
EMSA CleanSeaNet Data Centre [CSN-DC]

External Interface Control Document [EICD]

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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]

Document Title	Identifier	Internal Reference
EMSA CleanSeaNet Data Centre Technical Design	CSNDC-DD-ACS-EMSA-0102 v2.0	[CSN-TEC]

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
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
STIRES	SafeSeaNet Tracking Information Relay and Exchange System
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

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 1.3.3	[EOP_MAP]
[EICD] csndc_os mapping for SP, issue 1.3.3	[OS_MAP]
[EICD] csndc_ds mapping for SP, issue 1.3.3	[DS_MAP]
[EICD] csndc_qn mapping for SP, issue 1.3.3	[QN_MAP]
[EICD] csndc_qr mapping for SP, issue 1.3.3	[QR_MAP]

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	STIRES	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	STIRES	IIF	I	AIS	Data for systematic analyses.	Unit: 1000 KB ³ Frequency: 15 Total: 15,000 KB WUP DB
EIF-03	STIRES	DAM	O	SAR Images	Data can be accessed by STIRES 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
				Oil spill notifications: SAR analysed oil spill detections		Unit: 200 KB Frequency: 75 Total: 15 MB ISM WUP DB

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 STIRES 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

				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
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
EIF-05b	SP	DAM	O	STIRES 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-	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

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)

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

				data packages.		
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-10	High Deal	JOU	I/O	Journaling information		TBD
EIF-11	External Processes	PMA	I/O	<ul style="list-style-type: none"> • CSN-DC sends oil spill description • External process executes a model and returns oil spill evolution 	SFTP is used on both directions for sending the request of triggering and receiving the results.	Unit: 1 MB Frequency: 100 ⁹ Total: 100 MB
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)	POR	O	Query Files		Unit: 1 MB Frequency: 0.1 Total: 0.1 MB

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

	g tools)					
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).

2.1 STIRES

2.1.1 EIF-01: 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*

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

The Feature provided by the WFS serving AIS data from STIRES shall support the GML schema produced in Annex A

2.1.2 EIF-02: 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 AIS data from STIRES shall support the GML schema produced in Annex A

2.1.3 EIF-03: SAR images from DAM

The images provided to STIRES 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.

2.2 SERVICE PROVIDERS

2.2.1 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 formats are:

- .zip
- .tar
- .tgz

Extension tar.gz is not supported.

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:

- Oil Spill Warnings
- EO Image
- Oil Spill Notifications
- SAR Derived
- 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 4 packages of different types.
Following table reports the expected content of each package.

Package Type	Package Content	File format	Description	Multiplicity	Mandatory (M)/ Optional (O)
Oil Spill Warning	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_WARNING"	1	M
	Oil Spill feature GML file	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_MAP]. 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
	Clip image file	JPG	A clip image file to be associated to a given OS.	N	M
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. The file extension must match the original format extension (e.g. '.N1' for ENVISAT ASAR). In case of RADARSAT 1 and RADARSAT 2 this file is the zip file containing a directory with a name corresponding to the one of the zip file itself. This directory contains all files of the product	1	M

			including a metadata xml file 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. Applicable restrictions and conventions are described in the annexed document [EOP_MAP]	1	M
	EO browse image file	JPG	Browse image file	1	O
Quality Notification	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 "QUALITY_NOTIFICATION"	1	M
	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. Expected XML content is described in [QN_MAP]	1	M
	Not Analyzable 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
Oil Spill Notifications	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. It contains full set of OS parameters. /csn:OilSpill/csn:origin element has fixed value	N	O ¹¹

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

			<p>of 'DETECTED'. The exact list of elements to be used is detailed in [OS_MAP].</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.</p>		
	Clip image file	Preferred image format 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	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	NetCDF (CF convention v1.4)	Gridded file with SAR extracted wind field	1	O
	SAR wave/swell extracted file	NetCDF (CF convention v1.4)	Gridded file with SAR extracted wave field	1	O
	Detected Ship feature GML file	XML as per schema in Annex D	A file describing a detected ships. Expected XML content is described in [DS_MAP].	N	O
Quality Report	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 "QUALITY_REPORT"	1	M

	Quality report file	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_MAP]	1	M
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Table 2-2 Data package content for EIF-04

2.2.2 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.

The Record provided by the CSW service, describing a MyOcean data offering through CSN-DC, shall support the schema in Annex F

2.2.3 EIF-05b: STIRES data from DAM

The protocol to be used is OGC WFS 1.1.0

Supported service requests are:

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

More specifically, STIRES data are organized in Features listed by the *GetCapabilities* operation. The *DescribeFeature* operation provides xsd schemas describing STIRES 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.

The Features provided by the WFS serving AIS data from STIRES support the GML schema produced in Annex A

2.2.4 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.

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.

2.2.5 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.

2.3 SATELLITE OPERATORS

2.3.1 EIF-12a: Region of interest to POR

Region of interest, frequency and number of scenes are imported as ESRI shapefiles provided by email to the CSN-DC SD operator.

2.3.2 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 follows:

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)

Acquisition Status files

- EOLI Order Status file (.ord file)

2.3.3 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.

2.4 MYOCEAN

2.4.1 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**

2.5 EO DATA PROVIDERS

2.5.1 EIF-08: EO data to IIF

The protocol to be used is SFTP in push mode (**TBC**).

2.6 ENC

2.6.1 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*

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

2.7 HIGH DEAL

2.7.1 EIF-10: Journaling info from/to JOU

WebServices will be used for the communication between JOU and High Deal as described in the WSDL in Annex L.

2.8 EXTERNAL PROCESSES

2.8.1 EIF-11: Oil Spill evolution to PMA

The protocol to be used is SFTP.

PMA puts a package with GML description of an observed Oil Spill in an SFTP basket.

Format of the GML file shall match schema produced in Annex C.

External processes read the input package, run the model and produce a package with many GML files (one per time step) of the predicted Oil Spill (again, each of them shall adhere to schema in Annex C).

The output package is put in a SFTP basket.

Supported package file formats are:

- .zip
- .tar
- .tgz

Following table reports the expected content of above mentioned packages.

Package type	Package Content	File format	Description	Multiplicity	Mandatory/Optional
Process request	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 "PROCESS_REQUEST"	1	M
	Oil Spill feature GML file	XML as per schema in Annex C	A file describing a detected OS.	1	M
	Process request XML file	XML as per schema in Annex J	A file describing the model name and input parameters to be used in the processing. Can be omitted if the External Process runs only one model with no other parameters than OS info.	1	O
Output package	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 "PROCESS_RESPONSE"	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
	Image file representing the evolution	GIF	An animated gif image file graphically representing the evolution of the Oil Spill	1	O

Table 2-3 Input/Output package content for EIF-11

2.9 USERS

2.9.1 EIF-15: Warning and alerts from PDE

Warning and alerts generated from PDE shall be delivered as:

- PDF attachments in e-mail messages
- SMS text messages
- MMS messages with text and image content
- Voice messages by phone

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

2.9.2 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 are:

- .zip
- .tar
- .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 zip file containing a directory with a name corresponding to the one of the zip 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 RADARSAT product specifications).	1	M
	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 Analyzable 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 2-4 Systematic product delivery package content for EIF16

2.10 EXTERNAL CATALOGUES

2.10.1 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.

3 XSD SCHEMAS COMMON NOTES

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

3.1 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://www.emsa.europa.eu/schemas/csndc/> and its subdirectories).

- 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).

3.2 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.

3.3 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'.

3.4 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 5.
- 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). This is not supported by CSN-DC for which 'Z' shall always be used.

ANNEX A – STIRES Vessel 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

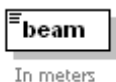
[FeatureType](#)

[ObjectStatusType](#)

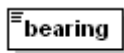
[TrackPropertyType](#)

[TrackType](#)

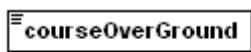
element **beam**

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>

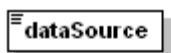
element bearing

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 element</pre>

	<p>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: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

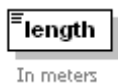
diagram	<p>ais:FeatureType</p> <p>attributes</p> <p>gm:tid Database handle for the object. It is of XML type ID, so is constrained to be unique in the XML document within which it occurs. An external identifier for the object in the form of a URI may be constructed using standard XML and XPointer methods. This is done by concatenating the URI for the document, a fragment separator, and the value of the id attribute.</p> <p>gm: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>gm:metaDataProperty 0..∞ Contains or refers to a metadata package that contains metadata properties.</p> <p>gm:description Contains a simple text description of the object, or refers to an external description.</p> <p>gm: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>gm:boundedBy gm:location deprecated in GML version 3.1 priority:location Deprecated in GML 3.1.0</p> <p>ais:MMSI mandatory</p> <p>ais:callSign mandatory</p> <p>ais:name mandatory</p> <p>ais:IMONumber optional</p> <p>ais:length optional</p> <p>ais:beam optional</p> <p>ais:vesselType optional</p> <p>ais:antennaLocation optional</p> <p>ais:draught optional</p> <p>ais:dangerousCargo optional</p> <p>ais:destination optional</p> <p>ais:expectedTimeOfArrival optional</p> <p>ais:extraInfo optional</p> <p>ais:trackProperty optional</p> <p>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</p> <p>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>
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 XPointer 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	 <p>In decimal deegrees of angle</p>
namespace	http://www.emsa.europa.eu/ais
type	xsd:decimal
properties	content simple
annotation	documentation In decimal deegrees of angle
source	<code><xsd:element name="heading" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>In decimal deegrees of angle</xsd:documentation> </xsd:annotation> </xsd:element></code>


