

Annex A
(Technical specifications)
of the Tender Specifications
attached to the
Invitation to tender N° EMSA/NEG/35/2014 for the
extension of the existing IdM infrastructure.

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1. INTRODUCTION

1.1. WORK BREAKDOWN

The project is structured in the work packages described in the table below. For each work package specific requirements are defined, and these should be addressed by the bidder when answering the award criteria defined in Point 14 of the tender specifications.

Ref	Work package name	Work package description
WP1	Development of Mobile Access gateway	<ul style="list-style-type: none"> Development of a Mobile Access gateway that to allow IMS mobile application to make user authentication against EMSA IdM infrastructure.
WP2	Extension and Enhancement	<ul style="list-style-type: none"> Implement specific change requests on the existent IdM platform
WP3	Maintenance	<ul style="list-style-type: none"> Provide one year of maintenance and support for the developed solutions

1.2. REQUIREMENTS FOR THE CONTRACTOR

After contract signature, the contractor shall follow, during the implementation and maintenance of the project, EMSA's standards in terms of system landscape, project delivery requirements, working procedures and service requirements. These are included in Appendices A, C and D of this technical Annex.

1.3. SOFTWARE DEVELOPMENT METHODOLOGY

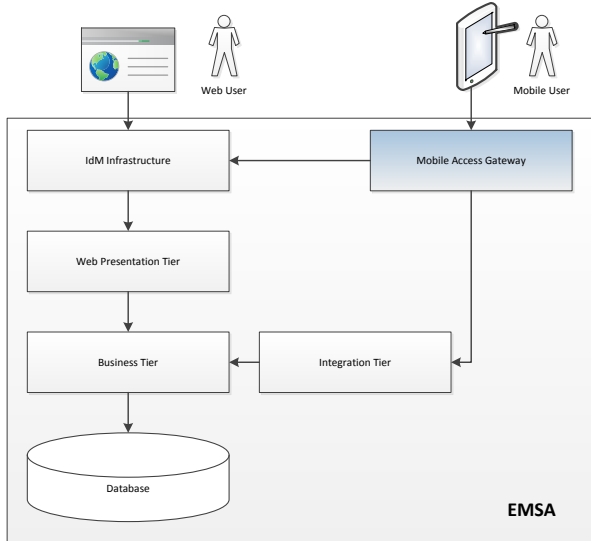
It is expected that the contractor will follow an agile-based approach for implementing the project, with multiple iterations of the solutions presented, to ensure that EMSA's staff can follow-up closely/review, comment and interact with the system throughout all phases of project implementation. Number, size and duration of each sprint shall be proposed in the tender and finally agreed in the kick-off meeting

1.4. GLOBAL REQUIREMENTS

Ref: EXTIDM_GEN_01	Nature: Mandatory
General requirement	
All the requirements formulated with the terms "shall", "must" and "has to" are mandatory to fulfil. All requirements formulated with the term "should" will be considered an advantage if fulfilled.	
Ref: EXTIDM_GEN_02	Nature: Mandatory
General requirement	

If the bidder has to deviate from the requirements set out in this document, then the bidder must present equivalent requirements (variants) and must justify the deviation(s). EMSA reserves the right to disagree with the deviation and the proposed solution.	
Ref: EXTIDM_GEN_03	Nature: Mandatory
General requirement	
References in this document like “Chapter”, “Section” or “Paragraph” are referring to this document unless other reference documents are identified explicitly.	
Ref: EXTIDM_GEN_04	Nature: Mandatory
Source Code and Build Procedures	
The Contractor shall deliver to EMSA all source code and configuration files developed in the scope of the project and the necessary build procedures in accordance to what is specified in Appendix D. If any other element is needed to build the system/component from the scratch it shall be also delivered to EMSA.	
Ref: EXTIDM_GEN_05	Nature: Mandatory
Project lifecycle management tool – Team Forge	
TeamForge will be the main tool for managing issues, sharing documents, and posting meeting minutes. EMSA will setup an account for the contractor.	
Ref: EXTIDM_GEN_06	Nature: Mandatory
Meetings	
There shall be at least 1 meeting every week (phone conference or at EMSA’s premises). In case the contractor or EMSA requires an additional meeting it has to be arranged within 2 working days. Regarding the minutes: <ul style="list-style-type: none"> ▪ The contractor is in charge of the minutes of the meeting and provides them within 2 working days after the end of the meeting. ▪ The meeting minutes have to contain actions with deadline. ▪ The meeting minutes shall be uploaded to TeamForge and approved by EMSA. ▪ The contractor is responsible to upload to the TeamForge tracker any actions stemming from the meeting. 	
Ref: EXTIDM_GEN_07	Nature: Mandatory
Work breakdown structure, project activities and dependencies	
In their bids, Bidders shall present: <ul style="list-style-type: none"> ▪ Work break down structure ▪ Gantt chart (per Work package) ▪ Person day effort per activity and allocated profiles for executing the work. 	

