European Maritime Safety Agency

Workshop Report

17th Mediterranean AIS Expert Working Group

On-line meeting

27 October 2020

Date: 23 November 2020

EMSA

Introduction

EMSA, as the MAREΣ EWG coordinator, in cooperation with the Italian Coast Guard, as the MAREΣ hosting authority, organised the 17th Mediterranean AIS Expert Working Group on-line meeting via video conference in accordance with the provisional agenda attached as **Annex 1**. The meeting was supposed to take place physically in Batumi, Georgia, in September 2020 but due the COVID-19 outbreak the meetings was held online.

The meeting documents were published prior to the meeting via the EMSA website at: http://emsa.europa.eu/workshops-a-events/188-workshops.html.

The meeting was attended by representatives of **Bulgaria**, **Croatia**, **France**, **Greece**, **Italy**, **Portugal** and **Romania** (as MAREΣ Members States) and **Albania** (as MAREΣ Observer state). Apologies were received from Montenegro for not being able to take part. Representatives of **Norway** (the country hosting the HELCOM and North Sea/ Atlantic regional AIS servers) 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). The list of the participating countries and authorities is attached as **Annex 2**.

The on-line meeting was chaired by EMSA.

Objectives

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

- 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 data availability and other technical issues related to the AIS data quality, and;
- Update the group on the status of the MAREΣ AIS data exchange project since the last meeting.

Workshop Programme

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

Mr Lazaros Aichmalotidis welcomed the participants and reviewed the meeting objectives and presented the agenda (documents MAREΣ 17/1/1 and MAREΣ 17/1/2). Rear Admiral Giuseppe Aulicino, Head of Office Plans of the Operational Department of the Italian Coast Guard Headquarters and MAREΣ Coordinator, congratulated the group for the level of cooperation achieved.

EMSA introduced the on-line meeting conducting rules. The Group **approved** the proposed agenda.

II. Agenda Item 2: Wrap up of previous meeting - approval of the minutes. Changes in the meetings reports approval procedure.

EMSA introduced the report of the 16th Mediterranean AIS EWG meeting (Rome, 12 December 2019) (document MAREΣ 17/2/1) published at the EMSA web site at: http://emsa.europa.eu/workshops-a-events/188-workshops.html on 13 January 2020. Feedbacks were received from Italy, Greece, France, UK/Gibraltar and Romania which were encompassed in the report. The amended final version was published at the EMSA website on 24 February 2020,

EMSA proposed a new procedure for the approval of the meetings reports whereby the report should be considered approved one month after the date when its final version is published on the EMSA website.

The EWG **approved** the minutes of the 16th EWG meeting and **agreed** with the proposal for the approval of the MAREΣ EWG reports.

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

EMSA presented the status of actions agreed at the previous meeting (document MAREΣ 17/3/1). The EWG **noted** the information provided and **agreed** the status of action points AP3; AP5; AP8; AP10; AP11; AP12 as "closed", the status of action points AP1; AP2; AP4; AP7; AP9; AP13 as "open until their execution", and the status of AP6 – as "ongoing" (**Action point 1**).

Regarding the AP1 (AIS update rate), EMSA will evaluate the possible impacts of changing the down sampling rate for all T-AIS connections (e.g. from 6 min. to 1 min) and will inform the EWG at the next meeting (**Action point 2**). Regarding the AP2, the group invited **Slovenia** to reply the questionnaire on AIS status by January 2021 (**Action point 3**). Regarding the AP4, the group invited **Slovenia, France, Portugal, Spain, Jordan and Morocco** to reply the ICG questionnaire on the NPR hosting environment parameters by January 2021 (**Action point 4**). Regarding the AP7, the group agreed EMSA to contact the Member States to collect information for the EU AIS operational manual during the period from December to February (**Action point 5**).

