

## **Draft Workshop Report**

### **12<sup>th</sup> Mediterranean AIS Expert Working Group**

Held in Rome on  
22<sup>nd</sup> October 2014

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## Introduction

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The 12<sup>th</sup> Workshop for Mediterranean Member States, Expert Working Group (EWG) on the Mediterranean AIS Regional Exchange System (MAREΣ) took place in Rome on October 22<sup>nd</sup> 2014. All the documents for the meeting had been circulated prior to the meeting and made available through the EMSA website at <http://emsa.europa.eu/workshops-a-events/188-workshops.html>

The meeting was attended by delegations from: Romania, Slovenia, Croatia, Bulgaria, Greece, France, Malta and Italy; apologies were received from Portugal, Spain and Cyprus for not being able to take part. Montenegro also attended the meeting as observer due to its participation in the Adriatic sub-regional virtual server of MAREΣ.

Representatives from Morocco, Algeria, Tunisia, Jordan, Palestine, Israel and Lebanon also attended the meeting as observers due to their participation in SAFEMED III project. Mr Lazaros Aichmalotidis of EMSA chaired the meeting.

The list of participants is attached as **Annex 1**. A copy of the Agenda is included as **Annex 2**.

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## Objectives

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The Chairman introduced the main objectives of the meeting as follows:

- update the group on other initiatives of interest conducted by EMSA or other EU bodies;
- update the group on progress achieved by MAREΣ;
- present the participant Countries current status;
- discuss about technical issues related to MAREΣ activities;
- present the MAREΣ activities regarding the network connection quality, proxies monitoring, incident reports and monthly reports.

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## Programme

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### 1. Opening address from EMSA

Rear Admiral Piero Pellizzari Head of the ICT and Traffic Monitoring Department of the Italian Coast Guard HQs welcomed the participants and congratulated the Group for the achievements and cooperation of Member States. He wished to continue developing and improving the system.

The Group was also welcomed by Admiral Felicio Angrisano, Commandant of the Italian Coast Guard. Admiral Angrisano thanked the participants for their commitment and expressed his conviction that the works of EWG could contribute in optimizing the maritime traffic in the region.

Mr Lazaros Aichmalotidis thanked Italy on behalf of the Group for hosting the meeting and reviewed the objectives.

The Group **approved** the proposed agenda with the addition of a new item concerning the time synchronization of proxies proposed by Italy.

### 2. Approval of the minutes/report from previous meeting

EMSA introduced the minutes of the previous meeting, noting that no further comments had been received. The EWG **approved** the minutes.

### 3. Matters arising from other meetings

EMSA presented information on meetings and decisions taken in the intersessional period having relevance to the work of the MAREΣ EWG as follows:

#### **a. Satellite AIS initiative**

EMSA informed the participants about a program the Agency is running in cooperation with the European Space Agency, to integrate in SSN the Satellite AIS information. EMSA is collaborating with Member States having national SAT-AIS programmes with the objective of increasing the overall European SAT-AIS capacity. Currently EMSA is receiving a SAT-AIS streaming from Norway and from the ExactEarth constellation.

EMSA is delivering SAT-AIS information to relevant EU Member States maritime administration through the EMSA platform, using the web user interface and/or a machine to machine interface.

The group **noted** the information.

#### **b. The Adriatic-Ionian initiative**

EMSA provided information on the current Adriatic-Ionian initiative which has as objective the promotion of economic and social prosperity and growth in region by improving its attractiveness, competitiveness and connectivity.

EMSA highlighted the impact of the Adriatic-Ionian initiative to MAREΣ reminding the participants of the objectives of the specific pillar titled "*connecting the region*" which includes the following tasks:

- amend the current ADRIREP mandatory report system;
- implement a new ADRIREP platform with a view to exchange the relevant information among the participant Countries;
- integrate in MAREΣ the non-EU Countries;
- use the MAREΣ platform to develop additional pilot project.

The group **noted** the information and **agreed** that certain tasks need to be taken into account when updating the terms of reference of the MAREΣ EWG to reflect the developments of the Adriatic-Ionian initiative.