2. WP1 – DEVELOPMENT OF MOBILE ACCESS GATEWAY

Ref: EXTIDM_WP1_01	Nature: Mandatory
General description	
<p>The aim of the Mobile Access Gateway project is to extend the current EMSA IdM infrastructure to allow IMS mobile application to make user authentication against EMSA IdM infrastructure. The project will include:</p> <ul style="list-style-type: none"> ▪ Architectural design of the Mobile Access Gateway in-line with “EMSA System and Application Landscape”, “EMSA IdM Guide” and “IMS Mobile Application” architecture ▪ Specifications and sizing of the elements/components to be added to the existent EMSA IdM infrastructure ▪ Technical Documentation ▪ Operation and Maintenance Documentation ▪ Deployment in 3 different environments (TEST, PRE-PROD and PROD) ▪ Go-live support 	
Ref: EXTIDM_WP1_02	Nature: Mandatory
Impacts on the existent EMSA IdM infrastructure	
<p>The contractor shall implement the Mobile Access Gateway with the minimum impact on the existent infrastructure. If any impact is expected (even the smallest one), in their bids, Bidders shall make reference to it as detailed as possible and a clear justification shall be present.</p>	
Ref: EXTIDM_WP1_03	Nature: Mandatory
Context diagram	
<p>The following figure shows the context diagram establishing the boundaries and main interfaces:</p>  <pre> graph TD subgraph EMSA IdM[IdM Infrastructure] MAG[Mobile Access Gateway] WPT[Web Presentation Tier] BT[Business Tier] IT[Integration Tier] DB[(Database)] IdM --> WPT WPT --> BT BT --> DB MAG --> IdM MAG --> IT IT --> BT end WebUser[Web User] --> IdM MobileUser[Mobile User] --> MAG </pre>	
<p>In their bids, Bidders shall present and describe as detailed as possible, the high level solution proposed focusing in the Mobile Access Gateway boundaries and interfaces</p>	
Ref: EXTIDM_WP1_04	Nature: Mandatory
Mobile Gateway functions	
<p>The contractor shall develop the Mobile Access Gateway with a set of functionalities to ensure that only EMSA</p>	

authorized users will properly use the IMS Mobile Application and be able to access EMSA's resources. Functions shall cover (but not limited to):

- 1) Provide user authentication and authorization (e.g. for login/logout)
- 2) Identify the user's roles
- 3) Interface to current EMSA IdM infrastructure "Forgot password" function
- 4) Allow access to EMSA resources (e.g. Web Services)

In their bids, Bidders shall present and describe as detailed as possible, the set of functionalities proposed and how they address the functions referred above.

Ref: EXTIDM_WP1_05	Nature: Mandatory
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Authentication and Authorization Rules

Mobile Access Gateway shall provide user authentication and authorization.

Authentication shall take in consideration three user attributes:

- 1) User Id
- 2) User password
- 3) User Status (e.g. active or disable)

Authorization shall take in consideration user roles:

- 1) If the user is member of one or more roles, authorization is to be granted. Otherwise access is rejected

User attributes and roles are organized as detailed in Appendix A and stored in an openLDAP.

User attributes and roles should be obtained preferably through IdM APIs or as a second option, directly from openLDAP (read only access).

The set of roles allowing access shall be configurable in a per Mobile Application base, without the need of rebuild any component of the system.

In their bids, Bidders shall present and describe as detailed as possible, how they propose to access the user attributes and roles and how to address the configuration of the set of roles used for authorization.

Ref: EXTIDM_WP1_06	Nature: Mandatory
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Business Services interface

IMS Mobile Application will consume business services exposed in the Integration Tier through REST Web Services. Mobile Access Gateway shall be able to protect them with user authentication and authorization.

In their bids, Bidders shall present and describe as detailed as possible, the proposed solution to protect these kind of resources.

