

Workshop Report

16th Mediterranean AIS Expert Working Group

**Held in Rome on
12 December 2019**

Date: 23 January 2020

Introduction

As a follow up to the 15th meeting of the Mediterranean AIS Expert Working Group (Venice, 27 November 2018), the Italian Coast Guard (ICG) invited EMSA and experts of the Countries involved in MAREΣ to the 16th Mediterranean AIS Expert Working Group meeting (Rome, 12 December 2019) with the aim to evaluate the progress achieved since the last session and discuss about the further challenges and perspectives. The meeting documents 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 representatives of: Croatia, Spain, Greece, Slovenia, Malta, Italy, Romania (as MAREΣ Members States) and Montenegro (as MAREΣ Participant state); apologies were received from Portugal and France for not being able to take part. Representatives of Norway (the country hosting the HELCOM and North Sea/ Atlantic regional AIS servers) and Turkey attended the meeting as observers. Representatives of Jordan, Morocco and Tunisia attended the meeting as beneficiaries in the SAFEMED project and Georgia and Ukraine as beneficiaries in the Black and Caspian Sea Regions project (BCSEA). Representatives of Elman (the contractor of the Italian Coast Guard) and European Maritime Safety Agency (EMSA) have also attended the meeting.

Objectives

Mr Lazaros Aichmalotidis of EMSA chaired the meeting and highlighted the objectives as follow:

- Update the group on initiatives conducted by EMSA or other EU bodies;
- Update the group on the general activities and the progress achieved by MAREΣ and other regional AIS servers;
- Update the group on the status of national AIS networks;
- Discuss the Conditions of Use (CoU) document on participation of the SAFEMED and BCSEA Countries in MAREΣ and other technical issues related to the AIS data quality.

Workshop Programme

I. Agenda Item 1: Opening and approval of the agenda

Italy, as the hosting country, opened the meeting. Captain Giuseppe Aulicino, Head of the ICT and VTMIS Department of the Italian Coast Guard Headquarters, welcomed the participants and congratulated the group for the achievements made and the level of cooperation achieved. On behalf of the Group Mr Lazaros Aichmalotidis thanked Italy for the hospitality and reviewed the meeting objectives and presented the agenda (documents MAREΣ 16/1/1 and MAREΣ 16/1/2).

Italy proposed including in the agenda their presentation regarding the AIS spoofing case observed by the Italian AIS network. The Group approved the amended agenda. A copy of the Agenda is included as **Annex 1**.

II. Agenda Item 2: Wrap up of previous meeting - approval of the minutes

EMSA introduced the report of the 15th meeting of the Group (document MAREΣ 16/2/1). The report of the 15th Mediterranean AIS EWG (Venice, 27 November 2018) was published on the EMSA web site at: <http://emsa.europa.eu/workshops-a-events/188-workshops.html> on 9 January 2019 and the participants were asked to provide their comments by 10 February 2018. A minor correction proposal was received from Romania and encompassed in the report. Following that, both versions the initial and amended were published on the EMSA website. The 16th EWG **approved** the minutes of the 15th EWG meeting.

III. Agenda Item 3: Follow – up actions of the previous meeting

EMSA presented the status of the actions agreed at the previous meeting (document MAREΣ 16/3/1). The EWG **noted** the information provided and **agreed** the status of action points: AP1, AP4, 7, AP8, AP10, AP11, AP12 as “**closed**” and AP2, AP3, AP5, AP6, AP9 – as “**ongoing**”.

EMSA and **Italy** agreed to complete the preparatory actions to start visualising the AIS stream of Croatia in SEG with 1 minute down sampling. **Croatia** will coordinate their activities with EMSA (**Action point 1**).

The group invited **Slovenia** and **France** to provide the remaining replies to the questionnaires on AIS status by February 2020 (**Action point 2**).

Italy agreed to amend MSs access to the MAREΣ statistical tools. The accounts to be enhanced will be agreed by the ICG and the participating Countries (**Action point 3**).

