

Request for Services 12181_EIS

SC13/EMSA/OP/08/2011

**Upgrades to the Central Organisation
Registry of EIS for the
implementation of a Shore-based
Traffic Monitoring and Information
Database (STMID)**

**Objectives and technical
specifications**

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Definitions and acronyms

COD: Central Organisation Database of SafeSeaNet

CGD: Central Geographical Database used by SafeSeaNet

ENC: Electronic Nautical Chart

LCA: Local Competent Authority

MRCC: Maritime Rescue Coordination Center

MS: Member State

NCA: National Competent Authority

SSN: SafeSeaNet

STMID: Shore-based Traffic Monitoring and Information Database

WFS: Web Feature Service

WMS: Web Map Service. This is a tool developed by EMSA based on open standards.

SSN Ecosystem: A "system" of "systems" comprising the EMSA critical maritime applications addressing traffic monitoring and maritime surveillance needs. The SSN supports a wide number of distinct value adding services frameworks addressing specific legal and operational requirements. Refer to Appendix G for details.

IMS: Is the evolving technical framework of the SSN ecosystem comprising all the technical capabilities offered by the EMSA critical maritime applications (Refer to Appendix G for details).

"SSN central system" is one of the distinct service frameworks built upon the technical capabilities integrated into the SSN ecosystem.

SSN-EIS: SafeSeaNet European Index Server. A software application within IMS used by the MS within the framework of Central SSN services defined in SSN IFCD.

STAR: Ship Tracking, Awareness and Reporting. A software application within IMS used by the MS within the framework of Central SSN services as defined in SSN IFCD. The front-end of STAR is configured, for the purposes of the central SSN system, as its Graphical Interface (SSN GI).

CMC: Common management console application (refer to Appendix G for details)

OGD: Operational geographical database (of the SSN Ecosystem GUI/ STAR)

CCD: Central Country database

1. Background

1.1 Legal basis

According to Articles 22, 20 and 20a of Directive 2002/59/EC as amended, Member States (MS) are obliged to provide information regarding the authorities designated by the MS to carry out the functions covered by the VTMIS Directive. This information is to be provided to other MS, the European Commission and the shipping industry.

1.2 The STMID

The main objective of the Shore-based Traffic Monitoring and Information Database (STMID) is to use SafeSeaNet to simplify and facilitate the sharing of information regarding the MS designated authorities with the Commission and other MS.

This database will be the place where all relevant information on the authorities will be held. It will be embedded in the SSN system and its services will be provided through the SSN web interface (SSN Textual Interface and Graphical Interface) as well as through the password protected section on the EMSA website. The expected benefits of the STMID are:

- For MS to have an easy way to share and have instant access to information regarding competent authorities, and therefore reduce the administrative burden of informing other MS and the Commission.
- For the European Commission to have access to a comprehensive up-to-date list of authorities.

2. Objective of the STMID project

The objective is to design, implement and test an upgrade of SSN which will feature the STMID services as introduced in chapter 1 above.

The upgrades will comply with the requirements provided below in this document.

Note that the draft 2015 EMSA work program indicates that the STMID services should be made available to MS during 2015. According to HOD C (email on 03/10/2014), the STMID database can already be developed during 2015, once the business requirements are handed over from C.2 to C.3. The visualisation to end users will be part of the STAR project and the new GI.

Following this decision the STMID project shall be implemented into two phases.

- I. A first phase to be implemented during 2015 will cover the software upgrades related to:
 - a. Changes in the EIS maritime application (this RFC, namely 12181_EIS), and
 - b. Changes to the Central Geographical Database (RFC 12181_CGD).

This phase should allow the registration of STMID data in SSN and the visualisation of the STMID alphanumeric information in the SSN textual interface and the registration of designated areas of maritime Authorities in the CGD. Furthermore would allow the creation of publications made available via the EMSA web site.

- II. The second phase shall allow the visualisation of the STMID information in the SSN Ecosystem GUI.

3. High-level business requirements

This chapter provides the high-level requirements approved by the 11th SSN HLSG on 23rd June 2014.

- a) *The STMID service will be developed at central SSN level.*
- b) *The information will be inputted by Member States through the SSN central system management console.*
- c) *Whenever personal data will be processed MS and EMSA shall ensure compliance with the relevant EU personal data protection legislation¹.*
- d) *The STMID information will be accessible through the SSN Textual Interface.*
- e) *The SSN Graphical Interface will be further developed to provide a user friendly reference to the different authorities' details within a selected geographical area. The user may choose to view one or several authority types for a selected area.*
- f) *The relevant STMID information will also be displayed on the password-protected section of the EMSA website, per Member State.*
- g) *The STMID service will allow Member States to download the information as an electronic file (e.g. a PDF, CSV, TXT etc.).*
- h) *All competent authorities mentioned in the STMID as well as the Commission will use the STMID service without functional or geographical limitations.*
- i) *The STMID information may be updated by the SSN NCA and any other authority authorised by the SSN NCA. Different authorities may be authorised to update different parts of the STMID database depending on their functional responsibilities.*
- j) *The information available in the STMID service will be refreshed upon any update and will be displayed with the date and time of the last change (version control).*
- k) *There will be no impact on the Member States SSN National systems.*

¹ In accordance with the IFCD, paragraph 7.2.2.5 – "The principles of personal data protection as defined in Directive 95/46/EC shall be applicable to any information concerning an identified or identifiable person exchanged through SSN system. In addition, the central SSN system shall comply with Regulation (EC) 45/2001 on protection of data by the Community Institutions and bodies and in accordance with Directive 2001/45/EC for EMSA."

4. EMSA technical assessment on the changes / upgrades required in EMSA applications for the implementation of the STMID –

4.1 Assumptions

The technical assessment presented here-in is based in the following assumptions:

1. The technical implementation should be compliant with the SSN Ecosystem architecture principles as drawn in the management-approved document "Further evolution of SSN – IMDatE within the SSN ecosystem: Notes on System architecture and a technical development roadmap for 2014/2015. Date of publication: 9 April 2014" This document is annexed to this RFC 12181_EIS as Appendix G
2. The STMID project shall be implemented into two distinct phases.
 - a. A first phase, will cover:
 - a. the software upgrades related to EIS maritime application and the currently available SSN management console. The phase should allow the registration of STMID data in SSN and the visualisation of the STMID alphanumeric information in the SSN textual interface. Furthermore would allow the creation of publications made available via the EMSA web site.
 - b. The software upgrades to the web services exposing the Central Organisation database (COD) of EMSA
 - c. The upgrades of the Central Geographical database of EMSA and its interfaces
 - b. The second phase, executed in parallel with the implementation of the projects associated to the implementation of STAR (SSN Ecosystem GUI, STAR back-end) and CMC). This phase should allow the visualisation of the STMID information in the SSN Ecosystem GUI and, eventually, address further changes required to EIS due to integration with the CMC.
3. The results of the first phase concerning software components of EIS application, other than those associated with the SSN access control, should be fully re-used upon implementation of the second phase. Changes to EIS for interoperability with the CMC are out of scope of the STMID project

4.2 Proposed technical approach for the first phase of the STMID project

Considering the high level requirements in section 3 above and the business requirements as drawn in the appendix C and the assumptions in 4.1, the following component diagram identifies the software components affected by the STMID project and their key interactions. One should note that the definition of "components" in the diagram is an abstract, very high level, representation of the actual technical implementation. Actual implementation details are to be defined by the responsible contractors during the design phase of the project. The components shaded are those directly impacted by the implementation of this RFC (12181_EIS).

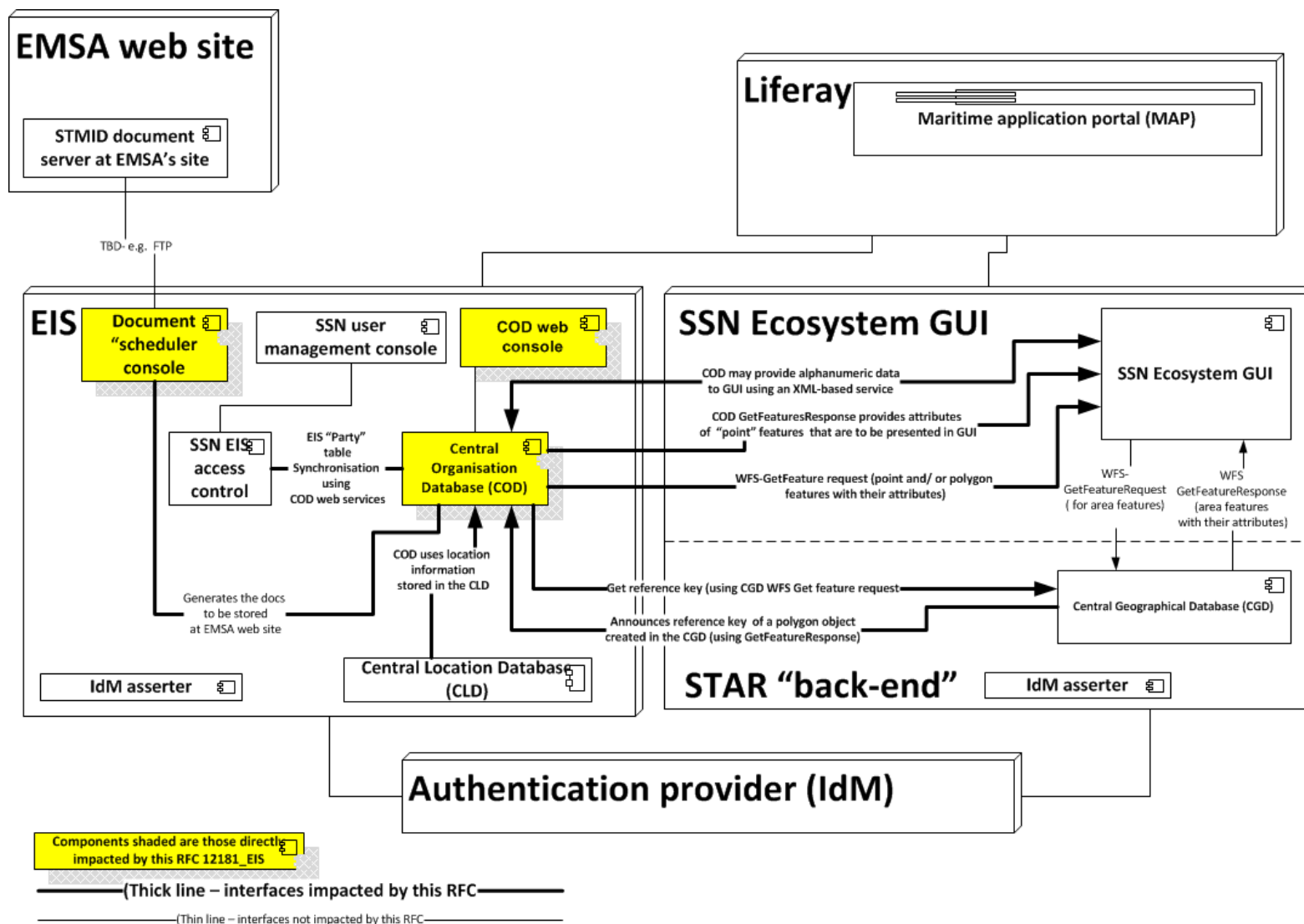


Figure 1 STMID component diagram (descriptive) indicating components impacted in the first phase of the STMID project

As indicated in the diagram.

- IdM shall provide the SSN SSO authentication services. **No impact to IdM/ SSN connection is foreseen due to STMID.**
- Maritime application portal (MAP) shall be utilised to access the SSN textual interface (COD, CLD, SSN user management consoles). **No impact to SSN / MAP connection is foreseen due to STMID.**
- **STMID implementation (first phase) requires changes in the EIS application and STAR back-end components.** More specifically:

As far as EIS is concerned (in scope for this RFC 12181 EIS):

- a. **Central Organisation database and the COD management web console.** In this respect, refer to section 4.2.1.1 below. These changes will be implemented during the first phase of the STMID project.
- b. **A “document scheduler” component should be implemented** to generate the STMID reports as required (refer below specifically to the **STMID_REQ_10**. The design details of this component and the transfer protocol (e.g. FTP) shall be defined during the design phase by the contractor and agreed with EMSA.
- c. The addition of new data elements in the COD enables an adaptation of the XML schema of the existing web services exposing the COD (**request/ response and subscription/ announcement services**). In this particular case such an adaptation is recommended due to the business importance of the information added to the COD and also due to the fact that the services could be already used for creating a more performant interface with the SSN Ecosystem GUI (in case users execute in the GUI queries that involve only alphanumeric data stored in the COD). In this respect refer also to the section 4.2.1.2.
- d. The implementation of an interface (using the WFS service exposed by the CGD) for **exchanging with the CGD a “reference key”** for the geographical objects stored in the CGD (refer to the **STMID_EIS_REQ_1** and the **STMID_EIS_REQ_14** here-after).

As far as STAR back-end is concerned (out of scope of this RFC (12181 EIS), in scope for the RFC 12181 CGD which shall be executed by another contractor in parallel to the RFC 12181 EIS):

- e. Considering the foreseen second phase of the project (visualisation/display of STMID data in the SSN Ecosystem GUI) the STMID already requires (refer to section 4.2.1.2 below for more details) the modification of the domain model of the CGD and the upgrade of **the web feature service (WFS)** used to expose CGD content to the SSN Ecosystem GUI (for the anticipated changes refer to the informative **STMID_STARBE_REQ_5** here-after) .

Refer to the sections 4.2.1.1 to 4.2.1.6 below for more details on a high-level technical assessment on the business requirements of the STMID project.

4.2.1.1 STMID-related changes of the COD

The changes required in the COD are outlined below. The COD domain model and database must be extended to enable:

- Storing of the STMID additional information per COD Authority in accordance with STMID_EIS_REQ_1 (e.g. web site, Inmarsat call details, MMSIs, etc.)
- Linking (cardinality 0 to many) "duties" to Authorities and to their functions²
- Referencing spatial information for the designated areas of authorities (permanently stored in the CGD)
- Storing designated area information if the area information is provided in of the alphanumeric forms foreseen in the **STMID_REQ_EIS_1** (*list of LOCODEs, or list of latitude and longitude*)

Given that EMSA shall provide to contractors the data collected by the MS via questionnaires into a standard file format, e.g. Word and/ or Excel (ISO/IEC 29500 compliant), there exist a technical possibility to upload the information to the COD as **STMID_REQ_EIS_2** requires. Data that cannot be retrieved via automated means should be extracted manually by the contractors.

4.2.1.2 Web services for exposing COD and CGD to the SSN Ecosystem GUI

The figure 2 below outlines the potential methods and procedure for exposing the STMID data (stored in COD and CGD) to the SSN Ecosystem GUI. As indicated in the schema:

- a. COD complete **alphanumeric** content shall be exposed to GUI using an updated version of the already available services of EIS exposing COD. The data exchange could be implemented following the classical request/ response model of SSN or a service subscription/ data announcement model³. To get the alphanumeric content of COD , GUI may implement a subscription service to the COD (and saw main
- b. COD / CGD spatial data (point objects in the COD representing Authorities, area objects in the CGD representing designated areas of Authorities respectively) shall be exposed to the GUI using web feature services (WFS).

The above approach has been chosen for optimising queries executed by the GUI. The technical requirements, here-in, are drawn accordingly. Other potential ways for exposing COD content to the GUI could be evaluated by EMSA, if the advantages are well justified in the contractor offer.