#### **c. EMSA vessel database**

EMSA updated the group about the progress made in relation to the vessel database pilot project which is currently under development by the Agency.

EMSA illustrated the services to be provided by the Central Ship Database and noted that the software was released for testing in September 2014.

The group **noted** the information provided by EMSA.

#### **d. Relations with other regional servers**

EMSA reminded the participants that representatives of the HELCOM, North Sea and North Atlantic AIS EWG attended the last Mediterranean EWG meeting. According to their feedback, the MAREΣ results were well appreciated and they agreed to continue the exchange of best practices among regional servers. To this end, the Italian Coast Guard was invited to attend the 25<sup>th</sup> HELCOM EWG meeting, held in Norway in May 2014 but was not able to attend due to other obligations.

### **4. Activity report**

Italy illustrated the general activities carried out by MAREΣ throughout October 2013 to September 2014 (vessels monitored per month, AIS information gathered from each participating Country, etc.). During the referred period of 11 months, the main points of activity, are summarized as follows:

#### **a. Information acquired**

MAREΣ acquired an average of 47 million AIS information per month. The peak was in July 2014 when the total number of information acquired was more than 62 million due to the duct effect. Also the number of ships monitored has increased over last

year due to the installation of AIS onboard fishing vessels with a length between 15 and 18 meters.

Italy stressed the need for the application proxy to perform the down-sampling of the incoming AIS information and **recommended** maintaining high the efficiency of the hardware hosting the application proxy.

#### **b. Network malfunctions/incidents**

MAREΣ detected 134 network malfunctions (incidents), involving national proxies and requiring a human intervention in order to restore normal operations. The reported incidents were caused mainly due to breakdowns in communications between the MAREΣ core application and the national proxies. All of these incidents had an effect to the information flows with the concerned participating countries.

**EMSA invited** the participating Countries to reinforce their efforts to guarantee the communication links reliability, as required by the Directive 2002/59/EC.

#### **c. Incident processing time**

MAREΣ monitored the availability of the links, including the connection between the national systems and MAREΣ, as well as between MAREΣ and the SSN central application. The total downtime was 2155.32 hours and the malfunctions processing time varied from 25 to 360 hours per month. The number show that the average time to recovery the incidents is increasing,

**EMSA invited** the participating Countries to restore as soon as possible the incoming incidents.

### **5. SAFEMED III project**

Mr Giuseppe Russo of EMSA presented the status of the SAFEMED III project, noting that it is the response to the interest of the European Union to develop Euro-Mediterranean co-operation in the field of maritime safety and security, prevention of pollution from ships and marine environmental issues by providing technical advice and support to the non-EU Mediterranean countries identified in the 1995 Barcelona Agreement.

He presented the background information of the SAFEMED I (2006-2008) and SAFEMED II (2009-2012) projects run by REMPEC. The Commission and the Mediterranean partner Countries agreed to launch a third SAFEMED project (June 2013 to June 2016) for an overall duration of 36 months. SAFEMED III involves Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestinian Authority, Syria and Tunisia. One of the SAFEMED III activities refers to the development of a Regional Server that will facilitate the exchange of AIS data between the SAFEMED beneficiaries. Following a proposal from the Commission, Italy offered the MAREΣ platform to the SAFEMED beneficiaries.

EMSA is preparing a Service Level Agreement (SLA) to be signed by each of the SAFEMED beneficiary Countries, EMSA and Italy, regulating the information exchange through MAREΣ. Member States will be able to exchange AIS information with the SAFEMED Countries only on a voluntary basis. According to the SLA the SAFEMED Countries will access the AIS information (both terrestrial and satellite) and CleanSeaNet data via the IMDate platform of EMSA.

The group **noted** the information provided.

### **6. MAREΣ progress**

Italy reminded that at the 11<sup>th</sup> EWG meeting, the group agreed Italy to modernize the MAREΣ platform, by re-using the software modules already developed by the ITCG for its AIS integrated network. Italy informed that all participating Countries are connected to the new platform in September 2014 with no particular problems.

The group **noted** the information provided.