IV. Agenda Item 4: MAREΣ network activity and monitoring

Italy presented the general activities since the last EWG meeting as follows (document MAREΣ 16/4/1):

a. Participating Countries

During the reporting period MAREΣ has been providing the central SafeSeaNet with AIS data gathered from Bulgaria, Croatia, Cyprus, France, Gibraltar/UK, Greece, Italy, Malta, Portugal (including Azores and Madeira), Romania, Slovenia and Spain. MAREΣ is also collecting AIS information from Montenegro (in the Adriatic-Ionian Mediterranean sub-region), Jordan, Morocco and Tunisia (in the framework of the SAFEMED project), and the BCSEA participating Countries Ukraine (since November 2018) and Georgia (since January 2019). Tunisia is participating since May 2019.

b. Level of the activity

The average number of vessels monitored daily during the reference period (October 2018 - October 2019) was presented. The number of monitored vessels is coherent with the number of the previous reference period (October 2017 – September 2018) with a 10% increase during the summer months, due to the duct effect which boost the AIS radio coverage and the high number of pleasure crafts in the summer period (AIS class B transponder). The highest number of vessels was detected during the summer months, mainly July and August.

MAREΣ maintains the agreed data down-sampling policy supporting an individual rate per the connection. The AIS information to SSN is provided with a down-sampling of 6 minutes. The amount of the information provided to SafeSeaNet during the reference period is 1.487.502.031 messages.

c. Network malfunctions/incidents

During the observation period, MAREΣ detected 80 network malfunctions (incidents), involving national systems and requiring a human intervention to restore operations. The analyses showed that 22 of the reported incidents were due to a breakdown in communications between the National AIS proxy and the related national network, and 58 were due to a breakdown in communications between the MAREΣ Core application and the National AIS proxies.

All these incidents influenced the information flow with the concerned participating countries and had an impact on the general functioning of MAREΣ. Incidents were detected by the “core user monitoring” tool of MAREΣ application. The correspondent national points of contact were contacted by the ICG duty personnel. All the incidents were reported to the EMSA MSS.

Italy presented the trend of the total number of incidents. In comparison with the previous activity period, the number of incidents has increased (from 60 to 80), however the incident processing time have been improved

during the last reference period (from 764.9 to 597.1 hours). The average elapsed time needed to restore a failure was about 7.46 hours. No incidents affected the MAREΣ SSN-SI in the reference period.

Italy presented the status of the incident's analyses reporting and reminded participants that the incidents analyses are essential for the system's performance. Only 17 incidents out of 80 occurred (~ 21%) were investigated and reported by MSs. **EMSA** remarked that in the event of malfunction MSs should inform RS about the root cause of incident, and the actions taken or planned.

d. MAREΣ upgrading

Italy plans to upgrade the NPRs software by introducing some additional functionalities and to increase the NPR buffering capacity (e.g. up to 24 hours).

The group agreed, **Italy** to contact all participating States asking to provide the parameters of their hosting environments (**Action point 4**).

Since November 2018, ICG and EMSA carried out activities related to migration to the new SSN-SI called "STAR Streaming remote hub". After a period of testing which ended on 30 October 2019, the new streaming interface was prepared to replace the "old" SSN SI. MAREΣ is capable to provide EMSA with one AIS data stream in "production" environment through SSN-SI ("old" stream), and two streams (in "pre-production" and "production" environment) through the Remote Hub interface. Both interfaces are working in parallel, until the "old" will be phased out.

The VHF Data Link (VDL) Analyzer Module was recently adopted by Italy as centralized tool to monitor the status associated to the AIS BSs of the National AIS network (compliant to the IALA A-124 Recommendation). The module was integrated in MAREΣ, as a first step for further enhancements of the Mediterranean Regional system. **Italy** stressed the importance of monitoring the AIS class B transmissions because of different (unsynchronised) transmission method.

Italy also is developing a specific tool (Coverage Analyzer) to analyse the AIS coverage assured by the National networks participating in MAREΣ. It is intention to integrate the tool in the Mediterranean Regional Server in the first half of 2020. It is planned that the participant Countries will access the coverage information provided through the MAREΣ GUI.

e. The observed AIS spoofing activity

Italy presented analyses of a real AIS spoofing case observed on 03.12.2019, when more than 3742 fake "ship reports" (861 false tracks with MMSI 24480XXXX) were transmitted by unknown transmitter during a short period, for a circle area of appr. 25 NM, causing impossibility to monitor the maritime traffic in the area and impacting a real vessels transmission. The ICG analyses show that spoofing was conducted by a transceiver tuned on AIS channel A. The synthetic ITU messages were generated by PC using a dedicated software, and the AIS spoofing generator was located on Elba Island.

EMSA informed that this issue will be discussed at the next HLSG and further assessed. Italy **agreed** to present the issue at the next HLSG meeting (**Action point 5**).