The sequence diagrams in the figures 2 and 3 here-after indicate the potential context of use of the services required to be implemented. According to the EMSA technical analysis. To be noted that the following assumptions are made:

- I. Within the SSN Ecosystem GUI domain model shall be foreseen classes where are to be reflected the "values" for functions and duties stored in the COD. A regular update process shall be implemented in order to ensure that whenever a new function, application specific type Authority type or duty is added in the COD , the relevant values are updated in the GUI database too.

² The possibility for storing in the COD the Authority functions already exists.

³ The decision on the option to be followed could be taken by C.3 upon drafting the technical requirements for the GUI or be left opened for a mutually taken with the contractors during the design phase of the GUI project. Refer to issues 5.3.

The values stored in these tables will be eventually associated to specific symbology to be utilised in the GUI for graphically representing authority types, functions and duties.

- II. SSN Ecosystem GUI and/ or STAR should maintain a distinct geographical database (provisionally called OGD – Operational geographical database) which will be used to store, at minimum:
- a. Point and area objects that are not stored in the reference and/ or base operational registries (COD, CLD, Accidents, etc). Examples of such objects are user-specific place-marks which a user wish to re-use whenever is entering into the GUI (reference locations of incidents not stored in the incidents/ accidents db, place marls referencing objects not marked on nautical charts, etc.)
 - b. Area objects that are not stored in the CGD but used for GUI functions.

Subject to further analysis associated to the business requirements of the SSN Ecosystem GUI might be proven necessary to use the OGD to cache COD and CGD data too. At present , no firm decision could be made in this respect that is why two potential “variants” of COD and CGD services usage are envisaged (refer to the figures 2 and 3 below for variant 1 and variant 2 respectively). Variant 1 assumes that there will be no caching of COD/ CGD information in the SSN Ecosystem GUI’s OGD, while variant 2 assumes that OGD will cache CGD and COD data. Refer to the section 9.2 for the minimum expected performance of the services to be implemented and/ or upgraded (performance requirements covering both options mentioned above).

Further clarifications on the way the services required are to be implemented shall be used (subject to the design decisions to be taken for the SSN Ecosystem project) are provided in the following sections 4.2.1.3 to 4.2.1.6.

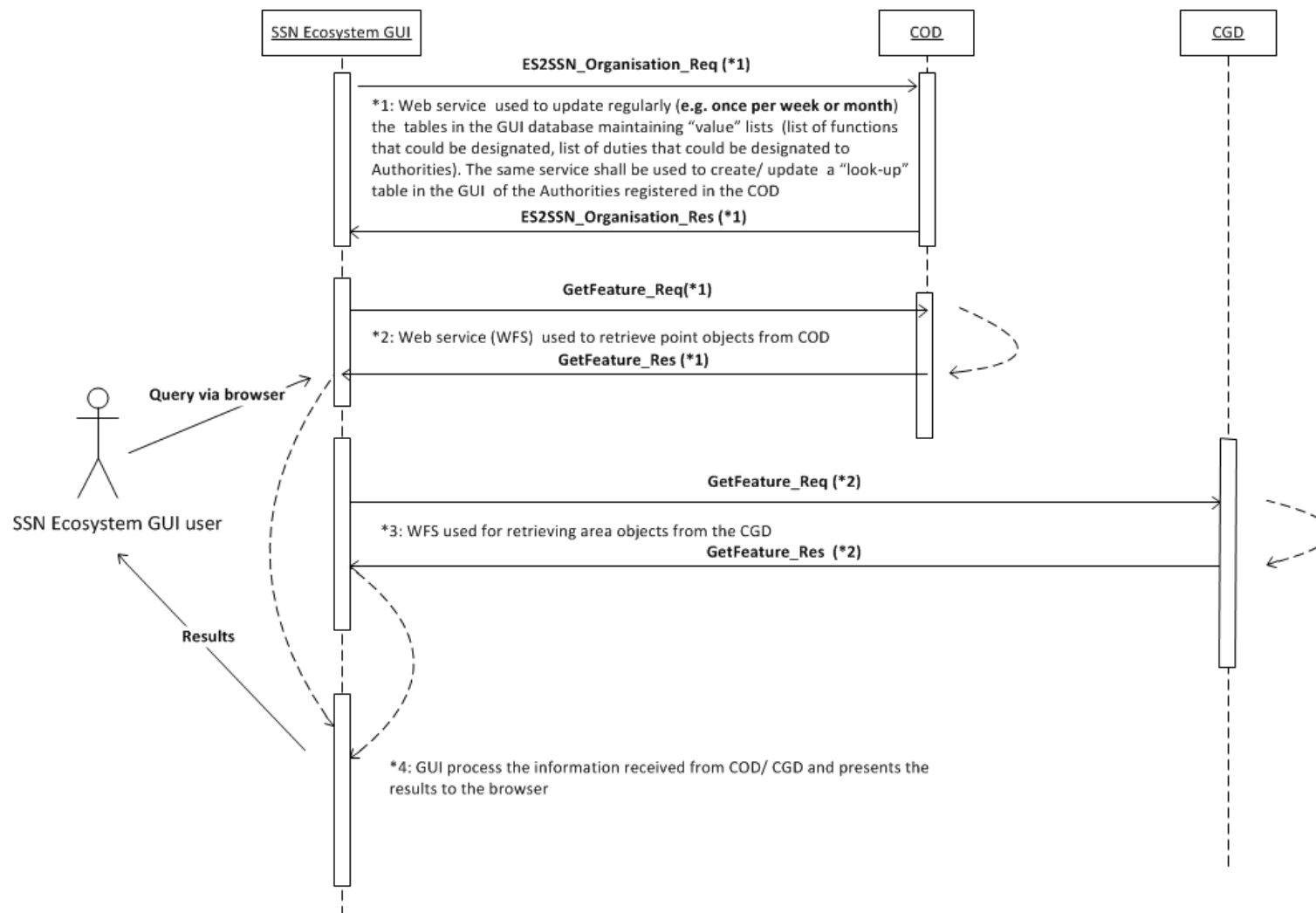


Figure 2 SSN ecosystem GUI/ COD-CGD data flows for STMID purposes - variant 1(CGD and COD data are not "cached")

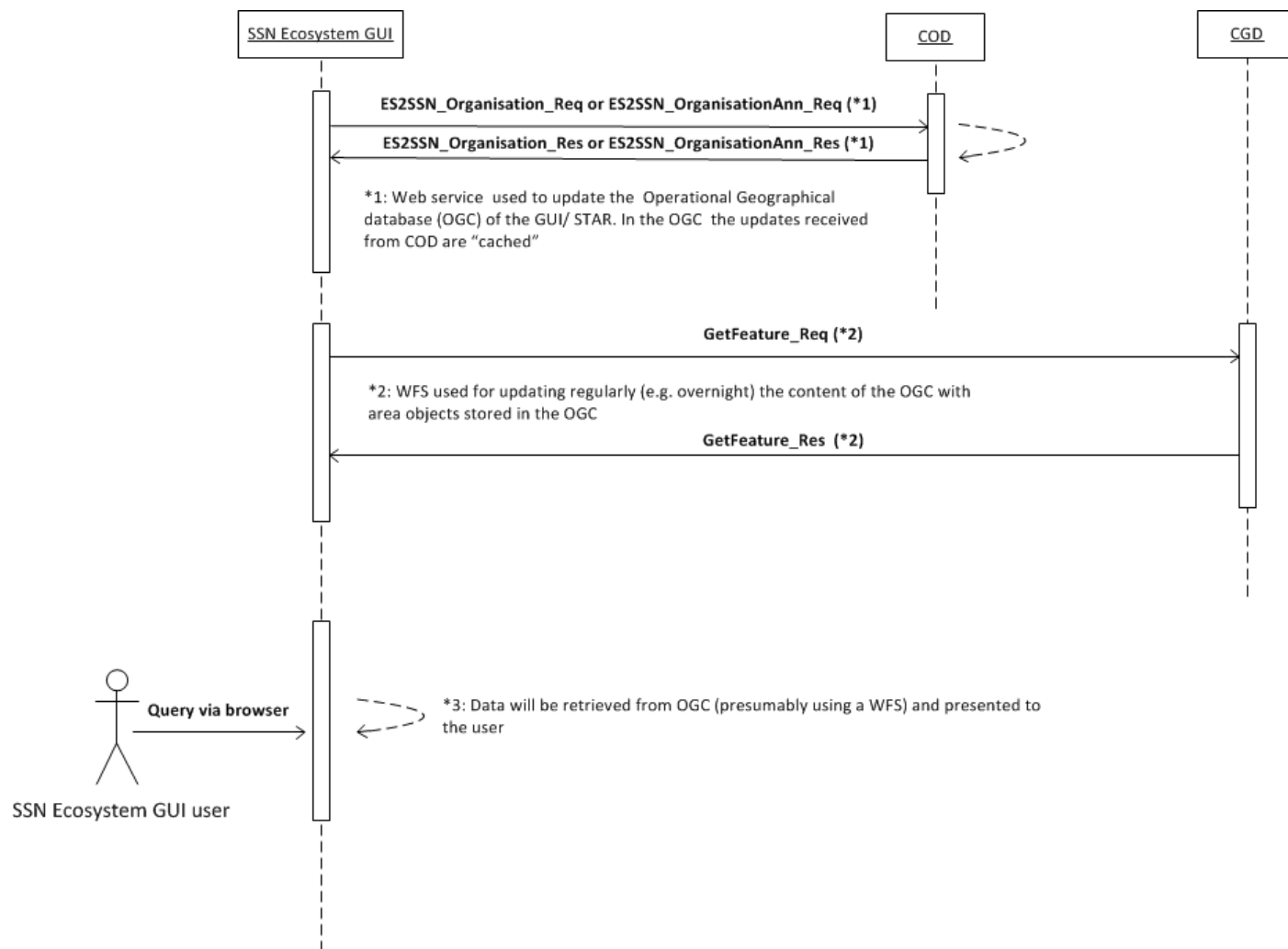


Figure 3 SSN ecosystem GUI/ COD-CGD data flows for STMID purposes –Variant 2 (COD and CGD data are cached in an “Operational” Geographical registry for the GUI and or/ STAR back-end

4.2.1.3 GUI query – Scenario 1 (Display on map all the authorities with headquarters, within a geographical area having a given function or duty and get the alphanumeric information available for it).

Goals

Following a query launched by a GUI user, the SSN Ecosystem GUI should present on the map (within the boundaries of the map window) all the maritime Authorities having a given function or duty.

Following the presentation of results on the map, the user may:

- Consult contact details (*Upon "hovering" on the Authority symbol*)
- Retrieve the whole list of functions/duties of the Authority (*Upon double-clicking on the Authority symbol*) he (she) may

4.2.1.3.1 – Scenario 1/Variant 1 (no cache of COD data in the OGD)

4.2.1.3.1.1 Specific assumptions

The services implementing COD request/ response shall be used, to update regularly (e.g. a batch process once per week or month) the tables in the GUI database maintaining "value" lists (for functions, duties and Application specific types).

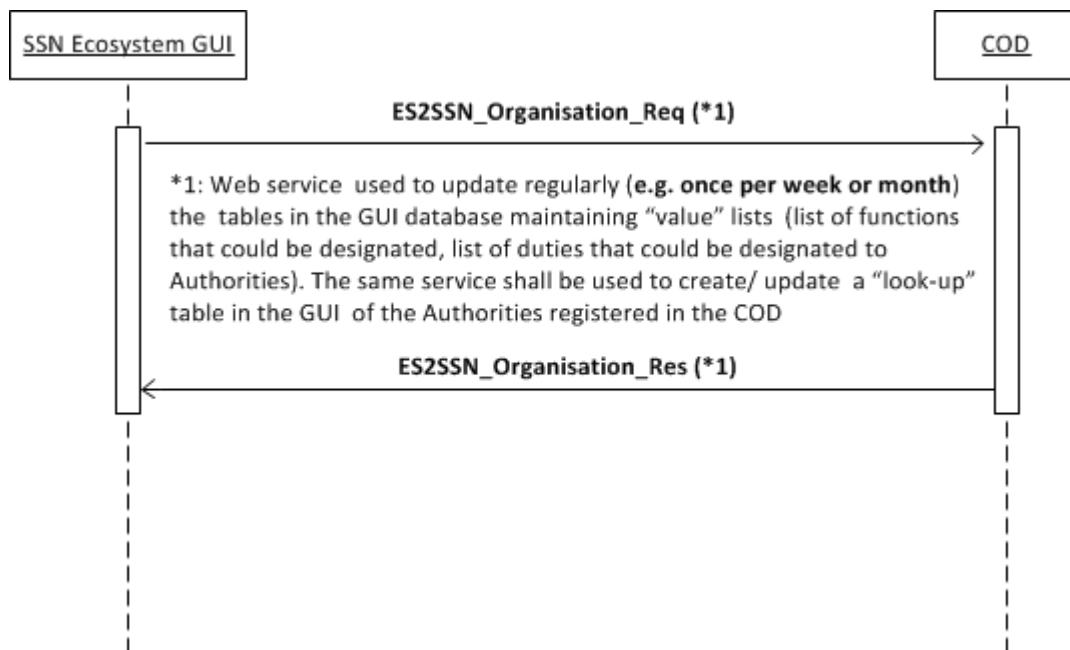


Figure 4 Regular update of "look-up" tables in GUI for values of Authority types, functions and duties

4.2.1.3.1.2 Workflow – Variant 1(no cache of COD in the OGD)

- When the user will make a query based on the criteria defined in the scenario, a GetFeature request will be sent to the COD (for the area defined by the user in his/ her browser and of the given function (s) or duty (s) defined by the user).
- COD shall return a list of points identifying the headquarters of the Authorities retrieved as well as the alphanumeric data associated with these authorities.
- GUI shall process the data and formulate the WFS layer to be presented to the user.

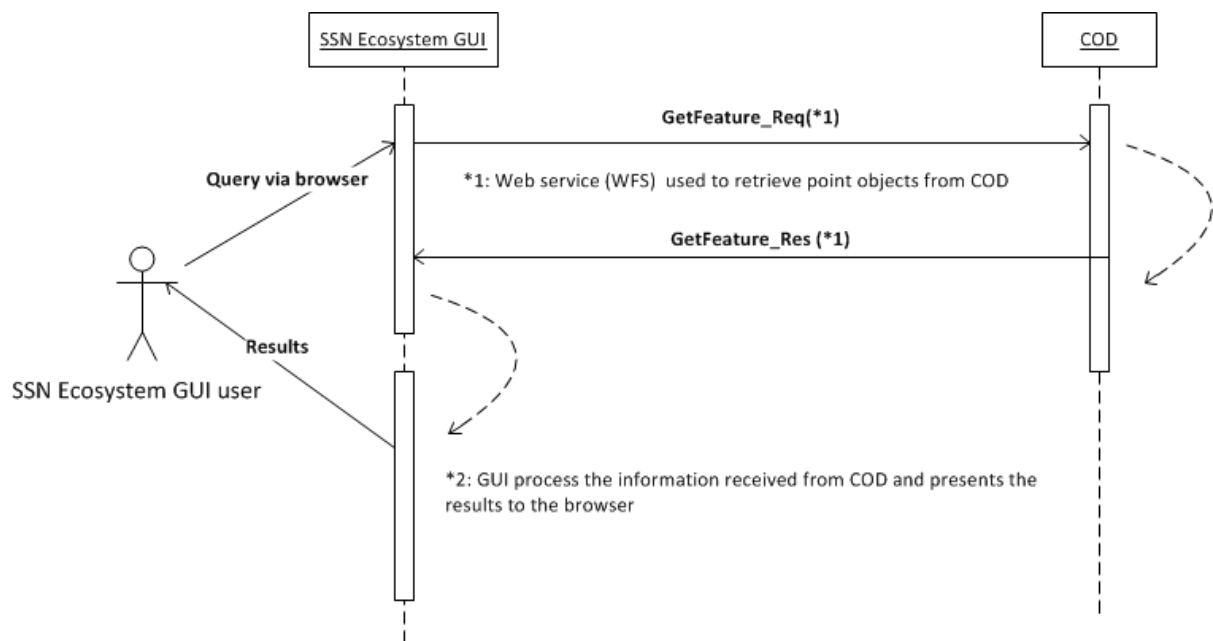


Figure 5 COD- data flows for STMID purposes from the GUI (criteria: area bounding box as well as authority type (s), function (s) or duty (is) or a combination of these

4.2.1.3.2 – Scenario 1/Variant 2 (COD data are cached in the OGD)

4.2.1.3.2.1 Specific assumptions

As indicated in the schema below, the announcement service of the COD is used to update the COD data cache in the OGD. The service provides updates anytime an authority record in the COD is created or updated and/ or any time a new type, function or duty is added in the COD.