## 7. Status in the MAREΣ Countries

The participating countries presented the status of the AIS as follows:

**Italy:** the two additional AIS Base Stations (BS), Italy announced during the last meeting, have been installed and integrated in the national network, which is currently consists of 62 BSs. The network achieves a good overlapping among the BSs coverage, high availability and the implementation of anti-spoofing algorithms.

**Slovenia:** the Slovenia coast is fully covered with 2 BS. Slovenia plans to replace the AIS BSs and the GMDSS network adopting the IP technology.

**Bulgaria:** the network is based on 6 AIS BS covering the entire Bulgarian Black Sea region. Bulgarian is also installing 6 new base stations (5 will be in standby mode) within the new VTMIS project.

**Romania:** There are 6 sites covering the Romanian coast fitted with AIS BS in 1+1 configuration. The Romanian sector of Danube is covered by with 2 BSs connected to the AIS maritime network.

**Malta:** the network is based on 5 BSs. Malta mentioned a problem experienced with the centralized server.

**Greece:** the national AIS network collects data from two networks (the Coastguard and the Navy) working together. Greece has undertaken several projects to improve AIS coverage in 2014 reaching a total number of 70 BSs. A new tender is in progress for installing additional 5 BSs.

**Croatia:** the Croatian AIS network consists of 15 BSs, all connected to a system that provides data to MAREΣ. Two more BSs will be installed in 2015.

**France:** the Mediterranean AIS network consists of 18 BSs, 10 located in the continental France and 8 in Corsica. France is planning to install 2 additional BSs.

**Montenegro:** The AIS network consists of 2 BSs covering the Montenegrin coastline. Four additional BSs will be installed within the VTS program currently in progress.

**Portugal** sent an e-mail reporting the following current status of the AIS network: "without any major changes Portugal's mainland coast remains totally covered by 11 dual base stations (active + hot-standby) high availability AIS network feeding MAREΣ through 2 proxies installed on a disaster recovery architecture. Azores AIS information is being sent to MAREΣ since the 8<sup>th</sup> of November 2013. Madeira AIS information is not indeed being provided. Further developments will be supplied soon as the issue is being handled at a higher level".

## 8. Status in the SAFEMED III Countries

The SafeMed countries presented the status of the AIS in their respective countries as follows:

**Lebanon:** currently Lebanon has no AIS network. The installation of 5 BSs is planned in the framework of a VTS program, but delivery times are not yet defined.

**Palestine:** the Country has no AIS network.

**Morocco:** the AIS network consists of 14 BSs. The system is ready to connect to MAREΣ. Six more BSs are planned for 2015.

**Israel:** the AIS network consists of 3 base stations, two of them located in the Mediterranean Sea and one in Eilat. The network is ready to connect to MAREΣ.

**Algeria:** the AIS network consists of 7 BS which is used by ports for commercial purposes. One BS is in place operated by the Ministry of transport and another by the Ministry of Fisheries. There is a plan for installing 35 BS in 2015.

**Tunisia:** There is one AIS BS operating by the VTS and plans for installing 6 more BS. A network is already in place operated by the navy.

**Jordan:** the AIS network consists of 2 BSs.

**Egypt:** not present – according to the information received, Egypt does not want to take part in the activity

**Libya:** not present - according to the information received, the AIS network of Libya consists of 16 BSs but there is no commitment to participate in the activity.

## 9. AIS spoofing avoidance

Italy presented the result of a project carried out by the ICG with the Joint Research Center (JRC) in order to detect the AIS spoofing. Italy mentioned that it is technically possible AIS positions to be jammed or deliberately falsified. Italy described the mechanisms which can quickly identify cases of spoofing and therefore enhance the quality of the AIS information.

The project was conducted and tested in the Ligurian Sea and requested modifications to the seven base stations involved as follows:

- improvement of the time measurement accuracy (better than 30μsec);
- addition of the IEC 62320 VSI sentence, containing the time stamp with the requested accuracy, to every VDM sentence received by the base stations.

Furthermore the national server was configured in such a way so to exclude the duplication avoidance functionality.

Italy informed the group about its intention to evaluate the feasibility to implement, at national level, a stable anti-spoofing service.

The group **noted** the information provided.

