </xs:element> <xs:element name="calculation" type="csn:OilSpillModelCalculationType"> <xs:annotation> <xs:documentation>Duration and time resolution; calculation date etc.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="execution" type="csn:ExecutionStatusType"> <xs:annotation> <xs:documentation>Execution status of this process.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="centreTrajectory" type="gml:GeometryArrayPropertyType" minOccurs="0"> <xs:annotation> <xs:documentation>This is an ordered array of geometries. Each geometry shall be of type: gml:Point and shall express the position of the center of mass of the Oil Spill at a given time. Time stamp for each position has to be specified exploiting the optional element gml:metaDataProperty of gml:Point. Specifically the gml:metaDataProperty element is expected to host a csn:timeStamp element. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="beachingOnCoast" type="xs:boolean"> <xs:annotation> <xs:documentation>Is the oil spill going to beach on coast?</xs:documentation> </xs:annotation> </xs:element> <xs:element name="beachingTime" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>Date time (iso:8601, UTC) of the beaching on coast. This is mandatory if beachingOnCoast is TRUE</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	---

element OilSpillModelOutputType/modelid


diagram	 <p>csn:modelid Unique identifier of the model</p>
---------	--

namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Unique identifier of the model
source	<pre><xs:element name="modelid" type="xs:string"> <xs:annotation> <xs:documentation>Unique identifier of the model</xs:documentation> </xs:annotation> </xs:element></pre>


element OilSpillModelOutputType/timeStamp

diagram	 <p>Model start time (the date and time UTC of the observation) expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:dateTime
properties	isRef 0 content simple
annotation	documentation Model start time (the date and time UTC of the observation) expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')
source	<pre><xs:element name="timeStamp" type="xs:dateTime"> <xs:annotation> <xs:documentation>Model start time (the date and time UTC of the observation) expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation> </xs:annotation> </xs:element></pre>

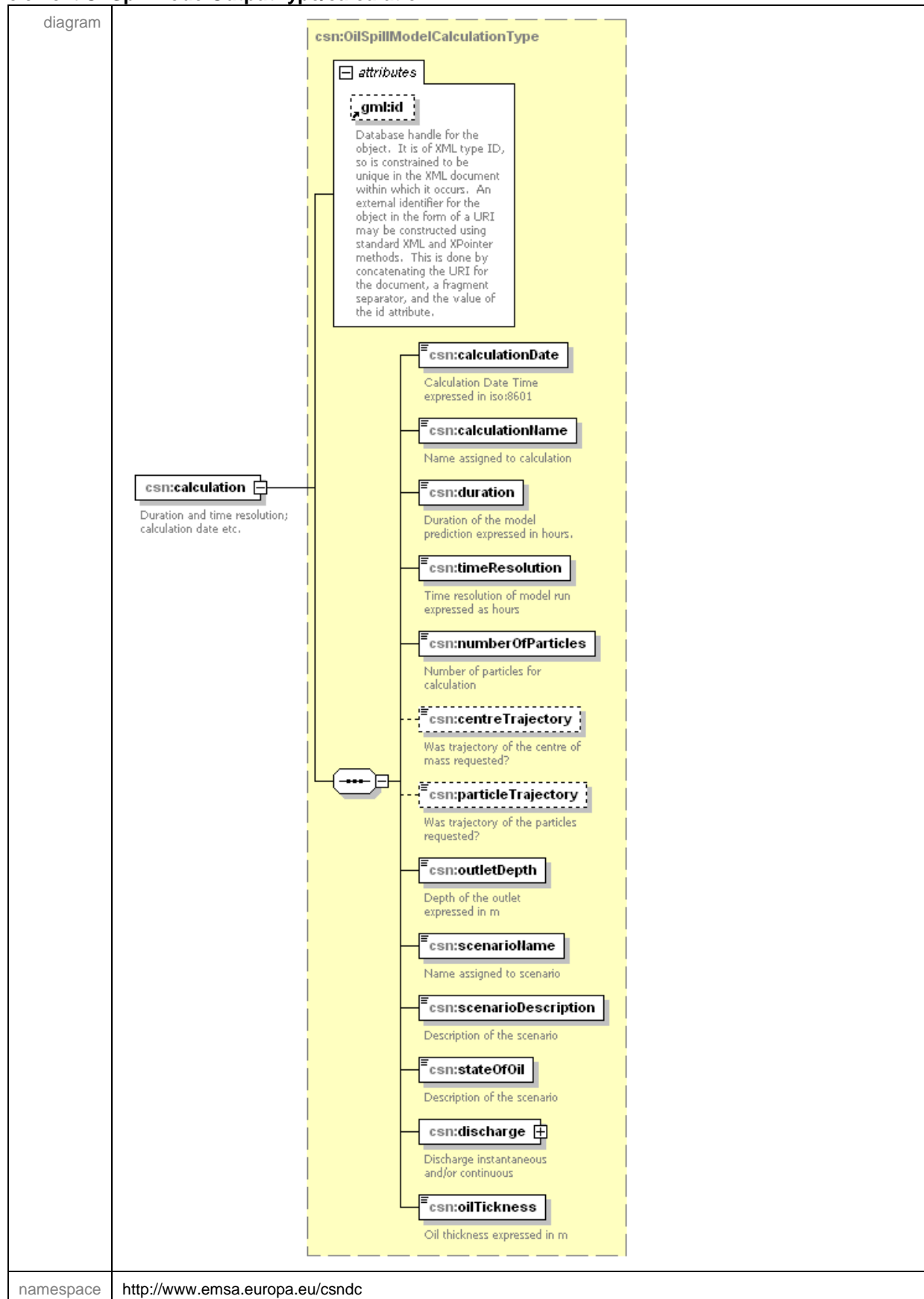
element OilSpillModelOutputType/dataSource

diagram	 <p>Who provided the prediction. Name of the Model Service Provider</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Who provided the prediction. Name of the Model Service Provider
source	<pre><xs:element name="dataSource" type="xs:string"> <xs:annotation> <xs:documentation>Who provided the prediction. Name of the Model Service Provider</xs:documentation> </xs:annotation> </xs:element></pre>

element **OilSpillModelOutputType/prediction**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	isRef 0 content simple
facets	enumeration FORECAST enumeration HINDCAST
annotation	documentation Type of prediction: Forecast or Hindcast
source	<pre> <xs:element name="prediction"> <xs:annotation> <xs:documentation>Type of prediction: Forecast or Hindcast</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="FORECAST"/> <xs:enumeration value="HINDCAST"/> </xs:restriction> </xs:simpleType> </xs:element> </pre>

element OilSpillModelOutputType/calculation



type	csn:OilSpillModelCalculationType					
properties	isRef	0	content	complex	mixed	true
children	csn:calculationDate csn:calculationName csn:duration csn:timeResolution csn:numberOfParticles csn:centreTrajectory csn:particleTrajectory csn:outletDepth csn:scenarioName csn:scenarioDescription csn:stateOfOil csn:discharge csn:oilThickness					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Duration and time resolution; calculation date etc.					
source	<pre> <xs:element name="calculation" type="csn:OilSpillModelCalculationType"> <xs:annotation> <xs:documentation>Duration and time resolution; calculation date etc.</xs:documentation> </xs:annotation> </xs:element> </pre>					

element **OilSpillModelOutputType/execution**


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:ExecutionStatusType
properties	isRef 0 content complex
children	csn:ProcessSucceeded csn:ProcessFailed
annotation	documentation Execution status of this process.
source	<pre><xs:element name="execution" type="csn:ExecutionStatusType"> <xs:annotation> <xs:documentation>Execution status of this process.</xs:documentation> </xs:annotation> </xs:element></pre>

element OilSpillModelOutputType/centreTrajectory

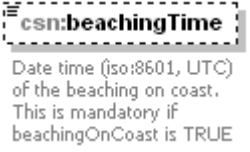
<p>diagram</p>	<p>The diagram illustrates the structure of the <code>centreTrajectory</code> element. It is a class that contains a <code>geometry</code> attribute of type <code>gml:Geometry</code>. The <code>gml:Geometry</code> class is a base class for various geometry types, including <code>gml:GeometryCollection</code>, <code>gml:GeometryAggregate</code>, <code>gml:MultiCurve</code>, <code>gml:MultiGeometry</code>, <code>gml:MultiLineString</code>, <code>gml:MultiPoint</code>, <code>gml:MultiPolygon</code>, <code>gml:MultiSolid</code>, <code>gml:MultiSurface</code>, <code>gml:GeometricPrimitive</code>, <code>gml:Point</code>, <code>gml:Curve</code>, <code>gml:CompositeCurve</code>, <code>gml:Curve</code>, <code>gml:LineString</code>, <code>gml:OrientableCurve</code>, <code>gml:Solid</code>, <code>gml:CompositeSolid</code>, <code>gml:Solid</code>, <code>gml:Surface</code>, <code>gml:CompositeSurface</code>, <code>gml:OrientableSurface</code>, <code>gml:Polygon</code>, <code>gml:Surface</code>, <code>gml:PolyhedralSurface</code>, <code>gml:TriangularSurface</code>, <code>gml:Tri</code>, <code>gml:ImplicitGeometry</code>, <code>gml:Grid</code>, <code>gml:RectifiedGrid</code>, <code>gml:Ring</code>, <code>gml:Linearring</code>, and <code>gml:Ring</code>.</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>

type	gml:GeometryArrayPropertyType
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	gml:_Geometry
annotation	documentation This is an ordered array of geometries. Each geometry shall be of type: gml:Point and shall express the position of the center of mass of the Oil Spill at a given time. Time stamp for each position has to be specified exploiting the optional element gml:metaDataProperty of gml:Point. Specifically the gml:metaDataProperty element is expected to host a csn:timeStamp element.
source	<pre> <xs:element name="centreTrajectory" type="gml:GeometryArrayPropertyType" minOccurs="0"> <xs:annotation> <xs:documentation>This is an ordered array of geometries. Each geometry shall be of type: gml:Point and shall express the position of the center of mass of the Oil Spill at a given time. Time stamp for each position has to be specified exploiting the optional element gml:metaDataProperty of gml:Point. Specifically the gml:metaDataProperty element is expected to host a csn:timeStamp element. </xs:documentation> </xs:annotation> </xs:element> </pre>

element OilSpillModelOutputType/beachingOnCoast

diagram	 <pre> classDiagram class csnBeachingOnCoast { Is the oil spill going to beach on coast? } </pre>
namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
properties	isRef 0 content simple
annotation	documentation Is the oil spill going to beach on coast?
source	<pre> <xs:element name="beachingOnCoast" type="xs:boolean"> <xs:annotation> <xs:documentation>Is the oil spill going to beach on coast?</xs:documentation> </xs:annotation> </xs:element> </pre>

element OilSpillModelOutputType/beachingTime

diagram	 <pre> classDiagram class csnBeachingTime { Date time (iso:8601, UTC) of the beaching on coast. This is mandatory if beachingOnCoast is TRUE } </pre>
namespace	http://www.emsa.europa.eu/csndc
type	xs:boolean
properties	isRef 0 minOcc 0 maxOcc 1

	content simple
annotation	documentation Date time (iso:8601, UTC) of the beaching on coast. This is mandatory if beachingOnCoast is TRUE
source	<pre><xs:element name="beachingTime" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>Date time (iso:8601, UTC) of the beaching on coast. This is mandatory if beachingOnCoast is TRUE</xs:documentation> </xs:annotation> </xs:element></pre>

23 ANNEX P – MODEL OUTPUT NETCDF FORMAT SPECIFICATION

The NetCDF containing the particle concentration produced by the run of a model shall be compliant with convention CF-1.4 and shall adhere to following format (see this for naming conventions <http://cfconventions.org/Data/cf-standard-names/28/build/cf-standard-name-table.html>).

23.1 SPECIFICATIONS FOR FORECAST SIMULATION

Defining a netCDF-Cf file format is done by specifying the 3 elements of the netCDF file headers:

- the array dimensions,
- the type, size and attributes of the variables contained in the file,
- the global attributes.

Note that in netCDF, a dimension is an arbitrary positive integer that define the size of the arrays in which data are stored. A dimension may be used to represent a real physical dimension, for example, time, latitude, longitude, or height but might also be used to index other quantities, for example station or model-run-number. However, in case a dimension cannot be a priori determined, the dimension can also take the special value "UNLIMITED". This value is usually used for a time dimension and allows to append data to existing arrays.

23.1.1 DIMENSIONS

Dimension name	Dimension length
lon	User defined; max 500
lat	User defined; max 500
depth	Optional; user defined; max 35
time	UNLIMITED

23.1.2 Variables

23.1.2.1 Float longitude(lon)

Attribute	Value
standard_name	longitude
units	degrees_east
long_name	longitude
axis	X
_CoordinateAxisType	Lon

23.1.2.2 Float latitude(lat)

Attribute	Value
standard_name	latitude
units	degrees_north
long_name	latitude
axis	Y
_CoordinateAxisType	Lat

23.1.2.3 Float depth(depth)

Attribute	Value
standard_name	depth
units	m
long_name	depth
axis	Z
Positive	down
_CoordinateAxisType	Height
valid_min	0.f
valid_max	100.m

23.1.2.4 Int time(time)

Attribute	Value
standard_name	time
units	seconds since 1970-01-01 00:00:00
long_name	time
axis	T
_CoordinateAxisType	Time
Calendar	Gregorian
time_origin	1970-01-01 00:00:00

23.1.2.5 Float oil_density(time)

Attribute	Value
standard_name	oil_density
units	kg m-3
long_name	Mean density of the surface oil fraction
missing_value	0.f
_fillValue	0.f
valid_min	700.f
valid_max	1200.f
scale_factor	1.f
add_offset	0.f

23.1.2.6 Float oil_viscosity(time)

Attribute	Value
standard_name	oil_viscosity
units	10 ⁻⁶ m ² s ⁻¹ (cSt)
long_name	Mean viscosity of the surface oil fraction
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	10000000000.f
scale_factor	1.f
add_offset	0.f

23.1.2.7 Float oil_volume(time)

Attribute	Value
standard_name	oil_volume
units	m ³
long_name	Total volume of the surface oil fraction
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	10000000000.f
scale_factor	1.f
add_offset	0.f

23.1.2.8 Float oil_total_mass(time)

Attribute	Value
standard_name	Oil_total_mass
units	kg
long_name	Total mass of the surface oil fraction
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	10000000000.f
scale_factor	1.f
add_offset	0.f

23.1.2.9 Float surface_oil_thickness(time, lon, lat)

Attribute	Value
standard_name	oil_thickness_at_sea_surface
units	m
long_name	Oil thickness at sea surface
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	1.f

scale_factor	1.f
add_offset	0.f

23.1.2.10 Float Number_of_particles_at_sea_surface_per_grid_cell(time, lon, lat)

Attribute	Value
standard_name	Number_of_particles_at_sea_surface_per_grid_cell
units	m
long_name	Number of particles at sea surface per grid cell
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	1000000000.f
scale_factor	1.f
add_offset	0.f

23.1.2.11 Float oil_concentration(time, depth, lon, lat) - Optional

Attribute	Value
standard_name	mass_concentration_of_oil_in_sea_water
units	kg m-3
long_name	mass_concentration_of_oil_in_sea_water
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	1000.f
scale_factor	1.f
add_offset	0.f

23.1.3 Global attributes

Attribute	Value
title	Oil spill forecast for <csn:identifier of the oil_spill >
institution	The name of the Model Service Provider
model	The name of the model
Conventions	CF-1.0
creation_date	UTC date of the creation of the file
latitude_min	Same as latitude(0)
latitude_max	Same as latitude(lat-1)
longitude_min	Same as longitude(0)
longitude_max	Same as longitude(lon-1)

23.2 SPECIFICATIONS FOR BACKWARD SIMULATION

In OSERIT, a backward simulation is a 2D pure surface drift simulation computed backward in time. It does not compute the oil weathering so that oil-related parameters such as oil density, viscosity, oil volume, oil thickness,... are meaningless. As a consequence, the specifications of the netcdf file for a backward simulation slightly differs from the specifications of a forecast simulation.

23.2.1 DIMENSIONS

Dimension name	Dimension length
lon	User defined; max 500
lat	User defined; max 500
depth	Optional; user defined; max 35
time	UNLIMITED

23.2.2 Variables

23.2.2.1 Float longitude(lon)

Attribute	Value
standard_name	longitude
units	degrees_east
long_name	longitude
axis	X
_CoordinateAxisType	Lon

23.2.2.2 Float latitude(lat)

Attribute	Value
standard_name	latitude
units	degrees_north
long_name	latitude
axis	Y
_CoordinateAxisType	Lat

23.2.2.3 Int time(time)

Attribute	Value
standard_name	time
units	seconds since 1970-01-01 00:00:00
long_name	time
axis	T
_CoordinateAxisType	Time
Calendar	Gregorian

time_origin	1970-01-01 00:00:00
-------------	---------------------

23.2.2.4 Float Number_of_particles_at_sea_surface_per_grid_cell(time, lon, lat)

Attribute	Value
standard_name	Number_of_particles_at_sea_surface_per_grid_cell
units	m
long_name	Number of particles at sea surface per grid cell
missing_value	0.f
_fillValue	0.f
valid_min	0.f
valid_max	1000000000.f
scale_factor	1.f
add_offset	0.f

23.2.3 Global attributes

Attribute	Value
title	Oil spill backtrack for <csn:identifier of the oil_spill >
institution	The name of the Model Service Provider
model	The name of the model
Conventions	CF-1.0
creation_date	UTC date of the creation of the file
latitude_min	Same as latitude(0)
latitude_max	Same as latitude(lat-1)
longitude_min	Same as longitude(0)
longitude_max	Same as longitude(lon-1)

24 ANNEX Q –PLANNING FILE GML SCHEMA

Schema csndc_planning.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Attributes [version](#) Elements [planningFile](#) Complex types [FlexibleAcquisitionType](#) [PlanningFileType](#)

attribute version

namespace	http://www.emsa.europa.eu/csndc		
type	restriction of xs:string		
facets	Kind pattern	Value [0-9][.][0-9]	annotation
source	<pre><xs:attribute <xs:simpleType> <xs:restriction <xs:pattern </xs:restriction> </xs:simpleType> </xs:attribute></pre> <div style="float: right; text-align: right;"> name="version"> base="xs:string"> value="[0-9][.][0-9]"> </div>		

element planningFile

diagram						
namespace	http://www.emsa.europa.eu/csndc					
properties	content complex					
children	csn:plannedAcquisition					
attributes	Name version	Type	Use required	Default	Fixed	annotation
source	<pre><xs:element <xs:complexType> <xs:sequence> <xs:element name="plannedAcquisition" type="csn:PlanningFileType" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute ref="csn:version" use="required"/> </xs:complexType></pre> <div style="float: right; text-align: right;"> name="planningFile" csn:version="1.1"> type="csn:PlanningFileType" </div>					