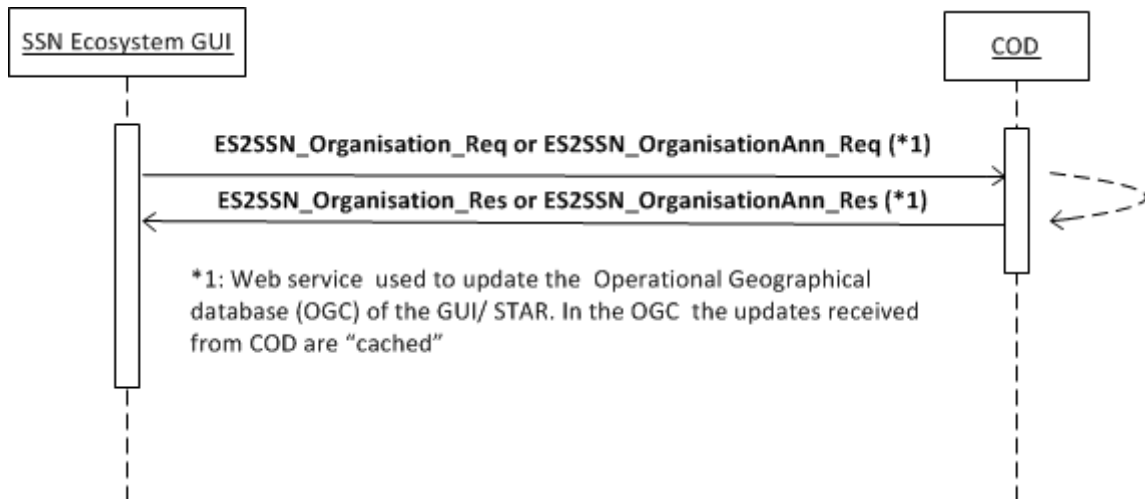


Figure 6 Regular update of COD data cached in the OGD

4.2.1.3.2.2 Workflow

As indicated in the schema below:

- When the user will make a query based on the criteria defined in the scenario, the OGD shall be queried, the result data set will be formulated and the results shall be presented to the user. No external call is required in this case. GUI could implement a WFS or another equivalent mechanism for querying the OGD.

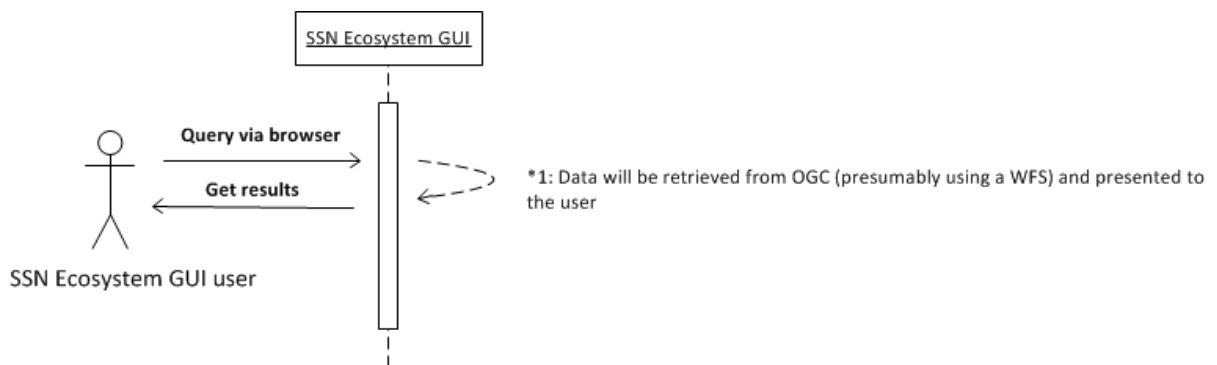


Figure 7 Using an "Operational geographical database" as cache for COD/ CGD data

4.2.1.4 GUI query – Scenario 2 (Display on map an authority along with the designated area (s) for its duties.

1.1.1.1 of the authority per function (s) or duty (duties). Enable user to display Authority contact details on hovering over the Authority location on the map and getting the detailed information)

Goals

Following a query launched by a GUI user, the GUI will present on a map the location of the Authority headquarters along with the designated areas for the Authorities duties.

4.2.1.4.1 Scenario 2– Variant 1 (no cache of COD/ CGD data in the OGD)

4.2.1.4.1.1 Specific assumptions

The services implementing COD request/ response shall be used, to update regularly (e.g. a batch process once per week or month) the tables in the GUI database maintaining “value” lists (for functions, duties and Application specific types. The same service is used to create / update a look-up table of Authorities in the GUI database. Refer to the sequence diagram in the figure 4 above for the process.

4.2.1.4.1.2 Workflow

As indicated in the schema below:

- When the user will make a query based on the criteria defined in the scenario, a GetFeature request will be sent to the COD to get the point feature (s) related to the specific Authority requested as well as all the associated alphanumeric and spatial data stored in the COD⁴ for the Authority).
- As soon as GUI will receive the reference key (s) for the designated areas of responsibility eventually stored in the CGD, a WFS request will be initiated to fetch the relevant geographical object (s).
- GUI shall process the data and formulate the WFS layer to be presented to the user.

⁴ Note that based on the specific requirements listed in SMID_EIS_REQ_1 below the designated area of responsibility for an authority could be described as “A list of LOCODEs (giving locations e.g. ofports or coastal stations). The spatial information associated to the “list” is a set of points that is to be stored in the COD.

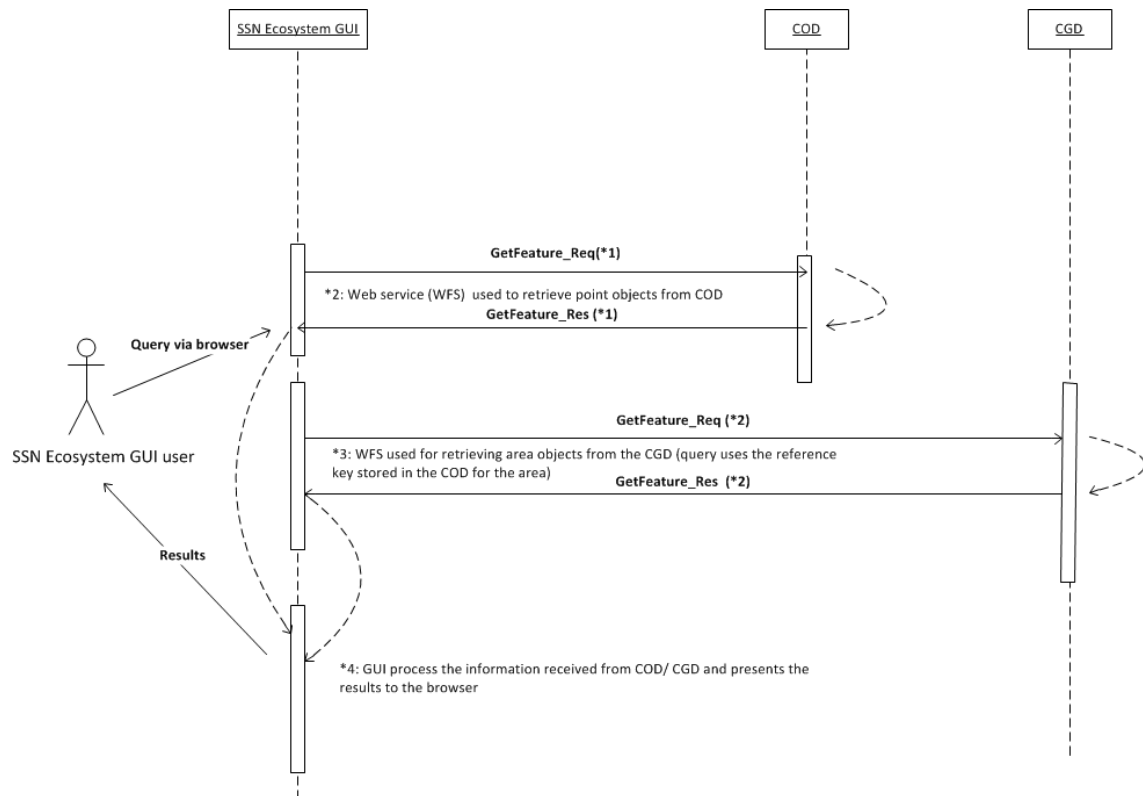


Figure 8 COD/ CGD- data flows for STMID purposes – variant 1 (criteria: specific Authority)

4.2.1.4.2 Scenario 2– Variant 2 (COD/ CGD data are cached in the OGD)

4.2.1.4.2.1 Specific assumptions

As indicated in the schema below, the announcement service of the COD is used to update the COD data cache in the OGD. The service provides updates anytime an authority record in the COD is created or updated and/ or any time a new type, function or duty is added in the COD. Is the same service envisaged for the scenario 1-variant 2 above)

The CGD WFS service (using a request based on the reference keys for designated areas of authorities created / updated in the OGD e.g. in the last 24 hours) will fetch and cache in the OGC the updates that took place in the CGD the past e.g. 24 hours.

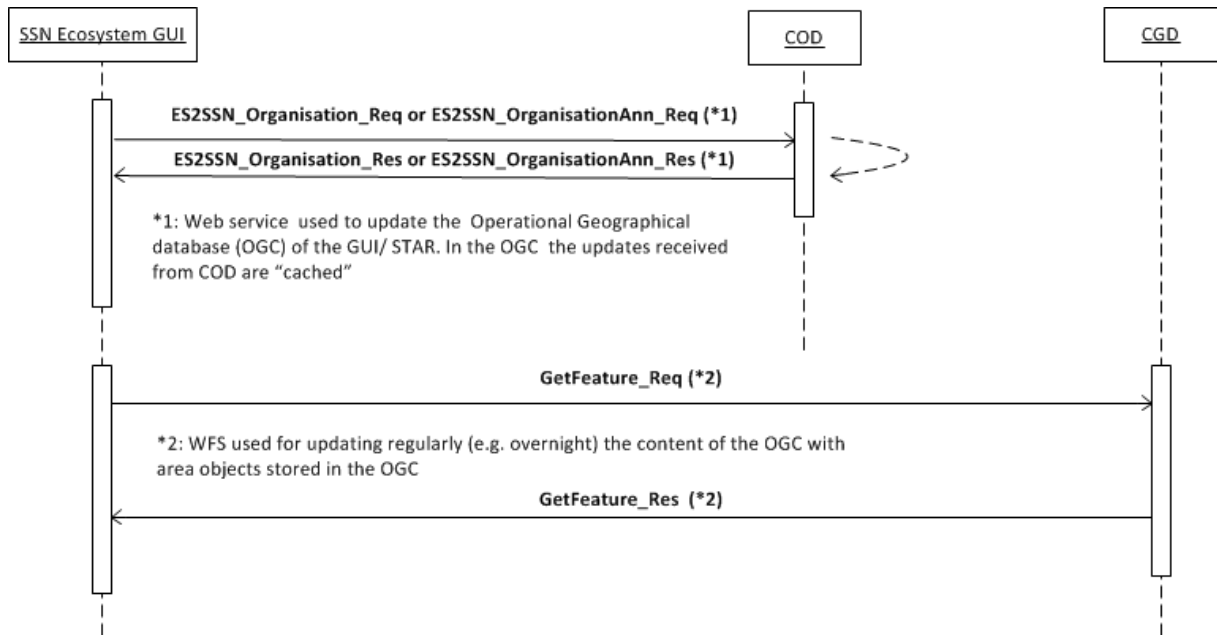


Figure 9 Regular update of COD/ CGD data cached in the OGD

4.2.1.4.2.2 Workflow

As indicated in the schema below:

- Given that, based on the processes of updating OGC as above indicated, all the required information are available in the OGD (for the authority defined in the criteria of the user query) , GUI application shall formulate the results set and presented it to the user. No external web service call is required in this case. GUI could implement a WFS or another equivalent mechanism for querying the OGD (workflow as in figure 7)

4.2.1.5 GUI query – Scenario 3 (Display on map a specific Authority, its contact details and the designated area for a specific function or duty)

This is a variant of scenario 2 with the only differences that in case of variant 1 (no cache of COD/ CGD data in the OGD – refer to figure 5) the query to the CGD will be made only for the designated area concerning the specific duty based on the area identifier. Then it is going to be up-to the GUI processes to formulate and present results to the user.

4.2.1.6 GUI query – Scenario 4 (Display on the SSN Ecosystem GUI an "Authority profile".

The goal is to display on the SSN Ecosystem GUI the complete up-alphanumeric date set of STMID data for an Authority. Designated areas of responsibility shall be presented within charts embedded in the web page (or expandable pop-up window) of the Authority in the GUI

The workflow foreseen in scenario 2 is also replicated for this scenario with the difference that GUI shall implemented different business logic for rendering the data and display them to the user. External calls to COD/ CGD in case of the variant 1 (no cache) will fetch – for this scenario – exactly the same data as in the case of scenario 2.

5. Objectives of the contract

The objective of this Request for Services (RFC 12181_EIS) is to:

1. Design implement and test upgrades of the software modules of EIS related to the STMID project
2. Design and implement upgrades to the existing web services exposing COD

That is the scope of the contract covers the tasks referred to the section 4.2 (a,b,c, d) earlier in this document. The upgrades shall enable the integration of the STMID into the COD and its access via the textual interface of SSN EIS in line with the concept and user requirements introduced in the chapter 1 and 2 above. This new version of SSN-EIS will comply with the functional, user interface, non-functional and technical requirements provided below in this document.

Changes concerning other applications of the SSN Ecosystem (STAR back-end, namely CGD and WFS exposing CGD as well as the STAR front end, namely the SSN Ecosystem GUI) are out of scope of this RFC. However the contractors should take a note that the changes concerning the STAR back-end shall be executed in parallel with this RFC and EMSA shall organise a common set of STAT cycles covering both:

- a. Changes in EIS under this RFC 12181_EIS
- b. Changes in CGD/ CGD services under the RFC 12181_CGD

Where it was deemed necessary, this document includes (within the subsequent chapters sessions and appendices), information on the "out-of-scope" changes to be covered by other RFCs planned by EMSA.

Given that EMSA systems are continually involving this RFC foresees the inclusion of an "evolutive" maintenance work-package. This package would cover eventual amendment of the specification here-in and/ or additional requirements to ensure smooth integration with the involving STAR back-end and the currently under technical assessment by EMSA, CMC and GUI projects.