## 10. Adoption of a FATDMA plan

Italy presented a study for the possible adoption of a FATDMA management plan using the IALA grid scheme in the MAREΣ Region. The purpose of the FATDMA management plan is to optimize the use of the VDL reducing interferences between the AIS transmission schedules of the Base Stations managed by neighboring Authorities.

Italy analyzed the allocation of the AIS MAREΣ Base Stations within a FTDMA IALA grid scheme, their occurrences inside each cell and all the possible transmission conflicts. The analysis was conducted on the basis of the known BSs information (location) and the possible conflicts are reported in the Annex III.

The conflicts of the type 1 are more critical and to be addressed need agreements between the Countries involved. The conflict of type 2 could be easily mitigated by:

- choosing to contribute an unused and immediately adjacent FATDMA scheme within its planning area to be used in another cell, when it can be guaranteed by the competent Authority that this cell will remain unused (e.g. due to topology);
- using queuing capability of the base station (if available);
- employing directional antennas, lower antenna heights of the transmitting station(s) and even transmission power attenuation of the transmitting station(s), making use of or at least taking into account the local topography;
- using different frequencies also for the same cells in adjacent master cells (to avoid possible interferences due to the duct effect).

The group **noted** the information and **invited** Member States willing to implement the FATDMA schemes to send to ICG an updated situation regards their AIS BSs location.

## 11. Proxies synchronization

Italy reminded that the national proxies installed by the participant Countries add the time stamp to the AIS information delivered. Italy highlighted that in few cases, the

time stamp provided to the proxy by the host environment was not correct causing malfunctioning to the MAREΣ network.

For this reason the EWG was invited to synchronize their proxy host environment to a NTP server. In any case, Italy will explore the feasibility to enhance MAREΣ in order to be able to provide the proxies with a consistent time.

The group **noted** the information provided.

## **12. Future role of MAREΣ**

EMSA reminded that the setting-up of the AIS Experts Working Group (AIS EWG) for the traffic monitoring issues in Mediterranean was agreed at the Workshop in November 2005 and the terms of reference of the working group in May 2006. The functionalities of MAREΣ had been implemented and managed by Italy and throughout the years are steady improving.

Possibilities exist for the geographical expansion of the MAREΣ role and for promoting the regional cooperation. Within the framework of the SAFEMED project, MAREΣ could play a significant role in supporting the neighbouring countries in the area. Furthermore MAREΣ could be used to support other types of users at regional level such as users involved in fisheries monitoring and illegal immigration as well as the setting-up of the Adriatic-Ionian regional server.

The 9th EWG (Rome, 2nd December 2010) acknowledged that the main objectives of the group have been achieved and discussed on how to define a clear roadmap and get a fresh mandate.

The participants **agreed** to discuss at the next meeting new Terms of Reference of the MAREΣ EWG reflecting the new challenges ahead.

## **13. Date of next meeting**

The provisional date of the next EWG meeting is October 2015.

### **Annex:**

- I. List of participants
- II. Workshop Agenda
- III. Conflict among AIS BSs in a FATDMA scheme

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## ANNEX II

### Agenda

#### 12<sup>th</sup> Meeting of the MAREΣ AIS Expert Working Group (October 22<sup>nd</sup> 2014)

**Coast Guard Headquarters, Viale dell' Arte 16 – Rome, Italy**

0930	Registration and coffee	
0945	Opening of meeting and approval of agenda	Italy/EMSA
1000	Wrap up of previous meeting/approval of minutes	EMSA
1015	Matters arising from other meetings <ul style="list-style-type: none"> <li>• Satellite AIS initiative</li> <li>• The Adriatic-Ionian initiative</li> <li>• EMSA vessel database</li> <li>• Relations with other regional servers</li> </ul>	EMSA
1100	MAREΣ network activity and monitoring report: <ul style="list-style-type: none"> <li>• activities carried out by MAREΣ</li> <li>• AIS data quality</li> </ul>	Italy
1130	Coffee break	
1145	SAFEMED III project	EMSA
1215	MAREΣ progress report	Italy
1300	Lunch break	
1430	AIS status in the participating Countries	MAREΣ Countries
1500	AIS status in the SAFEMED III Countries	SAFEMED III Countries
1530	AIS spoofing avoidance	Italy
1600	Coffee break	
1615	Adoption of a FATDMA plan	Italy
1625	Proposal for MAREΣ development	Italy
1630	Future role of MAREΣ	All
1715	Any other business	All
1700	Conclusion	EMSA