Ref: EXTIDM_WP1_07	Nature: Mandatory
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Architecture

Mobile Access Gateway architecture (including servers, software, interfaces, ...) shall be designed in accordance to:

- Appendix A
- Appendix B
- Appendix E

In their bids, Bidders shall describe as detailed as possible, the proposed architecture focusing in the components to be added to the current infrastructure. Moreover, all commercial licences needed have to be listed including the potential cost to be supported by EMSA.

Ref: EXTIDM_WP1_08	Nature: Mandatory
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Scalability	
<p>Mobile Access Gateway shall be designed, developed and deployed taking into consideration its scalability.</p> <p>Scalability shall consider (but not limited to):</p> <ol style="list-style-type: none"> 1) The increase of load due to the increase of the number of users 2) The existence of more than one Mobile Application 3) The existence of more than one set of Business Services <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to address the scalability of the system. In particular for the three topics above, Bidders shall describe how they propose to address the three topics above referring is it will be achieved through:</p> <ol style="list-style-type: none"> 1) Horizontal or Vertical scalability 2) Configuration or new developments 	
Ref: EXTIDM_WP1_09	Nature: Mandatory
Resilience and Fault Tolerance	
<p>Mobile Access Gateway shall be resilient and fault tolerant</p> <p>Given the criticality of the Mobile Access Gateway, the architecture shall be designed to be resilient and fault tolerant to continue to provide service even on the presence of a failure.</p> <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to design the system and depict a possible architecture in line with EMSA System and Application Landscape.</p>	
Ref: EXTIDM_WP1_10	Nature: Mandatory
Environments	
<p>Three environments shall be considered in the scope of the project:</p> <ul style="list-style-type: none"> • TEST environment • PRE-PRODUCTION environment • PRODUCTION environment <p>According to EMSA policies, Contractor's shall have full access to TEST environment but PRE-PRODUCTION and PRODUCTION was fully managed and controlled by EMSA. Whenever a new version is available, Contractors are responsible for the deployment in the TEST environment (after EMSA agreement).</p> <p>Detailed installation/configuration/deployment documentation shall be provided to EMSA for PRE-PRODUCTION and PRODUCTION.</p>	
Ref: EXTIDM_WP1_11	Nature: Informative
General Project delivery requirements	
<p>The contractor shall abide the requirements set forth in Appendix C Project delivery when concerns the main project phases:</p> <ul style="list-style-type: none"> ▪ Design ▪ Development and testing ▪ Deployment ▪ Go-Live <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to address the project including a detailed project plan identifying tasks, skill, effort, time and considering the 3 environments previously identified</p>	
Ref: EXTIDM_WP1_12	Nature: Mandatory

Tests	
<p>The Contractor shall be responsible for the full and exhaustive test of the Mobile Access Gateway.</p> <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to test the Mobile Access Gateway component from the Functional, Non-Functional and Integration perspective.</p>	
Ref: EXTIDM_WP1_13	Nature: Mandatory
Documentation	
<p>The Contractor shall be in charge to create and maintain updated the following documents during the lifetime of the project:</p> <ul style="list-style-type: none"> ▪ Technical documentation ▪ Installation, Configuration and deployment manual ▪ Operating and maintenance manual (OMM) ▪ Incident management procedures <p>Further details on documentation are provided in Appendix C and Appendix D on service and project delivery.</p>	

3. WP2 – EXTENSION AND ENHANCEMENT

Ref: EXTIDM_WP2_01	Nature: Mandatory
Integrate SSN training environment with IdM PRE-PRODUCTION environment	
<p>The objective is to provide a way to provision users created in IdM PRE-PROD environment to SSN Training Environment composed by:</p> <ol style="list-style-type: none"> 1) a different LDAP 2) a different Liferay 3) a different SSN application <p>The current PRE-PROD integration is to be kept.</p> <p>The envisaged solution is to duplicate SSN PRE-PROD integration and make it compliant with SSN Training but EMSA is open to any other solution that meet the requirement of having the two SSN environments (PRE-PROD and TRAINING) working in parallel for a single IdM environment (PRE-PROD).</p> <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to address the objective.</p>	
Ref: EXTIDM_WP2_02	Nature: Mandatory
Provisioning of Local Authorities to IMDATE	
<p>The “Local Authority” shall be provisioned to IMDATE.</p> <p>IMDatE is one of the applications integrated with EMSA IdM infrastructure. Integration is similar to all others but in the current IdM-IMDatE integration the standard user attribute “Local Authority” is not included because was not needed.</p> <p>The objective of this enhancement is to change the end-to-end process to include “Local Authority” as a user attribute for IMDatE. This encompasses:</p> <ul style="list-style-type: none"> • Change the IdM Custom Forms to include the standard attribute “Local Authority” • Create the necessary interface validations • Change the IMDatE provisioning interface (Web Service) in order to include the “Local Authority” attribute. <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to address the objective.</p>	
Ref: EXTIDM_WP2_03	Nature: Mandatory
Documentation	
<p>For the two enhancements above, EXTIDM_WP2_01 and EXTIDM_WP2_02, Contractor shall be responsible to update the existent documentation and to provide the necessary documentation for installing, configuring and deploying in the PRE-PRODUCTION environment and PRODUCTION environment.</p>	