An initial data set of the STMID information collected from MS will be provided to the contractor. The contractor will provide the programs and scripts to be used by EMSA to load the data into the COD.

6. Contract phases and deliverables

6.1 Kick-off meeting

Before the kick-off meeting the contractor will deliver a detailed execution plan for the contract (including a planning and update of the SSN EIS Project Quality Plan).

The meeting should take place at maximum one week after the contract's signature.

6.2 Design

The purpose of this phase is to design the software, including functionalities, business rules, data model, user interface, system interfaces, architecture, and database model.

The design documentation to be delivered by the contractor will include as a minimum:

- a. An updated version of the Software Requirement Specification (SRS) of SSN EIS,
- b. An updated version of the Software Design Specification (SDS) of SSN EIS, including the system architecture, use cases and business rules, database model, web interface design including mock-ups, etc.,
- c. An updated version of the Software Test Plan (STP) of SSN EIS, covering both the system-to-system and web interfaces for all new or changed components,
- d. An updated version of the System Interface Guide of SSN-EIS concerning the amendments to the COD web- services for compliance with the STMID project ,
- e. Updated schema files, with examples

Drafts of design documentation shall be delivered for review at least 1 week before the delivery date of the design phase.

EMSA will review the design documentation delivered by the contractor. It will provide the contractor with its comments and/or reservations within two weeks of the date of delivery. The contractor will be required to revise the design documentation to address EMSA's comments and/or reservations. The revised design documentation shall be submitted to EMSA within a timeframe established by EMSA.

The design phase will be considered concluded when the contractor and EMSA reach an agreement on the design documentation and finalised versions have been delivered to the Agency.

6.3 Development and tests

The purpose of this phase is to develop the new version of SSN EIS according to the design documentation as well as undertaking the necessary testing and correction to ensure that the deliverables meet the requirements and are in line with the design documentation.

The documentation to be delivered by the contractor includes as a minimum:

- a. Software source code,
- b. Software binary,
- c. On request from EMSA: Virtual machine containing the software,
- d. Factory Acceptance Test (FAT) reports and any updates of the Software Test Plan (STP),
- e. Updated version of the SSN Installation and Configuration Manual (ICM) including installation sequence, configurations, etc.,
- f. Applicable scripts:
 - Database scripts,
 - Configuration and deployment scripts to perform the weblogic server installation. These should use WLST and properties files that can be edited by EMSA depending on the installation environment. JDBC data source configurations should be delivered in a separate script,
 - Scripts for data migration,
- g. Update of the User Interface Manuals (UIM-Central SSN and UIM-MSS guide).
- h. Release and Deployment Plan. This document should follow EMSA Release and deployment template.

A draft of documents (d) shall be delivered for review at least 3 weeks before the delivery date of the phase.

The final version of the Software Test Plan (STP) and the FAT report must be delivered with the first software delivery.

For each software delivery, the items (a), (b), (e) and (f) must be delivered.

A draft of the document h shall be submitted to EMSA 3 weeks before the planned date for the first deployment in test environment and a final version should be submitted 1 week before that deployment.

The delivery must be driven by release and not by contracts. This means that all the functionalities and bug corrections that go to production in the same release must be delivered at the same time and independently of the contracts that they are bound for.

The first software delivery, used for executing the first tests must include all the functionalities and bug corrections that go to production on the planned release.

Delivery is considered concluded when a successful installation of the software has been executed on EMSA's acceptance environments using the software source code delivered by the contractor.

7. Conditions of execution

7.1 Schedule

The schedule is to be provided by the contractor in the offer and agreed with EMSA at the kick-off meeting. The schedule in the offer must at least meet the maximum dates as indicated in the table 1 below.

Milestone	Date	
Signature of the contract	T0	Contract milestone
Kick-off meeting (as introduced in chapter 3.1)	$T1 = T0 + 1 \text{ day}$	
Delivery of design documentation (as introduced in chapter 6.2)	$T1 = T0 + 4 \text{ weeks}$	Contract milestone
Delivery of modifications to SSN test plan documents	Two weeks the latest after approval of design by EMSA	
Delivery of development and tests phase (as introduced in chapter 6.3). New version of SSN tested by the contractor (2 runs of FATs minimum) and running on EMSA environments.	$T2 = T0 + 18 \text{ weeks}$	Contract milestone

Milestone	Date	
Positive acceptance by EMSA	T3=T0+35 weeks	3 SAT cycles including integration tests with other applications of the SSN Ecosystem shall be executed during this period

Table 1: Project's schedule and contract milestones

7.2 Tests by the contractor

Keeping in mind the provisions for the FAT as described in the contract Project Quality Plan (PQP), the following specific requirements are applicable:

1. Before the contractor formally delivers software to EMSA for the acceptance procedure, it shall ensure that all tests required by the development cycle have been successfully completed.

For this purpose, the Contractor:

- a) Should conduct internally a Test Readiness Review⁵ (TRR);
 - b) Shall conduct a Factory Acceptance Test (FAT)⁶;
 - c) Shall provide EMSA with access to a software "preview" site to track that all the changes made in the SSN web interface meet the agreed specifications (see chapter 7.4).
2. EMSA staff can be present at the FAT to obtain evidence of the successful completion of the activity. Only after EMSA has accepted the results of the FAT (based on the FAT report) is the contractor allowed to deliver the software for pre-SAT⁷ and SAT.
 3. The FAT shall be executed in accordance with the Software Test Plan (STP – see section 3.2) and as agreed with EMSA. In this respect the STP should be delivered to EMSA at the planned finish of the design phase (as stated in section 6.2) and an update be delivered at least three weeks before the delivery of the software (as stated in section 6.3).

⁵ Test Readiness Review I (TRR I) is a formal review, conducted by the Program Manager (PM) appointed by the contractor, signifying the Component Validation and Integration portion of the system or system component under development is complete and recommends that the system/component shall move into the Factory Acceptance Testing. The results of the TRR will demonstrate that each individual component and the system where the components belong are developed or configured in accordance with the approved design and function properly to meet specified requirements.

⁶ The main objective of the FAT is to confirm that the software implemented meet the agreed design specification (functional/ non-functional) and contract requirements, so it could be delivered for installation at EMSA.

⁷ Refer to the Annex D of the FWC – "Work procedures service level Evolutive Maintenance"

4. During the FAT, the contractor shall perform all the installation steps as detailed in the ICM for the release(s) being delivered.
5. The FAT report shall:
 - a) Describe, and justify the suitability of, the characteristics and scale of the FAT environment.
 - b) Describe all the issues found and reported by EMSA during the preview of the software and indicate if they have been corrected.
 - c) Include proofs that full regression tests of SSN components affected by the delivery have been conducted.
 - d) Describe all the aspects of the delivery that are major or blocking (refer to the definitions in chapter 7.5).
6. With the FAT reports, the contractor will provide all the tests scripts used to automate test cases along with instructions enabling EMSA to re-use the scripts.

7.3 Scope of tests by the contractor:

During the FAT, the system should be sufficiently tested (proper implementation of business rules / functional requirements, performance, security of transactions, load, etc.) before being delivered to EMSA for the acceptance tests.

The goals related to testing of system functions are:

1. Conformance with business rules/functional requirements,
2. Completeness,
3. Correctness,
4. Avoidance of regression errors (impacts to functions of the application that should not be affected by the contracted work).

The non-functional goals of the overall testing procedure are the average response time of the system to a request for information and the security of transactions.

The STP should make clear references to the test cases/scenarios that will be executed during the FAT. In this respect the following table provides the minimum requirements with respect to the test goals mentioned above.

Table 2: Minimum requirements regarding the Factory Acceptance Test by the Contractor

Quality Requirement	Quality Criterion	Metric Threshold	Threshold
Completeness	Coverage of requirements	Percentage of functional requirements listed in chapter 8 covered by the STP (at minimum one test case, as well as additional test cases if necessary for fully testing the applicability of the requirement)	100%
Completeness	Coverage of business rules	Percentage of business rules, as defined during the design phase, covered by the STP (at minimum one test case, or more)	100%
Completeness	Test Coverage for database tier	Percentage of statements covered in unit or integration test for database tier	>65%
Completeness	Test Coverage for business logic presentation tier	Percentage of statements covered in unit or integration test for business logic and presentation tier	>65%
Correctness	Blocking Issues/FAT	Blocking issues identified in FAT cycle 1	Less than 3
		Blocking issues identified in FAT cycle 2	No blocking issues No regression impacts
Correctness	FAT cycles	Number of attempts to pass FAT criteria	As many as required to eliminate all blocking issues (Min 2 attempts)
Performance	Response Time	Average response time	As per SSN IFCD or agreed with EMSA during the design phase

Referring to the thresholds related to the first four rows of the table above, the percentages mentioned in the "Threshold" column represent the amount of statements covered for each distinct module of the SSN system during the Unit and Integration tests. The Unit or Integration tests to be conducted (of functional or non-functional nature) shall be included in the test plan. The software approval work-flow at contractor site could envision the following three steps (steps a and c below are mandatory, step b optional):

- a) Unit and integration tests during software development,
- b) Unit and integration tests during the Test Readiness Review (TRR),
- c) Unit and integration tests during the Factory acceptance test (FAT).

The values in the table above show the rate of completeness of tests before the start of the FAT. The amount of tests and their nature has to be approved by EMSA and will be described within the test plan document.

7.4 Test environment for software pre-view

For the purpose of the software preview as introduced in the previous chapter , the contractor shall

provide EMSA with access to a test environment set up and maintained by the contractor which includes:

- All the software components of the SSN upgraded or altered during the course of this contract; as well as
- The components and system interfaces that shall be integrated and used for pilot projects (e.g. BlueBelt), ancillary modules (e.g. Accident module) or for interfacing SSN with other EMSA applications.

This test environment shall be maintained in operation, as detailed in the FWC between the date scheduled for the start of FATs until the acceptance of the delivery by EMSA. The system will be initially used for executing the FATs and subsequently for testing patches and hotfixes that are to be delivered against bug reports of EMSA during the pre-SAT, the SATs and the 12-month warranty period of the software.

The system configuration will allow testing of the SSN System Interface using the message examples provided in the STP. Furthermore the system will emulate realistically "external" systems interacting with SSN i.e. IMDATE, THETIS, LRITDC, CSN, IdM, MAP (Liferay) and MS NCA applications.

The test environment and the way of "simulating" external systems should be described in the offer in broad lines. The specifications and configuration should be further detailed during the design phase of the system.

7.5 Acceptance procedure

For each delivery, EMSA will provide a formal indication of the acceptance, conditional acceptance or rejection of the delivery to the contractor.

The acceptance procedure will start when the software is available and running in EMSA's test & quality environments.

EMSA will verify that:

- All issues detected in any previous acceptance procedures have been corrected,
- The software conforms with the requirements and with the design specifications,
- The existing components which are not impacted by this contract still conform to their specifications (no regression impacts),
- Implementation best practices have been followed,
- The binaries resulting from the software build in-house are correct and can be used for installing the application in EMSA environments (pre-production and production) and once installed achieve the desired results.

EMSA will classify any issues identified in three different categories reflecting their impact and severity:

1. Blocking issues:

Structural problems or serious issues (functional or technical) considered as limitations of the implementation with very high probability of interfering with the expected result. The contractor will be obliged to correct/execute all issues considered in this category,

2. Major issues:

Problems or issues that do not conform to the requirements or specifications or best practices or considered to be the wrong approach to obtain the result, but for each one of

them a workaround or a correction is available. The contractor will be obliged to correct/execute all issues considered in this category,

3. Minor issues:

Changes considered to be a better solution but without a deep impact on the quality of the system. The correction/execution of the issues under this category will be decided on a case by case basis.

Each issue will be identified and described by EMSA and sent to the contractor. All issues will be registered in TeamForge. Appropriate access to TeamForge will be established for the contractor. The contractor is requested to track and monitor the treatment of each issue sent by EMSA. The acceptance tests and the classification of the issues will be determined in collaboration between EMSA and the contractor.

The outcome of the acceptance procedure is positive if no issue is found by EMSA. If issues are found by EMSA during the acceptance procedure, the contractor is requested to immediately correct them and the acceptance procedure restarts from the date of the delivery of the corrected deliverable.

EMSA can decide to conditionally accept the deliverable when some issues remain uncorrected and are not blocking. The condition for that acceptance is that a date for the correction of the remaining issues is defined by the contractor and agreed with EMSA. EMSA will take the decision to conditionally accept the product after evaluation of each remaining issue.

8. Functional requirements

In this document, each requirement is either mandatory (identified with "Nature: M"), or desirable (identified with "Nature: D"). Each requirement is given a reference number. Working assumptions related with "out-of-scope" upgrades of other applications within the SSN Ecosystem (are clearly identified as "informative" -Nature I) within the text. For easier reference all the requirements in scope of this RFC are identified with a reference string that starts with **<STMID_EIS_REQ_>** **while all the informative requirements associated with out-of-scope applications or features** are highlighted with a reference number clearly indicating the application or interface affected. To facilitate comprehension of the binding requirements , reference is made, within the description of the requirement, to the changes expected to take place to other applications for compliance with the STMID business requirements.

8.1 Conceptual data model

Ref: STMID_EIS_REQ_1	Nature: M
	User requirement reference: STMID_REQ_1
The STMID is an extension of the existing Central Organisation Database (COD) of SSN A description of the existing COD is provided in SSN SDS. Additional data fields and tables will be added to the COD structure to warranty that the following information is handled per authority	

(referred to in this document as the "Authority data"):

1. Existing data elements per Authority, if available, as currently in the COD: Name, access rights, contact details, authority type (ex: SSN NCA, SSN CST), functions⁸ (ex: Security authority, waste authority, MRCC)
2. Additional contact details (their provision is considered optional):
 - Unit or Department Name
 - Website
 - Inmarsat call details
 - Inmarsat SAR NET
 - MMSI of the VHF equipment
 - Watch VHF channels (multiple)
 - MF channels (multiple)
 - MF DSC MMSI
 - VHF DSC
 - AFTN
 - Telex

3. "Duties", that an Authority could be assigned in relation, or independently, to their "functions" stored in the COD. None, one or several duties may be assigned to a single Authority. Some could be related to specific, existing functions of the Authorities. An indicative list of duties, additional functions needed, as well as the relation between the existing COD functions and STMID duties are provided in Appendix E.