</xs:element>

element **planningFile/plannedAcquisition**

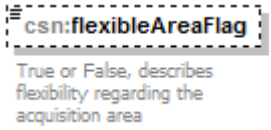
diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	csn:PlanningFileType								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>1</td></tr> <tr><td>maxOcc</td><td>unbounded</td></tr> <tr><td>content</td><td>complex</td></tr> </table>	isRef	0	minOcc	1	maxOcc	unbounded	content	complex
isRef	0								
minOcc	1								
maxOcc	unbounded								
content	complex								
children	csn:externalID csn:requestedProcessingLevel csn:cloudCoverThreshold csn:flexibleAcquisition csn:dataTakeOpportunities csn:CSNProduct								
source	<pre><xs:element name="plannedAcquisition" type="csn:PlanningFileType" maxOccurs="unbounded"/></pre>								

complexType **FlexibleAcquisitionType**


diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:flexibleAreaFlag csn:flexibleTimeFlag

source	<pre> <xs:complexType name="FlexibleAcquisitionType"> <xs:sequence> <xs:element name="flexibleAreaFlag" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>True or False, describes flexibility regarding the acquisition area</xs:documentation> </xs:annotation> </xs:element> <xs:element name="flexibleTimeFlag" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>True or False, describes flexibility regarding the acquisition time</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--------	---

element FlexibleAcquisitionType/flexibleAreaFlag

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:boolean								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation True or False, describes flexibility regarding the acquisition area								
source	<pre> <xs:element name="flexibleAreaFlag" type="xs:boolean" minOccurs="0"> <xs:annotation> <xs:documentation>True or False, describes flexibility regarding the acquisition area</xs:documentation> </xs:annotation> </xs:element> </pre>								

element FlexibleAcquisitionType/flexibleTimeFlag

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:boolean								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation True or False, describes flexibility regarding the acquisition time								
source	<pre> <xs:element name="flexibleTimeFlag" type="xs:boolean" minOccurs="0"> </pre>								

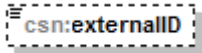
	<pre> <xs:annotation> <xs:documentation>True or False, describes flexibility regarding the acquisition time</xs:documentation> </xs:annotation> </xs:element> </pre>
--	--

complexType **PlanningFileType**


diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:externalID csn:requestedProcessingLevel csn:cloudCoverThreshold csn:flexibleAcquisition csn:dataTakeOpportunities csn:CSNProduct
source	<pre> <xs:complexType name="PlanningFileType" maxOccurs="unbounded"> <xs:sequence> <xs:element name="externalID" type="xs:int" minOccurs="0"/> <xs:element name="requestedProcessingLevel" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>This refers to a set of codes that define the required processing level. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="cloudCoverThreshold" type="xs:int" minOccurs="0"/> <xs:choice> <xs:element name="flexibleAcquisition" type="csn:FlexibleAcquisitionType"> <xs:annotation> <xs:documentation>Indicates if flexible time or area are used for this planning. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="dataTakeOpportunities" minOccurs="0"> <xs:annotation> <xs:documentation>This refers to a set of possible acquisition called Data Take Opportunities. The different possible scenes acquired by the satellites in a certain time and area interval. </xs:documentation> </xs:annotation> </xs:element> </xs:choice> <xs:element name="CSNProduct" type="csn:CSNProductType" minOccurs="0"/> </xs:sequence> </xs:complexType> </pre>

	<pre> <xs:complexType> <xs:sequence> <xs:element name="CSNProduct" type="sar:EarthObservationType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>EO Products</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </xs:element> </xs:choice> <xs:element name="CSNProduct" type="sar:EarthObservationType" minOccurs="0"> <xs:annotation> <xs:documentation>EO Products</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	--

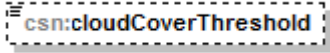
element **PlanningFileType/externalID**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:int								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
source	<pre><xs:element name="externalID" type="xs:int" minOccurs="0"/></pre>								

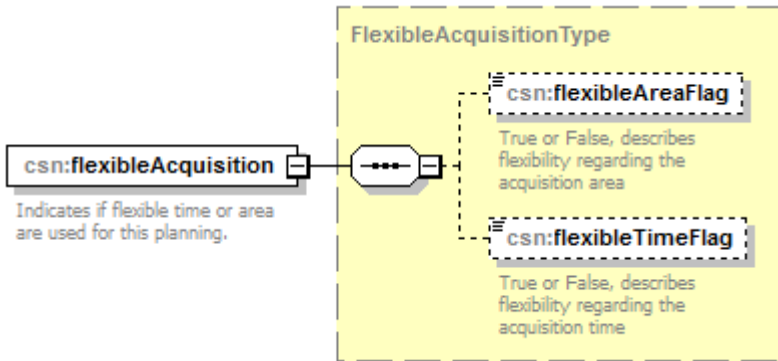
element **PlanningFileType/requestedProcessingLevel**

diagram	 <p>This refers to a set of codes that define the required processing level.</p>								
namespace	http://www.emsa.europa.eu/csndc								
type	xs:string								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
annotation	documentation This refers to a set of codes that define the required processing level.								
source	<pre> <xs:element name="requestedProcessingLevel" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>This refers to a set of codes that define the required processing level. </xs:documentation> </xs:annotation> </xs:element> </pre>								


element **PlanningFileType/cloudCoverThreshold**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
type	xs:int								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>simple</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	simple
isRef	0								
minOcc	0								
maxOcc	1								
content	simple								
source	<code><xs:element name="cloudCoverThreshold" type="xs:int" minOccurs="0"/></code>								

element **PlanningFileType/flexibleAcquisition**

diagram					
namespace	http://www.emsa.europa.eu/csndc				
type	csn:FlexibleAcquisitionType				
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>content</td><td>complex</td></tr> </table>	isRef	0	content	complex
isRef	0				
content	complex				
children	csn:flexibleAreaFlag csn:flexibleTimeFlag				
annotation	<p>documentation</p> <p>Indicates if flexible time or area are used for this planning.</p>				
source	<pre> <xs:element name="flexibleAcquisition" type="csn:FlexibleAcquisitionType"> <xs:annotation> <xs:documentation>Indicates if flexible time or area are used for this planning.</xs:documentation> </xs:annotation> </xs:element> </pre>				

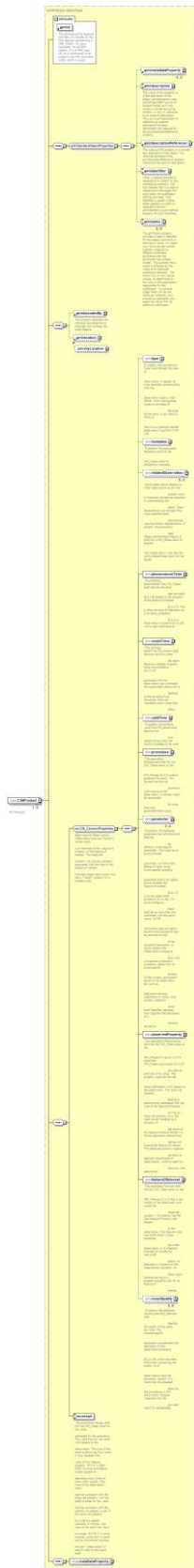
element **PlanningFileType/dataTakeOpportunities**

diagram									
namespace	http://www.emsa.europa.eu/csndc								
properties	<table> <tr><td>isRef</td><td>0</td></tr> <tr><td>minOcc</td><td>0</td></tr> <tr><td>maxOcc</td><td>1</td></tr> <tr><td>content</td><td>complex</td></tr> </table>	isRef	0	minOcc	0	maxOcc	1	content	complex
isRef	0								
minOcc	0								
maxOcc	1								
content	complex								

children	csn:CSNProduct
annotation	documentation This refers to a set of possible acquisition called Data Take Opportunities. The different possible scenes acquired by the satellites in a certain time and area interval.
source	<pre> <xs:element name="dataTakeOpportunities" minOccurs="0"> <xs:annotation> <xs:documentation>This refers to a set of possible acquisition called Data Take Opportunities. The different possible scenes acquired by the satellites in a certain time and area interval.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element name="CSNProduct" type="sar:EarthObservationType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>EO Products</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </xs:element> </pre>

element **PlanningFileType/dataTakeOpportunities/CSNProduct**

diagram

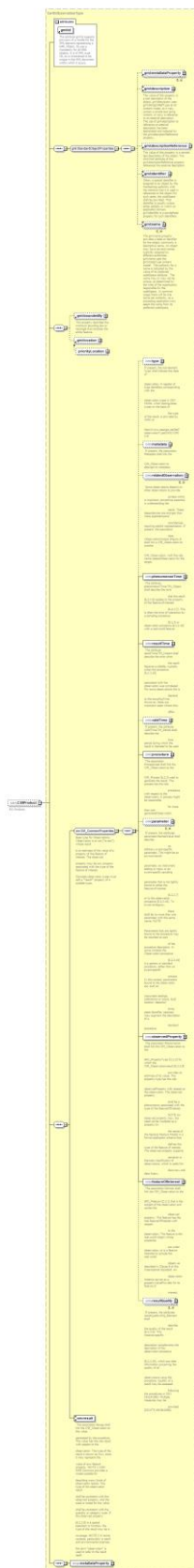


namespace

<http://www.emsa.europa.eu/csndc>

type	sar:EarthObservationType					
properties	isRef	0				
	minOcc	1				
	maxOcc	unbounded				
	content	complex				
children	gml:metaDataProperty gml:description gml:descriptionReference gml:identifier gml:name gml:boundedBy gml:location om:type om:metadata om:relatedObservation om:phenomenonTime om:resultTime om:validTime om:procedure om:parameter om:observedProperty om:featureOfInterest om:resultQuality om:result eop:metaDataProperty					
attributes	Name id	Type	Use required	Default	Fixed	annotation documentation The attribute gml:id supports provision of a handle for the XML element representing a GML Object. Its use is mandatory for all GML objects. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs.
annotation	documentation EO Products- This element is a standard specialization for EO products of OM Observation and Measurement element as per OGC standards. Please note that all the O&M documentation and specifications (in particular http://schemas.opengis.net/om/2.0) do apply here. For this reason the mandatory OM elements, even if not used like <om:result>, are included but with no value (i.e. <om:result/>).					
source	<xs:element name="CSNProduct" type="sar:EarthObservationType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>EO Products</xs:documentation> </xs:annotation> </xs:element>					

diagram



<http://www.emsa.europa.eu/csndc>

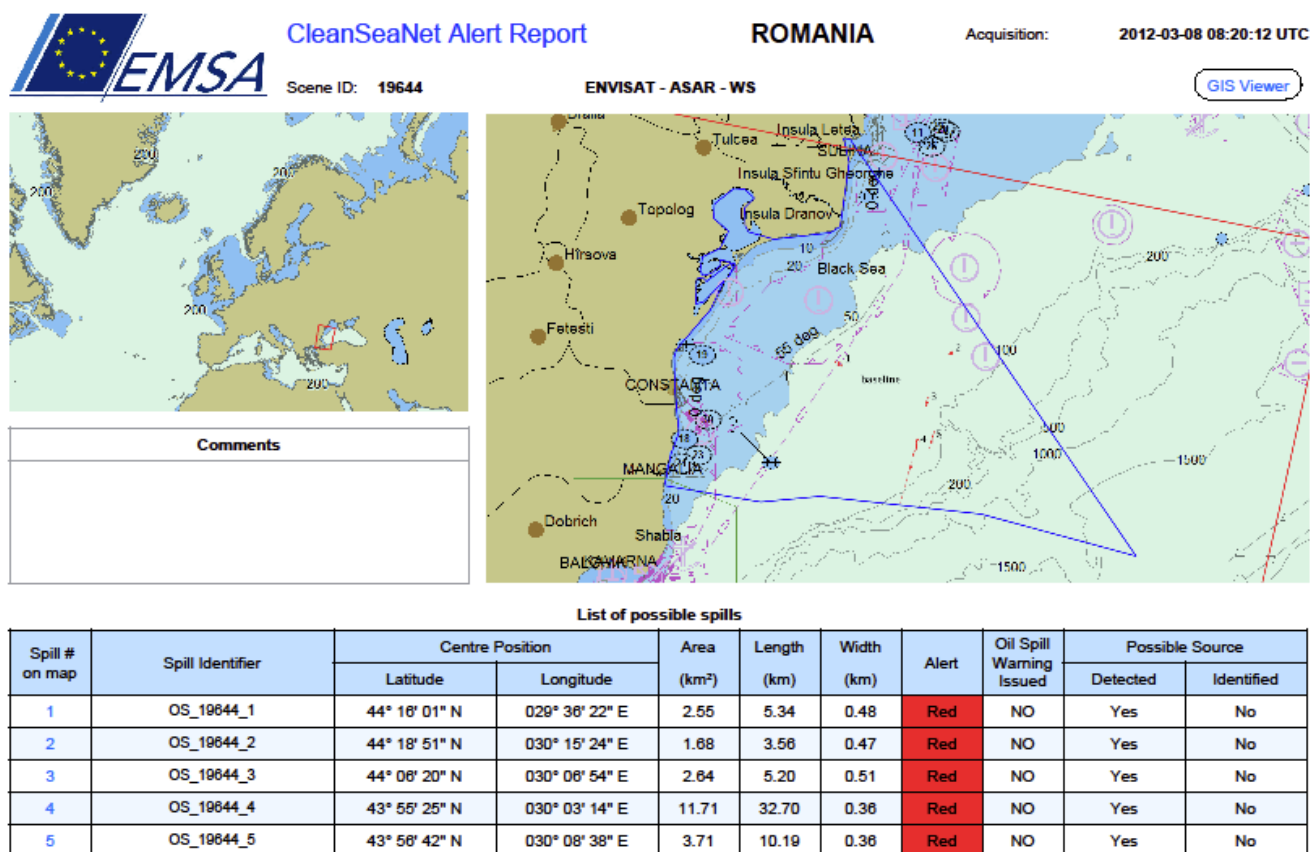
type	sar:EarthObservationType					
properties	isRef	0				
	minOcc	0				
	maxOcc	1				
	content	complex				
children	gml:metaDataProperty gml:description gml:descriptionReference gml:identifier gml:name gml:boundedBy gml:location om:type om:metadata om:relatedObservation om:phenomenonTime om:resultTime om:validTime om:procedure om:parameter om:observedProperty om:featureOfInterest om:resultQuality om:result eop:metaDataProperty					
attributes	Name id	Type	Use required	Default	Fixed	annotation documentation The attribute gml:id supports provision of a handle for the XML element representing a GML Object. Its use is mandatory for all GML objects. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs.
annotation	documentation EO Products					
source	<xs:element name="CSNProduct" type="sar:EarthObservationType" minOccurs="0"> <xs:annotation> <xs:documentation>EO Products</xs:documentation> </xs:annotation> </xs:element>					

XML Schema documentation generated by [XMLSpy](http://www.altova.com/xmlspy) Schema Editor <http://www.altova.com/xmlspy>

See document [PL-SP] planning file mapping for SP, for more detailed information.

25 ANNEX R- EXAMPLE OF ALERT REPORT

The alert report is a PDF file which is created following a specific template and layout provided by EMSA. An example of such report is provided hereafter.



26 ANNEX S1 – ACTIVITY DETECTION XML SCHEMA

Schema csndc_act.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **http://www.emsa.europa.eu/csndc**

Elements

[Activity](#)

Complex types

[ActivityDataType](#)

[AOIs](#)

[AssociatedVesselsType](#)

[OtherFeaturesAssociatedType](#)

[OtherFeatureType](#)

[RequestType](#)

element Activity

<p>diagram</p>	<p>ActivityData Type</p> <p>attributes</p> <p>gmsid <small>0..1</small> Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and URI methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gmsStandardObjectProperties <small>0..1</small> This content model group makes a series of content types that derive from AbstractXMLType and its descendants "by reference". It is a reference to the group having to enumerate the standard object properties.</p> <p>gmsMetadataProperty <small>0..1</small> Contains or refers to a metadata package that contains metadata properties.</p> <p>gmsDescription <small>0..1</small> Contains a simple text description of the object, or refers to an external description.</p> <p>gmsName <small>0..1</small> Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the confidence attribute. In an instance document there will usually only be one name per activity.</p> <p>coordinateOperationName <small>0..1</small> The name by which this coordinate operation is identified.</p> <p>columnName <small>0..1</small> The name by which this coordinate system is identified.</p> <p>datumName <small>0..1</small> The name by which this datum is identified.</p> <p>ellipseName <small>0..1</small> The name by which this ellipse is identified.</p> <p>groupname <small>0..1</small> The name by which this operation parameter group is identified.</p> <p>meridianName <small>0..1</small> The name by which this prime meridian is identified. The meridianName must contain a value in degrees, and that value shall be used when the greenwichLongitude value is zero.</p> <p>methodName <small>0..1</small> The name by which this operation method is identified.</p> <p>parameterName <small>0..1</small> The name by which this operation parameter is identified.</p> <p>srstName <small>0..1</small> The name by which this reference system is identified.</p> <p>gmsBoundedBy <small>0..1</small> Depicted in GML version 3.1.1</p> <p>gmsInitiation <small>0..1</small> Depicted in GML version 3.1.1</p> <p>priorityLocation <small>0..1</small> Depicted in GML 3.1.1</p> <p>gmsid <small>0..1</small> Unique ID of the activity for a given service. It is of type xs:string, and shall conform to the pattern <code>PH409130_20409130_5C20</code>. It must be equal to the name of the XML file with the activity.</p> <p>gmsActivityType <small>0..1</small> The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drug smuggling.</p> <p>gmsActivitySubType <small>0..1</small> The sub-type of targeted activity detection, dynamic list subject to change, e.g. radar-on-vessel at sea relating to maritime border control, a radar-on-vessel relating to fisheries surveillance, a number of single or multiple between two vessels.</p> <p>gmsActivityRequest <small>0..1</small> The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drug smuggling.</p> <p>gmsActivityDescription <small>0..1</small> Text description of the activity reported by Service Provider.</p> <p>gmsActivityConfidenceLevel <small>0..1</small> The confidence level of the activity reported by Service Provider.</p> <p>gmsActivityClipImage <small>0..1</small> Name of the clip image file (jpg) with the activity. This file shall be found in the same package (e.g. tar) where the XML describing the activity is.</p> <p>gmsTimeStamp <small>0..1</small> The date and time of the activity observation expressed in ISO8601 format (e.g. "2003-04-01T13:00:00").</p> <p>gmsPositionAccuracyVector <small>0..1</small> A position accuracy vector to express any uncertainty in the determination of the activity position.</p> <p>gmsActivityArea <small>0..1</small> The area of the activity.</p> <p>gmsAssociatedVessels <small>0..1</small> The vessels associated with the activity.</p> <p>gmsOtherFeaturesAssociated <small>0..1</small> Other features associated with the activity.</p> <p>Activity <small>0..1</small> Activity detected on a EO scene.</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:id csn:activityType csn:activitySubType csn:activityRequest csn:activityDescription csn:activityConfidenceLevel csn:activityClipImage csn:timeStamp csn:positionAccuracyVector csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
csnattributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity detected on a EO scene					
source	<pre><xs:element name="Activity" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Activity detected on a EO scene</xs:documentation> </xs:annotation> </xs:element></pre>					

diagram



namespa
ce

<http://www.emsa.europa.eu/csndc>

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:id csn:activityType csn:activitySubType csn:activityRequest csn:activityDescription csn:activityConfidenceLevel csn:activityClipImage csn:timeStamp csn:positionAccuracyVector csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre><xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="id" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_SG F_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling;</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activitySubType" type="xs:string"> <xs:annotation> <xs:documentation>The sub-type of targeted activity detection. Dynamic list</pre>					


