

Meeting: 18th Mediterranean AIS Expert Working Group

Place and date: Videoconference, 10 December 2021

Agenda item: Status of AIS networks at the MAREΣ Participants States and Observers States

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Submitted by EMSA

Summary	This document presents the status of AIS networks at the MAREΣ Participant and Observer States, as reported at the Mediterranean AIS Expert Working Group meetings.
Action to be taken	As per paragraph 3.
Related documents	1) MAREΣ 17/7/1 documents 2) 17 th Mediterranean AIS Expert Working Group Workshop report (AP10).

1. Introduction

The status of national AIS networks is regularly updated at each MAREΣ EWG meetings. The 17th Mediterranean AIS Expert Working Group agreed the MAREΣ participants to provide EMSA by e-mail the necessary updates (MAREΣ 17/7/1), by mid-December 2020. Inputs were received from Georgia, Morocco, and Tunisia and incorporated in this document.

The summary of information is presented in paragraph 2.

2. Status of AIS networks

2.1 Georgia

The AIS network includes 2 BSs. The network can receive all messages (1-27) and transmit all relevant messages. The Georgian AIS system supports the downsampling capability. Data from the system to external users can be downsampled from 1 second to hours and the downsampling policy can be applied for each AIS periodic message type (e.g., ITU msg 1, msg 4, etc.).

Since January 2019, Georgia provides data to MAREΣ, on a full data rate (without downsampling). The data rate from the central server to the Georgian NPR is around 3-4 msg/sec. The data filtering capability is supported. Filtering may be applied according to several criteria, e.g., message types, MMSI ranges, areas, ship type and ship flag.

Automatic data retransmission is configured on NPR software for the last 12 hours and with the downsampling rate of 360 sec. The assigned capacity of the NPR hosting environment is 12 hours. All AIS messages are stored in the PELAGUS DBMS database. Rough data are stored in DB in NMEA ITU 1371 format. An automatic provision of archived data is not supported by the system. Data can be retrieved from DB by the IT administrator manually. Installation of additional NPRs is planned.

The back-up server to ensure the continuation of the service is planned to be installed. The 24/7 contingency plan is maintained, and the 24/7 technical support is available. The status of AIS BSs, communication links and NPR connections is monitored through NMS of the PELAGUS system. In March 2019, a Donation Agreement for delivery of 2 AIS Base Stations and 1 Central Node was concluded between the Maritime Transport Agency of Georgia and EMSA and the AIS equipment was received in November 2019. Both BSs are installed at a remote site (the second AIS Base Station is operational since March 2020).

To be updated

What is the data storing policy applied (i.e., for how long the data are stored)?

2.2 Ukraine

The national AIS system consists of three AIS networks:

- the MSRS maintained network (4 BSs),
- the Ukrainian Sea and Port Authority maintained network (10 BSs) and
- the State Hydrographic Service of Ukraine maintained network (15 BSs).

The data down-sampling capability is supported. The AIS data to MAREΣ are provided without downsampling (on a full rate). The applied data throughput was assessed to appr. 65 msg/sec. The assigned space for the buffered data storing (i.e., the NPR hosting environment) is set to 12 hours. A cold stand-by dual NPR configuration is maintained. Automatic retransmission is configured on NPR software for the last 12 hours and with a downsampling of 360 sec.

The AIS data of all providers are collected in the main AIS server managed by MSRS. All data is stored in database (PELAGUS DBMS) in the decoded way. Rough AIS data are stored in DB in NMEA ITU 1371 format. The data that have been gathered since the establishment of the system (2010-2012) is currently available. Data is also made available on-line (for one month). The provision of archived/stored data from the DB is available, but only manually (by the IT administrator).

The formats used to collect/provide data follow the IEC 61162 and IEC 61993-2 standards. The installation of several NPRs is supported. The status of AIS BSs, communications and NPR connections can be monitored using the web solution provided by the contractor. Back-up server to ensure the continuation of the service is available. The technical support service (24/7) is available. The network enhancement is planned in some areas of the Black Sea (5 BSs) and the Azov Sea (3 BSs).

To be updated

- a. What types of AIS messages are/can be received and transmitted by the system?*
- b. Is the data filtering capability supported? If yes, then what settings are/ can be applied?*
- c. The applied data throughput was assessed to appr. 65 msg/sec. Please clarify. Is this the rate for outgoing data (at the server node)? If not, then what is the throughput rate (msg/sec) for outgoing data (at the server node)?*
- d. Is the data buffering and retransmission capability supported by the system (in addition to the MAREΣ NPR)?*
- e. Is the 24/7 contingency plan available?*

2.3 Tunisia

The AIS network is based on two base stations installed in harbours of La Goelette and Bizerte. Since May 2019, the national system provides AIS data to MAREΣ on a full rate (without downsampling). All AIS messages can be received and transmitted (all relevant messages). Downsampling is supported.

The downsampling time interval can be set at any rate from few seconds to hours. The data filtering is supported. Filtering may be applied per message types, MMSI ranges, areas and/or ship types. The applied data throughput was assessed to appr. 65 msg/sec. The data throughput rate for outgoing data (at the server node) is 2,5 to 3 msg/ second. The data buffering and retransmission capability is supported by the system. A Base Station Controller (ELMAN BCS-1135) is used instead of an NPR. The BCS-1135 includes 4 GB memory for local AIS data storage.

The supported data format follows IEC 62320-1 standard. No classic DB is used. However, SQL DB is used on the Base Station Controller. Messages are automatically retransmitted once the connection is resumed after a connection gap. Standard IEC/NMEA sentences are stored together with extended info used to generate Comment Blocks as per IEC 62320-1 standard. The provision of archived data is not supported by the system, only buffered data are resent.

