

FSM MARITIME ATLAS

COMPLETE USER GUIDE · Version 40.53

Operational and research manual | English | 16 November 2026

1. Purpose, scope and limitations

FSM Maritime Atlas is a geospatial analysis and maritime scenario simulation environment. It provides tools for maps, traffic, forces, missions, decisions, evaluation and data provenance. It includes MSCF–IMSA research modules.

IMPORTANT: The application is intended for exercises and research. AIS data are initial snapshots, not continuous operational tracking. Simulated charts and manoeuvres must not be used for actual navigation or operational command.

2. Access, launch and orientation

1. Open the installed application page and select “Start application” or “Open module”, depending on the screen.
2. Choose the RO/EN language if necessary (the EN control is present in the code).
3. Select a scenario and review its description and geographical area.
4. Choose the map and traffic mode before allocating forces.
5. Follow the application’s contextual messages, which identify the next action or validation.

Documented main sequence: 1 Scenario → 2 Map → 3 Traffic → 4 Forces → 5 Orders; followed by analysis, log, saving and closure.

3. Scenarios and exercise setup

The scenario editor supports the definition of position, course, speed and area of interest. The MSCF–IMSA library provides model loading, new scenario creation, map-based position selection, library saving, display and export.

6. Select a template from the scenario library or create a new scenario.
7. Define the initial position, area of interest and relevant objects.
8. Check that the scenario includes suitable resources and events.
9. Save the scenario to the library and export its record when needed.



4. Maps and geographical framing

Selection	Documented behaviour
Romania	General coastal/offshore chart compiled at 1:300,000; Constanța detail at 1:25,000, included locally.
Romania + Bulgaria	Combined display of Romania's charts and online coverage for Bulgaria.
Other countries	Online OpenSeaMap coverage for selected Black Sea or Baltic Sea countries, subject to availability.
Scenario area	Frames the exercise area without moving the scenario or its forces.
AIS vessels	Fits the retrieved AIS vessels without automatically returning to the entire basin.

Available controls include centring, zooming, point selection, loading a public plan, regional framing and the chart catalogue. Enlarging a map does not create additional hydrographic detail. The application may indicate when local coverage is unavailable.

5. Traffic selection: scenario vessels or AIS

Two distinct modes are available: fictional scenario vessels (blue) or AIS vessels (red, labelled NAIS). In AIS mode, the scenario's fictional civilian traffic is replaced, not automatically merged with AIS traffic.

10. At the Traffic step, choose "Scenario vessels" or "AIS vessels".
11. If AIS is selected, wait for the available data for the scenario area to be retrieved.
12. Review the vessels and available parameters: name, position, course and speed.
13. Fit the map to AIS vessels if needed.
14. Continue the exercise: after T0, vessels move within the simulator and are not continuously updated from the live source.

If the free source returns no vessels or incomplete parameters, do not interpret the application as having unavailable data. Start a new session to select another traffic source.

6. Vessel orders and navigation restrictions

Order	Described effect
Avoidance course	The vessel avoids or exits the restricted area.
Specified course	Changes course while retaining speed;



	changing course alone does not start a stopped vessel.
Reduce speed / stop	The vessel slows or stops at its current position.
Departure / assumed parameters	Explicitly sets the course and speed for simulated departure.
Restore initial parameters	Resumes initial course and speed from the position reached in the simulation.

Restrictions can require vessels to avoid an area or stop before its boundary. A moving vessel already inside the area is documented as leaving it and stopping outside. Departure of anchored vessels requires separate authorisation.

7. Forces and assets

Modules V23–V29 cover selection recommendations, editable resources, synthetic positions and states, mission–resource links, kinematics, multi-leg routes, results and restoration. Verify each asset's base, role, position, availability and parameters.

Selecting a force is normally not a departure order. The documented exception is the immediate F-16 response in the Romania UAV scenario; neutralisation conditions remain separate from take-off and confirmation.