subject to change. e.g. rendez-vous at sea relating to maritime border control a mother vessel passing migrants to smaller vessels, transfer of drugs at sea between two vessels.

```


</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="activityRequest" type="csn:RequestType"/>
<xs:element name="activityDescription" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Text description of the activity reported by Service Provider.</xs:documentation>
  </xs:annotation>
  </xs:element>
  <xs:element name="activityConfidenceLevel">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="HIGH"/>
        <xs:enumeration value="MEDIUM"/>
        <xs:enumeration value="LOW"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="activityClipImage" type="xs:string">
    <xs:annotation>
      <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall be found in the same package (e.g. tar) where the XML describing the activity is</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="timeStamp" type="xs:dateTime">
    <xs:annotation>
      <xs:documentation>The date and time of the activity observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation>
    </xs:annotation>
  </xs:element>
<!--
Serve
  <xs:element ref="gml:pos"/>
-->
  <xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType">
    <xs:annotation>
      <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the activity position.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="activityArea" type="gml:GeometryArrayPropertyType"/>
  <xs:element name="associatedVessels" type="csn:AssociatedVesselsType" minOccurs="0"/>
  <xs:element name="otherFeaturesAssociated" type="csn:OtherFeaturesAssociatedType" minOccurs="0"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

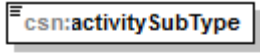
element ActivityDataType/id

diagram	 <p>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCW A_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_SGF_AC_1. It must be equal to the name of the XML file with the activity.
source	<pre><xs:element name="id" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_SGF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element></pre>

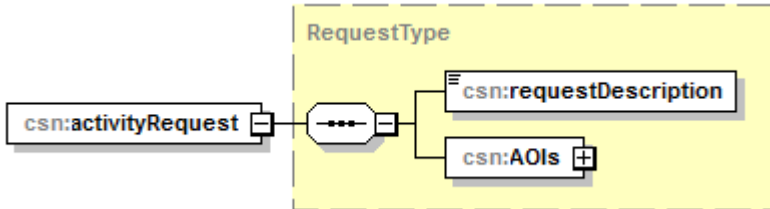
element ActivityDataType/activityType

diagram	 <p>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling;</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling;
source	<pre><xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling; </xs:documentation> </xs:annotation> </xs:element></pre>

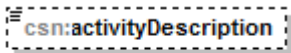
element ActivityDataType/activitySubType

diagram	 <p>The sub-type of targeted activity detection. Dynamic list subject to change. e.g. rendez-vous at sea relating to maritime border control a mother vessel passing migrants to smaller vessels, transfer of drugs at sea between two vessels.</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation The sub-type of targeted activity detection. Dynamic list subject to change. e.g. rendez-vous at sea relating to maritime border control a mother vessel passing migrants to smaller vessels, transfer of drugs at sea between two vessels.
source	<pre><xs:element name="activitySubType" type="xs:string"> <xs:annotation> <xs:documentation>The sub-type of targeted activity detection. Dynamic list subject to change. e.g. rendez-vous at sea relating to maritime border control a mother vessel passing migrants to smaller vessels, transfer of drugs at sea between two vessels.</xs:documentation> </xs:annotation> </xs:element></pre>

element ActivityDataType/activityRequest


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:RequestType
properties	isRef 0 content complex
children	csn:requestDescription csn:AOLs
source	<xs:element name="activityRequest" type="csn:RequestType"/>

element ActivityDataType/activityDescription

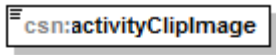
diagram	 <p>Text description of the activity reported by Service Provider.</p>
namespace	http://www.emsa.europa.eu/csndc
properties	isRef 0 minOcc 0 maxOcc 1

annotation	documentation Text description of the activity reported by Service Provider.
source	<pre><xs:element name="activityDescription" minOccurs="0"> <xs:annotation> <xs:documentation>Text description of the activity reported by Service Provider.</xs:documentation> </xs:annotation> </xs:element></pre>

element ActivityDataType/activityConfidenceLevel

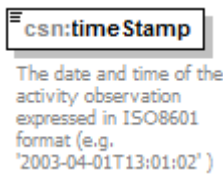
diagram													
namespace	http://www.emsa.europa.eu/csndc												
type	restriction of xs:string												
properties	isRef 0 content simple												
facets	<table><tr><td>Kind</td><td>Value</td><td>annotation</td></tr><tr><td>enumeration</td><td>HIGH</td><td></td></tr><tr><td>enumeration</td><td>MEDIUM</td><td></td></tr><tr><td>enumeration</td><td>LOW</td><td></td></tr></table>	Kind	Value	annotation	enumeration	HIGH		enumeration	MEDIUM		enumeration	LOW	
Kind	Value	annotation											
enumeration	HIGH												
enumeration	MEDIUM												
enumeration	LOW												
source	<pre><xs:element name="activityConfidenceLevel"> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="HIGH"/> <xs:enumeration value="MEDIUM"/> <xs:enumeration value="LOW"/> </xs:restriction> </xs:simpleType> </xs:element></pre>												

element ActivityDataType/activityClipImage

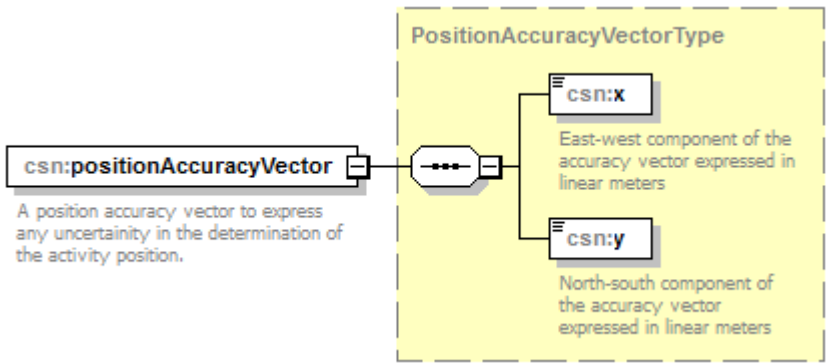
diagram	 <p>Name of the clip image file (jpg) with the activity. This file shall be found in the same package (e.g. tar) where the XML describing the activity is</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Name of the clip image file (jpg) with the activity. This file shall be found in the same package (e.g. tar) where the XML describing the activity is
source	<pre><xs:element name="activityClipImage" type="xs:string"> <xs:annotation> <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall be found in the same package (e.g. tar) where the XML describing the activity is </xs:documentation> </xs:element></pre>

	<pre></xs:annotation> </xs:element></pre>
--	---

element **ActivityDataType/timeStamp**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:dateTime
properties	isRef 0 content simple
annotation	documentation The date and time of the activity observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')
source	<pre><xs:element name="timeStamp" type="xs:dateTime"> <xs:annotation> <xs:documentation>The date and time of the activity observation expressed in ISO8601 format (e.g. '2003-04-01T13:01:02')</xs:documentation> </xs:annotation> </xs:element></pre>

element **ActivityDataType/positionAccuracyVector**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:PositionAccuracyVectorType
properties	isRef 0 content complex
children	csn:x csn:y
annotation	documentation A position accuracy vector to express any uncertainty in the determination of the activity position.
source	<pre><xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType"> <xs:annotation> <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the activity position.</xs:documentation> </xs:annotation> </xs:element></pre>

type	gml:GeometryArrayPropertyType
properties	isRef 0 content complex
children	gml:_Geometry
source	<code><xs:element name="activityArea" type="gml:GeometryArrayPropertyType"/></code>

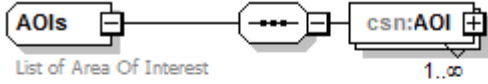
element **ActivityDataType/associatedVessels**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:AssociatedVesselsType
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	csn:vessel
source	<code><xs:element name="associatedVessels" type="csn:AssociatedVesselsType" minOccurs="0"/></code>

element **ActivityDataType/otherFeaturesAssociated**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:OtherFeaturesAssociatedType
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	csn:feature
source	<code><xs:element name="otherFeaturesAssociated" type="csn:OtherFeaturesAssociatedType" minOccurs="0"/></code>

complexType AOIs

diagram	 <p>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:AOI
annotation	documentation List of Area Of Interest
source	<pre> <xs:complexType name="AOIs"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="AOI" type="gml:GeometryArrayPropertyType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

element AOIs/AOI

<p>diagram</p>	<p>GeometryArray/Property/Type 0..2</p> <p>This is an array of geometries defining the AOI of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.</p> <p>gmt_Geometry 0..2</p> <p>The "Geometry" element is the abstract head of the substitution group for all geometry elements of GML. It includes pre-defined and user-defined geometry elements. Any geometry element must be a direct or indirect extension/instruction of AbstractGeometryType and must be directly or indirectly in the substitution group of "Geometry".</p> <p>GeometricComplex 0..2</p> <p>The "GeometricComplex" element is the abstract head of the substitution group for all geometric complexes.</p> <p>GeometricAggregate 0..2</p> <p>The "GeometricAggregate" element is the abstract head of the substitution group for all geometric aggregates.</p> <p>MultiCurve 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiGeometry 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiLineString 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiPoint 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiPolygon 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiSolid 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>MultiSurface 0..2</p> <p>Deprecated with GML 3.0 and included for backwards compatibility with GML 2. Use the "MultiCurve" element instead.</p> <p>GeometricPrimitive 0..2</p> <p>The "GeometricPrimitive" element is the abstract head of the substitution group for all pre-defined and user-defined geometric primitives.</p> <p>Point 0..2</p> <p>The "Point" element is the abstract head of the substitution group for all continuous point elements.</p> <p>Curve 0..2</p> <p>The "Curve" element is the abstract head of the substitution group for all continuous curve elements.</p> <p>CompositeCurve 0..2</p> <p>The "CompositeCurve" element is the abstract head of the substitution group for all composite curve elements.</p> <p>LineString 0..2</p> <p>The "LineString" element is the abstract head of the substitution group for all continuous line elements.</p> <p>OrientableCurve 0..2</p> <p>The "OrientableCurve" element is the abstract head of the substitution group for all orientable curve elements.</p> <p>Solid 0..2</p> <p>The "Solid" element is the abstract head of the substitution group for all continuous solid elements.</p> <p>CompositeSolid 0..2</p> <p>The "CompositeSolid" element is the abstract head of the substitution group for all composite solid elements.</p> <p>Surface 0..2</p> <p>The "Surface" element is the abstract head of the substitution group for all continuous surface elements.</p> <p>CompositeSurface 0..2</p> <p>The "CompositeSurface" element is the abstract head of the substitution group for all composite surface elements.</p> <p>OrientableSurface 0..2</p> <p>The "OrientableSurface" element is the abstract head of the substitution group for all orientable surface elements.</p> <p>Polygon 0..2</p> <p>The "Polygon" element is the abstract head of the substitution group for all continuous polygon elements.</p> <p>Surface 0..2</p> <p>The "Surface" element is the abstract head of the substitution group for all continuous surface elements.</p> <p>PolyhedralSurface 0..2</p> <p>The "PolyhedralSurface" element is the abstract head of the substitution group for all continuous polyhedral surface elements.</p> <p>TriangulatedSurface 0..2</p> <p>The "TriangulatedSurface" element is the abstract head of the substitution group for all continuous triangulated surface elements.</p> <p>Tin 0..2</p> <p>The "Tin" element is the abstract head of the substitution group for all continuous tin elements.</p> <p>ImplicitGeometry 0..2</p> <p>The "ImplicitGeometry" element is the abstract head of the substitution group for all implicit geometry elements.</p> <p>Grid 0..2</p> <p>The "Grid" element is the abstract head of the substitution group for all grid elements.</p> <p>RectifiedGrid 0..2</p> <p>The "RectifiedGrid" element is the abstract head of the substitution group for all rectified grid elements.</p> <p>Ring 0..2</p> <p>The "Ring" element is the abstract head of the substitution group for all closed boundaries of a surface entity.</p> <p>LinearRing 0..2</p> <p>The "LinearRing" element is the abstract head of the substitution group for all linear ring elements.</p> <p>Ring 0..2</p> <p>The "Ring" element is the abstract head of the substitution group for all ring elements.</p>
<p>namespace</p>	<p>http://www.emsa.europa.eu/csndc</p>

type	gml:GeometryArrayPropertyType
properties	isRef 0 minOcc 1 maxOcc unbounded content complex
children	gml:_Geometry
annotation	documentation This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.
source	<pre> <xs:element name="AOI" type="gml:GeometryArrayPropertyType" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.</xs:documentation> </xs:annotation> </xs:element> </pre>

complexType AssociatedVesselsType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:vessel
annotation	documentation Associated vessels
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="vessel" type="csn:ShipType" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </pre>

type	csn:ShipType					
properties	isRef	0	minOcc	0	maxOcc	unbounded
	content	complex				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:id csn:includeInReport gml:pos csn:positionAccuracyVector csn:dopplerOffset csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:length csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:detectionParameters csn:vesselIdentification csn:shipThumbnail					
attributes	Name id	Type	Use optional	Default	Fixed	documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<xs:element name="vessel" type="csn:ShipType" minOccurs="0" maxOccurs="unbounded"/>					

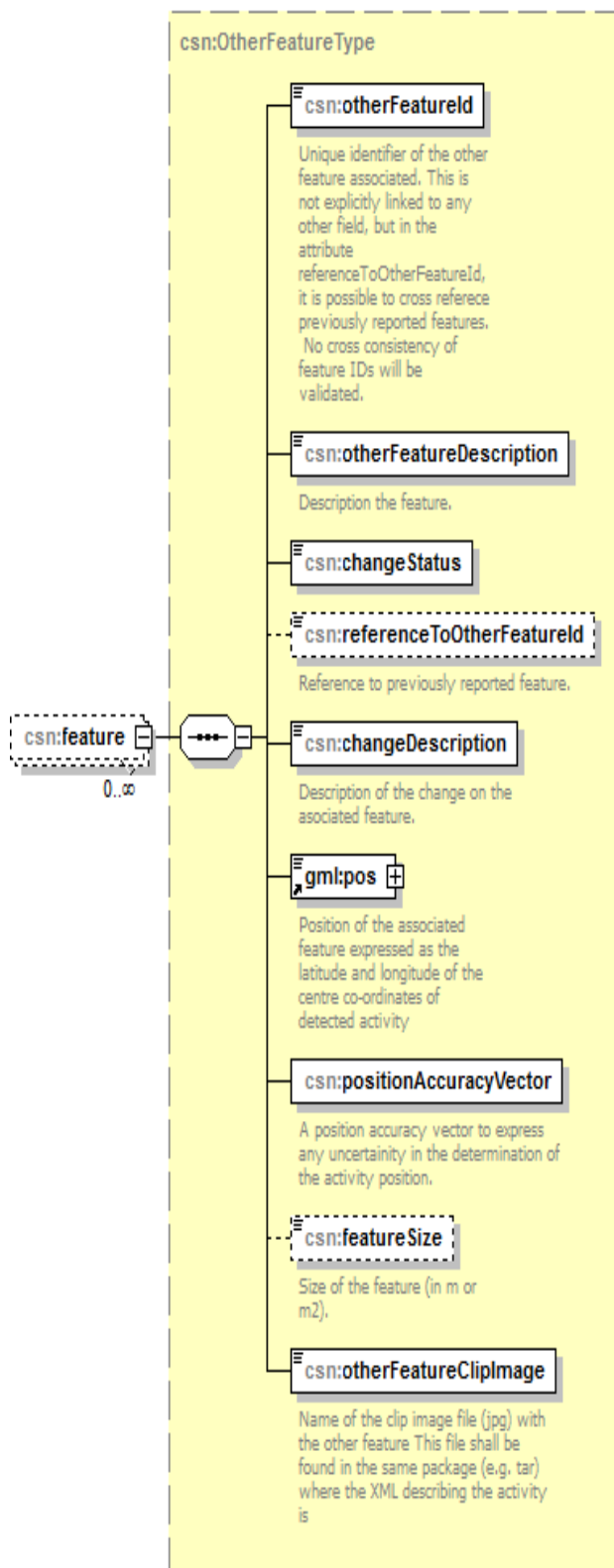
complexType OtherFeaturesAssociatedType

diagram						
namespace	http://www.emsa.europa.eu/csndc					
children	csn:feature					
annotation	documentation Other features associated					
source	<xs:complexType name="OtherFeaturesAssociatedType"> <xs:annotation> <xs:documentation>Other features associated</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="feature" type="csn:OtherFeatureType" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence>					

</xs:complexType>

element **OtherFeaturesAssociatedType/feature**

diagram



namespace	http://www.emsa.europa.eu/csndc		
type	csn:OtherFeatureType		
properties	isRef	0	
	minOcc	0	
	maxOcc	unbounded	
	content	complex	
children	csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription gml:pos csn:positionAccuracyVector csn:featureSize csn:otherFeatureCiplImage		
source	<xs:element name="feature" type="csn:OtherFeatureType" minOccurs="0" maxOccurs="unbounded"/>		

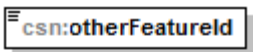
complexType OtherFeatureType

diagram	<p>OtherFeatureType Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p> <ul style="list-style-type: none">csn:otherFeatureId Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross reference previously reported features. No cross consistency of feature IDs will be validated.csn:otherFeatureDescription Description the feature.csn:changeStatuscsn:referenceToOtherFeatureId Reference to previously reported feature.csn:changeDescription Description of the change on the associated feature.gml:pos Position of the associated feature expressed as the latitude and longitude of the centre co-ordinates of detected activitycsn:positionAccuracyVector A position accuracy vector to express any uncertainty in the determination of the activity position.csn:featureSize Size of the feature (in m or m2).csn:otherFeatureClipImage Name of the clip image file (jpg) with the other feature. This file shall be found in the same package (e.g. tar) where the XML describing the activity is
namespace	http://www.emsa.europa.eu/csndc
children	csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription gml:pos csn:positionAccuracyVector csn:featureSize csn:otherFeatureClipImage
annotation	documentation Description of any other feature that may be associated to the activity, but different from the activity itself.


	e.g. an oil spill, an incident, etc.
source	<pre> <xs:complexType name="OtherFeatureType"> <xs:annotation> <xs:documentation>Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross reference previously reported features. No cross consistency of feature IDs will be validated.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description of the feature.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="changeStatus"> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="INITIAL_REPORT"/> <xs:enumeration value="AMPLIFYING"/> </xs:restriction> </xs:simpleType> </xs:element> <xs:element name="referenceToOtherFeatureId" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to previously reported feature.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="changeDescription"> <xs:annotation> <xs:documentation>Description of the change on the associated feature.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="gml:pos"> <xs:annotation> <xs:documentation>Position of the associated feature expressed as the latitude and longitude of the centre co-ordinates of detected activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType"> <xs:annotation> <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the activity position.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="featureSize" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Size of the feature (in m or m2).</xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureClipImage" type="xs:string"> </pre>

	<pre> <xs:annotation> <xs:documentation>Name of the clip image file (jpg) with the other feature This file shall be found in the same package (e.g. tar) where the XML describing the activity is </xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>
--	--


element OtherFeatureType/otherFeatureId

diagram	 <p>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross reference previously reported features. No cross consistency of feature IDs will be validated.</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:integer
properties	isRef 0 content simple
annotation	documentation Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross reference previously reported features. No cross consistency of feature IDs will be validated.
source	<pre> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross reference previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> </pre>

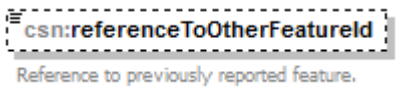
element OtherFeatureType/otherFeatureDescription

diagram	 <p>Description the feature.</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Description the feature.
source	<pre> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </pre>


element OtherFeatureType/changeStatus

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	isRef 0 content simple
facets	Kind enumeration Value annotation enumeration INITIAL_REPORT enumeration AMPLIFYING
source	<pre> <xs:element name="changeStatus"> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="INITIAL_REPORT"/> <xs:enumeration value="AMPLIFYING"/> </xs:restriction> </xs:simpleType> </xs:element> </pre>

element OtherFeatureType/referenceToOtherFeatureId

diagram	
namespace	http://www.emsa.europa.eu/csndc
properties	isRef 0 minOcc 0 maxOcc 1
annotation	documentation Reference to previously reported feature.
source	<pre> <xs:element name="referenceToOtherFeatureId" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to previously reported feature.</xs:documentation> </xs:annotation> </xs:element> </pre>

element OtherFeatureType/changeDescription

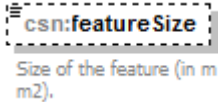
diagram	
namespace	http://www.emsa.europa.eu/csndc
properties	isRef 0
annotation	documentation Description of the change on the asociated feature.
source	<pre> <xs:element name="changeDescription"> <xs:annotation> <xs:documentation>Description of the change on the asociated feature.</xs:documentation> </xs:annotation> </xs:element> </pre>

	<pre></xs:annotation> </xs:element></pre>
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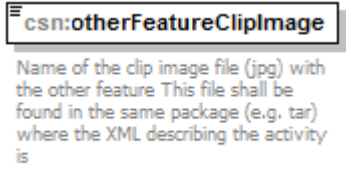
element OtherFeatureType/positionAccuracyVector

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:PositionAccuracyVectorType
properties	isRef 0 content complex
children	csn:x csn:y
annotation	documentation A position accuracy vector to express any uncertainty in the determination of the activity position.
source	<pre><xs:element name="positionAccuracyVector" type="csn:PositionAccuracyVectorType"> <xs:annotation> <xs:documentation>A position accuracy vector to express any uncertainty in the determination of the activity position.</xs:documentation> </xs:annotation> </xs:element></pre>

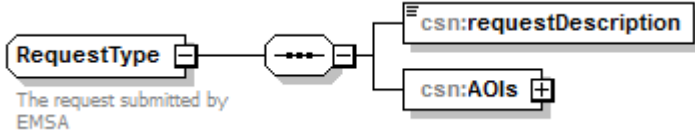
element OtherFeatureType/featureSize

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	xs:double
properties	isRef 0 minOcc 0 maxOcc 1 content simple
annotation	documentation Size of the feature (in m or m2).
source	<pre><xs:element name="featureSize" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Size of the feature (in m or m2).</xs:documentation> </xs:annotation> </xs:element></pre>


element OtherFeatureType/otherFeatureClipImage

diagram	 <p>csn:otherFeatureClipImage</p> <p>Name of the clip image file (jpg) with the other feature This file shall be found in the same package (e.g. tar) where the XML describing the activity is</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0 content simple
annotation	documentation Name of the clip image file (jpg) with the other feature This file shall be found in the same package (e.g. tar) where the XML describing the activity is
source	<pre><xs:element name="otherFeatureClipImage" type="xs:string"> <xs:annotation> <xs:documentation>Name of the clip image file (jpg) with the other feature This file shall be found in the same package (e.g. tar) where the XML describing the activity is </xs:documentation> </xs:annotation> </xs:element></pre>

complexType RequestType

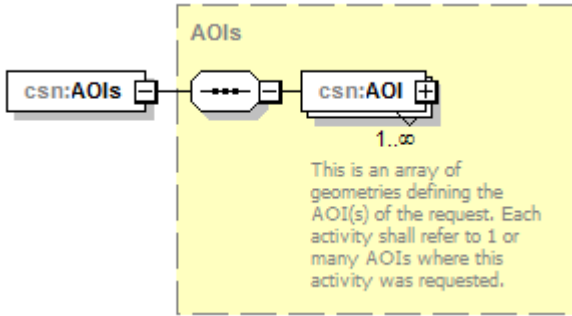
diagram	 <p>RequestType</p> <p>The request submitted by EMSA</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:requestDescription csn:AOIs
annotation	documentation The request submitted by EMSA
source	<pre><xs:complexType name="RequestType"> <xs:annotation> <xs:documentation>The request submitted by EMSA</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="requestDescription" type="xs:string"/> <xs:element name="AOIs" type="csn:AOIs"/> </xs:sequence> </xs:complexType></pre>

element RequestType/requestDescription

diagram	 <p>csn:requestDescription</p>
namespace	http://www.emsa.europa.eu/csndc
type	xs:string
properties	isRef 0

	content	simple
source	<xs:element name="requestDescription" type="xs:string"/>	

element RequestType/AOIs

diagram		
namespace	http://www.emsa.europa.eu/csndc	
type	csn:AOIs	
properties	isRef	0
	content	complex
children	csn:AOI	
source	<xs:element name="AOIs" type="csn:AOIs"/>	

XML Schema documentation generated by [XMLSpy](http://www.altova.com/xmlspy) Schema Editor <http://www.altova.com/xmlspy>

27 ANNEX S2 – CHANGE DETECTION XML SCHEMA

Schema csndc_cde.xsd

attribute form default: **unqualified**
element form default: **qualified**
targetNamespace: **<http://www.emsa.europa.eu/csndc>**

Elements

[ChangeDetection](#)

Complex types

[ActivityDataType](#)

[AOIsType](#)

[AssociatedVesselsType](#)

[ImageType](#)

[OtherFeaturesAssociatedType](#)

[VesselIdentificationType](#)

type	csn:ActivityDataType					
properties	content substGrp	complex gml:_Feature				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOLs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplImage csn:activityCiplImageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	appinfo documentation Change detected on a EO scene					
source	<xs:element name="ChangeDetection" type="csn:ActivityDataType" substitutionGroup="gml:_Feature"> <xs:annotation> <xs:documentation>Change detected on a EO scene</xs:documentation> </xs:annotation> </xs:element>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:activityid csn:activityType csn:activitySubType csn:requestDescription csn:AOIs csn:activityDescription csn:activityConfidenceLevel csn:activityCiplmage csn:activityCiplmageURL csn:timeStamp csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:activityArea csn:associatedVessels csn:otherFeaturesAssociated					
used by	element ChangeDetection					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Activity observed in the original satellite image					
source	<pre> <xs:complexType name="ActivityDataType"> <xs:annotation> <xs:documentation>Activity observed in the original satellite image</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="activityid" type="xs:string"> <xs:annotation> <xs:documentation>Unique ID of the activity for a given service ID, e.g. 201409120_RS2_OK09120_PK409120_DK409120_SCWA_20130805_054303_HH_S GF_AC_1. It must be equal to the name of the XML file with the activity.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="activityType" type="xs:string"> <xs:annotation> <xs:documentation>The type of targeted activity detection to be performed. Dynamic list subject to change. Examples of requests include but are not restricted to maritime border control, fisheries surveillance, drugs smuggling.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

