

## Annex II to the Invitation to Tender

Frontex/OP/720/2018/RS

# Terms of Reference

Provision of Nautical Charts Web Map Service  
Design, Transition & Operation

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## 1. Background Information

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### 1.1. Situation Monitoring and supporting IT systems

One of Frontex' principle tasks is situation monitoring. For that purpose Frontex uses a set of IT systems that allow to compile and maintain the situational picture. These systems are built on the Microsoft and ESRI technology stack and their main applications are based on the ESRI Silverlight API and JavaScript. These systems are used within the EU Member States (MS) and Schengen Associate Countries (SAC) border guard community.

### 1.2. Scope

The envisaged solution is an externally hosted nautical chart OGC compliant web map and web map tile service (WMS/WMTS) that can be integrated into Frontex applications allowing to display maritime information on their natural background. The web map service shall be based on an official ENC.

The service provided shall include the regular updates.

The required map service is for planning purposes only and will **not** be used for navigational purposes.

Within the scope of this procurement are the design and build of the service, the provision of the externally hosted service and quarterly updates from the day the service is in operation.

### 1.3. Out of scope

Out of scope of this procurement are:

- The provision of Electronic Nautical Charts (ENC);  
No ENC vector dataset shall be directly provided to Frontex, neither Frontex will provide ENCs datasets for web map services or updates. Frontex will only consume web map services as described and built on data derived from an official ENC. The tenderer shall make its ENCs available via WMS/WMTS and shall integrate all updates into these services.
- The provision of hardware;
- The provision of software; <sup>1</sup>
- The provision of paper charts.

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## 2. Required Tasks/Services

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### 2.1. Required tasks and services

- Build and delivery of the web map services;
- Maintenance & updates of the charts and the services;
- Provision of supporting documentation.
- Provision of usage statistics

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<sup>1</sup> The hardware or software required to provide the services shall not be hosted by Frontex.

## 2.2. Service availability

The service has to be available for at least 98%.

Availability %	Downtime / year (365 days)	Downtime / month (30 days)	Downtime / week
98%	7.30 days	14.4 hours	3.36 hours

The tenderer must ensure appropriate support and provide access to 1<sup>st</sup> line support (Customer Service Desk) to report service interruptions.

## 3. Deliverables

Following deliverables are to be provided by the contractor:

### 3.1. Web map services

#### 3.1.1 Description

- Coverage:

The web map service shall have global coverage.

All zoom levels shall be available for the area delimited by the following coordinates: 30°W 72°N, 45°E 25°N. Outside that area, at least Overview and General Use Bands shall be provided.

- Source:

The tenderer shall propose a suitable source taking into consideration chapter 5.1 and provide a detailed explanation (i.e. fit for purpose, value for money) for the selection.

- Language:

All features of the charts must be labelled in English.

- Format:

The web map service shall be provided in OGC WMS 1.3.0 and OGC WMTS formats. Getmap and getFeatureInfo operations shall be available.

GetFeatureInfo operation shall return information about drawn ENC objects in the location of cursor click.

- Colours & Symbols:

The colours and symbols shall be according to the IHO S-52 standard.

- Projection:

The web map shall be available in WGS 1984 Web Mercator Auxiliary Sphere projection (EPSG:3857) and WGS 1984 (EPSG:4326).

- Zoom levels & Scales:

Best available scales shall be mapped to the de facto ArcGIS online/BING maps/Google map standard zooms as described below. Features visualized shall depend on selected scale.

20 : 1128.497220  
19 : 2256.994440  
18 : 4513.988880  
17 : 9027.977761  
16 : 18055.955520  
15 : 36111.911040  
14 : 72223.822090  
13 : 144447.644200  
12 : 288895.288400  
11 : 577790.576700  
10 : 1155581.153000  
9 : 2311162.307000  
8 : 4622324.614000  
7 : 9244649.227000  
6 : 18489298.450000  
5 : 36978596.910000  
4 : 73957193.820000  
3 : 147914387.600000  
2 : 295828775.300000  
1 : 591657550.500000

- Security:  
Minimum security measures applied to prevent unauthorised access are:
  - TLS (latest version)
  - IP Filtering
- Number of users:
  - The web service shall support approximately 100 concurrent users.
- Masking:
  - Some specific features shall be hidden upon request.
  - Masks defined shall be applied to dynamic and tiled services.

### 3.1.2 Deliverable quality criteria

- The graphical presentation is readable and features are visible on most suitable scale levels,
- There is no duplication of ENC objects.

### 3.1.3 Deliverable acceptance criteria

- The web map service has passed user acceptance tests against the criteria established above,
- The web map service can be integrated and visualised in Frontex applications,
- The web map service is delivered according to the high level schedule defined under chapter 4.1,
- The web map service is delivered according to the requested service availability as required under chapter 2.2,
- Access to 1<sup>st</sup> line support (helpdesk) and 2<sup>nd</sup> line support is provided as required under chapter 2.2,
- The declaration on compliancy with licenses and IPR as required under chapter 5.1 is signed.

The deliverable is formally accepted by Frontex and the Task / Deliverable Acceptance Form under Appendix 2 is signed by the Frontex Project Manager.

## 3.2. Chart updates

### 3.2.1 Description

Quarterly updates shall be provided according to Notice to Mariners. These updates shall be applied directly to WMS/WMTS service. Updates shall be performed outside Frontex duty hours (08:00 - 20:00 CET) and the maintenance window notification shall be submitted to Frontex at least two working days<sup>2</sup> before the update.