4. WP3 - MAINTENANCE

Ref: EXTIDM_WP3_01	Nature: Mandatory
Warranty	
<p>The contractor shall provide warranty support to all elements that are part of the requirements in WP1 and WP2. Any defects linked with functionalities that are part of the abovementioned requirements shall be promptly rectified by the contractor as part of the warranty support. There shall not be any cost to EMSA linked with warranty related actions. Warranty shall be provided up to two years for all deliverables.</p>	
Ref: EXTIDM_WP3_02	Nature: Mandatory
General requirements	
<p>Maintenance is deemed to comprise of all operations necessary to maintain the system in perfect working order, or to restore a defective system or one of its components to perfect working order, inclusive of the costs of travelling and labour, if necessary.</p> <p>Corrective maintenance is the reactive modification of a software product performed after delivery to correct discovered problems.</p> <p>Preventive maintenance is the modification of a software product after delivery to detect and correct latent faults in the software product before they become effective faults. The system has to be updated to the most recent versions of the underlying software implemented.</p> <p>Once WPI, WP2 are concluded the Contractor will provide the corrective and preventive maintenance of the system necessary to ensure the required level of operational performance. Maintenance shall be provided up to one year after WP1 and WP2 are concluded.</p> <p>The contractor shall adhere to the general EMSA requirements linked with project maintenance, presented in Appendix D.</p> <p>In their bids, Bidders shall present and describe as detailed as possible, how they propose to address maintenance of WP1 and WP2</p>	
Ref: IMS_WP3_03	Nature: Informative
Main deliverables	
<p>The main deliverables that are to be produced in the context of maintenance activities are:</p> <ul style="list-style-type: none"> ▪ Monthly Maintenance Reports and Statistics on maintenance activities described in the context of Service Level Management. ▪ Change Management Documents for each change submitted to the Change Management Process. It must include at least, Change Request Form, Evaluation of the Change, Planning and Acceptance ▪ Updated versions of the system deliverables (design documentation, test documentation, user documentation, system documentation, software releases and release notes) for each change implemented and submitted to the Release Management Process. 	
Ref: IMS_WP3_04	Nature: Informative
Service levels	
<p>Service levels of the systems delivered in WP1 and WP2 shall meet the Service Levels imposed to the current IdM infrastructure.</p> <p>Occurrences (Incidents/Defects or Findings) considered as blocking (no service being provided) will have Priority = Highest. A dedicated phone line shall be available 24x7 for handling this type of occurrences.</p> <p>Occurrences (Incidents/Defects or Findings) significantly impacting the one or more components causing a partial</p>	

loss of the service provided or foreseen to be blocking during the next 2 days will have **Priority = High**.

Occurrences (Incidents/Defects or Findings) significantly impacting the one or more components with reduction of service provided (e.g. affecting performance) or foreseen to be blocking during the next week will have **Priority = Medium**.

Service levels for corrective maintenance (Incidents/Defects) shall be:

Priority	Acknowledge time	Solve time
Highest	Immediately , 24/7 basis	Immediately
High	3 working hours , 7/5 basis	1 working day
Medium	2 working days , 7/5 basis	7 working days

Ref: IMS_WP3_05

Nature: Informative

Processes and management plans

The contractor shall abide to the requirements present in Appendix D regarding service delivery. Occurrences (Incidents/Defects or Findings) considered as blocking (no service being provided) will have **Priority = Highest**. A dedicated phone line shall be available 24x7 for handling this type of occurrences. In order to support the services for maintenance, at least the following Processes and Management plans must be in place:

- Change management
- Release management
- Incident management
- Problem management
- Service level management

Requirements on these plans are included in Appendix D.