8. Information verification, decisions and response

15. Examine the alert and the scenario assumptions.
16. Validate the information or order further verification.
17. Select assets and issue explicit missions or orders.
18. Monitor preparation, movement and arrival at the objective.
19. Confirm the response outcome separately; arrival at the target does not establish success.
20. Determine restoration measures and verify their completion.

The V24 coordination centre, V25 integrated map and V26 adaptive measures preserve the relationship between requests, decisions, forces and the common operational picture.

9. Simulation, kinematics and timeline

The interface includes "▶ Play", "⏸ Pause" and "↺ Reset/T+0", a manoeuvre planner, multi-leg tracks, a timeline and synthetic states at selected T+ times. At decision checkpoints, the exercise clock may wait for operator validation.

21. Verify the initial T0 state and visible objects.



22. Enter manoeuvres or orders according to the user's role.
23. Start the simulation and monitor positions and events.
24. Pause for decisions, confirm results and resume.
25. Record changes in the log and save the project.

10. Research and analysis modules

MSE–IMSA	Persistent overview, concepts and updates; analysis of event impacts.
V17–V20	Scenario library, exercise timeline, decision log, post-exercise assessment and review cycle.
V22–V30	Scenario engine, resource selection, coordination, kinematics, results, restoration and traceability.
Mapping modules	Chart catalogue, layers, measurements and geographical context.
AIS module	Initial vessel snapshot and subsequent simulated movement.
Reporting	Logs, structured exports and exercise reporting.
Audit	Data provenance and verification records.
Research	Analytical and exploratory functions.

11. Cartography, objectives and external data

The application includes an objective and port-entrance editor, electronic layers, public OSM geometries, WMS loading, public port plans, distance measurement, proximity analysis, a chart catalogue, provenance auditing and exports.

To add a layer: select the area and source, load the layer, verify alignment and provenance, register it in the catalogue and export its record. Do not treat a public or synthetic layer as an official navigational chart.

12. Saving, exporting and resuming work

The interface offers "Save complete project", "New project", "Export JSON", "HTML report", "Print / PDF", "CSV log", "Export GeoJSON", "Export audit CSV", "Export evaluation JSON" and "CSV matrix". Available formats depend on the module.

26. Before exporting, review the scenario, traffic, forces, decisions and log.



27. Save the complete project for later restoration.
28. Export an HTML report for presentation and JSON/CSV/GeoJSON for analysis and archiving.
29. Record the date, application version and nature of the AIS data used at T0.

13. Demonstration exercise: incident in the Constanța area

30. Start a new session and select a scenario suitable for the Constanța area.
31. Select the Romania chart and Constanța detail if port-level coverage is required.
32. Choose fictional or AIS traffic; do not assume they are combined.
33. Review the assets and confirm their inclusion in the force package.
34. Validate the warning and request confirmation of the situation.
35. Define a restricted area and issue vessel-specific orders to affected ships.
36. Start the simulation; monitor course/speed changes and asset response.
37. Confirm the results, verify restoration and generate the final report.

14. Troubleshooting and good practices

Observed issue	Recommended check
No AIS vessels appear	Check the area, source availability and retrieval message; do not invent vessels.
Map lacks detail	Check chart scale, catalogue and coverage; zooming adds no new data.
A vessel does not move	Check speed, departure authorisation and whether a course-only order was issued.
Unexpected map framing	Use scenario-area or AIS-only framing as appropriate.
A force remains at base	Check whether a departure order was actually issued.
Exercise clock is paused	Check for a pending validation or decision.
Export is unavailable	Check the active module and whether required data are present.

15. Glossary

AIS	**Automatic Identification System; source of initial vessel data, subject to availability.**
NAIS	Label identifying vessels imported from AIS into the simulated scenario.



T0 / T+	Initial moment / elapsed simulation time.
COG / SOG	Course over ground / speed over ground.
OSM	OpenStreetMap; public geographic data.
WMS	Web Map Service; a service for serving georeferenced map layers.
GeoJSON	Geospatial data exchange format.
Provenance	Record of the origin and processing of data.
Scenario	Defined exercise situation, actors, conditions and events.