The meeting participants were invited to report to RS and EMSA all similar cases, once detected (**Action point 6**).

The EWG noted the provided information and discussed potential improvements.

V. Agenda item 5: Outcomes of the EMSA/Italy/Norway meeting on regional AIS servers

EMSA presented the objectives of the EMSA/Italy/Norway annual meetings on regional AIS servers and introduced the main outcomes of the 4th meeting (Oslo, 27 August 2019) regarding the migration to the new proxy application; NPRs harmonisation, stored/buffered data retransmission by MSs and RSs; updates to the RS Technical manuals; development of the European AIS Operational manual; introducing of additional

proxies; the AIS data buffering testing; the NPR stress test; improving the reporting, and; the SLAs amendment. The EWG **noted** the provided information.

The group agreed EMSA to contact Member States to collect information to the European AIS operational manual (**Action point 7**).

VI. Agenda item 6: Status of AIS at the MAREΣ Member States

EMSA invited the MAREΣ Member States to present the status of their AIS national network.

Romania: no changes since the previous meeting.

Italy: the status of Italian AIS network has some changes since the previously EWG. A new VDL monitoring tool was implemented. Italy plans to install 3 more BSs (2 in Adriatic and 1 in Mediterranean). The RS system is storing the data for 12 months. The data buffering capabilities are performed by the MAREΣ NPR.

Malta: no changes since the previous meeting. The AIS network is based on 4 shore-based stations. Consultations regarding upgrading the system are ongoing.

Slovenia: no changes to the AIS network since the last meeting. Slovenia is performing upgrading of the national system's software.

Greece: The project of upgrading AIS network is ongoing. Greece expects it to be concluded by the end of 2020. The system can store the data for 1 year online. Clarifications regarding the network upgrade were provided - 19 new stations were planned in the framework of a new project.

Spain: the status of network remains the same. BSs upgrading has been finished by the contractor. AIS data are stored for 5 years.

Croatia: no changes since the previous meeting. the AIS network consists of 26 shore-based stations and 2 independent servers. The support service (24/7) is available. AIS data are stored for 12 months. The data buffering is supported by the MAREΣ NPR.

The EWG **noted** the provided information.

Romania proposed Italy to implement the solution where NPR would make a query for historical data in the national database, in case of the incident. **Italy** stated that the proposed solution could not be supported because of security reasons. Instead, several other options are available. **Norway** explained the solution maintained by the HELCOM and NSATL RSs, where a data file is created and put on the FTP site daily.

The group **agreed EMSA and Italy** to prepare an additional clarification regarding the data buffering and storage definitions to be presented at the next EWG meeting (**Action point 8**).

VII. Agenda item 7: AIS Status of MAREΣ Participants and Observers States. Status of the SAFEMED and BCSEA projects.

Georgia: Georgia was connected to MAREΣ in January 2019. Currently, T-AIS data are exchanged with Ukraine. Georgia exchanges information without down sampling (full data rate). The amount of AIS information delivered to MAREΣ from January 2019 to October 2019 is 24.994.980 messages. In March 2019, a Donation Agreement for delivery of 2 AIS Base Stations and 1 Central Nod was concluded between the Maritime Transport Agency of Georgia and EMSA. The AIS equipment was received in November 2019. One AIS BS has already been installed at a remote site at 275 meters above the sea level and is operational, the second AIS Base Station will be installed in in 2020.

Jordan: Some technical and operational issues were observed during the reported period. **Jordan** asked Italy if the solution could be introduced allowing to contact MAREΣ IT team when necessary.

The group **agreed Italy** to organise a video meeting with Jordan to discuss this topic (**Action point 9**).

Morocco: AIS network has not been changed since the last EWG meeting and consists of 14 shore-based stations. Relocation of the AIS server to Casablanca is planned.

Tunisia: Tunisia operates 2 AIS BSs installed in La Goulette and Bizerte. Additional 4 BSs are planned to be installed in Sousse, Sfax, Gabes and Zarzis, which would allow to increase the coastline coverage from 29% to 69%.

Ukraine: The national AIS system consists of three AIS networks maintained by the MSRS (4 BSs), the Ukrainian Sea and Port Authority (10 BSs) and the State Hydrographic Service of Ukraine (15 BSs). The AIS data of all providers is collected on the main server managed by the MSRS. AIS data are exchanged between Ukraine and Georgia via MAREΣ. The network enhancement is planned in some areas of the Black Sea (2 BSs) and the Azov Sea (3 BSs).