1730 End of meeting

## ANNEX III

The following conflicts (type 1) interesting two or more neighboring participant Countries, are been found and analyzed:

<b>BS Location</b>	<b>MMSI</b>	<b>FLAG</b>	<b>MC row</b>	<b>MC col</b>	<b>Cell</b>
La Guardia	2241123	SPAIN	<b>13</b>	<b>-2</b>	<b>6</b>
Arga	2633000	PORTUGAL	<b>13</b>	<b>-2</b>	<b>6</b>
Viana do Castelo	2633070	PORTUGAL	<b>13</b>	<b>-2</b>	<b>6</b>

Monte Belvedere	2470020	ITALY	<b>15</b>	<b>3</b>	<b>25</b>
Capodistria	2780200	SLOVENIA	<b>15</b>	<b>3</b>	<b>25</b>

The following conflicts (type 2) interesting two or more neighboring participant Countries, are been found and analyzed:

Monte Figo	2633060	PORTUGAL	<b>12</b>	<b>-2</b>	<b>19</b>
La Antigua	2241147	SPAIN	<b>9</b>	<b>-4</b>	<b>19</b>
Moncique	2633050	PORTUGAL	<b>12</b>	<b>-2</b>	<b>24</b>
Ponta do Altar	2633100	PORTUGAL	<b>12</b>	<b>-2</b>	<b>24</b>
Figueira da Foz	2633090	PORTUGAL	<b>13</b>	<b>-2</b>	<b>24</b>
Muxia	2241122	SPAIN	<b>14</b>	<b>-2</b>	<b>24</b>
Mussara	2241129	SPAIN	<b>13</b>	<b>0</b>	<b>8</b>
Pertusato	2288231	FRANCE	<b>13</b>	<b>2</b>	<b>8</b>
Trapani - Monte Erice	2470045	ITALY	<b>12</b>	<b>3</b>	<b>8</b>
Pomos	2129910	CYPRUS	<b>11</b>	<b>8</b>	<b>12</b>
Heraklion	2393700	GREECE	<b>11</b>	<b>6</b>	<b>12</b>

Monte Toro	2241134	SPAIN	<b>13</b>	<b>1</b>	<b>25</b>
Ile Rousse	2288237	FRANCE	<b>14</b>	<b>2</b>	<b>25</b>
Alfabia	2241133	SPAIN	<b>13</b>	<b>0</b>	<b>29</b>
Bear	2288235	FRANCE	<b>14</b>	<b>0</b>	<b>29</b>
Corfu'	2393800	GREECE	<b>13</b>	<b>5</b>	<b>25</b>
Lastovo	2386160	CROATIA	<b>14</b>	<b>4</b>	<b>25</b>
Saplunara	2386170	CROATIA	<b>14</b>	<b>4</b>	<b>26</b>
S. Benedetto del Tronto - M. Piselli	2470057	ITALY	<b>14</b>	<b>3</b>	<b>26</b>
Dubrovnik	2386150	CROATIA	<b>14</b>	<b>4</b>	<b>27</b>
Silvi Marina	2470081	ITALY	<b>14</b>	<b>3</b>	<b>27</b>
Pescara - Monte Maielletta	2470025	ITALY	<b>14</b>	<b>3</b>	<b>33</b>
Susac	2386050	CROATIA	<b>15</b>	<b>3</b>	<b>33</b>
Crikvenica	2386060	CROATIA	<b>15</b>	<b>3</b>	<b>33</b>
Krasici	2620002	MONTENEGRO	<b>14</b>	<b>4</b>	<b>33</b>
Burgas	2070816	BULGARIA	<b>14</b>	<b>6</b>	<b>34</b>
Mahmudia	2640572	ROMANIA	<b>15</b>	<b>6</b>	<b>34</b>