



European Maritime Safety Agency

Draft Workshop Report

11th Mediterranean AIS Expert Working Group

Held in Rome on
12th November 2013

Introduction

The 11th Workshop for Mediterranean Member States, Expert Working Group (EWG) on the Mediterranean AIS Regional Exchange System (MAREX) took place in Rome on November 12th 2013. All the documents for the meeting had been circulated prior to the meeting and made available through the EMSA website.

The meeting was attended by delegations from: Romania, Slovenia, Croatia, Bulgaria, Greece and Italy; apologies were received from France, Portugal, Spain, Malta 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 MAREX project.

Mr Rolf Zetterberg, Mr Adri Fluit and Mr Jarle Hauge attended the meeting as observers representing the HELCOM, North Sea and North Atlantic AIS EWG respectively. 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**.

Objectives

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

- propose system improvements and new functionalities (from Italy);
- analyse the utilization of "comment block" and "dead reckoning track";
- present the participant countries current status;
- present the MARES activities regarding the network connection quality, proxies monitoring, incident reports and monthly reports.

Programme

1. Opening address from EMSA

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

In the afternoon the Group was 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 and flows 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 agenda.

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

3.1 IMO e-Navigation

Mr Jarle Hauge presented the status of the IMO e-Navigation and highlighted that the scope of the e-navigation initiative is to harmonise and enhance the navigation systems for better safety and security at sea and protection of the marine environment. A correspondence group, chaired by Norway, has been established in

IMO to define the e-navigation components and limitations, system architecture etc. Several test beds have been implemented within projects financed by EU. The implementation of the e-navigation requires data standardization and the availability of broadband communications to delivery large amount of data and information.

3.2. IFCD and the relevance to the MAREX AIS server

EMSA presented the parts of the Interface and Functionalities Control Document (IFCD) (issued on December 2012) related to the Regional Servers. The AIS Regional Server is a server that a group of MSs agree to maintain in accordance with the security and reliability requirements of the SSN system and to use to relay AIS information from their national systems to the central SSN. It may include data collection, storage, backup and re-distribution, as well as monitoring the availability and quality of the data. For these functionalities, and as long as the MSs concerned request to use it as an alternative to the direct connection to the central SSN system, the AIS Regional Server will be considered to be a component of the central SSN.

3.3. SAFEMED III project

EMSA presented some information of the SAFEMED III project, which is a 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.

The Commission launched 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 the proposal of the Commission, Italy agreed to offer the logistical support using the MAREX platform.

3.4. The Adriatic-Ionian initiative

EMSA provided information on the current Adriatic-Ionian initiative. On December 2012, the European Council requested the Commission to present a new strategy for the Adriatic and Ionian region before the end of 2014. The Commission draws up an EU Strategy for the Adriatic and Ionian Region (EUSAIR). The EUSAIR will cover 8 Countries: 4 EU Member States (Croatia, Greece, Italy and Slovenia) and 4 non-EU Countries (Albania, Bosnia-Herzegovina, Montenegro and Serbia). The EUSAIR general objective is to promote economic and social prosperity and growth in region by improving its attractiveness, competitiveness and connectivity.

EMSA informed that a meeting will take place in Brussels on 14 November to draw up an action plan for the region. This action plan will include, among others, activities related to vessel traffic monitoring and a possible upgrade of the existing Mandatory Ship Reporting System ADRIREP in the Adriatic Ionian Region.

The group **noted** the information.

4. Activity report

Italy illustrated the general activities carried out by MAREX throughout June 2012 to September 2013 (vessels monitored per month, AIS information gathered from each participating Country, etc.). The main points of activity are summarized as follows:

4.1. Network malfunctions/incidents

MAREX detected 114 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 MAREX 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 that the communication links meet the requirements of the Directive 2002/59/EC.

4.2. 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 1.491 hours and the malfunctions processing time varied from 14 - 255 hours per month.

4.3. Minor incidents

MAREΣ counted the numbers of minor breakdowns in communications between and national proxies. The duration of these incidents was very short (from milliseconds to a few minutes) and the MAREΣ CORE/proxy application automatically restored in all cases. These minor incidents have an impact to the overall link availability but in all cases remained over 99% with the exception of September 2012 (98.992%), August (98.334%) and September 2013 (98.328%).

EMSA invited the participating Countries to reduce the amount of these minor incidents.

4.4. AIS data quality

Italy presented an analysis about the quality of the AIS messages sent by the tankers. From August 2012 to July 2013, the average number of tankers monitored within the Mediterranean AIS regional server area, was 376.717. The invalid data were sorted by several categories: invalid MMSI or IMO number or both. The analysis showed that a relatively low number of monitored tankers (2.996) were transmitting invalid data.