Turkey: The national AIS system is operational since 2007. The AIS centre is in Ankara. The system provides full coverage of the coastline. Separate BSs are installed to serve the VTS centres and ATONs.

Montenegro: The existing network of 3 BSs provides full coverage of the coastal area. The data buffering capability is ensured. The AIS system provides information to the VTS, SAR and ADRIREP systems. The status of ongoing projects related to the VTMS and maritime surveillance was presented.

EMSA presented the status of the SAFEMED and BCSEA projects. HLSG DM4 (Brussels, 11 December 2018) agreed to launch the 2nd phase of the pilot project and agreed the conditions and the main principles of cooperation. The Beneficiaries should participate in phase 2 only after completing the implementation of phase 1. Georgia, Jordan and Ukraine expressed their interest in sharing data with EU Member States participating in MAREΣ. Morocco and Tunisia informed that they are willing to participate but need more time to be prepared.

HLSG DM5 (Brussels, 2 July 2019) agreed Georgia, Jordan and Ukraine to participate in MAREΣ and share their T-AIS data with them in accordance with the conditions set at the HLSG DM4, under the SAFEMED and BCSEA projects (for the duration of the project). After receiving additional positive replies from other beneficiaries to participate in MAREΣ, the HLSG will be informed and invited to approve their participation.

The perspectives of cooperation was introduced, such as:

- Publication of a new invitations for proposals regarding “Donation of shore-based AIS equipment” within the new edition of the projects;
- BCs from other projects (e.g. IPA) might be involved.

The EWG **noted** the provided information.

VIII. Agenda Item 8: Conditions for the participation of SAFEMED / BCSEA countries in MAREΣ

HLSG DM5 authorised EMSA to draft a document consolidating the conditions of service and **replacing** the initially proposed procedure (i.e. signing a bilateral or multilateral agreements) which was discussed also at the MAREΣ 15th EWG (MAREΣ 15/8/1). The CoU document (draft) was shared as Annex 2 to the MAREΣ 16/8/1 document.

EMSA introduced the main principles of the proposed CoU. **EMSA** rectified the numbering typo in Chapter 10. **Italy** proposed to amend Chapter 3.2 (e) by excluding first two sentences. **Greece** stated that their contact details in the Appendix should be updated and proposed to provide the required information. **Turkey** asked EMSA to explain in more detailed the participation termination clause in Chapter 18.3 (e.g. the criteria of non-performance). **EMSA** stressed that the data sharing implies obligations to the Beneficiary Countries, as they shall develop and maintain their AIS infrastructure in compliance with the international standards and the relevant EU procedures in force.

Georgia, Ukraine and **Jordan** were invited to provide their contact details (till the end of January) to be included in Appendix of the CoU document (**Action point 10**).

The participants **agreed** the proposed amendments and **approved** the text of the draft CoU document.

EMSA informed the participants that the outcome of this discussion will be provided to the next HLSG (**Action point 11**).

Following that, EMSA will start the required technical preparations. The amended CoU document (including all the agreed inputs) will be published on the EMSA website (**Action point 12**).

IX. Agenda Item 9: Status of other regional AIS servers

Norway as the hosting country of the North Sea/Atlantic and the HELCOM regional AIS servers presented the status of these servers and the implemented solutions to ensure the services. The RS system runs on virtual servers (VM Ware). Norway maintains the historic AIS database accessible for Member States and allows the Member States to download the stored data from the FTP server. The database server creates a daily file including all notifications collected. The data can be stored as long there is available space on RS server. The North Sea/Atlantic regional AIS server collects both the T-AIS and SAT-AIS data. The NCA maintains the RS website, which is publicly available for the participating Countries.

Norway is implementing a new back-up centre for AIS exchange. The new centre will be geographically located separately at a different place from the main centre. The proxies located at MS will submit messages to both centres in parallel.

The group **noted** the information provided.

X. Agenda Item 10: COMPASS2020 project

Montenegro presented the COMPASS2020 project for coordination of maritime assets for persistent and systematic surveillance. The project was implemented under the grant agreement, and for the duration of 18 months. The project involves several stakeholders from the EU institutions, Member States, research organisations and the industry. COMPASS2020 aims to demonstrate the combined use and coordination of manned and unmanned assets to achieve an improved coverage, better quality of information and shorter response times in the maritime surveillance operations. More detailed information is available at the project website: www.compass2020-project.eu.