```

</xs:element>
<xs:element name="activitySubType" type="xs:string">
  <xs:annotation>
    <xs:documentation>The sub-type of targeted activity detection. Dynamic list
    subject to change. e.g. rendez-vous at sea relating to maritime border control a mother
    vessel passing migrants to smaller vessels, transfer of drugs at sea between two
    vessels.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="requestDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="AOIs" type="gml:FeaturePropertyType" minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>List of Area Of Interest</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityDescription" type="xs:string">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityConfidenceLevel"
type="csn:ActivityConfidenceLevelType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the activity. This file shall
    be found in the same package (e.g. tar) where the XML describing the activity
    is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the activity observation expressed in
    ISO8601 format (e.g. '2003-04-01T13:01:02' )</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
    determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="activityArea" type="gml:GeometryPropertyType">

```

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="associatedVessels" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
<xs:element name="otherFeaturesAssociated" type="gml:FeaturePropertyType"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation/>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType AOIsType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>Attributes:</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:metaDataProperty (0..∞): Contains or refers to a metadata package that contains metadata properties. gml:description (0..∞): Contains a simple text description of the object, or refers to an external description. gml:name (0..∞): Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. coordinateOperationName (0..∞): The name by which this coordinate operation is identified. csName (0..∞): The name by which this coordinate system is identified. datumName (0..∞): The name by which this datum is identified. ellipsoidName (0..∞): The name by which this ellipsoid is identified. groupName (0..∞): The name by which this operation parameter group is identified. meridianName (0..∞): The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. methodName (0..∞): The name by which this operation method is identified. parameterName (0..∞): The name by which this operation parameter is identified. srsName (0..∞): The name by which this reference system is identified. gml:boundedBy (deprecated in GML version 3.1): gml:location (deprecated in GML version 3.1): priority:Location (Deprecated in GML 3.1.0): <p>gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties.</p> <p>csm:AOI: This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested.</p> <p>AOIsType: List of Area Of Interest</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base mixedgml:AbstractFeatureType false					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:AOI					
used by	elementCDAOIs					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation List of Area Of Interest					
source	<pre><xs:complexType name="AOIsType" mixed="false"> <xs:annotation> <xs:documentation>List of Area Of Interest</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="AOI" type="gml:GeometryPropertyType"> <xs:annotation> <xs:documentation>This is an array of geometries defining the AOI(s) of the request. Each activity shall refer to 1 or many AOIs where this activity was requested</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:associatedVesselID csn:includeInReport csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:dopplerOffsetX csn:dopplerOffsetY csn:timeStamp csn:heading csn:speedClassification csn:speed csn:speedError csn:lengthClass csn:lengthError csn:width csn:widthError csn:vesselType csn:vesselTypeConfidence csn:confidenceLevel csn:imageIdentifier csn:RCS csn:maxPixelValue csn:vesselIdentifications csn:shipThumbnail csn:shipThumbnailURL					
used by	element CDAssociatedVessels					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Associated vessels					
source	<pre> <xs:complexType name="AssociatedVesselsType"> <xs:annotation> <xs:documentation>Associated vessels</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="associatedVesselID" type="xs:string"> <xs:element name="includeInReport" type="xs:boolean" default="false" minOccurs="0"> <xs:annotation> <xs:documentation>If true the ship observation will be included in report</xs:documentation> </xs:annotation> </xs:element> <xs:element name="pos" type="gml:PointPropertyType"> <xs:annotation> <xs:documentation></xs:documentation> </xs:annotation> </xs:element> <xs:element name="positionAccuracyVectorX" type="xs:double" minOccurs="0"> </pre>					

```

<xs:annotation>
</xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetX" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>East-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="dopplerOffsetY" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>North-bound component of the Doppler
offset</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="timeStamp" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>The date and time of the observation expressed in ISO8601
format (e.g. '2003-04-01T13:01:02')</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="heading" type="xs:integer" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Route direction (expressed as as [0,360] deegree value
where 0=360=Geographical North)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedClassification" type="xs:string" minOccurs="0">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Velocity (expressed in m/s)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="speedError" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Error in the estimation of vessel speed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthClass" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Vessel length class taken from a fixed list of values
(TBD)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="length" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Length (expressed in meters)</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lengthError" type="xs:double" minOccurs="0">
  <xs:annotation>

```

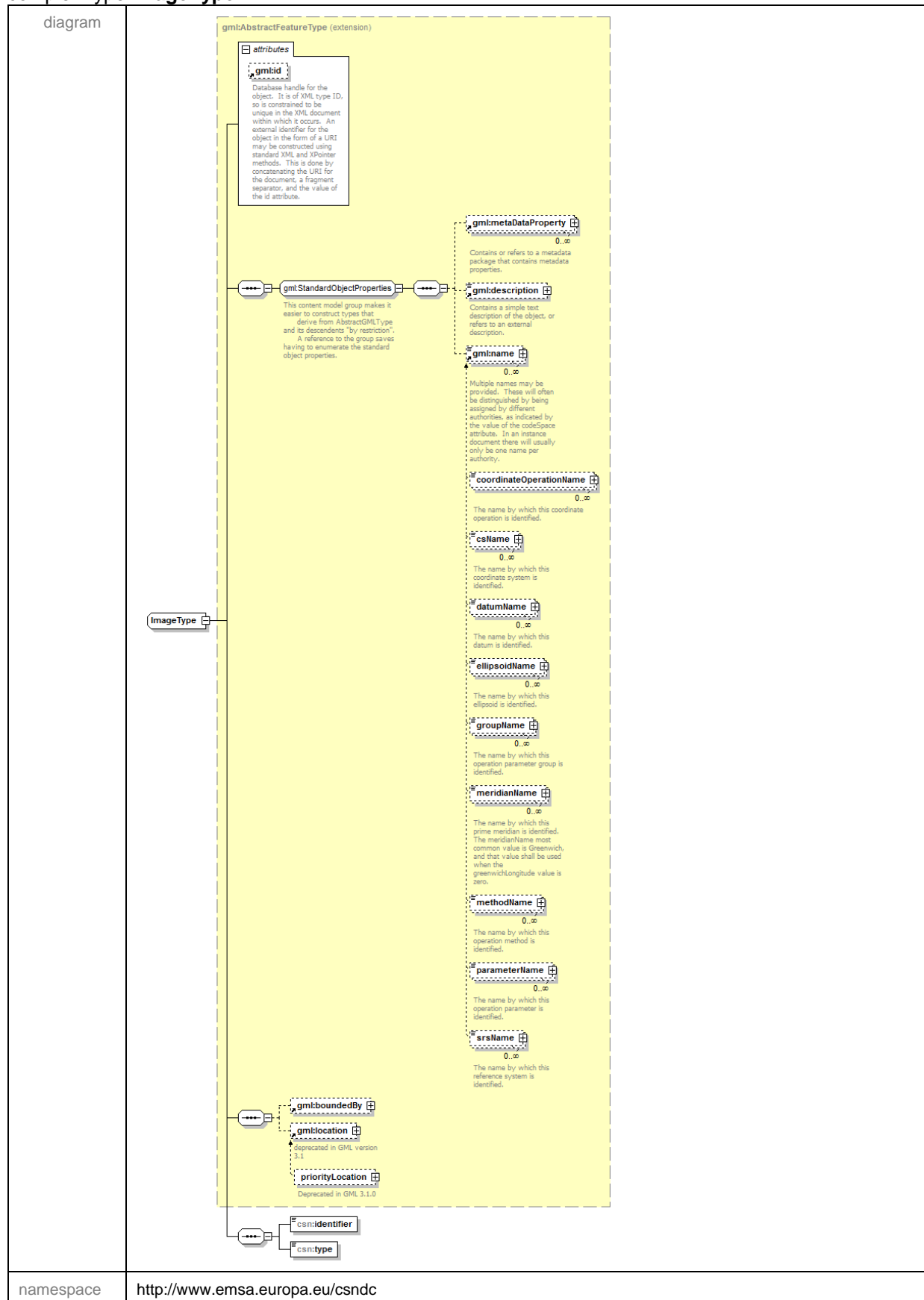
	<pre> <xs:documentation>Error in the estimation of ship length (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="width" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="widthError" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Error in the estimation of ship width (expressed in meters)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselType" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation> Vessel type taken from a fixed list of values. The final list will be in the EICD but is subject to evolve. For example: - fishing vessels; - cargo, general and multi- vessels; - pleasure yacht; - etc... - unknown; </xs:documentation> </xs:annotation> </xs:element> <xs:element name="vesselTypeConfidence" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Confidence of vessel type classification</xs:documentation> </xs:annotation> </xs:element> <xs:element name="confidenceLevel" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>Quality factor (expressed as a percentage)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="imageIdentifier" type="gml:FeaturePropertyType" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>The unique identifier of the original EO image used in which the ship has been detected</xs:documentation> </xs:annotation> </xs:element> <xs:element name="RCS" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="maxPixelValue" type="xs:double" minOccurs="0"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="vesselIdentifications" type="gml:FeaturePropertyType" </pre>
--	--

```

minOccurs="0"
maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnail" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="shipThumbnailURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the thumbnail image file (jpg) with the
ship</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
<!-- This is a copy of csn:ShipType taken from csndc_ds.xsd -->
</xs:complexType>

```

complexType ImageType



type	extension of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:identifier csn:type					
used by	element CDSHiplmageIdentifierActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<pre> <xs:complexType name="ImageType"> <xs:complexContent base="gml:AbstractFeatureType"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="identifier" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> <xs:element name="type" type="xs:string"> <xs:annotation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>					

complexType OtherFeaturesAssociatedType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id: Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties: This content model group makes it easier to construct types that derive from AbstractFeatureType and its descendants "by restriction". A reference to the group allows having to enumerate the standard object properties. gml:metaDataProperty: Contains or refers to a metadata package that contains metadata properties. gml:description: Contains a single text description of the object, or refers to an external description. gml:name: Multiple names may be provided. These will often be distinguished by being assigned by different authorities, as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. coordinateOperationName: The name by which this coordinate operation is identified. centreName: The name by which this coordinate system is identified. datumName: The name by which this datum is identified. ellipsoidName: The name by which this ellipsoid is identified. groupname: The name by which this operation parameter group is identified. meridianName: The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the GreenwichLongitude value is zero. methodname: The name by which this operation method is identified. parameterName: The name by which this operation parameter is identified. srsName: The name by which this reference system is identified. gml:boundedBy: deprecated in GML version 2.1 gml:location: deprecated in GML 2.1.0 priorityLocation: deprecated in GML 2.1.0 <p>OtherFeaturesAssociatedType</p> <p>Description of any other feature that may be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</p> <ul style="list-style-type: none"> otherFeatureId: Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross-reference previously reported features. No more consistency of feature IDs will be validated. otherFeatureDescription: Description of the feature. otherFeatureStatus: Description of the feature. otherFeatureReference: Reference to previously reported feature. otherFeatureChangeDescription: Description of the change on the associated feature. otherFeaturePositionAccuracyVectorX: A position accuracy vector to express any uncertainty in the determination of the activity position (X demand). otherFeaturePositionAccuracyVectorY: A position accuracy vector to express any uncertainty in the determination of the activity position (Y demand). otherFeatureSize: Size of the feature (in m or m2). otherFeatureClipImage: Name of the clip image file (jpg) with the other feature. The file shall be found in the same package (e.g. tar) where the XML describing the activity is. otherFeatureClipImageURL: Name of the clip image file (jpg) with the other feature. The file shall be found in the same package (e.g. tar) where the XML describing the activity is.
namespace	http://www.emsa.europa.eu/csndc

type	extension of gml:AbstractFeatureType					
properties	base mixed	gml:AbstractFeatureType false				
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:otherFeatureId csn:otherFeatureDescription csn:changeStatus csn:referenceToOtherFeatureId csn:changeDescription csn:pos csn:positionAccuracyVectorX csn:positionAccuracyVectorY csn:featureSize csn:otherFeatureCiplmage csn:otherFeatureCiplmageURL					
used by	element	CDOtherFeaturesAssociated				
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPather methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
annotation	documentation Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.					
source	<pre><xs:complexType name="OtherFeaturesAssociatedType" mixed="false"> <xs:annotation> <xs:documentation>Description of any other feature that my be associated to the activity, but different from the activity itself, e.g. an oil spill, an incident, etc.</xs:documentation> </xs:annotation> <xs:complexContent mixed="false"> <xs:extension base="gml:AbstractFeatureType"> <xs:sequence> <xs:element name="otherFeatureId" type="xs:integer"> <xs:annotation> <xs:documentation>Unique identifier of the other feature associated. This is not explicitly linked to any other field, but in the attribute referenceToOtherFeatureId, it is possible to cross referece previously reported features. No cross consistency of feature IDs will be validated. </xs:documentation> </xs:annotation> </xs:element> <xs:element name="otherFeatureDescription" type="xs:string"> <xs:annotation> <xs:documentation>Description the feature.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					


```

<xs:element name="changeStatus" type="csn:ChangeStatusType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="referenceToOtherFeatureId" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference to previously reported
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="changeDescription" type="xs:string">
  <xs:annotation>
    <xs:documentation>Description of the change on the asociated
feature.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="pos" type="gml:PointPropertyType">
  <xs:annotation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorX" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (X element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="positionAccuracyVectorY" type="xs:double">
  <xs:annotation>
    <xs:documentation>A position accuracy vector to express any uncertainty in the
determination of the activity position (Y element).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="featureSize" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Size of the feature (in m or m2).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImage" type="xs:string">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="otherFeatureClipImageURL" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Name of the clip image file (jpg) with the other feature This
file shall be found in the same package (e.g. tar) where the XML describing the activity
is</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

complexType VesselIdentificationType

diagram	<p>gml:AbstractFeatureType (extension)</p> <p>attributes</p> <ul style="list-style-type: none"> gml:id Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPath methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute. gml:StandardObjectProperties This content model group makes it easier to construct types that derive from AbstractGMLType and its descendants "by restriction". A reference to the group saves having to enumerate the standard object properties. gml:metaDataProperty Contains or refers to a metadata package that contains metadata properties. gml:description Contains a simple text description of the object, or refers to an external description. gml:name Multiple names may be provided. These will often be distinguished by being assigned by different authorities as indicated by the value of the codeSpace attribute. In an instance document there will usually only be one name per authority. gml:coordinateOperationName The name by which this coordinate operation is identified. gml:csName The name by which this coordinate system is identified. gml:datumName The name by which this datum is identified. gml:ellipsoidName The name by which this ellipsoid is identified. gml:groupName The name by which this operation parameter group is identified. gml:meridianName The name by which this prime meridian is identified. The meridianName most common value is Greenwich, and that value shall be used when the greenwichLongitude value is zero. gml:methodName The name by which this operation method is identified. gml:parameterName The name by which this operation parameter is identified. gml:rsName The name by which this reference system is identified. gml:boundedBy A content model group for the bounding box. gml:location Deprecated in GML version 3.1 gml:priorityLocation Deprecated in GML 3.1.0 cs:IMONumber cs:MMSI cs:shipName cs:callSign cs:vesselIdentificationConfidence Confidence of vessel identification cs:orderOfPriority Order of priority for identified vessel. 1 = highest priority <p>VesselIdentificationType</p>
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractFeatureType

properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy gml:location csn:IMONumber csn:MMSI csn:shipName csn:callSign csn:vesselIdentificationConfidenceLevel csn:orderOfPriority					
used by	element CDVesselIdentificationActivity					
attributes	Name id	Type	Use optional	Default	Fixed	annotation documentation Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.
source	<div><xs:complexType </div>					

	<pre> <xs:documentation>Order of priority for identified vessel. 1 = highest priority</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>
--	--

XML Schema documentation generated by [XMLSpy](http://www.altova.com/xmlspy) Schema Editor <http://www.altova.com/xmlspy>

28 ANNEX T – GEOSPATIAL SERVICES REQUESTS DETAILS AND EXAMPLES

28.1 WEB FEATURE SERVICE (WFS)

WFS is used to request Activity, Oil Spill and Vessel Traffic data and detected vessels data from CSNDC.