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

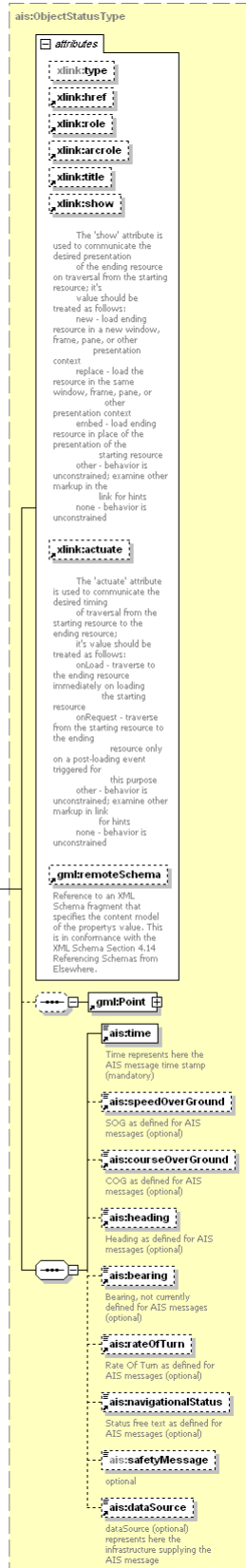
diagram	
namespace	http://www.emsa.europa.eu/ais
type	xsd:string
properties	content simple
annotation	documentation Vessel Identification according to the IMO AIS standards
source	<pre><xsd:element name="MMSI" type="xsd:string"> <xsd:annotation> <xsd:documentation>Vessel Identification according to the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

diagram

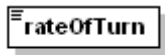


namespace	http://www.emsa.europa.eu/ais					
type	ais:ObjectStatusType					
properties	content substGrp	complex gml:pointProperty				
children	gml:Point ais:time ais:speedOverGround ais:courseOverGround ais:heading ais:bearing ais:rateOfTurn ais:navigationalStatus ais:safetyMessage ais:dataSource					
attributes	Name	Type	Use	Default	Fixed	annotation
	xlink:type	xsd:string			simple	
	href		optional			
	role		optional			
	arcrole		optional			
	title		optional			
	show		optional			documentation
	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:					
	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						

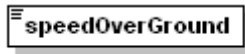
		<p>none - behavior is unconstrained</p>
	actuate	<p>optional</p> <p>documentation</p> <p>The 'actuate' attribute is used to communicate the desired timing of traversal from the starting resource to the ending resource; it's value should be treated as follows: onLoad - traverse to the ending resource 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</p> <p>this purpose other - behavior is unconstrained; examine other markup in link for hints none - behavior is unconstrained</p>
	remoteSchema	<p>optional</p> <p>documentation</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</p>

	Schemas from Elsewhere.
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>

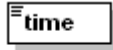
element rateOfTurn

diagram	 <p>Units as defined for IMO AIS ?</p>
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	 <p>In knots</p>
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	 <p>Allways in UTC timeframe (YYYY-MM-DDThh:mm:ss)</p>
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>	<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 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>srsName 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.</p> <p>srsDimension 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> <p>axisLabels 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. When the srsName attribute is omitted, this attribute shall also be omitted.</p> <p>uomLabels Ordered list of use 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> <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>ais:objectStatus 0..∞ Inherits the postMemberType of gml. This time slot type encapsulates the various dynamic properties of AIS objects at a given point in time and space.</p> <p>track The track of an object is a sequence of specialized timeSlots (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>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 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. documentation This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superceded 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. 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. 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. 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.
	gid	xsd:string	optional			
	srsName	xsd:anyURI	optional			
	srsDimension	xsd:positiveInteger	optional			
	axisLabels	gml:NCNameList	optional			

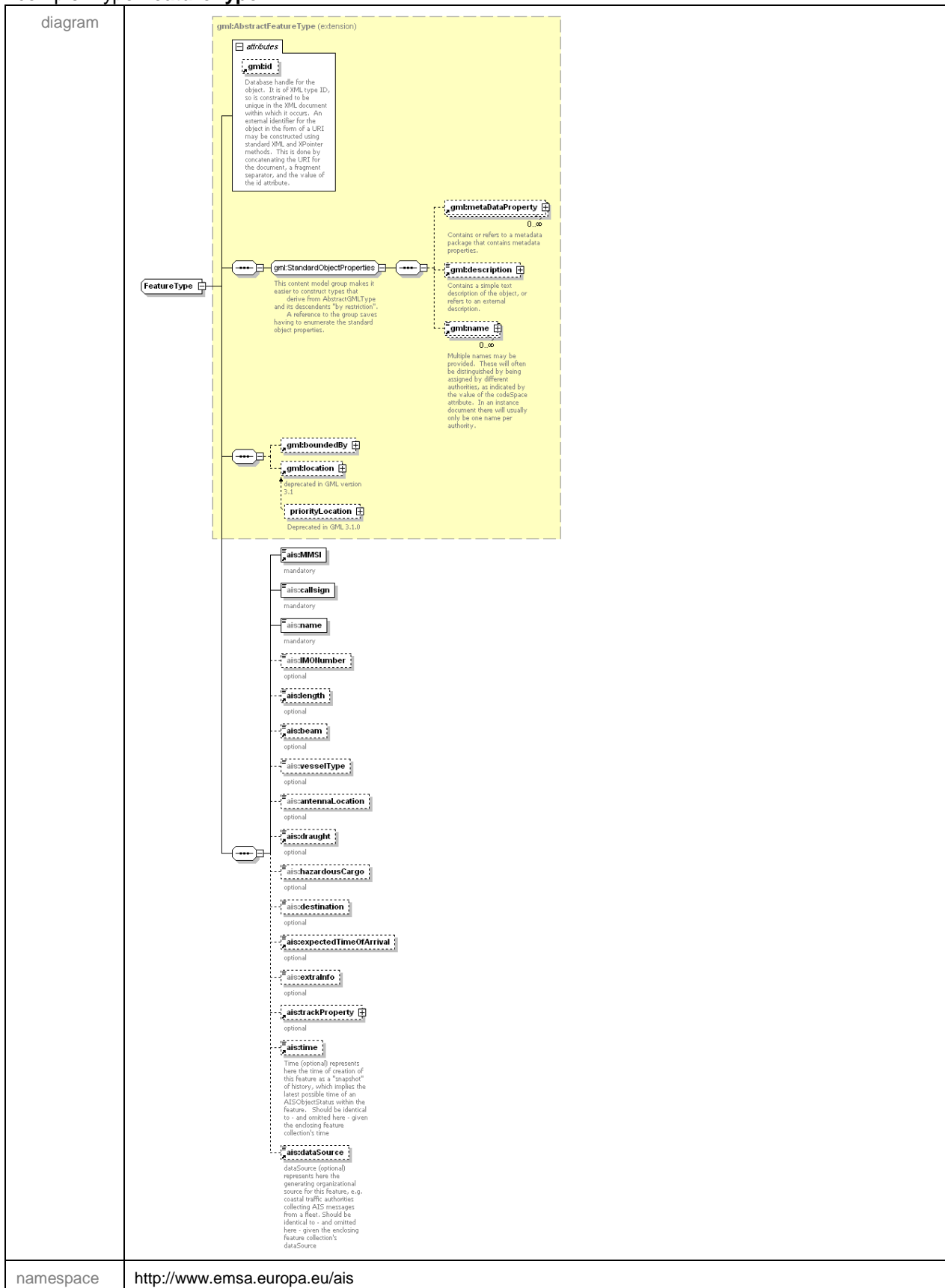
	<p>uomLabels gml:NCNameList optional</p> <p>When the srsName attribute is omitted, this attribute shall also be omitted.</p> <p>documentation Ordered list of unit of measure (uom) labels for all the axes of this CRS. The value of the string in the</p> <p>gml:catalogSymbol should be used for this uom labels, after spaces and forbidden characters are removed. When the</p> <p>axisLabels attribute is included, this attribute shall also be included. When the axisLabels attribute is omitted, this attribute</p> <p>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	<p><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></p>

element trackProperty

diagram	<p>The diagram illustrates the structure of the trackProperty element. It is shown as a geometry property of a feature (represented by a box with a dashed line). The property is associated with the ais:TrackPropertyType complex type (represented by a dashed box). This type contains a sequence of ais:track elements (represented by boxes with a plus sign). The ais:track elements are described as a sequence of specialized timeslices (i.e. ObjectStatus) that indicate the dynamic status of the object. They inherit the srsName attribute of the 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
type	ais:TrackPropertyType
properties	content complex
children	ais:track
annotation	<p>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</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 refering to gml:AssociationAttributeGroup</xsd:documentation> </xsd:annotation> </xsd:element></pre>
--------	---

