



European Maritime Safety Agency

Workshop Report

9th Mediterranean AIS Expert Working Group

Held in Rome on
December 2nd, 2010

Introduction

The 9th Workshop for Mediterranean Sea EU Member States and Expert Working Group (EWG) on the Mediterranean AIS Regional Exchange System took place in Rome on the 2nd Dec 2010. All the documents for the meeting had been circulated prior to the event and made available through the EMSA website.

The list of participants is attached as **Annex 1**.

The meeting was attended by delegations from: EMSA, Bulgaria, Greece, France, Italy, Malta, Portugal, Romania, Spain and Slovenia; apologies were received from Cyprus, Croatia and Black Sea Commission for not being able to take part. Representatives of REMPEC and contractors for the Italian Coast Guard also participated.

A copy of the Agenda is included as **Annex 2**.

Mr Lazaros Aichmalotidis of EMSA chaired the meeting.

Objectives

The main objectives of the meeting as introduced by the Chairman were to:

- Introduce system improvements and developments (from Italy);
- Note developments in the Mediterranean non-EU countries with a view to their future participation; and
- Consider the proposal to create a ship reference database and any further new proposals.

Programme

The actions agreed as a result of the meeting are listed in section 2.

1. Opening address

The participants were welcome by Rear Admiral (u.h.) Pierluigi CACIOPPO, Deputy Commandant of the Italian Coast Guard. He congratulated all representatives on the remarkable achievements and level of cooperation among MSs, and he urged all to go this way forward to continue improving the system.

Mr. Aichmalotidis thanked Italy on behalf of the Group for the hospitality; then he started reviewing the objectives referred to above.

The Group approved the agenda (**Annex 2**).

2. Approval of the minutes/report from the previous meeting, EMSA (8/MED/11)

EMSA introduced the report/minutes of the previous meeting of the Group, noting that no further comments had been received.

3. Activity report (December 2009 – November 2010), Italy (8/MED/2)

Italy illustrated the general activities carried out by MAREΣ throughout January to September 2010 in terms of amount of vessels plotted per month, AIS information gathered from each participating Country, etc. The main points of the activity are:

3.1 AIS coverage in the Mediterranean

MAREΣ reached the maximum peak of vessels plotted in October, due to the use of the regional server within a pilot project conducted with EMSA for delivering radar tracks to SSN. However, the real existing AIS coverage in the Mediterranean Sea is averagely wider than the one expectable on a theoretical basis. This is due to the presence of duct effect

which increases radio electrical VHF coverage. Italy also highlighted that the coverage is reduced in those areas characterized by a high amount of AIS transmissions due to slot collisions problem. This issue will be of even higher importance when fishing vessels will start transmissions of AIS information in accordance with 2002/59 directive.

3.2 Monitoring of SAR aircrafts

In the same period, the Italian Coast Guard used the system for monitoring of its own helicopters fitted with AIS devices. For such purpose, the proxy downsampling must be set to 0 instead of 360 (due to helicopter higher speed). Considering the limited amount of helicopters normally plotted, this will not affect bandwidth consumption.

3.3. Other improvements

Other significant issues reported were:

- changes to "proxy monitoring page", in order to allow the new proxies management;
- integration in the dBase of information concerning Single Hull Tankers (SHT) and Banned Vessels (BV);
- adoption in the GIS of STIRES standard symbols to indicate SHT, BV and vessels carrying dangerous goods;
- a more detailed chart used on the GIS web application;
- log file querying features;
- addition in the GIS of a further layer providing the participating Countries AIS BS coverage;
- dBase querying feature by predefined tools;
- implementation of tools for calculating of CPA, TCPA and TTG.

The group **noted** the information and **agreed** to study further the actual AIS coverage using empirical data. The group also **invited** EMSA to work towards developing an AIS master plan for the Mediterranean considering the links with the LRIT framework.

4. Comment Block

As proposed during the 8th EWG meeting, the AIS information forwarded by MAREΣ to national proxies was enhanced by adding the Country originator and timestamp, making use of comment block extensions as defined in the IEC 62320-1 standard. The use of the Comment Block extensions will not affect the participating States' systems.

EMSA explained the need to know such information in order to reach flexibility in managing of data flow. Comment blocks provide an easy and a standard way to achieve this goal. For the time being there isn't a need to use comment blocks in national systems, but they may be adopted in EU maritime traffic monitoring and exchange system in the future.