The current end point for the service is: <https://csndc.emsa.europa.eu:444/deegree-wfs/services>

28.1.1 GetCapabilities

28.1.1.1 Example of request

```
<GetCapabilities service="WFS" version="1.0.0" xmlns="http://www.opengis.net/wfs" />
```

28.1.1.2 Example of response

```
<?xml version="1.0" encoding="UTF-8"?>
<WFS_Capabilities xmlns="http://www.opengis.net/wfs" xmlns:gml="http://www.opengis.net/gml"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" updateSequence="10" version="1.1.0"
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <ows:ServiceIdentification xmlns:ows="http://www.opengis.net/ows">
    <ows:Title>EMSA_CSND_C_WFS</ows:Title>
    <ows:Abstract>CSND_C WFS based on deegree 2.3 WFS (1.1.0)</ows:Abstract>
    <ows:Keywords>
      <ows:Keyword>WFS</ows:Keyword>
      <ows:Keyword>deegree</ows:Keyword>
      <ows:Keyword>CSND_C</ows:Keyword>
      <ows:Keyword>EMSA</ows:Keyword>
      <ows:Keyword>1.1.0</ows:Keyword>
    </ows:Keywords>
    <ows:ServiceType>WFS</ows:ServiceType>
    <ows:ServiceTypeVersion>1.1.0</ows:ServiceTypeVersion>
    <ows:Fees>None</ows:Fees>
    <ows:AccessConstraints>None</ows:AccessConstraints>
  </ows:ServiceIdentification>
  <ows:ServiceProvider xmlns:ows="http://www.opengis.net/ows">
    <ows:ProviderName>European Maritime Safety Agency (EMSA)</ows:ProviderName>
```

```

<ows:ProviderSite xlink:href="http://www.emsa.europa.eu" xlink:type="simple"/>
<ows:ServiceContact>
  <ows:IndividualName>XXXX YYYY</ows:IndividualName>
  <ows:PositionName>Project Officer</ows:PositionName>
  <ows:ContactInfo>
    <ows:Phone>
      <ows:Voice123456789</ows:Voice>
      <ows:Facsimile123456789</ows:Facsimile>
    </ows:Phone>
    <ows:Address>
      <ows:DeliveryPoint>Cais do Sodré</ows:DeliveryPoint>
      <ows:City>Lisbon</ows:City>
      <ows:AdministrativeArea>Portugal</ows:AdministrativeArea>
      <ows:PostalCode>1249-206</ows:PostalCode>
      <ows:Country>Portugal</ows:Country>
    </ows:Address>
  </ows:ContactInfo>
  <ows:ElectronicMailAddress>xxxx.yyyy@emsa.europa.eu</ows:ElectronicMailAddress>
  <ows:OnlineResource>
    <ows:HoursOfService>9am - 4pm (CET)</ows:HoursOfService>
    <ows:ContactInstructions>Email preferred</ows:ContactInstructions>
  </ows:OnlineResource>
  <ows:Role>PointOfContact</ows:Role>
</ows:ServiceContact>
</ows:ServiceProvider>
<ows:OperationsMetadata xmlns:ows="http://www.opengis.net/ows">
  <ows:Operation name="GetFeature">
    <ows:DCP>
      <ows:HTTP>
        <ows:Get>
          xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
        <ows:Post>
          xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
        </ows:HTTP>
      </ows:DCP>
    </ows:Operation>
    <ows:Operation name="DescribeFeatureType">
      <ows:DCP>
        <ows:HTTP>
          <ows:Get>
            xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
          <ows:Post>
            xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
          </ows:HTTP>
        </ows:DCP>
        <ows:Parameter name="outputFormat">
          <ows:Value>text/xml; subtype=gml/3.1.1</ows:Value>
        </ows:Parameter>
      </ows:Operation>
      <ows:Operation name="GetCapabilities">
        <ows:DCP>
          <ows:HTTP>
            <ows:Get>
              xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
            <ows:Post>
              xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
            </ows:HTTP>
          </ows:DCP>
        </ows:Operation>
      </ows:OperationsMetadata>
    </ows:ServiceMetadata>
  </ows:ServiceMetadata>
</ows:ServiceMetadata>

```

```

</ows:DCP>
<ows:Parameter name="AcceptVersions">
  <ows:Value>1.1.0</ows:Value>
  <ows:Value>1.0.0</ows:Value>
</ows:Parameter>
<ows:Parameter name="AcceptFormats">
  <ows:Value>application/xml</ows:Value>
</ows:Parameter>
<ows:Parameter name="Sections">
  <ows:Value>ServiceIdentification</ows:Value>
  <ows:Value>ServiceProvider</ows:Value>
  <ows:Value>OperationsMetadata</ows:Value>
  <ows:Value>FeatureTypeList</ows:Value>
  <ows:Value>ServesGMLObjectTypesList</ows:Value>
  <ows:Value>SupportsGMLObjectTypesList</ows:Value>
  <ows:Value>Filter_Capabilities</ows:Value>
</ows:Parameter>
</ows:Operation>
<ows:Operation name="GetFeatureWithLock">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
      <ows:Post
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>
<ows:Operation name="LockFeature">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
      <ows:Post
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>
<ows:Operation name="Transaction">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services?" xlink:type="simple"/>
      <ows:Post
xlink:href="https://csndc.emsa.europa.eu:444/deegree-wfs/services" xlink:type="simple"/>
    </ows:HTTP>
  </ows:DCP>
  <ows:Parameter name="inputFormat">
    <ows:Value>text/xml; subtype=gml/3.1.1</ows:Value>
  </ows:Parameter>
  <ows:Parameter name="idgen">
    <ows:Value>GenerateNew</ows:Value>
    <ows:Value>UseExisting</ows:Value>
  </ows:Parameter>
  <ows:Parameter name="releaseAction">
    <ows:Value>ALL</ows:Value>
  </ows:Parameter>
</ows:Operation>

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<ows:Parameter name="srsName">
  <ows:Value>EPSG:4326</ows:Value>
</ows:Parameter>
<ows:Constraint name="LocalTraverseXLinkScope">
  <ows:Value>0</ows:Value>
  <ows:Value>*</ows:Value>
</ows:Constraint>
<ows:Constraint name="RemoteTraverseXLinkScope">
  <ows:Value>0</ows:Value>
  <ows:Value>*</ows:Value>
</ows:Constraint>
<ows:Constraint name="DefaultMaxFeatures">
  <ows:Value>15000</ows:Value>
</ows:Constraint>
<ows:Constraint name="DefaultLockExpiry">
  <ows:Value>5</ows:Value>
</ows:Constraint>
</ows:OperationsMetadata>
<FeatureTypeList>
  <FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:InsVesselIdentificationActivity</Name>
    <Title>InsVesselIdentificationActivity</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
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    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
      <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
      <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
  </FeatureType>
  <FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:Extension</Name>
    <Title>Extension</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
      <Operation>Query</Operation>
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    <OutputFormats>
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    </OutputFormats>
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      <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
      <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
  </FeatureType>
  <FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:ShipImageIdentifier</Name>
    <Title>ShipImageIdentifier</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
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    </Operations>
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</OutputFormats>
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  <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
</ows:WGS84BoundingBox>
</FeatureType>
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  <Name>csn:AuxiliaryDataReference</Name>
  <Title>AuxiliaryDataReference</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  </Operations>
  <OutputFormats>
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  </OutputFormats>
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
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  <Name>csn:AOIs</Name>
  <Title>AOIs</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  <OutputFormats>
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InsShipImageIdentifierActivity</Name>
  <Title>InsShipImageIdentifierActivity</Title>
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  <Operations>
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:CDAssociatedVessels</Name>
  <Title>CDAssociatedVessels</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>

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<OutputFormats>
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</OutputFormats>
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  <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
</ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:VesselIdentification</Name>
  <Title>VesselIdentification</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  </Operations>
  <OutputFormats>
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  </OutputFormats>
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:centreTrajectory</Name>
  <Title>centreTrajectory</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
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    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:VesselIdentificationActivity</Name>
  <Title>VesselIdentificationActivity</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InSituInformation</Name>
  <Title>InSituInformation</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>

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        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
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    </OutputFormats>
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        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:OilSpill</Name>
    <Title>OilSpill</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
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    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
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        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:Ship</Name>
    <Title>Ship</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:OtherFeaturesAssociated</Name>
    <Title>OtherFeaturesAssociated</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:PlannedAcquisition</Name>
    <Title>PlannedAcquisition</Title>

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<DefaultSRS>EPSG:4326</DefaultSRS>
<Operations>
  <Operation>Query</Operation>
</Operations>
<OutputFormats>
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</OutputFormats>
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  <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
  <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
</ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:DataTakeOpportunity</Name>
  <Title>DataTakeOpportunity</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:Activity</Name>
  <Title>Activity</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InsActivity</Name>
  <Title>InsActivity</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">

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<Name>csn:CDVesselIdentificationActivity</Name>
<Title>CDVesselIdentificationActivity</Title>
<DefaultSRS>EPSG:4326</DefaultSRS>
<Operations>
  <Operation>Query</Operation>
</Operations>
<OutputFormats>
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</OutputFormats>
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  <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
  <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
</ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:CDAOIs</Name>
  <Title>CDAOIs</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:Keywords</Name>
  <Title>Keywords</Title>
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  <Operations>
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  </Operations>
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  </OutputFormats>
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InsAssociatedVessels</Name>
  <Title>InsAssociatedVessels</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
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    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>

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</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:ChangeDetection</Name>
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  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
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    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:PlanOperation</Name>
  <Title>PlanOperation</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  </Operations>
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    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InsOtherFeaturesAssociated</Name>
  <Title>InsOtherFeaturesAssociated</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:InsAOIs</Name>
  <Title>InsAOIs</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
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<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
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    <Title>LocationClassification</Title>
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    <Operations>
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    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:Annotation</Name>
    <Title>Annotation</Title>
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    <Operations>
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    </Operations>
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        <Format>text/xml; subtype=gml/3.1.1</Format>
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    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
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        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:ShiplmageIdentifierActivity</Name>
    <Title>ShiplmageIdentifierActivity</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
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    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:ImagelIdentifier</Name>
    <Title>ImagelIdentifier</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
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    </Operations>
    <OutputFormats>
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    </OutputFormats>

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<ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
  <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
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</ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:CDOtherFeaturesAssociated</Name>
  <Title>CDOtherFeaturesAssociated</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
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  </OutputFormats>
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    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:OilSpillModelOutput</Name>
  <Title>OilSpillModelOutput</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
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  </Operations>
  <OutputFormats>
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  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:CDSHipImagelIdentifierActivity</Name>
  <Title>CDSHipImagelIdentifierActivity</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
    <Format>text/xml; subtype=gml/3.1.1</Format>
  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:RelatedEvents</Name>
  <Title>RelatedEvents</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>

```



```

        <Format>text/xml; subtype=gml/3.1.1</Format>
    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:ais="http://www.emsa.europa.eu/ais">
    <Name>ais:objectStatus</Name>
    <Title>AIS Vessel positions in CSN-DC</Title>
    <Abstract>AIS Vessel positions in CSN-DC</Abstract>
    <ows:Keywords xmlns:ows="http://www.opengis.net/ows">
        <ows:Keyword>AIS</ows:Keyword>
    </ows:Keywords>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <OtherSRS>EPSG:4326</OtherSRS>
    <OutputFormats>
        <Format>text/xml; subtype=gml/3.1.1</Format>
    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:ServiceType</Name>
    <Title>ServiceType</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
        <Format>text/xml; subtype=gml/3.1.1</Format>
    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
    <Name>csn:AssociatedVessels</Name>
    <Title>AssociatedVessels</Title>
    <DefaultSRS>EPSG:4326</DefaultSRS>
    <Operations>
        <Operation>Query</Operation>
    </Operations>
    <OutputFormats>
        <Format>text/xml; subtype=gml/3.1.1</Format>
    </OutputFormats>
    <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
        <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
        <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
    </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:ais="http://www.emsa.europa.eu/ais">
    <Name>ais:feature</Name>
    <Title>AIS Vessel in CSN-DC</Title>
    <Abstract>AIS Vessel in CSN-DC</Abstract>

```

```

<ows:Keywords xmlns:ows="http://www.opengis.net/ows">
  <ows:Keyword>AIS</ows:Keyword>
</ows:Keywords>
<DefaultSRS>EPSG:4326</DefaultSRS>
<OtherSRS>EPSG:4326</OtherSRS>
<OutputFormats>
  <Format>text/xml; subtype=gml/3.1.1</Format>
</OutputFormats>
<ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
  <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
  <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
</ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:SpecificInformation</Name>
  <Title>SpecificInformation</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
    <Format>text/xml; subtype=gml/3.1.1</Format>
  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
<FeatureType xmlns:csn="http://www.emsa.europa.eu/csndc">
  <Name>csn:PossibleSources</Name>
  <Title>PossibleSources</Title>
  <DefaultSRS>EPSG:4326</DefaultSRS>
  <Operations>
    <Operation>Query</Operation>
  </Operations>
  <OutputFormats>
    <Format>text/xml; subtype=gml/3.1.1</Format>
  </OutputFormats>
  <ows:WGS84BoundingBox xmlns:ows="http://www.opengis.net/ows">
    <ows:LowerCorner>-180.0 -90.0</ows:LowerCorner>
    <ows:UpperCorner>180.0 90.0</ows:UpperCorner>
  </ows:WGS84BoundingBox>
</FeatureType>
</FeatureTypeList>
<ogc:Filter_Capabilities>
  <ogc:Spatial_Capabilities>
    <ogc:GeometryOperands>
      <ogc:GeometryOperand>gml:Envelope</ogc:GeometryOperand>
      <ogc:GeometryOperand>gml:Point</ogc:GeometryOperand>
      <ogc:GeometryOperand>gml:LineString</ogc:GeometryOperand>
      <ogc:GeometryOperand>gml:Polygon</ogc:GeometryOperand>
    </ogc:GeometryOperands>
    <ogc:SpatialOperators>
      <ogc:SpatialOperator name="Crosses"/>
      <ogc:SpatialOperator name="Intersects"/>
      <ogc:SpatialOperator name="BBOX"/>
      <ogc:SpatialOperator name="Overlaps"/>
      <ogc:SpatialOperator name="Touches"/>
    </ogc:SpatialOperators>
  </ogc:Spatial_Capabilities>
</ogc:Filter_Capabilities>

```

```

        <ogc:SpatialOperator name="Beyond"/>
        <ogc:SpatialOperator name="Within"/>
        <ogc:SpatialOperator name="Equals"/>
        <ogc:SpatialOperator name="Contains"/>
        <ogc:SpatialOperator name="Disjoint"/>
    </ogc:SpatialOperators>
</ogc:Spatial_Capabilities>
<ogc:Scalar_Capabilities>
    <ogc:LogicalOperators/>
    <ogc:ComparisonOperators>

        <ogc:ComparisonOperator>LessThanEqualTo</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>LessThan</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>NullCheck</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>NotEqualTo</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>GreaterThan</ogc:ComparisonOperator>

        <ogc:ComparisonOperator>GreaterThanEqualTo</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>Like</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>EqualTo</ogc:ComparisonOperator>
        <ogc:ComparisonOperator>Between</ogc:ComparisonOperator>
    </ogc:ComparisonOperators>
    <ogc:ArithmeticOperators>
        <ogc:SimpleArithmetic/>
    </ogc:ArithmeticOperators>
</ogc:Scalar_Capabilities>
<ogc:Id_Capabilities>
    <ogc:EID/>
    <ogc:FID/>
</ogc:Id_Capabilities>
</ogc:Filter_Capabilities>
</WFS_Capabilities>

```

Please note that the WFS GetCapabilities returns a number of OGC *features*. Many of them are not meant to be directly used in any communication flow described in this EICD. They can be referred to as “auxiliary” features. They need to be defined in the WFS because they are used or referenced by the fews that are really meant for direct queries by the external actors (that, therefore, can be referred to as “main” features). In other words external actors are not supposed to perform GetFeature operations on the auxiliary features but only on the main features.

The main features (along with a reference on where, in this EICD, they are specifically described) are listed hereafter:

Feature name	Short Description	See also
<i>ais:feature</i>	Vessel traffic information feature as reported by AIS	4. Annex A
<i>csn:Activity</i>	Activity detection description	22. Annex S1
<i>csn:ChangeDetection</i>	Change detected on a EO scene	22. Annex S2
<i>csn:OilSpill</i>	Generic Oil Spill observation (or prediction)	6. Annex C
<i>csn:PlannedAcquisition</i>	Ordered EO service	20. Annex Q
<i>csn:Ship</i>	Ship detected in a EO scene	7. Annex D

Description of the above features can also be obtained using the DescribeFeature operation according to OGC specifications.

