Open Data Anomaly Detection System (ODADS) Help

The ODADS is a web based application which is designed specifically to use *Open data sources* for finding anomalies in the Maritime Surveillance (MS) domain.

The current version is able to download AIS data from *MarineTraffic.com*[1] and ports' schedule from ports of *Stockholm*[2], *Norrköping*[3], *Tallinn*[4] and *Helsinki*[5] and *Stockholm pilotage area*[6].

Using the ODADS

- The map provides you the visualized details of the area of interest which is the North of Baltic Sea and Part of the Gulf of Finland.
- Among the five types of vessels that are shown, only the three types of *cargo*, *passenger* and *tanker* are monitored.

Vessel Type	Motioned Vessel	Anchored/Moored vessel
Cargo		
Passenger/Ferry		
Pilot		
Tanker		
Tug		
Anomaly		
Already detected anomaly		

- You can click on each vessel to see more information about the vessel.
- Use Home button on the top right corner of the map to return to the center of the area of interest.
- System attempts to detect anomalies every 10 minutes. Every time that new information arrives, the color of **ANOMALY** tab and suspicious vessels are turned to red. For more information regarding different types of anomaly refer to Anomaly types section.
- In order to inform the user(s) about new anomalies, previous detected anomalies are turned to light red.

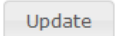[1] http://www.marinetraffic.com/ais/
[2] http://www.stockholmshamnar.se
[3] http://www.norrkoping-port.se
[4] http://www.ts.ee
[5] http://www.portofhelsinki.fi
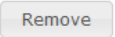[6] http://www.sjofartsverket.se/sv/Infrastruktur-amp-Sjotrafik/Lotsning/Lotsinfo/

- Use **ANOMALY** tab to find out more information about total number of vessels in the area of interest, total number of suspicious vessels and the time of detection. The tab also provides a list of suspicious vessels.
  - Use **Map** button to find a vessel on the map.
- Use **DATASET** tab to find out more information about ports and pilot schedules. In order to see the information, a time interval should be specified (From-To).
- Use **REPORTS** tab to make statistical or graphical reports for the detected anomalies.
  - The *Reports* section provides a list of :
    1. Total number of detected anomalies during a specific period of time by clicking on View Anomaly Counts.
    2. Suspicious vessels during a specific period of time by clicking on View Suspicious Vessels.
  - The lists can be downloaded as excel files.
  - The *Graphics* section visualizes results during a specific period of time as:
    1. An overall statistics of the total number of detected anomalies in a pie chart by clicking on Show Overall Statistics.
    2. A daily statistics of the total number of detected anomalies in a stack bar by clicking on Show Daily Statistics.
- Use **SETTING** tab to add, edit and remove vessels that have smuggling in their background.
  - Use **Add** button to insert a new vessel to the list of *Suspected of Smuggling.* If you want the system inform you about any kind of anomaly regarding to this specific vessel make it *Enabled.*
  - In order to edit vessel's information or make it enable/disable, select the vessel in the table, click on the **Edit** button, make your changes and click on the **Update** button to save them.
  - In order to remove a vessel(s), select that vessel(s) and click on the **Remove** button.
- All tables in each tab support the *sort* and *search* features.

Anomaly types

Abbr.	Anomaly Name	Description
A1	VESSEL NOT INFORM PORT	Vessel's destination does not exist in the port's schedule.
A2	ARRIVAL TIME MISMATCHED	Vessel's ETA does not match with the port's ETA for that vessel.
A3	VESSEL ENTERED PORT WITHOUT NOTICE	A vessel entered a port without informing the port.
A4	VESSEL NOT USED PILOT	A vessel has requested a pilot but did not use

Abbr.	Anomaly Name	Description
		that service.
A5	UNUSUAL TRIP PATTERN	Vessel A which normally travels between ports X and Y, suddenly goes to port Z.
A6	VESSEL NOT LEFT PORT	A vessel has not left a port according to the port's schedule.
A7	VESSEL NOT ENTERED PORT	A vessel has not entered a port and it exists in port's schedule.
A8	VESSEL ORDERED PILOT AND NOT INFORMED PORT	A vessel does not exist in port's schedule and the vessel has requested a pilot
A9	VESSEL MOORED IN PORT	A vessel has moored in a port and has observed somewhere else.
A10	SUSPECTED OF SMUGGLING	A vessel has smuggling in its background and has at least one of the other anomalies.
A1,A5	UNUSUAL TRIP PATTERN AND VESSEL NOT INFORMED PORT	A vessel has VESSEL NOT INFORM PORT and UNUSUAL TRIP PATTERN anomalies.
A2,A5	UNUSUAL TRIP PATTERN AND VESSEL ARRIVAL TIME MISMATCHED	A vessel has ARRIVAL TIME MISMATCHED and UNUSUAL TRIP PATTERN anomalies.
A7,A5	UNUSUAL TRIP PATTERN AND VESSEL NOT ENTERED PORT	A vessel has VESSEL NOT ENTERED PORT and UNUSUAL TRIP PATTERN anomalies.
A8,A5	UNUSUAL TRIP PATTERN AND VESSEL ORDERED PILOT AND NOT INFORMED PORT	A vessel has VESSEL ORDERED PILOT AND NOT INFORMED PORT and UNUSUAL TRIP PATTERN anomalies.
A3,A6	VESSEL ENTERED PORT WITHOUT NOTICE AND NOT LEFT PORT ON TIME	A vessel has VESSEL ENTERED PORT WITHOUT NOTICE and VESSEL NOT LEFT PORT anomalies.
A2,A4	VESSEL ARRIVAL TIME MISMATCHED AND VESSEL NOT USED PILOT	A vessel has ARRIVAL TIME MISMATCHED and VESSEL NOT USED PILOT anomalies.
A2,A4,A5	UNUSUAL TRIP PATTERN AND VESSEL NOT USED PILOT AND VESSEL ARRIVAL TIME MISMATCHED	A vessel has ARRIVAL TIME MISMATCHED and VESSEL NOT USED PILOT and UNUSUAL TRIP PATTERN anomalies.
A4,A5	UNUSUAL TRIP PATTERN AND VESSEL NOT USED PILOT	A vessel has VESSEL NOT USED PILOT and UNUSUAL TRIP PATTERN anomalies.
A7,A4	VESSEL NOT ENTERED PORT AND NOT USED PILOT	A vessel has VESSEL NOT ENTERED PORT and VESSEL NOT USED PILOT anomalies.
A7,A4,A5	UNUSUAL TRIP PATTERN AND VESSEL NOT ENTERED PORT AND VESSEL NOT USED PILOT	A vessel has VESSEL NOT ENTERED PORT and VESSEL NOT USED PILOT and UNUSUAL TRIP PATTERN anomalies.

Abbr.	Anomaly Name	Description
A8,A4	VESSEL ORDERED PILOT AND NOT INFORMED PORT AND VESSEL NOT USED PILOT	A vessel has VESSEL ORDERED PILOT AND NOT INFORMED PORT and VESSEL NOT USED PILOT anomalies.
A8,A4,A5	UNUSUAL TRIP PATTERN AND VESSEL ORDERED PILOT AND NOT INFORMED PORT AND VESSEL NOT USED PILOT	A vessel has VESSEL ORDERED PILOT AND NOT INFORMED PORT and VESSEL NOT USED PILOT and UNUSUAL TRIP PATTERN anomalies.