Also, Italy proposed to use the TAG <E> to specify a few basic information through a string including the characters B, H, S, depending on whether there are banned vessel, Hazmat and/or Single Hull Tanker notifications pending on that vessel, respectively.

The group **noted** the information and **agreed** the adoption in MAREΣ network of the new comment block extension. Further, the group **invited** Italy to keep the document containing all the requirements and the specifications agreed during the EWG meetings up-to-date.

5. Proxy upgrade

Italy illustrated the new proxy release, ready to be distributed to the participating Countries. Such a release:

- is a web application (the previous was based on two applications labelled Core and GUI);
- doesn't require the hardlock key, as requested by some participating Countries in previous meetings;
- is able to support the comment block extensions and a Full Qualified Domain Name as regional server address.

The new proxy application provides each piece of AIS information with a comment block, containing the time stamp as defined in IEC 62320-1 standard. Italy highlighted the

necessity to keep proxy synchronized through an NTP server. MS's **agreed** the following schedule for installing of the new proxy release in their respective national systems:

- December 6th – 10th, Malta and Slovenia;
- December 13th – 17th, Spain and France;
- after Christmas holidays, all the remaining MSs. Italy will call each of the MS's by e-mail to swap the proxy release.

6. New functions to be implemented (STIRES 9/MED/7)

Italy proposed the following MAREΣ improvements to the web application and the CORE system:

- monitoring of AIS SART using the standard symbol as defined by IMO in the circular SN.1/Circ. 243/Add. 1;
- monitoring of those vessels transmitting "not under command" or "aground" as navigational status. These vessels will be highlighted on the GIS by a larger symbol;
- monitoring of a set of information already handled by MAREΣ, such as: amount of vessels processed monthly by the system, distinguished by each participating Country, amount of information processed daily, etc.;
- including of a Simple Network Management Protocol (SNMP) agent in order to interface the Core Server module with a normal SNMP manager. This feature will enhance overall network running monitoring, not being subject to availability of the proxy monitoring page, but allowing Italy (as hosting MS), EMSA and the participating Countries to integrate the information/alert provided by the SNMP agent in their own monitoring system, if available.
- including of an SMS manager to allow sending of information to those interested on relevant incidents occurred to the network requiring intervention by an operator (i.e. an alert SMS to the proxy national administrator in case of a proxy disconnection).

The group **agreed** on the proposals by adding that the SMS be only if the incident has been validated, after 15 minutes. A message should be sent when the system has resumed normal operation.

7. Network monitoring and Incident Report (STIRES 9/MED/8)

Italy illustrated the Service Level Agreement (SLA) signed with EMSA on last February 18th for providing SafeSeaNet with the AIS information gathered from the MSs participating in the MAREΣ network. According to the SLA, the Italian Operations' Centre (IMRCC) provides continuous monitoring of MAREΣ network through the "proxy monitoring page" of the web application, in order to check that all national proxies are connected and providing AIS information. Currently, according to the SLA terminology, an incident affecting a single MS will be classified by Italy as LOW, while an incident affecting the regional server will be classified as CRITICAL.

In case of an incident affecting the AIS information coming from a participating Country (for instance, a proxy disconnection), the ITCG Operations' Centre will inform national points of contact, requesting them to take measures for failure recovery. All participating Countries have been requested to provide (if available) a technical point of contact, 24/7 available, to be contacted in case of an incident.

EMSA and Italy highlighted the necessity for a prompt recovery of the reported failures in order to minimize loss of AIS information. In the time from February to November, 61 incidents to MS systems occurred, requiring intervention by an operator. Most of incidents were recovered in less than 2 hours and were due to failures affecting MSs internet providers and/or MSs DMZ's. 5 incidents only were recovered in more than 24 hours.

Moreover, Italy illustrated the Incident Report to be sent to EMSA for each failure occurred, containing information (if available) on the root cause of the failure. About this topic, Italy highlighted the necessity to be informed by every participating Country about the cause of the failure occurred, in order to evaluate any system enhancement.

Malta proposed that the name "Incident Reports" be changed, because the word "incident" is already used for other kinds of events concerning ships. EMSA and Italy will investigate to find a new word.

The group **noted** the information provided.

8. MAREΣ server duplication (STIRES 9/MED/5)

According to MAREΣ network architecture, a failure occurring on the regional server internet provider would cause the loss of all connections among the regional server and every participating Country. In such a condition, MAREΣ would not be able to forward AIS information to SafeSeaNet.