28.1.2 DescribeFeature

28.1.2.1 Example of request

```
<wfs:DescribeFeatureType version="1.1.0" xmlns:csn="http://www.emsa.europa.eu/csndc"
xmlns:wfs="http://www.opengis.net/wfs" xmlns:gml="http://www.opengis.net/gml"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <!-- describes the featuretype csn:OilSpill -->
  <wfs:TypeName>ais:feature</wfs:TypeName>
</wfs:DescribeFeatureType>
```

28.1.2.2 Example of response

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ais="http://www.emsa.europa.eu/ais" xmlns:gml="http://www.opengis.net/gml"
xmlns:topp="http://www.openplans.org/topp" elementFormDefault="qualified"
targetNamespace="http://www.emsa.europa.eu/ais">
  <!-- ===== -->
  <!-- GML IMPORT -->
  <xsd:import namespace="http://www.opengis.net/gml"
schemaLocation="http://schemas.opengis.net/gml/3.1.1/base/feature.xsd"/>
  <xsd:import namespace="http://www.opengis.net/gml"
schemaLocation="http://schemas.opengis.net/gml/3.1.1/base/geometryAggregates.xsd"/>
  <!-- ===== -->
  <!-- globally defined ais: elements (direct from gml or xsd namespace types) -->
  <xsd:element
name="time" type="xsd:dateTime">
    <xsd:annotation>
      <xsd:documentation>Always in UTC timeframe (YYYY-MM-DDThh:mm:ss)</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <xsd:element name="MMSI" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation>Vessel Identification according to the IMO AIS standards</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <xsd:element name="expectedTimeOfArrival" type="xsd:dateTime">
    <xsd:annotation>
      <xsd:documentation>Always in UTC timeframe (YYYY-MM-DDThh:mm:ss)</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <xsd:element name="length" type="xsd:decimal">
    <xsd:annotation>
      <xsd:documentation>In meters</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
```

```

<xsd:element name="beam" type="xsd:decimal">
  <xsd:annotation>
    <xsd:documentation>In meters</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="draught" type="xsd:decimal">
  <xsd:annotation>
    <xsd:documentation>In meters</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="courseOverGround" type="xsd:decimal" <xsd:annotation>
  <xsd:documentation>In decimal deegrees of angle</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="heading" type="xsd:decimal">
  <xsd:annotation>
    <xsd:documentation>In decimal deegrees of angle</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="bearing" type="xsd:decimal">
  <xsd:annotation>
    <xsd:documentation>In decimal deegrees of angle</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="speedOverGround" type="xsd:decimal" <xsd:annotation>
  <xsd:documentation>In knots</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="rateOfTurn" type="xsd:decimal">
  <xsd:annotation>
    <xsd:documentation>Units as defined for IMO AIS ?</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="navigationalStatus" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation>Free text</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="dataSource" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation>Organizational source of data for the object of which this
element is a member, used at several levels and may represent a data service provider, a data
management sys., an AIS transmission sys., etc.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- ===== -->
<!-- ais: moving object status element - based on a gml Point -->
<xsd:element name="objectStatus" substitutionGroup="gml:pointProperty"
type="ais:ObjectStatusType" <xsd:annotation>
  <xsd:documentation>Inherits the pointMemberType of gml. This 'time slice' type
encapsulates the various dynamic properties of AIS objects at a given point in time and
space</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:complexType name="ObjectStatusType">
  <xsd:complexContent>
    <xsd:extension base="gml:PointPropertyType">
      <xsd:sequence>
        <xsd:element ref="ais:time">
          <xsd:annotation>
            <xsd:documentation>Time represents here the
AIS message time stamp (mandatory)</xsd:documentation>

```



```

        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:speedOverGround">
        <xsd:annotation>
            <xsd:documentation>SOG as defined for AIS
messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:courseOverGround">
        <xsd:annotation>
            <xsd:documentation>COG as defined for AIS
messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:heading">
        <xsd:annotation>
            <xsd:documentation>Heading as defined for
AIS messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:bearing">
        <xsd:annotation>
            <xsd:documentation>Bearing, not currently
defined for AIS messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:rateOfTurn">
        <xsd:annotation>
            <xsd:documentation>Rate Of Turn as defined
for AIS messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" ref="ais:navigationalStatus">
        <xsd:annotation>
            <xsd:documentation>Status free text as defined
for AIS messages (optional)</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element minOccurs="0" name="safetyMessage"
type="xsd:string">
        <xsd:annotation>
            <xsd:documentation>optional</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element
minOccurs="0" ref="ais:dataSource">
        <xsd:annotation>
            <xsd:documentation>dataSource (optional)
represents here the infrastructure supplying the AIS message</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<!-- ===== -->
<!-- the AIS Track type - parallel to gml: multi point -->
<xsd:element name="track" substitutionGroup="gml:_GeometricAggregate"
type="ais:TrackType">
    <xsd:annotation>

```

```

<xsd:documentation>The track of an object is a sequence of specialized
timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. Inherits srsName attribute of
abstract geometry type for defining SRS for this entire track, i.e. all geometry elements within this track
are interpreted under the given SRS, unless differently specified at a lower level for each geometric
element.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:complexType name="TrackType">
  <xsd:complexContent>
    <xsd:extension base="gml:AbstractGeometricAggregateType">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0"
ref="ais:objectStatus"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent> </xsd:complexType>
<!-- ===== -->
<!-- the AIS Track Property type - every feature should have a geometry property -->
<xsd:element name="trackProperty" type="ais:TrackPropertyType">
  <xsd:annotation>
    <xsd:documentation>This is applied as the geometry property of a feature, so
that general GML tools can interpret that each feature is associated with a given geometry - NB! it
contains no attribute group referring to gml:AssociationAttributeGroup</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:complexType name="TrackPropertyType">
  <xsd:sequence minOccurs="0">
    <xsd:element ref="ais:track"/>
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="FeatureType">
  <xsd:complexContent>
    <xsd:extension base="gml:AbstractFeatureType">
      <xsd:sequence>
        <!-- mandatory static AIS properties -->
        <xsd:element ref="ais:MMSI">
          <xsd:annotation>
            <xsd:documentation>mandatory</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
        <xsd:element
name="callsign" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation>mandatory</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
        <xsd:element
name="name" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation>mandatory</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
        <!-- optional
static AIS properties -->
        <xsd:element minOccurs="0" name="IMONumber"
type="xsd:string">
          <xsd:annotation>
            <xsd:documentation>optional</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

                                </xsd:element>                                <xsd:element
minOccurs="0" ref="ais:length">
                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>                                <xsd:element
minOccurs="0" ref="ais:beam">
                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" name="vesselType"
type="xsd:string">                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" name="antennaLocation"
type="xsd:string">                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>                                <!-- optional
voyage related AIS properties-->
                                <xsd:element minOccurs="0" ref="ais:draught">
                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" name="hazardousCargo"
type="xsd:string">                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" name="destination"
type="xsd:string">                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" ref="ais:expectedTimeOfArrival">
                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <xsd:element minOccurs="0" name="extraInfo"
type="xsd:string">                                <xsd:annotation>

                                <xsd:documentation>optional</xsd:documentation>
                                </xsd:annotation>
                                </xsd:element>
                                <!-- optional dynamic AIS properties - i.e. the track info -->

```



```

<xsd:element minOccurs="0" ref="ais:trackProperty">
<xsd:annotation>

<xsd:documentation>optional</xsd:documentation>
</xsd:annotation>

</xsd:element>                                <!-- optional
origin of feature properties -->

<xsd:element minOccurs="0" ref="ais:time">
<xsd:annotation>
<xsd:documentation>Time (optional) represents
here the time of creation of this feature as a "snapshot" of history, which implies the latest possible time
of an AISObjectStatus within the feature. Should be identical to - and omitted here - given the
enclosing feature collection's time</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element minOccurs="0" ref="ais:dataSource">
<xsd:annotation>
<xsd:documentation>dataSource (optional)
represents here the generating organizational source for this feature, e.g. coastal traffic authorities
collecting AIS messages from a fleet. Should be identical to - and omitted here - given the enclosing
feature collection's dataSource</xsd:documentation>
</xsd:annotation>
</xsd:element>                                </xsd:sequence>
</xsd:extension>                                </xsd:complexContent>
</xsd:complexType>
<xsd:element name="feature" substitutionGroup="gml:_Feature" type="ais:FeatureType"/>
</xsd:schema>

```

28.1.3 GetFeature

28.1.3.1 Examples of request

28.1.3.1.1 AIS Request by Bounding Box and Time Range

Here follows an example of a request that is getting **AIS data using a geographic bounding box and a time range**.

```

<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd"
">
  <wfs:Query typeName="ais:feature">
    <wfs:PropertyName>ais:feature</wfs:PropertyName>
    <ogc:Filter>
      <ogc:And>
        <ogc:BBOX>
          <ogc:PropertyName>point</ogc:PropertyName>
          <gml:Envelope
srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">

```

```

22.9559057282049</gml:lowerCorner>
69.0107920007525</gml:upperCorner>
</gml:Envelope>
</ogc:BBOX>
<ogc:PropertyIsBetween>
  <ogc:PropertyName>time</ogc:PropertyName>
  <ogc:LowerBoundary>
    <ogc:Literal>2013-03-18T00:00:00</ogc:Literal>
  </ogc:LowerBoundary>
  <ogc:UpperBoundary>
    <ogc:Literal>2013-03-18T06:00:00</ogc:Literal>
  </ogc:UpperBoundary>
</ogc:PropertyIsBetween>
</ogc:And>
</ogc:Filter>
</wfs:Query>
</wfs:GetFeature>
  
```

28.1.3.1.2 AIS Request from Service ID

Here follows an example or a request that is **getting AIS data using directly the service ID**.

```

<wfs:GetFeature service="WFS" version="1.1.0" xmlns:ais="http://www.emsa.europa.eu/ais"
xmlns:wfs="http://www.opengis.net/wfs" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <wfs:Query typeName="ais:feature">
    <wfs:PropertyName>ais:feature</wfs:PropertyName>
    <ogc:Filter>
      <ogc:PropertyIsEqualTo>
        <ogc:PropertyName>orderDetailId</ogc:PropertyName>
        <ogc:Literal>124912</ogc:Literal>
      </ogc:PropertyIsEqualTo>
    </ogc:Filter>
  </wfs:Query>
</wfs:GetFeature>
  
```

28.1.3.1.3 Oil Spill Request by Bounding Box and Time Range

Here follows an example or a request that is **getting Oil Spill data using bounding box and time range**.

```

<wfs:GetFeature version="1.1.0" resultType="results" xmlns:csn="http://www.emsa.europa.eu/csndc"
xmlns:wfs="http://www.opengis.net/wfs" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  
```

```
<wfs:Query typeName="csn:OilSpill">
  <ogc:Filter xmlns="http://www.opengis.net/ogc">
    <ogc:And>
      <ogc:BBOX>

        <ogc:PropertyName>/csn:OilSpill/csn:extension/csn:Extension/csn:geometry</ogc:PropertyNam
e>

        <gml:Envelope
srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
          <gml:lowerCorner>0 30.5</gml:lowerCorner>
          <gml:upperCorner>40 60.7</gml:upperCorner>
        </gml:Envelope>
      </ogc:BBOX>
      <ogc:PropertyIsBetween>

        <ogc:PropertyName>/csn:OilSpill/csn:timeStamp</ogc:PropertyName>
        <ogc:LowerBoundary>
          <ogc:Literal>2010-02-01T00:00:00</ogc:Literal>
        </ogc:LowerBoundary>
        <ogc:UpperBoundary>
          <ogc:Literal>2014-03-01T00:00:00</ogc:Literal>
        </ogc:UpperBoundary>
      </ogc:PropertyIsBetween>
    </ogc:And>
  </ogc:Filter>
</wfs:Query>
</wfs:GetFeature>
```

28.1.3.1.4 Detected Vessels Request by Bounding Box and Time Range

Here follows an example or a request that is **getting Detected Vessels data using bounding box and time range**.

```
<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd"
">
  <wfs:Query typeName="csn:Ship">
    <wfs:PropertyName>csn:Ship</wfs:PropertyName>
    <ogc:Filter>
      <ogc:And>
        <ogc:BBOX>
          <ogc:PropertyName>pos</ogc:PropertyName>
          <gml:Envelope
srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
            <gml:lowerCorner>34.1669566773135
22.9559057282049</gml:lowerCorner>
            <gml:upperCorner>49.0494585186001
69.0107920007525</gml:upperCorner>
          </gml:Envelope>
        </ogc:BBOX>
```

```

<ogc:PropertyIsBetween>
  <ogc:PropertyName>timeStamp</ogc:PropertyName>
  <ogc:LowerBoundary>
    <ogc:Literal>2013-03-18T00:00:00</ogc:Literal>
  </ogc:LowerBoundary>
  <ogc:UpperBoundary>
    <ogc:Literal>2013-03-18T06:00:00</ogc:Literal>
  </ogc:UpperBoundary>
</ogc:PropertyIsBetween>
</ogc:And>
</ogc:Filter>
</wfs:Query>
</wfs:GetFeature>

```

28.1.3.1.5 Activity Detection Request by Activity ID

Here follows an example of a request that is **getting Activity Detection** using **directly the Activity ID**.

```

<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs" xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <wfs:Query typeName="csn:Activity">
    <wfs:PropertyName>csn:Activity</wfs:PropertyName>
    <ogc:Filter>
      <ogc:PropertyIsLike escape="" singleChar="_" wildcard="%">
        <ogc:PropertyName>activityid</ogc:PropertyName>
        <ogc:Literal>%12345%</ogc:Literal>
      </ogc:PropertyIsLike>
    </ogc:Filter>
  </wfs:Query>
</wfs:GetFeature>

```

28.1.3.1.6 Planning Requests

With Version 1.9 of CSNDC Ordered EO services are exposed to Service Providers via WFS so that can be queried via individual Service ID or via a bounding box eventually combined with a time window.

To perform requests by Service_ID it is sufficient to execute a plain GET GetFeature call like in the following example:

```

http://twls10:7021/degree-
wfs/services?SERVICE=WFS&VERSION=1.1.0&REQUEST=GetFeature&featureId=PLAN_SERVICE_ID

```

where the feature ID must be replaced by the following rule PLAN_<SERVICE_ID> for example PLAN_2015071401

The corresponding restituted output is:

```

<?xml version="1.0" encoding="UTF-8"?>

```

```
<wfs:FeatureCollection xmlns:wfs="http://www.opengis.net/wfs" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:csn="http://www.emsa.europa.eu/csndc"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" numberOfFeatures="1"
xsi:schemaLocation="http://www.emsa.europa.eu/csndc http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd"> <gml:boundedBy>
    <gml:Envelope srsName="EPSG:4326">
        <gml:lowerCorner>2.210236
46.379892</gml:lowerCorner>
        <gml:upperCorner>12.193689 53.946198</gml:upperCorner>
    </gml:Envelope>
    </gml:boundedBy>
    <gml:featureMember>
        <csn:PlannedAcquisition gml:id="PLAN_2015071401">
            <gml:boundedBy>
                <gml:Envelope srsName="EPSG:4326">
                    <gml:lowerCorner>2.210236 46.379892</gml:lowerCorner>
                    <gml:upperCorner>12.193689 53.946198</gml:upperCorner>
                </gml:Envelope>
            </gml:boundedBy>
            <csn:ServiceID>2015071401</csn:ServiceID>
            <csn:dataTakeOpportunity>
                <!-- xlink:href="#DTO_20150714011" -->
                <csn:DataTakeOpportunity gml:id="DTO_20150714011">
                    <gml:boundedBy>
                        <gml:Envelope srsName="EPSG:4326">
                            <gml:lowerCorner>7.210236
46.379892</gml:lowerCorner>
                            <gml:upperCorner>12.193689
53.946198</gml:upperCorner>
                        </gml:Envelope>
                    </gml:boundedBy>
                    <csn:DataTakeOpportunityID>1</csn:DataTakeOpportunityID>
                    <csn:ServiceStatus>Ready for Confirmation</csn:ServiceStatus>
                    <csn:Platform>SENTINEL-1</csn:Platform>
                    <csn:OperationalMode>IWS</csn:OperationalMode>
                    <csn:Area>159658.928431626</csn:Area>
                    <csn:BeginPosition>2015-05-03T18:17:12.000</csn:BeginPosition>
                    <csn:EndPosition>2015-05-03T18:22:47.000</csn:EndPosition>
                    <csn:Footprint>
                        <gml:MultiSurface srsName="EPSG:4326">
                            <gml:surfaceMembers>
                                <gml:Surface srsName="EPSG:4326">
                                    <gml:patches>
                                        <gml:PolygonPatch>
                                            <gml:exterior>
                                                <gml:LinearRing>
                                                    <gml:posList srsDimension="2" count="7">
12.193689 53.549291 11.04091 49.968704 10.005063 46.379892 7.210236 46.768254 8.407315 50.359755 9.551125 53.946198
12.193689 53.549291</gml:posList>
                                                </gml:LinearRing>
                                            </gml:exterior>
                                        </gml:PolygonPatch>
                                    </gml:patches>
                                </gml:Surface>
                            </gml:surfaceMembers>
                        </gml:MultiSurface>
                    </csn:Footprint>
                    <csn:FlexibleArea>>false</csn:FlexibleArea>
                    <csn:FlexibleTime>>false</csn:FlexibleTime>
                    <csn:ServiceType>
                        <!--
xlink:href="#ST_61" -->
                        <csn:ServiceType gml:id="ST_61">
                            <csn:ServiceTypeName>CSNDC 1.6
Standard</csn:ServiceTypeName>
                            <csn:MaxDownlinkDelayInMinutes>0</csn:MaxDownlinkDelayInMinutes>
                            <csn:MaxDeliveryDelayServiceProvider1InHours>0</csn:MaxDeliveryDelayServiceProvider1InHours>
                        </csn:ServiceType>
                    </csn:DataTakeOpportunity>
                </csn:dataTakeOpportunity>
            </csn:PlannedAcquisition>
        </gml:featureMember>
    </gml:boundedBy>
</wfs:FeatureCollection>
```

```

<csn:MaxDeliveryDelayServiceProvider2InHours>0</csn:MaxDeliveryDelayServiceProvider2InHours>

<csn:ServiceElementsServiceProvider1>License</csn:ServiceElementsServiceProvider1>
  <csn:ServiceElementsServiceProvider2>
Data Downlink,Image Processing,Image Delivery,Oil Spill Detection,Vessel Detection
</csn:ServiceElementsServiceProvider2>
    </csn:ServiceType>
  </csn:ServiceType>
  <csn:operations>
    <!-- xlink:href="#OP_1" -->
    <csn:PlanOperation gml:id="OP_1">
      <csn:operationName>CleanSeaNet</csn:operationName>
    </csn:PlanOperation>
  </csn:operations>
  <!-- xlink:href="#OP_1" -->
  <csn:operations xlink:href="#OP_1"/>
  <csn:CartIdentifier>882</csn:CartIdentifier>
  <csn:CartName>DTO_5</csn:CartName>
  </csn:DataTakeOpportunity>
</csn:datatakeopportunity>
<csn:datatakeopportunity>
  <!-- xlink:href="#DTO_20150714012" -->
  <csn:DataTakeOpportunity gml:id="DTO_20150714012">
    <gml:boundedBy>
      <gml:Envelope srsName="EPSG:4326">
        <gml:lowerCorner>2.210236
46.379892</gml:lowerCorner>
        <gml:upperCorner>7.193689
53.946198</gml:upperCorner>
      </gml:Envelope>
    </gml:boundedBy>
    <csn:DataTakeOpportunityID>2</csn:DataTakeOpportunityID>
    <csn:ServiceStatus>Ready for Confirmation</csn:ServiceStatus>
    <csn:Platform>SENTINEL-1</csn:Platform>
    <csn:OperationalMode>IWS</csn:OperationalMode>
    <csn:Area>159658.928432419</csn:Area>
    <csn:BeginPosition>2015-05-04T06:14:05.000</csn:BeginPosition>
    <csn:EndPosition>2015-05-04T06:19:40.000</csn:EndPosition>
    <csn:Footprint>
      <gml:MultiSurface srsName="EPSG:4326">
        <gml:surfaceMembers>
          <gml:Surface srsName="EPSG:4326">
            <gml:patches>
              <gml:PolygonPatch>
                <gml:exterior>
</gml:exterior>
              </gml:PolygonPatch>
            </gml:patches>
          </gml:Surface>
        </gml:surfaceMembers>
      </gml:MultiSurface>
    </csn:Footprint>
    <csn:FlexibleArea>>false</csn:FlexibleArea>
    <csn:FlexibleTime>>false</csn:FlexibleTime>
    <!-- xlink:href="#ST_61" -->
    <csn:ServiceType xlink:href="#ST_61"/>
    <!-- xlink:href="#OP_1" -->
    <csn:operations xlink:href="#OP_1"/>
    <!-- xlink:href="#OP_1" -->
    <csn:operations xlink:href="#OP_1"/>
  
```