Regarding the AP9, **EMSA** invited **Jordan** to inform about the status of their connection to MAREΣ. **Jordan** stated that software programming assistance is needed, but due to the COVID-19 situation a physical meeting with the ICG technical personnel was not possible. **Jordan** proposed to use any available remote diagnostic applications, e.g. *Team Viewer*. **Italy** commented that already have contacted Jordan and the problem has been assessed as related to the public IP address configuration. **EMSA**, **Italy** and **Jordan** agreed to complete the required actions to re-connect the AIS network of Jordan (**Action point 6**).

Tunisia asked if the bilateral agreements shall be signed with all participating countries to exchange the data. **EMSA** explained that the participating country shall send a request for participation in the 2nd phase of pilot project allowing to share data with all MAREΣ participating states (through SEG).

IV. Agenda Item 4: The European AIS network performance

EMSA reminded that the European AIS system consists of national AIS networks of the EU MSs/EFTA countries with more than 740 AIS base stations. All national networks are connected to the central SSN system through 3 regional AIS servers (MAREΣ, NSATL and HELCOM).

EMSA presented the European AIS network's performance statistics for the period 2015 – 2019. The performance assessment was based on the EMSA MSS recorded downtimes, sorted in two categories: "all downtimes" (i.e. the duration of downtime is longer than 20 minutes) and "critical downtimes" (i.e. the duration of downtime is longer than 12 hours). The number of "critical" downtimes was rather low (11,6% of the recorded all downtimes), but their duration was very high (74.3 % of a total duration of downtimes).

EMSA reminded the participants that avoiding critical downtimes is essential for the NPRs performance. An uninterrupted buffering is 12 hours; after that NPR starts cleaning old data to empty the storage space for the new data. As a result, the old data (first in the buffer) will not be resent when the connection is re-established.

EMSA presented the "fake ships positions" issue assessment. This problem was detected for almost all AIS networks, where a high number of ships positions with only one the position report were recorded. These "ships" are reported only by the MMSI number, which does not correspond to any active existing vessel. **EMSA**, in coordination with **Italy** and **Norway**, investigated the issue. Since September 2020, **Norway** provided their national AIS data to SSN applying for testing purposes the "corrupted positions" filtering. **EMSA** asked MSs to monitor and assess the quality of AIS data received in their networks (**Action point 7**). The SEG functionality to visualise the data age could be used to support this task.

Italy commented that the modern technologies of AIS transceivers allow to receive very weak signals, which might be a reason for corrupted messages. **Norway** informed that they are filtering out all corrupted positions for their VTS system and the results are good. **EMSA** stated that the data filtering option shall be carefully

assessed to avoid unnecessary loss of real data. Another option would be to accept all messages indicating the “fake positions reports”. If the data filtering is agreed as the recommended option, it needs to evaluate the level where it should be implemented (i.e. central, regional or national).

EMSA, Italy and **Norway** will continue evaluating the “fake positions” issue, including the data filtering option, to find out the best solution (**Action point 8**). **Norway** agreed to share with Italy and EMSA the available information about the filtering algorithm used in their national system (**Action point 9**).

V. Agenda Item 5: MAREΣ network activity and monitoring

Italy presented the MAREΣ general activities since the last EWG meeting (document MAREΣ 17/5/1):

a. Participating Countries

During the reporting period, MAREΣ has been providing the central SafeSeaNet with AIS data gathered from the following twelve participating Member States: Bulgaria, Croatia, Cyprus, France, UK/Gibraltar, Greece, Italy, Malta, Portugal (including Azores and Madeira), Romania, Slovenia and Spain. In addition, MAREΣ has been providing AIS information delivered by the following Countries participating in the specific regional projects:

- Montenegro, in the context of a sharing environment implemented in the Adriatic Sea among Italy, Slovenia, Croatia and Montenegro itself;
- Morocco and Jordan, in the framework of the SAFEMED IV project. Tunisia has also been added since May 2019 when the Tunisian Ministry of Transport, Shipping and Maritime ports (Office de la Marine Marchande et des Ports) has implemented a small network based on two base stations located in Biserta and La Goulette;
- Ukraine and Georgia, in the framework of the “Black and Caspian Sea” project (BCSEA).