EMSA invited the participating Countries to take the necessary measures for reducing the numbers of invalid/inaccurate data.

4.5 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.

The group **agreed** EMSA to cooperate with MAREΣ to investigate the possibilities of sharing the EMSA vessel database with the relevant database of MAREΣ.

5. MAREΣ progress

Italy presented some improvements to the software and network architecture introduced in the referred period.

5.1 MAREΣ duplication

Italy announced the implementation of a disaster recovery server that operational since October 2012. The new regional system architecture used a second light server with a dedicate Internet Service Provider installed at the Coast Guard premises outside Rome. The new system utilized new software named MAREΣ 2.0. Following the implementation of the duplicated system only one incident occurred (due to a change of IP service provider).

5.2 New proxy release

Italy informed the group that an improved proxy release was distributed to all participating Countries, supporting the new regional system architecture upgraded with the disaster recovery. The new proxy handles two different IP addresses (main and back-up) and is compatible with MAREΣ 2.0.

5.3 Participation of Croatia as Member State

Italy reminded that Croatia was already connected to MAREΣ, as a participant in the Virtual Adriatic Sub-Regional Server project. The participation of Croatia, as Member State, in the Mediterranean regional system with full rights and obligations requested only the configuration of the Data Distribution Plan.

5.4 Integration of Madeira and Azores in MAREΣ

Italy announced the integration in MAREΣ of the Madeira and Azores islands AIS network. A dedicated proxy, independent from the proxy of the continental Portugal, was used to connect the islands to MAREΣ.

5.5 Support to France and Spain

Italy announced that France requested three separate AIS information streams with different downsampling, for the purpose of national projects (MARYLIN, SPATIONAV and ENVISIA). Spain also requested to receive its own AIS information with a downsampling of one minute. Both requests were tested the downsampling capabilities of the regional system.

The French request was fulfilled using the MAREΣ together with a new Italian national integrated system (PELAGUS), able to manage a large amount of information. On the basis of the above mentioned trial, Italy proposed to EWG to utilize the new PELAGUS software application for the implementation of the new regional system MAREΣ 2.0.

5.6 Dead Reckoning Track

Italy announced the results of their analysis about the development of a Dead Reckoning Track service in MAREΣ. The analysis demonstrated that the development of such service would be of limited value because of the current limitations in the definition of the port of destination (free text instead of LOCODE).

Italy mentioned that the current priority is the integration of several information sources such as SSN, AIS, LRIT, VMS, GMDSS and ARES (an Italian mandatory report system) to achieve a more comprehensive maritime picture.

The group **noted** the information.

6. AIS Status in the MAREΣ Countries

Italy: the upgrade of the Italian AIS network was completed in summer of 2013, with the replacement of the AIS Base stations by new ones. Currently the network is based on 60 AIS base stations, fully duplicated. Also the software to handle the network has been upgraded adopting the Service Oriented Architecture. Two further BSs are going to be installed by the end of 2014. The high numbers of BSs serve the objective of a good overlapping among the BSs coverage, the high availability of the overall coverage and the future implementation of anti-spoofing algorithms.

Slovenia: the network is based on 2 base stations, one of them providing an excellent coverage of the North Adriatic. Slovenia also developed its own decoder for generating SSN Ship AIS XML messages. Slovenia plans to replace the AIS base stations and the radio links in 2014.

Bulgaria: the network is based on 6 AIS base stations covering the entire Bulgarian Black Sea region. Bulgarian is also installing new base station within the VTMIS phase 3 project that will improve the coverage. Currently the Bulgarian AIS data server successfully exchanges AIS information with MAREΣ.

Romania: the situation remained unaltered since 2009, after the finalization of Romanian Maritime AIS network. There are 6 sites covering the Romanian coastline fitted with AIS base stations in hot stand by configuration. In Constanta (national center) there are the AIS servers for data processing including integration/fusion of targets, duplicate removal, data import from other systems, data export to clients (like MAREΣ), records and logs, etc. Moreover the Romanian sector of Danube is covered by with BSs connected to maritime network in a hot standby configuration.

Greece: the national AIS network collects data from two networks (the Coastguard with 8 stations and the Navy with 34) working together. Greece has undertaken several projects to improve AIS coverage in 2014.

Croatia: the Croatian AIS network is based on 15 BSs, all centralized in a system that provides data to MAREΣ. Currently the Croatian system, due to its hardware limitations can handle only the amount of information acquired in the Adriatic Sea.