```
<csn:CartIdentifier>882</csn:CartIdentifier>
<csn:CartName>DTO_5</csn:CartName>
</csn:DataTakeOpportunity>
</csn:PlannedAcquisition>
</gml:featureMember>
</wfs:FeatureCollection>
```

Alternatively a request based on bounding box and time interval can be structured as follows via a POST request:

```
<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd"
">
  <wfs:Query typeName="csn:PlannedAcquisition">
    <wfs:PropertyName>csn:PlannedAcquisition</wfs:PropertyName>
    <ogc:Filter>
      <ogc:And>
        <ogc:BBOX>
          <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:Footprint</ogc:Pro
pertyName>
          <gml:Envelope srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
            <gml:lowerCorner>0 0</gml:lowerCorner>
            <gml:upperCorner>90 90</gml:upperCorner>
          </gml:Envelope>
          </ogc:BBOX>
          <ogc:PropertyIsBetween>
            <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:BeginPosition</ogc:
PropertyName>
            <ogc:LowerBoundary>
              <ogc:Literal>2013-03-18T00:00:00</ogc:Literal>
            </ogc:LowerBoundary>
            <ogc:UpperBoundary>
              <ogc:Literal>2015-03-18T06:00:00</ogc:Literal>
            </ogc:UpperBoundary>
            </ogc:PropertyIsBetween>
          </ogc:And>
        </ogc:Filter>
      </wfs:Query>
    </wfs:GetFeature>
```

Where the parts in yellow shall be replaced with the desired bounding box and time window settings.

A request based also on operationName attribute (against which the access rights are enforced) can be made as in the following example:

```
<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <wfs:Query typeName="csn:PlannedAcquisition">
    <wfs:PropertyName>csn:PlannedAcquisition</wfs:PropertyName>
    <ogc:Filter>
      <ogc:And>
        <ogc:BBOX>
          <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:Footprint</ogc:Pro
pertyName>
          <gml:Envelope srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
            <gml:lowerCorner>0 0</gml:lowerCorner>
            <gml:upperCorner>90 90</gml:upperCorner>
          </gml:Envelope>
          </ogc:BBOX>
          <ogc:PropertyIsBetween>
            <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:BeginPosition</ogc:
PropertyName>
            <ogc:LowerBoundary>
              <ogc:Literal>2013-03-18T00:00:00</ogc:Literal>
```

```

</ogc:LowerBoundary>
<ogc:UpperBoundary>
  <ogc:Literal>2015-03-18T06:00:00</ogc:Literal>
</ogc:UpperBoundary>
</ogc:PropertyIsBetween>
<ogc:PropertyIsEqualTo>
  <ogc:PropertyName>
/csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:operations/csn:PlanOperation/csn:operationName<
/ogc:PropertyName>
  <ogc:Literal>CleanSeaNet</ogc:Literal>
</ogc:PropertyIsEqualTo>
</ogc:And>
</ogc:Filter>
</wfs:Query>
</wfs:GetFeature>

```

Where the parts in yellow shall be replaced with the desired bounding box, time window and operationName settings.

Please Note: the above example is valid also in case of a standard order as a standard order is reduced to the trivial case of a single datatake.

It is to be noted that through specification of the Operation an implicit enforcement of right is obtained. More specifically, This service allows both to filter the search on the basis of operation and to return the operation(s) as part of the response. Like all other WFS services (e.g. Oil spill , detected vessels) the paradigm is that the CSNDC serves as PIP (Policy Information Point) while the caller application ie IMDATE is serving as PEP (enforcement point).

There are 2 paradigms of using this:

- 1) via obligation whereby the PEP is injecting the search restriction in the request
- 2) via condition filtering the result on the basis of attributes

The following is an example of a request for planned acquisition based on the service provider name:

```

<wfs:GetFeature service="WFS" version="1.1.0" xmlns:wfs="http://www.opengis.net/wfs"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <wfs:Query typeName="csn:PlannedAcquisition">
    <wfs:PropertyName>csn:PlannedAcquisition</wfs:PropertyName>
    <ogc:Filter>
      <ogc:And>
        <ogc:BBOX>
          <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:Footprint</ogc:Pro
pertyName>
          <gml:Envelope srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
            <gml:lowerCorner>0 0</gml:lowerCorner>
            <gml:upperCorner>90 90</gml:upperCorner>
          </gml:Envelope>
        </ogc:BBOX>
        <ogc:PropertyIsBetween>
          <ogc:PropertyName>csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:BeginPosition</ogc:
PropertyName>
          <ogc:LowerBoundary>
            <ogc:Literal>2013-03-18T00:00:00</ogc:Literal>
          </ogc:LowerBoundary>
          <ogc:UpperBoundary>
            <ogc:Literal>2015-03-18T06:00:00</ogc:Literal>
          </ogc:UpperBoundary>
        </ogc:PropertyIsBetween>
        <ogc:PropertyIsEqualTo>
          <ogc:PropertyName>
/csn:PlannedAcquisition/csn:datatakeopportunity/csn:DataTakeOpportunity/csn:ServiceProvider2</ogc:PropertyName>
          <ogc:Literal>EGEOS</ogc:Literal>
        </ogc:PropertyIsEqualTo>
      </ogc:And>
    </ogc:Filter>
  </wfs:Query>
</wfs:GetFeature>

```


Again the parts in yellow shall be replaced with the desired bounding box, time window and service provider name.

Please Note: the above example is valid also in case of a standard order.

The describe feature will return a schema like the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:csn="http://www.emsa.europa.eu/csndc"
xmlns:deegreewfs="http://www.deegree.org/wfs" xmlns:gml="http://www.opengis.net/gml"
xmlns:ows="http://www.opengis.net/ows/1.1" attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="http://www.emsa.europa.eu/csndc">
  <!-- ===== -->
  <!-- OGC IMPORT -->
  <xs:import namespace="http://www.opengis.net/gml"
schemaLocation="http://schemas.opengis.net/gml/3.1.1/base/feature.xsd"/>
  <xs:import namespace="http://www.opengis.net/gml"
schemaLocation="http://schemas.opengis.net/gml/3.1.1/base/gmlBase.xsd"/>
  <xs:import namespace="http://www.opengis.net/ows/1.1"
schemaLocation="http://schemas.opengis.net/ows/1.1.0/owsServiceProvider.xsd"/>
  <xs:import namespace="http://www.opengis.net/gml"
schemaLocation="http://schemas.opengis.net/gml/3.1.1/base/measures.xsd"/>
  <xs:element name="PlannedAcquisition" substitutionGroup="gml:_Feature" type="csn:PlannedAcquisitionType">
    </xs:element>
    <xs:complexType name="PlannedAcquisitionType">
      <xs:complexContent>
        <xs:extension base="gml:AbstractFeatureType">
          <xs:sequence>
            <xs:element minOccurs="1" name="ServiceID" type="xs:integer">
              </xs:element>
            <xs:element maxOccurs="1" minOccurs="1" name="dataTakeOpportunity"
type="gml:FeaturePropertyType">
              </xs:element>
            </xs:sequence>
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    </xs:element>
  <!-- ===== -->
  <!-- DTO -->
  <!-- ===== -->
  <xs:element name="DataTakeOpportunity" substitutionGroup="gml:_Feature" type="csn:DataTakeOpportunityType">
    </xs:element>
    <xs:complexType name="DataTakeOpportunityType">
      <xs:complexContent>
        <xs:extension base="gml:AbstractFeatureType">
          <xs:sequence>
            <xs:element minOccurs="1" name="DataTakeOpportunityID"
type="xs:integer">
              </xs:element>
            <xs:element name="ServiceStatus" type="xs:string">
              </xs:element>
            <xs:element name="Platform" type="xs:string">
              </xs:element>
            <xs:element name="OperationalMode" type="xs:string">
              </xs:element>
            <xs:element name="Area" type="xs:double">
              </xs:element>
            <xs:element name="SensorResolution" type="xs:double">
              </xs:element>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
  </xs:element>
```

```

</xs:element>
<xs:element name="BeginPosition" type="xs:dateTime">
</xs:element>
<xs:element name="EndPosition" type="xs:dateTime">
</xs:element>
<xs:element name="Footprint" type="gml:GeometryPropertyType">
</xs:element>
<xs:element name="FlexibleArea" type="xs:boolean">
</xs:element>
<xs:element name="FlexibleTime" type="xs:boolean">
</xs:element>
<xs:element name="ServiceType" type="gml:FeaturePropertyType">
</xs:element>
<xs:element maxOccurs="unbounded" minOccurs="0" name="operation"
type="gml:FeaturePropertyType">
</xs:element>
<xs:element name="ServiceProvider1" type="xs:string">
</xs:element>
<xs:element name="ServiceProvider2" type="xs:string">
</xs:element>
<xs:element name="CartIdentifier" type="xs:integer">
</xs:element>
<xs:element name="CartName" type="xs:string">
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>

```

</xs:complexType>

```

<!-- ===== -->
>
<!-- Operation -->
<!-- ===== -->
>
<xs:element name="operation" substitutionGroup="gml:_Feature" type="csn:OperationType">
</xs:element>
<xs:complexType mixed="false" name="OperationType">
  <xs:complexContent mixed="false">
    <xs:extension base="gml:AbstractFeatureType">
      <xs:sequence>
        <xs:element maxOccurs="unbounded" minOccurs="0" name="Operation"
type="xs:string">
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>

```

</xs:complexType>

```

<!-- ===== -->
>
<!-- Service Type -->
<!-- ===== -->
>
<xs:element name="ServiceType" substitutionGroup="gml:_Feature" type="csn:ServiceTypeType">
</xs:element>
<xs:complexType mixed="false" name="ServiceTypeType">
  <xs:complexContent mixed="false">
    <xs:extension base="gml:AbstractFeatureType">
      <xs:sequence>
        <xs:element name="ServiceTypeName" type="xs:string">
        </xs:element>
        <xs:element name="MaxDownlinkDelayInMinutes" type="xs:double">
        </xs:element>
        <xs:element name="MaxDeliveryDelayServiceProvider1InHours"
type="xs:double">
        </xs:element>
        <xs:element name="MaxDeliveryDelayServiceProvider2InHours"
type="xs:double">
        </xs:element>

```

```
<xs:element name="ServiceElementsServiceProvider1" type="xs:string">
</xs:element>
<xs:element name="ServiceElementsServiceProvider2" type="xs:string">
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:schema>
```

28.2 WEB MAP SERVICE (WMS)

The WMS is used for serving raster data of EO images.

The end point for this service is: <https://csndc.emsa.europa.eu/geoserver/wms>

28.2.1 GetCapabilities

Example of GetCapabilities request.

<https://csndc.emsa.europa.eu/geoserver/wms?REQUEST=GetCapabilities>

28.2.2 GetMap

This is an example of get map request.

https://csndc.emsa.europa.eu/geoserver/wms?TRANSPARENT=TRUE&STYLES=&VERSION=1%2E1%2E1&WIDTH=717&UPSEQUENCE=2014-05-26T17%3A42%3A04Z&HEIGHT=738&FORMAT=image%2Fpng&BBOX=2557212%2E593%2C4105829%2E776%2C2761594%2E79%2C4316198%2E062&SRS=EPSG%3A3395&REQUEST=GetMap&LAYERS=001344%3A134351_RS2_20140626_043324_0075_SCWA_VV_SCW_333173_0000_0000000&SERVICE=WMS&EXCEPTIONS=text%2Fxml

28.3 WEB COVERAGE SERVICE (WCS)

This service is used to download EO images.

28.3.1.1 GetCapabilities

This is an example of GetCapabilities request.

<https://csndc.emsa.europa.eu/geoserver/ows?service=WCS&version=1.0.0&request=GetCapabilities>

28.3.1.2 DescribeCoverage

Here is an example of DescribeCoverage.

https://csndc.emsa.europa.eu/geoserver/ows?service=WCS&version=1.0.0&request=DescribeCoverage&coverage=000057:5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131

28.3.1.3 GetCoverage

This is an example of get coverage request.

https://csndc.emsa.europa.eu/geoserver/ows?service=WCS&version=1.0.0&request=GetCoverage&coverage=000057:5667_RS2_20110330_162728_0045_SCNA_HH_SGF_126262_3562_4984131&bbox=14.3861673,53.6627189,20.6672014,57.0901852&width=604&height=330&crs=EPSG:4326&format=geotiff

28.4 CATALOGUE SERVICE ON THE WEB (CSW)

This is used to store catalogue metadata of the EOP products.

The end point for this service is: <https://csndc.emsa.europa.eu:444/vcat-csw/services>

28.4.1 GetCapabilities

This is an example of GetCapabilities request.

```
<GetCapabilities service="CSW" version="2.0.0" xmlns="http://www.opengis.net/cat/csw"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:ows="http://www.opengis.net/ows"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/cat/csw http://schemas.opengis.net/csw/2.0.0/CSW-
discovery.xsd"/>
```

28.4.2 GetRecordById

Here is an example of GetrecordbyID request.

```
<GetRecordById xmlns="http://www.opengis.net/cat/csw/2.0.2"
xmlns:wrs="http://www.opengis.net/cat/wrs/1.0" xmlns:rim="urn:oasis:names:tc:ebxml-
regrep:xsd:rim:3.0" outputSchema="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0" service="CSW"
version="2.0.2">
  <Id>urn:eop:CSNDC:product:RS2_20110729_075018_0042_SCNA_HH_SGF_145922_7024_5
512937.tgz_0001</Id>
  <ElementSetName typeName="rim:RegistryPackage">full</ElementSetName>
</GetRecordById>
```

28.4.3 GetRecords

This is an example of GetRecords request, using time range.

```
<csw:GetRecords xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:wrs="http://www.opengis.net/cat/wrs/1.0" xmlns:rim="urn:oasis:names:tc:ebxml-
regrep:xsd:rim:3.0" outputSchema="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0" service="CSW"
version="2.0.2" resultType="results" startPosition="1" maxRecords="50">
  <csw:Query typeName="rim:ExtrinsicObject">
    <csw:ElementSetName typeName="rim:ExtrinsicObject">full</csw:ElementSetName>
    <csw:Constraint version="1.1.0">
      <ogc:Filter>
        <ogc:And>
          <ogc:PropertyIsEqualTo>
```

```

<ogc:PropertyName>/rim:ExtrinsicObject/@objectType</ogc:PropertyName>
<ogc:Literal>urn:x-ogc:specification:csw-
ebrim:ObjectType:EO:EOProduct</ogc:Literal>
</ogc:PropertyIsEqualTo>
<ogc:PropertyIsGreaterThanOrEqualTo>

<ogc:PropertyName>/rim:ExtrinsicObject/rim:Slot[@name='urn:ogc:def:ebRIM-Slot:OGC-06-
131:beginPosition']/rim:ValueList/rim:Value</ogc:PropertyName>
<ogc:Literal>2011-07-29T05:00:00Z</ogc:Literal>
</ogc:PropertyIsGreaterThanOrEqualTo>
<ogc:PropertyIsLessThanOrEqualTo>

<ogc:PropertyName>/rim:ExtrinsicObject/rim:Slot[@name='urn:ogc:def:ebRIM-Slot:OGC-06-
131:endPosition']/rim:ValueList/rim:Value</ogc:PropertyName>
<ogc:Literal>2011-07-29T12:00:00Z</ogc:Literal>
</ogc:PropertyIsLessThanOrEqualTo>
</ogc:And>
</ogc:Filter>
</csw:Constraint>
</csw:Query>
</csw:GetRecords>

```

Here is an example that uses both the time range and the bounding box to filter the data.

```

<csw:GetRecords xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:wrs="http://www.opengis.net/cat/wrs/1.0" xmlns:rim="urn:oasis:names:tc:ebxml-
regrep:xsd:rim:3.0" outputSchema="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0" service="CSW"
version="2.0.2" resultType="results" startPosition="1" maxRecords="50">
  <csw:Query typeNames="rim:ExtrinsicObject">
    <csw:ElementSetName typeNames="rim:ExtrinsicObject">full</csw:ElementSetName>
    <csw:Constraint version="1.1.0">
      <ogc:Filter>
        <ogc:And>
          <ogc:PropertyIsEqualTo>

            <ogc:PropertyName>/rim:ExtrinsicObject/@objectType</ogc:PropertyName>
            <ogc:Literal>urn:x-ogc:specification:csw-
ebrim:ObjectType:EO:EOProduct</ogc:Literal>
            </ogc:PropertyIsEqualTo>
            <ogc:BBOX>

              <ogc:PropertyName>/rim:ExtrinsicObject/rim:Slot[@name='urn:ogc:def:ebRIM-Slot:OGC-06-
131:multiExtentOf']/wrs:ValueList/wrs:AnyValue</ogc:PropertyName>
              <gml:Envelope>
                <gml:lowerCorner>30.353663269790946
32.638410584669295</gml:lowerCorner>
                <gml:upperCorner>35.998633829394166
36.85228188307418</gml:upperCorner>
              </gml:Envelope>
            </ogc:BBOX>
            <ogc:PropertyIsGreaterThanOrEqualTo>

              <ogc:PropertyName>/rim:ExtrinsicObject/rim:Slot[@name='urn:ogc:def:ebRIM-Slot:OGC-06-
131:beginPosition']/rim:ValueList/rim:Value</ogc:PropertyName>

```

```
<ogc:Literal>2011-07-29T05:00:00Z</ogc:Literal>
</ogc:PropertyIsGreaterThanOrEqualTo>
<ogc:PropertyIsLessThanOrEqualTo>

<ogc:PropertyName>/rim:ExtrinsicObject/rim:Slot[@name='urn:ogc:def:ebRIM-Slot:OGC-06-
131:endPosition']/rim:ValueList/rim:Value</ogc:PropertyName>
<ogc:Literal>2011-07-29T12:00:00Z</ogc:Literal>
</ogc:PropertyIsLessThanOrEqualTo>
</ogc:And>
</ogc:Filter>
</csw:Constraint>
</csw:Query>
</csw:GetRecords>
```