No DB is implemented to store/archive old data. Installation of several NPRs is not supported. Back-up servers to ensure the continuation of the service are unavailable yet. A redundant hardware donated by EMSA is going to replace current installation. Contingency plan is available 24/7 for the power supply. A full 24/7 technical support is not available, only during working hours. The status of AIS BSs, communication links and NPR connections is not monitored (is planned through a PRTG software, after its installation). Additional 4 BSs are planned, allowing to increase the coastline coverage.

To be updated

What is the data storing policy applied (i.e., for how long the data are stored)?

2.4 Morocco

The AIS network is based on 14 shore-based stations (3 along the Mediterranean coast and 11 along the Atlantic coast). In accordance with the recommendation ITU-R M.1371-4 the AIS network can receive all messages (1-27) and can transmit safety messages, binary messages, BS reports, AtoNs reports. Downsampling is supported.

By the actual downsampling policy adopted, the national system is delivering AIS data to MAREΣ with 6 minutes downsampling. The data filtering is supported. Filtering may be applied per message types, MMSI ranges, areas and/or ship types. The applied data throughput was assessed to appr. 65 msg/sec. The data buffering and retransmission capability is not supported by the system, only by the MAREΣ NPR. Automatic data retransmission is configured only on NPR software for the last 12 hours and with the downsampling rate of 360 sec. The assigned capacity of the NPR hosting environment is 12 hours.

The supported format of data: IEC 62320-1. All AIS messages are stored in the System DB in the decoded format. In addition, the standard IEC/NMEA sentences are stored together with reception timestamps. An automatic provision of archived data is not supported by the system. Data can be retrieved from DB by the IT administrator manually. Installation of several NPRs is supported.

Multiple NPRs could be installed in the system Linux server. A back-up server to ensure the continuation of the service is available and the 24/7 contingency plan is maintained. However, the 24/7 technical support is not available. The status of AIS BSs, communication links and NPR connections is monitored. The Web

interface of the AIS national system includes a monitoring page for NPR status and the connection of AIB BS to the central system. Relocation of the AIS server was finalised in 2020.

To be updated

The applied data throughput was assessed to appr. 65 msg/sec. Please clarify. Is this the rate for outgoing data (at the server node)? If not, then what is the throughput rate (msg/sec) for outgoing data (at the server node)?

2.5 Jordan

The AIS network includes 1 shore-based station providing coverage in the Gulf of Aqaba. By the downsampling policy adopted in MAREΣ, the national system was delivering AIS data to MAREΣ without downsampling (at a full rate). The data throughput is assessed to appr. 60 msg/sec. The supported format of data is IEC 62320-1.

To be updated

- a. *What types of AIS messages are/can be received and transmitted by the system?*
- b. *Is the data filtering capability supported? If yes, then what setting are/ can be applied?*
- c. *Is the data buffering and retransmission capability supported by the system (in addition to the MAREΣ NPR)?*
- d. *What is the data storing policy applied (i.e. for how long the data are stored)?*
- e. *The data throughput is assessed to appr. 60 msg/sec. Please clarify. Is this the rate for outgoing data (at the server node)? If not, then what is the throughput rate (msg/sec) for outgoing data (at the server node)?*
- f. *What is the data storing policy applied (i.e. for how long the data are stored)?*
- g. *What is the stored data format?*
- h. *Is the provision of archived data supported by the system? In which format?*
- i. *How the stored/archived data are retrieved from the DB (when needed)?*
- j. *Is the installation of several NPRs supported?*
- k. *Is the back-up server to ensure the continuation of the service available?*
- l. *Is the 24/7 contingency plan maintained?*
- m. *Is the 24/7 technical support available?*
- n. *Is the status of AIS BSs, communication links, the NPR connections monitored? If yes, then how?*

2.6 Montenegro

The existing network of 3 BSs provides information to the VTS, SAR and ADRIREP systems. The data throughput for national server has been assessed to appr. 65 msg/sec. Montenegro exchanges data with MAREΣ on a full rate (without downsampling). The data buffering capability is ensured by the MAREΣ NPR. The assigned capacity of the NPR hosting environment relates to 12 hours of buffering.

Automatic retransmission is configured on NPR software for the last 12 hours of data with a downsampling of 360 sec. Raw AIS data is stored daily in IEC 62320 format, on file system for the last 60 days. In the DB, all data is stored in NMEA ITU 1317 format. The data retransmission is unsupported. Data from DB can be retrieved and resend by IT administrator. Projects related to the VTMS and maritime surveillance improvements are ongoing.

To be updated

1. *What types of AIS messages are/can be received and transmitted by the system?*

- a. The data throughput for national server has been assessed to appr. 65 msg/sec. Please clarify. Is this the rate for outgoing data (at the server node)? If not, then what is the throughput rate (msg/sec) for outgoing data (at the server node)?*
- b. Is the data downsampling capability supported? If yes, then what settings are/ can be applied?*
- c. Is the data filtering capability supported? If yes, then what settings are/ can be applied?*
- d. Is the installation of several NPRs supported?*
- e. Is the back-up server to ensure the continuation of the service available?*
- f. Is the 24/7 contingency plan maintained?*
- g. Is the 24/7 technical support available?*
- h. Is the status of AIS BSs, communication links and NPR connections monitored? If yes, then how?*

3. Action required

MAREΣ Participants and Observer States are **invited to** provide the missing information on their national status of AIS networks.