b. Level of the activity

The highest number of vessels was detected during the summer period, when the traffic density increases due to the duct effect, which boost the AIS radio coverage, as well as the high number of pleasure crafts. The amount of monitored vessels in the reference period was not fully coherent with the numbers of the previous reference period, mainly due to the changes in maritime traffic caused by COVID-19, leading to an average decrease of approximately 15%

The current MAREΣ release provides the total amount of the information collected and delivered by each participating Country, including all static, dynamic and voyage-related data. The filtering of data duplicates was carried out by the Regional system. The amount of the information provided by MAREΣ to the central SSN system during the reference period is 1.269.431.431.

c. Network malfunctions/incidents

Italy presented the recorded incidents analyses. During the observation period, MAREΣ detected 70 network malfunctions requiring a human intervention to restore operations. These incidents were mainly due to breakdowns in communications between the MAREΣ Core application and the National Proxies and breakdowns in communication between the National Proxy and the related AIS network. All incidents affected the information flow and the functioning of MAREΣ. The correspondent national points of contact were contacted by the ICG and all incidents were reported to the EMSA MSS.

Italy also presented the trend of the total number of incidents in comparison with the previous activity periods. The average number of incidents per month observed during the last seven years was about 6 failures per month. The total elapsed time to restore the failures registered during the reference period (i.e. the processing time of the incident) was 431 h, and the average elapsed time to restore the failure was about 6 h 16 minutes.

d. MAREΣ upgrading

To facilitate the upgrade of the NPRs software (by introducing some additional functionalities and increasing

the NPR buffering capacity up to 24 hours), Italy contacted all participating States asking to provide the parameters of their hosting environments (see AP4 of the 16th MAREΣ EWG).

The tool for estimating AIS coverage within the MAREΣ region has been implemented. The tool was uploaded on MAREΣ on 12 October 2020. The tool supports several functions, including the estimated AIS coverage by MAREΣ, by each participating Country and by each AIS Base Station (in case this information is available in the comment block associated to each VDM string delivered by the participants). The system administrator of each participating Country, including EMSA, can decide whether to include the coverage information in the comment block. Through a dedicate Web Map Service, MAREΣ is also able to provide the coverage layers to external users (through M2M connection).

The **EWG** noted the provided information and **discussed** potential improvements.

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. The summary of the status information which was collected during the EWG meetings and from the replies to the questionnaires was presented in document MAREΣ 17/6/1 and made available to the participants prior to the meeting. This summary will be used for reference purposes in future meetings. Due to time limitations, **EMSA** invited MSs to provide answers to the questions listed in the status summary document by e-mail. The participants **agreed** this proposal.

Bulgaria: 2 new BSs have been installed since the previous meeting, and the total number of BSs is nine. Replies to the questions in document MAREΣ 17/6/1 will be provided by e-mail.

Croatia: No changes since the previous meeting. The AIS network consists of 26 shore-based stations and 2 independent servers. The system is able to transmit all messages.

France: The major upgrading of AIS system is in progress. France plans to upgrade all BSs and additional 10 new BSs will be installed. The upgraded system will support the latest AIS standards in force.

Greece: In the framework of the upgrade of the AIS network project, 90 new stations were installed in new locations or replacing existing BSs. The final acceptance testing is ongoing. Greece will provide updates to the status information by e-mail. Because of some technical issues, a temporary solution for the NPR hosting environment is established until November.

Italy: Italy is installing 2 new BSs. After the installation, the total number of BSs will be 66. A new AIS coverage tool was implemented.

Portugal: No changes to the AIS network since the last meeting. A new VTS system is planned to be introduced in Azores and Madeira.

Romania: No changes since the previous meeting.

The EWG **noted** the provided information. **EMSA** thanked MSs for the status information and **reminded** participants to provide updates to the status summary (MAREΣ 17/6/1 document) by e-mail (**Action point 10**).