complexType FeatureType



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:extraInfo 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 XPointer 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:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>					

```

</xsd:element>
<xsd:element ref="ais:length" minOccurs="0">
  <xsd:annotation>
    <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>

</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>

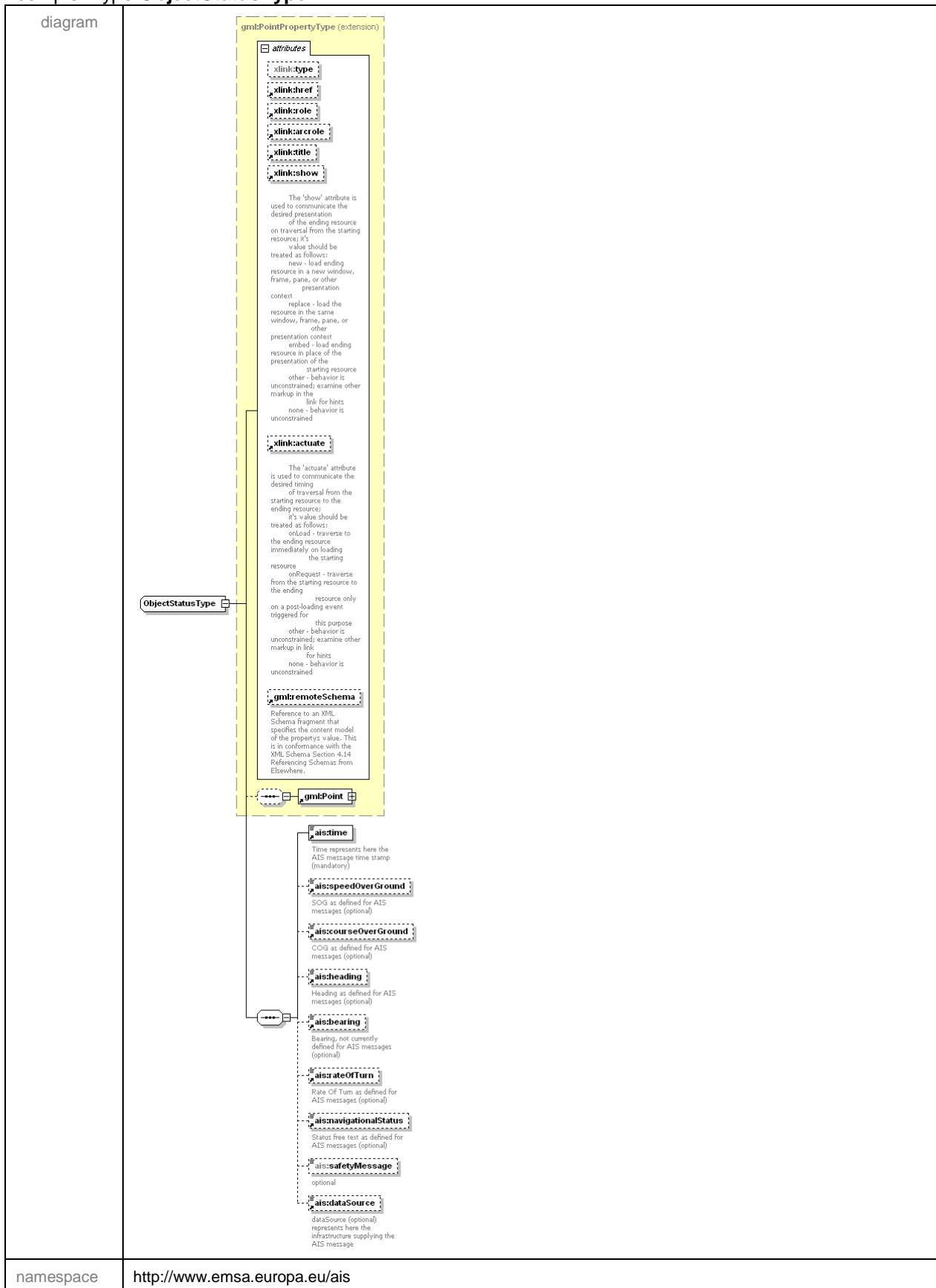
</xsd:sequence>

</xsd:extension>

</xsd:complexContent>

</xsd:complexType>

complexType ObjectStatusType




type	extension of <code>gml:PointPropertyType</code>					
properties	base <code>gml:PointPropertyType</code>					
children	<code>gml:Point</code> <code>ais:time</code> <code>ais:speedOverGround</code> <code>ais:courseOverGround</code> <code>ais:heading</code> <code>ais:bearing</code> <code>ais:rateOfTurn</code> <code>ais:navigationalStatus</code> <code>ais:safetyMessage</code> <code>ais:dataSource</code>					
attributes	Name xlink:type	Type <code>xsd:string</code>	Use	Default	Fixed simple	annotation
	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 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

	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	<pre> <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> </pre>
--------	--

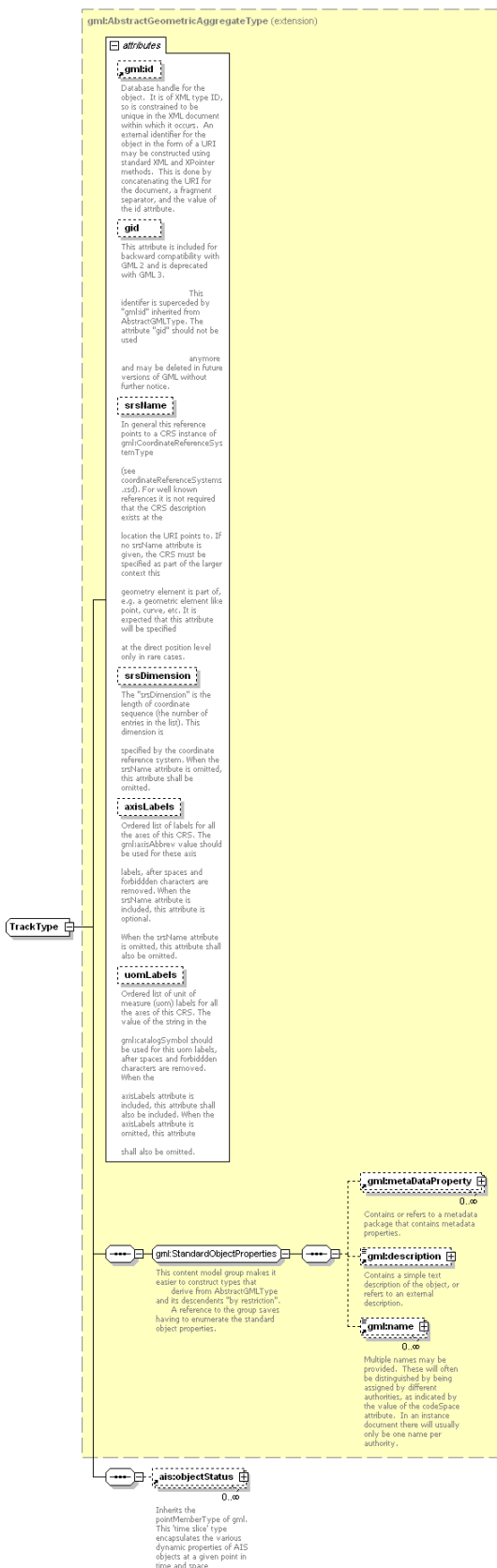
	<pre></xsd:extension> </xsd:complexContent> </xsd:complexType></pre>
--	--

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

diagram



namespace

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

type	extension of gml:AbstractGeometricAggregateType					
properties	base gml:AbstractGeometricAggregateType					
children	gml:metaDataProperty gml:description gml:name ais:objectStatus					
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.
	gid	xsd:string	optional			documentation This attribute is included for backward compatibility with GML 2 and is deprecated with GML 3. This identifier is superceded 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.
	axisLabels	gml:NCNameList	optional			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>uomLabels gml:NCNameList optional</p> <p>When the srsName attribute is omitted, this attribute shall also be omitted.</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</p> <p>gml:catalogSymbol should be used for this uom labels, after spaces and forbidden characters are removed. When the</p> <p>axisLabels attribute is included, this attribute shall also be included. When the axisLabels attribute is omitted, this attribute</p> <p>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>

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

[dataPackage](#)
[detectedShipReference](#)
[detectedShips](#)
[eoProduct](#)
[fileName](#)
[identifier](#)
[oilSpillReference](#)
[oilSpills](#)
[packageInfo](#)
[processRequest](#)
[qualityNotification](#)
[qualityReport](#)
[sarDerivedData](#)
[sarDerivedDataReference](#)

Complex types

[DataPackageType](#)
[DetectedShipReferenceType](#)
[DetectedShipsType](#)
[EOProductType](#)
[OilSpillReferenceType](#)
[OilSpillsType](#)
[PackageInfoType](#)
[ProcessRequestType](#)
[QualityType](#)
[SARDerivedDataReferenceType](#)
[SARDerivedDataType](#)

Simple types

[SARDerivedFeatureType](#)

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
annotation	documentation Namespace for CSN-DC data package from Service Providers.
source	<code><xs:element name="dataPackage" type="csn:DataPackageType"></code>

	<pre> <xs:annotation> <xs:documentation>Namespace for CSN-DC data package from Service Providers.</xs:documentation> </xs:annotation> </xs:element> </pre>
--	--

element **detectedShipReference**

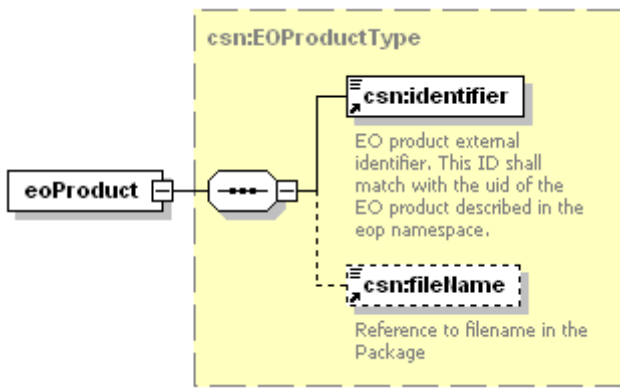
diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DetectedShipReferenceType
properties	content complex
children	csn:identifier csn:fileName
source	<code><xs:element name="detectedShipReference" type="csn:DetectedShipReferenceType"/></code>

element **detectedShips**


diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:DetectedShipsType
properties	content complex

children	csn:detectedShipReference					
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 eoProduct


diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:EOProductType					
properties	content complex					
children	csn:identifier csn:fileName					
source	<xs:element name="eoProduct" type="csn:EOProductType"/>					

element fileName

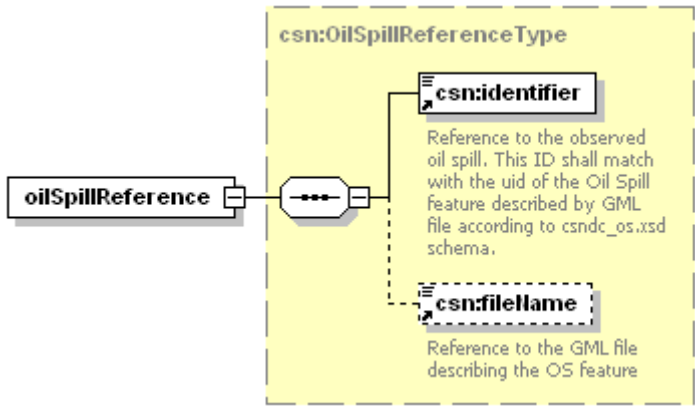
diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	restriction of xs:string					
properties	content simple					
annotation	documentation Reference to filename in the Package. This has to be the EOP metadata GML file name.					
source	<xs:element name="fileName"> <xs:annotation>					

	<pre> <xs:documentation>Reference to filename in the Package</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"/> </xs:simpleType> </xs:element> </pre>
--	---

element identifier

diagram	 <p>Identifier for metadata item</p>
namespace	http://www.emsa.europa.eu/csndc
type	restriction of xs:string
properties	content simple
annotation	documentation Identifier for metadata item
source	<pre> <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> </pre>

element oilSpillReference

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

element oilSpills

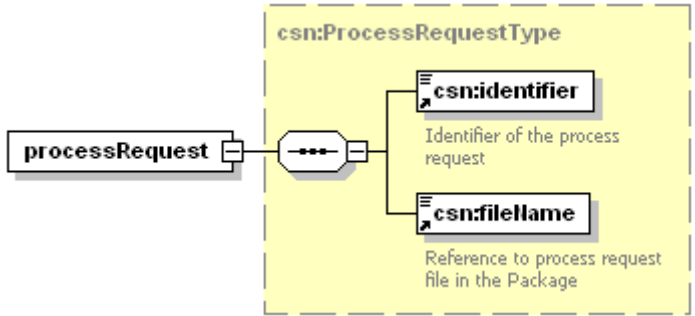
diagram						
namespace	http://www.emsa.europa.eu/csndc					
type	csn:OilSpillsType					
properties	content complex					
children	csn:oilSpillReference					
attributes	Name total	Type xs:integer	Use required	Default	Fixed	annotation documentation Total number of oil spills found/processed
source	<code><xs:element name="oilSpills" type="csn:OilSpillsType"/></code>					

element packageInfo

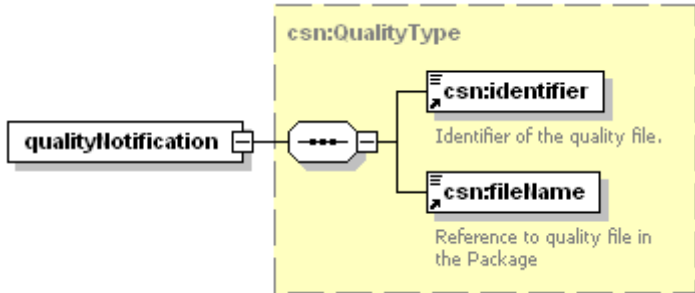
diagram						
namespace	http://www.emsa.europa.eu/csndc					

type	csn:PackageInfoType
properties	content complex
children	csn:packageId csn:packageType csn:operationType csn:dataPackageDescription
source	<code><xs:element name="packageInfo" type="csn:PackageInfoType"/></code>

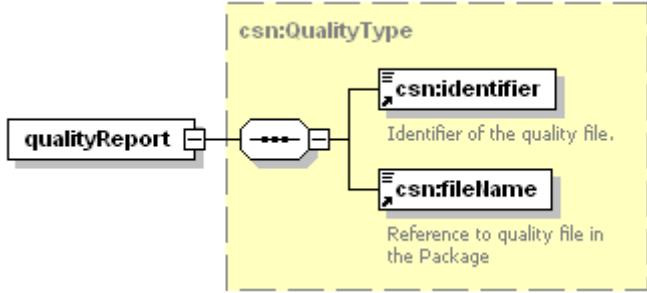
element **processRequest**

diagram	 <p>The diagram shows the processRequest element connected to a dashed box labeled csn:ProcessRequestType. Inside this box, there are two child elements: csn:identifier (labeled 'Identifier of the process request') and csn:filename (labeled 'Reference to process request file in the Package').</p>
namespace	http://www.emsa.europa.eu/csndc
type	csn:ProcessRequestType
properties	content complex
children	csn:identifier csn:fileName
source	<code><xs:element name="processRequest" type="csn:ProcessRequestType"/></code>

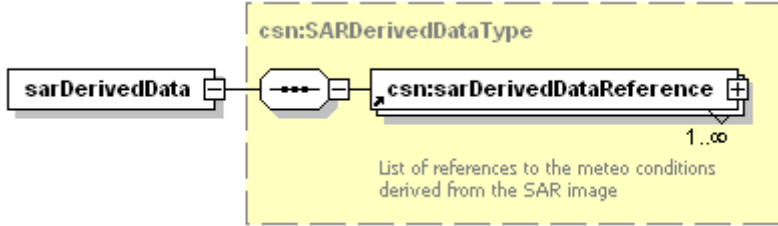
element **qualityNotification**

diagram	 <p>The diagram shows the qualityNotification element connected to a dashed box labeled csn:QualityType. Inside this box, there are two child elements: csn:identifier (labeled 'Identifier of the quality file.') and csn:filename (labeled 'Reference to quality file in the Package').</p>
namespace	http://www.emsa.europa.eu/csndc
type	csn:QualityType
properties	content complex
children	csn:identifier csn:fileName
source	<code><xs:element name="qualityNotification" type="csn:QualityType"/></code>

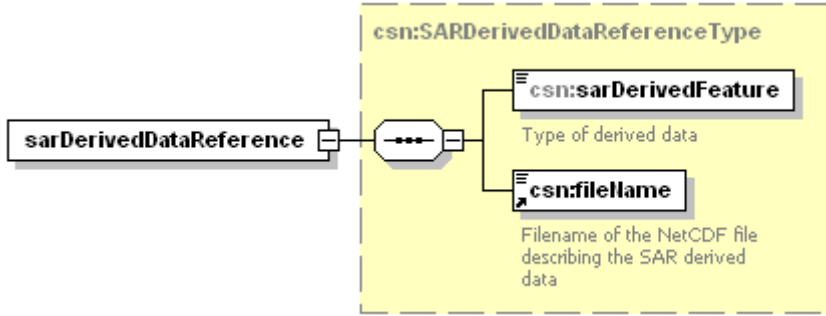
element qualityReport

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

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
source	<code><xs:complexType name="DataPackageType"></code> <code><xs:sequence></code>