The list of duties handled by the system is configurable by the system administrator (options to add, modify or disable duties – refer to the requirement **STMID_EIS_REQ_5**)

4. LOCODE of the authority headquarters (may be a reference to a SSN specific LOCODE) –is a mandatory attribute for the Authorities with STMID duties listed in the COD. In principle it shall provide a geographical position of the authority. If not available the geographical coordinates have to be provided.
5. Geographical coordinates of the authority (optional; but mandatory if LOCODE as in point (4) above is not provided): Latitude and longitude.
6. A reference key (not displayable) for designated areas of responsibility for the geographical areas of responsibility related to the duties mentioned above. None, one or several areas may be assigned per duty per Authority.
7. A "visual" descriptor, automatically generated by the COD software, of the area linked with one2one relationship with the "reference key of each area. The descriptor shall be structured as follows:

<Two digit Alpha-2 code of a country or region in the CCD>_<AreaCategory or Proposed duty code as in Appendix E>_<a number>_<(Optional)Description>

(examples: IT_SAR_1, IT_EEZ_2, IT_PORTAREA_3_GENOVA)

⁸ The term "function (s)" in this document refers to the "functional role (s)" assigned to the Authority – The "functions are already registered in the COD based on EMSA requirements in SC#6/Theme1 (Ref: BAR-2a)

Notes:

- a. A geographical area could be defined by a MS as:
 - I. A geographic polygon (whose geometry, category and description is to be stored in the CGD, refer to STMID_STARBE_REQ_1 and STMID_STARBE_REQ_3), or
 - II. A list of LOCODEs (giving a point location e.g. of ports or oastal stations). The description and area category in this case shall be stored in the COD.
 - III. A list of latitude and longitude (the geometry, area category and description of such areas shall be stored in the CGD - refer to STMID_STARBE_REQ_1 and STMID_STARBE_REQ_3)
- b. For the areas whose geographical representation is stored in the CGD (cases "a.I", "a.III" above) the reference key stored in the COD will be extrapolated from the CGD data and provided to COD by the CGD. Refer to STMID_STARBE_REQ_3)
- c. In case of "a.II" apart from the reference key (which shall be inserted by the user in the format mentioned above) shall will be stored in the COD an area description
- d. Refer to the technical requirement **STMID_EIS_REQ_14** for the interface to be implemented between COD/ CGD for the exchange of reference keys of geographical areas already stored in the CGD:

STMID_STARBE_REQ_1	Nature: I
	User requirement reference: STMID_REQ_1/ STMID_REQ_2
<p>The COD Administrators shall be also granted access to CGD, via the CMC and/ or the user administrator utilities used by STAR, as CGD administrators.</p> <p>The geographical areas (cases a.I, a.III above) which will be referenced to the COD as above stated and shall be stored in the EMSA's Central Geographical Database. Information on the CGD and the service that CGD will expose to COD to allow the retrieval of the area reference keys are provided in the Appendix D)</p>	
STMID_CMC_REQ_1	Nature: I
	User requirement reference: STMID_REQ_1/ STMID_REQ_2
<p>The existing utilities integrated into the COD management console will be accessible via the CMC web interface.</p> <p>With reference to point (3) in STMID_EIS_REQ_1, CMC will replicate the current functions of SSN user management console (create groups, roles, etc.). CMC would allow restricting access to authorised administrators using location-based restrictions (the equivalent of restrictions understood in the current SSN authorisation model as level of restriction "None", "Area", "Country", "Specific LOCODE").</p>	

Ref: STMID_EIS_REQ_2	Nature: M User requirement reference: STMID_REQ_2
<p><u>Data migration:</u></p> <ol style="list-style-type: none"> The original set of Authority data was provided by MS in the form of Microsoft Word forms (STMID questionnaires). The example of a questionnaire is provided in Appendix A. In order to assist the data migration, some may be available as well in Excel files which include some additional data (e.g. Location codes of the Port authorities) The contractor shall populate the STMID extension of the COD by exporting the alphanumeric data from the STMID questionnaires and Excel files. Data that cannot be retrieved via automated means from the STMID questionnaires and Excel files shall be extracted manually by the contractors. The contractor shall also provide the programs and scripts to be used by EMSA to load the data into the SSN database (COD) in the future. The data will have to be consolidated/ added to the existing authority data as stored in the SSN COD: <ul style="list-style-type: none"> If an authority is identified in an STMID questionnaire and is already registered in the existing SSN or SSN COD, the extended COD shall consolidate all the information related to this authority through a unique authority identifier. EMSA will provide the contractor with the details of the authorities already declared in the SSN COD If an authority is identified in an STMID questionnaire and does not exist in the SSN or SSN COD, the contractor will create it using the relevant questionnaire information. A new authority identifier will be created for each new Authority added in the COD following the naming convention confirmed by EMSA. Should any inconsistency appear, the contractor will create a list of inconsistencies per MS and inform EMSA. The Agency will clarify the issues raised with the relevant MS and inform the contractor accordingly. All the inconsistencies detected and reported to EMSA shall be resolved by the contractor within 12 months following the notification to EMSA. EMSA staff will coordinate the data migration to ensure that the task under STMID_STARBE_REQ_3 is completed before the uploading of the STMID information in the COD (to ensure that the CGD data will be properly referenced in the COD). 	
STMID_STARBE_REQ_2	Nature: I User requirement reference: STMID_REQ_2
<p>Under RFC 12181_CGD, the contractor shall extract the geographical area information from the STMID data to be provided by EMSA and upload them in the CGD.</p> <p>The areas of responsibility of the authorities are described in the questionnaires as:</p> <ul style="list-style-type: none"> Identification of an existing Search and Rescue region (SRR area), Exclusive Economic Zone (EEZ), Vessel Traffic Service area (VTS), or Mandatory Reporting System area (MRS) etc., Coordinates in a geo referenced files types (kml, gml, Shapefile, csv, Excel), Coordinates in the questionnaire' tables, Lists of LOCODES (giving a point location e.g. of a port or a coastal station). 	

	If any inconsistency will be detected, the contractor will create a list of issues and inform EMSA. The Agency will clarify the issues raised with the relevant MS and inform the contractor accordingly.
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8.2 Access rights

Ref: STMID_EIS_REQ_3	Nature: M User requirement reference: STMID_REQ_3
<p>Access control shall be enforced by the EIS application based on the information on access rights stored within the EIS database schema related to COD features management. The current access rights to the COD will apply to the additional information introduced in chapter 8.1. Those SSN users authorised (via the user management utilities introduced in the CMC) to create/update/delete or read COD information shall be able to access the COD management utilities in the EIS application to create/update/delete or read the additional STMID data introduced in 8.1.</p> <p>In particular:</p> <ul style="list-style-type: none"> EIS users with right to provide/ update Authority data: A user who has been granted this right may create or edit (according to the applicable access restrictions) Authority data, and consult the history of changes in the Authority data (along with information on the user who performed the change). EIS Users with right to consult Authority data: A user who has been granted this right may consult Authority (according to the applicable access right restrictions) data using the SSN textual interface 	
STMID_CMC/EIS_REQ_1	Nature: I User requirement reference: STMID_REQ_3, STMID_REQ_4
<p>An appropriate CMC2EIS mechanism (specifications still to be defined) for interfacing CMC to EIS for exchanging access control provisioning information for all the tasks and their restriction levels. The modified mechanism shall be applicable for all the users of EIS system.</p>	
STMID_CMC/EIS_REQ_2	Nature: I User requirement reference: STMID_REQ_3, STMID_REQ_4
<p>EIS application shall be modified to ensure compliance with the CMC2EIS access provisioning mechanism. The access control information (the tasks users are able to perform along with their relevant access control restrictions) shall be stored, for auditing purposes, within the EIS database schema.</p> <p>Via the CMC, a user may be restricted to provide or consult Authority data in the COD (including those that are "STMID" – related as per STMID_EIS_REQ_1 of all countries, of his own country, or of his own port. The relevant tasks (COD_MANAGER, COD_READER) will be extended to cover provision/ update or consultation of STMID information</p>	
STMID_ECOSYS_GUI_REQ_1	Nature: I

	User requirement reference: STMID_REQ_3, STMID_REQ_4
A user which is given, via the CMC, the right to consult Authority data, may consult all Authority data using the SSN Ecosystem GUI	

8.3 Overview of functionalities

Ref: STMID_EIS_REQ_4	Nature: M
User requirement reference: STMID_REQ_4	
<p>The current functionalities of SSN textual interfaces for the management of authorities will be extended to offer the following services:</p> <ul style="list-style-type: none"> • <u>Create and edit Authority data</u>: This function will allow creating or editing (update and delete) the Authority data, and consulting the history of changes in the Authority Data. It is accessible to all users that have the right to provide Authority data. Requirements for this function are provided in chapter 8.4 below. • <u>Consult Authority data in SSN Textual Interface</u>: This function is provided as an enhancement of the SSN Textual Interface to consult the Authority data. It is accessible to all users with the right to consult Authority data. Requirements for this function are provided in chapter 8.5 below. • <u>Publish Authority data</u>: Central SSN extracts the Authority data for the purpose of being published on the EMSA Website. This is executed by SSN on a regular basis. Requirements for this function are provided further below in chapter 8.7 	
STMID_ECOSYS_GUI_2	Nature: I
<p>The SSN Ecosystem GUI shall be integrated features (for compliance with the STMID project user requirements). In this respect a function shall be added in SSN GI (" <u>Consult Authority Data in SSN Graphical Interface</u>"): This is an enhancement of the SSN Graphical Interface to consult the Authority data on the geo-referenced presentation of SSN. This function shall be accessible to all users with the "COD_READER" task. Refer to the informative section 8.6</p>	
<p>The diagram below (fig.1.) presents the use case envisaged for STMID project:</p>	

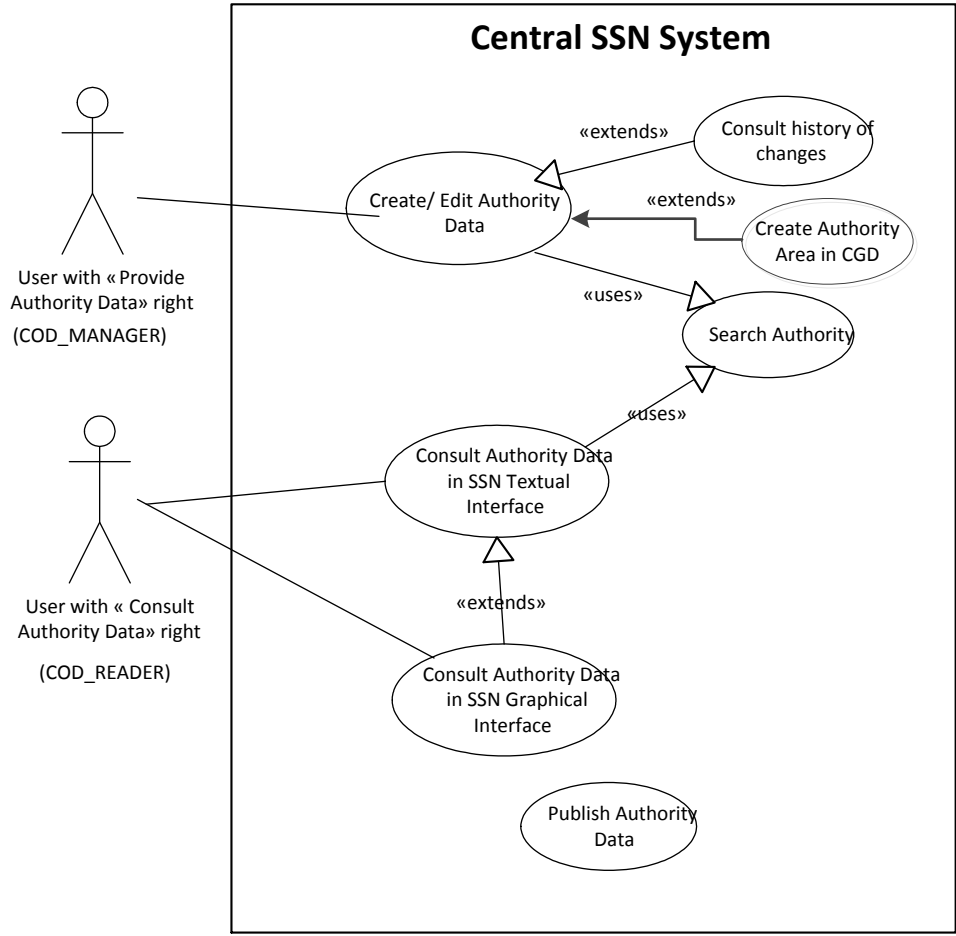


Fig.1: STMID services and actors (tasks assigned to users using the the available user management utilities)

8.4 Create/Edit Authority data

Ref: STMID_EIS_REQ_5	Nature: M
	User requirement reference: STMID_REQ_5
<p>The SSN Textual Interface pages (COD Management Utilities) will be amended to enable authorised users (users granted with the COD_MANAGER task) to create Authorities and edit the Authority data as introduced in chapter 8.1.</p> <p>A. The COD pages design will allow users to create an Authority and insert all the information listed in the requirement STMID_EIS_REQ_1. Refer below (bullet point J) for the specific rules associated to the insertion of geographical coordinates for an authority. The process shall be facilitated with a use of COD functions with pre-defined duties as listed in the Appendix E.</p> <p>B. For editing (or a decision that an authority is not registered in the COD), the web interface design shall allow searching and retrieving a list of Authorities and the data for a specific Authority. Examples of search criteria include:</p> <ul style="list-style-type: none">Country,	

- LOCODE,
 - Authority Name (text search),
 - SSN Authority type as derived by the COD (e.g. SSN NCA, CST, LCA, etc.)
 - A single function or a list of functions chosen from a drop down list identifying all possible functions of Authorities (refer to Appendix E).
 - A single duty or a list of duties chosen from a drop down list identifying all possible duties of Authorities (refer to Appendix E).
 - An abstract combination of the functions and duties.
 - Specific mapping of functions and duties will be provided by EMSA (refer to appendix E for an indicative list of types/ functions/ duties). The duties uniquely mapped to a function will be automatically pre-filled in the application upon selection of the particular function by a user. The mentioned pre-fill can be modified and user will have an option to 'de-select' them if they do not reflect their particular situation. – (illustration of the relation between functions and duties are provided in the Appendix E, Table 3)
- C. The full list of search criteria and the content/layout of the web pages will be defined during the design phase.
- D. In addition, the user may consult the history of changes to the data regarding an Authority with indication for each change of: the data element changed, the former and new values, the date and time of the change, and the identity of the user who did the change.
- E. The geographical location of the Authority shall be provided, for consultation by the authorised administrator, on a chart embedded in the COD page (refer below and in the technical requirement **STMID_EIS_REQ_16**).
- F. Furthermore a hyperlink ("magnifier") will be provided in the COD Organisation create/update page of SSN EIS textual interface. Upon clicking on the "magnifier", the user will access geo-referenced authority information (spatial/area and textual) on SSN Ecosystem GUI as per **STMID_ECOSYS_GUI_REQ_2** and **STMID_ECOSYS_GUI_REQ_3** below. If the user does not have access to the GI, the magnifier will not be active.
- G. When defining a designated area of responsibility for a given duty, the authorised administrator:
1. May choose an existing area from the CGD and store its reference key and description/area category in the COD. In this respect the user will be presented with a drop- down list providing the areas available in the CGD (the drop down list will present in alphabetical order all the areas registered in the CGD for the country of the Authority created or edited by the user – refer to the technical requirement **STMID_EIS_REQ_14** for the interface to be implemented between CGD/ COD for making available to the COD the list of authorities available to the COD along with their reference keys and description/ category)
 2. May access to the CGD in order to insert a new area there. In this respect a "CGD access button" shall be made available activating the hyperlink for accessing the CGD (refer also to the technical requirement **STMID_EIS_REQ_16**).
 3. Following the creation of the area in the CGD the user will have to repeat the process mentioned in point (1) above in order to associate the new area to one or more duties.
- H. Refer to the informative **STMID_STARBE_REQ_3** for a description of the process of creation/ editing an area in the CGD.
- I. The details of the mechanism of interaction between COD/ CGD shall be defined during the design phase by the contractor in agreement with EMSA and the CGD contractor. EMSA will host a meeting inviting both the contractors for this RFC as well as the RFC 12181_CGD in

this respect.