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

EMSA presented the status of the SAFEMED and BCSEA projects. The CoU document (including all the agreed inputs) on the participation of the SAFEMED and BCSEA countries in MAREΣ is published on the EMSA website, together with MAREΣ 16th EWG documents.

EMSA started the implementation of the user's access configuration in SEG. The users of Georgia and Ukraine are already able to see the AIS data from all MAREΣ MSs. Considering that the number of users in MSs is quite high the configuration of the MSs users' access is ongoing and will take some time to complete. Considering the reciprocity principle, the access for Jordan was not yet configured. **EMSA** contacted also **Albania** investigating different options for cooperation.

The EWG **noted** the provided information.

EMSA **invited** the MAREΣ Participants and Observers States to present the status of their AIS national networks. The summary of the status information which was collected during the EWG meetings and from replies to the questionnaires was made available prior to the meeting, in document MAREΣ 17/7/1.

Georgia: The donated AIS equipment was received in November 2019. Both AIS BSs are already installed and operational. Replies to questions in the MAREΣ 17/7/1 document will be provided.

Ukraine: The national AIS system consists of three AIS networks maintained by the MSRS, the Ukrainian Sea and Port Authority, and the State Hydrographic Service of Ukraine. The AIS data of all providers is collected on the main server managed by the MSRS. The data operational storage is for 1 month. Since last year Ukraine is upgrading their network. The enhancement is planned by installing 3 new BSs.

Tunisia: No changes to the AIS network since the last meeting. The required preparations have been conducted to install 4 additional BSs. **EMSA** reminded **Tunisia** to communicate their position regarding their participation in the 2nd phase of pilot project (**Action point 11**).

Jordan: No changes since the last meeting.

Morocco: AIS network consists of 14 shore-based stations and the upgrade of the network is planned. Morocco is very much interested in the cooperation and will communicate their readiness to participate in the 2nd phase once their network will be upgraded. **EMSA** stated that the number of BSs is not so important for a successful cooperation, and invited **Morocco** to communicate their position regarding their participation in the 2nd phase of pilot project even before completing the upgrade of their national network (**Action point 12**).

EMSA thanked the Participants and Observers States for the status information and **reminded** to provide updates to the status summary (MAREΣ 17/7/1 document) by e-mail (see Action point 10).

VIII. Agenda Item 8: Regional AIS servers' status (HELCOM and NSATL)

Norway as the hosting country of the North Sea/Atlantic and the HELCOM regional AIS servers presented the status of these servers and the latest implemented solutions. A new back-up centre for AIS exchange was recently implemented which is geographically separated from the main centre. The proxies located at MSs will submit messages to both centres in parallel.

The HELCOM and NSATL RSs participating MSs normally use more than one NPR. The number and status of NPRs per each participating State is presented at the NCA website, which is publicly available. The database server creates daily files of all notifications collected. The historic AIS database is accessible for Member States and allows to download the stored data. **Norway** also briefly introduced the ongoing project on upgrading the national AIS network.

The group **noted** the information provided.

IX. Agenda Item 9: Activities to ensure the AIS data availability

EMSA recalled that in case of a failure (incident) or intervention, affecting connection to the RS or central SSN for more than 12 hours, MSs shall ensure that AIS data are buffered or stored by the national AIS system, allowing their retransmission (either automatically or manually). Member States may provide their stored/buffered data automatically (in the NPR background), or resent manually, or submit via alternative means (e.g. e-mail or FTP).

Italy presented the solution for the AIS data automatic retransmission by the regional server. The presented solution might also be implemented by MSs. It was noted that this solution would require implementing an additional module in MAREΣ, allowing extracting and retransmitting data in the background to the main data stream.