```

<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">
      <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:choice>
</xs:sequence>
</xs:complexType>

```

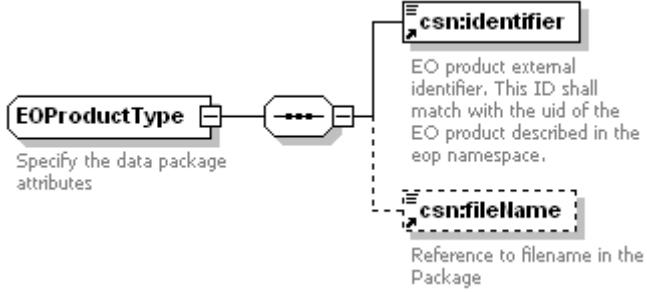
complexType DetectedShipReferenceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
annotation	documentation GML files describing observed in the original satellite image
source	<pre> <xs:complexType name="DetectedShipReferenceType"> <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 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 ref="csn:fileName" minOccurs="0"> <xs:annotation> <xs:documentation>Reference to GML file describing the Detected Ship feature</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

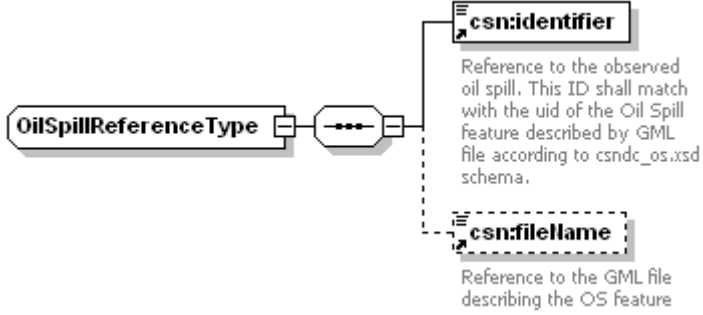
complexType DetectedShipsType

diagram						
namespace	http://www.emsa.europa.eu/csndc					
children	csn:detectedShipReference					
attributes	Name	Type	Use	Default	Fixed	annotation
	total	xs:integer	required			documentation Total number of detected ships found.
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" 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 EOProductType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
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:identifier"> <xs:annotation> <xs:documentation>EO product external identifier. This ID shall match with the uid of the EO product described in the eop namespace.</xs:documentation> </xs:annotation> </xs:element> <xs:element ref="csn:fileName" minOccurs="0"/> </xs:sequence> </xs:complexType> </pre>

complexType OilSpillReferenceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:identifier csn:fileName
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:sequence> </pre>

	<pre> <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:oilSpillReference					
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: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>					

complexType PackageInfoType

diagram	
namespace	http://www.emsa.europa.eu/csndc
children	csn:packageId csn:packageType csn:operationType csn:dataPackageDescription
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="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"> <xs:annotation> <xs:documentation>Specify type of data package (one of OS_WARNING, EO_PRODUCT,OS_NOTIFICATION, SAR_DERIVED, QUALITY_NOTIFICATION, QUALITY_REPORT, PROCESS_REQUEST, PROCESS_RESPONSE)</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="OS_WARNING"/> <xs:enumeration value="EO_PRODUCT"/> <xs:enumeration value="OS_NOTIFICATION"/> <xs:enumeration value="SAR_DERIVED"/> <xs:enumeration value="QUALITY_NOTIFICATION"/> <xs:enumeration value="QUALITY_REPORT"/> <xs:enumeration value="PROCESS_REQUEST"/> <xs:enumeration value="PROCESS_RESPONSE"/> </xs:restriction> </xs:simpleType> </xs:element> <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> </xs:sequence> </xs:complexType> </pre>

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

complexType **ProcessRequestType**

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

	<pre> </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>
--	--

complexType SARDerivedDataType

diagram	<pre> classDiagram class SARDerivedDataType { NetCDF files describing meteo features (wind, wave) derived from the original satellite image List of references to the meteo conditions derived from the SAR image } SARDerivedDataType "1" -- "1..∞" csn:sarDerivedDataReference </pre>
namespace	http://www.emsa.europa.eu/csndc
children	csn:sarDerivedDataReference
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
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>

</xs:simpleType>

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 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 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 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. Extension attributes of individual slicks has to be specified exploiting the optional element gml:metaDataProperty of gml:Polygon. Specifically the gml:metaDataProperty element is expected to host a

csn:extension element like in the following example:

```
<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">
    ...
```

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: <code>gml:Polygon/gml:exterior/gml:LinearRing/gml:posList</code></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	<pre>classDiagram class AreaType { 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 } class uom AreaType --> "attributes" : uom</pre>
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 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	<p>EO Image identifier in which the spill is observed</p>												
namespace	http://www.emsa.europa.eu/csndc												
type	extension of xs:string												
properties	base xs:string												
attributes	<table><tr><td>Name</td><td>Type</td><td>Use</td><td>Default</td><td>Fixed</td><td>annotation</td></tr><tr><td>type</td><td>csn:SensorType</td><td></td><td></td><td></td><td></td></tr></table>	Name	Type	Use	Default	Fixed	annotation	type	csn:SensorType				
Name	Type	Use	Default	Fixed	annotation								
type	csn:SensorType												
annotation	documentation EO Image identifier in which the spill is observed												
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>
--	--

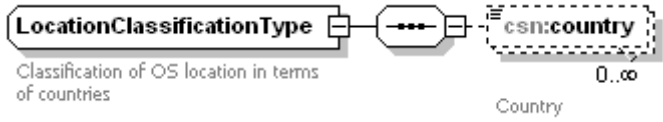
complexType InSituInformationType

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>LengthType</div><div>Linear length of spill's perimeter. Uses the LengthType with the restriction that the unit of measure referenced by uom must be meters</div></div><div><div>attributes</div><div>uom</div></div></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	<div>documentation</div> <div>Linear length of spill's perimeter. Uses the LengthType with the restriction that the unit of measure referenced by uom must be meters</div>												
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 0..∞</p>
namespace	http://www.emsa.europa.eu/csndc
properties	mixed true
children	csn:country
annotation	documentation Classification of OS location in terms of countries
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> </pre>

</xs:complexType>

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>

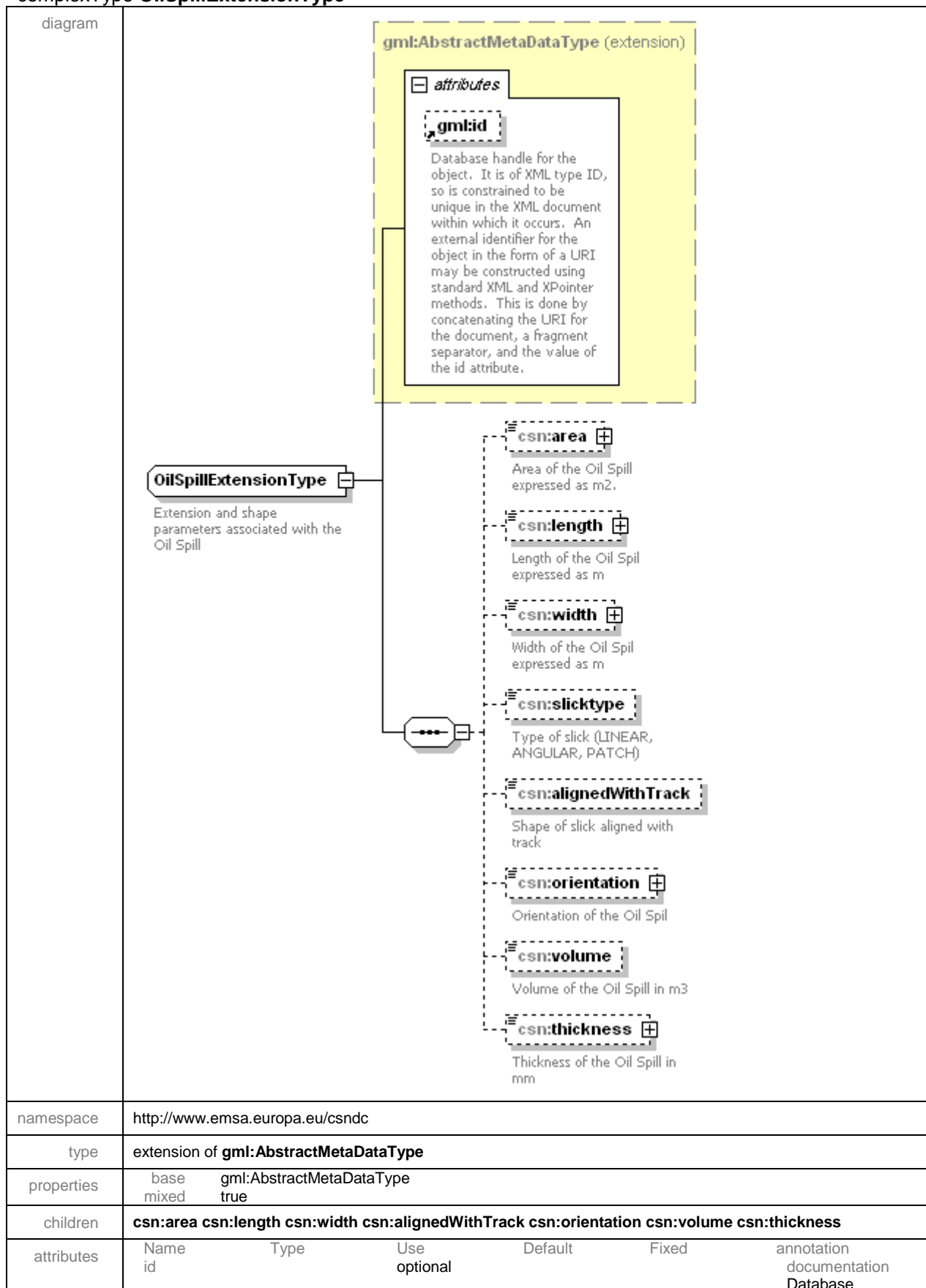
complexType **OilSpillCompositionType**

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	extension of gml:AbstractMetaDataType
properties	base mixed gml:AbstractMetaDataType true
children	csn:oilType csn:oilSubType csn:age

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	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:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType></pre>					

```
<xs:simpleType>
  <xs:restriction base="xs:string">
    <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



		<p>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>
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 Spill 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"> <xs:annotation> <xs:documentation>Orientation of the Oil Spil</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType> </pre>	

```
<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: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 reinheritance". A reference to the group carries 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:boundedBy: Depreciated in GML version 3.1.1 gml:location: Depreciated in GML 3.1.0 gml:priorityLocation: Depreciated in GML 3.1.0 <p>OilSpillType Attributes:</p> <ul style="list-style-type: none"> csns:eventid: Unique identifier of the Oil Spill event. For predicted Oil Spills this refers to the observed Oil Spill originating the prediction. csns:origin: Observation origin csns:center: The center of the Oil Spill expressed as a gml:Point in lat/lon coordinates csns:geometry: The polygon describing boundaries of the Oil Spill expressed as one or more gml:Polygon or gml:LinearRing. csns:timeStamp: The date and time of the observation/prediction expressed in ISO8601 format (e.g. "2009-04-01T13:01:02") csns:dataSource: Who provided the observation/prediction csns:extension: Extension parameters of the Oil Spill csns:locationClassification: Region and country classification csns:distanceFromCoast: Approximate distance from nearest coastline csns:keywords: Valid keywords for free-text search csns:imageIdentifier: The unique identifier of the original EO image(s) used to identify the Oil Spill csns:confidenceLevel: The probability/confidence that this is a real Oil Spill. Expressed as a number in the [0..1] range. Referring to the A8 classification used in the CSNDC, 0 stands for 'B' and 1 stands for 'A' csns:composition: Oil type and age information csns:auxiliaryDataRef: References (as URI) to auxiliary data, images, etc csns:possibleSources: Possible sources for the OS csns:analysisSpecific: In situ validation information csns:statusInformation: In situ validation information csns:meteorConditions: Sea and wind information associated to the oil spill csns:relatedEvents: Events that can be put in relation with this one
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>

```

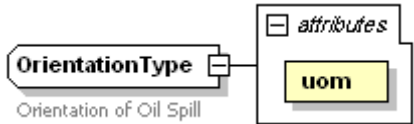


```

</xs: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	<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>
```

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 **PossibleSourceType/sourceDetection**

diagram	
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	<xs:element name="sourceIdentification" type="csn:SourceIdentificationType"/>

element PossibleSourcesType/sourceTrack

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

element PossibleSourcesType/sourceType

diagram	
namespace	http://www.emsa.europa.eu/csndc
type	csn:SourceTypeType
facets	<ul style="list-style-type: none"> enumeration VESSEL enumeration OFFSHORE PLATFORM enumeration WRECK enumeration PIPELINE enumeration NATURAL enumeration OTHER enumeration UNKNOWN
source	<xs:element name="sourceType" type="csn:SourceTypeType"/>

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] degree 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] degree 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.</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"/> </xs:sequence> </xs:complexType> </pre>

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: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> <xs:documentation>Wind intensity expressed in meters/second</xs:documentation> </xs:annotation> </xs:element> <xs:element name="windDirection" type="xs:string"> <xs:annotation> <xs:documentation>Wind direction expressed as [0,360] degree 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>

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

</xs:simpleType>

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>

ANNEX D – Detected Ship Feature GML schema

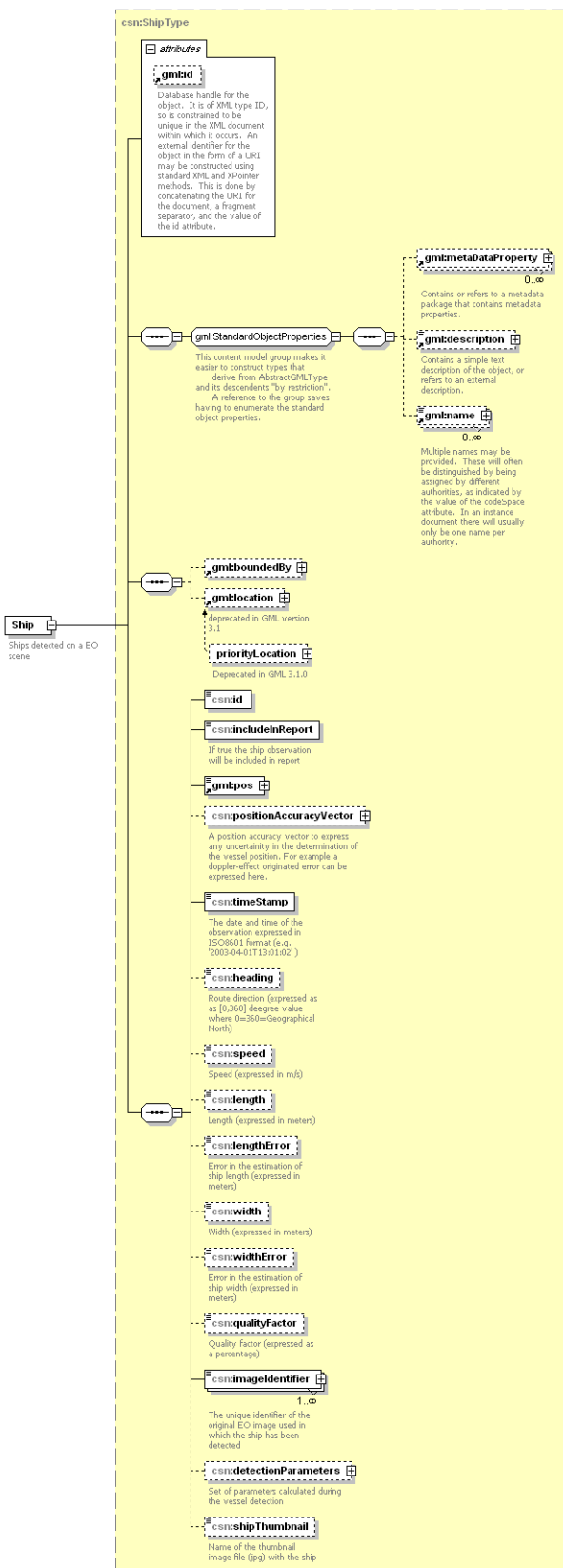
Schema csndc_ds.xsd

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

Elements	Complex types
Ship	DetectionParametersType
	PositionAccuracyVectorType
	ShipType

element Ship

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:timeStamp csn:heading csn:speed csn:length csn:lengthError csn:width csn:widthError csn:confidenceLevel csn:imageIdentifier csn:detectionParameters 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	
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"> <xs:annotation> <xs:documentation>Set of parameters calculated for the target during the vessel </pre>