STMID_STARBE_REQ_3	Nature: I
	User requirement reference: STMID_REQ_5
<p>The users with COD administrator rights (national administrators, SSN or EMSA application administrators) will also be granted access to the management functions of CGD in order to visualise, create, update and delete geographical schemas.</p> <p>When defining an Authority's area of responsibility, the user may choose an existing area from CGD and edit it, or create a new area in the CGD. In the case of an area defined as a polygon, the user may:</p> <ol style="list-style-type: none"> Enter the coordinates of each point of the polygon (depending on user preferences, coordinates may be in decimal degrees or degrees/minutes/seconds), Clone an existing polygon (with the possibility to edit the coordinates of its points, add or remove points), Load a file using at least the following formats: csv, shp, kml, gml Draw an area interactively on a map using the drawing tools made available for CGD data management, Graphically edit an existing polygon using the drawing tools made available for CGD data management. <p>The input tool will also allow the introduction of new areas categories (e.g. port administrative boundaries, PSSAs, etc.). Definitions of a new area category can only be introduced by the SSN administrator. If the CGD utility was accessed during the creation/ update of Authority data in COD, the application should allow the re-direction of the user "back" to the COD utility to complete the Authority data entry as per requirement STMID_EIS_REQ_5</p>	

- J. Business rules and work-flow for the completion of geo graphical coordinates
- The precision of coordinates inserted manually by the authorised administrator should be at least of 4 decimal digits for both latitude and longitude.
 - In case the coordinates are inserted manually, the system will automatically compare them with the coordinates of the geographical location automatically derived by the address of the Authority (using a "geocoder", refer to the technical requirement **STMID_EIS_REQ_15**). In case of difference of the location proposed by the geocoder and the one proposed by the user for more than 50 meters, the application will provide a suggestion to the administrator to accept the proposal made by the geocoder or confirm his (her) original entry: In order to facilitate the decision by the administrator the position derived by the geo-coder shall be displayed to the administrator in a map embedded in the create/edit Organisation web page (refer to technical requirement **STMID_EIS_REQ_16**)
 - In case the administrator will attempt to save the STMID data without inserting the geographical coordinates, the system will calculate the coordinates automatically by the address of the Authority (with the use of a licence-free geocoder - refer to technical requirement **STMID_EIS_REQ_15**). The position will be demonstrated to the administrator on a map applet embedded in the COD data creation/ update page.

4. In case the geographical coordinates cannot be automatically derived with the method described in the technical requirement **STMID_EIS_REQ_15**, they will be extrapolated from the data stored in the CLD (geographical coordinates of the location imported from e.g. the UNECE database or inserted manually by the CLD administrators). In the event of absence of reference of coordinates in the CLD, a warning shall be sent to SSN application administrators by e-mail (to enable them him (her) to introduce the coordinates manually in both COD and CLD).

8.5 Consult Authority data in SSN Textual Interface

Ref: STMID_EIS_REQ_6	Nature: M
	User requirement reference: STMID_REQ_6
<p>A. The COD web interface pages in the COD management console of SSN EIS web interface will be amended to enable authorised users to consult the additional Authority information as introduced in chapter 8.1 along with the rest of COD data.</p> <p>B. In this respect, the web interface design shall allow, based on a combination of criteria, searching and retrieving a list of Authorities and the COD data for a specific Authority. Examples of search criteria include:</p> <ul style="list-style-type: none"> ○ Country, ○ Geographical coordinates (locode), ○ Authority Name (text search), ○ SSN Authority type as derived by the COD (e.g. SSN NCA, CST, LCA, etc.) ○ A single function or a list of functions chosen from a drop down list identifying all possible functions of Authorities (refer to Appendix E). ○ A single duty or a list of duties chosen from a drop down list identifying all possible duties of Authorities (refer to Appendix E). ○ An abstract combination of the above. ○ Specific mapping of functions and duties will be provided by EMSA (refer to appendix E for an indicative list of types/ functions/ duties – ref: Table 3). The duties uniquely mapped to a function will be automatically pre-filled in the application upon selection of the particular function by a user. The mentioned pre-fill can be modified and user will have an option to 'de-select' them if they do not reflect their particular situation. – (illustration of the relation between functions and duties are provided in the Appendix E, Table 3) <p>C. Search criteria and the content/layout of the amended COD web pages will be defined during the design phase.</p> <p>D. The information to be displayed to the user for a specific Authority shall include all the data stored in the COD including the date/time of the last update.</p> <p>E. The geographical location of the Authority shall be provided, for consultation, in a free-licensed map embedded in the COD page (refer below and in the technical requirement STMID_EIS_REQ_16).</p> <p>F. For all the users authorised to access the COD web interface a hyperlink ("magnifier") will be provided in the page for Authority data consultation in SSN Ecosystem GUI. Upon clicking on the magnifier, a user will access geo-referenced authority information</p>	

(spatial/area and textual) on SSN Ecosystem GUI as per **STMID_ECOSYS_GUI_REQ_2** and **STMID_ECOSYS_GUI_REQ_3** below. If the user does not have access to the GUI, the magnifier will not be presented.

Ref: STMID_EIS_REQ_7	Nature: M
	User requirement reference: STMID_REQ_7
<p>The authority data provided can be downloaded in PDF or TXT formats.</p> <p>Templates to be used for PDF or TXT formats, as well as content of files (fields to be included for each file type) will be defined during the design phase but in principle will only contain the authority name, all contacts, and assigned duties as well as the data of the last change. Information will consist of textual information and tables (no map</p>	

Scenarios referring to requirements: STMID_EIS_REQ_6 and STMID_EIS_REQ_7
<p>Scenario 1: User searches for a particular authority in the SSN Textual Interface, for example, authority responsible for Search and Rescue in Poland. Once the results are obtained, the user can export the authority data (name, contact details and the duties assigned) to a pdf or txt file.</p> <p>Scenario 2: User searches in the SSN Textual Interface for authorities responsible for a specific duty in all Member States, for example SafeSeaNet National Competent Authorities (NCA). Once the results are obtained, the user can export all the authorities' data (names, contact details and the duties assigned) to a pdf or txt file.</p>

8.6 Consult Authority data through SSN Graphical Interface (Informative)

This is a purely Informative section as the assumptions listed in this section refer to the SSN Ecosystem GUI that is to be implemented by a future procurement.

STMID_ECOSYS_GUI_REQ_2	I
Available today: New	User requirement reference: STMID_REQ_8
<p>The user may consult the Authorities and their areas of responsibility on a map through the SSN Ecosystem GUI.</p> <p>Each Authority and each associated area of responsibility represent a feature (geographical object) that can be displayed on the map. The Authorities will be placed using their LOCODE unless geographical coordinates are provided.</p> <p>These features shall be distinctly displayed with such a transparency setting that they will not obstruct viewing of the data already displayed (e.g. ship tracks).</p>	

Symbols and colours (e.g. specific symbols to represent functions, different colours for areas etc.) will be defined during the design phase.

Maritime Application/ data used for the functionality:

SSN STMID

STMID_ECOSYS_GUI_REQ_2	I
Available today: New	User requirement reference: STMID_REQ_9
<p>STMID filtering, presentation and interaction</p> <p>At least the following features shall be provided for the STMID Data/service in the SSN Ecosystem GUI</p> <ul style="list-style-type: none"> • Authorities will be displayed with an icon representing the task (the list of duties will be provided by EMSA based on the implementation of the STMID in the SSN Textual Interface/CMC). If an Authority has several tasks, the system will display them in a user friendly way (e.g. expandable icons. This is to be agreed at design phase). • When a user hovers the mouse over the symbol of an Authority, a configurable dynamic tag will display information such as for example: the name, country and tasks of the Authority. • When the user single-clicks on the symbol of an Authority, a pop-up window will appear (similar to the ship information) and the areas of responsibility of the Authority will be displayed. This window will display details on the Authority (i.e. name, contact details, tasks, date and time of the latest change of the authority details etc.). • A free-text search function will be offered to find authorities (Search over the name, function or geographical coordinates). • Pre-defined filters will be provided to enable visualisation of the authorities per task. 	
<p>Maritime Application/ data used for the functionality:</p> <p>SSN STMID</p>	

Example Use cases

SSN_ECOSYS_GUI_UC_1.
Ref: STMID_REQ_8, STMID_REQ_9
<p>Scenario 1: in the sea area between Member States A, B and C there is an ongoing, trans-border Place of Refuge situation. User from MS A would like to know what the contact details of the Member States' B and C authorities are in order to make the essential, operational arrangements. User will activate the STMID/Authorities functions in SSN Ecosystem GUI to display the PoR responsible authorities and their areas of responsibility, on the top of the ship's requesting assistance position.</p>
SSN_ECOSYS_GUI_UC_2.
Ref: STMID_REQ_8, STMID_REQ_9
<p>Scenario 1: User activates the display of the authorities responsible for receiving and handling alerts in case of the Place of refuge situation in Portugal.</p>

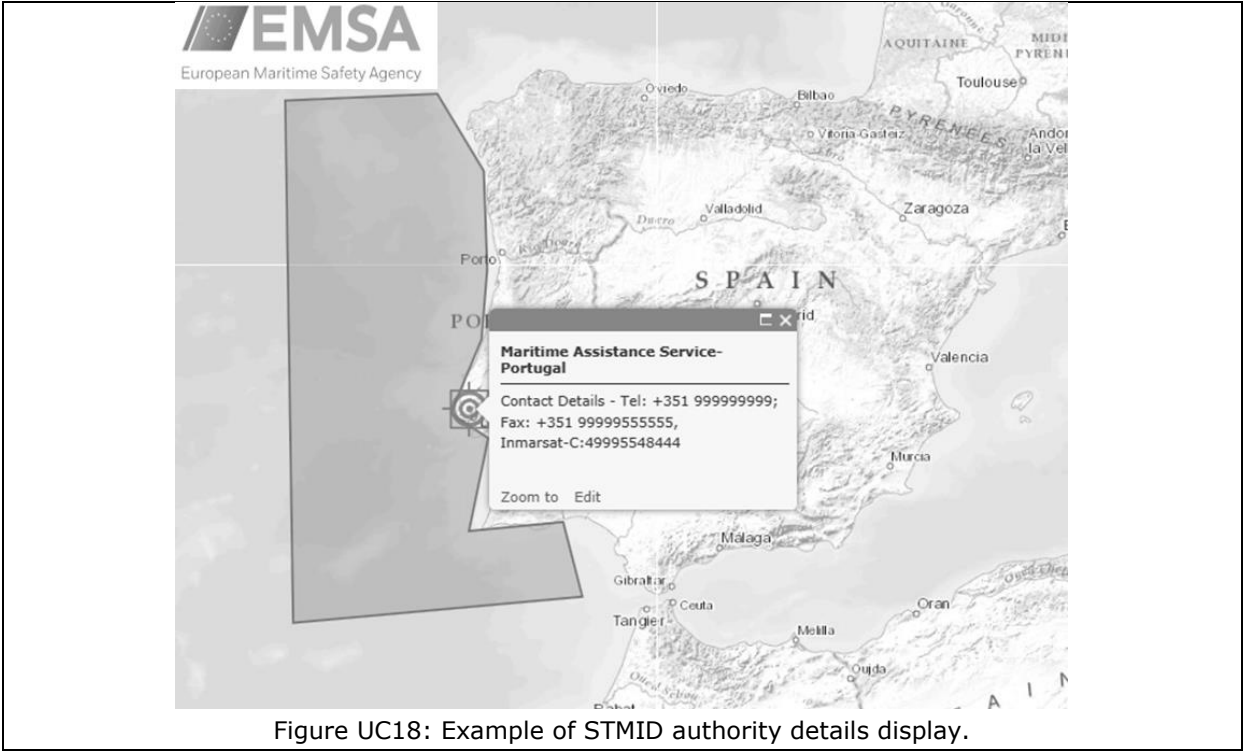


Figure UC18: Example of STMID authority details display.

8.7 Publish Authority Data

Ref: Ref: STMID_EIS_REQ_8	Nature: M User requirement reference: : STMID_REQ_10
<p>Every day, at a specific time (e.g. 1:00 AM, configurable), SSN will produce PDF files of the authority data and will place them on a server at EMSA in order to be published on the EMSA extranet.</p> <p>One file will be produced per MS, and one file will be produced per authority duties for all MS.</p> <p>The PDF files will be produced according to a template which will be defined during the design phase. The PDF files will contain at least the name, functions/ duties contact details and additional contact details, as well as the data and time of last update for each authority. Information provided will consist in textual information and tables (no map or visual contents).</p> <p>A tool should be provided to SSN administrators to allow changes to the template.</p> <p>The technical solution will give the possibility for EMSA to perform modifications of the template's layout as well as the information presented (fields...) without the support of the contractor.</p>	
STMID_EMSAWEB_REQ_1	Nature: I
<ul style="list-style-type: none">• The files will be published by EMSA on the EMSA extranet• The management of the EMSA extranet including access control will remain the responsibility of EMSA.	

9. Specific non-functional requirements

The non-functional requirements of the current version of SSN (SSNv3) will apply to the new version to be delivered with this contract. This chapter provides the additional requirements that the new version of SSN will have to comply with.

9.1 System capacity

Ref: STMID_EIS_REQ_9	Nature: M				
	User requirement reference: : STMID_REQ_11				
<p>SSN will handle the number of authorities and corresponding number of areas as provided in Appendix E.</p> <p>In addition to the number of authorities provided in the appendix, SSN will be capable of handling 10,000 additional authorities using the existing duties or new duties configured by the system administrator.in Appendix E.</p> <table border="1" data-bbox="276 902 1444 1178"> <tr> <td data-bbox="276 902 866 969">STMID_STARBE_REQ_4</td><td data-bbox="866 902 1444 969">Nature: I</td></tr> <tr> <td colspan="2" data-bbox="276 969 1444 1178"> <p>The contractor of the RFC 12181_CGD shall pay attention to the impact of storing area objects in various formats (e.g. shape files) in the CGD (objects related to the area of responsibility of Authorities for duties allocated to them). The contractor should make analysis in the design phase, agree with EMSA potential changes that should be made in the CGD and implemented the changes,</p> </td></tr> </table>		STMID_STARBE_REQ_4	Nature: I	<p>The contractor of the RFC 12181_CGD shall pay attention to the impact of storing area objects in various formats (e.g. shape files) in the CGD (objects related to the area of responsibility of Authorities for duties allocated to them). The contractor should make analysis in the design phase, agree with EMSA potential changes that should be made in the CGD and implemented the changes,</p>	
STMID_STARBE_REQ_4	Nature: I				
<p>The contractor of the RFC 12181_CGD shall pay attention to the impact of storing area objects in various formats (e.g. shape files) in the CGD (objects related to the area of responsibility of Authorities for duties allocated to them). The contractor should make analysis in the design phase, agree with EMSA potential changes that should be made in the CGD and implemented the changes,</p>					

9.2 Performance and availability

Ref: STMID_EIS_REQ_10	Nature: M
	User requirement reference: STMID_REQ_12
<ol style="list-style-type: none"> 1. Textual interface <p>The system shall perform correctly (e.g. avoiding query time-out or application error or session “freezing”) while the number of simultaneous sessions for SSN textual interface will be at minimum 250 and 50 users perform STMID related queries (searching/ exporting data).</p> 2. COD ES2SSN/ SSN2ES services <ol style="list-style-type: none"> a. A message to be pushed to an external application using the COD Announcement service should be processed and despatched in less than 3 seconds, if concerns a single Organisation b. A response to a request providing as result the details for a single Organisation should be processed and despatched at average in less than 3 seconds 	

- c. At average responses to requests requiring the provision of a list of items should be processed and despatched in less than 10 seconds

3. COD Web Feature service

The Contractor shall guarantee that the system is capable to handle the performance of the WFS based on the "Sample Reference Request", as described below according the following requirements: average = 2 seconds, medium = 1,5 second, 90% line = 3 seconds and error = 1%.