Norway presented their solution on the data manual retransmission by MSs whereby, the data to be resent are extracted from the national AIS system and prepared in standard NMEA format with an IEC TAG Block containing at minimum a timestamp in the 'c' parameter for every sentence. The prepared data should be saved in separate daily files (uniquely named) and placed in a specific folder under the User Proxy installation folder. The NPR will scan the folder, add the country origin information and process new files.

EMSA presented the solution for manual data resending by RSs, through the SSN proxy application functionality. This is similar to the NCA presented solution and also requires preparing the data to be resent in the agreed file format (similar to the TCP format, i.e. with the same comment block and VDM sentence format) and uploading the file in the SSN RH "drop-in box". The uploaded file is then processed by the SSN proxy application. This new functionality has already been tested with RSs. For MAREΣ it requires some additional implementations.

The **group** agreed that the presented solutions of **Norway and Italy** shall be presented in a document and provided to MSs for their evaluation (**Action point 13**).

EMSA provided additional clarification regarding the definition of the terms of data storage, buffering and retransmission as follows:

- AIS data storing means to place data in a repository for permanent storing, keeping the possibility of further retrieval and making it available to the users;
- AIS data buffering means to place data in a storage used to temporarily hold the data. The data are ready for immediate process of transfer to another place (e.g. retransmitted), and;
- Data retransmission means the functionality of re-sending data that have failed to be received during their transmission.

EMSA introduced in brief the planned amendment of Service Level Agreements between EMSA and RSs hosting authorities (the ICG and NCA). The draft amendment will be considered by the EMSA Administrative Board (planned in March 2021).

The participants **noted** the provided information.

X. Agenda Item 10: Recent developments by Italy and Norway

Due to time limitations this item was not presented and will be covered at the next EWG meeting.

XI. Any Other Business

EMSA thanked the participants for their active participation and contribution. The meeting was quite successful, despite of the fact that it was held remotely. The participants were invited to check and update the lists of contact persons and technical representatives of the AIS EWG. The updates (if any) shall be sent by email to EMSA (**Action point 14**).

The Georgian Administration noted that they will assess the possibility to host the next EWG meeting in Batumi, Georgia. In such case they will inform EMSA in due time to allow the necessary logistical preparations (**Action point 15**).

Annexes

Annex 1 – Workshop Agenda
Annex 2 – List of participants
Annex 3 – List of actions

Annex 1 – Workshop Agenda

On-line (Microsoft Teams application) meeting

Tuesday, 27 October 2020

Time (UTC)	Agenda Item	Speakers
10:00	**Agenda Item 1**: Opening of meeting and approval of agenda	EMSA
10:05	**Agenda Item 2**: Wrap up of previous meeting/approval of minutes	EMSA
10:15	**Agenda Item 3**: Follow – up actions from previous meeting	EMSA
10:30	**Agenda Item 4**: European AIS network performance	EMSA
10:45	**Agenda Item 5**: MAREΣ network activity and monitoring	Italy
11:00	**Agenda Item 6**: Status of AIS in MAREΣ Member states	MAREΣ MSs
11:30	**Agenda Item 7**: • Status of AIS in MAREΣ Participants States and Observers States • Status of the SAFEMED and BCSEA projects	MAREΣ Participant States / Observer States/ EMSA
12:00	Break	
12:10	**Agenda Item 8**: • Status of other regional AIS servers (HELCOM and NSATL) • Main outcomes of the HELCOM EWG and NSATL EWG meetings	Norway
12:20	**Agenda Item 9**: AIS data availability • EMSA solution for AIS data retransmission by RSs • Stored data retransmission proposal by Norway • Results of the ICG assessment and the way forward in MAREΣ	EMSA/Italy/Norway
12:50	**Agenda Item 10**: Recent developments by Italy and Norway	Italy / Norway
13:10	**Any other business**	All
13:15	**End of meeting**	EMSA