	<pre> 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>
--	---

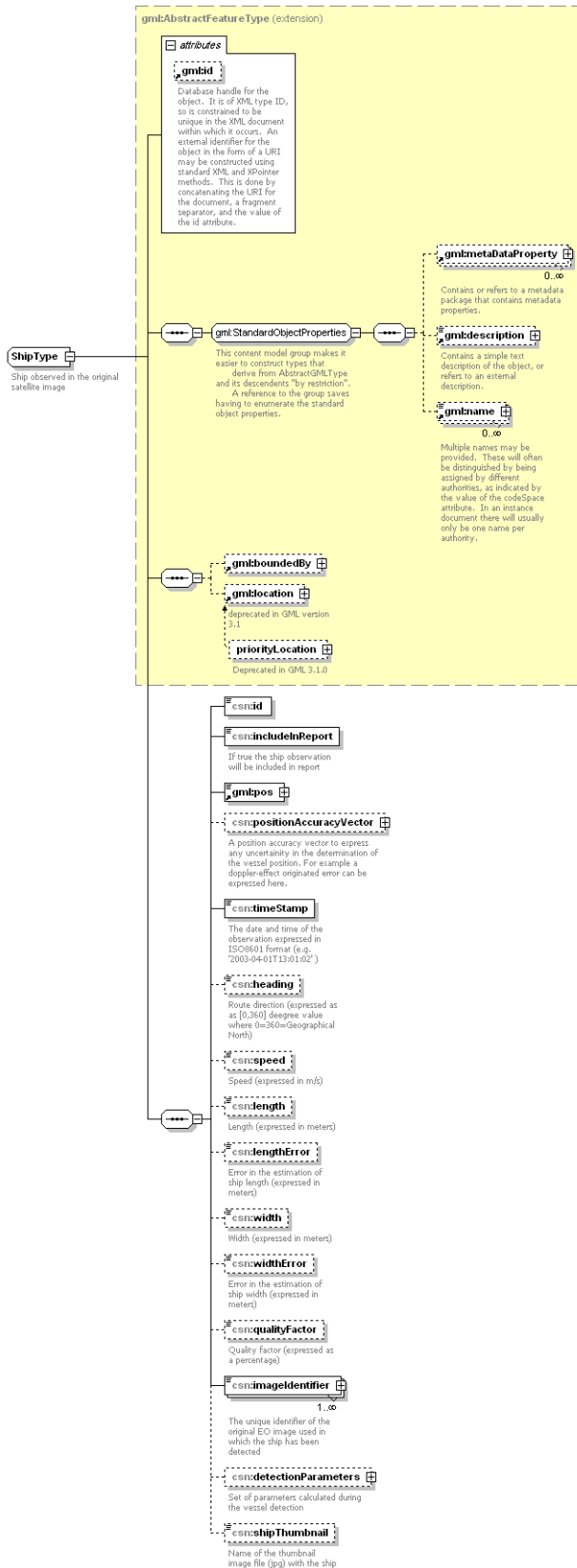
complexType PositionAccuracyVectorType

diagram	<p>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.</p>
namespace	http://www.emsa.europa.eu/csndc
children	csn:x csn:y
annotation	<p>documentation</p> <p>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.</p>
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> </pre>

</xs:complexType>

complexType ShipType

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:id csn:includeInReport gml:pos csn:positionAccuracyVector csn:timeStamp csn:heading csn:speed csn:length csn:lengthError csn:width csn:widthError csn:confidenceLevel csn:imageIdentifier csn:detectionParameters 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:element name="timeStamp" type="xs:dateTime"> <xs:annotation></pre>					

```

<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="speed" type="xs:double" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Speed (expressed in m/s)</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">
  <xs:annotation>
    <xs:documentation>Error in the estimation of ship width (expressed in
    meters)</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="shipThumbnail" type="xs:string" minOccurs="0">

```

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

ANNEX E – Image Quality XML schemas

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:productsAcceptable 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>

</xs:annotation>
</xs:element>

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 </pre>

	EPSG:4326)</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType>
--	---

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

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"> </pre>

```
<xs:annotation>
  <xs:documentation>Estimated position accuracy of the product</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
```

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](#)

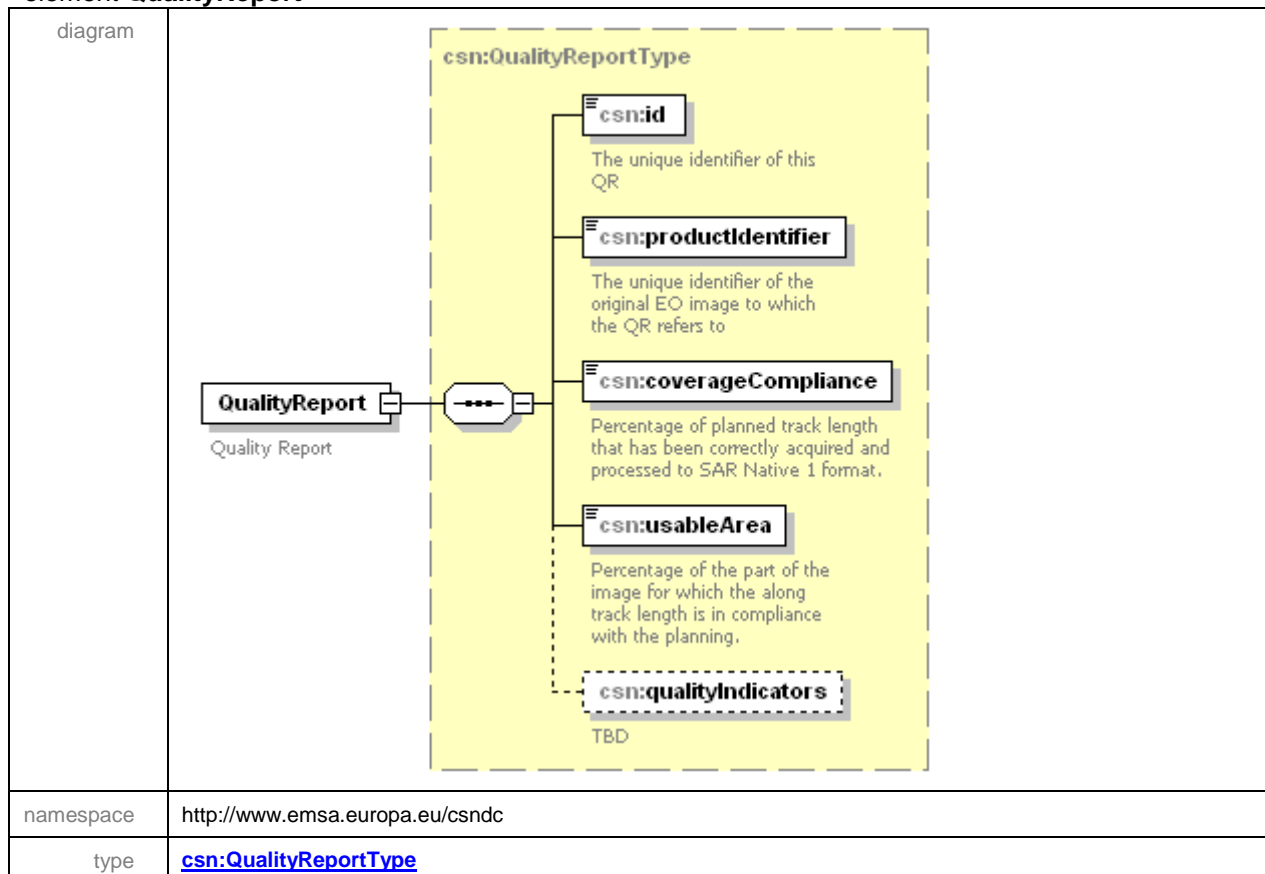
Complex types

[ProductType](#)

[QualityIndicatorsType](#)


[QualityReportType](#)

element QualityReport




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	
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	
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 track length that has been correctly acquired and processed to SAR Native 1 format.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="usableArea" type="xs:double"> <xs:annotation> <xs:documentation>Percentage of the part of the image for which the along track length is in compliance with the planning.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