a. Sample WFS request – Test case

In order to assess the performance, capacity and availability of the COD-WFS service, EMSA requests contractor to create test cases emulating the query to be done from the Ecosystem GUI to fetch data from the COD in case of the scenario1/ Variant 2 mentioned in section 4.2.1.3)

First test scenario

The request shall be based on varying bounding box and request parameters to check the ability of the service to provide

- i. a number of features in the response shall be at least 10000
- ii. a number of features in the response shall be at least 5000;
- iii. a number of features in the response shall be at least 1000;
- iv. a number of features in the response shall be at least 500;
- v. a number of features in the response shall be at least 100;
- vi. a number of features in the response shall be at least 10;

Second test scenario

The request shall be based on varying bounding box and request parameters (returning a varying number of results) assuming concurrent requests launched with difference of few milliseconds and associated with

- i. 2 users
- ii. 5 users;
- iii. 10 users
- iv. 50 users

b. Sample WFS request - Criteria

The following criteria shall be applied to the "Sample Request"

- (i) scenario 1
 - a. warm up duration: 1 minutes;
 - b. run duration: 50 requests;

	c. initial user count: 1 user.
(ii)	scenario 2
	a. warm up duration: 10 minutes;
	b. run duration: 30 minutes;
	c. initial user count: 40 user

10. Monitoring requirements

Ref: STMID_MON_1	Nature: M
<p>The “document scheduler” component should be monitored via application logs in order to be easily identified the successful outcome or not in the generation of the STMID reports as required in the STMID_REQ_10. The logging of this information should be read by an external tool for monitoring of the “document scheduler” component. In case of any error on the generation of the reports it should be identified which were not generated and the cause of problem.</p>	

11. Technical requirements

Ref: STMID_EIS_REQ_11	Nature: M
<p>The STMID database schema should be understood as an extension of the existing COD schema to store the additional data introduced in chapter 8.1 (STMID_EIS_REQ_1).</p> <p>In addition to the alphanumeric data information mentioned in the STMID_EIS_REQ_1 within the COD database shall be stored the geographical representation (sdo_geometry) for the point objects identifying:</p> <ul style="list-style-type: none"> • The headquarters of an Authority (extracted from the contact details using the data manually entered by the user and/ or the process defined in the requirement STMID_EIS_REQ_15 below following the workflow defined in point I of the requirement STMID_EIS_REQ_5 • The locations extrapolated from a list of LOCODEs representing the designated area of responsibility for an authority for a given task (see notes case a.II in STMID_EIS_REQ_1. <p>The revised domain model and relevant database entity schema for the COD shall be agreed with EMSA during the design phase</p>	

Ref: STMID_EIS_REQ_12	Nature: M
<p>The web-services currently available for the COD (request, response, subscription, etc.) shall be properly modified to introduce the additional STMID data. In this respect, the contractor shall include in the design documentation a proposal on changes to be made in the web services schemas.</p>	

The changes to be implemented would allow:

- Executing requests defining in the criteria one or more application-specific authority types, application independent functions, authority duties
- Executing queries based on locations defined either as one or more LOCODEs, the coordinates of one location or a set of locations , the sdo_geometry of a location.
- Executing a request simply to get the Application specific types, functions and duties configured at a given moment in the COD

In addition the web services schema for the subscription / announcement shall be modified to allow the cancellation of a subscription and its replacement by a subscription based on different criteria.

Request for data or subscription requests can be made by authorised external to EIS systems. The relevant access rights (related to COD management or consultation) shall be based on a check based on the LOCODE associated to an Authority listed in the COD and stored in the COD as the LOCODE of the authority headquarters. Access rights may be restricted at levels None, Area, Country or "Specific Locode"

In practical terms all the request types required to cover the functional requirements in this RFC should be addressed. The implementation of the changes shall be made on the basis of the schema to be proposed by the contractor and agreed with EMSA during the design phase.

A synchronisation mechanism shall be established between SSN EIS "parties" and Organisations listed in the COD to ensure that organisation listed in the COD could obtain access:

- Only to the COD (should the parties authorised to access COD do not provide/ receive data associated with other SSN functional components)
- To the COD and SSN (should the parties authorised to access COD are also providing and or receiving SSN data associated to functional components other than the COD).

Ref: STMID_EIS_REQ_13	Nature: M
<p>All the LOCODE information stored in the COD is a look-up of data stored in the CLD. The data exchange between COD/ CLD shall be based on the web services exposed by the CLD. In this respect the contractor should assess the changes potentially required in the CLD web services schema for alignment with the requirements here-in. The following should be envisaged as minimum.</p> <p>COD subscribing in the CLD for updating a look-up table within COD of the LOCODEs stored in the CLD and the coordinates associated to the LOCODEs stored in the CLD (a possibility to cancel the subscription and/ or amend subscription criteria should be provided. COD may subscribe to the CLD only to get updates)</p> <p>The aim is to keep the COD fully synchronised with the CLD to what relates to LOCODEs. However it should be clear that coordinates of locations extracted from the CLD can only be inserted in the COD only if the coordinates' fields in the COD, for a given location, are "null". In any other case, the coordinates stored in the COD shall not be altered.</p>	

Ref: STMID_EIS_REQ_14	Nature: M
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The CGD is exposed via a WFS (refer to **STMID_STARBE_REQ_5** below) . The COD component of EIS, acting as a client application for the WFS exposed by the CGD, shall send a GetFeatureRequest to retrieve, upon creation / update of STMID data in the COD, a list of the areas that are available in the CGD for the same country as the one of the Authority created/ updated in the COD. The query criterion shall be a Country reference (2digit Alpha-2 code of a Country registered in EMSA CCD) or the Area Category or a combination of these two attributes.

The CGD will return (using GetFeatureResponse) the area registered in the CGD at the time of the query. From the data provided in the response of the CGD for each area, the COD shall make use of the area reference key and the Area category (SAR, EEZ, etc.). Refer to the workflow described in **STMID_EIS_REQ_5** (bullet point G). in the COD shall be registered the reference key of the area along its category. Furthermore the administrator will be obliged to introduce a short description (except if the area to be selected is already registered in the COD. In that case the system will fetch and display the already available description previously stored in the COD. A visual descriptor for the area (linked to the reference key with one2one relationship) shall be automatically generated and stored in the COD along with the CGD reference key.

STMID_STARBE_REQ_5	Nature: I
<p>The existing schema for the WFS exposing the CGD (refer to the appendix D) shall be modified to add the following attributes:</p> <ul style="list-style-type: none"> • Country: Alpha-2 code (from the CCD) • Reference key: Alphanumeric string automatically generated for each area stored in the CGD 	

Ref: STMID_EIS_REQ_15	Nature: M
<p>To improve accuracy of coordinates stored in the COD , the application shall utilise an open source geocoder to derive coordinates of the headquarters of an Organisation registered in the COD. The coordinates shall be derived from address data included in the contact details provided by the MS for an Authority (without revealing the identity of the Authority). The geocoder will be utilised in the context of the workflow described in STMID_EIS_REQ_5 (refer to bullet point I). The service interface should be a RestFull service or similar (refer e.g. to the interface established between EMSA applications and MarineTraffic for the retrieval of pictures) allowing the implementation of a "security" overlay.</p> <p>As part of the analysis during the design phase the contractor will make an analysis of the open-source geocoders. The selection of the one to be used will be made in consultation with EMSA. The choice shall depend on the expected accuracy and possibility to setting-up the service without security risks and by providing as sole criteria an address.</p> <p>Important notes:</p> <ul style="list-style-type: none"> • Should contractors identify any constraints/ risks in the implementation of this requirement that need to be analysed by EMSA, these constraints should be clearly identified in the quotation provided as part of the analysis of this RFC. • The analysis should consider open source geocoders on whose interface specifications are 	

available for analysis by the contractors (e.g. refer to:
<http://www.programmableweb.com/news/7-free-geocoding-apis-google-bing-yahoo-and-mapquest/2012/06/21>, <http://www.programmableweb.com/api/google-geocoding> ,
<http://www.programmableweb.com/api/cloudmade-geocoding> ,
<http://www.gisgraphy.com/documentation/user-guide.htm#geocodingwebservice>,,
<http://geocoder.openpagedata.com/api.html> ,)

Ref: STMID_EIS_REQ_16	Nature: M (second bullet point desirable)
<p>In the context of this RFC the COD web interface shall be fully re-designed to maximise usability, user friendliness and optimum ergonomics. The contractor shall provide wire-frames and mock-ups for all the web pages/ graphic elements in light of the design principles adopted by EMSA for the design of the single maritime portal application.</p> <p>In particular for the create/ edit Organisation and "data consultation" design the contractor should take into account the following requirements:</p> <ul style="list-style-type: none"> The data entry workflow should impose the provision of the contact information (including the address details) as well as the LOCODE or the geographical coordinates of the headquarter at a first stage. Following the inclusion of these information and, in light of the requirements STMID_EIS_REQ_5 and STMID_EIS_REQ_15, the application should present the data derived from the information provided by the MS, derived from LOCODE in the CLD and the gocoder allowing a decision by the authorised administrator on the final set of coordinates to be stored for the Authority. <i>(desirable feature – implementation of this bullet point subject to the relevant cost)</i> The coordinates should be presented on a chart. The default chart will be the world map used for SSN SI but the administrator could choose any of the maps available in the ENC WMS service of EMSA. To enable authorised administrators to access the CGD , the url pointing to the CGD edit/ create page shall be stored as an application parameter of the EIS. When the user will click on the "CGD" magnifier symbol in the Organisation create/ edit page, the CGD will be opened in a different tab of the browset allowing user to create an area and store it in the CGD. 	

Ref: STMID_EIS_REQ_17	Nature: M
<p>Apart from the web services already exposing the COD (which shall be modified in the way required in the STMID_EIS_REQ_12), COD shall be also exposed via a WFS. The following specific requirements apply::</p> <ol style="list-style-type: none"> For the purposes of the WFS definition, the Authorities data stored in the COD can be understood as attributes attached, in an appropriate manner (to be defined during the design phase), to the point object identifying the headquarters "location" of an "Authority" on a map. The client application will either query for a single or more "point" objects. The WFS shall follow the OGC (Open GIS Consortium) standard WFS specification (ref http://www.opengeospatial.org/standards/wfs#downloads). Version to be utilised shall be proposed by the contractor and agreed with EMSA. It should follow the INSPIRE Directive 2007/2/EC. In particular the INSPIRE Regulation on download Services .It should be implemented using Geoserver, the open-source platform utilised by EMSA. Contractor should note that at EMSA, the WFS and its administrative tools (WFS editor) 	

is protected by a login/password. Access to be managed by users at EMSA and SSN administrator levels.

- g. The service shall be utilised to retrieve the geographical objects corresponding to the action performed by the user at the client application. In this respect the client application may transmit, as criteria in the WFS request, information like the organisation ID of a specific authority or the SSN type of a group of Authorities in the COD or a function or list of functions or a duty or a list of duties or the reference key or the visual descriptor of the reference key for an area . Combinations of the criteria categories mentioned above should be allowed by the WFS schema.
- h. The system shall provide EMSA administrators with the functionality to login to the editor in order to configure the layers that could be made available in a client application via the WFS. The contractor shall be provided access to the current implementation and agree with EMSA eventual changes required and execute them in agreement with EMSA.
- i. The layers exposed by the service should be able to be requested individually or as a set of multiple layers.
- j. The application should allow the EMSA administrator to make the layer's background transparent.
- k. The system shall deliver features in the following service projections and their variants:
 - o Mercator;
 - o Universal Transverse Mercator (UTM);
 - o Latitude Longitude with WGS84 datum;
 - o Polar Projection.

The projection requested shall be specified in each request but the default is Mercator.

- l. In the event of re-projection of data, distortion of any non-spatial related objects (e.g. text) should be avoided. Contractor should propos a test case to check this point.
- m. If the UTM projection is requested, it shall be possible to specify the UTM zone in the WFS call. If the UTM zone is not specified, then the correct UTM geographical parameters (UTM zones) related to the target area will be selected automatically by the system. Contractor should propos a test case to check this point
- n. The configuration of the WFS platform should be recorded in order to be reloaded by the system at any time and, possibly, in different installations. This configuration cannot be dependent on the specific details of the underlying infrastructure (e.g. IP of the machine). Contractor should assess if the current implementation at EMSA fulfils the requirement here-in and implement any eventual upgrade required.

Ref: STMID_EIS_REQ_18	Nature: M
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The WFS implementation will ensure that whenever the user initiates a request via an external WFS client application, the WFS will retrieve all the information created/updated in the COD until the moment of the request.

Ref: STMID_EIS_REQ_19	Nature: M
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EMSA will provide, during the design phase of the project, an initial list of Authority functions and

duties in the COD (chapter 8.1, indicative list in Appendix E). The application design and the database shall allow the introduction of additional functions and duties in the initial list if need will arise. Consequently the use of enumeration list "duties" or functions in the XML schemas of the web service to be upgrade and the WFS schema should be avoided

Ref: STMID_EIS_REQ_20	Nature: M
For statistical purposes, the application shall logs all the accesses to the COD via an external web service (including the WFS calls calls using the COD web services. Furthermore will log all the user accesses to the COD via the COD web interface.	

Ref: STMID_EIS_REQ_21	Nature: M
"Port media" information currently stored in distinct tables in STIRES schema shall be integrated into the COD/ CLD data (in an appropriate manner to be defined during the design phase).	

Ref: STMID_EIS_REQ_22	Nature: M
<p>Within the scope of this contract are:</p> <ol style="list-style-type: none"> 1. All the changes required to ensure that functions and features of SSN EIS application not directly related with the requirements listed in this document will continue functioning the same way as in the current version of SSN. This applies to all the functions integrated into the SSN EIS, those related to SSN central system but also those supporting pilot projects (e.g. Bluebelt) and the interoperability with other EMSA applications (e.g. IMDATE): <ul style="list-style-type: none"> • Existing COD/ CLD/ CSD software and their interfaces to external (to SSN EIS) applications • The IMDATE and IdM components and interfaces implemented in EIS; • The BB components implemented in EIS; <p>The contractor should identify all the necessary changes to be done on the software components of SSN during the design phase and , following agreement with EMSA, implement them</p>	
STMID_CMC_REQ_2	Nature: I
<p>Within the scope of contracts for developing CMC are all the changes required to ensure that functions and features of SSN applications (e.g. EIS, application hosting the functions of the SSN GI) user / application management not directly related with the STMID requirements and assumptions listed in this document will continue functioning the same way as in the current version of SSN. The contractor should identify all the necessary changes to be done and, following agreement with EMSA. implement them</p>	

STMID_ECOSYS_GUI_REQ_23	Nature: I
<p>Within the scope of contracts for developing SSN Ecosystem GUI are all the changes required to ensure that functions and features of SSN GI not directly related with the STMID requirements and assumptions listed in this document will continue functioning the same way as in the current version of SSN. This applies to all the functions integrated into the SSN GI, those related to SSN central system but also those supporting pilot projects (e.g. Bluebelt) and the interoperability with other EMSA applications (e.g. IMDATE): The contractor should identify all the necessary changes to be done on the software components of SSN during the design phase and, following agreement with EMSA, implement them</p>	

Ref: STMID_EIS_REQ_23	Nature: M
<p>The country registry of SSN used by COD, CLD and other components of SSN EIS should be fully synchronised with the EMSA's CCD exposed by the LRIT CDC of the SSN ecosystem via REST web services. In this respect a batch process shall be implemented using the services exposed by the CGD. The relevant information are attached in the Appendix H. The contractor should describe in the offer the interface and the batch process to be implemented for the synchronisation of SSN registries with the CCD.</p>	

Ref: STMID_EIS_REQ_26	Nature: M
<p>The EIS application development platform is JAVA/J2EE complying with the latest standards.</p> <p>For system components processing real time or near real time data, the contractor can propose and justify an alternative approach.</p> <p>For other non-functional specification not specifically mentioned in this RFC the , requirements binding deliveries integrated into the SSNv3 version of SSN central system are binding.</p>	

12. Other requirements

Ref: STMID_EIS_REQ_24	Nature: O
<p>The offer shall include a provision for evolutive maintenance services corresponding to the sum of a maximum of 20 % of the overall amount related to the implementation of the requirements listed in chapters 6 and 7 concerning upgrades within EIS subsystem. The provision on evolutive</p>	

maintenance shall cater for:

1. Eventual fine tuning of business/ technical requirements during the design phase, taking into consideration contractor feedback and additional requirements stemming from the implementation of the SSN Ecosystem GUI
2. Changes in EIS that cannot be fully defined at this stage (e.g. those related to adaptation of the Central Organisation database that will host the STMID data to the CMC requirements)
3. Changes associated to monitoring of COD availability and COD web services availability that cannot be fully defined at this stage

Ref: STMID_EIS_REQ_25	Nature: M
The SSN EIS Installation and Configuration Manual (EIS ICM) shall define all deployment procedures for each configurable item ensuring, as much as possible, continuity of operations.	