With the aim of enhancing overall system reliability, Italy intends to modify the current MAREΣ network architecture so that a second regional server is set up, to be located remotely from the first, in order to reduce probability that a breakdown on internet communications occurs at the same time.

To support the improved MAREΣ architecture, Italy illustrated two possible solutions:

- a full duplication of the current system, where every national proxy has to send AIS information towards two different IP addresses at the same time. In this case, the bandwidth consumption for each participating Countries is duplicated;
- to establish a second "light" server, not having all of the features of the main one (i.e. lower dBase storage capacity). This server will back up the main one, in case the internet connection with the latter goes down. A Fully Qualified Domain Name will be used to route MS AIS information stream either to the main server or to the second one.

The second solution will not affect MS's and EMSA, considering that the new proxy release already supports FQDN: it will be able to make use of a FQDN (i.e. www.mares.eu) to connect to MAREΣ, instead of an IP address. In this case, if the connection with the first server is up, the MARES FQDN will be linked to the IP address of the first server, otherwise the DNS server will be updated in order to link the FQDN to the IP address of the second server. In this way, redundancy of connections will be ensured automatically, without any interventions by operators.

The web application will also be updated in order to support the second server. Italy proposed to enhance MAREΣ network architecture through the second solution, which has a lower impact on the current network.

The group **agreed** on this second solution. Italy will **plan** to enhance the network in order to establish the second server by the end 2011.

9. Dead Reckoning Tracks (STIRES 9/MED/6)

MS's were given information on the Dead Reckoning Tracks process, which is an estimation of current position of a vessel based upon previously-determined positions and using known or estimated speed, course and port of destination.

This process may be helpful in those sea areas where a VHF coverage is not available, such as on the route between Suez Canal and the Strait of Sicily, between the western tip of Sicily and the Alboran Sea and between the Canary Islands and the southern Atlantic coast of Spain.

The Italian Coast Guard ICT Dept. is investigating the possibility to develop a DRT tools to be used for the operational purposes of the Italian Coast Guard. This tool, if realized, might be integrated in MAREΣ network as a further participating Country, providing dead recognized tracks only in a few interesting areas. Italy proposed to investigate the possibility to provide this tool in MAREΣ. The results of this survey will be presented at the next EWG meeting.

The group **noted** the proposal.

10. Updates by participating

Adriatic sub-regional server: Croatia is still interested to exchange AIS information within a virtual sub-regional server, but the DMZ to be embodied at Zadar premises has not been completed yet. Anyway, the topic will be discussed in the framework of the next Ionian-Adriatic initiative meeting, to be held in Ancona early 2011. Italy also mentioned that they investigate the conditions for setting up a virtual sub-regional AIS server covering the Adriatic sea area in coordination with Slovenia, Croatia, Montenegro and Albania.

Italy: the Italian AIS network, based on 45 base stations, is going to be enhanced in the first half of 2011 with installation of 5 new AIS base stations, in order to provide better AIS coverage in a few important sea areas (South of Messina strait, Corsica channel, North Sicily and Bari port approach).

Spain: the AIS network is fully operational and connected to MAREΣ. They are planning its integration into the VTS systems. Spain is going to duplicate internet connection in order to increase overall internet availability, too. For this reason, Spain asked Italy to investigate whether proxy functions will be affected by this double connection.

Greece: They mentioned that the national network came from two sources: Coastguard and Navy working together and that they have undertaken several projects to improve AIS coverage.

Bulgaria: a new and more reliable internet connection has been installed. They are cooperating with the Black Sea Commission to implement a Black Sea server.

France: is currently proving AIS information coming from receivers. According to the Maritime Affairs, their software development allowing the export of AIS data from SPATIONAV to Mares which was previously scheduled to be ready for January (2011) won't be finished before next June. France will provide data coming from 13 base stations with a better AIS coverage.

Malta: They have a relatively new system and it's working well. The network is based on 2 base stations and 3 AIS receivers providing also an acceptable level of redundancy.

Slovenia: It is ready to host installation of the new proxy release. Slovenia highlights the necessity to integrate Croatia in the virtual sub-regional server in order to gain a more detailed maritime picture in the Adriatic Sea.

Romania: The Romanian AIS network also includes base stations based along Danube river, which are delivering information to MAREΣ.

Portugal: Portugal has been providing AIS information since September 24th, making use of a proxy installed on a Windows environment. It is almost ready to include AIS information from Madeira and the Azores, but they are investigating if there are any legal constraints. EMSA offered the Commission assistance, considering that Madeira and Azores are part of the EU.