Montenegro: the AIS network is composed by 2 BSs completely covering the Montenegrin coastline. The network is exchanging AIS information with the Virtual Adriatic Sub-Regional Server. Two additional BSs will be installed in 2014.

7. Relationship with other regional servers

The representatives of the HELCOM, North Sea and North Atlantic AIS EWG presented briefly the status of their works. The participating countries exchanged views about the relationship of MAREΣ EWG with the HELCOM, North Sea and North Atlantic EWG.

The chairman of the HELCOM AIS EWG suggested adopting a FATDMA plan in order to reduce the interference between the neighboring AIS BSs. This plan is already adopted in the HELCOM and North Sea Region with positive results minimizing the load on the VDL. The North Sea representative highlighted that their Regional Server carries out checks on the quality of the AIS information using its own reference data base. He considered using a single dB shared by all Regional Servers.

The chairmen of the 3 Regional Servers thanked Italy and EMSA for the invitation. The representatives of the HELCOM, North Sea and North Atlantic AIS EWG expressed their appreciation to the quality of the work achieved in MAREΣ and suggested to continue the exchange of views in the future.

The group **agreed** to carry out a study using the IALA grid scheme for the possible adoption of the FATDMA management plan.

8. New SafeSeaNet Streaming Interface

EMSA developed a new release of SafeSeaNet Streaming Interface to improve the reception of AIS information and the potential distribution of "enriched" data to MSs. The new SafeSeaNet SI handles the Comment Blocks according to the technical requirements of the IEC 62320 standard. The use of the standard allows to add additional information to that contained in the AIS messages (such as the Country originator, the system originator, the confidence of the AIS information, etc.).

EMSA highlighted that the use of Comment Block reduces the number of proxies. The HELCOM and the North Atlantic servers provide to SafeSeaNet the AIS data of each of the participation Country through separate proxies, one for participating Country. MAREΣ, instead, is feeding SafeSeaNet through a unique proxy and the information on the AIS message originator is contained in the Comment Block.

The group **agreed** EMSA to provide the available "Comment Blocks" documentation with the other regional servers EWGs

9. Proposal for MAREΣ development

Italy mentioned that the current MAREΣ release and was implemented in 2008 according to the operational and technical requirements agreed at that time. However during the five years of operation, the following constraints/limitations were noted:

- the number of proxies to be connected has a limitation that is reflected to the further extension of MAREΣ;
- the platform used isn't a Service Oriented Architecture, limiting the MAREΣ overall capability to provide external services;
- the dBase Management System utilized in MAREΣ is ORACLE, which incompatible with the open source dBMS currently used by the Italian Coast Guard in its integrated national AIS network;
- MAREΣ software application is completely different from the ones currently used by the Italian Coast Guard handling the integrated national AIS network. As a consequence any new tool must be written twice, for MAREΣ and for the national AIS network, duplicating the cost.

Italy intends to modernize the MAREΣ platform to comply with the recent IALA technical recommendations and guidelines and proposed the adoption of the platform MAREΣ 2.0. The transition will ensure immediate benefits and most functionality ready to use with a minimum impact over the participating Countries. The transition to MAREΣ 2.0 will take place in February 2014.

The group **agreed** with the Italian proposal.

10. Date of next meeting

The provisional date of the next EWG meeting is September 2014.

Annex:

- I) List of participants
- II) Workshop Agenda

ANNEX I – List of Participants

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ANNEX II

Agenda

11th Meeting of the MARES AIS Expert Working Group (12 November 2013)

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

0900	Registration and coffee	
0930	Opening of meeting and approval of agenda	Italy/EMSA
0945	Wrap up of previous meeting/approval of minutes	EMSA
1000	Matters arising from other meetings <ul style="list-style-type: none">• IMO e-Navigation• IFCD and the relevance to the MAREΣ AIS server• SafeMed III• The Adriatic-Ionian initiative	EMSA
1040	MAREΣ network activity and monitoring report: <ul style="list-style-type: none">• activities carried out by MAREΣ• AIS data quality	Italy/ EMSA
1130	Coffee break	
1145	MARES progress report	Italy
1215	AIS status in the MAREΣ Countries	All
1300	Lunch break	
1430	Maintaining/ further development of MAREΣ	EMSA/All
1500	Relationships with other regional servers	North Sea HELCOM North Atlantic
1545	New SafeSeaNet Streaming Interface (SSN SI)	EMSA
1610	Coffee break	
1625	Proposal for MAREΣ development	Italy
1700	Future work and policies	All
1715	Any other business	All
1730	End of meeting	