Ref: STMID_EIS_REQ_26	Nature: M
The quotation to be provided for this RFC will include, in the format foreseen for the SRS documents of SSN, the contractor analysis on the binding requirements here-in . Furthermore the offer shall include the contractor remarks on the technical analysis performed by EMSA (included in the chapter 4) as well as eventual suggestions for improving the interaction of COD with CGD and SSN Ecosystem GUI using the mechanisms foreseen in the specification or eventually equivalent or more optimised mechanisms. Eventual costs associated to changes or improvements should be clearly highlighted in the quotation.	

13. List of appendices

The table below summarises the applicable appendices that shall be considered an integral part of this specifications

Appendix	Title
A	STMID questionnaire
B	(Informative) COD present design (Central database design document)
C	(Informative) Shore-based Traffic Monitoring and Information Database (STMID)/ User requirements
D	(Informative) CGD specification outline (Central Geographical Database)
E	Indicative list of Authority duties and mapping with Authority functions
F	XML Reference guide v3.02
G	(Informative) SSN Ecosystem - Guiding principles for system architecture

H	Informative – CCD and services exposing it
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Appendix E: Indicative list of Authority Duties and mapping with Authority functions.

Table 1: List of authority “duties” and estimated numbers of authorities and areas (from Appendix A of user requirements document)

Authority duty	Authority duty name ⁱ	Proposed duty code ⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
Article 22a - SSN National Competent Authority (NCA)	SSN NCA	SSN_NCA			28 (1/MS)	0
Article 22a - SSN NCA 24/7 contact point	NCA 24/7	SSN_NCA247			56 (2/MS)	0
Article 6b - LRIT NCA	LRIT NCA	LRIT_NCA			28 (1/MS)	0
Article 20 (1) and Article 20a 2(b) - Authority responsible for assessing the situation regarding the accommodation of ships in need of assistance	Place of Refuge Assessment	POR_ASE	Yes		224 (3-8/MS)	224
Article 20 (1) and Article 20a 2(b) - Authority responsible for making decisions on the accommodation of ships in need of assistance	Place of Refuge Decision	POR_DEC	Yes		224 (3-8/MS)	224
Article 20a 2(a) - Authority responsible for receiving and handling alerts as regards the accommodation of ships in need of assistance	Place of Refuge alert	POR_ALERT	Yes		224 (3-8/MS)	224
Authority reported to IMO as M.A.S.	MAS	MAS	Yes		224 (38/MS)	224
Article 4 –Authority (ies) receiving notifications prior to entry into ports	Port Pre-arrival notification	PORT_NOT		Yes	1200	1000
Article 13 - Authority (ies) receiving dangerous and polluting goods notifications	HAZMAT notification	HAZ_NOT		Yes	1200	1000
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1a ships which [...] have failed to comply with the notification and reporting requirements imposed by this Directive	Incident Report Missing Notification	IR_FAIL_REC	Yes		280 (3-10/MS)	280

Authority duty	Authority duty nameⁱ	Proposed duty codeⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1a Ships which [...] have failed to comply with the applicable rules in ships' routing systems and VTS placed under the responsibility of a Member State	Incident Report VTS infringement	IR_VTS_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1b ships in respect of which there is proof or presumptive evidence of deliberate discharges of oil or other infringements of the MARPOL Convention in waters under the jurisdiction of a Member State	Incident Report Pollution	IR_POL_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1c ships which have been refused access to ports of the Member States or which have been the subject of a report or notification by a Member State in accordance with Annex I-1 to Council Directive 95/21/EC of 19 June 1995 on port State control of shipping	Incident Report Banned Ship	IR_BAN_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1d ships which have failed to notify, or do not have, insurance certificates or financial guarantees pursuant to any Community legislation and international rules	Incident Report Lack of Insurance	IR_INS_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1e ships which have been reported by pilots or port authorities as having apparent anomalies which may prejudice their safe navigation or create a risk	Incident Report from Pilot	IR_PILOT_REC	Yes		280 (3-10/MS)	280

Authority duty	Authority duty nameⁱ	Proposed duty codeⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
for the environment						
Article 16, 17 and 21 – Recipient of information: Dir. 2002/59/EC - Article 17.1a any incident or accident affecting the safety of the ship, such as collision, running aground, damage, malfunction or breakdown, flooding or shifting of cargo, any defects in the hull or structural failure	Incident Report Serious Accident	IR_SIT_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1b any incident or accident which compromises shipping safety, such as failures likely to affect the ship's manoeuvrability or seaworthiness, or any defects affecting the propulsion system or steering gear, the electrical generating system, navigation equipment or communications equipment;	Incident Report Serious situation affecting safety	IR_DEF_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1c any situation liable to lead to pollution of the waters or shore of a Member State, such as the discharge or threat of discharge of polluting products into the sea	Incident Report Discharge	IR_DISC_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1d any slick of polluting materials and containers or packages seen drifting at sea	Incident Report Pollution	IR_LFC_REC	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1a ships which [...] have failed to comply with the notification and reporting requirements imposed	Distributing Report Missing Notification	IR_FAIL_DIS	Yes		280 (3-10/MS)	280

Authority duty	Authority duty nameⁱ	Proposed duty codeⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
by this Directive						
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1a Ships which [...] have failed to comply with the applicable rules in ships' routing systems and VTS placed under the responsibility of a Member State	Distributing Report VTS infringement	IR_VTS_DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1b ships in respect of which there is proof or presumptive evidence of deliberate discharges of oil or other infringements of the MARPOL Convention in waters under the jurisdiction of a Member State	Distributing Report Pollution	IR_POL_DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1c ships which have been refused access to ports of the Member States or which have been the subject of a report or notification by a Member State in accordance with Annex I-1 to Council Directive 95/21/EC of 19 June 1995 on port State control of shipping	Distributing Report Banned Ship	IR_BAN_DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1d ships which have failed to notify, or do not have, insurance certificates or financial guarantees pursuant to any Community legislation and international rules	Distributing Report Lack of Insurance	IR_INS_DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1e	Distributing Report from	IR_PILOT_DIS	Yes		280 (3-10/MS)	280

Authority duty	Authority duty nameⁱ	Proposed duty codeⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
ships which have been reported by pilots or port authorities as having apparent anomalies which may prejudice their safe navigation or create a risk for the environment	Pilot					
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1a any incident or accident affecting the safety of the ship, such as collision, running aground, damage, malfunction or breakdown, flooding or shifting of cargo, any defects in the hull or structural failure	Distributing Report Serious Accident	IR_SIT_ DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1b any incident or accident which compromises shipping safety, such as failures likely to affect the ship's manoeuvrability or seaworthiness, or any defects affecting the propulsion system or steering gear, the electrical generating system, navigation equipment or communications equipment;	Distributing Report Serious situation affecting safety	IR_DEF_ DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1c any situation liable to lead to pollution of the waters or shore of a Member State, such as the discharge or threat of discharge of polluting products into the sea	Distributing Report Discharge	IR_DISC_ DIS	Yes		280 (3-10/MS)	280
Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1d any slick of polluting materials and containers or packages seen drifting at sea	Distributing Report Pollution	IR_LFC_ DIS	Yes		280 (3-10/MS)	280
Article 5 - Mandatory Reporting System (MRS)	MRS	MRS	Yes		2-3 per MS	84

Authority duty	Authority duty name ⁱ	Proposed duty code ⁱⁱ	Associated to an Area	Associated to a list of LOCODEs	Number of authorities	Number of areas
					(some MRS have multiple authorities in different MS) 84	
Articles 8 and 9 – Vessel Traffic Services (VTS)	VTS	VTS	Yes		200	200
Article 3 (n) - Maritime Rescue Coordination Centre(s) - MRCC(s)	MRCC or MRSC o JRCC	SAR	Yes		2-8 per MS - 224	224
Article 3 (n) - Pollution Response Centre(s)	Pollution Response Centre	POL_RES	Yes		2-8 per MS- 224	224
<i>Other tasks (as defined by the SSN administrator in future)</i>	n.a.	NA	Yes	Yes	10,000	10,000

Table 2 - Additional functions related to STMID, required in the expansion of COD

Additional functions related to STMID, required in the expansion of COD
Authority Responsible for SafeSeaNet
Authority responsible for the accommodation of ships in need of assistance
Authority responsible for the pre-arrival/arrival/departure notifications
Authority responsible for handling the incident/accident reports
Authority responsible for MRS
Authority responsible for LRIT
Authority responsible for VTS

Table 3- Mapping of the COD Functions and duties pre-filled by default in the application

(II) COD Function- based on STMID only	(III) STMID duty / activity + other VTMIS interlinked duties
<p>A. Competent authority for search and rescue (SAR). [pre filled duties: 31]</p> <p>B. Competent authority with respect to pollution. [pre filled duties: 32]</p> <p>C. Authority Responsible for SafeSeaNet [pre filled duties: 1-2]</p> <p>D. Authority responsible for the accommodation of ships in need of assistance [pre filled duties: 3, 4, 5, 41]</p> <p>E. Authority responsible for the pre-arrival/arrival/departure notifications [pre filled duties: 6-7, 33-40]</p> <p>F. Authority responsible for handling the incident/accident reports [pre filled duties: 8-27]</p> <p>G. Authority responsible for MRS [pre filled duties: 28]</p> <p>H. Authority responsible for LRIT [pre filled duties: 29]</p> <p>I. Authority responsible for VTS [pre filled duties: 30]</p>	<ol style="list-style-type: none"> 1. Article 22a – National Competent Authority (NCA) 2. Article 22a– NCA 24/7 contact point 3. Article 20 (1) and 20a (2(b)) – Competent authority (ies) for assessing the situation on the accommodation of ships in need of assistance 4. Article 20a (2(a)) – Authority (ies) responsible for receiving and handling alerts as regards the accommodation of ships in need of assistance 5. Authority reported to IMO as M.A.S. 6. Article 4 – Authority (ies) receiving notifications prior to entry into ports 7. Article 13 – Authority (ies) receiving dangerous and polluting goods notifications 8. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1a ships which [...] have failed to comply with the notification and reporting requirements imposed by this Directive 9. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1a Ships which [...] have failed to comply with the applicable rules in ships' routing systems and VTS placed under the responsibility of a Member State 10. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1b ships in respect of which there is proof or presumptive evidence of deliberate discharges of oil or other infringements of the MARPOL Convention in waters under the jurisdiction of a Member State 11. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1c ships which have been refused access to ports of the Member States or which have been the subject of a report or notification by a Member State in accordance with Annex I-1 to Council Directive 95/21/EC of 19 June 1995 on port State control of shipping 12. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1d ships which have failed to notify, or do not have, insurance certificates or financial guarantees pursuant to any Community legislation and international rules 13. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 16.1e ships which have been reported by pilots or port authorities as having apparent anomalies which may prejudice their safe navigation or create a risk for the environment 14. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1a any incident or accident affecting the safety of the ship, such as collision, running aground, damage, malfunction or breakdown,

	<p>flooding or shifting of cargo, any defects in the hull or structural failure</p> <p>15. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1b any incident or accident which compromises shipping safety, such as failures likely to affect the ship's manoeuvrability or seaworthiness, or any defects affecting the propulsion system or steering gear, the electrical generating system, navigation equipment or communications equipment;</p> <p>16. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1c any situation liable to lead to pollution of the waters or shore of a Member State, such as the discharge or threat of discharge of polluting products into the sea</p> <p>17. Article 16, 17 and 21 - Recipient of information: Dir. 2002/59/EC - Article 17.1d any slick of polluting materials and containers or packages seen drifting at sea</p> <p>18. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1a ships which [...] have failed to comply with the notification and reporting requirements imposed by this Directive</p> <p>19. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1a Ships which [...] have failed to comply with the applicable rules in ships' routing systems and VTS placed under the responsibility of a Member State</p> <p>20. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1b ships in respect of which there is proof or presumptive evidence of deliberate discharges of oil or other infringements of the MARPOL Convention in waters under the jurisdiction of a Member State</p> <p>21. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1c ships which have been refused access to ports of the Member States or which have been the subject of a report or notification by a Member State in accordance with Annex I-1 to Council Directive 95/21/EC of 19 June 1995 on port State control of shipping</p> <p>22. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1d ships which have failed to notify, or do not have, insurance certificates or financial guarantees pursuant to any Community legislation and international rules</p> <p>23. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 16.1e ships which have been reported by pilots or port authorities as having apparent anomalies which may prejudice their safe navigation or create a risk for the environment</p> <p>24. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1a any incident or accident affecting the safety of the ship, such as collision, running aground, damage, malfunction or breakdown, flooding or shifting of cargo, any defects in the hull or structural failure</p> <p>25. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1b any incident or accident which compromises shipping safety, such as failures likely to affect the ship's manoeuvrability or</p>
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	<p>seaworthiness, or any defects affecting the propulsion system or steering gear, the electrical generating system, navigation equipment or communications equipment;</p> <p>26. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1c any situation liable to lead to pollution of the waters or shore of a Member State, such as the discharge or threat of discharge of polluting products into the sea</p> <p>27. Article 16, 17 and 21 - Distributor of information: Dir. 2002/59/EC - Article 17.1d any slick of polluting materials and containers or packages seen drifting at sea</p> <p>28. Article 5 - Mandatory Reporting System (MRS)</p> <p>29. Article 6b - LRIT National Competent Authority</p> <p>30. Articles 8 and 9 – Vessel Traffic Services (VTS)</p> <p>31. Article 3 (n) - Maritime Rescue Coordination Centre - MRCC(s)</p> <p>32. Article 3 (n) - Pollution Response Centre(s)</p> <p>33. Reception of 72h pre-arrival notification</p> <p>34. Recording of ATA</p> <p>35. Recording of ATD</p> <p>36. Reception of Notification of waste and residues</p> <p>37. Reception of Notification of security information</p> <p>38. Issuing of exemption related to the submission by ships of Notification of waste and residues</p> <p>39. Issuing of exemption related to the submission by ships of Notification of security information</p> <p>40. Issuing of exemptions on the receipt of dangerous and polluting goods notifications</p> <p>41. Article 20 (1) and 20a (2(b)) – Competent authority (ies) for making a decision on the accommodation of ships in need of assistance</p>
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ⁱ “Duty” name is intended to the user interface

ⁱⁱ “Duty Code” is intended to the system configuration (not seen by end-users)