Rempec: Within the framework of the Safemed II Project the EC had offered to the Safemed II Project beneficiaries the use of and a free connection to the MAREΣ server and, in some instances, an AIS base station in order to facilitate the exchange of AIS data amongst themselves. The Safemed II Project beneficiaries have several questions and doubts. At the end, Egypt, Morocco and Turkey decided not to participate in this project. Other beneficiaries are still pending Jordan and Israel have accepted to exchange AIS information between them within Gulf of Aqaba. REMPEC will be to contacting the Italian Coast Guard when it comes to the connections release.

The group **noted** the information provided.

11. Ship reference dBase (STIRES 9/MED/9)

Currently, EMSA is validating up to 85% of the information acquired using a few dBases as the ITU MARS and EU LRIT. A pilot project had started with the Baltic Countries, but it has been discontinued due to technical and legal aspects.

The proposal is to match AIS information with the data contained in one or more ship reference dBase at the Mediterranean regional level. The EU LRIT dBase, just delivered to Spain, may be used for such a purpose.

The group **agreed** on cooperation between EMSA and Italy to investigate the feasibility to validate the information acquired by MARES through a ship reference dBase, identifying a proper mechanism for tagging the AIS information validated.

12. Continuation of the MARES EWG?

Mr Aichmalotidis reminded the terms of reference of the EWG and noticed that the group has concluded successfully most of its task. The participants acknowledged that the main objective of the group has been achieved but there are still improvements and further actions to be carried out. They also agreed to maintain the group since it is the only forum for the participating states to meet and exchange views at regional level. Some participants proposed to enlarge the mandate of the group (e.g. to cover environmental issues). REMPEC had also proposed that the two Safemed II Project beneficiaries, Israel and Jordan, which have agreed to exchange AIS data amongst themselves by making use of the MAREΣ server, should be invited to this group as observers.

13. Meeting Follow-up Actions

- a. EMSA with the support of Italy should work towards developing an AIS master plan for the Mediterranean considering the links with the LRIT framework.
- b. Italy will coordinate the new proxy release installation according to the time schedule agreed in paragraph 5 of the minutes, providing participating Countries with necessary assistance;
- c. Italy will plan to enhance the network in order to establish the server duplication by the 2011;
- d. Italy will implement the new proposed functionalities as illustrated in paragraph 6 of the minutes.
- d. EMSA and Italy will cooperate with the aim to improve data through validation of AIS information by reference databases;
- e. Italy will update the document containing all the requirements and the specifications agreed during the EWG meetings.
- f. Italy will add in the agenda of the next Ionian-Adriatic initiative meeting (to be held in Ancona early 2011) the issue of the exchange of AIS information within a virtual sub-regional server.
- g. REMPEC is going to contact the Italian Coast Guard for the connections of Jordan and Israel in the new Mediterranean virtual sub-regional AIS Server.
- h. Portugal should clarify if there are legal constrains to include AIS information from Madeira and the Azores in MARES.

14. Date of next meeting

The Group agreed that a provisional date will be fixed in the first half of 2011 for a new meeting to be held in the course of the same year.

Annex:

- I) List of participants
- II) Workshop Agenda

ANNEX I – List of Participants

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ANNEX II

Agenda

9th Mediterranean EWG Meeting 2nd December 2010

Coast Guard Headquarters, Viale dell' Arte 16 – Rome

0930	Registration and coffee	
0945	Opening of meeting and approval of the agenda	EMSA (STIRES 9/MED1)
1000	Wrap up of previous meeting/approval of minutes	EMSA (STIRES 8/MED/11)
1015	Activity Report Proxy/GIS upgrade and new functionalities implemented	Italy (STIRES 9/MED/2 - STIRES 9/MED/3)
1130	Coffee break	
1145	Comment block utilization Functionalities to be implemented MARE Σ network monitoring and incident report	Italy/EMSA (STIRES 9/MED/4) Italy (STIRES 9/MED/7) Italy (STIRES 9/MED/8)
1300	Lunch break	
1430	MARE Σ Disaster Recovery Dead Reckoning Track	Italy (STIRES 9/MED/5) Italy (STIRES 9/MED/6)
1600	Coffee break	
1615	Adriatic sub-regional server Member States status update Update on SafeMed II developments Update on Black Sea AIS developments Mediterranean EWG future activities Discussion / conclusions	Italy/Croatia Member States REMPEC BSC EMSA
1730	End of the meeting/ Date for next meeting	