28.5 EXAMPLE OF THE GML FILES CREATED FOR THE AIS DATA

The AIS data obtained from IMDatE are provided by CSNDC in GML files that are typically distributed via FTP to the service providers.

```
<?xml version="1.0"?>
<wfs:FeatureCollection xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:ais="http://www.emsa.europa.eu/ais"
xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ows="http://www.opengis.net/ows/1.1" xmlns:wfs="http://www.opengis.net/wfs" numberOfFeatures="10"
xsi:schemaLocation="http://www.emsa.europa.eu/ais ./STIRES_WFS.xsd http://www.opengis.net/wfs
http://schemas.opengis.net/wfs/1.1.0/wfs.xsd">
  <gml:featureMember>
    <ais:Feature>
      <ais:MMSI>212983026</ais:MMSI>
      <ais:IMONumber/>
      <ais:name/>
      <ais:callsign/>
      <ais:vesselType/>
      <ais:trackProperty>
        <ais:track>
          <ais:objectStatus>
            <ais:heading/>
            <ais:speedOverGround>0.0</ais:speedOverGround>
            <ais:time>2014-05-15T14:11:12.000+01:00</ais:time>
            <ais:destination/>
            <ais:expectedTimeOfArrival/>
            <ais:hazardous/>
            <ais:report/>
            <ais:courseOverGround>86.0</ais:courseOverGround>
            <ais:navigationalStatus/>
            <gml:Point>
              <gml:pos>34.67011
33.042291666666664</gml:pos>
            </gml:Point>
          </ais:objectStatus>
        </ais:track>
      </ais:trackProperty>
    </ais:Feature>
  </gml:featureMember>
  <gml:featureMember>
    <ais:Feature>
      <ais:MMSI>210480000</ais:MMSI>
      <ais:IMONumber/>
      <ais:name/>
      <ais:callsign/>
      <ais:vesselType/>
      <ais:trackProperty>
        <ais:track>
          <ais:objectStatus>
            <ais:heading/>
            <ais:speedOverGround>0.0</ais:speedOverGround>
            <ais:time>2014-05-15T14:12:27.000+01:00</ais:time>
            <ais:destination/>
            <ais:expectedTimeOfArrival/>
            <ais:hazardous/>
            <ais:report/>
            <ais:courseOverGround>0.0</ais:courseOverGround>
            <ais:navigationalStatus/>
            <gml:Point>
```

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with:

```

    <gml:featureMember>
      <ais:Feature>
        <ais:MMSI>450538000</ais:MMSI>
        <ais:IMONumber>7120768</ais:IMONumber>
        <ais:name>ABOU KARIM I</ais:name>
        <ais:callsign>ODVI</ais:callsign>
        <ais:vesselType>360</ais:vesselType>
        <ais:trackProperty>
          <ais:track>
            <ais:objectStatus>
              <ais:heading>91</ais:heading>
              <ais:speedOverGround>11.4</ais:speedOverGround>
              <ais:time>2014-05-15T14:12:44.000+01:00</ais:time>
              <ais:destination/>
              <ais:expectedTimeOfArrival/>
              <ais:hazardous/>
              <ais:report/>
              <ais:courseOverGround>96.0</ais:courseOverGround>
              <ais:navigationalStatus>0</ais:navigationalStatus>
            <gml:Point>
              <gml:pos>33.896155
35.13968833333333</gml:pos>
            </gml:Point>
          </ais:objectStatus>
        </ais:track>
      </ais:trackProperty>
    </ais:Feature>
  </gml:featureMember>
  <gml:featureMember>
    <ais:Feature>
      <ais:MMSI>215486000</ais:MMSI>
      <ais:IMONumber/>
      <ais:name/>
      <ais:callsign/>
      <ais:vesselType/>
      <ais:trackProperty>
        <ais:track>
          <ais:objectStatus>
            <ais:heading/>
            <ais:speedOverGround>6.9</ais:speedOverGround>
            <ais:time>2014-05-15T14:13:04.000+01:00</ais:time>
            <ais:destination/>
            <ais:expectedTimeOfArrival/>
            <ais:hazardous/>
            <ais:report/>
            <ais:courseOverGround>120.3</ais:courseOverGround>
            <ais:navigationalStatus/>
          <gml:Point>
            <gml:pos>34.82810833333333 33.84262</gml:pos>
          </gml:Point>
        </ais:objectStatus>
      </ais:track>
    </ais:trackProperty>
  </ais:Feature>
</gml:featureMember>
<gml:featureMember>
  <ais:Feature>
    <ais:MMSI>210735000</ais:MMSI>
    <ais:IMONumber/>
    <ais:name/>
    <ais:callsign/>
    <ais:vesselType/>
    <ais:trackProperty>
      <ais:track>
        <ais:objectStatus>

```

```

<ais:heading/>
<ais:speedOverGround>6.8</ais:speedOverGround>
<ais:time>2014-05-15T14:13:06.000+01:00</ais:time>
<ais:destination/>
<ais:expectedTimeOfArrival/>
<ais:hazardous/>
<ais:report/>
<ais:courseOverGround>235.0</ais:courseOverGround>
<ais:navigationalStatus/>
<gml:Point>
  <gml:pos>34.79996666666667 33.5914</gml:pos>
</gml:Point>
</ais:objectStatus>
</ais:track>
</ais:trackProperty>
</ais:Feature>
</gml:featureMember>
<gml:featureMember>
  <ais:Feature>
    <ais:MMSI>212983030</ais:MMSI>
    <ais:IMONumber/>
    <ais:name/>
    <ais:callsign/>
    <ais:vesselType/>
    <ais:trackProperty>
      <ais:track>
        <ais:objectStatus>
          <ais:heading/>
          <ais:speedOverGround>7.5</ais:speedOverGround>
          <ais:time>2014-05-15T14:13:24.000+01:00</ais:time>
          <ais:destination/>
          <ais:expectedTimeOfArrival/>
          <ais:hazardous/>
          <ais:report/>
          <ais:courseOverGround>292.8</ais:courseOverGround>
          <ais:navigationalStatus/>
          <gml:Point>
            <gml:pos>35.04664666666667
32.372038333333336</gml:pos>
          </gml:Point>
          </ais:objectStatus>
        </ais:track>
      </ais:trackProperty>
    </ais:Feature>
  </gml:featureMember>
<gml:featureMember>
  <ais:Feature>
    <ais:MMSI>235094159</ais:MMSI>
    <ais:IMONumber/>
    <ais:name/>
    <ais:callsign/>
    <ais:vesselType/>
    <ais:trackProperty>
      <ais:track>
        <ais:objectStatus>
          <ais:heading/>
          <ais:speedOverGround>0.0</ais:speedOverGround>
          <ais:time>2014-05-15T14:13:36.000+01:00</ais:time>
          <ais:destination/>
          <ais:expectedTimeOfArrival/>
          <ais:hazardous/>
          <ais:report/>
          <ais:courseOverGround>41.5</ais:courseOverGround>
          <ais:navigationalStatus/>
          <gml:Point>

```

```

33.007978333333334</gml:pos>
                                <gml:pos>34.64698833333333
                                </gml:Point>
                                </ais:objectStatus>
                                </ais:track>
                                </ais:trackProperty>
                                </ais:Feature>
                                </gml:featureMember>
                                </gml:featureMember>
                                <ais:Feature>
                                <ais:MMSI>671327000</ais:MMSI>
                                <ais:IMONumber>7108899</ais:IMONumber>
                                <ais:name>SAFI</ais:name>
                                <ais:callsign>5VBW7</ais:callsign>
                                <ais:vesselType>360</ais:vesselType>
                                <ais:trackProperty>
                                <ais:track>
                                <ais:objectStatus>
                                <ais:heading/>
                                <ais:speedOverGround>0.0</ais:speedOverGround>
                                <ais:time>2014-05-15T14:13:46.000+01:00</ais:time>
                                <ais:destination>LBBEY</ais:destination>
                                <ais:expectedTimeOfArrival>2014-05-
10T21:30:00Z</ais:expectedTimeOfArrival>
                                <ais:hazardous/>
                                <ais:report/>
                                <ais:courseOverGround>23.1</ais:courseOverGround>
                                <ais:navigationalStatus>5</ais:navigationalStatus>
                                <gml:Point>
                                <gml:pos>33.902616666666667 35.5224</gml:pos>
                                </gml:Point>
                                </ais:objectStatus>
                                </ais:track>
                                </ais:trackProperty>
                                </ais:Feature>
                                </gml:featureMember>
                                </wfs:FeatureCollection>

```

29ANNEX U - EVENT NOTIFICATION SERVICE

The CSN-DC can be configured to send event notification messages to a Sensor Event Service (SES). Event notification messages are sent for each geometry feature received by the CSN-DC, be it a EOP footprint, an oil spill or a detected vessel. A message is sent for each feature received, therefore for example if in a given OSN package, there are 5 oil spill, 5 different messages will be issued. The foreseen usage of this feature is that it sends messages to a centralised SES, which allows subscription of listeners (implementation of the SES is out of scope of the CSN-DC).

Here follow some examples of messages sent to the SES.

This is a message sent when an oil spill is received.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:wsa="http://www.w3.org/2005/08/addressing" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:eop="http://earth.esa.int/eop"
xmlns:sar="http://earth.esa.int/sar" xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:csn="http://www.emsa.europa.eu/csndc"> <soap:Header>
    <wsa:To>http://twls10:81/ses/EventServiceStub.php</wsa:To>
    <wsa:Action>http://docs.oasis-open.org/wsn/bw-
2/NotificationConsumer/Notify</wsa:Action>
    <wsa:MessageID>uuid:1b4d3025-f80a-a5b6-aa37-864c47fa1a7e</wsa:MessageID>
    <wsa:From>
        <wsa:Address>http://www.w3.org/2005/08/addressing/role/anonymous</wsa:Address>
    </wsa:From>
</soap:Header>
<soap:Body>
    <wsnt:Notify>
        <wsnt:NotificationMessage>
            <wsnt:Topic xmlns:rsm="urn:oasis:names:tc:ebxml-regrep:xsd:rsm:3.0"
xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0"
Dialect="http://csndc.emsa.europa.eu/TopicExpression"> OilSpill </wsnt:Topic>
            <wsnt:Message xmlns:rsm="urn:oasis:names:tc:ebxml-
regrep:xsd:rsm:3.0" xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0">
                <om:Observation gml:id="OM_2"
xsi:schemaLocation="http://www.opengis.net/om/1.0 http://schemas.opengis.net/om/1.0.0/om.xsd
http://www.opengis.net/sampling/1.0 http://schemas.opengis.net/sampling/1.0.0/sampling.xsd">
                    <om:samplingTime>
                        <gml:TimeInstant
xsi:type="gml:TimeInstantType">
                            <gml:timePosition>2011-05-
10T19:40:33</gml:timePosition>
                        </gml:TimeInstant>
                    </om:samplingTime>
                    <om:procedure
xlink:href="http://csndc.emsa.europa.eu/">
                        <om:observedProperty
xlink:href="urn:csndc:def:phenomenon:OilSpill"/>
                        <om:featureOfInterest xlink:href="
http://twls10:7021/deegree-
wfs/services?SERVICE=WFS&VERSION=1.1.0&REQUEST=GetFeature&TYPENAME=c
sn:OilSpill&Filter=%3CFilter%3E<PropertyIsEqualTo>&lt;PropertyName>csn:eventid&lt;/Pro
pertyName>&lt;Literal>6587_ASA_WSM_1PNACS20110510_194033_000000612099_00415_480
74_0001.N1.00000_OS_4&lt;/Literal>&lt;/PropertyIsEqualTo>&lt;/Filter>">
```



```

<sa:SamplingPoint gml:id="OS_001">

  <gml:name>6587_ASA_WSM_1PNACS20110510_194033_000000612099_00415_48074_000
  1.N1.00000_OS_4</gml:name>

  <sa:sampledFeature xlink:href=""/>
  <sa:position>
    <gml:Point
      srsName="EPSG:4326">
        <gml:pos>
          34.990600 34.586300 </gml:pos>
        </gml:Point>
      </sa:position>
    </sa:SamplingPoint>
  </om:featureOfInterest>
  <om:result>position</om:result>
</om:Observation>
</wsnt:Message>
</wsnt:Notify> </soap:Body>
</soap:Envelope>

```

Here is an example of messages sent when an EO scene is received.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
  instance" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:eop="http://earth.esa.int/eop"
  xmlns:sar="http://earth.esa.int/sar" xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
  xmlns:csn="http://www.emsa.europa.eu/csndc"> <soap:Header>
  <wsa:To>http://twls10:81/ACSPHLibRes/EventServiceStub.php</wsa:To>
  <wsa:Action>http://docs.oasis-open.org/wsn/bw-
  2/NotificationConsumer/Notify</wsa:Action>
  <wsa:MessageID>uuid:1b4d3025-f80a-a5b6-aa37-864c47fa1a7e</wsa:MessageID>
  <wsa:From>

  <wsa:Address>http://www.w3.org/2005/08/addressing/role/anonymous</wsa:Address>
  </wsa:From>
  </soap:Header>
  <soap:Body>
    <wsnt:Notify>
      <wsnt:NotificationMessage>
        <wsnt:Topic xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
  xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0"
  Dialect="http://csndc.emsa.europa.eu/TopicExpression"> EOscene </wsnt:Topic>
        <wsnt:Message xmlns:rim="urn:oasis:names:tc:ebxml-
  regrep:xsd:rim:3.0" xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0">
          <om:Observation gml:id="OM_1"
  xsi:schemaLocation="http://www.opengis.net/om/1.0 http://schemas.opengis.net/om/1.0.0/om.xsd
  http://www.opengis.net/sampling/1.0 http://schemas.opengis.net/sampling/1.0.0/sampling.xsd">
            <om:samplingTime>
              <gml:TimeInstant
                xsi:type="gml:TimeInstantType">
                  <gml:timePosition>2011-07-
  19T21:58:17.26459Z</gml:timePosition>
                </gml:TimeInstant>
              </om:samplingTime>

```

```

                                <om:procedure
xlink:href="http://csndc.emsa.europa.eu/">
                                <om:observedProperty
xlink:href="urn:csndc:def:phenomenon:EOscene">
                                <om:featureOfInterest
xlink:href="http://twls10:7021/vcat-csw/services?SERVICE=urn:x-
ogc:specification:cswbrim:Service:OGC-
CSW:ebRIM&REQUEST=GetRepositoryItem&ID=urn:eop:CSNDC:product:ASA_WSM_1PXC
LS20110719_215817_00000135X000_00000_49081_2737.N1_0001">
                                <sa:SamplingPoint gml:id="EO_001">

                                <gml:name>10569_ASA_WSM_1PXCLS20110719_215817_00000135X000_00000_49081_27
37</gml:name>

                                <sa:sampledFeature xlink:href="">
                                <sa:position>
                                <gml:Point
srsName="EPSG:4326">
                                <gml:pos>47.635811 -
2.414139</gml:pos>
                                </gml:Point>
                                </sa:position>
                                </sa:SamplingPoint>
                                </om:featureOfInterest>
                                <om:result>position</om:result>
                                </om:Observation>
                                </wsnt:Message>
                                </wsnt:NotificationMessage>
                                </wsnt:Notify>
                                </soap:Body>
</soap:Envelope>

```

Here is an example of messages sent when detected vessels are received. Please note the following:

- the event message is sent at the end of successful ingestion of the detected vessels packages
- it refers to the whole set of detected vessels information
- the element featureOfInterest is a WFS request which allows to grab collectively all data referring to a given ingestion, using the service ID corresponding to the data ingested
- the bounding box of the area is also explicitly reported in the notification so as to possibly allow finding the relevant data using this information (a request using service ID is obviously much more efficient)

```

<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:wsa="http://www.w3.org/2005/08/addressing"> <soap:Header>
  <wsa:To><SES_SERVICE_URL></wsa:To>
  <wsa:Action>http://docs.oasis-open.org/wsn/bw-2/NotificationConsumer/Notify</wsa:Action>
<wsa:MessageID>uuid:1b4d3025-f80a-a5b6-aa37-864c47fa1a7e</wsa:MessageID>
  <wsa:From>
<wsa:Address>http://www.w3.org/2005/08/addressing/role/anonymous</wsa:Address>
  </wsa:From>
</soap:Header>
  <soap:Body>
    <wsnt:Notify xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <wsnt:NotificationMessage>

```



```
<wsnt:Topic xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0"
Dialect="http://csndc.emsa.europa.eu/TopicExpression"> Vessel</wsnt:Topic>
<wsnt:Message xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
xmlns:om="http://www.opengis.net/om/1.0" xmlns:sa="http://www.opengis.net/sampling/1.0">
<om:Observation gml:id="OM_1" xsi:schemaLocation="http://www.opengis.net/om/1.0
http://schemas.opengis.net/om/1.0.0/om.xsd http://www.opengis.net/sampling/1.0
http://schemas.opengis.net/sampling/1.0.0/sampling.xsd">
<om:samplingTime>
<gml:TimePeriod>
<gml:beginPosition>2012-03-08T08:20:13Z</gml:beginPosition>
<gml:endPosition>2012-03-08T08:20:19Z</gml:endPosition>
</gml:TimePeriod>
</om:samplingTime>
<om:procedure xlink:href="http://csndc.emsa.europa.eu/">
<om:observedProperty xlink:href="urn:csndc:def:phenomenon:Vessel"/>
<om:featureOfInterest xlink:href="http://localhost:8080/deegree-
wfs/services?SERVICE=WFS&VERSION=1.1.0&REQUEST=GetFeature&TYPENAME=c
sn:Ship&Filter=&lt;Filter>&lt;PropertyIsEqualTo>&lt;PropertyName>csn:ServiceID&lt;/Prope
rtyName>&lt;Literal>19644&lt;/Literal>&lt;/PropertyIsEqualTo>&lt;/Filter>">
<sa:SamplingSurface>
<sa:shape>
<gml:Envelope srsName="EPSG:4326">
<gml:lowerCorner>44.863200 28.913300</gml:lowerCorner>
<gml:upperCorner>45.144900 30.051500</gml:upperCorner>
</gml:Envelope>
</sa:shape>
</sa:SamplingSurface>
</om:featureOfInterest>
<om:result>position</om:result>
</om:Observation>
</wsnt:Message>
</wsnt:NotificationMessage>
</wsnt:Notify>
</soap:Body>
</soap:Envelope>
```

30 ANNEX V – SAR WIND AND WAVE NETCDF FORMAT CONVENTIONS AND SPECIFICATIONS

SAR wind and wave files produced by the service providers as part of the data analysis shall be provided in NetCDF format, following NetCDF (CF convention v1.4 indicated in **[CF-CONV]**), in particular with reference to the conventions for naming and units of the various variables (e.g. longitude unit is degree_east, etc.).

In addition the following additional constraints shall be applied:

- the total size of the grid lat long shall not exceed 250,000 pixels (e.g. 500 x 500 pixels)
- standard names defined by the convention for the variables shall be used also for naming the variables inside the NetCDF. This in particular applies to:
 - Wind speed: wind_speed
 - Wind direction: wind_from_direction
 - Wave height: sea_surface_swell_wave_significant_height
 - Wave direction: sea_surface_swell_wave_to_direction

31ANNEX W – QUERY EXAMPLES FOR WIND AND WAVE FIELDS EXTRACTION

Wave example

https://portal.emsa.europa.eu/geoserver/wms?LAYERS=others_5b:SARWave_19644_ASA_WSM_1PNACS20120308_082012_000000842108_00236_52420_0001_N1_00000&SERVICE=WMS&VERSION=1.1.1&FORMAT=image/png&SRS=EPSG:3395&BBOX=3245436.435,5068402.552,3493090.285,5396532.788&REQUEST=GetMap&WIDTH=557&UPSEQUENCE=2016-01-23T16:43:30Z&STYLES=&EXCEPTIONS=text/xml&HEIGHT=738&TRANSPARENT=TRUE

Wind example

https://portal.emsa.europa.eu/geoserver/wms?LAYERS=others_c0:SARWind_19644_ASA_WSM_1PNACS20120308_082012_000000842108_00236_52420_0001_N1_00000&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&SRS=EPSG:3395&BBOX=3245436.435,5068402.552,3493090.285,5396532.788&FORMAT=image/png&WIDTH=557&UPSEQUENCE=2016-01-23T16:44:49Z&STYLES=&EXCEPTIONS=text/xml&HEIGHT=738&TRANSPARENT=TRUE