



Port Call Detection service using Cloud-based infrastructure – outcome of pilot project and possible use in IRD

Facilitation of ship to shore reporting pilot project – 5th meeting

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- At the 2nd meeting of the pilot project (25 September 2019) the group agreed that EMSA would investigate the possibility of detecting global port calls automatically.
- In July 2020 EMSA launched a project to develop a Port Call Detection service.
- The development of the Port Call Detection service took place between September 2020 and February 2021.

Description of the service



- The service automatically detects port calls worldwide by using ship position data available in the High-Performance Integrated Maritime Services' Long Term Storage (HP-IMS LTS).
- The detection heavily depends on the definition of port areas (EU ports partially covered under STMID project and for remaining ports 5 km circle around the coordinates of the port created).
- The processing of the relevant data is executed through dedicated pipelines using Databricks and Azure cloud services.
- The service is a near real time service and is also able to detect port calls retroactively in the period covered by vessel positions stored in the LTS (i.e. data since July 2017 is available).

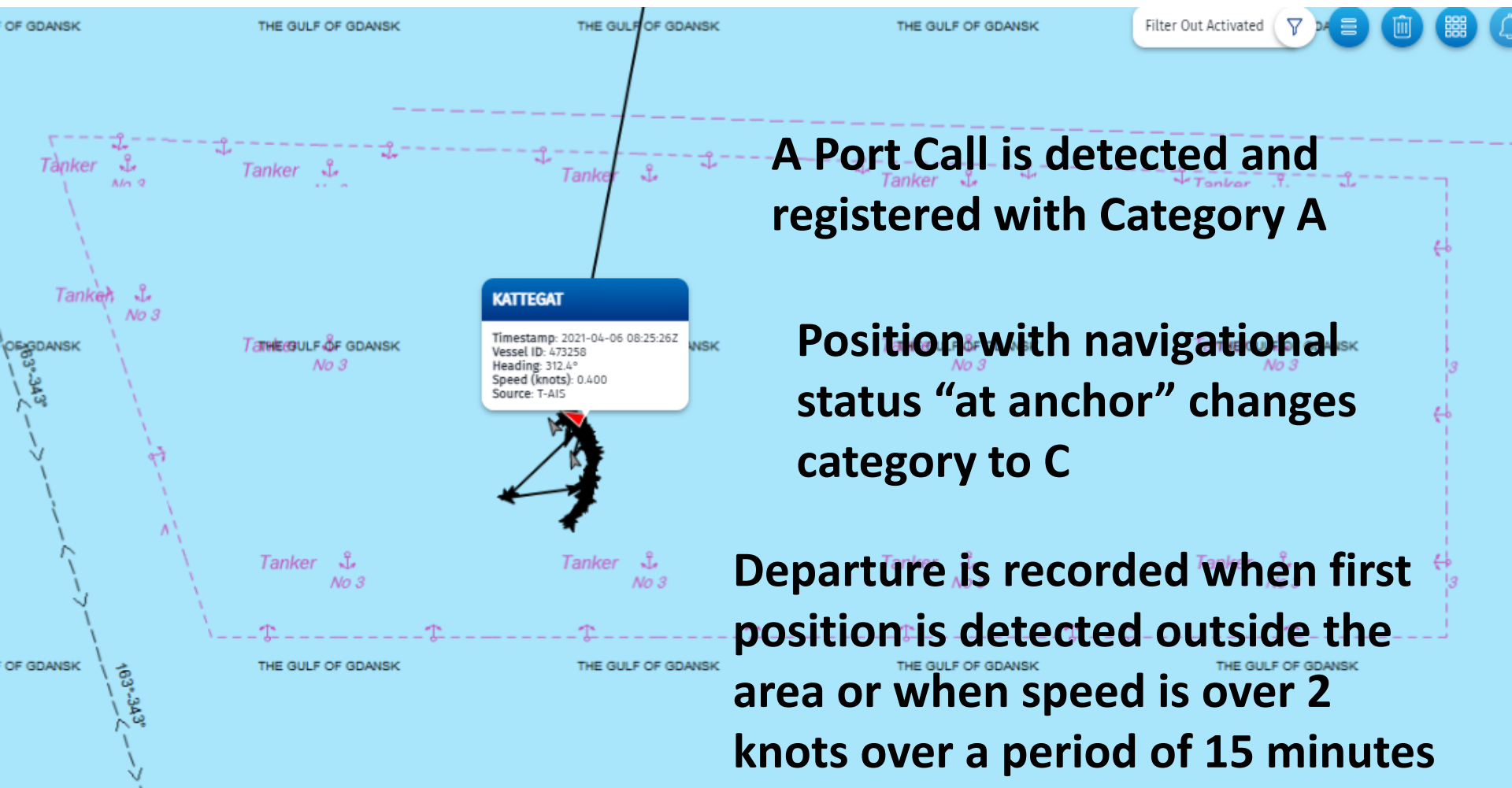
How a port call is detected?



- Vessel positions inside the port area and the speed of the vessel reduced to less than 2 knots over a period of 15 minutes (Category A)
- If the navigational status is set to “moored” for this ship, the category is changed to B.
- If the navigational status is set to “at anchor” for this ship, the category is changed to C.

* A Port Call with ‘Category A’ can remain with this category or can be updated to ‘Category B’ or ‘Category C’. Once a Port Call is updated to either ‘Category B’ or ‘Category C’, its category will not be updated.

How a port call is detected?



What information is stored in the DB?



- Ship identifiers (IMO, MMSI, Name, Callsign, CSDID);
- Location and time of the event corresponding to the arrival in port (i.e. latitude, longitude and timestamp);
- Location and time of the event corresponding to the departure from the port (i.e. latitude, longitude and timestamp);
- Identification of the port (LOCODE);
- Category of the detected port call (A, B or C).



The web service allows the user to retrieve information based on the following criteria's:

- Time period (start and end time);
- Ship IMO number (one or many);
- Ship MMSI number (one or many);
- Ship Flag (one or many)
- UN/LOCODE of the port (one or many).

Use cases



- A user needs to get the list of detected port calls for that ship in the last 30 days or the last 10 port calls for that ship.
- A user needs to obtain a list of vessels that called at a specific port in a defined period from date X to date Y, together with the details (date and time) of the port calls.
- A user needs to obtain the list of all port calls available for a specific vessel.
- EMSA's MSS team performs data quality checks over port call information sent by MS (as per VTMIS Directive).

Improvements already identified



- Separate reprocessing of data from near real time processing;
- Add new filter parameters;
- Improve the quality of port areas definition;
- Improve the information in the LTS archive for vessel positions (null/empty values in specific data columns (e.g. speed, heading)).

Possible use of this service in the IRD



The Integrated Ship Report (ISR) developed within the IRD project has been designed in a way that a new block of data can be added at any time.

A new block of data with the Detected Port Calls could be added to the ISR and made available to the Member States authorities via IRD.

This block of data could present a list of the last 10 port calls detected for the ship or list of port calls detected in last 30 days.



Member States were invited to:

- Take note and to provide feedback on the possible use of the Port Call Detection service in the IRD;
- Express their willingness to test this new service and to help EMSA to validate and improve information on port areas.