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

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**

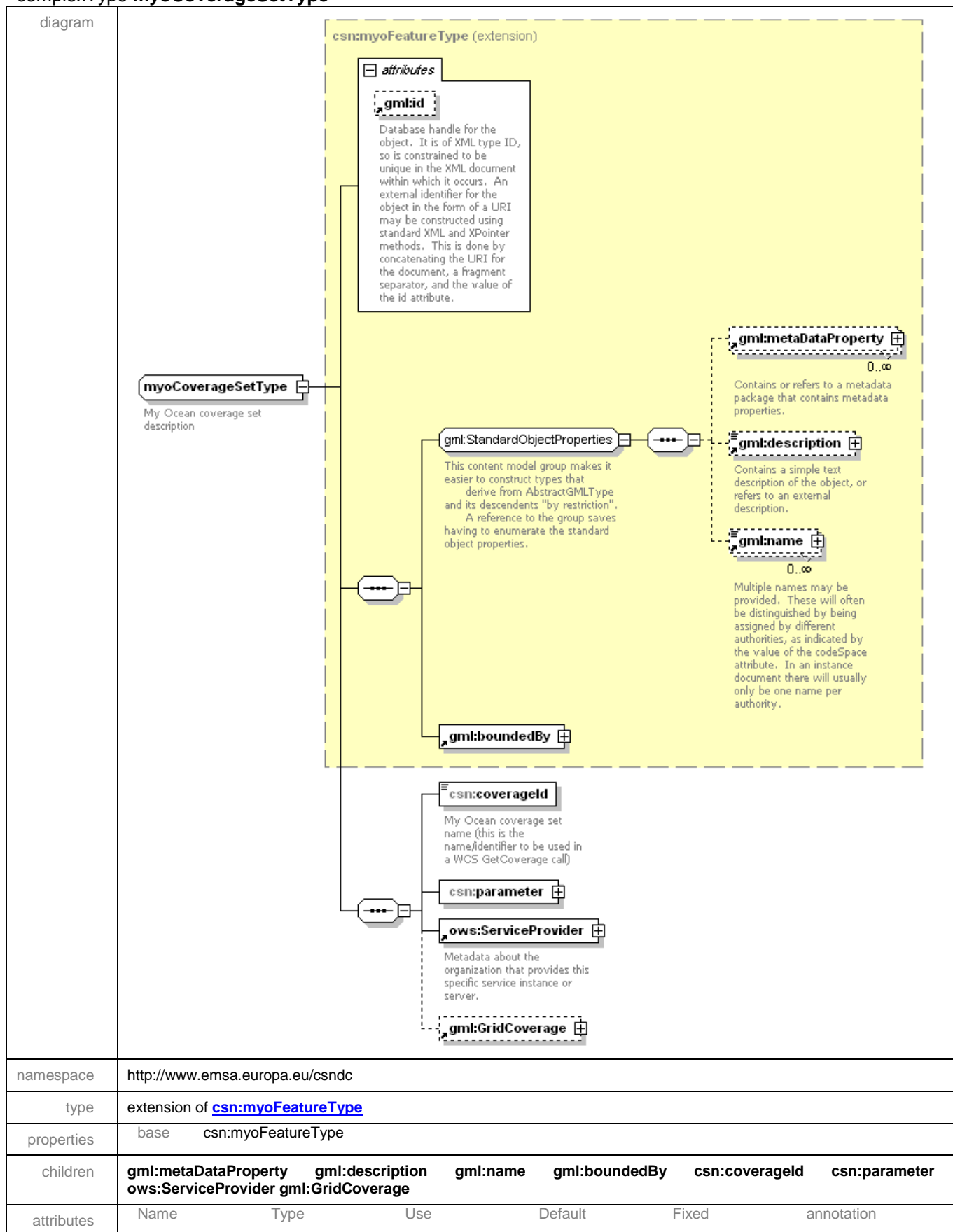
Elements	Complex types
myoCoverageSet	myoCoverageSetType
	myoFeatureType
	parameterType

element myoCoverageSet

diagram		
namespace	http://www.emsa.europa.eu/csndc	
type	csn:myoCoverageSetType	
properties	content substGrp	complex gml: Feature
children	gml:metaDataProperty gml:description gml:name gml:boundedBy csn:coverageId 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 XPath 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



	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	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>		

complexType myoFeatureType

diagram	<p>attributes</p> <p>gml:id</p> <p>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>myoFeatureType</p> <p>gml:StandardObjectProperties</p> <p>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..∞</p> <p>Contains or refers to a metadata package that contains metadata properties.</p> <p>gml:description</p> <p>Contains a simple text description of the object, or refers to an external description.</p> <p>gml:name 0..∞</p> <p>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>					
namespace	http://www.emsa.europa.eu/csndc					
type	restriction of gml:AbstractFeatureType					
properties	base gml:AbstractFeatureType					
children	gml:metaDataProperty gml:description gml:name gml:boundedBy					
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="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:sequence> </xs:complexType> </pre>

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

ANNEX G – SOAP message for SP packages list and checksum

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).

```
HTTP/1.1 200 OK
Content-Type: application/soap+xml; charset=utf-8
Content-Length: nnn
```

SOAP Response example:

```
<?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>
```

ANNEX H – Template for Service Orders

TBW

ANNEX I – Template for Satellite Data Licenses

TBW

ANNEX J – Process request XML schema

Schema csndc_exr.xsd

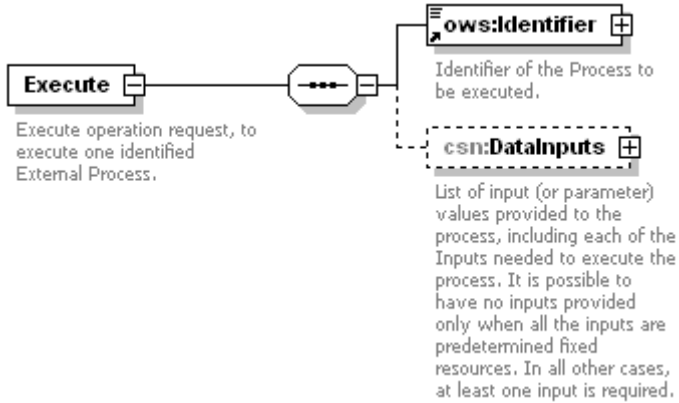
attribute form default:

element form default: **qualified**
targetNamespace: **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 </pre>

	<p>inputs provided only when all the inputs are predetermined fixed resources. In all other cases, at least one input is required. </documentation></p> <p></annotation></p> <p></element></p> <p></sequence></p> <p></complexType></p> <p></element></p>
--	---

element **Execute/DataInputs**

diagram	<p>csn:DataInputs</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> <p>wps:DataInputsType</p> <p>wps:Input</p> <p>1..∞</p> <p>Unordered list of one or more inputs to be used by the process, including each of the Inputs needed to execute the process.</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	<p><element name="DataInputs" type="wps:DataInputsType" minOccurs="0"></p> <p><annotation></p> <p><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></p> <p></annotation></p> <p></element></p>								

ANNEX K – Templates for Warning and Alerting messages

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.


TBW

ANNEX L – WebService description for High Deal

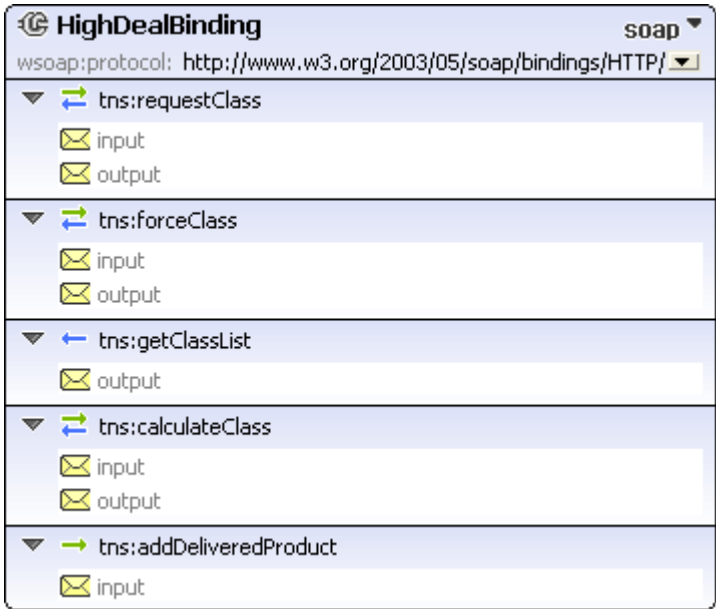
The following WSDL specifies the High Deal Web Service.

services	bindings	interfaces	types
HighDealService	HighDealBinding	HighDealInterface	calculateClass calculateClassResponse deliveredProduct forceClass forceClassResponse getClassList requestClass requestClassResponse

service HighDealService

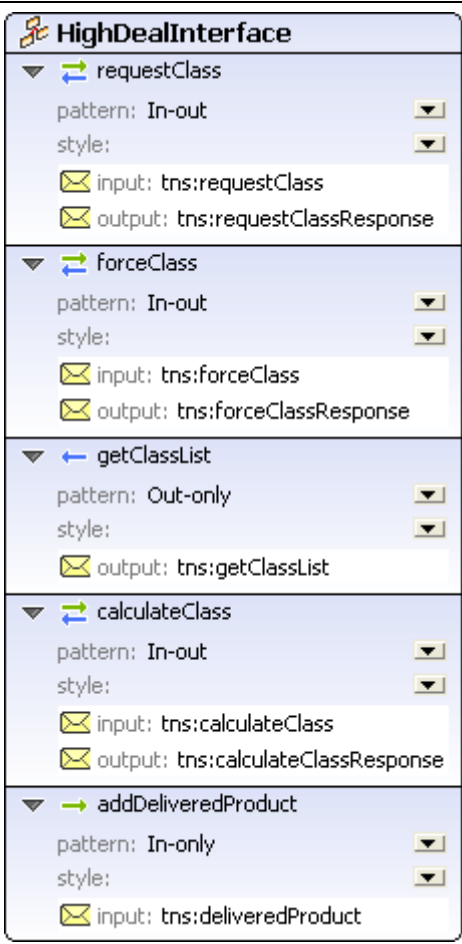
diagram	
endpoints	HighDealEndpoint binding tns:HighDealBinding
source	<pre><wsdl:service name="HighDealService" interface="tns:HighDealInterface"> <wsdl:endpoint name="HighDealEndpoint" binding="tns:HighDealBinding"/> </wsdl:service></pre>

binding HighDealBinding

diagram	
type	http://www.w3.org/ns/wsdl/soap

interface	<u>tns:HighDealInterface</u>
extensibility	wssoap:protocol http://www.w3.org/2003/05/soap/bindings/HTTP/
operations	<p><u>tns:requestClass</u> input In output Out</p> <p><u>tns:forceClass</u> input In output Out</p> <p><u>tns:getClassList</u> output Out</p> <p><u>tns:calculateClass</u> input In output Out</p> <p><u>tns:addDeliveredProduct</u> input In</p>
faults	
used by	endpoint <u>HighDealEndpoint</u> in service <u>HighDealService</u>
source	<pre> <wsdl:binding name="HighDealBinding" interface="tns:HighDealInterface" type="http://www.w3.org/ns/wsdl/soap" wssoap:protocol="http://www.w3.org/2003/05/soap/bindings/HTTP/"> <wsdl:operation ref="tns:requestClass"> <wsdl:input/> <wsdl:output/> </wsdl:operation> <wsdl:operation ref="tns:forceClass"> <wsdl:input/> <wsdl:output/> </wsdl:operation> <wsdl:operation ref="tns:getClassList"> <wsdl:output/> </wsdl:operation> <wsdl:operation ref="tns:calculateClass"> <wsdl:input/> <wsdl:output/> </wsdl:operation> <wsdl:operation ref="tns:addDeliveredProduct"> <wsdl:input/> </wsdl:operation> </wsdl:binding> </pre>

interface **HighDealInterface**

diagram	 <p>HighDealInterface</p> <ul style="list-style-type: none"> requestClass <ul style="list-style-type: none"> pattern: In-out style: input: tns:requestClass output: tns:requestClassResponse forceClass <ul style="list-style-type: none"> pattern: In-out style: input: tns:forceClass output: tns:forceClassResponse getClassList <ul style="list-style-type: none"> pattern: Out-only style: output: tns:getClassList calculateClass <ul style="list-style-type: none"> pattern: In-out style: input: tns:calculateClass output: tns:calculateClassResponse addDeliveredProduct <ul style="list-style-type: none"> pattern: In-only style: input: tns:deliveredProduct
operations	<p>requestClass</p> <p>pattern http://www.w3.org/ns/wsdli/in-out</p> <p>input In</p> <p>tns:requestClass</p> <p>output Out</p> <p>tns:requestClassResponse</p> <p>forceClass</p> <p>pattern http://www.w3.org/ns/wsdli/in-out</p> <p>input In</p> <p>tns:forceClass</p> <p>output Out</p> <p>tns:forceClassResponse</p> <p>getClassList</p> <p>pattern http://www.w3.org/ns/wsdli/out-only</p> <p>output Out</p> <p>tns:getClassList</p> <p>calculateClass</p> <p>pattern http://www.w3.org/ns/wsdli/in-out</p> <p>input In</p> <p>tns:calculateClass</p>