### 3.2.2 Deliverable acceptance criteria

- Updates are provided quarterly,
- Maintenance windows are established only during the indicated timeframes and within the notification period,
- Updates are comprehensive and reflect Notice to Mariners issued during the update period.

The deliverable is formally accepted by Frontex and the Task / Deliverable Acceptance Form under Appendix 2 is signed by the Frontex Project Manager.

## 3.3. Documentation

### 3.3.1 Description

The tenderer shall provide a schedule for the implementation and a document with a detailed description of the service called "Service Description Document" (SDD). The SDD shall at least contain the following information:

- Scope statement
- Definitions
- Risks
- Source description
- Symbolology
- Technical description
- License information

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<sup>2</sup> From Mondays to Fridays inclusive, excluding Frontex holidays. Frontex holidays usually cover Easter Break, 1-3 May, 9 May, Corpus Christi in June, Assumption Day in August 1 and 11 of November, last week of December and 1 day of January. Detailed list will be provided to the Contractor at the end of each calendar year.

The schedule shall be provided in MS Project 2013 format and describe the different activities and milestones.

#### **3.3.2 Deliverable quality criteria**

- The document is clearly structured, i.e. it is organised into chapters, sections, subsections etc. in a clear way,
- The document is compliant with standards and a writing style that support a consistent structure
- The document is consistent and coherent, i.e. ensuring mutual accordance of all types of information inside a document and lack of logical contradictions of information between the submitted documents or between parts of the same document,
- Technical descriptions shall apply UML 2 whenever applicable.

#### **3.3.3 Deliverable acceptance criteria**

- The documents are completed as required above,
- The documents are delivered within the period established by the high level schedule defined under chapter 4.1.

The deliverable is formally accepted by Frontex and the Task / Deliverable Acceptance Form under Appendix 2 is signed by the Frontex Project Manager.

### **3.4. Provision of statistics of usage**

#### **3.4.1 Description**

The tenderer shall provide monthly statistics of the usage of the service. The report shall at least contain the following information:

- Hits per service

The reports shall be provided at the beginning of the month for the previous month.

#### **3.4.2 Deliverable quality criteria**

- Report delivered in the first 7 days of the month.
- Report delivered with a tabular format.

#### **3.4.3 Deliverable acceptance criteria**

- The reports are completed as required above,
- The reports are delivered within the period established.

The deliverable is formally accepted by Frontex and the Task / Deliverable Acceptance Form under Appendix 2 is signed by the Frontex Project Manager.

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## **4. Schedule**

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### **4.1. Schedule**

The following high level schedule is foreseen:

Milestone	Description	Start	End
P0	Contract signature	0wd	
P1	Kick-off (at Frontex or via video conference)	P0 + 5wd	
P2	Service Design Phase (design and build of service, drafting of Service Description Document)	P1 + 15wd	
P3	Service Transition Phase (user acceptance testing, improving of service, delivery of documentation)	P2 + 10wd	
P4	Service Operation Phase	P3	End of contract

## 4.2. Payments

All prices shall be expressed in EURO and exclude VAT.

The payments shall be executed as follows:

- Web Map Service (# 3.1) shall be paid after the delivery & acceptance by Frontex upon presentation of the invoice by the contractor;
- Chart updates (# 3.2) shall be paid on quarterly basis, after the delivery & acceptance by Frontex, upon presentation of the invoice by the contractor.

## 5. Proposals

### 5.1. Licenses and intellectual property rights (IPR)

Proposals must be compliant with the web map source licensing policy and shall not violate any copyright or IPR. In the technical proposal, the tenderer has to acknowledge the compliancy with any licensing party by signing the declaration form attached in *Annex VIII*.

During the implementation of the project, ENC's shall be supplied by an official ENC distributor.

### 5.2. Other information

All the information delivered to the Contractor in this document, its annexes and other referred documents shall be taken into consideration by the Contractor in his offer and during the contract runtime.

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## 6. Appendices

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The following appendices are included:

**APPENDIX 1** List of acronyms

**APPENDIX 2** Model of Task / Deliverable Acceptance Form

### APPENDIX 1

ACRONYM	EXPLANATION
<b>MS</b>	Member States (of the European Union)
<b>SAC</b>	Schengen Associate Countries
<b>ENC</b>	Electronic Nautical Charts
<b>OGC</b>	Open Geospatial Consortium
<b>WMS</b>	Web Map Service
<b>WMTS</b>	Web Map Tile Service
<b>IHO</b>	International Hydrographic Organisation
<b>EPSG</b>	European Petroleum Survey Group
<b>WGS</b>	World Geodetic System
<b>IPR</b>	Intellectual Property Rights
<b>CET</b>	Central European Time
<b>WD</b>	(Frontex) Working Days
<b>UML</b>	Unified Modelling Language
<b>SDD</b>	Service Description Document



## APPENDIX 2

### Model of Task / Deliverable Acceptance Form

FOR CONTRACT No .....

*Original document - duly signed - to be attached to the invoice*

### TASK / DELIVERABLE DESCRIPTION

*Please give reference to the Terms of Reference and short description of the task or deliverable.*

*Please describe observations and reservations if any.*

*In case of Task/Deliverable rejection please detail reasons.*

### TASK / DELIVERABLE is ACCEPTED / REJECTED

*To be filled in by Frontex:*

Official responsible for acceptance (in block capitals):	
Date and signature	
Official responsible for final validation (in block capitals):	
Date and signature	