Annex 2 – List of participants*

Nr	Country	Administration
1	Albania	Ministry of Infrastructure and Energy
2	Bulgaria	Bulgarian Ports Infrastructure Company
3	Bulgaria	Bulgarian Ports Infrastructure Company
4	Bulgaria	Bulgarian Ports Infrastructure Company
5	Croatia	Ministry of the Sea Transport and Infrastructure
6	Croatia	Ministry of the Sea Transport and Infrastructure
7	France	DAM / CEREMA
8	Georgia	LEPL Maritime Transport Agency
9	Georgia	LEPL Maritime Transport Agency
10	Greece	Hellenic Coast Guard
11	Italy	Italian Coast Guard Headquarters
12	Italy	Italian Coast Guard Headquarters
13	Italy	Italian Coast Guard Headquarters
14	Jordan	Jordan Maritime Commission
15	Jordan	Jordan Maritime Commission
16	Jordan	Jordan Maritime Commission
17	Jordan	Jordan Maritime Commission
18	Morocco	Merchant Marine Directorate
19	Morocco	Merchant Marine Directorate
20	Norway	Norwegian Coastal Administration
21	Norway	Norwegian Coastal Administration
22	Portugal	DGRM - General-Directorate of Maritime Resources
23	Romania	Romanian Naval Authority
24	Tunisia	Ministr. de transport et de la logistique
25	Tunisia	Office de La Marine Marchande et des Ports
26	Ukraine	State Enterprise “Maritime Search and Rescue Service"
27	Ukraine	State Enterprise “Maritime Search and Rescue Service"
28	Ukraine	State Enterprise “Maritime Search and Rescue Service"
29	EMSA	Unit 3.3
30	EMSA	Unit 3.3
31	EMSA	Unit 1.3
32	EMSA	Unit 1.3
33	EMSA	Unit 1.3

*The list of participants is available at EMSA.

Annex 3 – List of actions agreed

The agreed actions of the meeting are listed below:

Action point 1: The status of the 16th EWG agreed action points AP3; AP5; AP8; AP10; AP11; AP12 is considered as “closed”, the status of action points AP1; AP2; AP4; AP7; AP9; AP13 as “open until their execution”, and the status of AP6 – as “ongoing”.

Action point 2: EMSA to report to the 18th MAREΣ EWG the results of the assessment regarding changing the down sampling rate for all the T-AIS connections (e.g. from 6 min. to 1 min).

Action point 3: Slovenia to provide the remaining replies to the EMSA questionnaire on AIS status (preferably by mid-January 2021).

Action point 4: Slovenia, France, Portugal, Spain, Jordan and Morocco to provide their replies to the ICG questionnaire on the NPR hosting environment parameters (preferably by mid-December 2021).

Action point 5: EMSA to contact the Member States to collect information for the EU AIS operational manual (December-February).

Action point 6: EMSA, Italy and Jordan to complete the required actions to re-connect the AIS network of Jordan (preferably by the end of December 2020).

Action point 7: MSs to monitor and assess the quality of AIS data received in their networks.

Action point 8: EMSA, Italy and Norway to continue evaluating the “fake positions” problem to identify the best possible solution, including the data filtering option.

Action point 9: Norway to share with Italy and EMSA the available information about the filtering algorithm used in their national system (preferably by January 2021).

Action point 10: MAREΣ participating countries to provide by e-mail to EMSA the necessary updates to the status summary documents (MAREΣ 17/6/1 and MAREΣ 17/7/1 respectively), by mid-December 2020.

Action point 11: Tunisia to communicate their position regarding their participation in the 2nd phase of pilot project.

Action point 12: Morocco to communicate their position regarding their participation in the 2nd phase of pilot project.

Action point 13: EMSA, Italy and Norway to draft a document describing the EWG discussed solutions on the stored data retransmission (preferably by mid-February 2021).

Action point 14: Updates to the lists of contact persons and technical representatives for the AIS EWG (if any) to be send to EMSA by e-mail (preferably by January 2021).

Action point 15: The Georgian Administration to assess the possibility of hosting the next EWG meeting in Batumi, Georgia and inform EMSA accordingly (preferably at the beginning of 2021).

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