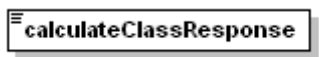
output	Out tns:calculateClassResponse addDeliveredProduct pattern http://www.w3.org/ns/wSDL/in-only input In tns:deliveredProduct
faults	
used by	binding HighDealBinding service HighDealService
source	<pre> <wsdl:interface name="HighDealInterface"> <wsdl:operation name="requestClass" pattern="http://www.w3.org/ns/wSDL/in-out"> <wsdl:input element="tns:requestClass"/> <wsdl:output element="tns:requestClassResponse"/> </wsdl:operation> <wsdl:operation name="forceClass" pattern="http://www.w3.org/ns/wSDL/in-out"> <wsdl:input element="tns:forceClass"/> <wsdl:output element="tns:forceClassResponse"/> </wsdl:operation> <wsdl:operation name="getClassList" pattern="http://www.w3.org/ns/wSDL/out-only"> <wsdl:output element="tns:getClassList"/> </wsdl:operation> <wsdl:operation name="calculateClass" pattern="http://www.w3.org/ns/wSDL/in-out"> <wsdl:input element="tns:calculateClass"/> <wsdl:output element="tns:calculateClassResponse"/> </wsdl:operation> <wsdl:operation name="addDeliveredProduct" pattern="http://www.w3.org/ns/wSDL/in-only"> <wsdl:input element="tns:deliveredProduct"/> </wsdl:operation> </wsdl:interface> </pre>

element calculateClass

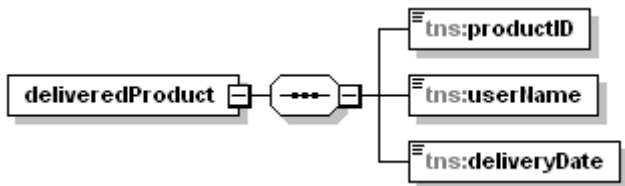
diagram	<pre> sequenceDiagram participant calculateClass calculateClass --> tns:frameID calculateClass --> tns:delay calculateClass --> tns:size calculateClass --> tns:serveProvider calculateClass --> tns:orderId calculateClass --> tns:licenseID </pre>
namespace	http://new.webservice.namespace
properties	content complex
children	tns:frameID tns:delay tns:size tns:serveProvider tns:orderId tns:licenseID

source	<pre> <xs:element name="calculateClass"> <xs:complexType> <xs:sequence> <xs:element name="frameID" type="xs:integer"/> <xs:element name="delay" type="xs:long"/> <xs:element name="size" type="xs:integer"/> <xs:element name="serveProvider" type="xs:string"/> <xs:element name="orderId" type="xs:integer"/> <xs:element name="licenseID" type="xs:integer"/> </xs:sequence> </xs:complexType> </xs:element> </pre>
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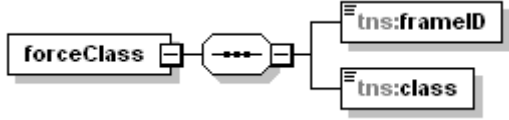
element calculateClassResponse

diagram	
namespace	http://new.webservice.namespace
type	xs:boolean
properties	content simple
source	<pre> <xs:element name="calculateClassResponse" type="xs:boolean"/> </pre>


element deliveredProduct

diagram	
namespace	http://new.webservice.namespace
properties	content complex
children	tns:productID tns:userName tns:deliveryDate
source	<pre> <xs:element name="deliveredProduct"> <xs:complexType> <xs:sequence> <xs:element name="productID" type="xs:integer"/> <xs:element name="userName" type="xs:string"/> <xs:element name="deliveryDate" type="xs:dateTime"/> </xs:sequence> </xs:complexType> </xs:element> </pre>

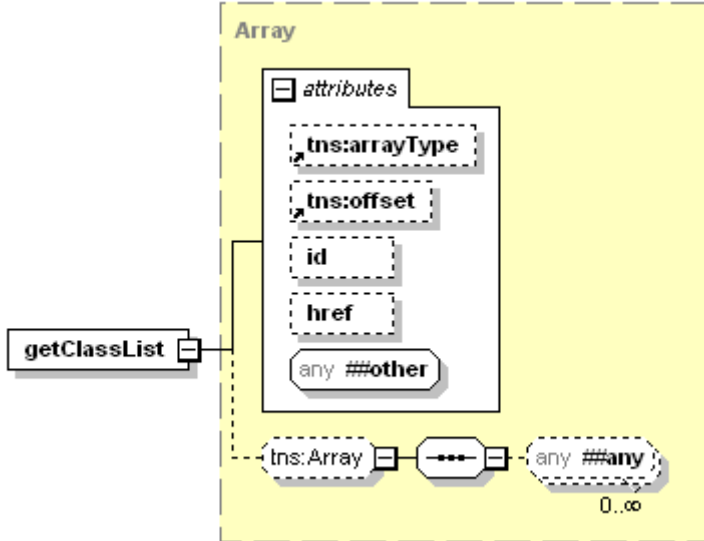
element forceClass

diagram	
namespace	http://new.webservice.namespace
properties	content complex
children	tns:frameID tns:class
source	<pre><xs:element name="forceClass"> <xs:complexType> <xs:sequence> <xs:element name="frameID" type="xs:integer"/> <xs:element name="class" type="xs:string"/> </xs:sequence> </xs:complexType> </xs:element></pre>

element forceClassResponse


diagram	
namespace	http://new.webservice.namespace
type	xs:boolean
properties	content simple
source	<pre><xs:element name="forceClassResponse" type="xs:boolean"/></pre>

element getClassList

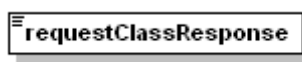
diagram	
namespace	http://new.webservice.namespace
type	tns:Array

properties	content	complex				
attributes	Name arrayType offset id href	Type	Use	Default	Fixed	annotation
		xs:ID				
		xs:anyURI				
source	<xs:element name="getClassList" type="soapenc:Array"/>					

element requestClass

diagram	
namespace	http://new.webservice.namespace
type	xs:integer
properties	content simple
source	<xs:element name="requestClass" type="xs:integer"/>

element requestClassResponse

diagram	
namespace	http://new.webservice.namespace
type	xs:string
properties	content simple
source	<xs:element name="requestClassResponse" type="xs:string"/>

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.

Image unique identifier

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

<image_id> = <order_id>_<image_name>

Where:

<order_id> is the unique identifier of the order 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_EMSEA

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.

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_EMSEA_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.

Detected Ship identifier

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

<ds_id> = <image_id>_DS_<ds_num>

Where:

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with:

<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.

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 package type
- OSW_*[progressive_num]* for OS Warning package type
- OSN for OS Notification package type
- DER for SAR derived package type
- QUA for Quality report package type
- QNO for Quality notification package type

[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"

<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

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_EMSA_PCK.xml

EO Product GML file name

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_EMSA_EOP.xml

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

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

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.

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

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).

Clip Image File name, EO Browse image file name, Not Analyzable Area Mask file name and Sar extracted NetCDF file name

No specific naming convention is used. The file names must be unique in the frame of the package they belongs to.

ANNEX N – CLIP IMAGES

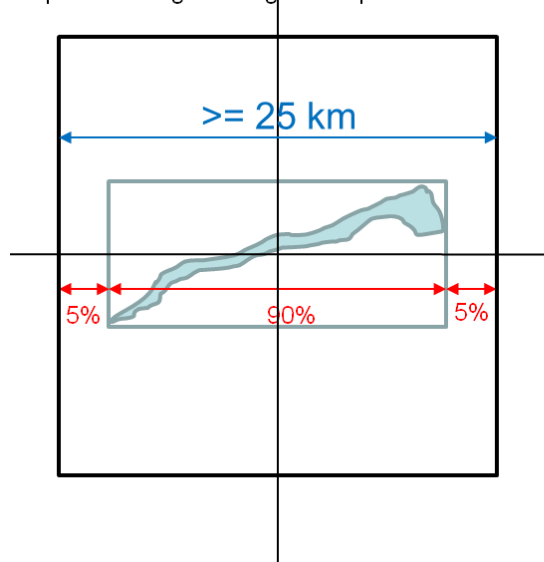
The clip image shall be produced by the service providers as a GEOTIFF image in UTM projection.

Zoom Level of Clip Images

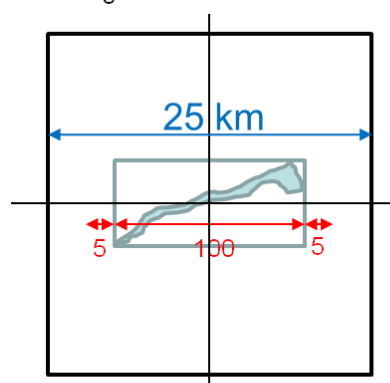
The clip image itself shall be a square covering a minimum area of 25 km by 25 km. The clip image shall be in full resolution. The clip image shall contain the bounding box of the spill (NS – EW) + a margin applied to each side of the longest side. The clip image shall be centred on the centre of the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