The participants **noted** the provided information.

XI. Any Other Business

EMSA summarized the list of actions agreed and thanked the participants for their fruitful work. The list of agreed actions is presented in **Annex 2**. **EMSA** also stated that the monitoring of data exchange with SAFEMED / BCSEA countries will require amendments to the EMSA/ ICG Service Level Agreement.

The participants were asked to check and update the lists of contact persons and technical representatives for the AIS EWG. This information should be submitted to EMSA by February 2020 (**Action point 13**).

The next EWG meeting will be in Batumi, Georgia, in September 2020. The Georgian Administration will coordinate with EMSA to send the invitations attached with the agenda of the meeting.

Annexes

Annex 1 – Workshop Agenda

Annex 2 – List of actions

Annex 1 – Workshop Agenda

Thursday, 12 December 2019		
Time	Agenda Item	Speakers
MAREΣ EWG meeting		
09:00	Registration and coffee	
09:30	Agenda Item 1: Opening of meeting and approval of agenda	EMSA/Italy
09:45	Agenda Item 2: Wrap up of previous meeting/approval of minutes	EMSA
10:00	Agenda Item 3: Follow – up actions of the previous meeting	EMSA
10:20	Agenda Item 4: MAREΣ network activity and monitoring	Italy
11:00	Coffee break	
11:20	Agenda item 5: Outcomes of the EMSA/Italy/Norway meeting on regional AIS servers: <ul style="list-style-type: none"> • Objectives of the meetings; • NPRs harmonisation; • Data retransmission by MSs; • Stored data reception and forwarding by RSs; • The “European AIS operational manual”; • AIS data buffering tests; • Connection with additional proxies; • Reporting; • AIS coverage. 	EMSA/Italy
12:00	Agenda Item 6: Status of AIS at the MAREΣ Member states	MAREΣ Member states
12:30	Agenda Item 7: Status of AIS at the MAREΣ Participants States and Observers States. Status of the SAFEMED and BCSEA projects	MAREΣ Participant States / Observer States/ EMSA
13:10	Lunch break	
14:30	Agenda item 8: Conditions for the participation of SAFEMED/BCSEA countries in MAREΣ <ul style="list-style-type: none"> • HLSG DM5 outcome • Conditions defined in HLSG DM4 • Proposal of a consolidated CoU document 	EMSA
15:30	Agenda Item 9: Status and developments of other regional AIS servers	Norway

Time	Agenda Item	Speakers
15:45	Coffee break	
16:00	Agenda Item 10: Presentation of Compass2020 project	Montenegro
16:45	Agenda Item 11: Any other business Amendments to EMSA/ICG SLA regarding the data exchange monitoring	All
17:00	End of meeting	

Annex 2 – List of actions

The agreed actions of the meeting are listed below:

Action point 1: EMSA and Italy to complete all preparatory actions to start visualising the AIS stream of Croatia in SEG with 1 minute down sampling. Croatia will coordinate their activities with EMSA IMS.

Action point 2: Slovenia and France to reply to the questionnaires on AIS status (by February 2020).

Action point 3: Italy to amend MSs access to the MAREΣ statistical tools. The accounts to be enhanced will be agreed by the ICG and the participating Countries.

Action point 4: To increase the NPR buffering capacity, Italy will contact all participating States asking to provide the parameters of their hosting environments.

Action point 5: Italy to present analyses of the AIS spoofing case at the next HLSG (January 2020).

Action point 6: MAREΣ participating countries to report to RS and EMSA all the detected AIS spoofing activities.

Action point 7: EMSA to contact Member States to collect information to the European AIS operational manual.

Action point 8: EMSA and Italy to prepare an additional clarification regarding the data buffering and storage definitions to be presented at the next EWG meeting.

Action point 9: Italy to organise a video meeting to discuss with Jordan the observed technical issues.

Action point 10: Georgia, Ukraine and Jordan to provide their contact details (till the end of January) to be included in Appendix of the CoU document.

Action point 11: EMSA to provide the outcome of discussions regarding MAREΣ 16/8/1 document to the next HLSG in January 2020.

Action point 12: EMSA to publish the amended CoU document (including all the EWG agreed inputs) on the EMSA website.

Action point 13: The EWG participants to check and update the list of contact persons and technical representatives for the MAREΣ AIS EWG. The updated information should be submitted to EMSA till the end of January.

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