5. SUMMARY OF DELIVERABLES (INFORMATIVE)

Ref: EXTIDM_LIST_01	Nature: Informative
Overview	
This chapter summarizes the main deliverables expected from the contractor during the implementation of the project, linked with each of the work packages. Details on the content of each of the deliverables are provided in the above requirements or respective Appendices.	
Ref: EXTIDM_LIST_02	Nature: Informative
Summary of main deliverables – WP1	
<ul style="list-style-type: none"> ▪ Technical documentation: architecture, design, components, deployment, sizing ... ▪ Installation, Configuration and Deployment instructions ▪ Source Code and configuration ▪ Build procedures and instructions ▪ Test documentation (including software test plan) ▪ Operation and Maintenance Manual ▪ Incident procedures 	
Ref: EXTIDM_LIST_03	Nature: Informative
Summary of main deliverables – WP2	
<ul style="list-style-type: none"> ▪ Source Code and configurations ▪ Update of the existent documentation ▪ Update of the existent Build procedures ▪ Installation, Configuration and Deployment instructions 	
Ref: IMS_LIST_04	Nature: Informative
Summary of main deliverables – WP4	
<ul style="list-style-type: none"> ▪ Monthly Maintenance Reports and Statistics on maintenance activities ▪ Change Management Documents ▪ Updated versions of the system deliverables 	

ACRONYMS

Abbreviation	Definition
CISE	Common Information Sharing Environment
COTS	Commercial off the self
EO	Earth Observation
EU	European Union

Abbreviation	Definition
IdM	Identity Management
IMDATE	Integrated Maritime Data Environment
LDAP	Lightweight Directory Access Protocol
MS	Member State
NPR proxy	Now renamed as SSN SI (Streaming interface)
OAM	Oracle Access Manager
OIM	Oracle Identity Manager
SSN	Safe Sea Net
SSO	Single Sign-On
UDDI	Universal Description Discovery and Integration
UMC	User Management Console
WFS	Web Feature Service
WMS	Web Map Service
WUP	Web User Portal

DEFINITIONS

Term	Definition
Application	<p>Application is a computer program or set of computer programs designed to help people perform a predefined set of activities. Applications could be implemented on custom-made code or commercial-off-the shelf software (COTS) such as Oracle database server, Oracle Identity management suite, Weblogic or Apache application servers, ArcGIS or Geoserver suites, Liferay portal server, Microsoft server, Active Directory, Open LDAP, etc.</p> <p>Maritime applications at EMSA include: CleanSeaNet, LRIT DC, LRIT Ship database, LRIT IDE, Thetis, STCW, IMDATE integrated services (MARSURV-1, MARSURV-3 and future VAS) and those included in the SSN system (currently EIS, STIRES, SSN Data warehouse).</p>
Interface	<p>The communication boundary between:</p> <ul style="list-style-type: none"> IT entities such as: IT systems, applications, software modules within an application, software or hardware devices, Users and IT systems (i.e. graphical interface)

Term	Definition
Portlet	Portlets are pluggable user interface software components that are managed and displayed in a web portal. Portlets produce fragments of markup code that are aggregated into a portal. Typically, following the desktop metaphor, a portal page is displayed as a collection of non-overlapping portlet windows, where each portlet window displays a portlet. Hence a portlet (or collection of portlets) resembles a web-based application that is hosted in a portal. Portlets are defined in JSR-000168 and JSR-000268 standards.
Service	(OASIS definition) Service is a mechanism to enable access to one or more capabilities, where the access is provided using a prescribed interface and is exercised consistent with constraints and policies as specified by the service description
User	A human being or an Authority accessing one or more EMSA applications using a web – based interface. The “Authority” could be understood as an account that allows a team of persons to access one or more applications.
User interface	User interface is everything designed into an IT system which includes one or more applications which a human being may interact with -- this includes, but is not restricted to: display screen, keyboard, mouse, light pen, desktop appearance, illuminated characters, help messages, and how an application program or a Web site invites interaction and responds to it.

APPENDICES TO ANNEX (A)

Ref	Content	Attached as document
(A)	EMSA technical landscape	Appendix_A_TechLandscape_vf.pdf
(B)	IdM Technical document	Appendix_B_IdM_vf.pdf
(C)	EMSA requirements for Project delivery	Appendix_C_Project_delivery
(D)	EMSA requirements for Service delivery and working procedures	Appendix_D_Service_delivery
(E)	IMS Mobile Application architecture	Appendix_E_IMS_architecture



European Maritime Safety Agency